



# **Improving Women's Leadership and Effectiveness in Agricultural Governance Project Effectiveness Review**

## ***Full Technical Report***



**Oxfam GB  
Women's Empowerment Outcome Indicator**

**December, 2012**

### **Acknowledgements**

We would like to thank the Oxfam Nigeria and JDPC team for being so supportive during the exercise. Particular thanks to Tunde Ojei, Brenda Bepeh, Boyowa Roberts, Mojisola Fayemi, and Mike Taiwo.

Photo credit: David Bishop

# Table of Contents

<b>Executive summary .....</b>	<b>1</b>
<b>1 Introduction and purpose .....</b>	<b>2</b>
<b>2 The project.....</b>	<b>2</b>
<b>3 Intervention logic of the improving women's leadership and effectiveness in agricultural governance project.....</b>	<b>3</b>
<b>4 Impact assessment design.....</b>	<b>5</b>
4.1 Limitations in pursuing the 'gold standard' .....	5
4.2 Alternative evaluation design pursued .....	5
4.3 Intervention and comparison groups surveyed .....	7
<b>5 Methods of data collection and analysis .....</b>	<b>8</b>
5.1 Data collection .....	8
5.2 Data analysis .....	9
5.3 Main problems and constraints encountered .....	9
<b>6 Results.....</b>	<b>10</b>
6.1 General characteristics .....	10
6.2 Receipt of external support.....	12
6.3 Differences between the intervention and comparison households on the outcome measures .....	13
6.3.1 <i>Introduction to Oxfam GB's Women Empowerment Index</i> .....	13
6.3.2 <i>Women's Empowerment Index - Results</i> .....	14
6.3.3 <i>Household decision making: Indicator 1 – Input in productive decisions</i> .....	21
6.3.4 <i>Household decision making: Indicator 2 – Input in other household decisions</i> ....	23
6.3.5 <i>Resources: Indicator 1 – Ownership of strategic assets</i> .....	24
6.3.6 <i>Resources: Indicator 2 – Access to credit</i> .....	25
6.3.7 <i>Public engagement: Indicator 1 – Community influencing</i> .....	27
6.3.8 <i>Public engagement: Indicator 2 – Group participation</i> .....	29
6.3.9 <i>Self-perception: Indicator 1 – Self-efficacy</i> .....	30
6.3.10 <i>Self-perception: Indicator 2 – Attitude to position of women</i> .....	32
6.3.11 <i>Self-perception: Indicator 3 – Attitude to women's rights</i> .....	34
6.3.12 <i>Self-perception: Indicator 4 – Attitude to sharing of household responsibilities</i> ..	35
6.3.13 <i>Asset ownership</i> .....	36
<b>7 Conclusions and learning considerations .....</b>	<b>38</b>
7.1 Conclusions.....	38
7.2 Programme learning considerations .....	39

<b>Appendix 1: Covariate balance following propensity score matching procedures – example for one of the project outcomes .....</b>	<b>41</b>
<b>Appendix 2: Inter-item correlations of statements used to construct community influencing indicator .....</b>	<b>44</b>
<b>Appendix 3: Inter-item correlations of statements used to construct self-efficacy indicators.....</b>	<b>44</b>
<b>Appendix 4: Inter-item correlations of statements used to construct gender attitude indicators.....</b>	<b>44</b>
<b>Appendix 5: Inter-item correlations of statements used to construct the asset index</b>	<b>45</b>

## Executive summary

Under Oxfam Great Britain's (OGB) Global Performance Framework (GPF), sufficiently mature projects are being randomly selected each year and their effectiveness rigorously assessed. Nigeria's 'Improving Women's Leadership and Effectiveness in Agricultural Governance' project was randomly selected for an Effectiveness Review under the women's empowerment thematic area. The project aims to increase women's leadership and participation in agricultural decision-making and governance. This is to be achieved through building women's skills and capacity in improved production techniques and by influencing local government and community leadership structures to enable greater involvement of women.

The project is being implemented in two different regions in Nigeria – the North/Central region covering Plateau and Benue states, and the South-Western region covering Oyo, Ogun and Ekiti states. Due to security concerns, it was agreed to focus the review on the activities implemented in Oyo, Ogun and Ekiti states by a local partner organisation, the Justice Development and Peace Commission (JDPC).

To assess the effectiveness of the project in empowering women and increasing household wealth status a quasi-experimental impact evaluation design was implemented. This involved administering surveys to 354 women in 23 women's groups – 13 from communities targeted by the project and 10 from neighbouring comparison communities. To reduce bias, propensity score matching (PSM) and multivariable regression (MVR) were used in the statistical comparison of the two groups. Progress of the project towards a number of key outcomes was assessed through this process. These outcomes include the extent to which women are empowered, as measured by a women's empowerment index adapted from that developed by the Oxford Poverty and Human Development Initiative (OPHI). The particular index used comprises of four dimensions and 10 constituent indicators, covering issues relating to household decision-making, control of resources, public engagement and self-perception.

The effectiveness review found evidence that the 'Improving Women's Leadership and Effectiveness in Agricultural Governance' project successfully affected several of the key outcomes, but not others. In general, there is some evidence that it has worked to both empower women and increase household wealth. However, this is primarily restricted to the supported women in Ogun state. In particular, significant differences in this state were identified on several of the measures that contribute to the overall women's empowerment index. These include those related to: a) women's perceived role in influencing community affairs; b) women's participation in community groups; and c) attitudes towards the rights of women in the wider society. That being said, a positive effect was identified in Oyo state in relation to attitudes towards the position of women in the household. The project appears to have brought about the greatest positive change in both women's participation in community life and in their ability to influence affairs at the community level. Where no evidence of change in empowerment was detected, it tends to be in those areas affecting issues at a more personal or household level, such as women's involvement in household decision-making and attitudes towards gender roles in the household.

The Nigeria country team and JDPC in particular are encouraged to consider the following as a follow-up to this effectiveness review:

- Critically review and assess how the project can more effectively increase women's empowerment at the household level.
- Review intervention implementation and uptake in both Ogun and Oyo to identify why there are reported differences in impact between the two states.
- Explore the reasons for the significant improvement in asset wealth in Ogun state.

## 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, a modest sample of mature projects (e.g. those closing during a given financial year) associated with each thematic indicator area is being randomly selected each year and rigorously evaluated. One key focus is on the extent they have promoted change in relation to relevant OGB global outcome indicators.

*The review focused on assessing the effectiveness of a project in empowering women, as measured by a Women's Empowerment Index*

The global outcome indicator for the women's empowerment thematic area is based on a women's empowerment index adapted from that developed by the Oxford Poverty and Human Development Initiative (OPHI). This index is designed to measure the extent to which women are empowered in four dimensions – household decision-making, control over resources, public engagement and self-perception. The index is explained further in Section 6 below, and the field-work that took place in Nigeria in July 2012 was part of an effort to capture data on its constituent elements.

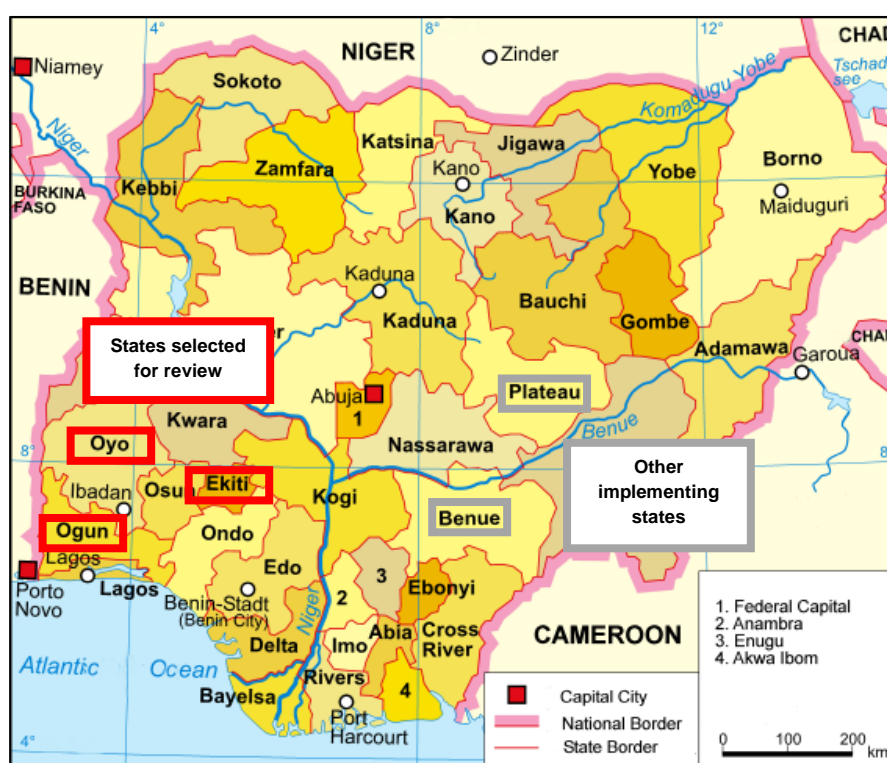
This report presents the findings resulting from a process where data were collected and compared from women in groups that were targeted by the project and women in groups residing in nearby, similar communities that were not. However, before doing so, Section 2 first provides background information on the project and the context in which it is being implemented, while Section 3 explains the project's intervention logic. Section 4 and 5 follow by presenting the impact evaluation design that was used and the methods of data collection and analysis, respectively. Section 6 is the longest section of this document. Its subsections present basic descriptive statistics, data on intervention exposure, and finally the overall differences between women in the intervention and comparison communities. Section 7 provides general conclusions and programme learning considerations.

## 2 The project

The 'Improving Women's Leadership and Effectiveness in Agricultural Governance' project aims to increase women's leadership and participation in agricultural decision-making and governance, through building women's skills and capacity to improve production, and in influencing local government and community leadership structures to enable greater involvement of women.

The project is being implemented in two different regions in Nigeria – the North/Central region covering Plateau and Benue states and the South-Western region covering Oyo, Ogun and Ekiti states. Due to security concerns, it was agreed to focus the review on the activities implemented in Oyo, Ogun and Ekiti states by a local partner organisation, the Justice Development and Peace Commission (JDPC). JDPC focuses its work in 25 communities across the three states.

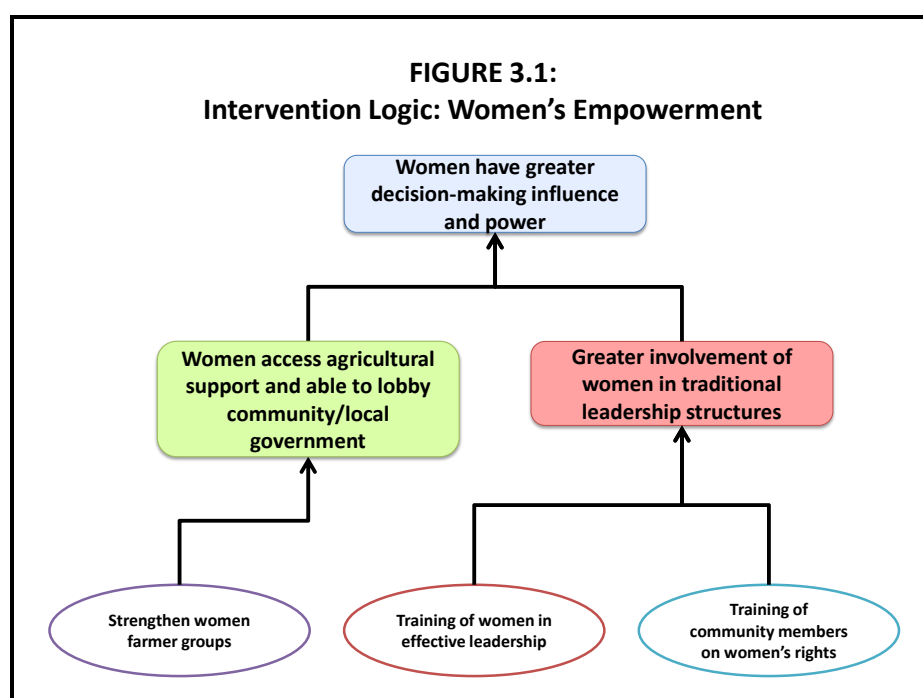
Figure 2.1: Location of Project Effectiveness Review



### 3 Intervention logic of the improving women's leadership and effectiveness in agricultural Governance Project

As mentioned above, one of the primary aims of the project assessed under the effectiveness review was to empower women in the areas of agricultural decision-making and governance. Figure 3.1 presents the intervention logic of how the activities carried out under the project were to achieve this particular aim.

Several interventions have been integrated into the project to explicitly empower women



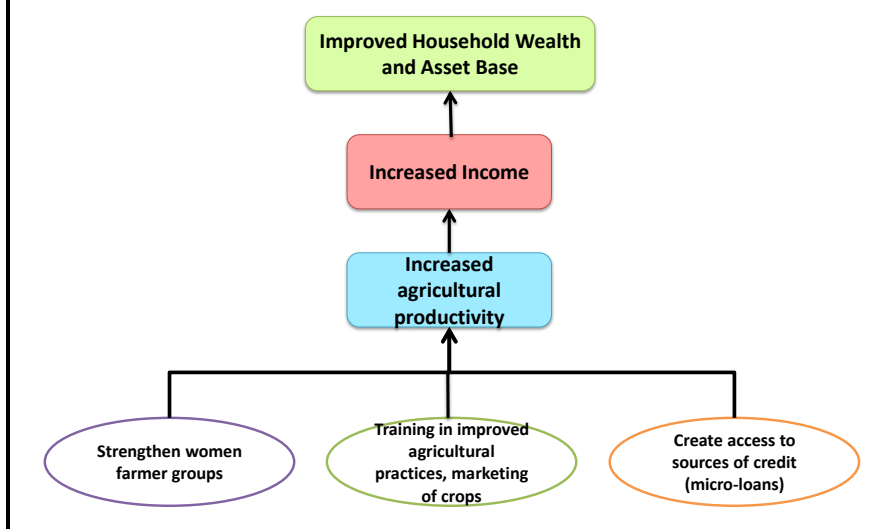
As is evident from the diagram, considerable training has been carried out through the project in the supported communities. One key purpose of this training has been to increase community awareness about women's rights. Together with periodically holding community discussions on gender norms and practices in the communities targeted by the project, the training is also intended to increase the involvement of women in traditional leadership structures, thereby also increasing their decision-making and influencing power.

Additionally, agricultural practice and individual leadership training has been delivered to women farmer groups in each of the supported communities. Supporting and liaising with these groups has been a key thrust of the project, and it is the primary mechanism by which training and other interventions have been carried out. Significant work has also been undertaken to encourage the individual groups to act collectively in influencing local and national government policy. This collective grouping is known as the Association of Small-Scale Agro-Producers in Nigeria (ASSAPIN), and it is supported by a total of 16 NGOs across 16 states. However, assessing the effectiveness of the groups in influencing government policy was not a focus for this review.

