



Supporting Rural Community Banks in Western Honduras Project Effectiveness Review

Full Technical Report



Oxfam GB
Women's Empowerment Outcome Indicator
Evaluation Date August/September, 2012
Publication Date February, 2014

Acknowledgments: We would like to thank the staff of ODECO and of Oxfam in Honduras for the excellent support they provided during this exercise. Particular thanks are due to Marlen Gutiérrez, Mariceli Portillo, Carlos Arturo Hernández, Hector Ortega, Mario Roberto Torres, and Mario D. Alvarado.

Photo credit: Gilvan Barreto/Oxfam

Table of contents

Executive Summary	1
1 Introduction and purpose	3
2 Intervention logic of the project	4
3 Impact assessment design	5
3.1 Limitations in pursuing the ‘gold standard’	5
3.2 Alternative evaluation design pursued.....	5
3.3 Selection of project participants and comparison households	7
4 Methods of data collection and analysis	8
4.1 Data collection	8
4.2 Data analysis	9
4.3 Main problems and constraints encountered.....	10
4.4 Follow-up research	10
5 Results	11
5.1 General characteristics	11
5.2 Differences between the supported and comparison households on outcome measures	12
5.2.1 Access to and use of credit	12
5.2.2 Agricultural production and sales	17
5.2.3 Household income	20
5.2.4 Dietary diversity	23
5.2.5 Household wealth indicators	24
5.2.6 Women’s empowerment index.....	26
5.2.7 Women’s involvement in household decision-making	30
5.2.8 Women’s access to resources	31
5.2.9 Women’s public engagement.....	34
5.2.10 Women’s self-perception	36
6 Conclusions and learning considerations	38
6.1 Conclusions	38
6.2 Programme learning considerations.....	40
Appendix 1: Covariate balance following propensity-score matching procedures	41

Executive summary

Under Oxfam Great Britain's (OGB) Global Performance Framework, mature projects are being randomly selected each year for a rigorous assessment of their effectiveness. The project 'Linking APROALCE to local, national and international markets' was one of those selected for an Effectiveness Review in the 2012/13 financial year. This project is the latest in a series of projects carried out since 1998 by Oxfam in partnership with the Organización de Desarrollo de Corquín (ODECO), in support of smallholder farmers in a cluster of communities in the municipality of Belén Gualcho. There have been two main interventions carried out by Oxfam and ODECO in these communities: firstly, to establish and support community banks, with the intention of providing community members with a source of credit for productive investments. Secondly, facilitation of the establishment of APROALCE, a producers' association that provides technical support, credit and a marketing channel for vegetable production from the area.

The Effectiveness Review adopted a quasi-experimental impact evaluation design, comparing households that have benefited from the activities of the Oxfam/ODECO-supported community banks and from the activities of APROALCE, to households that had similar characteristics at the baseline in 1998, but which have not received such support. A household survey was carried out with 103 current and former members of the supported community banks (most of whom have also been members of APROALCE in the past), and with 186 households that are members of more recently established community banks in the neighbouring municipality of San Sebastián. At the analysis stage, the statistical tools of propensity-score matching (PSM) and multivariable regression were used to reduce bias in making comparisons between the supported and comparison households in terms of the various outcome indicators. The outcomes assessed included those related to access to credit, agricultural production and sales, household income, food security and wealth status, and measures of women's empowerment. The data from the women's questionnaire, in particular, informs Oxfam GB's global outcome indicator for women's empowerment.

The results provide clear evidence that current and former members of the Oxfam/ODECO-supported community banks have been able to access larger loans than members of the comparison community banks. The supported households are producing a wider range of crops at a commercial scale, and selling much higher volumes of agricultural produce (around two or two and a half times the volume by weight) as comparison households. Correspondingly, supported households have income that is between 30 and 50 per cent higher on average than comparison households. They also reported having a more diverse diet, and have increased in terms of asset ownership and other wealth indicators since 1998 at a greater rate than the comparison households.

Women in supported households overall demonstrate significantly higher levels of empowerment than do women in comparison households. The components of the women's empowerment index show that supported women are better off in terms of their involvement in decision-making on productive activities and the use of income (though not on some other types of household decisions), and their ownership of strategic assets and their access to credit. Women in the project area take part in meetings of the community banks at much higher rates than do women in the comparison areas, where there has not been so much emphasis on encouraging women's participation in the community banks. Women in supported households also expressed more positive attitudes towards women's roles in the home. Qualitative follow-up research, carried out approximately 12 months after the quantitative survey, confirmed that women in the project area believed the access to credit and also the training provided by the community banks enabled them to improve their ability to communicate and negotiate with husbands over decisions on production and the management of funds within the household.

Oxfam in general, and the Honduras team and partners in particular, are encouraged to consider the following points to enhance learning from this Effectiveness Review:

Supporting Rural Community Banks in Western Honduras – Effectiveness Review

- Consider at the design stage how to ensure the sustainability of community-based structures established under a project such as this.
- Seek future opportunities to apply this programme's positive experience in establishing structures for access to credit which specifically promote women's involvement and empowerment.
- Evaluation of women's empowerment interventions should use a transformative approach to provide further insights into the effect of projects in advancing women's rights and gender equity.

1 Introduction and purpose

Oxfam GB has put in place a Global Performance Framework (GPF) as part of its effort to better understand and communicate its effectiveness, as well as enhance learning across the organisation. This framework requires project/programme teams to annually report output data across six thematic indicator areas. In addition, modest samples of mature projects (e.g. those closing during a given financial year) under each thematic indicator area, are being randomly selected each year and rigorously evaluated. One key focus is on the extent to which they have promoted change in relation to relevant OGB global outcome indicators.

This report documents the findings of an Effectiveness Review of Oxfam and partner ODECO's work supporting households in several communities in western Honduras.

The global outcome indicator for the women's empowerment thematic area is the extent to which targeted women demonstrate greater empowerment, against the median (or 'typical') observation in the comparison area. The household survey that took place in western Honduras in August and September 2012 was part of an effort to capture data on this indicator.

The project randomly selected for the Effectiveness Review, entitled 'Linking APROALCE to local, national and international markets' (HONB69), was a project continuing the support which Oxfam, in partnership with the Organización de Desarrollo de Corquín (ODECO), has provided to an association of smallholder vegetable producers, APROALCE, since 2006. This project is part of an engagement which Oxfam and ODECO have had in the municipality of Belén Gualcho since Hurricane Mitch caused severe destruction in the area in late 1998. In 1999, Oxfam and ODECO facilitated the establishment of four community banks (*cajas rurales de ahorro y crédito*) with the aim of improving livelihoods for smallholders in communities located in particularly high-altitude and relatively inaccessible parts of the municipality. Since that time, these community banks have received support in the form of capacity building and financial capital from Oxfam and ODECO. From 2008 to 2011, the partners provided a line of credit to the banks that specifically required them to lend to women.



Figure 1.1: Area of Honduras where the project was implemented: the municipality of Belén Gualcho

The producer association APROALCE was established in 2006 from the membership of the community banks. APROALCE has since cut down its membership to the core group of 35 households that produce vegetables on a significant scale; at the same time, its commercial activities have expanded so that it now purchases from selected producers over a wide geographic area and sells on to national supermarket chains.

The programme activities under review included the establishment of and support to community banks, as well as the later creation of a producer's association.

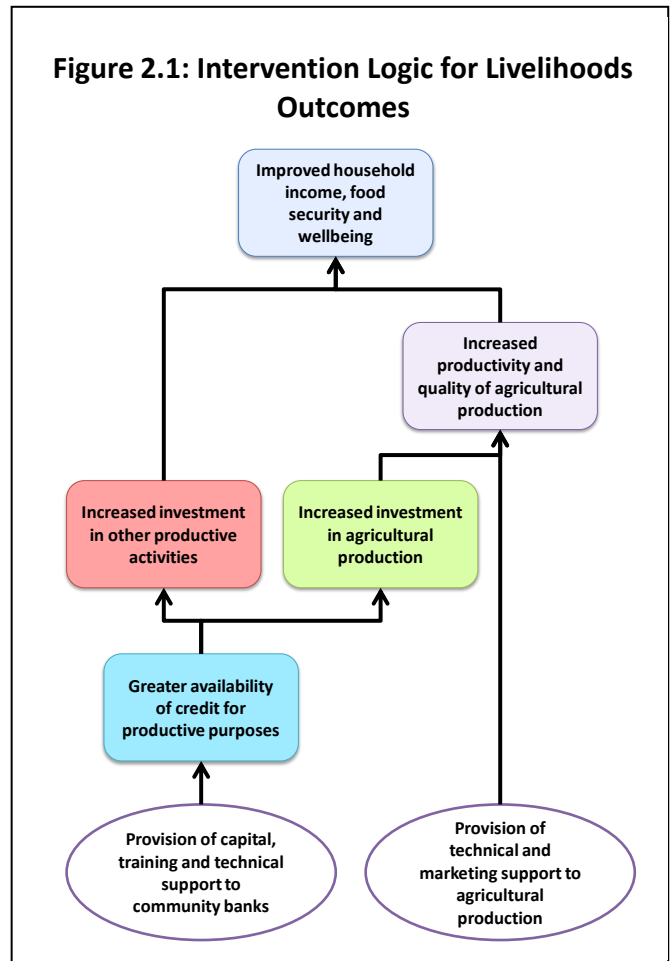
It was clear that assessing the impact of APROALCE on members of the communities where it operates could not be distinguished from the impact of the community banks: the two types of association until recently had common membership, and both provided credit to members for agricultural activities. For that reason, the Effectiveness Review considers the impact on households from participation in both the community banks and APROALCE, together.

This report presents the findings resulting from a process where data were collected and compared from current and former members of the Oxfam-supported community banks, and members of community banks in a neighbouring municipality that have not received such support.

Section 2 of this report reviews the intervention logic of the project under consideration. Section 3 and Section 4 follow by presenting the impact evaluation design that was used and the methods of data collection and analysis, respectively. Section 5 presents the results of the analysis of the data. Section 6 concludes with a summary of the results found and some programme learning considerations.

2 Intervention logic of the project

Figure 2.1 presents a simple logic model for how the activities carried out in support of the community banks and of APROALCE are intended to have resulted in improved overall household wellbeing. The original motivation for establishing the community banks was to provide smallholders with credit to invest in making their agricultural production more efficient, though investments in other productive activities have also been encouraged. In more recent years, training, technical support and further credit has been provided to producers through APROALCE – as well as, importantly, the marketing APROALCE



does of the vegetable produce of its members. These activities are all clearly intended to increase the income generated from agricultural activities.

The link with women's empowerment outcomes has been less explicit for most of the project's lifetime. The project partners did not initially emphasise targeting women for recruitment into the community banks, though women's participation has always been high. Later, increasing access to credit for women has become an explicit aim of this work: in 2008 Oxfam and ODECO made a specific line of credit available to the community banks for lending to women.

3 Impact assessment design

3.1 Limitations in pursuing the 'gold standard'

A social programme's net effect is typically defined as the average gain participants realise in outcome (e.g. improved household food security) from their participation. In other words:

Impact = *average post-programme outcome of participants minus what the average post-programme outcome of these same participants would have been had they never participated*

The effectiveness review attempted to ascertain what would have happened in the intervention communities had the project not been implemented.

This formula seems straightforward enough. However, *directly* obtaining data on the latter part of the equation – commonly referred to as the counterfactual – is logically impossible. This is because a person, household, community, etc. cannot *simultaneously* both participate and not participate in a programme. The counterfactual state can therefore never be observed directly; it can only be estimated.

The randomised experiment is regarded by many as the most credible way of estimating the counterfactual, particularly when the number of units (e.g. people, households, or, in some cases, communities) that are being targeted is large. The random assignment of a sufficiently large number of such units to intervention and control groups should ensure that the statistical attributes of the two resulting groups are similar in terms of their a) pre-programme outcomes (e.g. both groups have the same average incomes); and b) observed characteristics (e.g. education levels) and unobserved characteristics (e.g. motivation) relevant to the outcome variables of interest. In other words, randomisation works to ensure that the *potential outcomes* of both groups are the same. As a result – provided that threats such as differential attrition and intervention spillover are minimal – any observed outcome differences observed at follow-up between the groups can be attributed to the programme.

However, implementing an ideal impact assessment design like this is only possible if it is integrated into the programme design from the start, since it requires the introduction of some random element that influences participation. To evaluate an ongoing or completed programme – as in this Effectiveness Review – or one where randomisation is judged to be impractical, it is therefore necessary to apply alternative techniques to approximate the counterfactual as closely as possible.

3.2 Alternative evaluation design pursued

There are several evaluation designs when the comparison group is non-equivalent that can – particularly when certain assumptions are made – identify reasonably precise intervention effects. One solution is offered by

matching: finding units in an external comparison group that possess the same characteristics, e.g. ethnicity, age, and sex, relevant to the outcome variable as those of the intervention group and matching them on the bases of these characteristics. If matching is done properly in this way, the observed characteristics of the matched comparison group will be identical to those of the intervention group.

The problem, however, with conventional matching methods is that, with large numbers of characteristics on which to match, it is difficult to find comparators with similar combinations of characteristics for each of the units in the intervention group. The end result, typically, is that only a few units from the intervention and comparison groups get matched up. This not only significantly reduces the size of the sample but also limits the extent the findings can be generalised to all programme participants. (This is referred to as the ‘curse of dimensionality’ in the literature.)

Fortunately, matching on the basis of the propensity score – the conditional probability of being assigned to the programme group, given particular background variables or observable characteristics – offers a way out. The way propensity-score matching (PSM) works is as follows. Units from both the intervention and comparison groups are pooled. A statistical probability model is estimated, typically through logit or probit regression. This is used to estimate programme participation probabilities for all units in the pooled sample. Intervention and comparison units are then matched within certain ranges of their conditional probability scores. Tests are further carried out to assess whether the distributions of characteristics are similar in both groups after matching. If not, the matching bandwidth or calliper is repeatedly narrowed until the observed characteristics of the groups are statistically similar. Provided that a) the dataset in question is rich and of good quality; b) the groups possess many units with common characteristics (i.e. there is a large area of common support); and c) there are no unobserved differences relevant to the outcome lurking among the groups, PSM is capable of identifying unbiased intervention effects.

