



care

CARE Ghana
Pathways
Project Final
Evaluation

July

2016



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ACRONYMS

BMGF	Bill and Melinda Gates Foundation
CBEA	Community Based Extension Agent
CSI	Coping Strategy Index
DA	District Assembly
FFBS	Farmer Field and Business School
FG	Focus group
FGD	Focus group discussions
GAP	Good Agricultural Practices
HDDS	Household dietary diversity score
IGA	Income generating activities
IHA	Intra-household access
KI	Key informant
KII	Key informant interview
LSMS	Living Standards Measurement Study
MoFA	Ministry of Food and Agriculture
M&E	Monitoring and Evaluation
MFI	Microfinance institution
NGO	Non-governmental organization
PPT	Participatory Performance Tracker
PRUDA	Partnerships for Rural Development Action
SARI	Savannah Agricultural Research Institute
TOC	Theory of change
USD	United States Dollar
VSLA	Village savings and loan association
WEI	Women's empowerment index
WEAI	Women's empowerment in agriculture index

ACKNOWLEDGEMENTS

To the many Ghana households who took time from their days to participate in this endline evaluation during December 2015. It is our sincere hope that the findings within this report will contribute to programming that improves your well-being.

TANGO International wishes to thank the CARE Pathways Ghana team for making the final evaluation a very constructive experience, specifically Agnes Loriba, Issahaku Hardi, Gifty Blekpe, and Abdulai Eliasu. This study also owes enormous credit to the outstanding work of the JMK research teams, led by Nancy Akanbombire and Daniel Laarbaye. The research teams successfully completed fieldwork, working through long days, at times difficult logistics, and unexpected challenges with continued patience.

Finally, we wish to acknowledge the generosity and hospitality of the many communities and households that took the time to explain their lives to us. Without their generosity and willingness to share invaluable information about their lives, this important evaluation would have never happened.

TANGO International

EXECUTIVE SUMMARY

This report presents findings from TANGO International and CARE Ghana's evaluation of the CARE Ghana Pathways program. The evaluation uses a global framework developed for use in Ghana, as well as selected regions of India, Malawi, Mali, and Tanzania where the Pathways program is also being implemented.

CARE identified 11 indicators in four key areas (food and nutrition security, livelihoods resilience, economic poverty reduction, and women's empowerment) to measure the overall goal: "To increase poor women farmers' productivity and empowerment in more equitable agricultural systems at scale." The Pathways Theory of Change (TOC) provides the basis for performance indicators. The TOC includes five domains of change called "change levers": 1) women's capacity (skills, knowledge self-confidence), 2) access to productive assets/resources (inputs and financial tools), 3) increased productivity, 4) increased influence over household decisions and assets, and 5) improved enabling environments (cultural and social norms and attitudes, gender-sensitive policies). The report is organized around the impact and performance indicators and presents results from baseline and endline qualitative research and household surveys.

Households in northern Ghana participating in the Pathways program show improvement in some indicators of economic security, livelihoods resilience, and women's empowerment over the three years of the project (2012 to 2015). Women's agricultural knowledge and financial contributions to the household have gained them respect from their husbands and from community leaders. Women show significant gains in sole or joint decision-making in several areas, particularly in decision-making over agricultural income and expenditures, and control of household and agricultural assets. There is qualitative evidence that Pathways is helping to create a stronger enabling environment for women in homes and communities, and reducing gender-based violence; though this is not collaborated by quantitative data. Positive change in access to land and greater equity in household decision-making are occurring, though they are not uniform across the region. Pathways is working to encourage fundamental changes in gender equality in conservative patrilineal societies. This process is clearly underway in many participating communities, though challenges remain.

Impact indicators

Although not a CARE Pathways impact or outcome indicator, shock exposure was measured at baseline and endline and is important for understanding household resilience. Household exposure to shocks increased from baseline to endline. At baseline about three-quarters of all households (77.7%) reported shock exposure. At endline, every household (100%) had experienced a shock. The most common shock faced by households is drought and/or flooding, followed by crop failure, livestock and human disease epidemics, and sharp increases in food

prices. Increased frequency and severity of shocks may be lowering the impact of Pathways programs, as they have affected farming operations.

Notes on study limitations:

1. The sample size for Ghana at baseline and endline is small, relative to other Pathways countries, and does not provide the statistical power to detect small, medium, and in some cases large, changes over time.
2. The sample frame is four villages in the CARE Ghana Pathways program and is *not* generalizable to the greater Pathways Ghana programming area (which was expanded significantly after the baseline survey activity was completed) and is only generalizable to four villages in the Pathways program. The qualitative data is more reflective of the Pathways program as a whole.
3. At the time of the baseline, five villages were included in the sample. Shortly after the baseline activity, one village was removed from Pathways programming. The endline analysis removed all cases from this village from baseline point estimates – *resulting in different point estimates and sample sizes for the baseline data presented in the endline report relative to baseline data presented in the baseline report* (see Table 2 restricted sample size).

These limitations should be considered while reviewing the baseline and endline quantitative data presented in this report. The evaluation team finds the qualitative findings in this report provide a higher level of reliability than the quantitative findings, as the quantitative findings are a small sample which is representative of a small sub-population of CARE Ghana Pathways current programming.

Food and Nutrition Security. Survey data do not indicate any statistically significant changes in either of the two food and nutrition security indicators: household dietary diversity scores (HDDS) or women's intra-household food access.

Livelihoods Resilience. One of the four indicators of livelihoods resilience shows statistically significant change: The percent of households using adaptive strategies to cope with future shocks increased from about half (56.4%) to 87.3%. The data do not indicate a statistically significant change in the coping strategies index, percent of households using negative coping strategies, or mean asset index.

Economic Poverty Reduction. Monthly per capital household income (in USD 2015, farm and non-farm) increased by more than 300%, rising from \$3.41 to \$9.90. Qualitative research indicates that Pathways participation played a key role. Women report that because they started cultivating crops and participated in VSLAs, they were able to contribute to household

income. However, the percentage of households with savings and the percent of women with savings both dropped. Households with savings decreased from 85.9% to 72.7%. The percent of women with savings decreased from 77.3% to 63.6%. The increased number of shocks experienced may have influenced the reduction in savings. Additionally, VSLA members stated that VSLAs do not have sufficient money to make loans to all members during the rainy season. The data do not indicate a statistically significant change in per capita monthly expenditures.

Women's Empowerment. The mean empowerment score for women increased from 49.7 to 59.3. Pathways participation appears to have a key role in increasing women's empowerment, which is a significant achievement in the traditional, patrilineal societies of northern Ghana. Female FGD participants report increased self-confidence, financial responsibility, political participation, knowledge, and economic productivity. Male FGD participants note that most men appreciate women's contributions to household income. In turn, many men have given their wives their own plots of land to cultivate and consult with them on household economic decisions.

Performance indicators

Change Lever 1: Capacity. The anticipated outcome for Pathways Change Lever 1 is improved knowledge, skills, relationships, self-confidence and conviction of poor women farmers. Results are mixed across the three outcomes. Survey data show a statistically significant increase in the percent of women holding leadership positions in formal and informal groups. The percent of respondents reporting that they feel confident speaking about gender and other community issues in public shows that for female respondents, the share has decreased (75.8% to 66.4%). This finding is not supported by qualitative research, and the evaluation team found that some of the represented decrease in confidence might be associated with increased awareness of the challenges females face while speaking in public. For example, females in a focus group in Lambussie cited that Pathways training has 'empowered us to speak in public.' Pathways participants stated in FGDs that women have gained confidence, and are now being included in public meetings by community leaders, and that some women are contesting for public office for the first time. Participants, Pathways' Community-Based Extension Agents (CBEAs), and other stakeholders credit the gender champions with changing men's views of women's capacities, and with promoting better communication and harmony between husbands and wives. The data do not indicate a statistically significant change in the percent of women participating in formal and informal groups.

Change Lever 2: Access. The anticipated outcome for Pathways Change Lever 2 is increased access to productive resources, assets, markets, and appropriate and reliable services and inputs for poor women farmers. Household survey data show women have an improvement in three of the six indicators. Increases are reported in women's access to agricultural inputs (55.6% to 69.2%), access to output markets (16.4% to 35%), and access to agricultural extension

services (24.6% to 79.1%). The data do not indicate a statistically significant change in women's access to and control over loans for income generating activities (IGA), access to agricultural financial services, or satisfaction with agricultural extension services. However, women report near-universal access to agricultural financial services and satisfaction with agricultural extension services. Pathways' work in helping women farmers gain access to their own land for farming is a major achievement and represents a significant shift in attitudes among men in northern Ghana.

Change Lever 3. Productivity. The anticipated outcome for Pathways Change Lever 3 is improvements in yields and income through adoption of sustainable and intensified agriculture and value addition. Seven indicators are linked to this outcome. The data indicate improvements in one indicator and decreases in two. For the remainder, there is no household survey evidence of statistically significant change – which is likely directly related to the small baseline and endline sample size. The percent of women adopting at least two post-harvest processing practices has almost doubled, increasing from 42.9% to 83.2%. However, net annual income of women from agricultural production and/or related processing activities (in USD 2015) decreased from just over \$42 to under \$12. The share of women adopting improved storage practices also decreased, dropping from 51.6% to 15.9%. This was further emphasized in a focus group with male members, which cited 'Help with storage facilities' as a key recommendation for the Pathways program.

Change Lever 4. Household Influence. The focus of Pathways Change Lever 4 is to ensure that poor women farmers have increased contributions to, and influence over, household income and decision-making. Six indicators measure change. Overall, women show improvement in three of the six indicators. The percent of women with sole or joint control over agricultural income and expenditures increased from 48% to 59.1%. Women's control over household and agricultural assets has also increased, rising from 32.8% to 48.1% and 28.8% to 48.2%, respectively. Women in female-headed households report increased decision-making in health care (84% to 95.7%). Data do not indicate statistically significant change in the percent of women with sole or joint control over household expenditures or over reproductive health decisions. However, women's decision-making power over reproductive health decisions is consistently high: 90% of women report sole or joint decision-making over reproductive health decisions.

Change Lever 5. Enabling environments. The focus of Pathways Change Lever 5 is to facilitate the social changes necessary to create more positive and enabling attitudes, behaviors, social norms, policies and institutions that promote women's rights. Four indicators measure this outcome. Women show improvement in one of the four indicators. Women's mobility increased from 10.2% to 46.4%, which is an important indication of increased independence. However, the shares of female respondents expressing attitudes that support gender-equitable

roles and reject household gender-based violence have both decreased (45.4% to 25.5% and 40.8% to 17.3%, respectively) – diverging from qualitative findings and observations. The share of women reporting that their sex is a barrier to participation in local groups increased from 3.5% to 20.0%. These increases can partially be explained by a greater awareness of women at endline to the barriers they face, relative to the lack of awareness women had at baseline – as evidenced by the small percentage of women at baseline who cited the existence of a barrier. Moreover, almost all women (96.4%) are participating in groups, and in a greater variety of groups, at the time of project evaluation.

Conclusions

The major benefits from Pathways participation appear to come from VSLA membership and growing soya – specifically associated with a threefold increase in mean monthly per capita income. Women have been able to contribute to household income, which in turn, they have used to pay school fees, buy books, and send more children to school. Quantitative and qualitative data indicate that VSLA membership has had far-reaching effects. Women who are VSLA members have become contributors to household income. In turn, more children are attending school because households have access to money for books and school fees. Pathways' introduction of soya bean cultivation and preparation has increased household consumption (pulses and beans), and qualitative research shows it has improved food security. As a result, men are allocating part of their land to women for cultivation and in some places are starting to allow women to participate in livestock rearing. Women's contributions of cash and food to the household is reported by participants to have improved domestic relations.

In some areas, Pathways participation is shifting cultural norms as a result of women's success in producing crops and in accessing credit through their VSLA membership. Women are being recognized as responsible, reliable and knowledgeable. Women's ability to earn income and to contribute to household expenses has gained respect from men. Gender sensitization through dialogue and the support of male gender champions is causing men to value women's input more highly, and is contributing to greater harmony in the home. In one community, FGD participants reported that chiefs no longer arrange marriages. In another, women organized to help elect a woman to a government office. However, some places report slower change. Decisions about family size are still left up to men in many households, but there is evidence that this is changing in households where husbands and wives are engaging in joint decision-making. The change many women still seek is to be allowed to inherit land.

The sample size for Ghana is small. The sample frame is four villages in the CARE Ghana Pathways program. The sample was not designed to be generalizable to the greater Pathways Ghana program area, which was expanded significantly after the baseline survey activity was completed. This limits the comparability of household survey performance results to the overall CARE Ghana Pathways program. In addition, for several indicators 'don't know' responses and

missing data from the baseline survey further limit sample size. As a consequence, changes in the indicator values may not be large enough to detect: many changes that are not statistically significant may have been significant with an adequate sample size.

Although Pathways has provided women with some financial training, most of the beneficiary population is non-literate and non-numerate. This was a limitation on data reliability for some indicators, such as women's net income from agricultural production: most women were unable to provide data to compute this indicator, and for those who did, the accuracy of their input is unknown.

1 INTRODUCTION AND BACKGROUND

Using a strong gender focus, CARE's Pathways program seeks to increase poor women farmers' productivity and empowerment in more equitable agriculture systems at scale. Pathways, funded through the Bill and Melinda Gates Foundation (BMGF), is implemented in Ghana (the focus of this study) as well as selected regions of India, Malawi, Mali, and Tanzania. The aim of the Pathways program was to gain a deeper understanding of the pathways that particular segments of the population of poor women smallholder farmers take toward empowerment and toward more secure and resilient livelihoods for their households. CARE hoped to expand the program over time to serve as an effective programming platform with evolving networks of influence and learning partnerships at many levels, and to achieve impact at scale for prioritized segments of smallholder farmers.

TANGO International designed and supported the implementation of an evaluation plan for CARE Pathways that involves:

1. A global evaluation framework;
2. Identification of the most appropriate, rigorous, and ethical impact assessment methodology to use across the different countries, allowing for comparability between projects and countries;
3. Support to CARE country offices and their local partners in conducting the baseline and endline evaluations, ensuring quality data collection protocols, and supporting data analysis; and
4. Producing publishable comparative and synthesis baseline and final reports.

The Pathways global Evaluation Plan presents a comprehensive overview of the following:

1. Pathways goals and objectives with corresponding impact and outcome indicators;
2. Data source definitions and collection methods for both quantitative and qualitative data;
3. Frequency and schedule of data collection and analysis;
4. Indicator descriptions, definitions, and analysis approach;
5. Approach and methodologies for analysis and interpretation;
6. Description of and approach for baseline and endline surveys; and
7. Designation of individuals responsible for monitoring and evaluation (M&E) tasks.

1.1 Pathways Goals and Objectives

Pathways Theory of Change

CARE’s previous work on the Women’s Empowerment Strategic Impact Inquiry, along with an 18-month analysis process of women in agriculture in all six Pathways countries, provided the basis of the Pathways Theory of Change (TOC). The TOC includes five domains of change, or change levers: 1) women’s capacity (i.e., skills, knowledge self-confidence), 2) access to productive assets/resources (e.g., inputs, financial tools), 3) increased productivity, 4) increased influence over household decisions and assets, and 5) improved enabling environments (i.e., cultural and social norms and attitudes, gender-sensitive policies) (Figure 1).