A second objective of the project is to improve the livelihoods of the communities in which JDPC works. As mentioned above, this was done through supporting existing women's farmer/community groups. These groups were the focus of training in improved agricultural methods in order to improve productivity, together with training in marketing and budgeting skills and collective organisation to improve their bargaining power with potential buyers. This training is intended to result in increased income from their crop production, leading to improved household wealth and asset base. Figure 3.2 presents the intervention logic of how the activities carried out under the project were to achieve this particular aim.

*Various interventions under the project were carried out to support households to improve their agricultural production*

**FIGURE 3.2:**  
**Intervention Logic: Improved Household Wealth**



## 4 Impact assessment design

### 4.1 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. household income) 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*

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* 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 a) their pre-programme outcomes (e.g. both groups have the same average incomes); and b) their 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.

### 4.2 Alternative evaluation design pursued

When the comparison group is non-equivalent there are several evaluation designs that can identify reasonably precise intervention effects – particularly when certain assumptions are made. 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 to match, it is difficult to find comparators with similar combinations of characteristics for each of the units in the intervention group. Typically, the end result 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 to which the findings can be generalised to all programme participants. (This is referred to as the 'curse of dimensionality' in the literature.)

*The evaluation design involved comparing households in communities targeted and not targeted by the project, while using statistical procedures to control for potentially confounding factors*

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. Propensity score matching (PSM) works 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 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 lurking among the groups, particularly those associated with the outcomes of interest, PSM is capable of identifying unbiased intervention effects.

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. In this way, multivariable regression controls for measured differences between the intervention and comparison group. 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.<sup>1</sup> 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, educations levels, etc. (see Section 5 below).

While no baseline data were available, efforts were made, as explained above, 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

<sup>1</sup> 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 2-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, on how well the drivers of participation are modelled.

cross-sectional 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. One set of variables, for example, was related to the respondents' wealth status at baseline, e.g. whether they were asset rich, asset poor, or somewhere in between. 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 (double 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 recalled baseline data, using PSM and/or regression and the double difference approaches together is considered a strong impact evaluation design.

### **4.3 Intervention and comparison groups surveyed**

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 who differ in relevant baseline characteristics and/or who are subjected to different external events and influences will likely 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.

The challenge we confronted, then, was how to identify women that could be comparable with those the project targeted. As mentioned above, 25 communities were targeted by the project. In each of these communities, specific support was provided to existing women-only farmer and community groups. If we simply compared members of these groups with other women residing in these communities, this would likely give biased estimations of project impact. In particular, the women that are members of the groups and the other women are likely to differ in *both* observable and unobservable ways (e.g. self-confidence). Moreover, if we had compared the supported women to other women in adjacent communities, this would still be problematic, given that these comparison women would not necessarily be comparable for similar reasons. Due to the fact that the women's groups supported by the project already existed at baseline, a decision was made to identify women's groups in adjacent communities and use them to construct the comparison group. It is assumed that these comparison groups are comprised of women who are similar in character to the women in the project-supported groups. Consequently, comparing the two groups of women would enable the net impacts of the project to be identified.

Due to budget constraints and logistical difficulties in reaching all 25 groups in each of the communities, 15 of the project groups were randomly selected for review. A further 10 groups, not supported by the

*Surveys were administered to women farmers in 13 intervention and 10 comparison communities*

project, were selected across the three states for comparison. The numbers of women interviewed from each these groups was computed through proportionate stratified sampling.

However, during the actual data collection exercise, logistics were further hampered by weather and access difficulties, resulting in a total of 13 supported and 10 comparison groups being surveyed. This impacted on the reporting for Ekiti State, where the number of women interviewed from the intervention and comparison groups was too small for analysis using PSM.

The number of women interviewed by state and intervention/comparison community is presented in Table 4.1 below.

**Table 4.1: Sample sizes in intervention and comparison communities**

Intervention Communities			Comparison Communities		
State	Number groups/ communities	Number of women	State	Number of groups/ communities	Number of women
Ogun	6	77	Ogun	5	102
Oyo	5	59	Oyo	4	79
Ekiti	2	16	Ekiti	1	21
<b>Totals</b>	<b>13</b>	<b>152</b>		<b>10</b>	<b>202</b>

## **5 Methods of data collection and analysis**

### **5.1 Data collection**

A household questionnaire was developed by Oxfam staff and translated by the consultant to capture data on both the characteristics and other outcome measures of interest presented in Section 3.0 above. Data for other key characteristics of the interviewed households were also obtained to implement the evaluation design described in Section 4.0. The questionnaire was pre-tested first by the Consultant and then by the enumerators during a practice exercise and revised accordingly.

*A total of 12 enumerators administered the questionnaires, closely monitored by a consultant*

The 12 enumerators that administered the questionnaires were primarily university students or university graduates, many of whom came from the local area. Fourteen prospective enumerators completed the two-day training course, which was led by the Consultant but was also supported by OGB staff. The second day involved a practice run at administering the questionnaire, followed by critically reviewing the performance of the trainees. Two prospective enumerators were subsequently disengaged.

The work of the enumerators was closely monitored and scrutinised by the Consultant, and, on the first day of the survey, OGB staff also reviewed the completed questionnaires. The women to be interviewed, who had been randomly sampled from lists of members, were mobilised to a central location in advance of the survey, and then interviewed one-on-one in private. The questionnaire took approximately 40 minutes to administer.

## 5.2 Data analysis

OGB developed data-entry tools in Adobe Acrobat Pro, and the Consultant recruited and supervised data-entry clerks. After identifying and rectifying some minor errors in MS Excel, the data were then imported into Stata for analysis, the results of which are presented in the following sections. Most of the analyses involved group mean comparisons using *t*-tests, as well as PSM with the *psmatch2* module and various regression approaches.

Kernel and nearest neighbour matching without replacement were the main methods used in implementing PSM. Variables used in the matching process were identified by first using backwards stepwise regression to identify those variables that are correlated with the outcome measure of interest at *p*-values of 0.20 or less. The short-listed variables were then put into another stepwise regression model to identify those that are correlated with being a member of the intervention group. Covariate balance was checked following the implementation of each matching procedure. When covariate imbalance at *p*-values of 0.20 or less was identified, the bandwidth or calliper was reduced and the PSM procedure and covariate balance test implemented again. This was continued until all covariates were balanced at *p*-values greater than 0.20. Bootstrapped standard errors enabled the generation of confidence intervals to assess the statistical significance of the effect sizes. Exact matching within each state was further imposed to avoid comparing intervention and comparison respondents from different sites. An example of the Stata output from this process, for one of the tested outcomes, is included in the Appendix.

All the covariates, as presented in Table 6.1 below, 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). To control for unobservable state specific influences, fix effect models were used, with the variable 'state' specified as a key fixed effect.

## 5.3 Main problems and constraints encountered

Overall, despite the usual difficulties encountered when undertaking such intensive work, the data collection process went well. However, three particular challenges are worthy of mention:

- **Difficulties identifying sufficient numbers of women to interview**

As explained above, logistical and budget constraints resulted in a smaller sample size than anticipated, particularly in Ekiti state. As a result, the overall results include respondents from Ekiti state, but where the results are disaggregated by state, Ekiti is excluded from the analysis. Ekiti is also excluded from the PSM estimates.

- **Geographically dispersed groups**

Due to similar constraints as those mentioned above, it was not possible to visit all of the women groups supported by Oxfam in these three states. Therefore the results presented in this review cannot be generalised to all 25 groups supported by the project; the impact effect

estimates obtained only apply to the 13 supported groups.

- **Using the two-step process for a composite index**

As mentioned in Section 5.2, a two-step process was used to identify the covariates used in PSM. This is not ideal when analysing a composite measure, such as the women's empowerment index.<sup>2</sup>

## **6 Results**

### **6.1 General characteristics**

Table 6.1 presents statistics for various household characteristics obtained through the administration of the questionnaires to the respondents from both the project and non-project communities. The stars beside the number indicate differences between the two groups that are statistically significant at a 90 per cent confidence level or greater.

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<sup>2</sup> In particular, the index used in this effectiveness review is based on 10 different indicators, each of which relates to a different construct (outcome). Hence, in the first step – i.e. where those covariates correlated with outcome are first identified – it is not clear which outcomes of the index, in particular, the covariates in question are correlated with. Moreover, it may be possible for a covariate to be positively correlated with one of the outcomes of the index and negatively correlated with another and therefore end up being uncorrelated with the index itself but, nevertheless, important. Fortunately, however, the regression models used in the analysis included all the covariates used in the review, thereby, minimising the risk of mistaken conclusions being drawn as a result of this shortfall.

**Table 6.1: Descriptive statistics: intervention and comparison respondents interviewed**

			Overall <sup>^</sup>		Ogun		Oyo	
	Intervention mean	Comparison mean	Difference	t-statistic	Difference	t-statistic	Difference	t-statistic
Baseline household asset index	-0.088	0.066	-0.154	-0.66	-0.049	-0.15	-0.569	-1.57
Household size	5.243	5.243	0.001	0.00	0.406	1.25	-0.194	-0.56
No. of adults in household	3.092	3.030	0.062	0.39	0.017	0.08	0.225	0.87
No. of children in household	2.151	2.213	-0.062	-0.34	0.389	1.54	-0.419	-1.48
No. of dependents	1.441	1.381	0.060	0.40	0.365*	1.74	-0.117	-0.52
No. of productive adults	3.007	2.950	0.056	0.35	-0.015	-0.07	0.288	1.14
Single adult household	0.066	0.050	0.016	0.66	-0.026	-0.70	0.026	0.79
Female headed household	0.230	0.188	0.042	0.97	-0.031	-0.49	0.098	1.48
Elderly headed household	0.342	0.267	0.075	1.52	-0.037	-0.59	0.137*	1.66
Age of household head	52.342	49.668	2.674*	1.87	-1.353	-0.71	5.212**	2.20
Household head has sec. education	0.441	0.465	-0.025	-0.46	-0.071	-0.95	0.023	0.27
Adult in household has sec. education	0.711	0.807	-0.096**	-2.13	-0.132**	-1.99	-0.039	-0.53
Age of female respondent	44.382	42.396	1.986	1.49	-3.590**	-2.05	5.877***	2.79
Educ. level of female respondent	3.224	3.297	-0.073	-0.33	-0.144	-0.49	0.124	0.35
Female respondent in good health	0.980	0.985	-0.005	-0.35	-0.006	-0.28	0.013	0.86
Female respondent married	0.789	0.812	-0.022	-0.52	0.024	0.40	-0.119*	-1.94
Female respondent widowed	0.171	0.139	0.032	0.84	-0.024	-0.43	0.098*	1.69
Household farms at baseline	0.980	0.975	0.005	0.31	0.013	0.48	-0.017	-1.16
Household processes crops at baseline	0.684	0.649	0.036	0.70	0.032	0.43	0.037	0.48
Household rears livestock at baseline	0.559	0.619	-0.060	-1.13	-0.016	-0.21	-0.200**	-2.52
Household operates IGA at baseline	0.467	0.510	-0.043	-0.80	-0.084	-1.12	-0.019	-0.22
Household does casual labour	0.237	0.144	0.093**	2.25	0.152**	2.48	0.060	0.96
Household does unskilled labour	0.250	0.332	-0.082*	-1.67	0.057	0.84	-0.231***	-2.95
Household does skilled labour	0.197	0.178	0.019	0.46	0.006	0.11	0.124*	1.75
Household >10km from market	0.151	0.099	0.052	1.49	0.103	1.59	0.000	.
Household >20km from dist. Centre	0.092	0.099	-0.007	-0.22	-0.014	-0.24	0.000	.
Observations	152	202	354		179		138	

<sup>^</sup> includes Ekiti

\* p&lt;0.1, \*\* p&lt;0.05, \*\*\* p&lt;0.01

As is evident, the two groups have several significant observable differences. The households in the project and non-project sites differ significantly, on average, in the following respects:

*Several significant observable differences were identified between the intervention and comparison households*

- Household heads are slightly older in the Oyo intervention households, and are more likely to be headed by someone over the age of 60.
- Intervention households in Ogun state are more likely to have a slightly greater number of dependents.
- Intervention households in Ogun state are less likely to have an adult with at least secondary education.
- The women group members interviewed from intervention households in Oyo are likely to be older, while those interviewed from intervention household in Ogun are likely to be younger.
- Women group members from intervention households in Oyo are slightly less likely to be married and slightly more likely to be widowed.
- Households in the intervention group in Oyo are slightly less likely to have been rearing livestock in 2009 (prior to the project starting).
- In terms of labour, intervention households in Ogun are more likely to have been engaged in casual labour in 2009, while intervention households in Oyo are more likely to be engaged in skilled labour and less likely to be engaged in unskilled labour.

## 6.2 Receipt of external support

The interviewed women were also asked whether they had received particular types of external support since the baseline period in 2009. These relate particularly to the types of support provided by the project, but were not communicated as such to the respondents. The particular types of support are presented in Table 6.2. This table also presents the results of a comparison between the intervention and comparison households in relation to the receipt of this support.

As indicated in the table, significantly greater proportions of women in the project groups reported receiving all five of the support items. Overall, the supported women are most likely to have received training on women's rights and leadership skills. Approximately half the supported women reported having received training on budget monitoring, team building and marketing. The largest differences between the intervention and comparison groups are in relation to leadership training – particularly in Oyo state – and training on women's rights.

**Table 6.2: Comparison of intervention and comparison households in relation to receipt of external support**

			Overall <sup>^</sup>		Ogun		Oyo	
	Intervention mean	Comparison mean	Difference	t-statistic	Difference	t-statistic	Difference	t-statistic
Workshop on leadership training	0.691	0.243	0.448***	9.39	0.339***	4.79	0.531***	7.26
Workshop on budget monitoring	0.474	0.149	0.325***	7.13	0.314***	5.03	0.268***	3.51
Workshop on women's rights	0.724	0.218	0.506***	10.98	0.456***	6.91	0.535***	7.31
Team-building workshop	0.507	0.134	0.373***	8.32	0.389***	6.27	0.327***	4.38
Workshop on marketing	0.533	0.124	0.409***	9.25	0.386***	6.30	0.437***	6.06
Observations	152	202	354		179		138	

<sup>^</sup> includes Ekiti, \* p<0.1, \*\* p<0.05, \*\*\* p<0.01

### 6.3 Differences between the intervention and comparison households on the outcome measures

This subsection presents the results of analyses that compared the women respondents from the intervention and comparison communities in relation to outcome measures relevant to the theories of change presented in Section 3.0.

#### 6.3.1 Introduction to the Women's Empowerment Index

In order to assess a multi-dimensional concept, such as women's empowerment, we have adopted and adapted an approach that assesses several dimensions of women's empowerment. This approach builds on the 'Women's Empowerment in Agriculture Index'<sup>3</sup> (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 6.3).

**Table 6.3: The four dimensions of women's empowerment used in the Index**

Dimension	Indicators	Weight
Household decision-making	Input in productive decisions	1/8
	Input to other household decisions	1/8
Resources	Ownership of strategic assets	1/8
	Access to and decisions on credit	1/8
Public engagement	Community influencing	1/8
	Group participation	1/8
Self-perception	Self-efficacy	1/16
	Attitude to position of women	1/16
	Attitude to women's rights	1/16
	Attitude to sharing household responsibilities	1/16

<sup>3</sup> <http://www.ifpri.org/publication/womens-empowerment-agriculture-index>



An innovative tool was used that measures different dimensions of women's empowerment

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.
- **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 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.