In an attempt to mitigate bias in estimates of outcomes, two statistical procedures were used: propensity score matching and multi-variable regression.

Multivariable regression is another approach that is also used to control for measured differences between intervention and comparison groups. It operates differently from PSM in that it seeks to isolate the variation in the outcome variable explained by being in the intervention group *net of other explanatory variables* (key factors that explain variability in outcome) included in the model. The validity of both PSM and multivariable regression are founded heavily on the ‘selection on observables’ assumption, and, therefore, treatment effect estimates can be biased if unmeasured (or improperly measured) but relevant differences exist between the groups.¹ Both PSM and multivariable regression were used to analyse the data collected under this Effectiveness Review, and efforts were made to capture key explanatory variables believed to be relevant in terms of the assessed outcomes, e.g. sex and age of household head, education levels, etc. (see Section 4 below.)

While no baseline data were available, efforts were made, as explained below, to reconstruct it through respondent recall. This method does have limitations, e.g. memory failure, confusion between time periods, etc. However, for data that can be sensibly recalled, e.g. ownership of particular household assets, it can serve to enhance the validity of a cross-sectional

¹ One of the MVR procedures that was used attempted to control for possible unobserved differences between the groups. This is the Heckman selection model or two-step estimator. Here, efforts are made to directly control for the part of the error term associated with the participation equation that is correlated with both participation and non-participation. The effectiveness of this method, however, depends, in part, how well the drivers of participation are modelled.

Survey respondents were asked to recall some basic information about their household from a time before the programme activities began.

impact evaluation design. The reconstructed baseline data were used in two ways. First, several of the variables included in the PSM and regression procedures were baseline variables constructed from recalled baseline data. For example, one variable was related to the respondent's wealth status at baseline, derived through the construction of a household wealth index based on asset ownership and other wealth indicators. This was done in an attempt to control for baseline wealth differences between the intervention and comparison groups.

The second way the reconstructed baseline data were used was to derive pseudo difference-in-difference intervention effect estimates. With longitudinal or panel data, this is implemented by subtracting each unit's baseline measure of outcome from its endline measure of outcome (i.e. endline outcome status minus baseline outcome status). The intention here is to control for time invariant differences between the groups. Bearing in mind the limitations associated with recalled baseline data, using PSM and/or regression and the difference-in-difference approaches together is considered to be a strong quasi-experimental impact evaluation design.

3.3 Selection of project participants and comparison households

A key factor in ensuring the validity of any non-randomised impact evaluation design is to use an appropriate comparison group. This is particularly true for ex-post, cross-sectional designs. Comparators that differ in relevant baseline characteristics and/or that are subjected to different external events and influences are likely to result in misleading conclusions about programme impact. Identifying a plausible comparison group is therefore critically important and is, generally speaking, not an easy task in non-experimental work.

As mentioned above, the project was implemented in a cluster of communities in a specific area of the municipality of Belén Gualcho. Community members were free to choose whether to become members of the community banks. This means that the community bank members are likely to differ systematically in terms of their motivation, willingness to take risk, and in other difficult-to-measure characteristics from those who did not choose to become community bank members. It was clear, then, that comparing the members of the supported community banks to the general population in comparison communities would result in biased estimates of impact.

The approach adopted instead was to use as a comparison group members of community banks in other communities that had an established membership, but which had not received support of a similar nature to that provided by the Oxfam/ODECO projects to the four supported community banks. Those who joined community banks in other communities could be expected to be similar in terms of their motivation and other unobservable characteristics as those who have participated in the Oxfam/ODECO-supported community banks.

In recent years, a Honduran government initiative called PRONADER has promoted the creation of community banks across the region. Approximately 20 community banks were identified in other areas of the municipality of Belén Gualcho which have been created in recent years. Unfortunately, however, many of these alternative community banks were located either in or close to the principle town of the municipality (so making them inappropriate for comparison to the rural area where the project was implemented). The remaining community banks in the municipality were all

located in communities where another Oxfam/ODECO project has provided agricultural support since 2009. Although this project did not provide support specifically to the community banks, it was thought to be very likely that many of the community bank members had participated in the project. Since that project was also expected to have resulted in positive changes in agricultural production, household wellbeing and women's empowerment, they would not have provided a 'clean' comparison group for examining the impact of the community banks on these outcomes.

Comparison respondents were taken from among the membership of recently-established community banks in the neighbouring municipality of San Sebastián.

Having exhausted the possibilities for finding a suitable comparison group within the municipality of Belén Gualcho, the Effectiveness Review team instead identified some community banks in the areas of the municipality of San Sebastián neighbouring the project area. Municipal officials provided the team with information on community banks in the appropriate area which had been established under the PRONADER project. Visits to these communities confirmed that they were located in areas topographically similar to the project area in Belén Gualcho (many were facing the Belén Gualcho communities on the next mountain, across a large valley), and that the community banks had received only a small capital injection and minimal training for office holders. This appeared to be typical of the community banks established under PRONADER, and was thought to be a good counterfactual for the project activities: if the Oxfam/ODECO-supported community banks had not already existed in the project area, then probably most of those who were members would have established a PRONADER-type community bank instead. On the other hand, the disadvantage with using comparison communities from a different municipality to the project area is that local amenities or leadership may also differ between the two areas, which increases uncertainty in making inferences about the effects of the project. (One particularly difficult conflating effect is discussed in Section 4.3 below.)

4 Methods of data collection and analysis

4.1 Data collection

A household questionnaire was developed by Oxfam staff and the consultant in order to capture data on various measures associated with the project's intervention logic presented in Section 2. Data for other key demographic and baseline characteristics of the interviewed households were also obtained to implement the evaluation design described in Section 3. The questionnaire was tested by means of practical exercises during the enumerator training, and was subsequently revised.

The questionnaires were administered by a team of 14 enumerators, recruited and managed by ODECO. Fifteen candidates participated in a two-day training workshop, following which one of the candidates chose not to participate in the fieldwork.

Lists of the current members of the four community banks, as well as of those who had been members in 2009, were provided to the survey team by ODECO. Efforts were made to identify which community bank members came from the same households. A small number of former members of the community banks who had been involved in a dispute with APROALCE were excluded from this list, leading to a list of 166 households to be targeted for interview. While carrying out the work, the survey team found that in fact some of those included on the list were members of the same households, while others had moved away or were deceased or could not be located,

leading to the final number of households represented in the current and former membership of the community banks interviewed being 109.

Oxfam and former ODECO staff visited communities in the neighbouring municipality of San Sebastián in order to identify comparison respondents. Communities located in areas topographically similar to the Oxfam/ODECO-supported communities in Belén Gualcho and where community banks existed which had not received external support other than the limited capital and training provided by PRODNADER (as discussed in Section 3.3 above) were deliberately chosen. In each comparison community, the survey team interviewed all members of the community banks who were available and willing to participate. This led to a total of 244 households being interviewed, from 13 community banks in the municipality of San Sebastián.

The first part of the questionnaire was carried out with any adult member of the household; the second part was carried out only with women household members.

The first part of the survey contained questions relating to demographics, agricultural activities, the use of credit, and the household's economic situation. This part of the survey was conducted with any adult member of the household: often, more than one household member was involved in responding, since different members tended to have best knowledge of different aspects of the household's affairs. The second part of the survey consisted of questions relating to women's empowerment outcomes. This was carried out with female respondents only: either the head of household (in the case of female-headed households), or the wife or partner of the head of household, in male-headed households. In a small number of cases (eight of the supported households and ten of the comparison households), the male respondent did not have a wife or partner, so the women's questionnaire was not carried out.

The work of the enumerators was closely monitored and scrutinised by the consultant and, during the first three days of the fieldwork, by Oxfam's Oxford-based adviser.

4.2 Data analysis

Oxfam developed a data-entry interface in Adobe Acrobat, and data entry was carried out by a team of temporary staff under the supervision of the consultant. Data analysis was performed in Stata by staff from OGB's office in Oxford.

The results of this analysis are presented in Section 5. Most of the analyses involved group mean comparisons using *t*-tests, as well as propensity-score matching (PSM) with the *psmatch2* module and various multivariable regression approaches. PSM was implemented using both kernel and nearest-neighbour matching without replacement. Backwards stepwise regression was used to identify those variables correlated with either being in an intervention village or a farmer group at *p*-values greater than 0.25. Covariate balance was checked following the implementation of each matching procedure, and efforts were made to ensure that the covariates were balanced across groups at *p*-values greater than 0.25. Bootstrapped standard errors enabled the generation of confidence intervals for statistical hypothesis testing. (See Appendix 1 for further details.)

All the covariates presented in Table 5.1 were included in the various regression approaches undertaken, i.e. regression with robust standard errors (to address issues of heteroscedasticity), robust regression (to reduce the influence of outliers), and regression with control functions (to attempt to control for relevant unobserved differences between the intervention and comparison groups).

4.3 Main problems and constraints encountered

During the survey work, a number of factors were identified that it was necessary to take account of at the analysis stage:

- One of the community banks whose members were interviewed for comparison purposes was in a community (Cutal) located very close to Tuyal, where one of the supported community banks is located. One of the members of the Tuyal community bank lives in Cutal. Because of the possibility of ‘spillover’ from the support provided to the Tuyal community bank to other households in Cutal, it was decided to exclude the 21 comparison households interviewed in Cutal from the analysis.
- Some members of the community banks had not had their own households at baseline (1998) because they were then children or young adults living with their parents. For the reasons discussed in Section 3.2, it is important to control for the baseline wealth status of households in making assessments of outcomes. It would clearly not be appropriate to control for the characteristics of *parents’* households in 1998 when making assessments of outcomes at the level of their *children’s* households in 2012. Regrettably, then, the respondents interviewed who had not had their own household in 1998 had to be excluded from the analysis: this applied to six of the 109 supported households, and to 37 of the 223 comparison households.
- During the survey work, it became clear that another organisation that provides training, technical support and marketing assistance to smallholders, Aldea Global, was also more active in the area of the project being evaluated than the comparison area. Aldea Global was said to have been operating in the municipality of San Sebastián as well as Belén Gualcho – though it appears that their activities in San Sebastián were less intense. Since this difficulty was not known in advance of the survey being launched, no data on support received from Aldea Global (or any other organisations) were collected in the survey. However, respondents were asked about whether they had made any sales of produce via Aldea Global during the 12 months prior to the survey: ten of the members and former members of the Oxfam/ODECO-supported community banks had made sales to Aldea Global (five of which had also sold some produce to APROALCE), but none of the members of the comparison community banks had done. It was considered that this variable about commercial transactions was a reasonably good indicator of whether a household had received support from Aldea Global in the recent past. In the analysis of outcomes in Section 5.2, outcomes are checked for robustness to the presence of a commercial relationship with Aldea Global by adding the binary variable for having made sales to Aldea Global as a covariate to the regression models. These tests cannot exclude the possibility that positive results are partly a result of Aldea Global’s activities rather than Oxfam’s, but they can improve confidence that it is not a problem.

Community bank members that had formed their household since 1998 could not be included in the Effectiveness Review, because comparison with the recalled baseline data would not be meaningful.

4.4 Follow-up research

Following the analysis of the findings from this Effectiveness Review, an external consultant was engaged to conduct comparative qualitative research among the communities in Belén Gualcho and San Sebastián, to provide more insight into the mechanisms behind the results achieved. Focus groups among community bank members and APROALCE members in both municipalities were carried out in August/September 2013, approximately 12 months after the quantitative survey. The report from this research is available separately, but key findings are mentioned in the discussion of results in Section 5 of this report.

5 Results

5.1 General characteristics

Table 5.1 presents summary statistics on the demographic and baseline characteristics contained in the survey, and compares the averages between the households supported by the project (the ‘intervention’ households) and the comparison households. The asterisks beside the numbers indicate differences in averages between the groups that are statistically significant at a 90 per cent confidence level or greater.

There are various significant differences between the supported and comparison households. In particular:

- Households of members of the supported community banks are larger on average than comparison households, with approximately 0.5 more adult members.
- The heads of supported households were also slightly older on average than the heads of comparison households.
- Levels of education were considerably higher among the supported households than comparison households. For example, the heads of 7 per cent of the supported households had some secondary education; among comparison households, the corresponding figure was only 2 per cent.
- Supported households reported having been engaged in growing vegetables, growing coffee and tending livestock at baseline in 1998 at greater rates than did the comparison households, but also reported having had fewer non-agricultural sources of income at that time. Supported households reported having been considerably better off (in terms of indicators such as their ownership of livestock, household goods and other assets²²) in 1998 than were the comparison households.

Table 5.1: Descriptive statistics: covariate comparison between treatment groups

	Intervention	Comparison	Difference	t-statistic
	Mean	Mean		
Walking distance of house to centre of community	22.175	25.468	-3.293	-0.77
Female respondent is head of household	0.136	0.081	0.055	1.50
Household size	6.408	5.914	0.494*	1.72
Number of adults	3.553	3.086	0.467**	2.57
All adults in household are aged over 60 years	0.010	0.005	0.004	0.42
Only one adult in household	0.019	0.022	-0.002	-0.12
Household head is female	0.058	0.075	-0.017	-0.54
Age of household head	47.670	44.140	3.530**	2.27
Household head has some primary education	0.835	0.726	0.109**	2.10
Number of adults with some primary education	3.117	2.414	0.703***	3.91
Household head has some secondary education	0.068	0.022	0.046**	1.98
Number of adults with some secondary education	0.456	0.167	0.290***	3.86
Household head engages in productive activity	0.951	0.962	-0.011	-0.31
Number of productive adults	3.301	2.833	0.468***	2.72
Productive activities of the household in 1998:				
Traditional farming (<i>granos básicos</i>)	0.932	0.941	-0.009	-0.30
Vegetable farming	0.388	0.102	0.286***	6.13
Coffee farming	0.126	0.054	0.072**	2.19
Rearing small livestock	0.641	0.484	0.157**	2.58
Cattle rearing	0.194	0.048	0.146***	4.05
Number of other livelihood activities in 1998	1.010	1.253	-0.243**	-2.00
Land area farmed in 1998	1.376	1.306	0.070	0.47
Number of crop types produced in 1998	3.961	2.403	1.558***	6.57
Number of crop types sold in 1998	2.087	0.613	1.474***	7.27
Wealth index 1998	0.467	-0.258	0.725***	3.42
Poorest third in 1998	0.214	0.414	-0.200***	-3.50
Middle third in 1998	0.320	0.328	-0.008	-0.13
Wealthiest third in 1998	0.466	0.258	0.208***	3.67
Observations	103	186	289	

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

²² The construction of the household wealth index is discussed in detail in Section 5.2.5 below.