Figure 1: Pathways Theory of Change



The program theorizes that marginalized, poor women farmers will be more productive, and that their families will be more food secure when:

- women have increased capacity (skills, knowledge, resources), capabilities (confidence, bargaining power, collective voice), and support;
- local governance and institutions have/implement gender-sensitive policies and programming that are responsive to the rights and needs of poor women farmers; and
- agricultural service, value chain, and market environments of relevance to women are more competitive, gender-inclusive, and environmentally sustainable.

The Pathways results framework (see Annex 1) illustrates the program’s TOC approach, with positive change toward increased food security and empowerment resulting from the five change levers: capacity, access, productivity, household influence and enabling environments. Objectives 2 and 3 ensure lessons learned from the Pathways experience contribute to positive change in the global discourse on equitable agricultural programming at scale.

Baseline and Endline Comparison Data

CARE Ghana piloted the Pathways project for two years in the Upper East region to build on existing CARE programming among a highly vulnerable of the population. The Upper East region is one of the poorest in Ghana. In 2005/6, mean household annual income was significantly lower than nine out of Ghana’s 10 regions.¹ The ethnic breakdown in the region is 60% Mole-Dagbani, 15% Grusi, and 8% Mande.

The Ghana Pathways project was initially implemented in five villages in the Garu-Tempene district of the Upper East Region of Ghana: Barboaka, Boko, Kpatua 1, Tankpasi, and Tanzug. The Garu-Tempene district within the Upper East Region sits close to the border with Burkina Faso. It is in the savannah ecological zone with unreliable rainfall and severe erosion.

One village was dropped from the program because the participants were based in a peri-urban community and most of them were government sector workers (teachers, nurses, etc), instead of soybean and groundnut farmers. Hence after working in that community for the first year, the project decided to drop that community. The project expanded, adding 18 villages in the Garu-Tempene district, and 41 villages in the Lambussie-Karni district.

Food and nutrition security are a priority in these districts. The project was directly involved with 500 poor women in the first two years, which was increased to 4,317 women by year four.

¹ Information from Ghana Living Standards Survey Report “GLSS5” compiled in 2008 covering September 2005-2006.

Throughout the five years of project implementation Pathways intends to directly impact 50,000 people from these women's households.²

The main purpose of the baseline and endline studies is to provide quantitative and qualitative data on food and livelihood security, agricultural productivity and gender equality in CARE Ghana's impact groups. The studies provide information necessary to characterize the status of beneficiaries at the project's start-up and again at endline, in order to assess the effect of project interventions. The purpose of both surveys is to estimate and analyze the status of key impact and outcome indicators described in the CARE Pathways Indicator Framework (Annex 2).

Baseline information was used for setting short- and long-term targets for tracking progress of Pathways activities. Findings were also used for refining and/or prioritizing project activities in the operational area. The baseline survey was also explicitly designed to enable an evaluation of program performance through implementation of a directly comparable endline survey. Results for all indicators for which information was collected at baseline and endline are presented in Annex 3.

This report first describes the methodology used in the studies, including data collection and data analysis, followed by a presentation of results and qualitative findings for food security, resilience, income, and empowerment impact indicators for CARE's targeted program participants and their households. Sections 3.2 through 3.10 present results and qualitative findings for CARE Pathways outcome indicators. Section 4 covers project management, reviewing the successes and challenges related to staffing, monitoring and evaluation, integration of gender, and the exit strategy. Section 5 presents the conclusions of the evaluation team about the extent to which the Pathways TOC and each contributing lever of change have been realized. The report concludes with recommendations for a second phase of Pathways or for similar projects aiming to integrate agricultural productivity, profitability and gender equality.

2 METHODOLOGY

The Pathways baseline and endline surveys used a non-experimental design for pre-post comparison of results. The household survey was "beneficiary-based" in that the quantitative sample was drawn randomly from a sample frame composed of all households with a female member in a collective with which Pathways was working at the time of the baseline. The

² At the time of the baseline report construction, CARE Ghana was reviewing its definition of the core impact group target. Though still to be finalized, the definition under consideration is women earning less than \$1 per day per capita in their households and who are food insecure.

sample size was determined to provide statistically representative results for household- and individual-level indicators at the project level. In the Upper Eastern region of Ghana, Pathways is working with 316 collective members of which 288 are female. A simple random sample was drawn from this list of collective members. Data were collected from the same households in the baseline and endline surveys. This is explained in detail in section 2.2.

2.1 Development of Indicators and Data Collection Tools

Pathways impact and outcome indicators were developed through discussions at the CARE M&E workshop held in Pondicherry, India in May 2012 and subsequent comments from CARE-USA management and staff. As a result of the May workshop, indicators were developed that would allow for assessing the broader impact of CARE's work with systems that affect women's productive engagement in agriculture, and in particular with the CARE Australia WE-RISE program because of its strong gender focus, similar program approach and methodology, and overlapping countries of implementation. Thus, a set of "global" indicators was designed to align with better practices and has been validated by experts from FANTA-2, USAID, IFPRI, and others. Detailed descriptions of indicators, along with direction of change targets, are summarized in the CARE Pathways Evaluation Plan³. Indicators included in the matrix represent those that are tracked at the impact and outcome levels; some are composite indicators that require the combination of two or more variables. Some indicators are disaggregated by sex or sex of the household head; others target women beneficiaries only; and some are disaggregated by male and female respondents within the same household.

Impact indicators are presented below. The full set of indicators (impact and outcome levels) and results are presented in Annex 3.

Summary of Pathways impact indicators

Food and Nutrition Security

- Mean household dietary diversity scores
- Mean women's intra-household food access

Livelihoods Resilience

- Coping strategies index
- % households adopting negative coping strategies in past 3 months
- % households using adaptation strategies to reduce the impact of future shocks

Economic Poverty Reduction

- Per capita monthly household income - USD (farm and non-farm combined)

³ TANGO International. 2012. CARE Pathways Evaluation Plan.

- Per capita monthly household expenditures
- % households with savings
- % women with savings
- Mean asset index

Women's Empowerment

- Women's empowerment index

2.2 Quantitative Study

Sample size: The baseline survey design was discussed at the 2012 Pondicherry workshop and subsequently reviewed by CARE USA before implementation of the survey. Ghana (and all other countries) independently calculated their sample size based on household expenditures, with a targeted improvement of 30% (X_2) over the life of the activity. A design effect of 1 was used in Ghana because it was a single-stage sample, $Z_\alpha = 1.282$ (Z-value corresponding to a 90% significance level), and $Z_\beta = .84$ (Z-value corresponding to 80% power) were used for country-level calculations. Ghana set the non-response rate at 3%, attrition rate at 10%, and X_1 at 1.

The minimum sample size required was computed using the formula for means provided in the FANTA Sampling Guide:

$$n = N * D [(Z_\alpha + Z_\beta)^2 * (sd_1^2 + sd_2^2) / (X_2 - X_1)^2] * A$$

where:

n = required minimum sample size per survey round or comparison group

N = non-response factor

D = design effect

A = attrition factor (baseline to endline)

X_1 = the estimated mean of the indicator at the time of the first survey

X_2 = the expected mean of the indicator either at some future date or for the program area such that the quantity $(X_2 - X_1)$ is the size of the magnitude of change or comparison-group differences it is desired to be able to detect

Z_α = the Z-score corresponding to the degree of confidence with which it is desired to be able to conclude that an observed change of size $(X_2 - X_1)$ would not have occurred by chance (α - the level of statistical significance)

Z_β = the z-score corresponding to the degree of confidence with which it is desired to be certain of detecting a change of size $(X_2 - X_1)$ if one actually occurred (β - statistical power)

sd_1 = the standard deviation of the indicator the time of the first survey

sd_2 = the expected standard deviation of the indicator at some future date

Given the small size of the population from which the sample is derived, the sample size was corrected to take into account this factor, using the following formula:

$$n = (n_{\text{initial}} * P) / (n_{\text{initial}} + P - 1)$$

where:

n = required minimum sample size per survey round or comparison group

n_{initial} = sample size before correction

P = size of the population (total number of collective members)

Using these values, n (the minimum sample size) for baseline is 176. The total number of households surveyed at baseline is 173, keeping the sample within the 3% non-response rate that Ghana had budgeted for, but not allowing for any non-response at endline. Eliminating one village which was no longer part of CARE Pathways, and updating participant rosters to exclude households who are no longer participating in the program or who had migrated out of the program area, resulted in an endline target sample of 123 (29% attrition versus the 10% the country office had budgeted for). In addition, the endline non-response rate is 10.5%. The overall non-response/attrition rate is 36.4% resulting in a sample of 110 households. Small sample sizes have implications for results. A sample size of 173 households is sufficient to detect a 30% change in income. The ability to detect a smaller change requires a larger sample.

Table 1: Sample sizes

	Baseline achieved sample size	Restricted sample size	Endline target sample size ¹	Endline achieved sample size	Attrition and non-response rate ²
Pathways	173	130	123	110	36.4%

¹This sample initially included all households that completed the baseline survey. It was updated to exclude households no longer participating in the program or that migrated away from the program area.

²This figure includes non-response and attrition since baseline: households in one village which was dropped from the endline, households that could not be located, households where the female interviewed at baseline was not available, households that were located but stated they had not participated in the program in over a year, and households that did not agree to participate.

Following discussions between CARE headquarters and TANGO, it was agreed that the endline would only include households who reside in the four communities where Pathways was initially operating and continued to operate through the endline. This resulted in removing one community from the sample. The restricted baseline sample (four communities) is the source of data for estimates presented in this report (Table 2). Point estimates of baseline values have

been recalculated to better reflect the status of the project participant population. Annex 3 presents original, restricted baseline, and endline values for all impact and outcome indicators.

Table 2: Endline analysis sample size

	<i>Baseline sample size</i>	<i>Restricted Baseline sample size</i>	<i>Endline sample size</i>
All households	173	130	110
Female HHHs	16.8	19.2	20.9
Male HHHs	83.2	80.8	79.1

Survey Instrument

The data collection tools originate from a standardized set of global tools developed in collaboration with CARE-USA and CARE-AUS. CARE Ghana helped to contextualize the standardized tools to the local conditions. The quantitative survey instrument was designed to ensure that baseline information on project indicators is sufficiently captured. The indicators emphasize women’s empowerment across the five domains identified in Feed the Future’s (FTF) *Women’s Empowerment in Agriculture Index*⁴ (WEAI), including agricultural production, access to and ownership of resources, control over income and expenditures, leadership and community participation, and allocation of time. TANGO and CARE also drew on other sources to develop the indicators, including CARE’s Strategic Impact Inquiry on Women’s Empowerment (SII)⁵ and IFPRI’s *Engendering Agricultural Research, Development and Extension*.⁶ The survey instrument is provided in Annex 4.

Survey Training and Logistics

One TANGO consultant led the quantitative data collection team. Ghana Pathways engaged the local firm of JMK to oversee all fieldwork logistics. JMK provided two field managers, and hired all quantitative and qualitative researchers. The TANGO consultant provided a comprehensive five (5) day training of quantitative researchers in Garu between December 1st and December 5th 2015. The training included 12 quantitative enumerator trainees (from which enumerators and supervisors were selected). Ghana Pathways staff participated in the quantitative training. The training covered supervisor roles and responsibilities, rules, behaviors and ethics, household selection, use of field control sheets, and a detailed review of the research tools including group practices and mock interviews/role playing.

⁴ USAID. 2011. Women’s Empowerment in Agriculture Index.

⁵ CARE International. 2006. The Courage to Change: Confronting the limits and unleashing the potential of CARE’s programming for women. Synthesis Report: Phase 2. CARE International Strategic Impact Inquiry on Women’s Empowerment.

⁶ IFPRI. 2011.

The training included a 1-day field test exercise of all quantitative tools. The purpose of the field test was to test the soundness of the questionnaire and to identify potential topics which enumerators were not comfortable translating and/or explaining. Upon completion of the field test, a debriefing session was held with enumerators and supervisors to address specific issues that arose.

For the quantitative fieldwork, supervisors were instructed to review a specific series of questions, prior to uploading data to the server. In addition, supervisors completed a *purposeful* spot check each day – verifying enumerators were collecting accurate data. In addition to the supervisor quality control mechanisms, data was uploaded to TANGO daily. TANGO reviewed the data and provided JMK survey managers with feedback on data quality, survey progress, and highlighted specific issues to be discussed with identified enumerators.

Upon completion of the training the quantitative team began fieldwork in Garu- Tempene.

Quantitative training covered the following topics:

1. Overview of CARE’s Pathways program and Country Project
2. Review of the objectives of the endline evaluation
3. Detailed discussion of the survey tool (question-by-question)
6. Training on administering the questionnaire with tablets
7. Pilot testing of the survey tool
8. Modifications to the survey tool in response to the pilot test

Enumerators and supervisors received basic training on the use of computer tablets, including how to enter data, recharge batteries, and navigate the survey using ODK software. Supervisors also received training on how to transfer data files from tablets to the TANGO server via wireless connection. Training modules on tablets were based on similar materials developed by TANGO for quantitative surveys. The M&E supervisors from CARE Pathways programs and partners were responsible for logistical coordination of the field-based survey teams.

Data Collection and Data Quality Measures

Survey data were collected December 7 – 15, 2015 in four villages of CARE Ghana’s Pathways project. Quantitative data were collected using Nexus 7 tablets programmed with ODK. Supervisors conducted one spot check per day, per enumerator. This allowed them to check regularly the quality and accuracy of the data entered by the enumerators. Supervisors regularly communicated the results of spot checks to TANGO.

Table 3: Surveyed households by village

	Barboaka	Boko	Kpatua	Tankpasi	Total Sample
# of households	51	14	30	15	110
% of sample	46.4	12.7	27.3	13.6	100

TANGO provided direct oversight for the quantitative teams for the first several days of fieldwork. For the remainder of the study, TANGO provided comprehensive daily feedback to the quantitative survey supervisors on the quality of data collection. The feedback highlighted issues with specific questions or enumerators in a way that enabled supervisors to work with individual enumerators to improve data collection efforts.

2.3 Qualitative Study

Qualitative Tools

A variety of qualitative participatory tools were developed to explore contextual factors, including agency, structure, and relations and their impact on poor smallholder women farmers. The qualitative tools allowed the team to capture information on norms that affect women’s empowerment and power relationships, particularly as these factors relate to women’s ability to actively engage in and have control over agricultural production and marketing activities. The tools are designed to provide insight to better understand and interpret the quantitative indicators and to help identify the key factors critical to the success of the program, including progress markers defined at midterm by participants and the country team.

Topical outlines were developed for female members of collectives, their husbands or male relatives, nonmembers of collectives, and key informants including male champions, community resource persons and leaders, and partner (including government) and project staff. In addition to topical outlines, a ranking exercise that captured the perceived effectiveness of Pathways project activities was used. These tools are provided in Annex 5.