In order to bring all of these different elements together to produce the overall women's empowerment index, each dimension is weighted equally, as are each of the indicators within a particular dimension. The rationale for this is each of the four dimensions is considered equally important from a women's empowerment perspective.

Using these weighted indicators the overall women's empowerment index is then constructed using a multidimensional measurement methodology known as the Alkire–Foster Method.<sup>4</sup> The next step in this method is to define an overall binary cut-off for the entire weighted 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 three-quarters of the indicators.** The justification is that three-quarters is equivalent to three of the four dimensions used to construct the index, i.e. a woman needs to score positively in the percentage of the indicators that is equivalent to at least three dimensions to be considered multi-dimensionally empowered. The cut-offs which determine whether a woman scores positively in a particular indicator, are described in sections 6.3.3 onwards, where each indicator in the Index is examined in turn.

### 6.3.2 Women's Empowerment Index – results

Measuring women's empowerment using the method outlined above provides a number of interesting indicators, which can be analysed.

1. The overall Women's Empowerment Index (WEI). This is a composite score ranging from zero to one, where higher values indicate greater empowerment. The index is calculated by combining elements (2) and (4) in this list.
2. The percentage of women found to have met the cut-offs for demonstrating empowerment in at least three-quarters of the indicators.
3. The average percentage of indicators in which women are above the cut-offs.
4. The average percentage of indicators in which women *who are not empowered* are above the cut-offs.
5. The percentage of women with a higher WEI score than the median score for the comparison women. (Oxfam GB's outcome indicator for women's empowerment).

<sup>4</sup> Sabina Alkire and James Foster (2011) 'Counting and multidimensional poverty measurement.' *Journal of Public Economics* 95: 476–487: <http://www.sciencedirect.com/science/article/pii/S0047272710001660>

The five composite measures listed above 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 on the measures described above is presented in Table 6.4.

# Improving Women's Leadership and Effectiveness in Agricultural Governance – Effectiveness Review

**Table 6.4: Comparison of intervention and comparison sites measures pertaining to the Women's Empowerment Index (WEI)**

	(1) Women's Empowerment Index			(2) Percentage of women empowered			(3) Average % of indicators in which women are above the cut-offs			(4) Average % of indicators in which women who are not empowered are above the cut-offs			(5) % of women above median WEI score for comparator women (global outcome indicator)		
	Overall	Ogun	Oyo	Overall	Ogun	Oyo	Overall	Ogun	Oyo	Overall	Ogun	Oyo	Overall	Ogun	Oyo
<b>Unadjusted:</b>															
Intervention mean <sup>^</sup> :	0.708	0.688	0.711	0.309	0.286	0.288	0.663	0.649	0.664	0.578	0.563	0.594	0.605	0.571	0.644
Comparison mean <sup>^</sup> :	0.681	0.657	0.715	0.297	0.245	0.342	0.637	0.619	0.669	0.547	0.546	0.567	0.520	0.471	0.595
Unadjusted difference <sup>^</sup> :	0.027	0.030	-0.004	0.012	0.041	-0.054	0.026	0.030	-0.004	0.031*	0.016	0.026	0.085	0.101	0.049
	(1.08)	(0.86)	(-0.11)	(0.25)	(0.61)	(-0.67)	(1.34)	(1.08)	(-0.14)	(1.72)	(0.65)	(0.92)	(1.60)	(1.34)	(0.58)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>247</b>	<b>132</b>	<b>94</b>	<b>354</b>	<b>179</b>	<b>138</b>
<b>PSM (ATT)</b>															
Post-matching difference: (kernel)	0.016	0.047	-0.007	0.002	0.064	-0.069	0.012	0.041	-0.019	0.020	0.031	0.021	0.108*	0.116	0.135
	(0.63)	(1.36)	(-0.17)	(0.03)	(0.98)	(-0.81)	(0.57)	(1.52)	(-0.62)	(1.03)	(1.13)	(0.69)	(1.87)	(1.57)	(1.37)
<b>Observations:</b>	<b>310</b>	<b>177</b>	<b>133</b>	<b>315</b>	<b>177</b>	<b>138</b>	<b>312</b>	<b>177</b>	<b>135</b>	<b>218</b>	<b>127</b>	<b>91</b>	<b>312</b>	<b>179</b>	<b>133</b>
Post-matching difference: (no replacement)	0.016	0.058	-0.016	0.037	0.080	-0.034	0.011	0.038	-0.023	0.033	0.046	0.005	0.130**	0.143*	0.111
	(0.54)	(1.57)	(-0.35)	(0.69)	(1.12)	(-0.40)	(0.52)	(1.24)	(-0.70)	(1.58)	(1.58)	(0.15)	(2.09)	(1.87)	(1.13)
<b>Observations:</b>	<b>310</b>	<b>177</b>	<b>133</b>	<b>315</b>	<b>177</b>	<b>138</b>	<b>312</b>	<b>177</b>	<b>135</b>	<b>218</b>	<b>127</b>	<b>91</b>	<b>312</b>	<b>179</b>	<b>133</b>
<b>Multivariable Regression:</b>															
MVR coefficient (robust standard errors) <sup>^</sup> :	0.035	0.061*	-0.045	0.014	0.075	-0.149*	0.035*	0.057**	-0.024	0.045**	0.033	0.034	0.153**	0.236**	0.073
	(1.42)	(1.78)	(-1.17)	(0.28)	(1.02)	(-1.80)	(1.88)	(2.10)	(-0.80)	(2.46)	(1.10)	(1.17)	(2.51)	(2.47)	(0.71)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>247</b>	<b>132</b>	<b>94</b>	<b>354</b>	<b>179</b>	<b>136</b>
MVR coefficient (robust regression) <sup>^</sup> :	0.033	0.065*	-0.050	-0.002	0.074	-0.179*	0.033*	0.061**	-0.028	0.049**	0.039	0.034	n/a	n/a	n/a
	(1.25)	(1.76)	(-1.09)	(-0.04)	(0.99)	(-1.75)	(1.70)	(2.19)	(-0.81)	(2.59)	(1.25)	(0.99)			
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>247</b>	<b>132</b>	<b>92</b>			
MVR coefficient with control functions (robust standard errors) <sup>^</sup> :	0.035	0.066*	-0.046	0.015	0.081	-0.150*	0.036*	0.061**	-0.024	0.045**	0.040	0.034	0.155**	0.231***	0.062
	(1.45)	(1.89)	(-1.20)	(0.29)	(1.09)	(-1.86)	(1.92)	(2.23)	(-0.81)	(2.50)	(1.31)	(1.17)	(2.54)	(2.58)	(0.63)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>247</b>	<b>132</b>	<b>92</b>	<b>354</b>	<b>179</b>	<b>136</b>

<sup>^</sup> Overall includes Ekiti

t statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented

State specified as a fixed effect for all MVR models

*There is some evidence of a positive project effect on overall women's empowerment – although just in Ogun state*

The upper section of the table shows the raw unadjusted values and differences for each of the measures for both the overall sample, as well as disaggregated results for Ogun and Oyo states. 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 the supported and comparison women in the outcome measure after controlling for demographic and baseline differences.

Taking the results of the five measures presented in Table 6.4, we can say in summary that there is **some evidence of a positive project effect on women's empowerment, although this is restricted to supported women in Ogun state.**

In Table 6.4, the first column shows the differences between the supported women and comparison women in terms of the overall index score. This index is defined to take a value of 1 (the maximum) where the woman was above the cut-off in at least three-quarters of the indicators. Otherwise, the index is the proportion of indicators in which the respondent is above the cut-off. Three of the five statistical models find a positive and significant difference between the supported and comparison women in Ogun state.

Column 2 of Table 6.4 presents the proportion of women who are deemed to be empowered, i.e. those women who are above the cut-offs for three-quarters or more of the indicators. The results show that 30.9 per cent of supported women are empowered, compared with 29.7 per cent of comparison women. This difference, however, is not significant.

The third column of Table 6.4 shows the differences between the supported and comparison groups in terms of the average percentage of indicators in which women are above the cut-offs. On average, supported women were above the cut-off in two-thirds of indicators, compared to 64 per cent in the comparison group. Three of the five models find this difference to be significant, although this appears to be driven by the positive differences in Ogun state, where supported women are, on average, above the cut-off in 4–6 per cent more indicators than their comparators.

Column 4 of Table 6.4 examines the women who are not yet empowered. When these women are looked at in isolation, there are positive differences, overall, in the average percentage of indicators in which they are above the cut-off. On average, women in the intervention group who are not empowered, are above the cut-offs in 58 per cent of indicators, whereas women who are not empowered in the comparison group are above the cut-offs in 55 per cent of indicators. The difference between the intervention and comparison women, however, is significant only in three of the five estimation methods.

Finally, column 5 of Table 6.4 presents the difference between supported and comparison households using Oxfam GB's global indicator for women's empowerment. To calculate this indicator, the median index value of the comparison group is taken as a benchmark.<sup>5</sup>

<sup>5</sup> This median value is that for the survey population as a whole, not just those who were deliberately sampled as members of community groups, with sample weights applied.

*Oxfam's outcome indicator for women's empowerment assesses the proportion of supported women with a higher empowerment score than their comparators*

Women score positively on the global indicator if they have an empowerment index score greater than the median of the comparison group, and zero otherwise. In this way, the global indicator reflects whether a woman is empowered in more characteristics than a 'typical' woman in the area, as represented by the comparison group. It is clear that there are positive differences in the percentage of supported women above the average WEI score of their comparators. The estimation methods estimate that overall, between 11 and 16 per cent more women in the intervention group have greater empowerment than the average for their comparators. When the results are disaggregated by state, however, this positive significant difference is constrained to Ogun state.

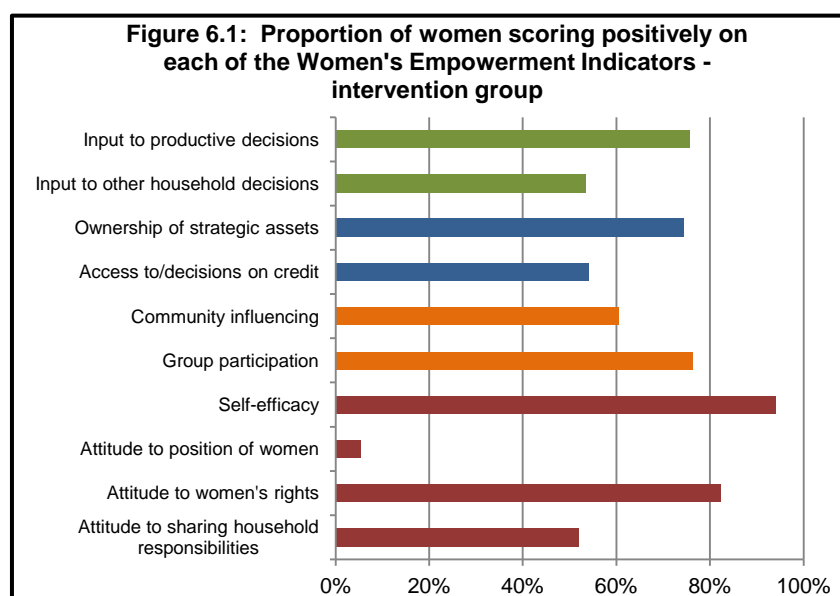
### **What is contributing to women's empowerment?**

While the measures related to the women's empowerment index provide a useful overview, a key interest is to look at the factors driving empowerment in the sample, and how changes in these affect the overall measures. Recall that the index is a measure ranging from zero to one, where higher values indicate greater empowerment. Because of the way in which the index score is structured, the score can be increased in two ways. Firstly, the index score can be increased by increasing the percentage of empowered women, i.e. those scoring positively in at least three-quarters of the indicators. Secondly, the index score can be increased by ensuring that women below the 'empowerment' cut-off are scoring positively in a greater percentage of indicators.

With this in mind, we focus our attention on the 10 constituent indicators and the varying role that these different factors play in empowerment.

### **• Empowerment – by indicator**

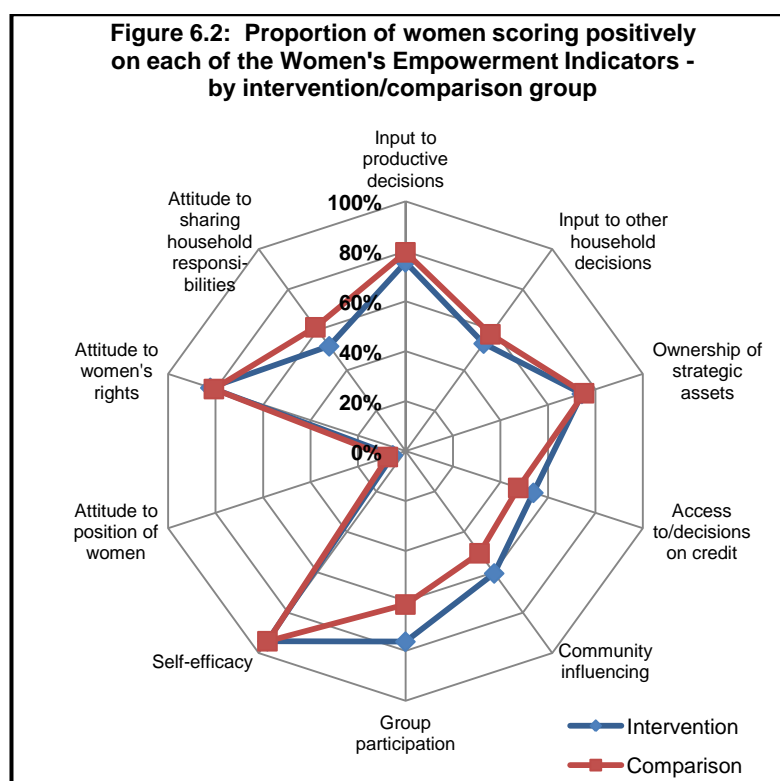
Figure 6.1 presents the percentage of women in the intervention group who scored positively (i.e. were above the cut-off) in each of the 10 indicators. The differences between the indicators are clear.



Over 90 per cent of women score positively for self-efficacy, whereas less than five per cent score positively for their attitudes to their position

in the home. Further, it is interesting to note the difference in the proportion of women scoring positively in the two indicators related to household decision making, with a greater proportion scoring positively in productivity-related decisions.

Figure 6.2 illustrates the differences between the intervention and comparison groups in the percentage of women scoring positively for each of the indicators. The 'spider' chart helps to quickly illustrate the differences in empowerment across the 10 indicators between the intervention and comparison women.



*It is apparent that some differences exist in the proportion of intervention and comparison women scoring positively on the various indicators*

Where the intervention line (blue) is outside the comparison line (red), this indicates greater empowerment in the intervention women for those particular indicators. What is immediately apparent is the similar overall pattern in the proportion of women scoring positively for the various indicators. However, some differences are apparent, for example, there appears to be greater empowerment in supported women in the areas of access to credit, community influencing and group participation. These differences will be assessed in greater detail in subsequent sections.