- In terms of their aggregated household asset index in 1998, only 21 per cent of supported households were in the lower third of the surveyed households overall; 47 per cent were in the top third.

The apparent baseline differences between the supported and comparison households could be influenced by recall errors: if so, this would imply that the results on the outcome measures considered later in this report may be underestimated.

It should be noted that there is a possibility that some of the apparent baseline differences between supported and comparison households could be influenced by recall error. Given that respondents were being asked to recall this information from a period 14 years before the time of the survey, there is clearly potential for errors to be made, in spite of the use of Hurricane Mitch (a major disaster which everyone in the region recalls with clarity) as a landmark. If, as seems natural, respondents tended to make the mistake that their situation at the baseline was more like their current situation than it really was, then the estimates of outcomes derived in Section 5.1 would be underestimated. This conclusion may be given weight by the observation that vegetable farming is not thought in reality to have been carried out by as many as 39 per cent of households in the project area in 1998.

However, since the presence of baseline recall bias can neither be confirmed nor its size estimated, the reported baseline data will be taken as being accurate in the quantitative analysis of outcomes in Section 5.2. All the baseline and demographic characteristics detailed in Table 5.1 have been controlled for in making estimates of the differences between supported and comparison households in terms of outcome measures.

5.2 Differences between the supported and comparison households on outcome measures

This section will examine the differences between the households supported by this project and the comparison households in terms of various outcome measures corresponding to steps in the logic model presented in Section 2. We will start by examining differences in terms of households' access to and use of credit, followed by their agricultural activities and household wellbeing, and then analyse outcomes on women's empowerment.

5.2.1 Access to and use of credit

The establishment of the four community banks in the project area was intended to provide local people with opportunities for accessing credit – particularly for agricultural use – that were unavailable to them otherwise.

Table 5.2 investigates the differences between supported households and comparison households in terms of their access to and use of credit. The upper section of the table shows the raw unadjusted differences in the values for each indicator. The second section uses two different forms of propensity-score matching (PSM), and the third section uses three different regression models to generate estimates of the difference between supported and comparison households in the outcome measure, after controlling for demographic and baseline differences.

The asterisks beside some of the estimated differences in Table 5.2 signify that the results are statistically significant at a confidence level of 10 per cent or higher. It should be remembered that in carrying out the survey for this Effectiveness Review, all the households represented in the membership of the supported community banks as of 2009 were targeted to be interviewed. This means that the intervention group in the dataset represents the whole population of the project participants (with the exception of those who could not be located or interviewed), rather than simply a *sample* of participants –

Survey respondents in the project and comparison areas reported that the community banks are their main source of credit, at least for a loan of 2,000 lempiras.

so the issue of sampling error does not arise. This makes the interpretation of statistical significance tests in this report less meaningful. However, when estimated differences between the intervention and comparison groups do reach standards for statistical significance (or at least have relatively high *t*-statistics), this gives added confidence in drawing conclusions that those differences represent effects of the project, rather than being due to random variation in the population.

Column 1 of the table presents the results of a survey question in which respondents were asked to state from which sources they would be able to borrow 2,000 lempiras (approximately US\$ 100) if they needed it to invest in a business opportunity. Households on average mentioned 1.2 sources of credit being available to them, with the number of sources reported by the supported households slightly higher than that by the comparison households. Comparing the overall results with column 2 shows that most of the credit available to these households is from community banks; this supports the conclusion that without these community banks, few households would have access to credit. Column 2 also shows that there is little or no difference between the supported and comparison households overall in the proportion who would be able to borrow 2,000 lempiras from a community bank: the estimates of the difference are negative or zero.

Table 5.2: Access to and use of credit, and savings behaviour

	1	2	3	4	5	6	7	8
	Number of potential sources of credit	Community bank mentioned as a potential source of credit for the household	Household has borrowed from community bank in past 12 months	Total amount borrowed in past 12 months (lempiras)	Total amount borrowed in past 12 months (natural logarithm of 1 + amount in lempiras)	Total amount borrowed from community bank in past 12 months (lempiras)	Total amount borrowed from community bank in past 12 months (natural logarithm of 1 + amount in lempiras)	Savings deposits made in the last month (lempiras)
Unadjusted								
Intervention group mean:	1.398	0.806	0.573	6678	5.861	4299	4.971	177.7
Comparison group mean:	1.118	0.839	0.640	2950	5.818	2404	5.147	56.7
Unadjusted difference:	0.280***	-0.033	-0.067	3728***	0.044	1895***	-0.177	121.0
	(2.89)	(-0.71)	(-1.12)	(3.66)	(0.09)	(3.50)	(-0.36)	(0.93)
Observations:	289	289	289	289	289	289	289	289
PSM								
Post-matching difference: (kernel)	0.119	-0.075	-0.150**	2003	-0.816	602	-1.012	-571.5
	(0.76)	(-1.39)	(-2.07)	(1.51)	(-1.48)	(0.58)	(-1.50)	(-1.04)
Observations:	278	278	278	278	278	278	278	278
Post-matching difference: (no replacement)	0.127	0.000	-0.076	3435***	-0.289	2216***	-0.265	-105.7
	(0.87)	(0.00)	(-0.97)	(2.67)	(-0.47)	(2.61)	(-0.41)	(-0.84)
Observations:	265	265	265	265	265	265	265	265
Multivariable regression								
MVR coefficient: (with robust standard errors)	0.080	-0.049	-0.089	2820***	-0.200	1778**	-0.265	-172.0
	(0.55)	(-0.96)	(-1.19)	(2.67)	(-0.36)	(2.17)	(-0.43)	(-1.00)
Observations:	273	273	273	273	273	273	273	273
MVR coefficient: (robust regression)	n/a	n/a	n/a	705	0.126	447	-0.277	n/a
				(1.61)	(0.19)	(1.10)	(-0.39)	
Observations:				273	273	273	273	
MVR coefficient: (with control functions)	0.049	-0.062	-0.115	2838***	-0.376	1666**	-0.473	-137.8
	(0.33)	(-1.30)	(-1.55)	(2.72)	(-0.69)	(2.05)	(-0.79)	(-0.91)
Observations:	289	289	289	289	289	289	289	289

t-statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented.

It is important to remember that 43 per cent of those included in the group of ‘supported’ households were former members of their local community bank, but were no longer members by the time of the survey. Even though the Oxfam/ODECO-supported community banks are intended to make loans available to non-members in their communities as well as to members, it seems most likely that most of the former members would no longer consider themselves as being eligible to borrow from the community bank. Table 5.3 investigates the difference in the outcome measures between former and current members of the community banks. This determination of current membership status was made from ODECO’s records, thought to be less prone to error than households’ self-reported membership status in the questionnaire.

Table 5.3 repeats the regression analysis (with robust standard errors) of some of the outcome variables considered in Table 5.2, but after adding a dummy variable which is defined to be positive only for those households that are current members of a supported community bank. (Recall that in the comparison group, all those interviewed were current members.) The first column shows the intervention coefficient after adding this dummy variable, and the second columns shows the coefficient on the dummy variable itself.

The fact that the intervention variable for the model of the number of potential sources of credit changes little when the interaction coefficient is added shows that there is little or no difference between current and former members on the number of potential sources of credit. In fact, the former community bank members are significantly more likely than current members to claim that they would be able to borrow from a neighbour or relative or from a business or trader if they wanted to; the availability of these alternative sources of credit may explain why these households have not maintained their membership of the community bank. The second row of Table 5.3 confirms that credit from the community bank is more accessible to current members than former members.

Column 3 of Table 5.2 shows differences between the supported and comparison households in terms of the proportions that reported they had borrowed from the community bank during the 12 months prior to the survey. The proportion of support households that had taken a loan from a community bank is lower overall than the corresponding proportion of comparison households – but the third line of Table 5.3 suggests that this is

Table 5.3: Results of regression model for credit and savings outcomes, after adding a dummy variable for current membership of a supported community bank

	Intervention coefficient after adding dummy variable for current membership	Coefficient on dummy variable for current membership
Number of potential sources of credit	0.078 (0.35)	0.018 (0.07)
Community bank is a potential source of credit for the household	-0.159** (-2.57)	0.163*** (4.05)
Household has borrowed from community bank in past 12 months	-0.193* (-1.95)	0.205 (1.85)
Total amount borrowed in past 12 months (lempiras)	2466* (1.78)	908 (0.46)
Total amount borrowed in past 12 months (natural logarithm of 1 + amount in lempiras)	-0.546 (-0.70)	0.868 (0.92)

t-statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

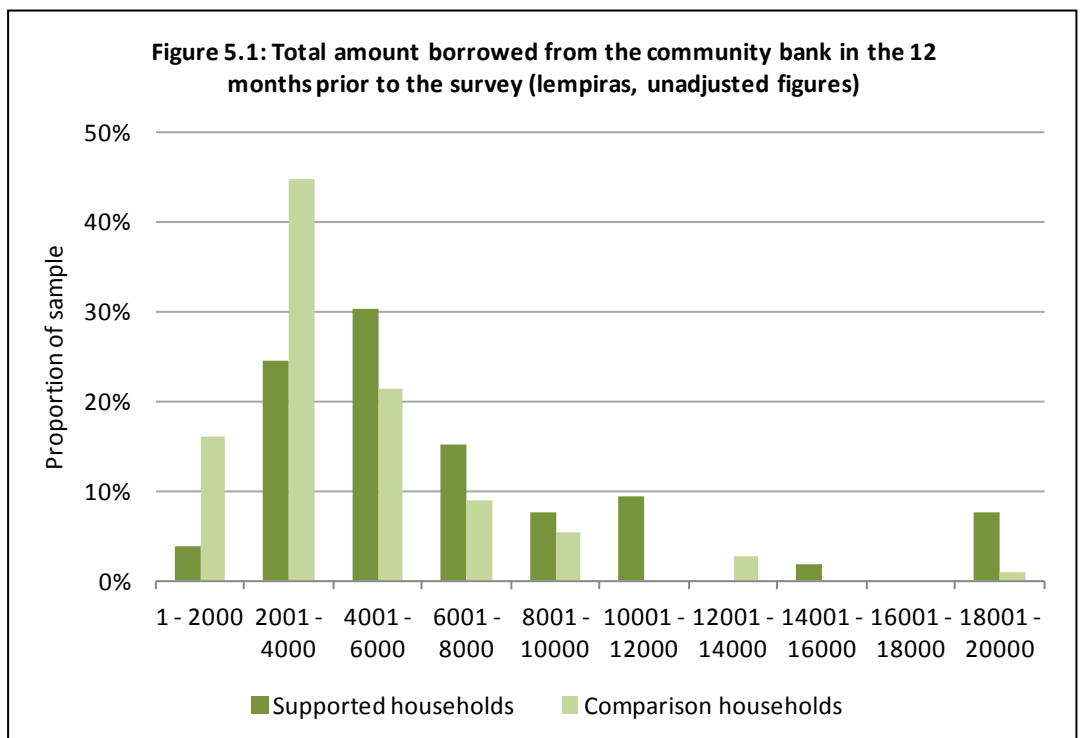
Coefficients for covariates not presented.

due to the presence of former members, who were (naturally) less likely to have borrowed from the community banks than the current members. Interestingly, however, 48 per cent of the former community bank members reported that they had taken a loan from a community bank during the 12 months prior to the survey (compared to 63 per cent of the current members), suggesting that the decrease in membership had occurred recently.

Columns 4 to 7 of Table 5.2 examine the total amounts actually borrowed by supported and comparison households in the 12 months prior to the survey, both in total and specifically from the community banks. When considered as absolute values, in columns 4 and 6, the average supported household clearly took larger loans than the average comparison household: the results – except for that derived from the PSM kernel model – are statistically significant. However, the substantially lower estimates derived from the robust regression model indicate that the situation may be more complicated than the average figures imply. Robust regression works by giving less weight to outliers – values particularly higher or lower than the rest of the observations. To investigate further, the total loan amounts were transformed by use of a natural logarithm, a transformation that also reduces the influence of particularly high values and brings out the variation lower down the scale. After logarithmic transformation, as shown in columns 5 and 7, the difference between the average supported and comparison household is actually negative. However, the tests shown in the last two rows of Table 5.3 again suggest that this negative result is confined to the former community bank members. There may even be a positive effect overall on the total credit taken by current community bank members – though the fact that the coefficients are not statistically significant means that this conclusion should be treated with caution.

Although more of those in the comparison areas had borrowed from a community bank during the 12 months prior to the survey, it appears that some of those in the project area had been able to access larger loans.