Qualitative Team and Training

One TANGO consultant led a comprehensive five-day training of qualitative researchers in Garu from December 1st to December 5th 2015. The training involved eight qualitative researchers. Ghana Pathways staff participated in the training, and provided technical and project specific knowledge when required. Training included a 2-day test of all qualitative tools. The qualitative researchers divided into two teams -- one team remained in Garu-Tempene to begin fieldwork, and the second team traveled to Lambussie-Karni district. The TANGO consultant remained in Garu to oversee the quantitative start-up and undertake primary qualitative data collection. Initially the consultant was scheduled to undertake four days of fieldwork in Garu-Tempene

district, however inclement weather resulted in all flights to Accra being cancelled. The consultant was able to undertake three days of fieldwork – spent interviewing project staff, partners, beneficiaries, and overseeing quantitative team start-up. The qualitative team’s schedule was designed to allow for one day of data entry for each day of fieldwork – ensuring fieldwork notes were captured regularly and promptly. TANGO consultants reviewed the notes for quality and completeness on a regular basis during the duration of fieldwork. Both consultants departed Ghana on December 11th 2015, and JMK staff remained with the teams for the duration of the survey.

Site selection

The qualitative sample covered a larger geographic area than the quantitative survey sample. The four sites selected in Garu-Tempene district (including the field test site) were also sampled in the quantitative survey. The qualitative sample included areas in Lambussie-Karni that were added to CARE Pathways after the baseline household survey. The qualitative research team identified communities based on the following criteria:

1. Geographic distribution:
 - a. Select four villages in the Garu-Tempene district (all of which were in the quantitative sample) and three villages in the Lambussie-Karni district.
2. Access to services (within each district)
 - a. Select villages that are close to market centers and roads
 - b. Select remote villages that can be reached by the qualitative team in one day or less.
3. Achievement (within each district):
 - a. Select villages that have had good results/participation from the program based on project staff knowledge and monitoring data.
 - b. Select villages that have not been as successful relative to high-performing villages
4. Special characteristics (across both districts where appropriate):
 - a. Select villages that are more prone to disasters than others
 - b. Select villages that are better able to cope with problems (more resilient) than others
 - c. Select villages that have better/worse gender relations than others

The communities surveyed were Banwon, Chum, and Gyirgan in Lambussie Karni district, and Boko, Kpatua 2, and Tankpasi in Garu-Tempene district. Bulpielsi in Garu-Tempene district was the site of the qualitative field test.

Data Collection

Participatory methodology was used throughout the assessment to secure information from program participants, including their views of what is most valuable and relevant. Qualitative data collection was performed through three main focus group discussions (FGDs) in each of

the villages visited. The three focus groups were with a) Female VSLA members, b) husbands or male relatives of female VSLA members; c) female non-members. Ranking exercises were conducted with female VSLA members and the men's group. Additionally, in each district, at least one (and often several) focus groups or participatory exercise was conducted with local stakeholders including VSLA members, non-members, and males related to members, people who received services from Community Based Extension Agents (CBEA) , staff of CARE implementing partners, traditional leaders, and gender champions.

Key informants, local officials, partners and project participants were interviewed at community and district levels.

Qualitative topical outlines are included in Annex 5. The intervention ranking tool is provided in Annex 6.

2.4 Data Analyses

Quantitative analysis

The quantitative data were collated and configured by TANGO International staff using SPSS v23.0 software. This included organization of the data to align to the common indicator framework, calculation of secondary variables (asset index, coping strategy index, etc.) from primary variables where appropriate,⁷ and formulation of tables and charts. Analysis and reporting are consistent with the CARE Pathways Evaluation Plan; therefore some data are disaggregated by sex of respondent, some data are reported for female respondents only and are disaggregated by the sex of their households' head, other data are reported for female respondents only and are not disaggregated, and finally some data are reported for the household, disaggregated by the households' head (e.g., demographic data, savings, etc.)

Means and proportions reported in the tables are based on the random sample, and are estimates of the values in the underlying CARE beneficiary population. Difference of means tests (t-tests) compare baseline and endline values (and in the case of gender parity, male and female respondents). Probability levels are reported (using asterisks) for statistically significant differences only.

Qualitative analysis

For each day of data collection, the team spent approximately one day reviewing the data collected, cross-checking information and its interpretation, and sharpening inquiry tools as

⁷ Annex 5 provides a description of how the asset and coping strategy indices were computed. Annex 6 describes the computation of the WEI, as well as how it aligns to and differs from the WEAI.

necessary. All notes are transcribed in informational matrices. This information is synthesized and integrated with the quantitative analysis in this report by TANGO.

2.5 Study Limitations

The endline sample size was insufficient to detect all except for very large changes. For population subgroups, this is especially problematic. The endline sample of female-headed households totaled 23. TANGO generally reports values for sample sizes of 25 or larger. However, this report includes values for sample sizes of 20 or larger, in order to be able to report values for female headed households. In addition, large numbers of 'don't know' responses and missing data, limit the reliability of some of the indicator values. Several indicators (income, net income, and agricultural yield) may also be unreliable due to low levels of literacy and numeracy, and limited financial record keeping by participants. One survey question asks about record keeping and shows about three-quarters of women do not keep financial records, making data quality about production, expenses, and income questionable. In the qualitative interviews, many of the communities have small populations, which limited the number of FG participants, especially for non-VSLA members. Interviews were conducted during the day, which meant people were busy with their daily activities, and although the community was informed about survey it was difficult in some communities to find husbands of VSLA members for FGDs. For several indicators,⁸ qualitative data do not support quantitative results. The discrepancies are further explored in the pertinent sections of the report.

The evaluation team finds the qualitative findings in this report provide a higher level of reliability than the quantitative findings, as the quantitative findings are only representative of a small sub-population of CARE Ghana Pathways current programming.

⁸ These include (1) women respondent's confidence speaking about gender and other community issues at the local level, (2) women respondents expressing attitudes that support gender-equitable roles in family life, and (3) women respondents expressing attitudes that reject household gender-based violence, and (4) agricultural yields.

3 Results and findings

3.1 Household Characteristics

Core Impact Groups

CARE Ghana defines its core impact group as "women earning less than \$1 per day per capita in their households and who are food insecure."⁹ Food insecure households are those that report that they did not have enough food or money to buy food in the past three months. The percentage of all households meeting the core impact definition is nearly identical at baseline and endline (83.6% and 80.0%, respectively) (Table 4).

Table 4: Percentage of households meeting criteria for Pathways impact group (<\$1 USD per day in household income and food insecure)

Indicator	Sample Size	
	BL	EL
Percent of households in impact group		
All households	83.6%	80.0%
Female HHHs	96.0%	87.0%
Male HHHs	80.6%	78.2%

As would be expected in a longitudinal study over just three years, household demographics are similar between baseline and endline surveys. Table 5 shows that household size has increased from 6.2 to 7.0 members, presumably due to the increase in the number of children under 18, which rose from 3.5 to 4.5. The education level of head of household has increased. A smaller share (66% compared to 79%) report that they have no formal education.

⁹ Data used estimates of household level income, not just earnings by women. Information about women's earnings in the survey includes agricultural activities only.

Table 5: Household demographics

Indicator				Sample Size	
	BL	EL		BL	EL
Households size (mean)	6.2	7.0	**	130	110
Number of children (under 18) (mean)	3.5	4.5	**	130	110
Number of females in household (mean)	3.0	3.3		130	110
Number of females involved in Ag	1.2	1.3		130	110
Female-headed households (%)	19.2	20.9		130	110
Age of head of household (mean)	49.4	49.8		130	95
Education of head of household (%)					
No formal education	79.2	66.4	**	130	110
Lower primary (class 1-4)	9.2	10.9		130	110
Upper Primary (Class 5-7)	3.8	2.7		130	110
High school (8-10)	4.6	0.0	**	130	110
Intermediate (11-12)	1.5	1.8		130	110
Graduation	1.5	4.5		130	110
Marital status of head of household (%)					
Single	1.5	2.1		130	95
Married (Less than or equal to two	1.5	1.1		130	95
Married (More than two years)	85.4	83.2		130	95
Divorced	0.0	0.0		130	95
Widow/Widower	11.5	13.7		130	95
Polygamous marriage (%)	52.0	54.0		128	110
Disabled member of household ¹ (%)	na	14.6		na	110

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

¹. Not collected at baseline

3.2 Impact: Food Security

Critical to realizing the overarching long-term Pathways impact goal of “more secure and resilient livelihoods for poor women farmers” are improvements in food and nutrition security. The primary indicators used in this study to measure levels of food security are: 1) the household average dietary diversity score (HDDS), a proxy for food access, and 2) the mean women’s intra-household food access score.

3.2.1 Dietary Diversity and Intra-Household Access

The main food preparer (typically the sampled CARE member) is asked to report on 12 different food groups consumed by any household member over a 24-hour period (the day and night prior to the interview). The responses produce a HDDS between 0 and 12, with the higher score demonstrating access to diverse food groups. After determining whether *any* household member consumed each of the 12 food groups, the main food preparer is asked if all, some, or no female household members over the age of 15 ate the food item. The responses for “all women” or “some women” produce an intra-household access (IHA) score between 0 and 12, with the higher score indicating greater access to diverse food groups.

The mean HDDS for all surveyed households indicates that households are on average accessing between four and five different types of food daily. Women's intra-household dietary diversity scores indicate similar diversity in food consumption (Table 6).

Indicator			Sample Size	
	BL	EL	BL	EL
IM 1.1: Mean household dietary diversity scores				
All households	4.3	4.6	127	105
Female HHHs	3.9	4.2	23	23
Male HHHs	4.3	4.8	104	82
IM 1.2: Mean women’s intra-household food access				
All households	4.2	4.0	127	105
Female HHHs	3.8	3.9	23	23
Male HHHs	4.3	4.1	104	82
Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.				

Table 7 illustrates how consumption of specific foods has changed since the baseline period. Among households and women within households, consumption of tubers, vegetables, and fish has decreased since baseline. For women within households, consumption of eggs has also decreased. For households, consumption of fruits, pulses, and sugars has increased. For women within households, consumption of fruit and pulses has risen. The changes in consumption data are likely the result of a difference in the timing of data collection for the BL and EL. The BL data was collected in August-September, during the rainy season when vegetables, tubers, fish and eggs are available. The EL was done in December, which is the beginning of the dry season when vegetables, tubers, eggs and fish are scarce in project communities. Pathways project staff also state that soya is a good substitute for fish during the dry season.

Table 7: Food

Indicator	BL	EL		BL	EL	
Food categories consumed day prior to survey						
	% of HH reporting someone			% of HH reporting women		
Cereals	96.1	96.1		93.7	92.4	
Tubers	30.7	9.5	***	30.7	8.6	***
Vegetables	71.7	48.6	***	71.7	41.9	***
Fruits	10.2	48.6	***	9.4	39.0	***
Meat	18.9	17.1		18.1	14.3	
Eggs	8.7	7.6		8.7	1.0	***
Fish	89.8	78.1	**	89.0	72.4	***
Pulses, beans	15.0	43.8	***	14.2	40.0	***
Dairy	3.1	9.5	**	3.1	4.8	
Fats/Oils	53.5	61.0		53.5	56.2	
Sugars	22.8	35.2	**	22.8	26.7	
Condiments, etc	5.5	7.6		5.5	5.7	
n	127	105		127	105	

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

Pathways targeted crops are soya and groundnuts. There are indications that the project has succeeded in educating people about the economic and nutritional value of these crops. Qualitative evidence from key informant interviews (KIIs) report that soya is a new crop in Upper West Ghana and that through the Pathways project, the demand for soya beans (and consumption of pulses) has increased, which is reflected in the household survey data (Table 7). One CBEA in Garu-Tempene district stated that while soya is a woman's crop, men now also value soya not only for the household income it brings, but for its food and nutritional value. Pathways has promoted a variety of new ways to prepare soya. Several male FG participants commented that they like the cooking demonstrations because the recipes are "good-tasting." According to project staff, groundnut production has been more problematic due to problems with local seed in Garu-Tempene. The project has established demonstration plots with a new variety of groundnut seed (Yenyawaso), with the help of a Pathways partner, the Savannah Agricultural Research Institute (SARI), and will work to increase the supply of this variety.

3.3 Impact: Livelihoods Resilience

To understand progress toward the long-term goal of "more secure and resilient livelihoods," Pathways tracks information to inform four key areas: the coping strategy index (CSI), adoption of negative coping strategies in past three months; adaptation strategies to reduce the impact of future shocks, and household asset holdings, reflected in an asset index. Measuring the resources that individuals and households can draw upon to reduce vulnerability provides insight on household capacity to absorb a range of different risks and adapt to various external drivers of change (e.g., ecology, economics and socio-cultural).

3.3.1 Coping Strategies

Coping Strategy Index (CSI): The CSI is a tool used to measure behavior change in households when they cannot access adequate or preferred foods. It is a food security and early warning indicator, including longer-term changes in food security status.¹⁰ The CSI attempts to answer the following question: “What do you do when you don’t have enough food, and don’t have enough money to buy food”? The various answers to this question comprise the basis of the CSI score. The lower the score, the greater food security. CSI’s maximum score is 100. Annex 5 provides more details on how the CSI is computed. Table 8 presents the CSI, household food security, and household use of coping strategies. The data do not indicate a significant change from baseline to endline in any of the measures.

Indicator	BL	EL	Sample Size	
			BL	EL
IM 1.3: Coping strategies index				
All households	22.9	24.8	130	110
Female HHHs	24.4	25.7	25	23
Male HHHs	22.5	24.6	105	87
Households who did not have enough food or money to buy food in past 3 months				
All households	85.9	85.5	128	110
Female HHHs	96.0	87.0	25	23
Male HHHs	83.5	85.1	103	87
% of HHs to use consumption coping strategy at least once a week				
Borrowed food or borrowed money to	64.6	53.6	130	110
Relied on less preferred or less	66.9	63.6	130	110
Reduced the number of meals or quantity eaten per day	72.3	67.3	130	110
Skipped eating due to lack of money or	45.4	55.5	130	110
Consumed undesirable food, wild food, famine foods, normally not eaten	10.0	13.6	130	110
Restricted consumption of some family members so that others could eat normally or more	38.5	48.2	130	110
Eat seed stock held for next season	61.5	49.1	130	110
Beg or scavenge	15.4	15.5	130	110

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

¹⁰ Developed by CARE and field tested by WFP and CARE, the CSI has been used for early warning and food security monitoring in African and Asian countries, in addition to several Middle Eastern countries.

Table 9 reports household use of non-consumption coping strategies in response to food or income scarcity. A comparison of overall use of non-consumption coping strategies from baseline to endline shows that in both periods about eight out of ten households report using these coping strategies. Use of interest-bearing loans is the most commonly reported coping strategy, adopted by just over 80% of households (up from 45.7% at baseline). This increase in interest-bearing loans may be a positive outcome of VSLA membership, as the data shows that members significantly reduced their coping strategies associated with reducing expenditure on livestock and agricultural inputs, and unusual sales (such as selling household assets). Qualitative research indicates that Pathways has enabled a shift away from distress sales of productive assets (a finding consistent with survey data showing a decrease from 50.5% to 31.1%). Focus group participants report that they used to sell property in stress times but now access loans (many noted that they borrowed from the Pathways VSLA) to support themselves. Selling seed stock and requesting government assistance have also increased significantly. Reducing expenditures on livestock and agricultural inputs has decreased.