### • Composition of disempowerment

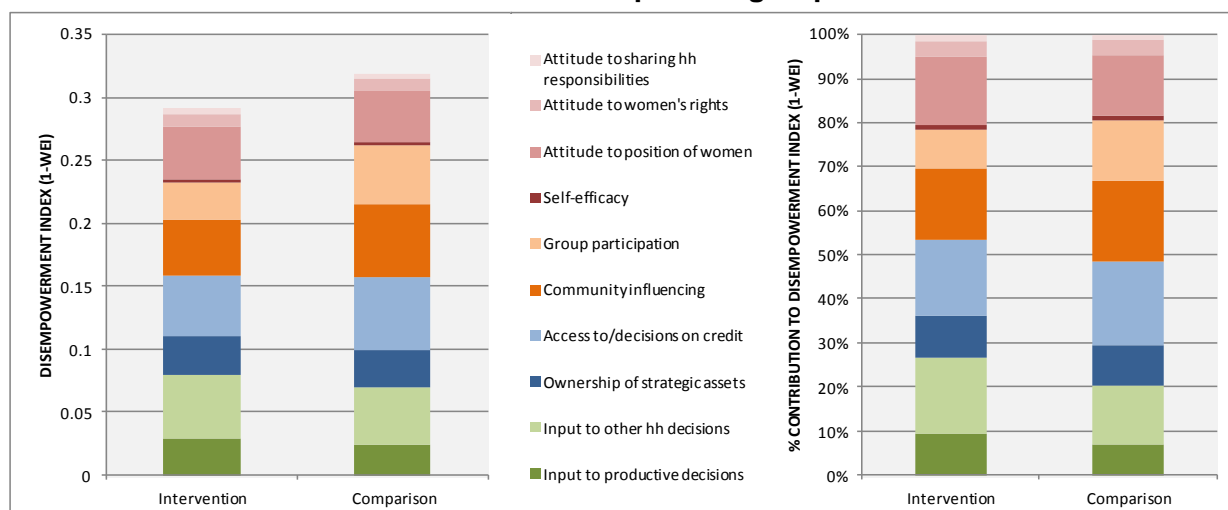
Efforts can also be undertaken to directly see how much each indicator contributes to the WEI. Recall that each of the 10 indicators is weighted prior to analysis. The six indicators across the household decision-making, resources and public engagement dimensions each have a weight of 12.5 per cent, while the four indicators in the self-perception dimension each have a weight of 6.25 per cent. Post-analysis, we return to see how each of the indicators now contributes to **disempowerment**. By temporarily switching our analysis to focus on disempowerment, we can clearly see in the figures below those factors that are the greater

*We can assess the specific contribution of each of the 10 indicators to the overall disempowerment for women in the intervention and comparison groups*

contributors to disempowerment in the sample. This should help highlight those factors that are likely to be of greatest concern to programme staff.

Figure 6.3 presents the contribution of each of the indicators to the overall measure of disempowerment. On the left-hand chart, the height of each of the bars shows the level of disempowerment, for the intervention and comparison women, respectively. Inside each bar, different colours represent the contribution of different weighted indicators to the overall disempowerment index (1-WEI). On the right-hand chart, the colours inside each bar denote the percentage contribution of each indicator to the overall disempowerment index, and all bars add up to 100 per cent. This enables an immediate visual comparison of the composition of disempowerment across the intervention and comparison groups.

**Figure 6.3: Contribution of each indicator to disempowerment for women, by intervention/comparison group**

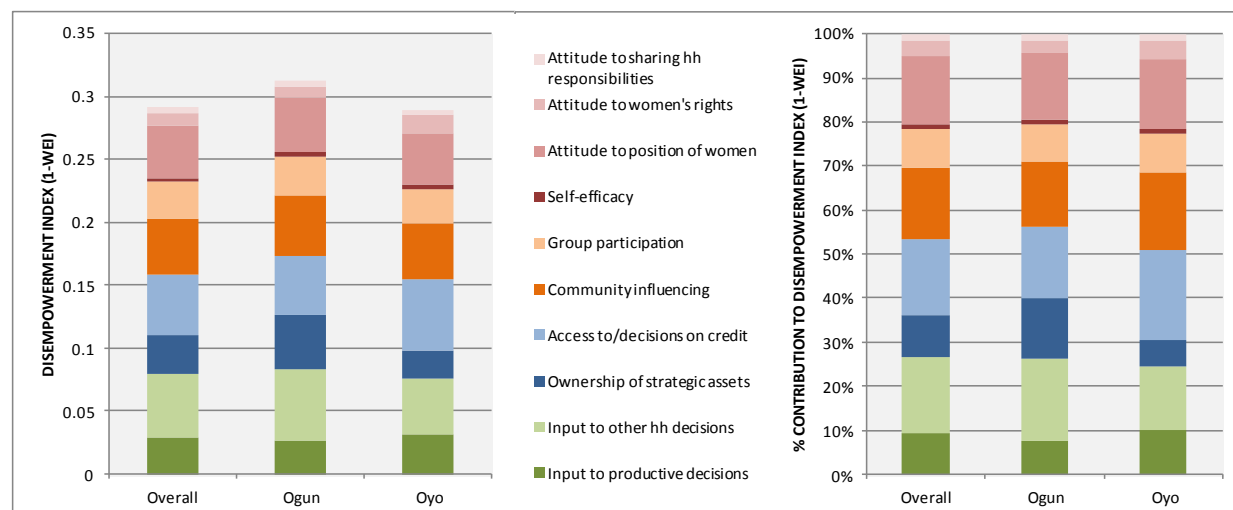


This analysis of the constituent indicators of the WEI highlight those specific aspects that are particularly contributing to women's disempowerment in the sample. For example, the four aspects that contribute most to disempowerment in both the intervention and comparison groups are women's involvement in non-productive household decision-making, their access to credit, their perception of how they can influence community decisions, and their attitude to the position of women in the household. Conversely, the factors that contribute *less* to disempowerment include the respondents' self-efficacy, their attitudes to women's rights and sharing of household responsibilities, their input into productivity decisions at a household-level, and their involvement in community activities.

Figure 6.4 presents the contribution of each indicator to the disempowerment index for intervention women, broken down by Ogun and Oyo states. Comparing by state reveals interesting differences. For example, the lack of ownership of strategic assets by supported women in Ogun state is a greater contributor to disempowerment than for women in Oyo state, whereas poor access to credit contributes less to disempowerment in supported women in Ogun state compared with Oyo state. Further, it is interesting to note that in the sample, self-

efficacy (a measure associated with a woman's self-confidence in dealing with a range of situations) barely contributes to disempowerment – indicating very high levels of empowerment in this aspect.

**Figure 6.4: Contribution of each indicator to disempowerment for intervention women, by state**



These issues will be addressed in more detail in the subsequent sections of the report, as we consider each of the 10 indicators separately to assess both the percentage of women empowered in each and the extent to which women supported by the project are more empowered than their comparators.

### 6.3.3 Household decision-making: Indicator 1 – Input in productive decisions

The first indicator in the women's empowerment index considers the level of involvement of the respondent in key household decisions related to productivity. The four decision making areas used to assess this indicator are those related to:

- Crop cultivation
- Selling of harvested crops
- Running of off-farm businesses
- Purchasing or selling of livestock.

Respondents were asked to report their involvement in key decision-making areas related to household productivity

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'. For a woman to score positively on this measure, she has to be involved to at least a medium extent in all the decision-making areas in which she is active.

Table 6.6 presents the proportion of women scoring positively in the intervention and comparison groups for this indicator. The percentage score for productive decision making – generated from the individual responses to each of the questions – is also presented.



**Table 6.6: Comparison of intervention and comparison sites household decision making – Indicator 1: Women's involvement in productive decisions**

	Indicator (% above cut off)			Decision making score (%)		
	Overall	Ogun	Oyo	Overall	Ogun	Oyo
<b>Unadjusted:</b>						
Intervention mean <sup>^</sup> :	0.757	0.792	0.729	0.868	0.872	0.855
Comparison mean <sup>^</sup> :	0.797	0.784	0.823	0.855	0.869	0.837
Unadjusted difference <sup>^</sup> :	-0.040	0.008	-0.094	0.013	0.003	0.018
	(-0.91)	(0.13)	(-1.32)	(0.87)	(0.16)	(0.70)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
<b>PSM (ATT)</b>						
Post-matching difference: (kernel)	-0.017	0.005	-0.055	0.004	0.005	0.027
	(-0.34)	(0.07)	(-0.75)	(0.23)	(0.21)	(0.92)
<b>Observations:</b>	<b>314</b>	<b>179</b>	<b>135</b>	<b>312</b>	<b>179</b>	<b>133</b>
Post-matching difference: (no replacement)	0.000	0.039	-0.054	0.018	0.022	0.019
	(0.00)	(0.64)	(-0.67)	(1.01)	(0.99)	(0.60)
<b>Observations:</b>	<b>314</b>	<b>179</b>	<b>135</b>	<b>312</b>	<b>179</b>	<b>133</b>
<b>Multivariable Regression:</b>						
MVR coefficient (robust standard errors) <sup>^</sup> :	-0.050	-0.020	-0.089	0.009	0.007	-0.003
	(-1.06)	(-0.39)	(-1.55)	(0.58)	(0.32)	(-0.08)
<b>Observations:</b>	<b>348</b>	<b>175</b>	<b>131</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient (robust regression) <sup>^</sup> :	n/a	n/a	n/a	0.004	0.018	-0.031
				(0.24)	(0.78)	(-1.22)
<b>Observations:</b>				<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient with control functions (robust standard errors) <sup>^</sup> :	-0.044	-0.015	-0.086	0.010	0.006	-0.003
	(-1.09)	(-0.37)	(-1.56)	(0.63)	(0.29)	(-0.09)
<b>Observations:</b>	<b>348</b>	<b>175</b>	<b>131</b>	<b>354</b>	<b>179</b>	<b>136</b>

<sup>^</sup> Overall includes Ekiti

<sup>\*</sup>  $p < 0.05$ , <sup>\*\*</sup>  $p < 0.01$ , <sup>\*\*\*</sup>  $p < 0.001$

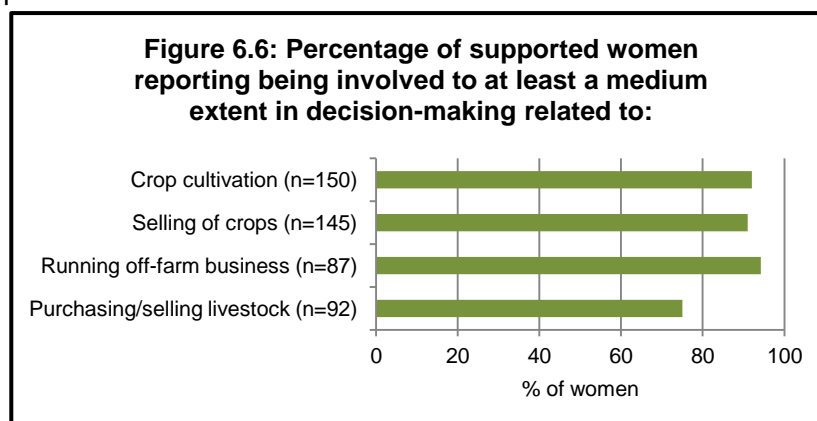
PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented

State specified as a fixed effect for all MVR models

For the binary indicator, no significant differences were identified between the intervention and comparison women. There is, therefore, no evidence that the project increased women's decision-making power in productive and spending-related decisions in their respective households. The decision-making score results support this finding. While there is no evidence to suggest the project has increased women's involvement in productive decisions, both the indicator and the score indicate a high level of involvement in these decision-making areas. Overall, over three-quarters of the women interviewed reported being involved to at least a medium extent in those productive decision-making areas in which they were active.

Figure 6.6 provides a breakdown of the four decision-making areas that comprise this indicator.



This shows a very high proportion of involvement across three of the four decision-making areas. The proportion of women involved in decisions related to purchasing or selling livestock, while still high, is lower than the other productive decision-making areas.

### 6.3.4 Household decision-making: Indicator 2 – Input in other household decisions

The second indicator in the household decision-making dimension considers the level of decision-making involvement of the respondent in other key household activities. The six decision-making areas used to assess this indicator are those related to:

- Travelling outside the community
- Caring for sick children
- Buying of basic necessities
- Buying more major household assets
- Participation in community initiatives
- Family planning.

Respondents were also asked to report their involvement in other key decision-making areas in the household

For a woman to score positively on this measure, she has to be involved, to at least a medium extent, in all the decision making areas in which she is active.

A comparison of the intervention and comparison women on the above measure is presented in Table 6.7.

**Table 6.7: Comparison of intervention and comparison sites  
HH decision making: Indicator 2 - Women's involvement in other HH decisions**

	Indicator (% above cut-off)			Decision making score (%)		
	Overall	Ogun	Oyo	Overall	Ogun	Oyo
<b>Unadjusted:</b>						
Intervention mean <sup>^</sup> :	0.533	0.506	0.559	0.827	0.815	0.828
Comparison mean <sup>^</sup> :	0.579	0.657	0.494	0.815	0.824	0.805
Unadjusted difference <sup>^</sup> :	-0.046	-0.150**	0.066	0.012	-0.009	0.023
	(-0.87)	(-2.04)	(0.76)	(0.77)	(-0.38)	(0.95)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
<b>PSM (ATT)</b>						
Post-matching difference:	-0.051	-0.183**	0.107	0.008	0.002	0.013
(kernel)	(-0.84)	(-2.35)	(1.08)	(0.43)	(0.10)	(0.56)
<b>Observations:</b>	<b>312</b>	<b>179</b>	<b>133</b>	<b>309</b>	<b>171</b>	<b>138</b>
Post-matching difference:	-0.031	-0.120	0.148	0.011	0.010	0.015
(no replacement)	(-0.49)	(-1.48)	(1.48)	(0.59)	(0.38)	(0.63)
<b>Observations:</b>	<b>310</b>	<b>177</b>	<b>133</b>	<b>305</b>	<b>171</b>	<b>134</b>
<b>Multivariable Regression:</b>						
MVR coefficient (robust standard errors) <sup>^</sup> :	-0.023	-0.120	0.055	0.018	0.010	0.003
	(-0.39)	(-1.40)	(0.50)	(1.21)	(0.49)	(0.11)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient (robust regression) <sup>^</sup> :	n/a	n/a	n/a	0.003	-0.002	-0.019
				(0.25)	(-0.11)	(-0.75)
<b>Observations:</b>				<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient with control functions (robust standard errors) <sup>^</sup> :	-0.023	-0.113	0.045	0.019	0.010	0.003
	(-0.39)	(-1.32)	(0.41)	(1.26)	(0.48)	(0.10)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>

<sup>^</sup> Overall includes Ekiti

<sup>\*</sup>  $p < 0.05$ , <sup>\*\*</sup>  $p < 0.01$ , <sup>\*\*\*</sup>  $p < 0.001$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented

State specified as a fixed effect for all MVR models

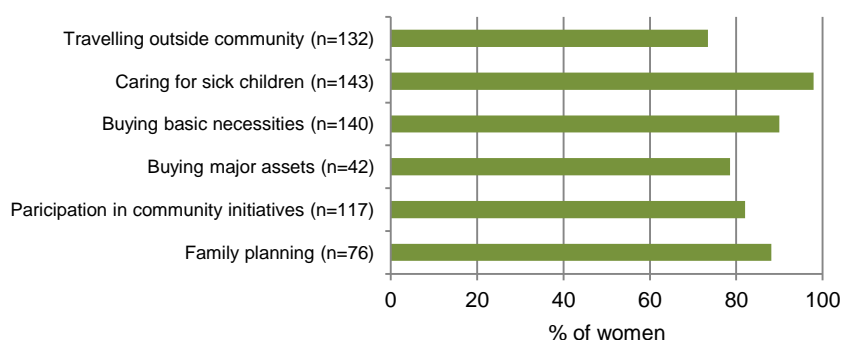
*There is no evidence that the project has increased women's involvement in other key household decisions*

For both the binary and percentage score measure there is no evidence that the project has increased women's decision-making power in other non-productive household activities in their respective households.