The pattern on loan size, then, is that the members of the comparison community banks have access to – and take out – loans at around the same rates as the current members of the supported community banks. However, most of the loans taken by members of the comparison community banks are small: only a third borrowed 3,000 lempiras or more during the 12

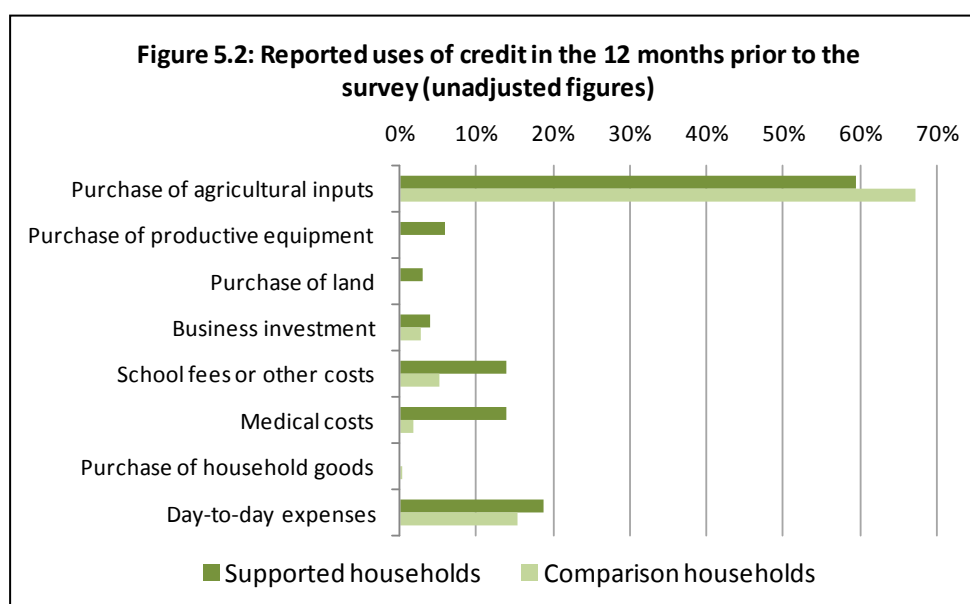


months prior to the survey, compared to 57 per cent of the current and former members of the supported community banks. Figure 5.1 shows that higher levels of borrowing was much more common among supported households than comparison households. (Note that one supported household reported borrowing 40,000 lempiras in the 12 months prior to the survey: this is not reflected in Figure 5.1.) Assuming that the opportunities available for the use of credit are similar in the supported and comparison communities, this result probably reflects that higher loan values are available in the supported communities than in the comparison communities. What cannot be deduced from these results is whether the difference in availability of credit is due to the comparison community banks facing tighter capital constraints than the supported community banks, or because the fact that the supported community banks have existed for several years longer means that their members have had more time to build up more of a credit history, and so have become eligible for larger loans.

It should be noted that there was no difference in the interest rates quoted for loans taken from the supported and comparison community banks. Respondents quoted the interest rates charged by the community banks as ranging from 12 per cent to 36 per cent annually (with the exception of one case where the rate was quoted as 48 per cent annually), with a mean of 21 to 23 per cent annually. There were too few observations of the interest rates charged by other lenders to know how competitive the community banks' rates are – but in any case, the majority of respondents in supported and comparison areas believed the community bank to be their only potential source of credit.

More than 90 per cent of those who had taken loans from the community banks reported that they had used this credit for agricultural investment.

The original motivation for establishing the supported community banks was to provide credit for investment in agricultural activities. As shown in Figure 5.2, more than 60 per cent in both the intervention and comparison areas stated that they had used credit for purchasing agricultural inputs during the 12 months prior to the survey. Among those who had taken credit from the community banks, these rates are even higher: more than 90 per cent reported that their loans were used for agricultural investment. However, it cannot be assumed that the responses to this question are completely truthful. Given that the respondents knew that the survey team were associated with the community banks (even in the comparison areas, the respondents knew that they had been identified from the lists of community bank members), they may have felt under pressure to state that their loans



were used for the ‘intended’ purpose of the community banks.

Less than five per cent of respondents reported that their household had made any savings during the month prior to the survey.

Finally in this section, it should be recalled that the community banks are intended not only to provide credit, but also to give members a secure means to save money. It is therefore natural to look for differences between the supported and comparison households in terms of their savings behaviour. Column 8 of Table 5.2 shows the results of the survey question on savings deposits that were made in the month prior to the survey. Less than five per cent of households reported having made any savings during that month, but of those that did, the average amount saved was higher among the comparison households than the supported households.

Note that all the measures considered in this section concern access to credit for the household as a whole. Whether there is an effect on access to credit for women household members specifically will be considered in Section 5.2.8.

5.2.2 Agricultural production and sales

The community banks established by Oxfam and ODECO have existed for several years longer than the community banks in the comparison areas, and, as seen in Section 5.2.1, they are making larger loans available to at least a portion of their members. If, as intended by the programme design, a significant proportion of the credit provided over the community banks’ lifetimes has been used to finance investment in agriculture, then it is reasonable to look for whether there are indications of a positive effect on agricultural outcomes.

At the same time, the formation of APROALCE means that many of the members of the Oxfam/ODECO-supported community banks have received some additional support during the last few years, in the form of training on the production of vegetables, provision of credit, and the purchase of produce at prices favourable to members. Although most of the members of the supported community banks were no longer members of APROALCE at the time of the survey, many of them had received the benefits of membership of APROALCE in earlier years, and this may be expected to have had some lasting effect on their agricultural activities.

To that end, Tables 5.4 and 5.5 examine the differences between members of the supported and comparison community banks in terms of some key indicators of agricultural activity. Firstly, column 1 of Table 5.4 shows that comparison households were on average cultivating a larger area of land at the time of the survey than supported households.

As noted in Section 5.1, since there are some significant differences between the supported and comparison households in terms of baseline and demographic characteristics, it is important wherever possible to examine the change in outcome variables between 2007 and 2012, and whether these changes differ between supported and comparison households. These ‘difference-in-difference’ estimates can more reliably control for differences between the different households at baseline than can simply including the baseline value as a covariate or matching variable. The difference-in-difference estimate for land area in cultivation are shown in column 2 of Table 5.4: the estimated differences are smaller than for the single differences shown in figure 1 (and are no longer statistically significant) – but still there is a clear negative difference on average.

Table 5.4: Agricultural production and sales

	1	2	3	4	5	6
	Land area cultivated (manzanas)	Change in land area cultivated since 1998 (manzanas)	Number of crop types cultivated	Change in number of crop types cultivated since 1998	Number of crop types sold	Change in number of crop types sold since 1998
Unadjusted						
Intervention group mean:	1.823	0.447	5.379	1.417	2.689	0.602
Comparison group mean:	1.938	0.633	3.806	1.403	0.962	0.349
Unadjusted difference:	-0.116	-0.186	1.572***	0.014	1.727***	0.252
	(-0.69)	(-1.01)	(5.29)	(0.05)	(8.14)	(1.16)
Observations:	289	289	289	289	289	289
PSM						
Post-matching difference: (kernel)	-1.017**	-1.072**	0.302	-0.094	0.929**	0.841***
	(-2.26)	(-2.29)	(0.54)	(-0.17)	(2.56)	(2.64)
Observations:	278	278	278	278	278	278
Post-matching difference: (no replacement)	-0.592***	-0.577**	0.747*	0.405	1.241***	1.013***
	(-2.64)	(-2.48)	(1.86)	(1.17)	(4.35)	(3.47)
Observations:	265	265	265	265	265	265
Multivariable regression						
MVR coefficient: (with robust standard errors)	-0.640***	-0.640***	0.420	0.420	0.931***	0.931***
	(-3.32)	(-3.32)	(1.41)	(1.41)	(3.66)	(3.66)
Observations:	273	273	273	273	273	273
MVR coefficient: (robust regression)	-0.376***	-0.376***	0.209	0.209	0.465***	0.465***
	(-3.11)	(-3.11)	(0.86)	(0.86)	(3.20)	(3.20)
Observations:	273	273	273	273	273	273
MVR coefficient: (with control functions)	-0.532***	-0.532***	0.150	0.150	0.926***	0.926***
	(-2.78)	(-2.78)	(0.44)	(0.44)	(3.72)	(3.72)
Observations:	289	289	289	289	289	289

t-statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented.

Households in the project area reported selling a wider range and a much larger volume of crops during the year prior to the survey than did those in the comparison area.

APROALCE's particular focus has been to encourage the take-up of production of vegetables at a commercial level. The diversity of crops produced is one indicator of how successful this has been. Column 3 of Table 5.4 suggests that there is a positive effect on the diversity of crops grown by the average household, though the estimates of the difference between supported and comparison households on this measure vary widely. On the difference-in-difference measure shown in column 4, it is no longer clear that there is any effect on crop diversity. However, supported households clearly sold a greater diversity of crop types than the comparison households (results shown in columns 5 and 6), even if there is no difference in the diversity of crop types produced.

Full details of crops harvested were not collected in the questionnaire. However, respondents were asked to estimate the overall quantity (in kilograms) of produce they had sold to various types of buyer during the 12 months prior to the survey. Eighty-seven per cent of the supported producers reported having made some crop sales during that time, compared to only 59 per cent of the comparison households. In terms of sales volume, then, it is not surprising (as shown in column 1 of Table 5.5) that there is a large overall difference between the supported and comparison households. Again in this case, the lower estimate derived from the robust regression model suggests that the large results may be driven by a smaller number of households with exceptionally large sales volumes, so a logarithmic transformation was used to improve the accuracy of the estimated differences, as shown in column 2. The estimated coefficients in the logarithmic scale can be interpreted as percentage differences: these results

Table 5.5: Agricultural production and sales

	1	2	3	4
	Total quantity of crops sold in past 12 months (weight in pounds)	Total quantity of crops sold in past 12 months (natural logarithm of 1 + weight in pounds)	Household has an irrigation system	Household has a kitchen garden (<i>huerto familiar</i>)
Unadjusted				
Intervention group mean:	3269	6.462	0.194	0.243
Comparison group mean:	788	3.941	0.005	0.027
Unadjusted difference:	2481*** (6.06)	2.521*** (6.44)	0.189*** (6.30)	0.216*** (6.10)
Observations:	289	289	289	289
PSM				
Post-matching difference: (kernel)	1819*** (3.27)	0.933** (2.25)	0.159*** (3.62)	0.114 (1.56)
Observations:	278	278	278	278
Post-matching difference: (no replacement)	1779*** (3.37)	1.503*** (3.16)	0.152*** (3.56)	0.177*** (3.39)
Observations:	265	265	265	265
Multivariable regression				
MVR coefficient: (with robust standard errors)	1749*** (3.21)	1.123** (2.55)	0.011*** (4.48)	0.130*** (3.64)
Observations:	273	273	251	266
MVR coefficient: (robust regression)	230* (1.82)	1.196** (2.48)	n/a	n/a
Observations:	273	273		
MVR coefficient: (with control functions)	1849*** (3.43)	1.165*** (2.77)	0.035*** (4.82)	0.117*** (3.57)
Observations:	289	289	267	282

t-statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented.

imply that supported households on average sold between 90 per cent and 150 per cent more than comparison households (that is, around two or two and a half times the volume).

It is of interest to know whether the results on increased crop diversity and increased sales volumes have been particularly concentrated on those households that are still members of APROALCE. Adding a binary indicator to the multivariate regression models shown in columns 1 and 2 of Table 5.5 to identify the 18 households had sold any crops to APROALCE during the past 12 months confirms that the volume of crops sold is significantly higher among those who have sold to APROALCE. However, it is not possible to know which direction the causality lies in this relationship: it may be the case that those households with larger volumes of crops to sell are the ones that are more likely to make sales to APROALCE. It is also important to note that the coefficient on the intervention variable is still large and statistically significant (at least at the 10 per cent level) even when controlling for the effect of having made sales to APROALCE. So the increased level of crop sales does not occur only among those who made sales to APROALCE. However, the qualitative follow-up work, conducted the year after the survey, confirmed that people in the project communities see APROALCE as a key factor that has contributed to income generation in the area. It was also stressed that APROALCE's presence has produced some other, indirect, benefits for the area – such as in advocating with the municipal authority to repair roads in the area.

As expected, households of APROALCE members made particularly large crop sales.

On a related point, it will be recalled from Section 4.3 that a potential threat to the validity of the comparison used in this Effectiveness Review is that

another organisation, Aldea Global, has also been active in the Oxfam/ODECO project area to a greater degree than in the comparison areas. Since this was not known in advance of the fieldwork, no indicator of support received by households from Aldea Global was collected in the survey. However, the questionnaire did ask whether households had sold any produce to Aldea Global during the 12 months prior to the survey. Only 13 of the interviewed households reported having made any sales to Aldea Global during that time (six of which had also made sales to APROALCE). Adding this variable as a covariate in the regression model for crop sales from Table 5.5 shows that there is still a large and statistically significant difference between households in the project communities and those in the comparison communities, after removing the influence of those with a recent commercial relationship with Aldea Global. The coefficient on the intervention variable when using the logarithmic measure of volume of crops sold is 0.99 (statistically significant at the 5 per cent level) – suggesting that the volume of crop sales among households in the project communities was approximately double that among households in comparison communities, even excluding the effects of having a recent commercial relationship with Aldea Global.

The positive effect of on crop sales in the project area is clear even after excluding those households with a relationship with Aldea Global.

Further indicators of agricultural activities shown in Table 5.5 are whether the household has any system for irrigating their land, and whether they cultivate a kitchen garden (*huerto familiar*). In both respects there are large differences between the supported and comparison households: fewer than one per cent of the comparison households have an irrigation system, for example, but 19 per cent of the supported households do.

5.2.3 Household income

We found in previous sections that members and former members of the supported community banks seem on average to have better access to credit than members of the comparison community banks (or at least, have had access to this credit for a longer period), and that they also seem to be producing greater quantities and a wider range of crops at a commercial level. This does not by itself imply that there was a corresponding increase in household wellbeing: in a context where households generally have multiple livelihoods activities, it is possible that a project that has made agricultural activities more productive could have diverted resources from other livelihoods activities. It is important, therefore, to evaluate the effects of the project on household wellbeing as a whole.

Various measures were used in the survey to evaluate overall household income. Firstly, respondents were presented with the following four descriptions and asked which reflected their own situation most closely over the previous 12 months:

- **Doing well:** able to meet household needs by your own efforts, and making some extra for stores, savings, and investment.
- **Breaking even:** able to meet household needs but with nothing extra to save or invest.
- **Struggling:** managing to meet household needs, but depleting productive assets and/or sometimes receiving support.
- **Unable to meet household needs by your own efforts:** dependent on support from relatives living outside of your household or the community, government and/or some other organisation – could not survive without this outside support.

Data on household consumption and expenditure was collected to function as a proxy for overall household income.