“With the help of the VSLA we don’t sell our products in times of emergencies anymore.” – Female FG, Tankpasi

Table 9: Non-consumption coping

Indicator			Sample Size	
	BL	EL	BL	EL
IM 1.4 : % HHs adopting at least one non-consumption coping strategy in past 3 months				
All households	80.8	81.8	130	110
Female HHHs	88.0	82.6	25	23
Male HHHs	79.0	81.6	105	87
Percentage of HHs utilizing specific non-consumption coping strategies				
Pledge or sell labor/crops/livestock in advance	48.6	54.4	105	90
Take a loan with interest	45.7	82.2	***	105 90
Sell seed stock for next season	0.0	22.2	***	105 90
Slaughter more animals than normal	3.8	3.3		105 90
Request local government assistance	1.9	6.7	*	105 90
Lower school attendance or drop out from school	20.0	25.6		105 90
Reduce expenditures (e.g., health care, education)	30.5	35.6		105 90
Reduce expenditure on livestock and agricultural inputs	60.0	30.0	***	105 90
Sell a higher number of livestock than usual	44.8	47.8		105 90
Unusual sales (household assets, firewood charcoal, Migrate	50.5	31.1	***	105 90
	3.8	6.7		105 90
Send children away to better-off relatives and	8.6	4.4		105 90
Percentage of households utilizing "other" coping strategies				
Participate in food or cash for work programs	57.1	7.1	***	105 90
Rely on own savings	78.1	53.3	***	105 90

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

3.3.2 Adaptive strategies

At endline, all surveyed households reported experiencing at least one shock. This is up from 77.7% at baseline. Table 10 shows that number of shocks (three) that households experienced in the five years prior to the interview is nearly double at endline. Qualitative findings outside of the quantitative survey area also reflected this increase in shocks at the household level. The incidence of shocks for female-headed households is more than twice as high at endline as baseline. Male-headed households reported just under twice as many shocks at endline as at baseline. The incidence of chronic illness or severe accident is significantly lower at endline than baseline, dropping from 37.2% to 24.6%. However, households report an increase in six out of the ten shocks for which data were collected at both baseline and endline. The most frequently reported shock is drought and/or flooding, affecting almost nine out of ten households at endline (up from just over half at baseline). Reports of diseases (affecting humans, crops or livestock) rose from about one-third of households (27.9 percent) to nearly three-quarters (74.6 percent). Economic shocks (job loss, business failures, and drops in remittances) also increased significantly. Although they affect a small share of households, reports of conflict and divorce or abandonment have also risen.

Table 10: Shocks

Indicator				Sample Size	
	BL	EL		BL	EL
Number of shocks in past 5 years ¹					
All households	1.5	2.9	***	130	110
Female HHHs	1.0	2.6	***	25	23
Male HHHs	1.6	3.0	***	105	87
Types of shocks experienced in the past 5 years					
Death of HH income earning members	17.1	21.8		129	110
Chronic illness or severe accident of HH member	37.2	24.6	**	129	110
Loss of a regular job of a HH member	2.3	11.8	***	129	110
Divorce or abandonment	0.0	6.4	***	129	110
Theft ²	na	21.8		na	110
Major drought or flooding	55.4	88.2	***	130	110
Issues with division of father's property	0.0	0.0		130	110
Failure or bankruptcy of business	5.4	43.6	***	130	110
Decreased or cut off regular remittances	4.7	17.3	***	129	110
Major conflicts	0.0	3.6	**	129	110
Epidemic disease (crop, livestock, human)	27.9	74.6	***	129	110
Sudden or dramatic increase in food prices ²	na	66.4		na	110
Crop failure ²	na	81.8		na	110
Sudden market price drop of cash crops ²	na	38.2		na	110

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

¹ Out of the total of number shocks included in both surveys (max possible=10)

² Not collected at baseline

As shown in Table 11, nearly nine out of ten households (87.3%) at endline are using at least one positive adaptation strategy to reduce the impact of future shocks, as compared to baseline when just over half did so (56.4%). Use of adaptations among male-headed households has risen from 60.5% to 90.8%.

At baseline, a little more than one-half of the households did not engage in any adaptation strategy. Table 11 shows this has significantly changed at endline, with only 12.7% not doing so.

Indicator				Sample Size	
	BL	EL		BL	E
IM 1.5 % HHs using at least one positive adaptation strategy to reduce the impact of future shocks					
All households	56.4	87.3	***	101	1
Female HHHs	^	33.5		15	2
Male HHHs	60.5	90.8	***	86	8
Statistically different from baseline at the 10% (*), 5%(**) or 1%(***)					
^ sample size less than 20					

Table 12 shows households' use of specific adaptive strategies. The most commonly reported strategy is investing in savings, which has risen from about 47.5% to 60.9% of all households. This indicates that more households are using savings to cope with shocks; however, this would appear to be in contradiction to other data which shows that the number of households, and women, to cite savings has decreased (section 3.4.2). This may be attributed to the fact that as the number of shocks experienced by households have increased, household savings may have been used up, and not yet been rebuilt. Diversifying income-generating activities and changing crops have also risen. A smaller share of households reported investing in irrigation infrastructure (dropping by half, to 19.1% from 38.6% at baseline).

Table 12: Household adaptive strategies

Adaptive strategies	BL	EL	
Accessed additional land	0.0	12.7	
Changed crops	14.9	29.1	**
Invested in irrigation infrastructure	38.6	19.1	***
Diversified income generating activities	25.7	50.9	***
Purchased additional livestock	18.8	25.5	
Invested in savings	47.5	60.9	*
Invested in human health care ¹	na	0.0	
Invested in animal health care ¹	na	10.0	
Participated in conflict resolution ¹	na	9.1	
Improved drainage or constructed dams or dykes ¹	na	10.9	
Stored food for future use ¹	na	23.6	
Reinforced housing ¹	na	3.6	
Did nothing	38.6	52.7	
n	101	110	

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

¹ Not collected at baseline

3.3.3 Household assets

The mean asset index is a proxy for household wealth. It provides a measure of the number and value of animal and other productive and household assets. This index is computed by multiplying the number of each type of household asset by the index value for that particular asset type. Index values of household assets used for construction of the asset index are presented in Annex 5. A higher asset index value indicates that households have been able to accumulate assets over time. Households are able to accumulate assets if income is greater than the necessary expenditures to meet household subsistence requirements. Assets also provide households with a cushion to adjust to shortfalls in income, or sudden increases in necessary expenditures. Thus, households with a higher asset index are less vulnerable than households with lower asset index values. The asset index is critical to understanding the resilience capacity of Pathways participants at endline.

Table 13 shows mean values of household assets values (overall, and for households with and without land). The data do not indicate statistically significant changes in assets from baseline to endline.

Table 13: Assets

Indicator			Sample Size	
	BL	EL	BL	EL
IM 1.6: Mean asset index (w/ ag land)				
All households	250.1	274.6	130	110
Female HHHs	129.0	198.1	25	23
Male HHHs	278.9	294.8	105	87
IM 1.6: Mean asset index (w/o land)				
All households	207.4	227.1	130	110
Female HHHs	104.4	162.1	25	23
Male HHHs	231.9	244.3	105	87

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

Table 14 shows changes in specific asset holdings from baseline to endline. The table compares female-headed households to all households. It also shows the percentage of households owning each type of asset. Female-headed households show increases in ownership of large consumer durables and non-agricultural land. Holdings of poultry, non-farm business equipment, large and small consumer durables, and non-agricultural land have increased for all households.

Since the baseline period, asset ownership has increased for seven of the asset categories. The percent of households reporting that they own small livestock, poultry, mechanized farm equipment, non-farm business equipment, large and small consumer durables, cell phones, and non-agricultural land have all increased significantly. Ownership of mechanized farm equipment decreased.

Table 14: Asset ownership by asset type

Asset	Female-headed HH		All households		All households			
	BL	EL	BL	EL	BL	EL		
	Mean # of assets owned		Mean # of assets owned		% HH owning asset			
Agricultural land (acres)	2.6	2.7	3.7	3.8		98.3	97.2	
Large livestock (oxen, cattle)	1.3	0.8	3.0	2.4		47.6	50.9	
Small livestock (goats, sheep)	3.1	7.8	5.6	6.5		72.0	81.6	*
Poultry	5.8	8.0	10.2	15.5	***	68.3	83.3	**
Farm equipment (non-mechanized)	2.8	4.2	4.9	6.6		85.2	94.3	
Farm equipment (mechanized)	0.2	0.0	0.1	0.0	***	7.0	1.8	**
Nonfarm business equipment	0.2	0.8	0.7	1.2	**	16.3	23.8	*
House (and other structures)	0.4	0.7	0.6	0.8		44.6	75.5	
Large consumer durables	0.0	0.2	0.2	0.5	***	9.3	20.0	***
Small consumer durables	0.6	1.4	1.2	1.4	*	53.9	71.8	**
Cell phone	0.5	1.0	1.1	1.6		59.7	82.7	***
Non-agricultural land (acres)	0.0	0.7	0.5	0.4	***	18.9	20.9	***
Bicycle or motorcycle	0.4	0.8	1.1	1.7		59.2	25.5	
n	25	23	130	110		130	110	

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

3.4 Impact: Economic Poverty Reduction

3.4.1 Household Income and Expenditures

Monthly per-capita income¹¹ is presented in Table 15 as mean and median farm and non-farm income. Income is reported in 2015 US dollars, so baseline and endline values are directly comparable. Mean income (farm and non-farm combined) has risen for all households, female-headed households, and male-headed households by between 257% and nearly 300%. Gains appear to primarily come from an increase in non-farm income which is up by 263% for female-headed households and by 391% for male-headed households. No significant changes are seen in farm income. Qualitative research indicates that Pathways participation increases household income, and focus group participants report that because women are now engaged in farming, they are able to contribute significantly to household income. Women are able to help pay

¹¹ Average amount of household income from all income sources/earners earned per month, divided by the total number of individuals living in the household.

livestock fees and pay school expenses for children, and thus more children are in school now compared to when men were the sole contributors to household income. Table 15 also reports median income, which is generally regarded as a more accurate representative of the sampled populations.¹²

Indicator			% change		Sample Size	
	BL	EL			BL	EL
IM 1.7: Mean per capita monthly household income (All sources)						
All households	\$3.41	\$9.90	***	291%	130	110
Female HHHs	\$1.40	\$3.58	**	257%	25	23
Male HHHs	\$3.89	\$11.57	***	298%	105	87
IM 1.7: Mean per capita monthly household income (farm)						
All households	\$1.06	\$1.07		101%	130	110
Female HHHs	\$0.22	\$0.49		224%	25	23
Male HHHs	\$1.26	\$1.22		97%	105	87
IM 1.7: Mean per capita monthly household income (non-farm)						
All households	\$2.36	\$8.83	***	374%	129	110
Female HHHs	\$1.18	\$3.10	**	263%	25	23
Male HHHs	\$2.65	\$10.35	***	391%	104	87
IM 1.7: Median per capita monthly household income (All sources)						
All households	\$0.99	\$5.59			130	110
Female HHHs	\$0.41	\$1.12			25	23
Male HHHs	\$2.07	\$5.53			105	87
IM 1.7: Median per capita monthly household income (farm)						
All households	\$0.00	\$1.22			130	110
Female HHHs	\$0.00	\$0.16			25	23
Male HHHs	\$0.22	\$0.76			105	87
IM 1.7: Median per capita monthly household income (non-farm)						
All households	\$0.00	\$3.08			129	110
Female HHHs	\$0.41	\$0.00			25	23
Male HHHs	\$1.95	\$4.12			105	87
Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.						
Significance tests were only conducted for mean values						

¹² For data, such as income data, that are not normally distributed the median value is a better measure of central tendency than the mean. With income data, increases in the income of a few households that earn a lot of money relative to the others will shift mean income, giving the appearance that income for nearly every household has risen.

Table 16 shows increases in the shares of households and male-headed households reporting income from small business. Overall 55.5% of households surveyed report income from small business (up from 40% at baseline). Male-headed households show a similar increase, from 42.9% to 57.5%. Comparing households with income from three or more sources at baseline and endline shows an increase overall from 78.5% to 89.1%. Among female-headed households about three out of four report income from three or more sources, compared to about half at baseline. Female focus groups report that, due to increased soya production and Pathways training, women have expanded their small business activities to include selling a variety of soya food products (soya cake, soya cheese, soup).

“Frequent quarrels as a result of money issues are no more there.” – VSLA FG, Lambussie district

Indicator				Sample Size	
	BL	EL		BL	EL
IM 1.5: % of households with income from small business					
All households	40.0	55.5	***	130	110
Female HHHs	28.0	47.8		25	23
Male HHHs	42.9	57.5	**	105	87
IM 1.6 : % of households with three or more income sources					
All households	78.5	89.1	**	130	110
Female HHHs	48.0	78.3	**	25	23
Male HHHs	85.7	92.0		105	87

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

Table 17 shows household income sources. Compared to baseline, endline values show a larger share of households reporting income from non-agricultural wage labor, crop sales, sale of livestock and livestock products, small business, seed selling, and other sources. These changes, especially increases in income from crop sales and small business activities, correspond to women's expanded economic roles through Pathways activities.

Table 17: Household income sources

Indicator			
	BL	EL	
% of households reporting income source			
Agricultural wage labor	79.2	69.1	*
Non-agricultural wage labor	20.8	49.1	***
Nursery product sales	12.3	13.6	
Crop sales(including homestead gardens)	40.0	55.5	**
Wood and charcoal sales	6.9	12.7	
Sale of livestock and livestock products	0.0	6.4	***
Small business activities	13.1	26.4	***
Formal employment	33.9	40.9	
Skilled labor	66.9	71.8	
Handicrafts	51.5	58.2	
Seed selling	18.5	28.2	*
Other sources	11.5	25.5	***
Remittances	3.1	6.4	
Aquaculture	0.0	0.0	
Fishing	2.3	3.6	
n	130	110	

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

Similar to baseline findings, a woman’s ability to pursue income activities is still limited by her domestic obligations. Moreover, men are thought to have higher access to a diversity of income-generating activities due to greater mobility. FGD participants note that men still own all the land and are in charge of livestock. FGD participants confirm that most of men's activities generate income, and most of women's activities are chores like childcare, collecting firewood, and weeding.

*“Men have their own lands they inherited from their grandfathers whiles women have to beg for a piece of land to cultivate their crops.”
– Community leaders FG, Kpatua 2*

However, participants in FGDs noted that people are beginning to notice changes. One female FG stated that the CARE training has enlightened their husbands so that now they discuss issues with their wives, and give their wives pieces of land on which to cultivate their own crops. This has allowed the women to grow crops on their own. Other FGD participants report that women are starting to raise poultry and are involved in petty trade. In some areas, men give women pieces of land for cultivation and allow them to participate in livestock rearing. Women in all communities visited by the qualitative teams say that the absence of women’s right to own land is a major constraint, and is an area in which they would like to see change.