It is interesting to note that the proportion of supported women scoring positively for this decision-making indicator (53%) is lower than the proportion for the productive decision-making indicator.

This suggests less decision-making power in the non-productive household decisions, such as those presented in Figure 6.7. The data reveal in particular less decision-making power in a woman's choices regarding travelling outside the community, decisions related to buying major assets, and her participation in community initiatives, such as development committees, savings groups, and the like.

**Figure 6.7: Percentage of supported women reporting being involved to at least a medium extent in decision making related to:**



### 6.3.5 Resources: Indicator 1 – Ownership of strategic assets

The first indicator in the 'Resources' dimension considers a woman's ownership of strategic assets, such as land, livestock and agricultural equipment. The questionnaire asks the respondent to report on various assets the household owns, and then asks who owns most of that particular asset, and who can say whether to sell, trade or give that item away if need be. The assets included in this measure are:

*Respondents were asked who owned, and who had say over the selling of several strategic assets in the household*

- Large livestock (oxen, cattle)
- Small livestock (goats, pigs, sheep)
- Tractor
- Sewing machine
- Milling machine
- Bicycle
- Motorcycle
- Car
- Agricultural land
- Other land not used for agricultural purposes.

For a woman to score positively in this measure she has to have at least joint ownership and joint participation in decisions related to the sale/trade of at least one of the strategic assets listed above.

Table 6.8 presents the results comparing women of the project and non-project groups in relation to their ownership of strategic assets.

**Table 6.8: Comparison of intervention and comparison sites resource - Indicator 1: Women's ownership of strategic assets**

	Indicator (% above cut-off)			Number of strategic assets owned		
	Overall	Ogun	Oyo	Overall	Ogun	Oyo
<b>Unadjusted:</b>						
Intervention mean <sup>^</sup> :	0.743	0.636	0.814	1.572	1.221	1.746
Comparison mean <sup>^</sup> :	0.752	0.637	0.911	1.416	1.225	1.709
Unadjusted difference <sup>^</sup> :	-0.009 (-0.19)	-0.001 (-0.01)	-0.098* (-1.69)	0.157 (1.17)	-0.005 (-0.02)	0.037 (0.19)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
<b>PSM (ATT)</b>						
Post-matching difference: (kernel)	-0.031 (-0.65)	0.021 (0.27)	-0.100 (-1.64)	0.015 (0.10)	0.041 (0.22)	0.018 (0.08)
<b>Observations:</b>	<b>317</b>	<b>179</b>	<b>138</b>	<b>312</b>	<b>179</b>	<b>133</b>
Post-matching difference: (no replacement)	-0.015 (-0.30)	0.026 (0.36)	-0.085 (-1.44)	0.092 (0.61)	0.130 (0.66)	0.037 (0.16)
<b>Observations:</b>	<b>317</b>	<b>179</b>	<b>138</b>	<b>312</b>	<b>179</b>	<b>133</b>
<b>Multivariable Regression:</b>						
MVR coefficient (robust standard errors) <sup>^</sup> :	0.034 (0.74)	0.096 (1.26)	-0.043** (-2.12)	0.231* (1.81)	0.175 (0.87)	0.011 (0.05)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient (robust regression) <sup>^</sup> :	n/a	n/a	n/a	0.234* (1.81)	0.016 (0.08)	0.192 (0.94)
<b>Observations:</b>				<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient with control functions (robust standard errors) <sup>^</sup> :	0.025 (0.54)	0.082 (1.07)	-0.021** (-2.01)	0.227* (1.78)	0.172 (0.85)	0.003 (0.01)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>

<sup>^</sup> Overall includes Ekitit statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ 

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented

State specified as a fixed effect for all MVR models

As is clear, overall a high proportion of women reported at least joint ownership of one strategic asset. However, there is no significant difference between the women from the project supported groups and their comparators, indicating there is no evidence that the project has increased women's overall ownership of strategic assets. In fact there is some evidence that supported women in Oyo state are slightly worse off than their comparators in this measure.

Interestingly, there is a difference between Ogun and Oyo states in the proportion of women owning at least one strategic asset. Women from both the intervention and comparison groups in Ogun state are significantly less likely to own a strategic asset than those in Oyo state. In terms of the average number of strategic assets owned, the results show a similar pattern. Women in Oyo state own an average of 1.7 assets compared to 1.2 assets in Ogun state.

### 6.3.6 Resources: Indicator 2 – Access to credit

The second indicator in the 'Resources' dimension considers a woman's access to credit and her involvement in decisions regarding its use. The questionnaire asks the respondent to report on whether anyone in the household has taken any loans or borrowed cash/in-kind items from various lending sources, including non-governmental organisations (NGO), formal or informal lenders, group-based schemes, and friends or relatives. If the household did borrow from any of these sources, follow-

Respondents were asked about their access to credit and who made the decisions related to whether a loan should be taken and how it should be used

up questions were asked to find out who made the decision to borrow and who made the decision about how the money or items borrowed were used.

For a woman to score positively in this measure, her household has to have access to at least one source of credit, and she must have at least jointly participated in the decision 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 Table 6.9, together with the average number of sources of credit where the respondent participated in the decision-making process. A higher proportion of the supported women in Ogun state reported having access to credit and participating in decisions regarding its use – a difference that is statistically significant in one of the estimation measures. This provides very modest evidence that the project has increased women's access and participation in using credit in Ogun state. There is no evidence of impact in Oyo state. Exploring the reasons for the difference between Ogun and Oyo states will form one of the follow-up learning considerations emerging from this report.

**Table 6.9: Comparison of intervention and comparison sites resource - Indicator 1: Women's access to credit**

	Indicator (% above cut-off)			Number of sources of credit where respondent has say in decisions		
	Overall	Ogun	Oyo	Overall	Ogun	Oyo
<b>Unadjusted:</b>						
Intervention mean <sup>^</sup> :	0.539	0.545	0.458	0.737	0.753	0.678
Comparison mean <sup>^</sup> :	0.475	0.441	0.544	0.629	0.578	0.747
Unadjusted difference <sup>^</sup> :	0.064	0.104	-0.087	0.108	0.175	-0.069
	(1.20)	(1.38)	(-1.00)	(1.24)	(1.49)	(-0.45)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
<b>PSM (ATT)</b>						
Post-matching difference: (kernel)	0.038	0.124*	-0.066	0.119	0.166	0.039
	(0.62)	(1.73)	(-0.79)	(1.25)	(1.35)	(0.23)
<b>Observations:</b>	<b>317</b>	<b>179</b>	<b>138</b>	<b>310</b>	<b>174</b>	<b>136</b>
Post-matching difference: (no replacement)	0.044	0.130	-0.068	0.116	0.194	0.018
	(0.74)	(1.63)	(-0.81)	(1.14)	(1.57)	(0.10)
<b>Observations:</b>	<b>317</b>	<b>179</b>	<b>138</b>	<b>310</b>	<b>174</b>	<b>136</b>
<b>Multivariable Regression:</b>						
MVR coefficient (robust standard errors) <sup>^</sup> :	0.081	0.120	-0.072	0.149	0.181	0.078
	(1.36)	(1.34)	(-0.71)	(1.65)	(1.34)	(0.45)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient (robust regression) <sup>^</sup> :	n/a	n/a	n/a	0.116	0.167	-0.057
				(1.36)	(1.25)	(-0.37)
<b>Observations:</b>				<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient with control functions (robust standard errors) <sup>^</sup> :	0.083	0.146	-0.069	0.151*	0.195	0.081
	(1.40)	(1.58)	(-0.69)	(1.67)	(1.44)	(0.47)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>

<sup>^</sup> Overall includes Ekiti

t statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

PSM estimates bootstrapped 1000 repetitions

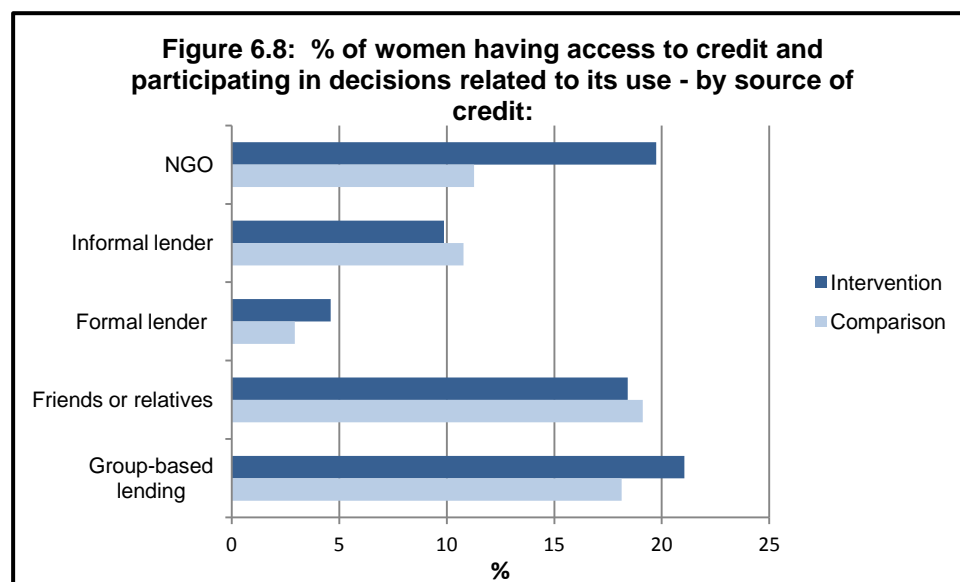
Coefficients for covariates used not presented

State specified as a fixed effect for all MVR models

The theory of change presented in Section 2 highlighted that the provision of micro-credit support was one of the interventions implemented by the project. However, there is only weak evidence that

this has increased women's access to credit, and then in just one of the states.

Figure 6.8 presents the proportion of women having access to credit and participating in decisions related to its use, broken down by source of credit. The proportions of intervention and supported women accessing credit are similar for the different sources, with the exception of credit accessed from NGOs, where Oxfam-supported women report greater access to this particular source.



### 6.3.7 Public engagement: Indicator 1 – Community influencing

A key activity of the project was to provide leadership training for the supported women, while influencing community leadership structures to recognise the rights and contribution of women to these decision-making bodies. The first indicator in the public engagement dimension assesses the extent to which the respondents perceive they are able to influence the course of affairs in their communities. The female respondents, in particular, are asked the extent they agree or disagree with these statements:<sup>6</sup>

1. You would be in a position to change things in your community if you really wanted to.
2. It would be extremely difficult for you to obtain an important leadership position in your community even if you really wanted one.
3. Despite trying really hard, it would be very difficult for you to influence how leaders are chosen in your community.

An 11 item four-point Likert scale was used to measure women's perceptions about their community influencing capability

<sup>6</sup> When items are used in a scale or index, they should all measure the same underlying latent construct (e.g. ability to influence community). These items, therefore, must be 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

The table in Appendix 2 lists the 11 statements used to create this indicator and displays the inter-item correlations and Cronbach's alpha – a coefficient of reliability. As apparent, with alpha at 0.83, the various questions used to construct this indicator are, overall, highly correlated.

4. It would be quite easy for you to influence many of the decisions made by most of the leaders in your community if you felt it important to do so.
5. Community-level decisions you feel are important would very difficult for you to influence.
6. There are real opportunities open to you to participate meaningfully in important decision-making bodies in your community.
7. Women in your position could never be influential people in your community – the barriers are just too big.
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.
10. There are many initiatives happening in your community where your voice could never be heard in any meaningful way.
11. You are in a position to mobilise other community members to influence decisions.

For each statement, the respondent is given a score out of four points, with more points given the more and less she agrees with positive and negative statements, respectively.

For a woman to score positively in this indicator, she has to agree with at least eight of the 11 statements.

Table 6.10 presents the results for this indicator, together with the continuous measure (score), as well as the factor score. The factor score was created using factor analysis. This is a data reduction technique that narrows in on the shared variation in the items of the scale. The more an item in question is correlated with this variation, the more weight it is given. Hence, a respondent's factor score is determined by a) the extent it scores positively on the various items making up the scale; and b) the particular weight assigned to each item.

The first three columns in the table indicate some overall positive differences between the intervention and comparison women for this indicator. Overall, approximately 60 per cent of supported women were found to be above the cut-off for this indicator, compared to 50 per cent of women from the comparison group. All four of the estimation methods show this difference is significant, estimating that between 9 and 13 per cent more women in the intervention group are scoring positively in this indicator. However, when the results are disaggregated by state, statistically significant differences only hold for Ogun state. These findings are further reinforced by the percentage score and factor score results also presented in the table.

*There is some evidence that the project in Ogun state has increased women's perception of their ability to influence community affairs*

Therefore this provides modest evidence that the project has increased the supported women's perception of their ability to influence affairs at a community level, although when disaggregated by state, there is only evidence of impact in Ogun. As was the case for women's access to credit, exploring the reasons for these differences between Ogun and Oyo states will form one of the key learning considerations emerging from this report.