Households were subsequently coded with 1 if they reported themselves to be breaking even or doing well and 0 otherwise. The results, shown in column 1 of Table 5.6, are interesting. While the overwhelming majority (86 per cent) scored positively on this measure, the proportion is significantly higher among the comparison households than among the supported households. However, the proportion answering that they are doing well (column 2) is much higher among the supported households (25 per cent, on the unadjusted figures) than the comparison households (six per cent).

For a robust assessment of a project impact, it is preferable to use a more objective indicator than this simple subjective assessment. Measuring household income directly is problematic: self-reported measures of total income are generally regarded as unreliable, given the wide variety of livelihoods activities people are engaged in.³ A direct income measure would have to collect detailed information about the contribution of each of these activities to household income. For these reasons, the survey did not attempt to collect data on total household income directly. However, there is a widely recognised and strong association between household income and consumption.⁴ The Effectiveness Review therefore followed common practice in micro-level socio-economic analysis, by considering household consumption as an indicator of income.

Table 5.6: Indicators of household income

	1	2	3	4	5	6
	Able to meet basic needs from income ('doing well' or 'breaking even')	'Doing well' in terms of meeting basic needs	Household consumption per day (lempiras)	Household consumption per day (natural logarithm of lempiras)	Household consumption per person per day (lempiras)	Household consumption per person per day (natural logarithm of lempiras)
Unadjusted						
Intervention group mean:	0.854	0.252	180.140	5.045	49.945	3.749
Comparison group mean:	0.860	0.059	95.810	4.386	28.357	3.196
Unadjusted difference:	-0.006	0.193***	84.330***	0.659***	21.588***	0.553***
	(-0.14)	(4.88)	(8.01)	(9.23)	(7.44)	(8.22)
Observations:	289	289	289	289	289	289
PSM						
Post-matching difference: (kernel)	-0.089**	0.119*	32.473	0.318***	7.974	0.281**
	(-2.03)	(1.69)	(1.33)	(2.96)	(1.10)	(2.45)
Observations:	278	278	278	278	278	278
Post-matching difference: (no replacement)	-0.089*	0.165***	60.374***	0.470***	18.152***	0.435***
	(-1.71)	(2.84)	(4.25)	(4.53)	(4.02)	(4.36)
Observations:	265	265	265	265	265	265
Multivariable regression						
MVR coefficient: (with robust standard errors)	-0.088*	0.128***	54.836***	0.456***	17.131***	0.449***
	(-1.95)	(3.56)	(4.40)	(6.08)	(4.63)	(6.01)
Observations:	266	271	273	273	273	273
MVR coefficient: (robust regression)	n/a	n/a	41.581***	0.438***	10.479***	0.435***
			(5.85)	(5.78)	(5.23)	(5.71)
Observations:			273	273	273	273
MVR coefficient: (with control functions)	-0.090**	0.127***	53.717***	0.438***	16.384***	0.424***
	(-2.06)	(3.67)	(4.60)	(5.92)	(4.64)	(5.75)
Observations:	282	287	289	289	289	289

t-statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented.

³ Morris, Saul, Calogero Carletto, John Hoddinott, and Luc J. M. Christianensen. (1999) *Validity of Rapid Estimates of Household Wealth and Income for Health Surveys in Rural Africa: FCND Discussion Paper No. 72*. Washington: International Food Policy Research Institute.

⁴ See Gujarati, Damodar N. (2003) *Basic Econometrics: Fourth Edition*. New York: McGraw Hill.

To that end, respondents were asked to provide detailed information about their recent consumption of both food and non-food items. Firstly, the respondents were asked what types of food they consumed over the previous seven day period, as well as the particular quantities. The quantities of each food item consumed were then converted into a monetary value. This was done by asking the respondent how much was paid for the food item in question or – if the food item was from the household’s own production – how much it would be worth if it was purchased from the local market. The respondents were also asked how much they spent on particular regular non-food items and services from a list, such as soap, toothpaste, and transport fares over the past four weeks. Finally, they were asked to estimate the value of other occasional types of expenditure – such as school fees, clothes, medical expenses and home repair – which they have incurred over the last 12 months.

The household consumption measure was calculated by converting each of the consumption and expenditure types into a per-day figure and adding them together. This figure was then divided by a factor representing household size, to generate a per-day, per-person consumption figure. To reflect that the existence of economies of scale within households, and the lower consumption needs of children, the formula used for calculating household size is $\frac{A + K \cdot c}{1 + \alpha}$, where A is number of adults in the household; K is the number of children; c is the consumption of a child relative to an adult; and α stands for the extent of economies of scale. This Effectiveness Review follows the common practice of setting α equal to 0.33 and c equal to 0.9,⁵ but the findings are not sensitive to reasonable changes in these parameters.

Overall household consumption is estimated to be 30 to 50 per cent higher among the households supported by the programme activities than among the comparison households.

As with the measures of agricultural sales, the expenditure variable has been expressed on a logarithmic scale, to improve the model fit in regression analysis and reduce the influence of outliers. The comparison of consumption between supported households and comparison households, both before and after logarithmic transformation, is shown in columns 3 to 6 of Table 5.6. It can be clearly seen that household consumption is estimated as being 30 to 50 per cent higher among the households supported by the programme activities than among members of the comparison community banks.

There is a strong correlation in the survey data between the volume of crop sales made by a household in the year before the survey and the level of consumption of that household. Specifically, those households with a trading relationship with APROALCE had a significantly higher level of consumption than those without. It must be noted again that this does not necessarily imply that support from APROALCE has led to increased consumption; it may rather be the case that those households with a higher economic level in the first place are more likely to make sales to APROALCE. In contrast – and recalling again the concerns about the activities of Aldea Global limiting our ability to attribute positive effects in the project area to the activities of the Oxfam and ODECO projects – it is also interesting to note that households that had made sales of crops to Aldea Global in the year prior to the survey had only marginally (and not statistically significantly) higher consumption than those which had not, whichever measure of consumption is used.

⁵ Deaton, A. and Zaidi, S. (2002) *Guidelines for constructing consumption aggregates for welfare analysis*, Working Paper No. 135. The World Bank, Washington, D.C.

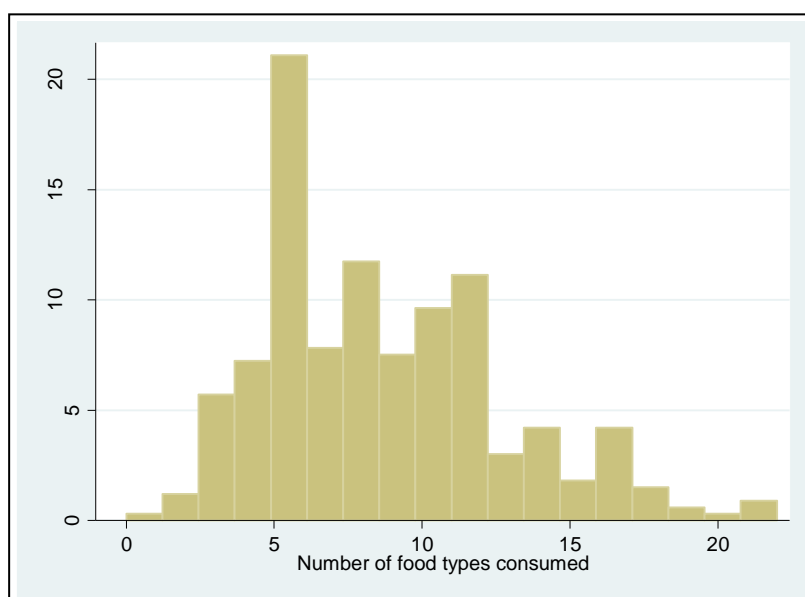
5.2.4 Dietary diversity

The food consumption section of the questionnaire asked respondents not only for their expenditure on food during the seven days prior to the survey, but also the number of days on which each food type was consumed. As would be expected, almost all households (more than 98 per cent) reported having consumed rice and beans every day. Various measures were constructed of the diversity of the household's diet.

Figure 5.3 shows the histogram of the number different food items (including grains and other carbohydrates, beans, dairy products, meat, fish, fruit and vegetables) which each household reported consuming during the seven days prior to the survey. It can be seen that there is extensive variation in the number of food types reported being consumed. Column 1 of Table 5.7 shows that there is a large difference between the supported and comparison households on this measure. Supported households are estimated to have consumed an average of between 1.6 and 2.6 more food types during the week prior to the survey than the comparison households.

Supported households consumed a wider range of food types during the week prior to the survey than did comparison households.

Figure 5.3: Distribution of number of food types consumed



A household's consumption of meat was considered likely to reflect the household's socioeconomic status. Only 55 per cent of the households surveyed reported having eaten any meat during the seven days prior to the survey. Column 2 of Table 5.7 analyses differences in the number of days on which household members had eaten meat during that week.⁶ It is not clear that there is any difference between the supported and comparison households on this measure: estimates of the difference from the various statistical tests lie either side of zero.

The consumption of fruit and vegetables is another important measure of dietary diversity and health. Column 3 of Table 5.7 shows differences between the supported and comparison households in terms of the number of different types of fruit and vegetables reported eaten during the seven days prior to the survey. As in the case of dietary diversity overall, supported

⁶ In fact this measure is approximated slightly. The survey questions asked about the number of days on which each type of meat (chicken, beef, pork, lamb or fish) was eaten. In calculating the aggregate measure, the number of days for which each type of meat was eaten were added together, to a maximum of seven. For example, if a household reported eating chicken twice and beef three times, they were assumed to have eaten meat on five days during that week. If a household reported eating chicken four times and beef four times, they were assumed to have eaten meat every day during that week.

households reported eating a significantly wider range of fruits and vegetables than the comparison households.

Table 5.7: Dietary diversity

	1 Number of food types consumed	2 Number of days eaten meat, in the past 7 days	3 Number of types of fruit and vegetables consumed
Unadjusted			
Intervention group mean:	11.291	1.029	3.864
Comparison group mean:	7.339	0.801	1.683
Unadjusted difference:	3.953*** (8.82)	0.228* (1.67)	2.181*** (9.35)
Observations:	289	289	289
PSM			
Post-matching difference: (kernel)	1.562** (2.10)	-0.256 (-0.80)	1.019** (2.38)
Observations:	278	278	278
Post-matching difference: (no replacement)	2.595*** (4.06)	0.076 (0.44)	1.785*** (5.17)
Observations:	265	265	265
Multivariable regression			
MVR coefficient: (with robust standard errors)	2.613*** (4.65)	0.056 (0.36)	1.672*** (5.05)
Observations:	273	273	273
MVR coefficient: (robust regression)	2.629*** (5.05)	0.209 (1.54)	1.704*** (6.41)
Observations:	273	273	273
MVR coefficient: (with control functions)	2.461*** (4.43)	0.092 (0.60)	1.597*** (4.92)
Observations:	289	289	289

t-statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented.

5.2.5 Household wealth indicators

One weakness with using current household expenditure as a measure of wellbeing is that it is likely to be highly dependent on recent income levels, and may not strongly reflect any long-term changes in wellbeing. An alternative measure, which may more accurately assess long-term improvements in household wellbeing, is to examine indicators of a household's material wealth. For that reason, respondents were asked about their ownership of various types of household goods and productive assets, as well as about the condition of their housing. These data were used to create indices of each household's wealth, relative to the other households surveyed in the same region, both at the baseline in 1998 and as of the date of the survey.

The wealth indices were derived by taking dividing each indicator (that is, the number of each asset owned by the household, or the condition of the housing characteristic) into two or three quantiles. The correlation of each indicator with the others in the dataset was examined using Cronbach's alpha, a coefficient of reliability.⁷ Some of the indicators were found to have negative correlations with the others, suggesting that they were not good

⁷ When items are used in a scale or index, they should all measure the same underlying latent construct (e.g. household wealth status). The items, then, must be significantly correlated with one another. Cronbach's alpha is a measure of this inter-item correlation. The more the variables are correlated, the greater is the sum of the common variation they share. If all items are perfectly correlated, alpha would be 1 and 0 if they all were independent from one another. For comparing groups, an alpha of 0.7 or 0.8 is considered satisfactory. See: Bland, M. J. & Altman, D. G. (1997) Statistics notes: Cronbach's alpha. *BMJ* 314: 572.

indicators of wealth status; all those indicators (including traditional oven, radio, tunnels for nursing plants, greenhouses, and the type of material used for the roof of the house) were removed from the wealth index.

Table 5.8 shows the list of assets and other wealth indicators that were included used to construct the 2012 household wealth index, with their inter-item correlations. The overall alpha is 0.72, showing that the various items used to construct the wealth index are reasonably well correlated. The alpha for the recalled baseline index was 0.59: this is the index used for comparison of the baseline wealth status of households in Section 5.1, and which has been used as a control variable in the PSM and regression models used to evaluate each of the outcomes measures. A further index was created of the change in wealth indicators between 1998 and 2012, which has an alpha of 0.56. Since, as will be recalled from Section 5.1, there were large baseline differences in wealth status, using this index of changes to generate a 'difference-in-difference' measure will be particularly important.

Supported households also appear to have increased in terms of asset ownership and other wealth indicators since 1998 relative to the comparison households.

The wealth indices were created through applying principal component analysis (PCA) to the selected indicators. PCA is a data reduction technique that narrows in on the variation in household asset ownership, which is assumed to represent wealth status: the more an asset type is correlated with this variation, the more weight it is given.

Table 5.9 examines the differences between the supported and comparison households in terms of these wealth indices. There appear to be large positive differences between the supported and comparison households, both using the endline wealth index and the index of changes since 1998.