Expenditures

The data on mean monthly household expenditures do not show any significant changes between baseline and endline. The data presented in Table 18 compared with Table 15 indicate that reported expenditures are much higher than reported income. Generally, expenditures are considered a more accurate measure of household economic well-being than income because respondent recall is better for expenditures and respondent bias is less for expenditures than for income.¹³ However, this survey did not include a detailed consumption/expenditure module so expenditure estimates are not directly comparable to those based on World Bank Living Standards Measurement Study (LSMS) commonly used to measure poverty.

Table 18: Household expenditures (2015USD)

Indicator			Sample	
	BL	EL	BL	EL
IM 1.8: Per capita MEAN monthly household expenditures (2015 USD)				
All households	\$23.08	\$28.35	129	110
Female HHHs	\$8.75	\$16.15	25	23
Male HHHs	\$26.53	31.58	104	87
Per capita MEDIAN monthly household expenditures (2015 USD)				
All households	\$10.99	\$18.93	129	110
Female HHHs	\$6.13	\$9.59	25	23
Male HHHs	\$12.34	\$21.81	104	87

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

3.4.2 Savings

Results on household savings included in Table 19 show that the number of households with savings dropped significantly from baseline to endline. At baseline, approximately 86% of households held savings, while at endline the comparable figure is 73% of households. As noted above, this is likely because households are depleting their savings in order to deal with the reported increase in shocks. The table does not include baseline results for female-headed households because of the small sample size of less than 20 households.

¹³ Deaton, A. 1997. The analysis of household surveys. Johns Hopkins University Press: Washington, D.C.

Table 19: Savings

Indicator			Sample Size	
	BL	EL	BL	EL
IM 1.9: % households with savings				
All households	85.9	72.7 **	78	110
Female HHHs	^	56.5	12	23
Male HHHs	86.4	77.0	66	87
IM 1.10: % women with savings				
All households	77.3	63.6 *	66	110
Female HHHs	^	52.2	12	23
Male HHHs	75.9	66.7	54	87

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

^ sample size less than 20

Table 20 shows where households keep their savings. The share of households keeping money in banks has increased from baseline to endline, rising from 17.2% to 29.1%. The share of households keeping money at home has decreased from 27.3% to 14.6%. Although VSLAs remain the most common place to hold savings, the share of households keeping money at VSLAs has dropped from 82.2% to 63.6%. The percent of households that keep their savings in a bank has nearly doubled, from 17.2% at BL to 29.1% at EL, suggesting that more households are graduating from VSLAs to more formal financial institutions. Qualitative data in some villages confirms linkages between VSLAs and the formal banking system, which could account for the shift. In addition, several female VSLA FGs noted a challenge to their VSLAs. The VSLAs do not have enough money for loans during the rainy season to enable women to buy inputs for farming, which could also account for the shift to banks.

“Women have to come realise that, being part of the group will help them solve their financial issues without telling everyone about their problems all in the name of getting money to borrow. They no longer expose themselves in search of financial support.” Female VSLA FG, Garu-Tempene district.

Table 20: Location of savings

Indicator			
	BL	EL	
Location of savings			
At home	27.3	14.6	**
With friends or relatives	2.3	3.6	
VSLA	82.2	63.6	***
Bank	17.2	29.1	*
Cooperatives	0.0	1.8	
NGO	0.0	0.9	
Insurance	0.0	2.7	*
Post office	0.0	0.0	
Other sources	0.0	2.7	*
n	128	110	

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

The data presented in Table 21 and qualitative research indicate that women are increasingly using their money for their children's education. Information presented in Table 21 indicates a shift away from using savings for emergencies to funding children's education.

Table 21: Women's use of savings

Indicator			
	BL	EL	
Women's use of savings			
In case of emergency	78.1	65.5	**
Facing 'seasonal hunger'	18.0	18.2	
Purchase hh assets	9.4	1.8	**
Purchase productive assets	3.9	1.8	
Education	30.5	49.1	***
Healthcare/medicine	23.4	32.7	
Social event (wedding, etc.)	8.6	2.7	*
Invest in small business	21.1	16.4	
Other	4.7	4.6	
n	128	110	

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

3.5 Impact: Women's Empowerment

3.5.1 Women's Empowerment Index

TANGO constructed a Women's Empowerment Index (WEI) for CARE modeled after the Women's Empowerment in Agriculture Index (WEAI).¹⁴ Similar to the WEAI, two sub-indices comprise CARE's WEI—the Five Domains of Empowerment (5DE) and Gender Parity.

The 5DE reflects the percentage of women who are considered empowered, based on their empowerment score. This score is derived from 13 weighted indicators within five domains: production, resources, income, leadership, and family life (Annex 6 presents the domains, their total weight within the index, and the weight of each indicator). CARE's WEI includes 9 of the 10 indicators that comprise the WEAI,¹⁵ as well as indicators for political participation, mobility, self-confidence, and attitudes on gender, for a total of 13 indicators distributed among the five domains. A woman who achieves an empowerment score of .80 or greater is considered to be empowered.

The 5DE index is calculated using the following formula.

$$5DE = H_e + H_d A_e = (1 - H_d A)$$

Where:

H_e is the percentage of empowered women

H_d is the percentage of disempowered women

A_e is the average absolute empowerment score among the disempowered

Table 22 shows gains in empowerment for female participants in the Pathways project. Women residing in both female-headed and male-headed households reported gains, but these were only statistically significant in male-headed households. This corresponds to increases in the share of women achieving empowerment (.80 score or better), rising overall from 7.7% to 16.4%. The share of women in male-headed households achieving empowerment rose from 1.9 to 8.1%.

¹⁴ International Food Policy Research Institute. 2012. *Women's Empowerment in Agriculture Index*. Feed the Future.

¹⁵ The WEI does not include the indicator for work load, however this topic was explored by the qualitative team.

Table 22: Women's empowerment index

Indicator			Sample Size	
	BL	EL	BL	EL
IM 1.11 Women's 5 domains of empowerment - mean score for all women in sample				
All households	0.52	0.59	***	130 110
Women in female HHHs	0.70	0.75		25 23
Women in male HHHs	0.48	0.55	**	105 87
<hr/>				
% of women achieving empowerment (.80 or greater)				
All households	7.7	16.4	**	130 110
Female HHHs	32.0	47.8		25 23
Male HHHs	1.9	8.1	**	105 87

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

Achieving a score of .80 provides only a partial picture of the differences in empowerment over the project period. Table 23 **Error! Reference source not found.** shows that increases in self-confidence and autonomy appear to

*“Yes, our perceptions have changed, we now see empowered women as women who are smart and knowledgeable and can fight for their rights.”
Female FG, Lambussie-Karni district*

account for most the change. The share of women demonstrating self-confidence has more than doubled from 37.5% to 77.1%. Pathways participants and female non-participants report that women are more respected in the community as a result of the project, and are involved in community meetings that they previously were excluded from. More women are interested in contesting for public office, though many do not have the resources required.

“Before now it was only the man who takes all important decisions. Decisions such as what crop to cultivate, selling of farm produce which was jointly acquired were all considered important decisions. This does not happen anymore. Husbands and wives now take every decision together including what they consider important.” Female FG participant, Garu-Tempne district

At endline, eight of out ten women report satisfaction with the amount of time available for leisure, compared to about half (46.9%) at baseline. Women's mobility and political participation also increased, rising from 13.6% to 58.0% and 74.2 to 84%, respectively. However, women's empowerment scores on two indicators have decreased. The share of women with sole or joint control over purchase or sale of half or more of household assets dropped from 29.4% to 16.5%. The share of women expressing attitudes that support gender-equitable roles in family life and women also dropped from 57.8% to 28.4%. The reporting at EL of lower ownership of assets and less gender equitable roles may largely be driven by greater

gender awareness. Qualitative data from FGDs with women help to interpret the quantitative results. FGDs with women reveal that there are more equitable relationships at home for Pathways participants, with men beginning to ask their wives' opinions on household decisions, and assisting with household responsibilities.

Table 23: Domains of empowerment

Domain	Indicator	% of women achieving		Sample		
		BL	EL	BL	EL	
Production	With decision-making input for 2 out of 5 HH productive decision domains	84.0	80.9	125	110	
	With autonomy in one or more HH production domains	32.0	36.4	125	110	
Resources	With sole or joint ownership of at least 50% of household assets	29.4	16.5	**	126	109
	With sole or joint control over purchase or sale of 50% household assets	29.9	33.9		127	109
	With access to and decisions on credit ¹	81.7	84.3		109	102
Income	With control over household income and expenditures in 50% of HH decision-making domains	58.7	63.6		126	110
Leadership & community	Participating in formal and informal groups	97.6	97.3		127	109
	Confident speaking about gender and other community issues at the local level	71.9	66.1		128	109
	Demonstrating political participation	74.2	84.0	*	120	100
	Who express self-confidence in 5 of 7 statements	37.5	77.1	***	128	109
Autonomy	Satisfied with the amount of time available for leisure activities	46.9	80.7	***	128	109
	Achieving a mobility score of 16 or greater	10.2	46.4	***	128	110
	Expressing attitudes that support gender equitable roles in family life	57.8	28.4	***	128	109

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

¹Includes households which took out loans or wanted to take out loans.

The WEI also examines men's and women's parity in each empowerment domain (Table 24). Gender parity measurements use data from households in which a man and a woman answered respective questionnaire modules, eliminating female-only households and households where no male respondent was available. Empowerment scores are constructed (as defined above) for all men and women. Table 24 presents baseline and endline values for female and male respondents, as well as several comparisons. Comparisons are between baseline and endline for female and male respondents, and between female and male respondents within each time period.

At baseline (column 5), a larger share of male respondents than female respondents achieved empowerment on five of 13 indicators. For two indicators--group participation and attitudes supporting gender equitable roles in family life--larger shares of female respondents than male respondents achieved empowerment. At endline, a larger share of males than females achieved empowerment on nine of 13 indicators (column 8).

Columns 9 and 10 show changes within gender from baseline to endline. The share of female respondents expressing attitudes supporting gender-equitable roles in family life dropped from 57.8% to 25.3%. The share of female respondents reporting joint or sole ownership of household assets also dropped from 29.4% to 12.0%. Female respondents reported gains in access to and control over credit (61.8% to 80%), self-confidence (44.8% to 80.7%), satisfaction with leisure time (60.2% to 79.5%), and mobility (13.6% to 53.1%).

The qualitative data indicate that women's gains in access to financial capital, increased agricultural production, and increased contributions to household food and income have translated to changes in gender relations and gains in empowerment. FGD participants report improved household relations and more discussion about household issues. Female FGD participants report that their husbands no longer beat them. Key informants also commented that they observe a decline in domestic violence in communities. This is attributed not only to the sensitization of men, but because women are more aware of their worth and their rights. Women also note that there are fewer quarrels about money, and that because they are busy all day, they no longer stay at home 'where quarrels arise'. Project staff say that men previously did not regard women as farmers in their own right, even though women work on their husbands' farms. Now men know that women are also productive farmers.

Women's empowerment is when a woman is able to take bold decisions and can do things to help herself and even other women in a community. This type of woman also has the resources to help herself and thus not wait for a man/husband to give her what she wants. An empowered woman is someone who is very hard working, does not listen to what people say about her, does what pleases her and benefits her and people around her, encourages other women to work hard for themselves rather than depending on their husbands for everything and is able to speak her mind in public despite the presence of men.

Some women are not empowered because they have the perception that women are always supposed to be dependent on their husbands and must not work for themselves like their great grandmothers used to live with their husbands. They have the fear of losing their husbands when they stand on their feet to do things independently. They do not want to be insulted by both men and women who do not understand what empowerment is. – Female VSLA FG, Garu-Tempene district

Table 24: Gender parity

Domain	Indicator	% achieving indicator at baseline			% achieving indicator at endline				
		3	4	5	6	7	8	9	10
1	2	Female respondents	Male respondents	Diff between M/F at BL	Female respondents	Male respondents	Diff between M/F at EL	Diff between females BL/EL	Diff between males BL/EL
PRODUCTION	With decision-making input for all HH productive decision domains	82.1	96.5	***	78.3	97.6	***		
	With autonomy in one or more HH production domains	17.9	75.3	***	26.5	63.9	***		
RESOURCES	With sole or joint ownership of 50% of household assets ¹	29.4	81.0	***	12.0	81.9	***	**	
	With sole or joint control over purchase or sale of 50% household assets ¹	29.9	82.7	***	31.3	81.9	***		
	With access to and decisions on credit	61.8	64.7		80.0	54.6	***	*	
INCOME	With control over household income and expenditures in 50% of HH decision-making domains ²	51.2	90.6	***	61.5	95.2	***		
LEADERSHIP & COMMUNITY	Participating in formal and informal groups	96.5	74.4	***	97.6	81.9	***		
	Confident speaking about gender and other community issues at the local level (2 of 4 topics)	75.8	75.8		69.9	95.2	***		***
	Demonstrating political participation	73.0	73.0		81.6	96.2	***		***
	Who express self-confidence in 5 of 7 statements	44.8	66.7	***	80.7	86.8		***	***
AUTONOMY	Satisfied with the amount of time available for leisure activities	60.2	56.8		79.5	79.5		***	***
	Expressing attitudes that support gender equitable roles in family life (Scoring 4 of 4)	57.8	28.1	***	25.3	33.7	*	***	
	Achieving a mobility score of 16 or greater ⁴	13.6	na		53.1	62.7	**	***	
n		83-85		83-85	83		83		

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

¹ Excluding poultry, non-mechanized farm equipment, and small consumer durables as in WEAI. This indicator is based on the female respondent's perception of who makes decisions on household assets. Male respondents were not directly asked questions about asset ownership and control.

² Excluding minor household expenditures as modeled in the WEAI.

³ Includes households that have taken out a loan or want to take out a loan (baseline=34, endline=55)

⁴ Not measured at baseline

3.6 Project Participation and Perceptions of Impact

To understand saturation of project activities and participant’s perceived impact on the household, the endline survey asks male and female respondents to list who within the household participates in each type of activity. Follow-up questions explore perceived level of well-being compared to four years ago.

As expected, virtually all women surveyed are members of a Pathways VSLA; in 30% of these households her spouse is also a savings group member (Table 25). The next most common

"This is the one good thing that has ever happened in the history of our lives." -- FGD participant speaking of VSLAs

activities for women to participate in are Farmer Field and Business School (FFBS) field demonstrations (90%), talking book (81.8%), and cooking demonstrations (62.7%). Smaller shares of women reported participating in seed multiplication activities (40.9%) which is expected given that seed multiplication is for selected members of the VSLAs, gender dialogues (38.2%) which began less than 3 months prior to the endline evaluation, and marketing groups (28.2%) which are a sub-committee of VSLAs aimed to undertake marketing activities. Project staff view the dry season and the migration of men for work as challenges to women’s participation. People do not farm for four to five months of the year during the dry season, and so are not as active in the project. Pathways works with communities year-round, but men leave in the dry season to look for work. Women then take on all the burdens of the household and have less time for participation.