**Table 6.10: Comparison of intervention and comparison sites  
Public engagement - Indicator 1: Community influencing**

	Indicator (% above cut-off)			% Score			Factor Score		
	Overall	Ogun	Oyo	Overall	Ogun	Oyo	Overall	Ogun	Oyo
<b>Unadjusted:</b>									
Intervention mean <sup>^</sup> :	0.605	0.597	0.627	0.727	0.728	0.725	0.040	0.048	0.016
Comparison mean <sup>^</sup> :	0.505	0.510	0.506	0.720	0.709	0.739	-0.030	-0.097	0.096
Unadjusted difference <sup>^</sup> :	0.100*	0.088	0.121	0.008	0.019	-0.014	0.071	0.145	-0.079
	(1.88)	(1.16)	(1.41)	(0.56)	(0.99)	(-0.65)	(0.71)	(1.02)	(-0.48)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
<b>PSM (ATT)</b>									
Post-matching difference: (kernel)	0.130**	0.114	0.149	0.011	0.035*	-0.014	0.067	0.186	-0.056
	(2.24)	(1.47)	(1.55)	(0.81)	(1.91)	(-0.64)	(0.63)	(1.36)	(-0.34)
<b>Observations:</b>	<b>307</b>	<b>174</b>	<b>133</b>	<b>312</b>	<b>174</b>	<b>138</b>	<b>317</b>	<b>179</b>	<b>138</b>
Post-matching difference: (no replacement)	0.119*	0.139*	0.111	0.043***	0.051***	0.006	0.293***	0.364***	0.102
	(1.92)	(1.70)	(1.13)	(3.06)	(2.62)	(0.27)	(2.81)	(2.62)	(0.65)
<b>Observations:</b>	<b>307</b>	<b>174</b>	<b>133</b>	<b>312</b>	<b>174</b>	<b>138</b>	<b>317</b>	<b>179</b>	<b>138</b>
<b>Multivariable Regression:</b>									
MVR coefficient (robust standard errors) <sup>^</sup> :	0.099*	0.213**	0.122	0.014	0.041**	-0.021	0.114	0.303**	0.114
	(1.66)	(2.12)	(1.14)	(1.06)	(2.46)	(-0.78)	(1.17)	(2.43)	(1.17)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient (robust regression) <sup>^</sup> :	n/a	n/a	n/a	0.014	0.051***	-0.025	0.119	0.414***	-0.168
				(1.04)	(2.78)	(-0.94)	(1.14)	(3.00)	(-0.80)
<b>Observations:</b>				<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient with control functions (robust standard errors) <sup>^</sup> :	0.100*	0.216**	0.117	0.014	0.041**	-0.022	0.115	0.298**	-0.111
	(1.66)	(2.10)	(1.11)	(1.08)	(2.38)	(-0.80)	(1.19)	(2.36)	(-0.55)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>

<sup>^</sup> Overall includes Ekiti

t statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented

State specified as a fixed effect for all MVR models

### 6.3.8 Public engagement: Indicator 2 – Group participation

The second indicator in the public engagement dimension considers a woman's involvement in various community groups, including agricultural producer groups, savings groups, local government forums, civic and religious groups. As the project is already working through women's groups, for a woman to be above the cut-off in this measure, she has to be an active member in at least two community groups and be involved to at least a medium extent in decision-making in those groups.

Table 6.11 presents the proportion of women scoring positively in the intervention and comparison groups for this indicator. The average number of groups in which the respondent is active and involved in decision making is also presented.

*The women in Ogun state were found to be significantly more engaged in community groups than their comparators*

For the binary indicator, significant differences were identified between the intervention and comparison women. The various statistical methods estimate that between 16 and 21 per cent more women from Oxfam-supported groups are actively involved and participating in decisions in two or more community groups than their comparators. These differences are even greater for women in supported groups specifically in Ogun state. Unfortunately, the difference is only significant for one of the estimation methods for supported women in Oyo state. Therefore, there is strong evidence that the project has



increased women's active membership and contribution to decision-making in community groups. When disaggregated by state, this strong evidence only holds for Ogun state – the evidence for change in Oyo state is much weaker. This pattern of differential impact in Ogun and Oyo states suggests differences in project implementation in these two areas, and will require follow-up analysis with the project team to determine whether this is indeed the case.

**Table 6.11: Comparison of intervention and comparison sites  
Public engagement - Indicator 2: Group participation**

	Indicator (% above cut-off)			Number of groups in which the respondent is active and involved in decision making		
	Overall	Ogun	Oyo	Overall	Ogun	Oyo
<b>Unadjusted:</b>						
Intervention mean:	0.763	0.753	0.763	2.276	2.130	2.407
Comparison mean <sup>^</sup> :	0.614	0.549	0.696	2.040	1.902	2.165
Unadjusted difference <sup>^</sup> :	0.149*** (3.01)	0.204*** (2.86)	0.067 (0.86)	0.237 (1.56)	0.228 (1.10)	0.242 (0.93)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
<b>PSM (ATT)</b>						
Post-matching difference: (kernel)	0.167*** (3.06)	0.224*** (3.16)	0.106 (1.23)	0.359** (2.10)	0.276 (1.37)	0.491* (1.67)
<b>Observations:</b>	<b>316</b>	<b>179</b>	<b>137</b>	<b>316</b>	<b>179</b>	<b>137</b>
Post-matching difference: (no replacement)	0.215*** (3.89)	0.234*** (3.46)	0.155* (1.83)	0.541*** (3.13)	0.545*** (2.71)	0.586** (1.98)
<b>Observations:</b>	<b>316</b>	<b>179</b>	<b>137</b>	<b>316</b>	<b>179</b>	<b>137</b>
<b>Multivariable Regression:</b>						
MVR coefficient (robust standard errors) <sup>^</sup> :	0.191*** (3.47)	0.336*** (3.93)	-0.025 (-0.32)	0.272* (1.91)	0.284 (1.38)	0.072 (0.27)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient (robust regression) <sup>^</sup> :	n/a	n/a	n/a	0.334** (2.19)	0.355 (1.61)	0.128 (0.45)
<b>Observations:</b>				<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient with control functions (robust standard errors) <sup>^</sup> :	0.191*** (3.51)	0.340*** (3.96)	-0.031 (-0.43)	0.270* (1.90)	0.273 (1.32)	0.078 (0.30)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>

<sup>^</sup> Overall includes Ekiti

t statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented

State specified as a fixed effect for all MVR models

### 6.3.9 Self-perception: Indicator 1 – Self-efficacy

The final dimension in the Women's Empowerment Index considers different elements of women's self-perception. The first element is self-efficacy – a person's belief in their own competence. Is there any evidence that the project has elevated women's self-efficacy? To investigate this, an adapted version of the General Self-Efficacy Scale (GSE) was incorporated into the questionnaire administered to the interviewed women in both the project and non-project areas. This is a four-point Likert scale that asks the respondent the extent to which she agrees or disagrees with each of the following statements<sup>7</sup>:

1. You can always manage to solve difficult problems if you try hard enough.

<sup>7</sup> The table in Appendix 3 lists the 10 statements used to create this indicator and displays the inter-item correlations and Cronbach's alpha. As apparent, with alpha at 0.87, the various questions used to construct this indicator are, overall, highly correlated.

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

For a woman to score positively in this measure, she has to agree with all of the statements above. A score for each respondent's self-efficacy was also constructed using principal factor analysis.

The results of the comparison between the intervention and comparison women are presented in Table 6.12.

**Table 6.12: Comparison of intervention and comparison sites  
Self-perception - Indicator 1: Self-efficacy**

	Indicator (% above cut-off)			Factor score		
	Overall	Ogun	Oyo	Overall	Ogun	Oyo
<b>Unadjusted:</b>						
Intervention mean <sup>^</sup> :	0.941	0.922	0.949	0.070	0.032	0.032
Comparison mean <sup>^</sup> :	0.941	0.931	0.962	-0.053	-0.168	0.165
Unadjusted difference <sup>^</sup> :	0.000 (0.01)	-0.009 (-0.24)	-0.013 (-0.36)	0.123 (1.23)	0.200 (1.41)	-0.133 (-0.84)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
<b>PSM (ATT)</b>						
Post-matching difference: (kernel)	-0.019 (-0.68)	-0.013 (-0.33)	-0.031 (-0.91)	0.026 (0.24)	0.163 (1.13)	-0.165 (-1.03)
<b>Observations:</b>	<b>316</b>	<b>179</b>	<b>137</b>	<b>314</b>	<b>177</b>	<b>137</b>
Post-matching difference: (no replacement)	-0.022 (-0.79)	-0.017 (-0.48)	-0.026 (-0.66)	0.091 (0.85)	0.180 (1.24)	0.008 (0.05)
<b>Observations:</b>	<b>316</b>	<b>179</b>	<b>137</b>	<b>314</b>	<b>177</b>	<b>137</b>
<b>Multivariable Regression:</b>						
MVR coefficient (robust standard errors) <sup>^</sup> :	-0.014 (-0.93)	-0.005 (-1.58)	-0.026(a) (-0.87)	0.167* (1.65)	0.297* (1.93)	-0.105 (-0.61)
<b>Observations:</b>	<b>346</b>	<b>169</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient (robust regression) <sup>^</sup> :	n/a	n/a	n/a	0.174 (1.53)	0.315* (1.79)	-0.106 (-0.54)
<b>Observations:</b>				<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient with control functions (robust standard errors) <sup>^</sup> :	-0.008 (-1.10)	-0.005* (-1.74)	-0.027(a) (-0.86)	0.176* (1.73)	0.328** (2.13)	-0.103 (-0.60)
<b>Observations:</b>	<b>346</b>	<b>169</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>

<sup>^</sup> Overall includes Ekiti  
<sup>t</sup> statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$   
 PSM estimates bootstrapped 1000 repetitions  
 Coefficients for covariates used not presented  
 State specified as a fixed effect for all MVR models  
 a – Ordinary Least-Squares Method used

*The review found very high levels of self-efficacy amongst both supported and non-supported women*

For the binary measure, no differences were identified between the intervention and comparison women. The results show a very high proportion of women scoring positively in this indicator, with only five to six per cent of women overall not agreeing to all of the self-efficacy statements.

Interestingly, the analysis of the factor score indicates some differences – although not consistently significant – between the intervention and comparison women, showing at least some positive direction of travel in regard to Ogun state. No such differences occur in Oyo state. Nevertheless, what can be said with confidence is that there is insufficient variability in the data to draw any firm conclusions about the project's impact (or lack thereof) on women's self-efficacy.

Unfortunately, then, the results are inconclusive, although it does appear that with such a high proportion of women reporting strong self-efficacy, it is unlikely that the project could have significantly contributed to improvements in this regard.

### **6.3.10 Self-perception: Indicator 2 – Attitude to position of women**

*The remaining women's empowerment indicators explore women's attitudes to the role and rights of men and women*

The final three indicators in the index examine specific attitudes of women to the role of men and women both in the home and outside the home. Specifically, they cover the respondent's attitude:

1. To their position in the home
2. To the rights of women in wider society
3. Towards the sharing of household responsibilities

Each of these indicators is informed by the respondent's answers to a subset of statements from the 'gender attitude' section of the questionnaire<sup>8</sup>.

As mentioned above, the first indicator looks at the extent women agree or disagree with the following statements relating to the 'position' of women in the home:

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. A wife should obey her husband, even if she disagrees with him.
4. If a child falls ill, it is the mother's duty rather than the father's to take time away from productive activities to look after the child.

For a woman to be above the cut off in this measure, she has to *disagree* with at least two of the statements above.

Scores were also allocated to the responses to each of these statements, with a score of one being attributed if the woman strongly agreed with the statement, through to a score of four if she strongly disagreed. Factor analysis on the results to the four statements was

<sup>8</sup> The tables in Appendix 4 lists the statements used to create the three gender attitude indicators and displays the inter-item correlations and Cronbach's alpha. As apparent, with alpha ranging between 0.6 and 0.7, the various questions used to construct this indicator are correlated.

also carried out.

The results of the comparison between intervention and comparison women in these three regards are presented in Table 6.13.

The results for the binary indicator show no positive differences between the intervention and comparison women. Further, they show a very small proportion of women agreeing with at least two of the statements related to the position of women – an average of only five per cent across women from the project supported groups. This indicates traditional gender views on the position of women in the household.

*There is evidence that women's attitudes to their position in the home are changing in Oyo state*

While the proportion of women scoring positively for this indicator is very low, when the percentage score and factor score are considered in isolation, the supported women in Oyo score significantly higher than their comparators. There is therefore strong evidence in Oyo state that the attitudes of supported women to their position in the home are changing.

This difference between the states raises interesting questions, particularly as in the analysis so far, any positive differences have been found in Ogun state – not Oyo state. Eliciting the reasons for this disparity will be a key part of the follow up to this report.

**Table 6.13: Comparison of intervention and comparison sites  
Self-perception - Indicator 2: Position of women**

	Indicator (% above cut-off)			% Score			Factor Score		
	Overall	Ogun	Oyo	Overall	Ogun	Oyo	Overall	Ogun	Oyo
<b>Unadjusted:</b>									
Intervention mean <sup>^</sup> :	0.053	0.039	0.068	0.410	0.399	0.434	0.036	-0.045	0.204
Comparison mean <sup>^</sup> :	0.074	0.088	0.051	0.401	0.417	0.367	-0.027	0.082	-0.268
Unadjusted difference <sup>^</sup> :	-0.022	-0.049	0.017	0.009	-0.019	0.067***	0.063	-0.127	0.472***
	(-0.82)	(-1.30)	(0.42)	(0.75)	(-1.11)	(3.28)	(0.77)	(-1.14)	(3.61)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
<b>PSM (ATT)</b>									
Post-matching difference:	-0.031	-0.056	0.015	0.017	-0.020	0.067***	0.072	-0.130	0.419***
(kernel)	(-0.95)	(-1.24)	(0.34)	(1.22)	(-1.12)	(2.95)	(0.77)	(-1.11)	(2.91)
<b>Observations:</b>	<b>309</b>	<b>174</b>	<b>135</b>	<b>314</b>	<b>176</b>	<b>138</b>	<b>309</b>	<b>176</b>	<b>133</b>
Post-matching difference:	-0.031	-0.014	0.000	0.013	-0.015	0.066***	0.050	-0.148	0.432***
(no replacement)	(-0.96)	(-0.34)	(0.00)	(0.92)	(-0.84)	(3.22)	(0.51)	(-1.29)	(3.04)
<b>Observations:</b>	<b>309</b>	<b>174</b>	<b>135</b>	<b>314</b>	<b>176</b>	<b>138</b>	<b>309</b>	<b>176</b>	<b>133</b>
<b>Multivariable Regression:</b>									
MVR coefficient (robust standard errors) <sup>^</sup> :	-0.224	-1.063**	-0.206	0.005	-0.031	0.064***	0.032	-0.212*	0.446***
	(-0.96)	(-2.57)	(-0.50)	(0.37)	(-1.61)	(2.69)	(0.37)	(-1.66)	(2.97)
<b>Observations:</b>	<b>346</b>	<b>136</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient (robust regression) <sup>^</sup> :	n/a	n/a	n/a	0.002	-0.030	0.061**	0.018	-0.208	0.433***
				(0.14)	(-1.44)	(2.46)	(0.19)	(-1.54)	(2.62)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient with control functions (robust standard errors) <sup>^</sup> :	-0.221	-1.09***	-0.231	0.004	-0.031	0.064***	0.029	-0.213	0.444***
	(-0.97)	(-2.73)	(-0.50)	(0.34)	(-1.60)	(2.72)	(0.34)	(-1.65)	(2.99)
<b>Observations:</b>	<b>346</b>	<b>136</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>

<sup>^</sup> Overall includes Ekiti

t statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented

State specified as a fixed effect for all MVR models

### 6.3.11 Self-perception: Indicator 3 – Attitude to women's rights

The third indicator in the self-perception dimension considers the respondent's attitude to women's wider rights, by assessing their views on female participation in education and politics. As in the previous indicator, the respondent is asked the extent to which they agree with a series of statements. For this indicator, the statements are as follows:

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

For a woman to score positively in this measure, she has to *disagree* with both of the statements above.

Table 6.14 presents the results of the comparison of the intervention and comparison women in terms of the binary indicator, percentage score and factor score.