Table 5.8: Inter-item correlations of household wealth indicators used to construct wealth index for 2012

Item	Observations	Sign	Item-test correlation	Item-rest correlation	Average inter-item covariance	Alpha
Land	289	+	0.4717	0.3572	0.011612	0.6995
Cows	289	+	0.4988	0.3694	0.011311	0.6982
Bulls	289	+	0.2683	0.1993	0.012809	0.7116
Bullocks	289	+	0.2353	0.1706	0.012920	0.7130
Pigs	289	+	0.2731	0.2021	0.012785	0.7114
Sheep and goats	289	+	0.1364	0.0814	0.013181	0.7163
Horses	289	+	0.4440	0.3305	0.011784	0.7019
Chickens	289	+	0.4108	0.2728	0.011841	0.7079
Ducks	289	+	0.2408	0.1535	0.012832	0.7141
Turkeys	289	+	0.3049	0.2141	0.012583	0.7106
Cart	289	+	0.3033	0.2461	0.012783	0.7101
Grain silo	289	+	0.5191	0.3996	0.011257	0.6952
Backpack sprayer	289	+	0.4886	0.3665	0.011440	0.6985
Sewing machine	289	+	0.2806	0.2238	0.012844	0.7110
Modern oven	289	+	0.3819	0.2825	0.012206	0.7060
Stove	289	+	0.2865	0.2504	0.012986	0.7119
Refrigerator	289	+	0.2453	0.2151	0.013093	0.7134
Mobile phone	289	+	0.4071	0.2733	0.011882	0.7076
CD/cassette player	289	+	0.0877	0.0452	0.013280	0.7170
Sound system	289	+	0.2232	0.1881	0.013092	0.7136
Television	289	+	0.3029	0.2344	0.012708	0.7099
DVD or video player	289	+	0.3640	0.3187	0.012742	0.7085
Generator	289	+	0.0663	0.0479	0.013319	0.7166
Solar panel	289	+	0.3730	0.2804	0.012291	0.7063
Bicycle	289	+	0.2319	0.1703	0.012942	0.7130
Motorcycle	289	+	0.3411	0.3027	0.012865	0.7101
Car or other motor vehicle	289	+	0.3331	0.2998	0.012935	0.7109
Ownership of house	289	+	0.1076	0.0736	0.013257	0.7162
Number of rooms in house	289	+	0.3714	0.2878	0.012364	0.7062
Material used to build the walls	289	+	0.0837	0.0412	0.013286	0.7172
Material used for the floor	289	+	0.2429	0.1696	0.012866	0.7130
Electricity connection	289	+	0.3350	0.2357	0.012418	0.7093
Water sources	289	+	0.2547	0.1156	0.012739	0.7216
Type of toilet	289	+	0.3740	0.2333	0.012058	0.7118
Test scale					0.012568	0.7163

Table 5.9: Indicators of household wealth

	1	2
	Index of household wealth indicators	Index of change in household wealth indicators since 1998
Unadjusted		
Intervention group mean:	0.862	0.789
Comparison group mean:	-0.477	-0.437
Unadjusted difference:	1.340***	1.226***
	(5.92)	(6.10)
Observations:	289	289
PSM		
Post-matching difference: (kernel)	0.281	0.638**
	(0.78)	(2.26)
Observations:	278	278
Post-matching difference: (no replacement)	0.713**	0.780***
	(2.22)	(2.75)
Observations:	265	265
Multivariable regression		
MVR coefficient: (with robust standard errors)	0.573**	0.767***
	(2.40)	(3.45)
Observations:	273	273
MVR coefficient: (robust regression)	0.383**	0.472***
	(2.23)	(2.99)
Observations:	273	273
MVR coefficient: (with control functions)	0.646***	0.872***
	(2.87)	(4.04)
Observations:	289	289

t-statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented.

5.2.6 Women's empowerment index

The remaining sections of this report examine the results of the part of the questionnaire specifically addressed to women respondents, in order to examine evidence the project's effect on women's empowerment.

In order to assess a multi-dimensional concept, such as women's empowerment, Oxfam GB has adopted and adapted an approach that assesses several dimensions of women's empowerment. This approach builds on the 'Women's Empowerment in Agriculture Index'⁸ (WEAI) developed by the Oxford Poverty and Human Development Initiative with support from the United States Agency for International Development (USAID) and the International Food Policy Research Institute (IFPRI).

Using the WEAI approach, the index used in this Effectiveness Review assesses **four dimensions of women's empowerment**. The dimensions relate to women's involvement in household decision-making, access to and control over resources, public engagement and self-perception. Several indicators have been specified for each of these four dimensions (see Table 5.10).

The indicators within each of the dimensions are based on the following definitions:

- **Household decision-making:** Involvement in decisions related to production, use of income and other domestic activities.

⁸ <http://www.ifpri.org/publication/womens-empowerment-agriculture-index>

- **Resources:** Ownership, access to, and decision-making power over productive resources such as land, livestock, agricultural equipment, consumer durables, and credit
- **Public engagement:** Ability to influence affairs at the community and institutional levels and membership in economic or social groups.
- **Self-perception:** Level of self-confidence in dealing with a range of situations and attitudes towards women’s rights, position and responsibilities.

The questionnaire used in the Effectiveness Review included questions relating to each of the characteristics listed in Table 5.10. For each characteristic, a benchmark was defined, based on what it means for a woman to be fairing reasonably well in relation to the characteristic in question. The particular benchmarks used for each characteristic are described in the sections which follow, and are presented in summary form in Appendix 1. There is inevitably a degree of arbitrariness in defining such cut-offs. However, the results presented in subsequent sections also include some complementary measures, which acts as a check on the robustness of the results obtained from applying the cut-offs.

Four dimensions of women’s empowerment were considered in this Effectiveness Review, and various characteristics were identified under each dimension.

Aggregate measures of women’s empowerment are now constructed as a multidimensional measurement methodology known as the Alkire-Foster Method.⁹ Firstly (and mostly simply), a ‘base empowerment index’ is defined as the proportion of characteristics of empowerment in which each interviewed woman scores positively. The second measure to be used is to define an overall binary cut-off for the entire index, with the women above this cut-off considered to be empowered. For the purposes of measuring women’s empowerment under the Global Performance Framework, a woman is defined as empowered if she scores positively on at least two thirds of the characteristics. Using this definition, the ‘Alkire-Foster empowerment index’ is defined to take a value of 1 (the maximum) for any woman who scores positively on at least two thirds of the characteristics of empowerment, and otherwise is equal to the proportion of characteristics in which she scores positively.

Finally, the Oxfam GB global indicator for empowerment is based on whether each woman interviewed is doing better in terms of overall empowerment than a ‘typical’ woman in the area. This is defined by comparing the base empowerment index for each woman with the median of

Table 5.10: Dimensions and characteristics of women’s empowerment examined in this review

Dimension	Characteristic
Household decision-making	Involvement in productive decisions
	Involvement in decisions on transactions
	Involvement in household-management decisions
Access to resources	Independent income
	Ownership of strategic assets
	Access to credit
Public engagement	Influence in community decision-making
	Participation in community groups
Self-perception	Self-efficacy
	Attitudes to women’s economic roles
	Attitudes to women’s domestic roles
	Attitudes to gender rights

⁹ Alkire, S. and Foster, 'J. (2011) Counting and multidimensional poverty measurement', *Journal of Public Economics* 95: 476–487: <http://www.sciencedirect.com/science/article/pii/S0047272710001660>

the comparison group. The global indicator takes the value of 1 if the base empowerment index is greater than the median of the comparison group, and zero otherwise.

In summary, the three key measures of overall resilience analysed are:

- **The base empowerment index:** the proportion of characteristics of empowerment for which each woman reaches the benchmark;
- The proportion of women who reach the overall benchmark for empowerment (scoring positively in two-thirds of the characteristics);
- **The Alkire-Foster (AF) empowerment index:** whether the woman reaches the benchmark in at least two-thirds of the characteristics, and otherwise equal to the proportion of characteristics for which she does reach the benchmark;
- **The global indicator:** based on whether the base empowerment index is greater than the median of the comparison group or not.

The results for the various characteristics of women's empowerment were aggregated to produce four different measures of overall empowerment.

These three measures contribute to generating an **overall picture of women's empowerment** in both the supported and comparison groups. A comparison of the intervention and comparison women in terms of these measures is presented in Table 5.11.

Taking the results of the five measures presented in Table 5.15, we can say in summary that there is reasonably strong evidence that women in supported households display greater levels of empowerment than do women in comparison households. Column 1 shows the differences between the supported women and comparison women in terms of the base empowerment index. On average, women surveyed were found to score positively on 50 per cent of the characteristics of empowerment. It can be seen from column 1 that the various statistical models estimate this proportion to be four or five percentage points higher among women in the project area than in the comparison area – a difference which is verging on being statistically significant under most of the models.

Column 2 of Table 5.11 shows the proportion of women who reached the overall benchmark for empowerment. Overall, 39 per cent of women in the project area reached this benchmark, compared with only 18 per cent in the comparison area. However, this difference is smaller when demographic and baseline differences between the supported and comparison groups are controlled for.

The third column of Table 5.11 shows the differences in terms of the Alkire-Foster index, which focuses attention on differences in outcomes among the women who do not reach the overall benchmark for empowerment. The various models estimate the average number of characteristics in which women score positively is as being between five and seven percentage points; again, under most of the models, this is comes close to being statistically significant.

Finally, column 4 of Table 5.11 presents the difference between supported and comparison households using Oxfam GB's global indicator for women's empowerment. The estimates of the size of the difference between women in the project and comparison areas vary widely using this measure (from 10 to 18 percentage points).

Taken overall, the results presented in Table 5.11 provide some evidence that women surveyed in the project areas scored more positively on characteristics of women's empowerment than did those in the comparison areas. The fact that most of the differences detected are not statistically

Table 5.11: Indices of women’s empowerment

	1	2	3	4
	Base empowerment index	% of women who reach overall benchmark for empowerment	Alkire-Foster empowerment index	% of women above median WEI score for comparator women (global outcome indicator)
Unadjusted				
Intervention group mean:	0.550	0.385	0.790	0.594
Comparison group mean:	0.476	0.176	0.696	0.341
Unadjusted difference:	0.074*** (3.34)	0.209*** (3.90)	0.094*** (3.23)	0.253*** (4.14)
Observations:	272	272	272	272
PSM				
Post-matching difference: (kernel)	0.052 (1.60)	0.193** (2.51)	0.066 (1.54)	0.179* (1.92)
Observations:	262	262	262	262
Post-matching difference: (no replacement)	0.039 (1.34)	0.125** (1.57)	0.047 (1.19)	0.097 (1.15)
Observations:	248	248	248	248
Multivariable regression				
MVR coefficient: (with robust standard errors)	0.044* (1.72)	0.114* (1.78)	0.053 (1.63)	0.148* (1.78)
Observations:	258	255	258	255
MVR coefficient: (robust regression)	0.044 (1.64)	n/a	0.054 (1.55)	n/a
Observations:	258		258	
MVR coefficient: (with control functions)	0.051** (1.97)	0.118* (1.85)	0.063* (1.89)	0.164** (2.00)
Observations:	272	269	272	269

t-statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented.

The women surveyed in the project areas generally scored positively on more of the characteristics of empowerment than did those in the comparison areas.

significant would mean that, if the women surveyed were a sample of a larger beneficiary population, these results could not be taken as strong evidence that women in this population were more empowered than in the comparison population. However, as noted in Section 5.2.1 above, the women interviewed in the project area represent the entire population (defined as those who were members of the supported community banks in 2009 – or spouses of those who were members), so the question of sampling error does not arise.

It should also be noted that, of the 96 women interviewed in the project areas, only half (47) reported themselves to be members, or former members, of the community banks; in the remaining cases, other household members (normally their spouses) were the community bank members. The statistical models used to derive the results presented in this report do not seek control for whether the interviewed woman herself is a community bank member. In fact, when a dummy variable is added to the regression models presented in Table 5.11, it can be seen that the positive effects of the project on women’s empowerment are confined to those women who are personally members of the community banks.¹⁰ However, membership itself may be partly an outcome of the project activities: perhaps those women who have become more empowered are more likely to have enrolled as members of the community bank. In that case, these results could not be taken to imply

¹⁰ The same applies for the positive results on most of the individual characteristics of women’s empowerment discussed in the following sections.

that the project benefits are confined to those who were already members of the community banks.

While these overall measures provide evidence of a positive effect on women’s empowerment, it is clearly important to understand in more detail the nature of this apparent change, and what factors have driven it. In the qualitative follow-up work, participants attributed the improvements to the systematic training provided by project partners – focused both on rights and on technical skills for men and women – as well as to the increased opportunities provided through access to credit. The following sub-sections examine the results relating to each of the 12 different characteristics that make up the overall index of empowerment.

5.2.7 Women’s involvement in household decision-making

The first dimension of women’s empowerment considered in the Effectiveness Review focused on women’s influence in household decision-making. The results in this dimension are based on questions in the survey which addressed household decision-making in 12 different areas, specifically:

- **Decisions on productive activities:** Decisions relating to the conduct of a household’s farming activities, to cultivation of a kitchen garden (*huerto familiar*) specifically, and to household businesses.
- **Decisions on transactions made by the household:** Decisions over the sale of crops, buying and selling of livestock, the purchase of household assets, land or property, and savings.
- **Decisions on household management:** Decisions over routine purchases such as food and other consumables, decisions over participation in community events, and decisions about the education of children and how to respond when a household member becomes ill.

Respondents’ level of involvement in household decision-making was assessed in three different decision-making areas.

For each of these decision-making areas, the respondent was first asked whether she was involved in some activity related to each of the areas and then, if so, to what extent, on a scale from ‘not at all’ to ‘a large extent’. A woman scored positively on the measure of involvement in productive decisions if she reported being involved to at least a medium extent in all of the productive decision-making areas in which she is active. The same applies to the indicators for involvement in transaction decisions and household-management decisions.

The results for these three measures of involvement in household decision-making are shown in Table 5.12, with the results (from the PSM kernel model) also shown graphically in Figure 5.4.