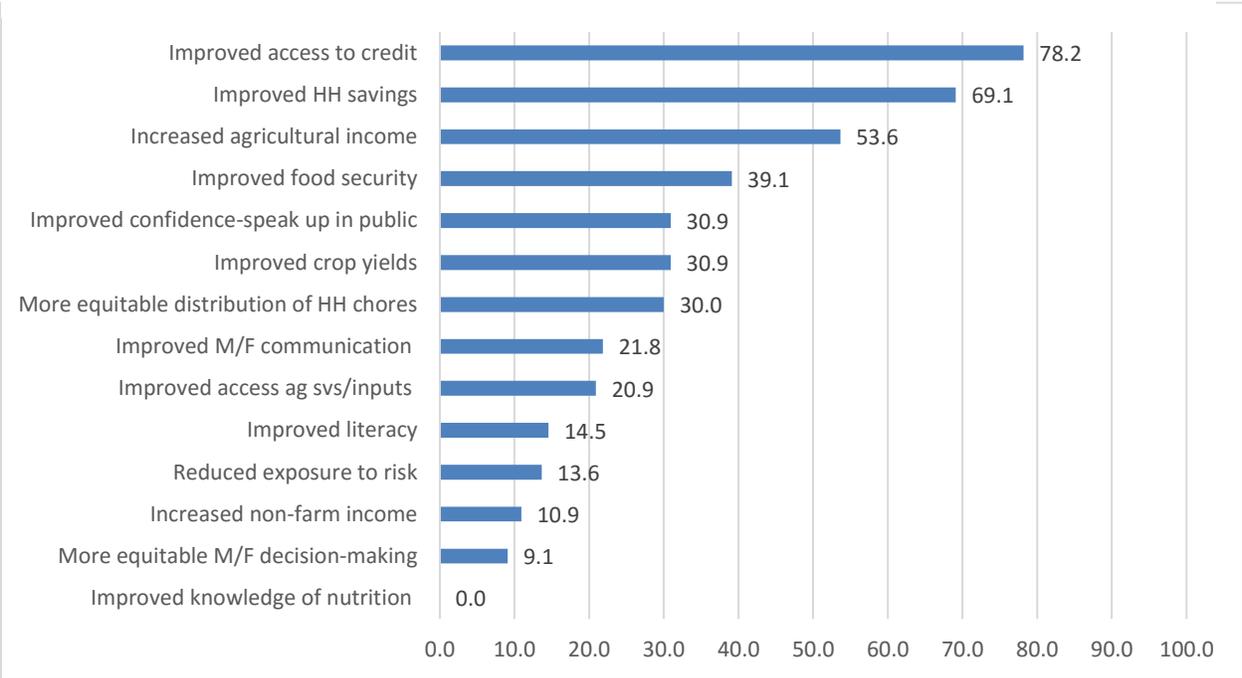
Table 25: Women reporting HH participation in CARE activities

	Self	Spouse	Other HH	No One	Sample Size
VSLA/producer group	98.2	30.0	17.3	0.9	110
Marketing group	28.2	8.2	3.6	65.5	110
Gender dialogue	38.2	10.0	7.3	59.1	110
Cooking demonstration	62.7	8.2	10.0	35.5	110
Seed multiplication	40.9	9.1	9.1	56.4	110
Talking book	81.8	20.0	16.4	14.5	110
FFBS field demonstrations (soya & groundnuts)	90.0	23.6	16.4	7.3	110

"The talking book was a very powerful gender tool. Many men would not participate in meetings, nor listen to their wives talk about gender and changing gender roles. Women would bring the talking book home, and play it. This allowed a 'non-person' to communicate to difficult-to-reach men, and the message was not coming from another man or from their wife. The talking book had a significant impact on hard to reach men in the village." – male Gender champion, Garu-Tempene district

When asked about the impact of participating in CARE activities over four years, 97.3% reported that their households are better off as a result. Figure 2 shows households report benefiting from participation in the Pathways program. Nearly eight of ten households (78.2%) report improved access to credit as a benefit. Seven out of ten (69.1%) report improved household savings. During the focus group interviews, female Pathways participants were asked

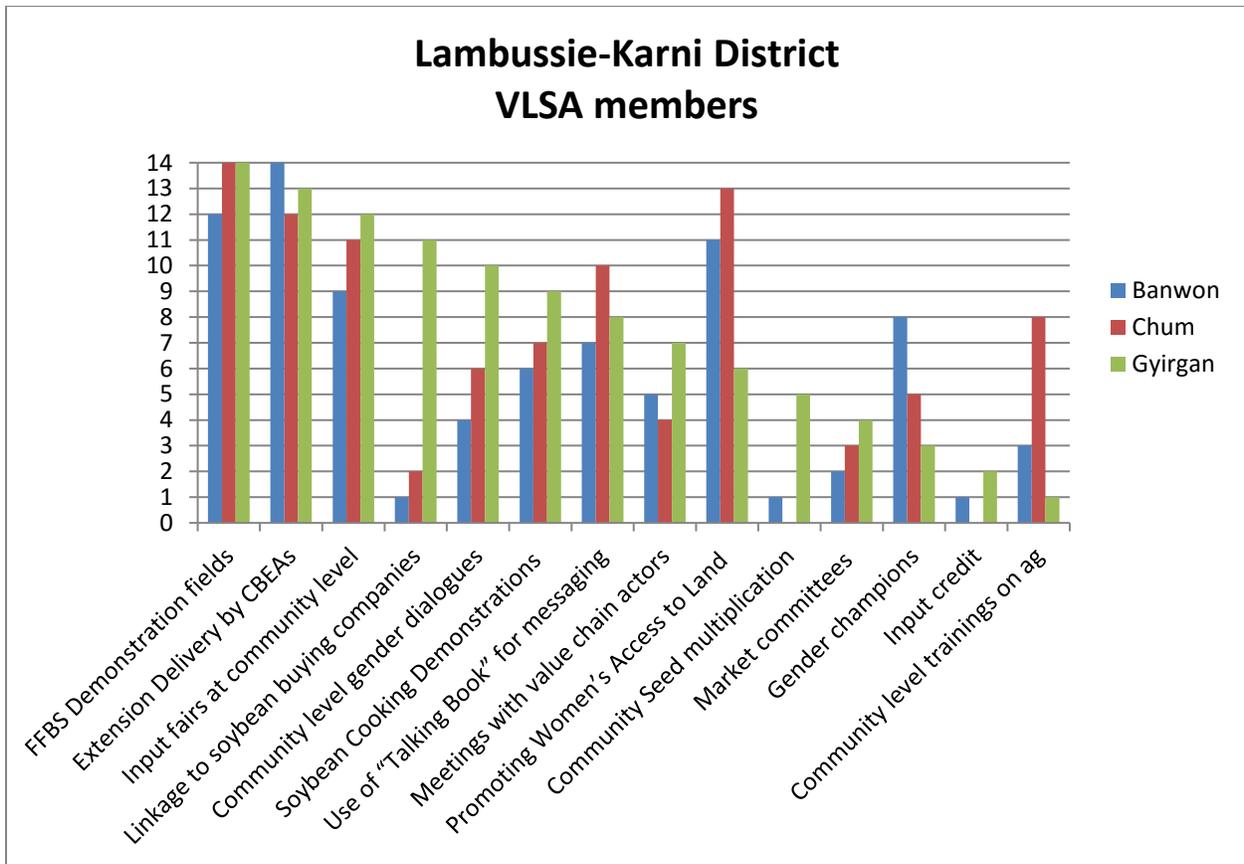
Figure 2: Reported benefits to households from Pathways participation



to rank project activities according to their perception of effectiveness using a scale of 14 to 0, with 14 being the most effective. The results for each district are given below. In some communities, not all activities were rated, or some activities were given the same number instead of a ranking. In Lambussie-Karni district, the FFBS demonstration fields for soybean and sorghum are considered the most effective interventions because they helped participants to improve their farming practices and produce higher yields for sale and consumption. CBEAs, who are selected by the community and trained by Pathways, are also rated highly for the training and information they provide. According to Pathways staff, this is the first time many female farmers have had access to information on improved agronomic practices. Community input fairs are also considered effective in helping farmers to access inputs, obtain good quality seeds, and to reduce their transportation costs. Interventions perceived as less effective include market committees, input credit (piloted in small scale in Garu-Tempene and Lambussie-Karni), and meetings with value chain actors.

Promoting women’s access to land is also ranked as one of Pathways’ most effective interventions. As one VSLA group explained it, *“Through the land we are able to farm our soybeans and groundnuts to make income to support our husbands in the homes and this brings love and unity.”*

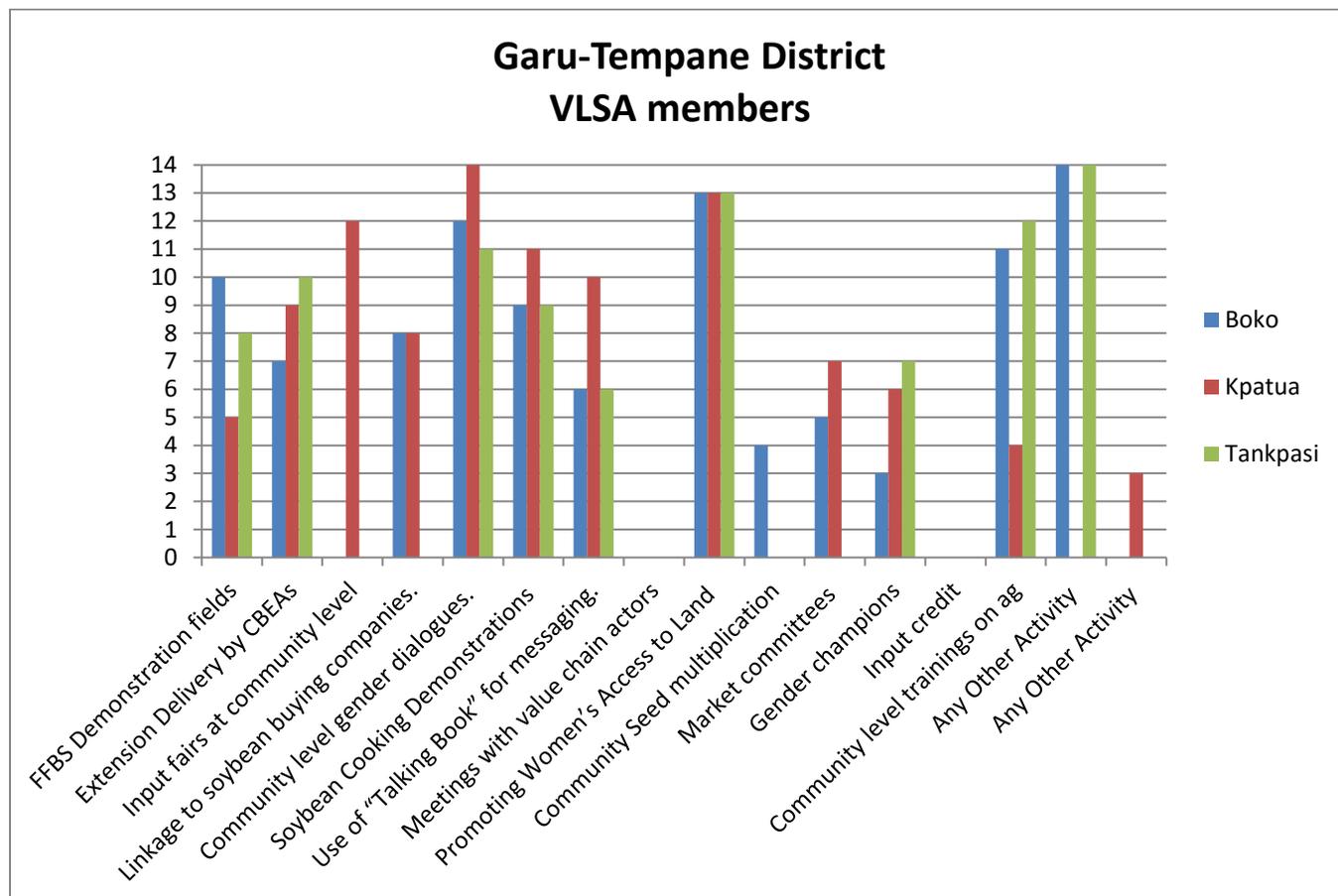
Figure 3: Participant ranking of effectiveness of interventions, Lambussie-Karni district



In Garu-Tempene district, most female FG participants consider the community-level gender dialogues highly effective. VSLA members say this is because the gender dialogues have created greater understanding between men and women, changed men’s thinking, and convinced men to give land to women who want to farm on their own. Promoting women’s access to land is also ranked highly, enabling women to take and pay back loans. Women say that without this intervention women would not have gained access to land for their own farming. Interventions that are considered less effective are meetings with value chain actors, and input credit.

Although gender champions received lower effectiveness rankings, the comments about them in FGDs are very positive, crediting them with encouraging men to respect their wives, and bringing unity to households.

Figure 4: Participant ranking of effectiveness of interventions, Garu-Tempane district



3.7 Change Lever 1 - Capacity

The anticipated outcome for Pathways Change Lever 1 is improved knowledge, skills, relationships, self-confidence and conviction of poor women farmers. To determine if change has taken place since baseline in any of these areas, the surveys explored women's participation and representation in formal and informal groups; women's leadership within these groups; women's comfort level with speaking up in public about important issues; women's political participation; and women's self-confidence.

3.7.1 Women's Participation in Formal and Informal Groups

To understand changes in women's participation and leadership in formal and informal groups, the surveys first determine whether ten different types of groups existed in the community. If groups exist, women are asked about their active participation, reasons for not participating,

amount of decision-making input they contribute, and whether they hold a leadership position. This section presents the results.

The data Table 26 show that nearly all women sampled are active members of at least one formal or informal group existing in their community. As shown in Table 27, VSLA membership is the highest compared to other groups. This is supported by FGD participants, who report that few are excluded from VSLAs: only women who are old and sick, live too far away, or are thieves and cannot be trusted. Some community leaders in Garu-Tempene district noted that the vulnerable are not direct beneficiaries of the project because they do not have enough money to meet the requirement that VSLA members make recurring contributions. The Pathways internal mid-term review¹⁶ found that some non-VSLA members were

able to generate enough income from soya and groundnut cultivation to join VSLA groups.

Women holding leadership positions in these groups has increased. At endline, about half of all the women surveyed reported that they hold leadership positions. FGDs report that leadership

“Many women are leaders in their collectives. A woman even contested for unit committee position and won in the 2015 district level election.” – Community leaders FG, Kpatua 2

roles for women are expanding beyond women-only organizations. In one community, women organized themselves and a woman was elected to a government office. KII participants noted that Pathways has improved perceptions of the role of women. They note that men now consider women as capable of making decisions and holding leadership positions. FGD participants report that chiefs and other community leaders are involving women in certain gatherings and decisions that were previously made by men only. Some female FG participants in Garu-Tempene district say that traditional leaders now invite the community to discuss important issues that will help the community’s development, whereas before the leaders used to decide for everyone in the community. They further state that community leaders now see how women are key to development and so now there are Queen Mothers in the community who cater to the needs of the women. One traditional leader in Garu-Tempene district stated men whose wives are not VSLA members see that other women are contributing to household income and so are encouraging their wives to join VSLAs.