**Table 6.14: Comparison of intervention and comparison sites**  
**Self-perception - Indicator 3: Rights of women**

	Indicator (% above cut-off)			% Score			Factor Score		
	Overall	Ogun	Oyo	Overall	Ogun	Oyo	Overall	Ogun	Oyo
<b>Unadjusted:</b>									
Intervention mean <sup>^</sup> :	0.822	0.857	0.780	0.872	0.881	0.856	0.039	0.077	-0.022
Comparison mean <sup>^</sup> :	0.807	0.804	0.785	0.854	0.849	0.847	-0.029	-0.046	-0.059
Unadjusted difference <sup>^</sup> :	0.015	0.053	-0.005	0.018	0.032	0.009	0.068	0.124	0.037
	(0.37)	(0.93)	(-0.07)	(0.84)	(1.09)	(0.27)	(0.84)	(1.09)	(0.28)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
<b>PSM (ATT)</b>									
Post-matching difference: (kernel)	0.019	0.037	-0.011	0.035	0.056*	0.019	0.132	0.213*	0.072
	(0.36)	(0.63)	(-0.13)	(1.24)	(1.70)	(0.39)	(1.29)	(1.76)	(0.38)
<b>Observations:</b>	<b>311</b>	<b>177</b>	<b>134</b>	<b>313</b>	<b>179</b>	<b>134</b>	<b>313</b>	<b>179</b>	<b>134</b>
Post-matching difference: (no replacement)	0.008	0.053	-0.073	0.004	0.020	-0.011	-0.017	0.066	-0.046
	(0.15)	(0.83)	(-0.90)	(0.16)	(0.67)	(-0.27)	(-0.17)	(0.58)	(-0.27)
<b>Observations:</b>	<b>311</b>	<b>177</b>	<b>134</b>	<b>305</b>	<b>171</b>	<b>134</b>	<b>305</b>	<b>171</b>	<b>134</b>
<b>Multivariable Regression:</b>									
MVR coefficient (robust standard errors) <sup>^</sup> :	0.010	0.056	-0.078	0.027	0.048*	-0.015	0.102	0.184*	-0.057
	(0.26)	(1.42)	(-1.12)	(1.28)	(1.69)	(-0.39)	(1.28)	(1.69)	(-0.39)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient (robust regression) <sup>^</sup> :	n/a	n/a	n/a	0.030*	0.038	-0.034	0.119*	0.146	-0.131
				(1.83)	(1.55)	(-1.00)	(1.90)	(1.57)	(-1.00)
<b>Observations:</b>				<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient with control functions (robust standard errors) <sup>^</sup> :	0.015	0.065*	-0.079	0.027	0.048*	-0.014	0.103	0.184*	-0.052
	(0.39)	(1.73)	(-1.46)	(1.28)	(1.68)	(-0.36)	(1.28)	(1.68)	(-0.35)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>

<sup>^</sup> Overall includes Ekiti

t statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented

State specified as a fixed effect for all MVR models

The results for the binary indicator show a positive difference between the percentages of women above the cut-off in the intervention and comparison groups in Ogun state. Unfortunately, only one of the estimation methods shows this difference to be statistically significant. Therefore, we cannot say with confidence that the project has positively affected this particular indicator.

*There is some evidence of a positive change – although just in Ogun state - in the supported women's attitudes to the rights of women in wider society*

There is modest evidence, however, that the project is bringing about positive change in attitude in Ogun state when the percentage score and factor score are looked at in isolation. Three of the five estimation methods show a statistically significant and positive difference between the intervention and comparison women. This suggests that, while the project has not necessarily increased the proportion of women empowered in this indicator (i.e. percentage of women above the cut-off), there is evidence of change in attitudes towards women's rights in the supported groups in Ogun state.

While no positive differences can be detected for Oyo state, it should be highlighted that the proportion of women scoring positively in this indicator is already high – at 82 per cent overall; 85 per cent in Ogun state; and 78 per cent in Oyo state.

### **6.3.12 Self-perception: Indicator 4 – Attitude to sharing of household responsibilities**

The final indicator in this dimension examines the respondent's attitude towards the sharing of responsibilities in the home. As for the previous two indicators, the respondent is asked the extent to which they agree or disagree with a series of statements. The statements for this indicator are:

1. Men and women should share household chores.
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.

In order for a woman to score positively in this measure, she has to agree with all of the statements above.

The differences in the percentage of women scoring positively for this indicator are presented in Table 6.15, together with analysis of the differences in percentage and factor scores.

Overall, 52 per cent of supported women were found to be above the cut off for this indicator, with the proportion being very similar when the data are disaggregated by state. There were no positive differences between the Oxfam-supported women and their comparators. There is, therefore, no evidence that the project has made a positive difference to women's attitude to sharing of household responsibilities. These findings are supported by the analysis of the percentage and factor scores. Whilst the percentage score for the constituent questions that make up this indicator is fairly high at approximately 77 per cent, there are no positive differences between the intervention and comparison women. In fact, there is evidence to suggest that supported women in Oyo state are significantly *worse off* in relation to this indicator than their comparators.

*There is no evidence that the project has positively affected attitudes towards sharing of household responsibilities*

**Table 6.15: Comparison of intervention and comparison sites  
Self-perception – Indicator 4: Sharing of household responsibilities**

	Indicator (% above cut-off)			% Score			Factor Score		
	Overall	Ogun	Oyo	Overall	Ogun	Oyo	Overall	Ogun	Oyo
<b>Unadjusted:</b>									
Intervention mean <sup>^</sup> :	0.520	0.494	0.508	0.772	0.771	0.757	-0.027	-0.007	-0.141
Comparison mean <sup>^</sup> :	0.614	0.569	0.709	0.795	0.767	0.839	0.021	-0.127	0.259
Unadjusted difference <sup>^</sup> :	-0.094*	-0.075	-0.200**	-0.023	0.003	-0.082***	-0.048	0.120	-0.400***
	(-1.78)	(-1.00)	(-2.44)	(-1.52)	(0.16)	(-3.60)	(-0.61)	(1.08)	(-3.44)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
<b>PSM (ATT)</b>									
Post-matching difference:	-0.125**	-0.105	-0.162*	-0.044**	0.002	-0.106***	-0.146	0.116	-0.541***
(kernel)	(-2.01)	(-1.34)	(-1.72)	(-2.50)	(0.09)	(-4.32)	(-1.56)	(0.94)	(-4.65)
<b>Observations:</b>	<b>317</b>	<b>179</b>	<b>138</b>	<b>317</b>	<b>179</b>	<b>138</b>	<b>316</b>	<b>179</b>	<b>137</b>
Post-matching difference:	-0.130**	-0.082	-0.190**	-0.023	0.013	-0.089***	-0.063	0.173	-0.436***
(no replacement)	(-2.12)	(-1.03)	(-2.13)	(-1.29)	(0.61)	(-3.33)	(-0.70)	(1.49)	(-3.49)
<b>Observations:</b>	<b>312</b>	<b>175</b>	<b>137</b>	<b>313</b>	<b>179</b>	<b>134</b>	<b>316</b>	<b>179</b>	<b>137</b>
<b>Multivariable Regression:</b>									
MVR coefficient (robust	-0.097*	-0.071	-0.248**	-0.018	0.014	-0.103***	-0.022	0.191	-0.542***
standard errors) <sup>^</sup> :	(-1.66)	(-0.81)	(-2.48)	(-1.27)	(0.63)	(-4.23)	(-0.29)	(1.59)	(-4.59)
<b>Observations:</b>	<b>348</b>	<b>175</b>	<b>131</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient (robust	n/a	n/a	n/a	-0.022	0.013	-0.106***	-0.019	0.235*	-0.566***
regression) <sup>^</sup> :				(-1.30)	(0.51)	(-4.04)	(-0.23)	(1.84)	(-4.09)
<b>Observations:</b>				<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient	-0.096*	-0.046	-0.252**	-0.018	0.017	-0.103***	-0.022	0.201*	-0.540***
with control functions	(-1.65)	(-0.52)	(-2.52)	(-1.26)	(0.74)	(-4.26)	(-0.29)	(1.66)	(-4.60)
(robust standard errors) <sup>^</sup> :									
<b>Observations:</b>	<b>348</b>	<b>175</b>	<b>131</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>

<sup>^</sup> Overall includes Ekiti

t statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

PSM estimates bootstrapped 1000 repetitions

Coefficients for covariates used not presented

State specified as a fixed effect for all MVR models

### 6.3.13 Household wealth as measured by asset ownership

Recall from Section 3 that a complementary aim of the project was to support the women's groups with training in improved agricultural methods in order to improve productivity, together with marketing skills, budgeting skills and collective organisation to improve their bargaining power with potential buyers of produce. This training was intended to result in an increase in the income derived from their crop production, leading to improvements in household income.

In order to assess this element of the project, data were additionally collected on household asset possession to measure household wealth status. The particular basket of assets and indicators include those listed in Table 6.16.<sup>9</sup>

<sup>9</sup> The table in Appendix 5 lists the assets/attributes used to create the asset index and displays the inter-item correlations and Cronbach's alpha. As apparent, with alpha at 0.81, the various items used to construct this indicator are, overall, highly correlated.

**Table 6.16: List of assets/attributes used to construct HH Asset Index**

1. Small livestock (goats, pigs, sheep)	13. DVD/video player
2. Poultry	14. Television
3. Wheelbarrow	15. Bicycle
4. Hoe	16. Motorcycle
5. Tractor	17. Car/other vehicle
6. Sewing machine	18. Hectares of agricultural land
7. Mechanical milling machine	19. Hectares of other land
8. Bed/mattress	20. Materials for roof of home
9. Radio/cassette/CD	21. Materials for floors of home
10. Mobile phone	22. Materials for walls of home
11. Lamp	23. Toilet facility type
12. Clocks or watches	

For each item, the respondent was first asked whether their household owned it. For non-binary items, a follow-up question was asked on the precise number possessed/owned. The respondent was then asked whether their household possessed/owned the item in question in the baseline period and then the precise number, if relevant. This was done to ascertain household wealth status at baseline. The number of non-binary items owned/possessed for each household was then divided into three quantiles for each time period. Principal component analysis (PCA) was then run on these quantiled variables, as well as the binary items, to construct asset indices for each time period, as well as the difference in asset ownership between the time periods.

Table 6.17 gives a comparison of the intervention and comparison households on the above measures of household asset ownership.

**Table 6.17: Comparison of intervention and comparison sites household assets**

	Household Asset Index (2012)			Differenced Asset Index (2009-2012)		
	Overall	Ogun	Oyo	Overall	Ogun	Oyo
<b>Unadjusted:</b>						
Intervention mean <sup>^</sup> :	0.006	0.100	-0.369	0.223	0.486	-0.042
Comparison mean <sup>^</sup> :	-0.005	-0.273	0.149	-0.168	-0.448	-0.018
Unadjusted difference <sup>^</sup> :	0.011	0.373	-0.517	0.390**	0.934***	-0.023
	(0.05)	(1.13)	(-1.42)	(1.99)	(3.39)	(-0.08)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
<b>PSM (ATT)</b>						
Post-matching difference:	0.114	0.420	-0.203	0.501**	0.963***	-0.061
(kernel)	(0.46)	(1.13)	(-0.89)	(2.14)	(3.21)	(-0.18)
<b>Observations:</b>	<b>311</b>	<b>176</b>	<b>135</b>	<b>315</b>	<b>177</b>	<b>138</b>
Post-matching difference:	0.225	0.657*	0.042	0.557***	0.991***	0.138
(no replacement)	(0.84)	(1.75)	(0.13)	(2.60)	(3.18)	(0.46)
<b>Observations:</b>	<b>311</b>	<b>176</b>	<b>135</b>	<b>315</b>	<b>177</b>	<b>138</b>
<b>Multivariable Regression:</b>						
MVR coefficient (robust standard errors) <sup>^</sup> :	0.162*	0.363**	-0.083	0.463**	0.946***	-0.060
	(1.69)	(2.46)	(-0.55)	(2.19)	(2.94)	(-0.19)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient (robust regression) <sup>^</sup> :	0.081	0.233*	-0.073	0.220	0.337*	-0.063
	(0.90)	(1.81)	(-0.44)	(1.53)	(1.82)	(-0.27)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>138</b>	<b>354</b>	<b>179</b>	<b>138</b>
MVR coefficient with control functions (robust standard errors) <sup>^</sup> :	0.164*	0.371**	-0.082	0.466**	0.958***	-0.065
	(1.72)	(2.49)	(-0.53)	(2.19)	(2.93)	(-0.20)
<b>Observations:</b>	<b>354</b>	<b>179</b>	<b>136</b>	<b>354</b>	<b>179</b>	<b>136</b>

<sup>^</sup> Overall includes Ekiti

<sup>t</sup> statistics in parentheses; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$  PSM estimates bootstrapped 1000 repetitions  
Coefficients for covariates used not presented State specified as a fixed effect for all MVR models



If we first consider the change in assets between the baseline period (2009) and 2012, as measured by the change in asset index, there are significant differences between the intervention and comparison groups. These positive differences are reported for both the overall sample and for Ogun state. The differences between the intervention and comparison women are particularly significant in Ogun state, and are likely to be driving the overall difference when the sample is considered as a whole. No significant differences were identified in Oyo state. This analysis is supported by the findings for the asset index as measured in 2012, with some significant positive differences identified for Ogun state. There is evidence, then, that the project has positively impacted household income in the supported women's households in Ogun state.

Why is this evidence for change constrained to Ogun state? Recall the data presented in Table 6.2 which showed that women in both Ogun and Oyo states had been better exposed to the different project interventions than their comparators, and further analysis shows no differences in favour of Ogun state in the proportion of supported women receiving exposure. Unfortunately, as this review is primarily concerned with measures of women's empowerment, supporting livelihood data, such as changes in crop production and sales, or household income, were not collected. Such data may have helped to uncover reasons for this difference in asset growth. However, this latest analysis confirms a general pattern in the review which shows that where the project has had impact, it is largely just for supported women in Ogun state.

## 7 Conclusions and learning considerations

### 7.1 Conclusions

There is evidence that the 'Improving Women's Leadership and Effectiveness in Agricultural Governance' project successfully affected several of the key outcomes assessed under this effectiveness review, but not others. In general, there is some evidence that it has worked to both empower women and increase household wealth. However, these successes are generally restricted to supported women in Ogun state.

Significant differences between respondents in the project and non-project women's groups were identified for the overall Women's Empowerment Index measure, which comprises four dimensions, within which there are ten separate indicators relating to different aspects that contribute to empowerment. Unfortunately these differences were only found for supported women in Ogun state. No significant differences were found between supported women and their comparators in Oyo state.

*Overall, the supported women in Ogun state were found to be more empowered than their comparators*

Significant differences were identified on several of the measures that contribute to the overall Women's Empowerment Index. These include those related to: women's perceived role in influencing community affairs, women's participation in community groups, attitudes towards the position of women in the household and attitudes towards the rights of women in wider society. With the exception of attitudes towards the position of women in the household, where significant differences were restricted to Oyo state, the remaining significant differences were only found in Ogun state. The project has appeared to bring about the

greatest change in how the supported women feel able to influence community affairs and in their active involvement in community life – as measured by the number of groups in which they are significantly involved in group-related decision-making processes.