It can be seen from the table that approximately a third of women reported having positive involvement in productive and transaction decisions, but that these proportions were considerably larger in the project areas than in the comparison areas. These differences are statistically significant under most of the statistical models employed. This finding agrees with that of the qualitative follow-up work, where female members of the community banks highlighted that skills and confidence acquired through participation in those groups improved their ability to communicate and negotiate with husbands and other household members. It was said that being held individually responsible for loans taken from the community banks enabled women to influence the expenditures and investments that were made with those funds. However, it was stressed that, despite these advances, men still tend

Table 5.12: Characteristics of women’s involvement in household decision-making

	1	2	3
	Involvement in productive decisions (binary)	Involvement in transaction decisions (binary)	Involvement in household-management decisions (binary)
Unadjusted			
Intervention group mean:	0.438	0.453	0.688
Comparison group mean:	0.215	0.266	0.801
Unadjusted difference:	0.223***	0.187***	-0.114**
	(3.96)	(3.17)	(-2.11)
Observations:	273	272	272
PSM			
Post-matching difference: (kernel)	0.156*	0.120	-0.195***
	(1.83)	(1.34)	(-2.79)
Observations:	263	262	262
Post-matching difference: (no replacement)	0.181**	0.197**	-0.181**
	(2.28)	(2.50)	(-2.32)
Observations:	249	248	248
Multivariable regression			
MVR coefficient: (with robust standard errors)	0.202***	0.211***	-0.159**
	(2.62)	(2.72)	(-2.40)
Observations:	256	255	255
MVR coefficient: (with control functions)	0.204***	0.212***	-0.160**
	(2.71)	(2.77)	(-2.47)
Observations:	270	269	269

t-statistics in parentheses
 * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
 PSM estimates bootstrapped 1000 repetitions
 Coefficients for covariates used are not presented.
 Probit regression used for binary outcomes.

to have the final say over decisions in these areas. Indeed, in the quantitative survey, fewer than half of the women interviewed reported positive involvement in these types of decisions, even in the project areas.

Women in the project area were more likely to report positive involvement in productive and transaction decisions than those in the comparison area, but not in household-management decisions.

As might be expected, respondents overall reported much greater involvement in household-management decisions, with 76 per cent scoring positively (meaning that they reported being involved to at least a medium extent in decision-making in all the areas that apply). Surprisingly, however, women in the comparison areas scored more highly on this measure than did those in the project areas. This may be partly due, as mentioned during the qualitative follow-up, to women in the comparison area using credit and income generated for day-to-day household expenditures. In the project areas, some of the responsibilities at the household level were said to have been transferred to other household members as women focused more on income-generating activities. A change in men’s attitudes towards their involvement in some domestic and care work was also reported. Another factor contributing to this result is a quirk in the way the quantitative indicator is constructed. More of the women in project areas reported that they personally participate in some community activities (54 per cent, against 46 per cent in comparison areas), but that not all of these women reported being fully responsible for *making decisions about* their involvement – meaning that they were more likely to be scored negatively than those who said they were not involved in community activities at all.

5.2.8 Women’s access to resources

Three different indicators were examined in the survey to assess women’s access to and control over resources. The results of this analysis is shown in

Table 5.13 and presented graphically in Figure 5.5.

The first indicator considered was whether a woman has **access to some independent income**, that is, independently from her spouse. To assess this, respondents were asked to estimate the proportion of income that they personally contributed to household income and resources, and were considered to score positively on this basis if they reported that they personally contributed more than a third. As can be seen in column 1 of Table 5.13, approximately two thirds of women met this benchmark, and this did not vary between women in the project and comparison areas.

In contrast, in the qualitative follow-up work, women’s involvement in generating household income was identified as an important driver of women’s empowerment in the project communities (this is evidenced by the contrast with the comparison area, where no such change was identified). Specifically, women said that skills and confidence acquired through their participation in community banks contributed to their increasing their participation in household business activities, such as vegetable production, gathering berries for sale, and the production of wine. In the comparison areas, the involvement in these types of activities – and hence access to some independent income – seemed to be lower. That these patterns were not reflected in the quantitative work is surprising, and implies that their size and significance should be treated with caution.

The second characteristic examined was women’s **ownership and control over strategic assets**, such as land, livestock and agricultural equipment. As discussed in Section 5.2.5, respondents were asked about their household’s ownership of various types of assets. As a follow-up to these questions, they were then asked to specify whether they consider those assets to be owned primarily by the female or the male household member,

No effect was found in the quantitative survey on women’s having an independent income – though this was identified in the qualitative follow-up work as an important result of the programme.

Table 5.13: Characteristics of women’s access to resources

	1 Independent income (binary)	2 Ownership of strategic assets (binary)	3 Access to credit (binary)
Unadjusted			
Intervention group mean:	0.677	0.805	0.281
Comparison group mean:	0.619	0.529	0.169
Unadjusted difference:	0.058 (0.95)	0.276*** (4.47)	0.112** (2.18)
Observations:	272	259	273
PSM			
Post-matching difference: (kernel)	-0.040 (-0.48)	0.217** (2.35)	0.108 (1.60)
Observations:	262	262	263
Post-matching difference: (no replacement)	-0.028 (-0.33)	0.125 (1.48)	0.042 (0.54)
Observations:	248	248	249
Multivariable regression			
MVR coefficient: (with robust standard errors)	0.007 (0.09)	0.167** (2.11)	0.078 (1.37)
Observations:	255	257	258
MVR coefficient: (with control functions)	0.017 (0.21)	0.180** (2.29)	0.083 (1.48)
Observations:	269	271	272

t-statistics in parentheses
 * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
 PSM estimates bootstrapped 1000 repetitions
 Coefficients for covariates used are not presented.
 Probit regression used for binary outcomes.

and (as a confirmation) which household member could make decisions about whether to sell, trade or give away an item if need be. This information was used to examine which types of assets women themselves have access to. Asset types included in this measure are:

- Livestock
- Cart
- Large agricultural investments: silos, tunnels, or greenhouses
- Modern oven or stove
- Fridge
- Television
- Bicycle
- Motorcycle
- Vehicle
- Generator

A much larger proportion of women in the project areas reported that they have joint or sole ownership and decision-making control over some strategic asset than in the comparison areas.

Almost three-quarters of supported women reported at least joint ownership of one strategic asset, compared to only around half of the comparison women. In terms of the average number of strategic assets owned, the results show supported women owning 1.8 assets, compared to 0.8 assets on average for women in the comparison group. A woman was considered to score positively in this measure if she had at least joint ownership and joint participation in decisions related to at least two of the asset types listed. As shown in column 2 of Table 5.13, there is therefore a large difference between the project and comparison areas in terms of the number of women who scored positively on this indicator.

Of course, we have already observed in Section 5.2.5 that households in the project areas generally had greater asset ownership at the time of the survey than did households in the comparison areas. However, this effect probably does not fully explain the positive results for women's empowerment: women in project areas do appear more likely to report that they have at least joint control over many of these asset types (especially livestock) than in comparison households that also own those asset types.

The third indicator considered under this dimension of women's empowerment was women's access to credit and their involvement in decisions regarding its use. As detailed in Section 5.2.1, respondents were asked to provide details of the sources of credit available to the household. In the part of the questionnaire addressed specifically to women, they were asked about their involvement in decisions regarding how much to borrow, and from which sources.

For a woman to score positively in this measure, her household had to have access to at least one source of credit, and she must have participated to at least a medium extent in the decisions regarding whether to borrow or what to do with the money/items borrowed.

The results from the comparison of intervention and comparison women on this measure are presented in column 3 of Table 5.13. As has already been seen in Section 5.2.1, a large majority of respondents (in both the intervention and comparison areas) reported that they would be able to take a loan from their community bank if necessary, and many had in fact taken loans over the past 12 months. However, only a minority of women, even in the project areas, reported that they were involved at least to a medium extent in decisions over credit.

Despite the overall low figures, involvement in decision-making over credit

Only a minority of women reported significant involvement in household decisions over the use of credit, even in the project areas.

was found to be considerably higher among those women who were personally members of the community banks, compared to those who were married to male community bank members. In the course of the qualitative follow-up work, women confirmed that the fact of being formally responsible for the loan has given them the right to participate to some extent in decisions over the use of the credit – particularly for the part of the credit used for day-to-day expenses rather than for productive activities – and this seemed to have happened more in the project areas than in the comparison areas. One reason for this is that more of the women interviewed in the project areas were personally members of the community banks (50 per cent) than in the comparison area (38 per cent). However, it should also be noted that women’s involvement in borrowing decisions was higher in the project areas even among those women who were themselves members of the community banks. This probably reflects that the community banks in the comparison areas have existed for less time and that the women have not had the same opportunities to benefit from the training that those in the project areas reported as valuable.

Overall, then, women’s reported involvement in decisions over credit is considerably higher among women in households represented among membership of the Oxfam/ODECO-supported community banks (28 per cent) than among women in households included in the membership of the comparison community banks (17 per cent). As would be expected, the proportion scoring positively on this indicator is much higher among those women who are themselves personally members of the community banks. In fact, there is no difference between women in the project and comparison areas who are not themselves members of the community banks.¹¹

5.2.9 Women’s public engagement

The ‘public engagement’ dimension of women’s empowerment is concerned with how much women are able to participate in and influence community life. The first of the two indicators considered here assesses the extent to which the respondents perceive they are able to **influence decision-making in their communities**. To investigate this, respondents were asked to state the extent to which they agree or disagree with these statements:

1. There are real opportunities for women to participate in decision-making in your community.
2. You would face large barriers to gaining a leadership position in your community.
3. If you wanted to voice your opinion in a community meeting, people would give you the opportunity to do so.
4. It would be very difficult for you to influence the way that community leaders are chosen.
5. If you wanted to, there are real opportunities for you to obtain a leadership position in the community.
6. It would not be difficult for you to influence important decisions in the community.
7. Women in your position could never influence decision-making in your community: there are too many barriers.
8. If local leaders were doing things you did not agree with, you would just have to adapt and could not do much to stop them.
9. Things have really changed in your community; there are now many opportunities for women in your position to become influential actors in how your community is governed.

¹¹ As has been noted in footnote 10 above, the same applies to the positive results on many of the other characteristics of women’s empowerment considered in this report.

10. Your opinion has never been taken into account in a meaningful way in the development of community initiatives.

Responses for each statement were scored on a scale from one to four, with higher scores representing more positive sentiments about the ability to participate in and influence community affairs. A binary indicator of community influencing was then constructed, which takes a positive value for women who responded positively to at least six of the ten statements.

The results do not provide clear evidence of any difference between women in the project and comparison areas in terms of influence in community decision-making.

As shown in column 1 of Table 5.14, 79 per cent of women in the project area were found to be above the cut-off for this indicator, compared to 73 per cent of women in the comparison areas. However, the differences between the two groups estimated by the PSM and regression models are mostly small, and in all cases are not statistically significant. In fact, when an alternative aggregate measure was constructed,¹² the differences between women in the project and comparison areas were mostly estimated to be negative. Overall, then, these results do not provide any evidence of a clear difference between the project and comparison areas in terms of interviewed women’s influence in community decision-making.

The second indicator of public engagement was the involvement of respondents in community groups, such as agricultural producer groups, savings groups, local government forums, civic groups and religious groups. Each respondent was scored positively on this measure if she participated in meetings of at least two groups, and reported being involved to at least a medium extent in decision-making in at least one group.

Table 5.14: Women’s public engagement

	1 Influence in community decision-making (binary)	2 Participation in community groups (binary)
Unadjusted		
Intervention group mean:	0.792	0.387
Comparison group mean:	0.726	0.237
Unadjusted difference:	0.066 (1.20)	0.150*** (2.60)
Observations:	271	270
PSM		
Post-matching difference: (kernel)	0.119 (1.42)	0.061 (0.73)
Observations:	261	261
Post-matching difference: (no replacement)	0.014 (0.19)	0.100 (1.22)
Observations:	247	247
Multivariable regression		
MVR coefficient: (with robust standard errors)	0.032 (0.48)	0.129* (1.77)
Observations:	254	256
MVR coefficient: (with control functions)	0.049 (0.74)	0.127* (1.77)
Observations:	268	269

t-statistics in parentheses
 * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$
 PSM estimates bootstrapped 1000 repetitions
 Coefficients for covariates used are not presented.
 Probit regression used for binary outcomes.

¹² The alternative measure was constructed by means of factor analysis across the responses for the ten statements.

Column 2 of Table 5.14 presents the proportion of women scoring positively in the supported and comparison groups for this indicator. Differences in the number of groups in which respondents reported being active and involved in decision-making are also presented.

The majority of women who attend meetings of the community banks in the project and comparison areas said that they are involved in decision-making to at least a medium extent.

Even though the PSM estimates from this measure are not statistically significant, it does appear that there is a positive difference between the women in project and comparison areas. As would be expected, this result is driven by the difference in participation in the community banks: 44 per cent of supported women report that they participate in meetings of a community bank, but only 19 per cent of comparison areas. This difference is even greater when it is considered that some of the women in the project areas are former – rather than current – members of the community banks. Among the households currently represented in the membership of supported community banks, 51 per cent of women report participating in meetings (as do 35 per cent of women who are recorded by ODECO as no longer formally being members of the community banks.)

There was little or no difference between the supported and comparison community banks in the involvement in decision-making among women who report attending meetings: 70 to 80 per cent said that they are involved in decision-making at least to a medium extent. However, in the qualitative follow-up research, women in the project areas said that they were increasingly assuming leadership positions at community level as result of their communication skills and self-perception.

Another important dynamic revealed in the course of the qualitative work was that women interviewed in San Sebastián – the comparison area – were found to be participating in a wider range of civil society groups than those in the project area. In particular, they seemed to have better links to local-government structures.

5.2.10 Women's self-perception

The final dimension of women's empowerment considered in this report includes four different elements of women's self-perception. The first of these is **self-efficacy** – a measure of a person's self-confidence and ability to overcome difficulties. An adapted version of the General Self-Efficacy Scale (GSE) was included in the questionnaire, in which the respondent was asked to state the extent to which she agreed or disagreed with each of the following statements:¹³

1. You can always manage to solve difficult problems if you try hard enough.
2. It is easy for you to stick to your aims and accomplish your goals.
3. You are confident that you could deal efficiently with unexpected events.
4. Thanks to your resourcefulness, you know how to handle unforeseen situations.
5. You can remain calm when facing difficulties because you can rely on your coping abilities.
6. You can usually handle whatever comes your way.
7. You can solve most problems if you invest the necessary effort.
8. If you are in trouble, you can usually think of a solution.
9. When you are confronted with a problem, you can usually find several solutions.