¹⁶ CARE Ghana, Pathways MTR Findings Report 2014.

Table 26: Women's participation and leadership in groups

Indicator			Sample Size	
	BL	EL	BL	EL
OC 1.1: % women participating in at least one formal or informal group				
All households	100.0	96.4	66	110
Female HHHs	^	100.0	12	23
Male HHHs	100.0	95.4	54	87
OC 1.2: % women holding leadership positions in formal and informal groups				
All households	33.3	49.1	**	66 106
Female HHHs	^	39.1		12 23
Male HHHs	37.0	51.8	*	54 83

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

^ sample size less than 20

Table 27 **Error! Reference source not found.** shows detailed information on women's group membership. Although the overall share of women participating in formal and informal groups does not show significant change since baseline (Table 26), women participate in a much larger variety of groups at endline.

Table 27: Women's participation in specific groups

Indicator			
	BL	EL	
Group participation			
Agricultural/livestock producers	15.8	40.9	***
Water users	7.9	27.3	***
Forest users	2.4	3.6	
Credit or microfinance	92.9	88.2	
Mutual help	3.9	31.8	***
Trade, business or cooperative	1.6	20.9	***
Civic or charitable	1.6	13.6	***
Local government	0.0	1.8	
Religious group	33.9	45.5	*
Other women's	1.6	10.0	***
n	127	110	

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

3.7.2 Self-confidence

Important to the achievement of Pathways Outcome 1 are the self-confidence and conviction of poor women farmers. Pathways Ghana intended to support community advocacy to ensure citizens understand their rights and responsibilities, and are able to engage with local government structures on issues that affect them.

Pathways decided to measure changes to agency. To do so, the surveys asked men and women about their comfort level in speaking up about three topics (gender issues, infrastructure decisions, and the misbehavior of authority figures) and whether they had expressed their opinion in a public meeting (other than VSLA or producer group meetings) any time in the last 12 months. Respondents who responded positively to two of the four questions are considered to have achieved the empowerment threshold indicator of confidence in speaking on these issues. Table 28 shows that women's confidence speaking in public has decreased since baseline, dropping from 75.8% to 66.4%. One male gender champion in Garu-Tempene commented that gender change is a slow process. At first, gender conversations were perceived by men to “spoil” or “break” a marriage. He says that the meetings, talking books¹⁷, and seeing women producing soya are slowly working to change this, but many husbands are still not open to talking about gender, even at home. Since some men perceive talk about gender as threatening, it is not surprising that women are reluctant to speak about gender in public meetings. However, female FG participants say that they are now invited to community meetings that were previously reserved for men. Male respondents report increased confidence: at endline nearly all (95.2%) report being confident.

Table 28: Confidence speaking in public

Indicator				Sample Size	
	BL	EL		BL	EL
OC 1.3: % respondents confident speaking in public about gender and other community issues at the local level					
Female respondents	75.8	66.4	***	66	110
Male respondents	75.8	95.2	***	66	84

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

¹⁷ The Talking Book is a device that looks like a radio and is embedded with a microchip that has recorded messages. Messages are about 20 minutes in length and are refreshed every three months and timed to seasonal farming practices.

3.8 Change Lever 2- Access

To realize the outcome for Change Lever 2 – increased access to productive resources, assets, markets, and appropriate and reliable services and inputs for poor women farmers—the Ghana Pathways project made efforts to improve the linkages between service providers (private sector, institutions, and government) and women farmers.

To explore the success of attempted linkages between farmers and productive resources, assets, markets, and services, the baseline and endline surveys include a range of questions. These include women’s access to financial services to support income generation; their access to and satisfaction with agricultural extension services; women’s access to agricultural inputs; and the types of output markets women are using for sale of agricultural products. This section presents the results.

3.8.1 Women’s Access to Financial Services

Table 29 shows that similar shares of women in Pathways reporting access to and control over IGA loans at the baseline and endline.

Indicator	Sample Size			
	BL	EL	BL	EL
OC 2.1: % women with access to an control over loans for IGA	15.3	12.7	59	102
Female HHHs	^	^	10	19
Male HHHs	16.3	14.5	49	83

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.
 ^ sample size less than 20

A smaller share of women report using loans for IGAs (decreasing from 62.5% at baseline to 25% at endline). Women’s use of loans appears to shift at endline from funding IGAs to covering school expenses (**Error! Reference source not found.**). The share of women reporting that they used loans to pay school expenses increased from 21.9% to 44.8%. Female FG participants in both districts indicate that paying school fees with their own income is a priority, and is now something they are able to do on their own without asking their husbands to pay. The women also state that they use their earnings from their increased agricultural production to pay health insurance.

Table 30: Women's use of loans

Indicator	Sample Size	
	BL	EL
Use of loans: multiple response		
Business capital (IGA, etc.)	62.5	25.0 ***
Purchase agricultural inputs/seed	46.9	40.6
Purchase/lease of land for agriculture	1.0	0.0
To purchase livestock	1.0	0.0
Pay for school expenses	21.9	44.8 ***
Pay for medical expenses	5.2	8.3
To buy food	31.3	29.2
Clothing	2.1	0.0
Furniture/utensils	1.0	0.0
Housing	1.0	0.0
Funeral expenses	5.2	2.1
Other	3.1	2.1
n	96	96

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

Table 31 shows that at baseline and endline, more than nine out of ten women farmers report having access to financial resources.

Table 31: Women's access to financial resources

Indicator	Sample Size	
	BL	EL
OC 2.4: % women accessing finances for agriculture (loans, savings, crop insurance) in last 12 months ¹	95.2	97.2
	126	107

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

¹ Female farmers only

Table 32 shows women's sources of funding. At endline, VSLAs were the primary funding source, whereas at baseline own income and savings was the primary source. Access to other financial institutions is extremely limited; VSLA members in Lambussie-Karni district report that the only financial service available is the VSLA. VSLA use is up: nearly eight out of ten women farmers (79.4%) reported using VSLAs, compared to just under six out of ten (58.1%) at

baseline. Financing from agricultural cooperatives has also increased, even though a small proportion of women reported using this source (3.7%). Women's use of own income and savings has decreased, dropping from 75.0% at baseline to 62.6% at endline.

Table 32: Women's sources of financing

Indicator	BL	EL	
Loan sources: multiple response			
Own income/savings	75.0	62.6	**
MFI loan	0.8	0.0	
Agricultural cooperative	0.0	3.7	**
Agricultural insurance	0.0	0.0	
VSLA	58.1	79.4	***
Other	2.4	7.5	*
n	124	107	

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

3.8.2 Women’s Access to Agricultural Extension Services

The number of women reporting that they met with an agricultural extension worker in the last 12 months has increased dramatically (Table 33Error! Reference source not found.). At baseline only 24.6% of female respondents had met with an agricultural extension worker. At endline, this had increased to 79.1%. Nearly every woman respondent reports satisfaction with the service (96.6%). The FFBS demonstration fields and the CBEA services were ranked among the most effective interventions by the female farmers during FGDs because of the training and knowledge they provided, which helped farmers increase their yields, and because they are always present in the community if farmers have questions or need assistance.

Pathways partnered with SARI at the beginning of the project to support the FFBS. SARI monitors how CBEAs apply training, then trains on fertilizer use in one to two communities (including participants from other communities, staff, CBEAs) in a timely manner. At end of the session, SARI conducts a scientific analysis of performance of treatments, which complements farmer observations.

The FFBSs use a learning- by-doing approach through which groups of farmers meet regularly during the course of the cropping cycle to experiment and learn about new production and marketing options. SARI designs demonstration farms, trains CBEAs

“Because the talking book contains the farming activities messages which our household listen to, it helps us to remember some the activities that we may forget.” – Female FG, Lambussie-Karni district

and project staff on protocols and crop treatment, monitors progress, and participates in field days to ensure farmers are using methods appropriately. Pathways also collaborates with the district-level Department of Agriculture in the Ministry of Food and Agriculture (MoFA) to train and support CBEAs and farmers. MoFA district staff stated that Pathways has helped MoFA realize that women farmers have specific challenges and that when these challenges are addressed, farmers get good results. The project has helped change MoFA’s thinking to include more gender-sensitive approaches, such as targeting women to build their capacity.

In qualitative interviews, VSLA groups credited the FFBS demonstration fields and the CBEAs with helping them to acquire more knowledge about farming practices, and to increase production and income. Farmers in Kpatua, Garu-Tempene district rate the CBEA services highly in terms of project impact. The CBEAs, 70% of whom are female (according to Pathways project staff), visit women on their farms and advise them on how to increase yields. Project staff note that because MoFA’s agricultural extension agents are men, they do not prioritize women, who traditionally have not received extension services. FGs say that CBEAs are always present in the community, which gives farmers the opportunity to consult them. Farmers also reported that the training methods helped them to remember practices. The same farmers rated the input fairs at community level highly, saying that it gives them an opportunity to make choices and to gain education on how to use inoculant for their soybeans. In conjunction with support to increased production, Pathways has provided soybean cooking demonstrations, which women said gave them knowledge about how to use soybeans to prepare a variety of foods for the family, and sometimes for sale.

Table 33: Women's access to agricultural services

Indicator	BL	EL		Sample Size	
				BL	EL
OC 2.2: % women with access to agricultural	24.6	79.1	***	130	110
OC 2.3: % women reporting satisfaction with agricultural extension services ¹	97.1	96.6		34	89

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

¹ women who met with agricultural extension officer

3.8.3 Women’s Access to Agricultural Inputs

There has been growth in women farmers’ accessing agricultural inputs such as seeds and fertilizers over the project period; the share has increased from 55.6% to 69.2% (Table 34).

Table 34: Women's access to agricultural inputs

Indicator	Sample Size			Sample Size	
	BL	EL		BL	EL
OC 2.5: % women accessing agricultural inputs (seeds, fertilizers, etc.) over the last 12 month	55.6	69.2	**	126	107

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

Table 35 shows women's sources for agricultural inputs. At baseline, women were primarily receiving inputs from local and nearby suppliers, local input producers, and government programs. Of these, use of local suppliers and government programs has decreased since the baseline. There are few input dealers in the region and they are based in the district capital. Pathways has also faced challenges with delays in inputs from suppliers where soya and inoculants (which must be imported from Brazil) were not on time. There are only two registered input dealers in Garu. Registered dealers have legal permits to operate and are reviewed annually by the government's Environmental Protection Agency to ensure they are conforming to regulations. There is no certified groundnut seed dealer in Garu. Pathways organizes Input Fairs in the communities where input dealers and communities are introduced so that farmers know where they can purchase inputs. Inputs from cooperatives or producer groups have increased from zero to 32.4%.

Access to certified seeds has improved though many seed producers focus on cereals and not legumes. Farmers are better able to obtain improved seed, though still face problems obtaining enough seed due to growing demand. SARI trains Pathways seed multipliers, monitors fields and provides advice. According to project staff, Pathways trained seed producers and in 2015 has four producers in Garu-Tempene district and five in Lambussie-Karni district that are operating successfully, though their production is not enough to meet demand. The project has a target of 10 seed multipliers per district. Finding available land is a challenge, especially in Garu-Tempene districts, as seed multiplication operations must be situated away from other farming operations to avoid contamination by other plants. Local seed multiplication is also expected to avoid problems encountered by Pathways when local seed dealers have provided fake seed or the wrong type of seed.

Women also face a challenge in getting access to land preparation services (e.g., bullocks for ploughing) in order to prepare their land in time for planting. While it is common for men to own bullocks, women do not. The project has worked to persuade men to assist women with land preparation. Pathways also introduced zero tillage techniques in Year 2 to address this problem. The approach is working in Lambussie-Karni district but is not well suited to the dry soils of Garu-Tempene district.

Pathways' work in helping women farmers to get access to their own land for farming is an important accomplishment. Although women form the largest proportion of food crop farmers in Ghana, access to land is a major challenge to women, as women are entirely dependent on men to give them land to cultivate. Land ownership patterns in Ghana are complex. Eighty percent of the land is customarily owned, and inherited only by the male members in a patrilineal system.¹⁸ Women have few customary inheritance rights and only secondary use rights. The national government has enacted measures to ensure that women have greater rights to land but many people are not aware of them and customary practices still determine land use, and it is not a high priority with local government. Pathways' gender work includes training District Assembly members on women's land rights in 2016, to raise awareness and encourage support for more equitable access. CARE's approach with the DAs include integrating gender considerations into medium term development plans so that they are gender-sensitive and then to monitor those plans with the district Gender Desk Officer. CARE staff note that women's rights to land, and in general, are an even greater challenge in Upper West, where the project is working in Lambussie-Karnie districts and expanding into new communities, than in Garu-Tempene.

Table 35: Sources for agricultural inputs

Indicator	BL	EL	
Agricultural input sources: multiple response			
Cooperative or producer group	0.0	32.4	***
Government program	21.4	5.4	***
Agro-dealer/input supplier within 5 km	50.0	25.7	***
Agro-dealer/input supplier beyond 5 km	34.3	31.1	
Local input producer	32.9	36.5	
Other	0.0	1.4	
n	70	74	

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

¹⁸ Kuusaana, Elias Danyi, J. K. Kidido, E. Halidu-Adam. Customary Land Ownership and Gender Disparity. Ghana Journal of Development Studies, vol 10, No. 1-2, 2013.

3.8.4 Women's Access to Output Markets

Through the development of clusters and networks of producer groups, CARE Pathways aims to not only improve purchasing for poor women farmers, but also to improve their marketing and negotiation power.

Table 36 shows at baseline 16.4% of women who were selling agricultural products to markets were doing so outside of their local markets. At endline, this more than doubled to 35%. However, FGDs noted a continued need for access to markets for soybeans and groundnuts. Not all communities have access to output markets. One FGD participant noted, "We were told about these companies, that they will buy our product, but we have not seen them yet." Transportation is a major challenge to the effectiveness of Pathways marketing committees, according to project staff. Committee members are unable to visit markets to check prices. There are private marketing firms that collect price data and sells to subscribers via text message, but Pathways reportedly does not have the funds to access this. The project is considering other solutions to bring in buyers from other parts of the country.

At present, women are selling mostly raw soya. Pathways is investigating ways to add value by processing the soya for sale and packaging it. Shellers are expensive and sized for commercial operations; project staff are considering working with external technical advisers to develop appropriately-sized shellers.

Table 36: Women's access to output markets

Indicator	Sample Size				
	BL	EL	BL	EL	
OC 2.6: % women accessing output markets to sell agricultural production over the last 12 months ¹	16.4	35.0	**	73	60

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

¹ Female farmers who reported selling products themselves

The role of the marketing committees is to help people organize to sell in bulk, use standard measures (e.g., kilograms), and to calculate the cost of their production so they know what price they should receive for their crop. Table 37 shows that the share of women selling individually in local markets has dropped but nearly all women still rely on local markets for sales. Use of producer groups has risen, but these groups are used by 12.5% of women who sell agricultural products. A male FG in Garu-Tempane district said that households are able to sell all of their soya, but often need to sell it right away because they need money. Households cannot wait to sell later in bulk, or when the price is higher.