For the other measures of women's empowerment, such as household decision-making, self-efficacy and attitudes to sharing of household responsibilities, unfortunately no significant differences were identified between the project and non-project groups. In the analysis of disempowerment in Section 6.3.2, it is clear that lack of involvement, particularly in non-productive household decisions, is a significant driver of overall disempowerment. It is unclear whether the project enhanced women's self-efficacy, given that almost all the women reported efficacy in all 10 of the areas assessed. However there are signs of progress in Ogun state. Interestingly, another key area contributing to women's disempowerment is women's access and decisions related to credit. One of the project's key interventions had been to offer credit services to the women, but there was only weak evidence of positive change in Ogun state. Why is this the case? It would be useful to compare the results from this review with statistics related to uptake of credit services through Oxfam's partner, JDPC. Perhaps the lack of evidence of change relates more to women's participation and influence over how the loan is used, rather than in simply improving access.

As mentioned above, there was one area in which positive differences were found in Oyo state – namely in respondents' attitudes to the position of women in the household. In both states, it was apparent that women held traditional views of their role, for example, in raising children, looking after sick children, and obeying their husbands, as well as the man's responsibility for having the final word about decisions in the home. However, the women supported by the project in Oyo state were found to possess more positive attitudes in these areas than their comparators. Further qualitative research to further probe reasons for these better attitudes, and why this is restricted to supported women in Oyo state, is recommended.

*Strong evidence of increased asset wealth was found for the supported women in Ogun state – exploration of the reasons for this is recommended*

One of the other objectives of the project was to promote improvements in agricultural practice through direct support to the women's groups. While this element of the project was not assessed in great detail, there is evidence that the project has improved the household wealth – as measured by assets owned by the respondent's household. However, this positive difference is again constrained to the supported women in Ogun state. Does this mean that the agricultural methods and marketing support received by women in Ogun state was more effective than that delivered in Oyo? Further follow-up with the project team is recommended to explore the reasons for this difference in impact.

## 7.2 Programme learning considerations

While some of the findings of the effectiveness review are positive, at the time of writing this report there remained at least 18 months left to run in the project, so there is scope for strengthening it. Moreover, there are additional lessons that can be learned from this project that can be applied to other projects in Nigeria and elsewhere. The Nigeria country team and the project team in particular are encouraged to consider the following:

- *Critically review and assess how the project can more effectively increase women's empowerment at the household level.*

While some modest positive differences were identified between the intervention and comparison women for the overall Women's Empowerment Index, when this is decomposed by its constituent indicators and by state, interesting patterns are revealed. The positive improvements are generally restricted to aspects of empowerment outside the household dimension. For example, the greatest evidence of change is in women's perceived ability to influence affairs at a community level and their activity and decision-making power in community groups. Where no evidence of change in empowerment has been detected, it tends to be in those areas affecting issues at a more personal or household level, such as women's involvement in non-productive household decisions or attitudes towards gender roles in the household. Are there particular barriers preventing women's involvement and role in household decisions, and if so, how can these be overcome? Is there scope to explore ways of more effectively promoting positive attitudes about the role of women in household affairs?

- *Review intervention implementation and uptake in both Ogun and Oyo to identify why there are reported differences in impact between the two states.*

*Why are there such differences in reported impact between Ogun and Oyo states?*

One of the striking findings of the effectiveness review is that the significant positive differences that were identified between the intervention and comparison women were, almost in all cases, only applicable to Ogun state. This is perplexing, given that no significant differences in project intervention exposure were reported between the states, yet the women of Ogun state appear to have benefited more. What is the reason for this? Is it solely down to context, or are there differences in the way the interventions are being implemented in the two states? If there are differences with regard to implementation, a short-term measure to improve the support is to harmonise the implementation between the two states. If, on the other hand, it is related to contextual factors, action should be taken to adapt the nature of the support to take these into account.

- *Explore the reasons for significant improvement in household wealth in Ogun state.*

The effectiveness review found significant positive changes in household asset wealth for the supported women in Ogun state. Given that this review focused more on measures of women's empowerment than on livelihood support dimensions, the potential underlying causes for this change were not examined. It is, therefore, recommended that the project team further examine the nature of the livelihood support offered – particularly with regard to any differences that may exist in implementation between the states – to elicit potential replicable strategies that can be rolled out, both in Oyo and Ekiti states, and more widely where appropriate.

## Appendix 1: Covariate balance following propensity score matching procedures – example for one of the project outcomes<sup>10</sup>

### A. Respondents in intervention women's groups versus respondents in comparison women's groups

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

*Oyo state example (also run for Ogun state)*

```
. stepwise, pr (.2): reg $outcome $covariates if oyo==1
note: far_market dropped because of collinearity
note: far_centre dropped because of collinearity
      begin with full model
p = 0.9131 >= 0.2000 removing age_hhh
p = 0.8751 >= 0.2000 removing hh_livestock_bl
p = 0.8968 >= 0.2000 removing hh_farming_bl
p = 0.8002 >= 0.2000 removing hh_casual_bl
p = 0.7744 >= 0.2000 removing adult_s_sec
p = 0.7029 >= 0.2000 removing health_resp
p = 0.6950 >= 0.2000 removing seceduc_hhh
p = 0.6175 >= 0.2000 removing fhhh
p = 0.6136 >= 0.2000 removing hh_processing_bl
p = 0.5852 >= 0.2000 removing singleadultHH
p = 0.5100 >= 0.2000 removing adults
p = 0.4487 >= 0.2000 removing age_resp
p = 0.3152 >= 0.2000 removing dependents
p = 0.3950 >= 0.2000 removing prodads
p = 0.2047 >= 0.2000 removing married_resp
p = 0.2149 >= 0.2000 removing widowed_resp
```

Source	SS	df	MS	Number of obs =	138
Model	237.746039	6	39.6243398	F( 6, 131) =	13.57
Residual	382.467323	131	2.91959788	Prob > F =	0.0000
				R-squared =	0.3833
				Adj R-squared =	0.3551
Total	620.213362	137	4.52710483	Root MSE =	1.7087

asset_index	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
hhsize	.3374812	.0750834	4.49	0.000	.1889482	.4860141
educ_resp	.3076913	.0836436	3.68	0.000	.1422244	.4731582
hh_unskilled_bl	.5834985	.3178707	1.84	0.069	-.0453255	1.212323
hh_IGA_bl	1.048364	.3035132	3.45	0.001	.4479428	1.648786
hh_skilled_bl	.7491893	.3755092	2.00	0.048	.0063425	1.492036
eld_hhh	.5024799	.3317452	1.51	0.132	-.1537914	1.158751
_cons	-3.909165	.4927165	-7.93	0.000	-4.883876	-2.934455

```
. stepwise, pr (.2): probit intervention hhsize educ_resp hh_unskilled_bl hh_IGA_bl hh_skille
> d_bl eld_hhh if oyo==1
      begin with full model
p = 0.7317 >= 0.2000 removing hhsize
p = 0.7101 >= 0.2000 removing hh_IGA_bl
p = 0.4914 >= 0.2000 removing educ_resp
p = 0.2133 >= 0.2000 removing eld_hhh
```

```
Probit regression
Log likelihood = -88.743797
Number of obs = 138
LR chi2(2) = 10.91
Prob > chi2 = 0.0043
Pseudo R2 = 0.0579
```

intervention	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
hh_unskilled_bl	-.6766979	.2446227	-2.77	0.006	-1.15615	-.1972461
hh_skilled_bl	.39721	.2644512	1.50	0.133	-.1211049	.9155249
_cons	-.0693209	.1443982	-0.48	0.631	-.3523362	.2136943

<sup>10</sup> Only one of the outcomes is presented due to the number of separate outcomes that were subject to this two-step process. This is therefore an indicative example of the approach used for each outcome.

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

*pstest output – no replacement:*

```
. loc covariates_oyo "hh_unskilled_bl hh_skilled_bl"

. psmatch2 intervention `covariates_oyo' if oyo==1, com logit out(dummy) norepl

Logistic regression               Number of obs   =       138
                                LR chi2(2)       =       10.89
                                Prob > chi2       =       0.0043
Log likelihood = -88.755096       Pseudo R2    =       0.0578
```

intervention	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
hh_unskill~1	-1.102155	.4078155	-2.70	0.007	-1.901459	-.3028516
hh_skilled~1	.6409443	.4298878	1.49	0.136	-.2016203	1.483509
_cons	-.1114156	.2310154	-0.48	0.630	-.5641974	.3413663

There are observations with identical propensity score values.  
The sort order of the data could affect your results.  
Make sure that the sort order is random before calling psmatch2.

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
dummy	Unmatched	1	1	0	0	.
	ATT	1	1	0	0	.

Note: S.E. does not take into account that the propensity score is estimated.

psmatch2:		
psmatch2:	Common	
Treatment	support	
assignment	On suppor	Total
Untreated	79	79
Treated	59	59
Total	138	138

```
.
. pstest `covariates_oyo'
```

Variable	Sample	Mean		%reduct		t-test	
		Treated	Control	%bias	bias	t	p> t
hh_unskill~1	Unmatched	.18644	.41772	-51.7		-2.95	0.004
	Matched	.18644	.22034	-7.6	85.3	-0.45	0.651
hh_skilled~1	Unmatched	.28814	.16456	29.6		1.75	0.083
	Matched	.28814	.22034	16.3	45.1	0.84	0.402

*pstest* output – kernel:

```
. psmatch2 intervention `covariates_oyo' if oyo==1, com logit out(dummy) kernel
```

```
Logistic regression      Number of obs   =      138
                        LR chi2(2)         =      10.89
                        Prob > chi2        =      0.0043
Log likelihood = -88.755096      Pseudo R2       =      0.0578
```

intervention	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
hh_unskill~1	-1.102155	.4078155	-2.70	0.007	-1.901459	-.3028516
hh_skilled~1	.6409443	.4298878	1.49	0.136	-.2016203	1.483509
_cons	-.1114156	.2310154	-0.48	0.630	-.5641974	.3413663

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
dummy	Unmatched	1	1	0	0	.
	ATT	1	1	0	0	.

Note: S.E. does not take into account that the propensity score is estimated.

psmatch2: Treatment assignment	psmatch2: Common support	
	On suppor	Total
Untreated	79	79
Treated	59	59
Total	138	138

```
.
. pstest `covariates_oyo'
```

Variable	Sample	Mean		%reduct		t-test	
		Treated	Control	%bias	bias	t	p> t
hh_unskill~1	Unmatched	.18644	.41772	-51.7		-2.95	0.004
	Matched	.18644	.18644	-0.0	100.0	-0.00	1.000
hh_skilled~1	Unmatched	.28814	.16456	29.6		1.75	0.083
	Matched	.28814	.28814	-0.0	100.0	-0.00	1.000

## Appendix 2: Inter-item correlations of statements used to construct community influencing indicator

Item	Obs	Sign	item-test correlation	item-rest correlation	average interitem covariance	alpha
q701_1	354	+	0.4468	0.3388	.2308277	0.8299
q701_2	354	+	0.6729	0.5701	.2022675	0.8111
q701_3	354	+	0.7479	0.6587	.192028	0.8020
q701_4	354	+	0.6938	0.6046	.2032869	0.8084
q701_5	354	+	0.7501	0.6714	.1964411	0.8019
q701_6	354	+	0.5990	0.5015	.2155071	0.8177
q701_7	354	+	0.5417	0.4162	.2170084	0.8254
q701_8	354	+	0.5623	0.4261	.2122784	0.8258
q701_9	354	+	0.4636	0.3542	.2289064	0.8289
q701_10	354	+	0.6149	0.5024	.2091923	0.8175
q701_11	354	+	0.5913	0.4945	.2167246	0.8184
Test scale					.2113153	0.8312

## Appendix 3: Inter-item correlations of statements used to construct self-efficacy indicator

Item	Obs	Sign	item-test correlation	item-rest correlation	average interitem covariance	alpha
q801_1	354	+	0.6911	0.5989	.1029429	0.8519
q801_2	354	+	0.6125	0.5031	.106726	0.8598
q801_3	354	+	0.6335	0.5331	.1063608	0.8572
q801_4	354	+	0.6960	0.6036	.1024556	0.8515
q801_5	354	+	0.6738	0.5804	.1042372	0.8534
q801_6	354	+	0.6961	0.6072	.1031111	0.8512
q801_7	354	+	0.6884	0.5923	.1024894	0.8524
q801_8	354	+	0.7038	0.6187	.1031789	0.8504
q801_9	354	+	0.6622	0.5690	.1052522	0.8543
q801_10	354	+	0.6803	0.5899	.1042308	0.8527
Test scale					.1040985	0.8662

## Appendix 4: Inter-item correlations of statements used to construct gender attitude indicators

Item	Obs	Sign	item-test correlation	item-rest correlation	average interitem covariance	alpha
q901_3	354	+	0.6713	0.4583	.1378552	0.5135
q901_6	354	+	0.6930	0.3644	.131576	0.5687
q901_4	354	+	0.7172	0.4021	.1200978	0.5371
q901_11	354	+	0.6547	0.3785	.1420832	0.5520
Test scale					.1329031	0.6121

## Appendix 5: Inter-item correlations of items used to construct the asset index

Item	Obs	Sign	item-test correlation	item-rest correlation	average interitem covariance	alpha
q3_smlives~n	354	+	0.4685	0.3710	.0811138	0.7985
q3_poultry_n	354	+	0.4848	0.3940	.0810145	0.7971
q3_barrow_n	354	+	0.3738	0.2930	.0847094	0.8021
q3_hoe_n	354	+	0.3818	0.2776	.0834948	0.8038
q3_tractor_n	354	+	0.1506	0.1224	.0898773	0.8071
q3_sewing_n	354	+	0.3784	0.2895	.0842191	0.8024
q3_milling_n	354	+	0.3322	0.2289	.0849388	0.8062
q3_bed_n	354	+	0.6213	0.5457	.0773788	0.7885
q3_radio_n	354	+	0.5393	0.4464	.0789281	0.7940
q3_phone_n	354	+	0.5365	0.4464	.0792693	0.7941
q3_lamp_n	354	+	0.5269	0.4488	.0806564	0.7945
q3_clock_n	354	+	0.6546	0.5785	.0757556	0.7859
q3_DVD_n	354	+	0.6566	0.6011	.0787903	0.7881
q3_TV_n	354	+	0.4755	0.4025	.0826273	0.7972
q3_bike_n	354	+	0.3143	0.2210	.0856846	0.8058
q3_mbike_n	354	+	0.4019	0.3210	.0840167	0.8008
q3_car_n	354	+	0.3790	0.2977	.0845591	0.8019
q3_agricla~n	354	+	0.3495	0.2437	.084387	0.8056
q3_othland_n	354	+	0.4153	0.3113	.0824833	0.8020
roof_n	354	+	0.3320	0.2959	.0879666	0.8037
toilet_n	354	+	0.4428	0.3456	.0819594	0.7999
floor_n	354	+	0.3390	0.2700	.0860351	0.8030
wall_n	354	+	0.3913	0.3206	.0848525	0.8010
Test scale					.0828138	0.8065