¹³ Adapted from the official Spanish version of the General Self-Efficacy Scale, <http://userpage.fu-berlin.de/~health/spanscal.htm>. The correlation between the different statements was tested using Cronbach's alpha: the alpha of 0.83 demonstrates that the responses to the eight statements used to assess self-efficacy are reasonably consistent.

Each respondent was scored positively on this measure if she agreed with all of these statements, and agreed strongly with at least three of them. The results of the comparison between the intervention and comparison women are presented in column 1 of Table 5.15. It can be seen that approximately half of respondents scored positively, with little indication of any difference between women in the project and comparison areas.

The remaining three indicators examine women’s attitudes towards women’s and men’s roles and rights, both in and outside the home. Each of these indicators is informed by female respondents’ reactions to a subset of statements that were presented to them during the questionnaire. Again, women were asked to state the extent of their agreement or disagreement with each of the statements, on a four-point scale.

The first indicator looks at the extent women agree or disagree with the following statements relating to **women’s role in productive activities**:

1. A woman can be a good wife and mother, even if she is working outside the home.
2. Women are as important as men in ensuring that the basic needs of families are met.
3. A man and woman should share responsibility for both earning money and caring for the home and family.

Respondents were deemed to have scored positively on this measure if they agreed with all three of these statements. As can be seen in column 2 of Table 5.15, this applied to nearly 70 per cent of women surveyed. There was no indication that women in the project areas were more likely to score positively than those in comparison areas. In the qualitative follow-up work, women in the project area said that being involved in productive activities

Table 5.15: Characteristics of women’s self-perception

	1 Self-efficacy (binary)	2 Attitude to women’s economic roles (binary)	3 Attitude to women’s domestic roles (binary)	4 Attitude to women’s rights (binary)
Unadjusted				
Intervention group mean:	0.427	0.688	0.448	0.792
Comparison group mean:	0.563	0.739	0.278	0.818
Unadjusted difference:	-0.135**	-0.051	0.170***	-0.027
	(-2.15)	(-0.90)	(2.86)	(-0.53)
Observations:	272	272	272	272
PSM				
Post-matching difference: (kernel)	-0.077 (-0.80)	-0.042 (-0.50)	0.150* (1.86)	0.025 (0.29)
Observations:	262	262	262	262
Post-matching difference: (no replacement)	0.000 (0.00)	-0.083 (-1.07)	0.153* (1.86)	-0.069 (-1.06)
Observations:	248	248	248	248
Multivariable regression				
MVR coefficient: (with robust standard errors)	-0.118 (-1.34)	-0.073 (-0.95)	0.201*** (2.60)	-0.071 (-1.40)
Observations:	257	255	257	257
MVR coefficient: (with control functions)	-0.105 (-1.24)	-0.046 (-0.61)	0.196*** (2.61)	-0.067 (-1.29)
Observations:	271	269	271	271

t-statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used are not presented.

Probit regression used for binary outcomes.

has led them to have a better perception of their capabilities, as well as a change in men's attitudes to women's roles that has led to an improved position in the household.

Five statements were used to assess respondent's opinions on **women's domestic roles**.¹⁴

1. A woman's role is taking care of her home and family.
2. A man should have the final word about decisions in his home.
3. It is not right for a woman to spend the whole day working outside the home.
4. A wife should obey her husband, even if she disagrees with him.
5. If a child falls sick, it is the responsibility of the woman, not the man, to take care of him/her.

In the various characteristics of women's self-perception, the only clear difference identified between women in the project and comparison areas was in terms of opinions on women's roles in the home.

It will be noted that all of these statements are expressed in a negative sense. Respondents were scored positively in terms of attitudes to women's domestic roles if they disagreed with at least three of the five statements. Factor analysis was also carried out on the results of the three statements. In this respect, there was a clear difference between the women in the project areas (of whom 45 per cent scored positively) and those in the comparison areas (of whom only 28 per cent scored positively). According to the qualitative research, the training from ODECO/Oxfam has been instrumental in opening women's minds and changing their attitudes to domestic roles. It was also highlighted that similar attitudinal changes have happened among men, which has facilitated women's ability to communicate and negotiate on household responsibilities. It was also said that even though there had been this attitudinal change, there was still some way to go, as women are the ones who are assuming the cost of their participation in productive activities in terms of longer working days and/or transferring household responsibilities to their older daughters.

Finally, two statements were used to assess respondents' **opinions on gender rights**:

1. Women should leave politics to men.
2. It is important that sons have more education than daughters.

Women were scored positively if they disagreed with both of these statements. This applied to approximately 80 per cent of respondents, but – as shown in column 4 of Table 5.15, there was again no indication of a systematic difference between the women in project and comparison areas.

6 Conclusions and learning considerations

6.1 Conclusions

This Effectiveness Review has found clear evidence that current and former members of the community banks supported by Oxfam and ODECO (most of whom are also current or former members of APROALCE) are better off than members of community banks in neighbouring communities in several respects. They appear to be able to access larger loans from the community bank: it is not clear whether this is because the Oxfam/ODECO-supported community banks have more capital to lend, or because the members have had more time to build up a credit history. These households are producing a wider range of crops at a commercial scale, and selling much higher volumes (around two or two and a half times the volume) of households in

¹⁴ Responses to another two statements were found to be negatively correlated with these five, and so were excluded from the analysis. Cronbach's alpha, the measure of consistency for the responses to the remaining five statements, was 0.66.

the comparison areas. Interestingly, it does not appear that this increase in crop sales is restricted to those who were selling to APROALCE or Aldea Global.

Perhaps as a result of their higher production of crops at a commercial scale, supported households appear to have income that is between 30 and 50 per cent higher on average than comparison households, and are eating a more diverse range of foods. They have also increased the quality of their living conditions and asset ownership since 1998 at a greater rate than the comparison households, suggesting that the increase in income has been sustained over some time.

Women in supported households demonstrate overall greater levels of empowerment than do women in comparison households. On average, the women in the project areas score positively on 55 per cent of the indicators of women's empowerment, compared to 48 per cent of the indicators among women in comparison areas. Examining the components of this index shows that supported women are better off in terms of their involvement in decision-making on productive activities and the use of income (though not on some other types of household decisions, where women in the comparison group have higher levels of involvement), and their ownership of strategic assets and their access to credit. They also appear to have more positive attitudes about men's and women's traditional roles in the home.

On the other hand, it is not clear that they have achieved better levels of influence in community decision-making. They take part in meetings of the community banks at much higher rates than do women in the comparison areas, where there has not been so much emphasis on encouraging women's participation in the community banks.

Analysis shows that the positive results on characteristics of women's empowerment are mostly confined to those who were personally members of the community banks (rather than their husbands being members). However, the choice to become a member may be an indicator of empowerment in itself. If so, then the results do not necessarily imply that the benefits in terms of empowerment are restricted to those women who were originally members.

It is important to consider to what extent these effects are a result of the activities of Oxfam and ODECO in the project area since 1998, and to what extent they may be caused by the activities of other organisations, which also differed between the project areas and the comparison areas. One potential confounding factor was the greater presence of Aldea Global in the project areas than in the comparison areas. However, the positive outcomes found in the course of this analysis (with the possible exception of the greater diversity of crops being grown) do not appear to be linked to whether a household had an association with Aldea Global – at least, not in the 12 months prior to the survey. The possibility that differences in the quality of leadership or ability to mobilise resources between the municipalities of Belén Gualcho and San Sebastián may have had some influence on the outcome measures cannot be ruled out. Nevertheless, the fact that there are such large and (at least in the case of the livelihoods outcomes) apparently long-term improvements in outcome measures between households in communities that are close neighbours does suggest that the support provided by Oxfam and ODECO since 1998 has been instrumental in producing these positive effects.

6.2 Programme learning considerations

- ***Consider at the design stage how to ensure the sustainability of community-based structures established under a project such as this.***

A concern raised in the course of the qualitative follow-up work was that the community banks established in the project areas were initially too reliant on the support provided by ODECO and Oxfam. With the gradual draw-down of the capacity building and monitoring provided by the partners over the past years, the membership and activities of two of the four community banks was also seen to be declining (though it should be noted that the creation of UNICEMOC, an umbrella organization for the community banks, is part of the partners' efforts to promote their sustainability) In contrast, the community banks in the comparison area, having not received such intensive support from external organisations, were thought to have generated a greater sense of ownership on the part of their members. Importance should be given at the design stage of projects to how to ensure ownership and sustainability of community-level initiatives.

- ***Seek future opportunities to apply this programme's positive experience in establishing structures for access to credit which specifically promote women's involvement and empowerment.***

Access to credit was, according to the qualitative research, a key determinant in achieving positive results in terms of women's empowerment. The implementation of a credit policy specifically intended to benefit women (with preferential rates, financial products targeted at women requirements, and so on) is thought to have promoted their participation and engagement in community banks. The access to funds linked with training on fund management, and the investment of credit in productive activities provided an opportunity for women and men to work together. This was seen to have been an important factor in building women's influence in decision-making at the household level. Future programmes supporting community-based credit activities should learn from this experience by establishing structures specifically to promote women's empowerment.

- ***Evaluation of women's empowerment interventions should use a transformative approach to provide further insights into the effect of projects in advancing women's rights and gender equity.***

While the range of characteristics of women's empowerment considered in this Effectiveness Review was more wide-ranging than in previous reviews, some important characteristics were missed. In particular, a more comprehensive investigation of empowerment would include examining women's ability to engage in collective action, and changes in attitudes to and the prevalence of gender-based violence as well as changes in attitudes and distribution of responsibility for care.

Appendix 1: Covariate balance following propensity-score matching procedures

Step 1: Backwards stepwise regression: covariate () excluded from participation model if

```
. stepwise, pr (.25): probit intervention $covariates if household_1998==1
note: household_1998 dropped because of collinearity
note: remittances_1998 dropped because of collinearity
      begin with full model
p = 0.9515 >= 0.2500 removing work_ag_conv_1998
p = 0.9148 >= 0.2500 removing hhh_female
p = 0.8974 >= 0.2500 removing work_ls_small_1998
p = 0.7751 >= 0.2500 removing hh_all_elderly
p = 0.8147 >= 0.2500 removing hh_single_adult
p = 0.8185 >= 0.2500 removing wealth_index_1998
p = 0.6321 >= 0.2500 removing distance_1998
p = 0.6260 >= 0.2500 removing work_ag_coffee_1998
p = 0.5884 >= 0.2500 removing hhh_educ_primary
p = 0.5676 >= 0.2500 removing wqresp_hhh
p = 0.4593 >= 0.2500 removing hh_size
p = 0.5107 >= 0.2500 removing num_educ_secondary
p = 0.4118 >= 0.2500 removing crops_num_prod_1998
p = 0.2739 >= 0.2500 removing hhh_productive
p = 0.2911 >= 0.2500 removing num_prodadult
```

```
Probit regression              Number of obs =      289
                             LR chi2(9)      =    88.42
                             Prob > chi2     =    0.0000
Log likelihood = -144.02347      Pseudo R2    =    0.2349
```

intervention	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
hhh_educ_secondary	.8332134	.4239287	1.97	0.049	.0023284	1.664098
work_ls_large_1998	.453023	.3011904	1.50	0.133	-.1372993	1.043345
num_educ_primary	.3300117	.1169841	2.82	0.005	.1007271	.5592963
num_adult	-.2341906	.1262861	-1.85	0.064	-.4817067	.0133256
land_area_1998	-.1068684	.0809036	-1.32	0.187	-.2654367	.0516998
work_other_number_1998	-.1996597	.0901082	-2.22	0.027	-.3762686	-.0230509
crops_num_sold_1998	.2504637	.0613014	4.09	0.000	.130315	.3706123
hhh_age	.0191328	.0079286	2.41	0.016	.0035931	.0346726
work_ag_veg_1998	.743769	.238588	3.12	0.002	.2761452	1.211393
_cons	-1.550433	.3617619	-4.29	0.000	-2.259473	-.8413922

Supporting Rural Community Banks in Western Honduras – Effectiveness Review

Step 2: Run psmatch2 with short-listed covariates, followed by ptest to assess covariate balance.

ptest output – kernel (11 treatment observations dropped with default bandwidth):

```

-----
      |      Mean      |      t-test
Variable | Treated Control  %bias |  t  p>|t|
-----+-----+-----
work_ot~1998 | 1.0217  1.1301  -11.0 | -0.77 0.441
land_ar~1998 | 1.3639  1.3087   4.7 |  0.38 0.707
hhh_educ_s~y | .06522  .10638  -20.0 | -0.99 0.321
num_adult   |  3.5  3.394   7.1 |  0.47 0.639
work_ls_la~8 | .1413  .12699   4.5 |  0.28 0.777
num_educ_p~y | 3.0543  3.0104   2.9 |  0.19 0.848
crop~ld_1998 | 1.663  1.5745   4.9 |  0.36 0.721
hhh_age    | 47.739  46.14  12.6 |  0.86 0.392
work_ag_ve~8 | .33696  .36169  -6.1 | -0.35 0.727
-----

```

ptest output – noreplacement (24 treatment observations dropped with calliper of 0.48):

```

-----
      |      Mean      |      t-test
Variable | Treated Control  %bias |  t  p>|t|
-----+-----+-----
work_ot~1998 | 1.038  .98734   5.1 |  0.33 0.743
land_ar~1998 | 1.3096  1.3244  -1.3 | -0.09 0.925
hhh_educ_s~y | .07595  .05063  12.3 |  0.65 0.517
num_adult   | 3.3544  3.3924  -2.5 | -0.15 0.878
work_ls_la~8 | .10127  .08861   4.0 |  0.27 0.788
num_educ_p~y | 2.9114  2.9241  -0.8 | -0.05 0.960
crop~ld_1998 | 1.3291  1.1013  12.5 |  1.00 0.321
hhh_age    | 47.342  48.722 -10.9 | -0.69 0.492
work_ag_ve~8 | .21519  .18987   6.2 |  0.39 0.694
-----

```