Table 37: Women's access to markets by market type (including local markets)

Indicator			
	BL	EL	
Agricultural output markets: multiple response			
Sold individually in local market	98.6	92.9	*
Sold individually to middle men	13.7	23.2	
Sold in bulk to farmer's/producer's group	1.4	12.5	***
Sold through contract with formal sector buyer	1.4	1.8	
n	73	56	

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

3.9 Change Lever 3: Productivity

To realize Change Lever 3, CARE Pathways Outcome 3 aims for “Improvement in yield and income through adoption of sustainable and intensified agriculture and value addition.” Project activities are designed to sensitize smallholders on crop production, conservation agriculture, soil and water conservation, and irrigation; and to train smallholders in improved practices for production of target crops according to needs. The project promotes crop diversification for women with available land by procuring and distributing seed for demonstration purposes, training SHGs on relevant practices for advance crop production and processing opportunities, and facilitating links to relevant input providers for higher-value commodities.

To determine change in the status of poor women farmer’s agricultural productivity this evaluation compared:

- baseline and endline values for women’s net income from agricultural production and/or related processing activities;
- the number and type of crops grown;
- the agricultural yield of crops supported by the project; and
- whether women are adopting agricultural, livestock, storage, and post-harvest practices that promote sustainable production and value addition.

Women who engaged in any agricultural activity were interviewed to understand numerous aspects of their involvement in and experiences with production. Women whose only involvement in agriculture was wage labor were not interviewed about these topics. Section 3.9 summarizes the baseline and endline results from surveyed female farmers.

3.9.1 Women’s Income from Agriculture

The percent of women earning income from agricultural production is similar at baseline and endline (Table 38). Women in about seven out of ten households report earning income from agricultural production or related processing activities.

Indicator	Sample Size			
	BL	EL	BL	EL
Percent of households with women earning income from agricultural production and/or related processing activities				
All households	65.6	71.8	128	110
Female HHHs	60.0	69.6	25	23
Male HHHs	67.0	72.4	103	87

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels

The data in Table 39 show that women’s mean annual net income from agricultural production¹⁹ has decreased since baseline from \$162 to about \$46. The median figures are important indicators since they are not influenced by extreme values. Note that sample sizes are much smaller than the number of women reporting that they earned income from agricultural activities (84 at baseline and 79 at endline from the previous table). At baseline, 39 of the 84 women who reported income for agricultural production were able to provide estimates of their income and the cost of inputs.²⁰ At endline, 66 out of 79 women could provide this information. Higher response rates at endline may be due to Pathways business training. *However, generally low literacy and numeracy, along with the small sample size and relatively small sample frame area, call into question the reliability of data used to calculate this indicator.*

¹⁹ Women’s reported mean annual net agricultural income is calculated from women’s estimated sole and/ or joint earnings from agricultural sources, minus estimated annual costs of inputs for each income source.

²⁰ In a related question, asking women about recordkeeping practices for agricultural sales, nearly three-quarter (73.8%) reported that they did not keep records of any kind.

Table 39: Women's net annual income

Indicator			Sample Size	
	BL	EL	BL	EL
OC 3.1 Mean annual net income of women from agricultural production and/or related processing activities (Ghana Cedi 2015)				
All households	¢161.96	¢45.94 **	39	66
Female HHHs	^	^	4	11
Male HHHs	¢189.97	¢30.98 ***	35	55
Median annual net income of women from agricultural production and/or related processing activities (Ghana Cedi 2015)				
All households	¢106.26	¢55.00	37	61
Female HHHs	^	^	4	11
Male HHHs	¢136.62	¢60.00	33	50
OC 3.1 Mean annual net income of women from agricultural production and/or related processing activities (US\$2015)				
All households	\$42.11	\$11.94 **	39	66
Female HHHs	^	^	4	11
Male HHHs	\$35.00	\$55.00 ***	35	55
Median annual net income of women from agricultural production and/or related processing activities (USD 2015)				
All households	\$53.92	\$18.20	37	61
Female HHHs	^	^	4	11
Male HHHs	\$59.92	\$20.80	33	50

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels. Statistical tests were conducted for mean values

^ Sample size is less than 20.

3.9.2 Crop Diversification

Overall, on average, households grow 2.6 different crops. The mean number of crops grown by women in female-headed households has increased from 1.8 to 2.9 (Table 40). One of SARI's recommendations is for Pathways to consider other crops in addition to soya and groundnuts. SARI is willing to provide available technologies for additional types of crops. Several of the female FGs also expressed a desire to diversify their crops.

Table 40: Crops grown by women

Indicator	Sample Size			
	BL	EL	BL	EL
OC 3.3: Number of different crops grown				
All households	2.6	2.6	126	107
Female-headed households	1.8	2.9 *	23	22
Male-headed households	2.7	2.6	103	85

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

3.9.3 Women’s Agricultural Yields

Yields (kilograms per hectare), calculated for soya and groundnuts (crops promoted by the project) based on production in the 12 months prior to the survey are reported in Table 41. The data do not indicate statistically significant changes in yields. The lack of evidence for change may be due to small sample size. In addition, 88% of respondents cited drought or flooding as a major shock to their households over the past five years, which would have a negative impact on production. Unpredictable rains pose a major challenge for farmers. Partnerships for Rural Development Action (PRUDA), the local NGO implementing Pathways in Lambussie-Karni district, stated that in 2015 rains started late so many farmers did not plant; subsequently the rains were very good, causing disappointment and frustration among the same farmers.

Of the women who reported growing Pathways supported crops, two thirds were able to provide information about the amount of land under cultivation and yield in kilograms. Low levels of numeracy in the beneficiary population may also affect the accuracy of this indicator.²¹ The lack of significant findings may be due to a combination of small sample size and respondent errors. Qualitative data show different results and indicate that yields, at least of soya, have increased. FGD participants note the success of soya cultivation and preparation demonstrations and training. Participants report that they have improved yields by using Pathways recommended seed types, timing of weeding and harvesting, plant spacing, and fertilizer application. FGD and KII participants also noted constraints and additional needs including bullocks or tractors for tilling, earlier arrival of inputs, and lower prices for inputs.

²¹ Measuring yield is particularly challenging due to low numeracy of farmers. Farmers are not able to indicate the right farm sizes and account for intercropped fields.

Table 41: Yields from crops supported by Pathways

Indicator			Sample Size	
	BL	EL	BL	EL
OC 3.2: Agricultural yield in crops supported by Pathways (kg. per hectare)				
Soya	44.7	38.7	59	50
Groundnuts	^	^	18	12
Rice	57.9	44.8	28	31
Maize	72.5	67.2	70	46

^Sample size less than 120.

3.9.4 Women's Agricultural and Post-harvest Practices

Project results for adapting a more integrated approach to improved agricultural production are mixed. The share of women using two or more post-harvest processes has almost doubled from 42.9 to 83.2 (Table 42). However, use of improved storage practices dropped from about half of all women farmers to 15.9%. Table 42 does not show significant change in the share of women using improved livestock practices. FGDs report that generally men raise livestock and traditionally, women have not been allowed to own, or even to raise, most kinds of livestock. However, in some areas, men are starting to allow women to participate in livestock rearing.

[Before] "Women could not rear any animal apart from pigs and yet did not have control over it but now women can rear any type of animal they wish to and they now have control over it." – Marketing committee, Garu-Tempene district

Table 42: Women's agricultural and livestock practices

Indicator			Sample Size	
	BL	EL	BL	EL
OC 3.4: % women adopting 3 or more improved agricultural practices	61.1	50.5	126	107
OC 3.5: % women farmers adopting 2 or more post-harvest processes	42.9	83.2 ***	126	107
OC 3.6: % women adopting improved storage practices	51.6	15.9 ***	126	107
OC 3.7: % women using one or more improved livestock practices	40.5	37.4	126	107

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

3.10 Change Lever 4 - Household Influence

The focus of Pathways Change Lever 4 is to ensure that poor women farmers have increased contributions to and influence over household income and decision-making. To determine if there have been changes in these areas, the surveys measured women's control of household and agricultural income and expenditures, women's control of household and agricultural assets, and women's decision-making related to health care and reproductive health.

3.10.1 Women's Control of Income, Expenditure and Asset Decisions

At endline, the overall percentage of women who have gained in sole or joint decision-making has improved in several areas (Table 43 **Error! Reference source not found.**). Women show gains in decision-making over agricultural income and expenditures, and control of assets (both household and agricultural). For women in male-headed households the increase in control over assets (household and agricultural) nearly doubled from 28.0% to 43.7% for household assets, and more than doubled from 20.4% to 42.5% for agricultural assets. These findings are supported by KIIs: prior to Pathways women in the project area did not have access to land to grow crops. However, since Pathways, "men have seen the need to release portions of lands for women to farm." In a FGDs in Lambussie-Karni district, CBEAs said that as a result of the project, men now allow women to control their own farm produce and the income generated from their farms.

Table 43: Gender-equitable decision-making for income, expenditures, and assets

Indicator	BL		EL		Sample Size	
	BL	EL	BL	EL	BL	EL
OC 4.1: % women with sole or joint control over household income and expenditures						
All households	67.7	77.3	65	110		
Female HHHs	^	91.3	12	23		
Male HHHs	64.2	73.6	53	87		
OC 4.2: % women with sole or joint control over agricultural income and expenditures						
All households	48.0	59.1 *	125	110		
Female HHHs	79.2	87.0	24	23		
Male HHHs	40.6	51.7	101	87		
OC 4.3: % women with sole or joint decision-making and control over household assets						
All households	32.8	48.1 *	58	106		
Female HHHs	^	68.4	8	19		
Male HHHs	28.0	43.7 *	50	87		
OC 4.4: % women with sole of joint decision-making and control over agricultural assets						
All households	28.8	48.2 **	66	110		
Female HHHs	66.7	69.6	67	70		
Male HHHs	20.4	42.5 ***	20	43		

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

^ Sample size less than 20.

3.10.2 Women’s Control of Reproductive and Health Care Decisions

Overall, survey data indicate that in about eight out of ten households, women are the sole or joint decision maker for health care and family planning decisions. In male-headed households, the share has increased from 84.0% to 95.7% (Table 44). Qualitative FGDs with both male and female participants tend to reinforce this; they say that the decision about how many children to have is a joint one, while traditional community leaders say it is the man’s decision.

Table 44: Gender-equitable decision-making for health care and reproductive health

Indicator	Sample Size			
	BL	EL	BL	EL
OC 4.5: % women making sole or joint decisions about health care				
All households	78.8	80.9	118	110
Female HHHs	84.0	95.7 ***	25	23
Male HHHs	77.4	77.0	93	87
OC 4.6: % women reporting sole or joint decision-making over reproductive health decisions				
All households	96.1	91.2	76	68
Female HHHs	^	^	7	5
Male HHHs	95.7	90.5	69	63

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

^ Sample size less than 20.

3.11 Change Lever 5: Enabling Environment

The aim of Pathways Change Lever 5 is to facilitate the social changes necessary to create more positive and enabling attitudes, behaviors, social norms, policies and institutions that promote women’s rights. For CARE Ghana, the VSLA is a key entry point for women to discuss gender equality issues, challenging traditional gender and cultural barriers in social and economic activities. To determine whether there has been any change in men’s and women’s attitudes toward gender equality, male and female respondents were asked questions about their attitudes, perceptions, and practices related to gender roles, household violence,²² and women’s mobility. The surveys also explored whether sex was a barrier to participating in various local groups.

²² Male and female respondents are asked to agree or disagree with two statements: 1) *There are times women deserve to be hit*, and; 2) *a woman should tolerate violence in order to maintain stability in the family*. For this study, disagreeing with both qualifies as a rejection of household gender-based violence and serves as the underlying measurement for the outcome indicator.

3.11.1 Attitudes about Gender Equality in Family Life

Respondents were asked whether they agreed or disagreed with four statements that reflect men's and women's roles in family life²³. The data in Table 45 show that patriarchal attitudes about family life are held not only by men, but are ingrained in women's opinions of their own role in family life. This was true at baseline, and appears to be even more true at the endline with fewer females expressing attitudes that support gender-equitable roles.

"I see men helping their wives with domestic activities like taking care of the children and some even cooking in the absence of their wives, this used not to happen but thanks to Pathways". – Gender champion, Boko

However, the qualitative data do not support these findings. FGD participants in all communities visited note that gender relations and communication have improved over the past four years and there is greater peace and unity in households. More men are helping their wives with household activities such cooking, bathing children, carrying firewood and water. In turn, the increased ability of women to contribute to household expenses is cited by many women as a reason for better relations in the home. A female VSLA FG in a community in Lambussie-Karni said that household relations have improved because . . . *"we do help our husbands financially and this makes them love us more."*

Pathways uses gender dialogues and community sensitization on specific gender issues as part of its gender strategy. Quantitative survey data indicates a worsening of attitudes on gender-based household violence. Females rejecting gender-based household violence decreased from baseline to endline.

"The major change is that men now either consult or take decisions with their wives. - Community leaders FG

However, qualitative interviews contradict this data. Many FGD participants report that men have stopped beating their wives. A gender champion in Boko, Garu-Tempane district, observed that relationships at the household level have improved and people do not witness domestic violence compared to previous years. A female VSLA FG in Labussie-Karni district said that misunderstandings in their households have been settled through the community level gender dialogues. The gender champion also observed that CARE has included men in its gender activities and used male gender champions, which other programs have failed to do; the male gender champions act on certain issues to bring changes in the way some men treat their wives. Project staff observed that male gender champions have played a significant role in changing

²³ These statements included: 1) Personally, I think that most household decisions should be made by the man; 2) Personally, I think that there is men's work and women's work and the one shouldn't ever do the work of the other; 3) Personally, I think that if a woman works outside the home, her husband should help with child care and household chores; 4) Personally, I think that a husband should spend his free time with his wife and children.

attitudes, and in getting people to share and to value each other. Key informants say that before the project, wives and daughters were afraid to speak to their husband/father, but this is no longer the case. One traditional leader commented that since communities are small, everyone knows who the “good husbands” are because there are no arguments in the household, and the community sees the husband helping his wife.

Some of the discrepancy between quantitative and qualitative data on gender equity may be due to misperceptions about the definition of an “empowered woman.” While in some communities this is a positive attribute, other communities say that they held negative views of empowered women before the project. One FG defined empowered women as those who do not respect their husbands and go out to look for trouble, even though they also credit Pathways with many positive changes for men and women in their community. According to a FG of men related to female VSLA members in Lambussie-Karni district, women who are “too empowered” are seen as not respecting or consulting with their husbands, or as prostitutes. Many male FG respondents see themselves as the head of household responsible for making the most important decisions, even as they acknowledge that they engage in more joint decision-making at home due to the project. This is not surprising as attitudes about gender roles are embedded in local social norms and practices and the changes that Pathways seeks to encourage will take time to evolve within communities. The Pathways approach is to work with women, conduct gender sensitization and identify supporters such as gender champions in a community, and then allow community members to drive changes. The qualitative data indicates that attitudes and practices are slowly changing in some households and communities. Women in one FG in Labussie-Karni district commented that men are more reluctant to change than women. Since these are long-term social changes, at this point it is not possible to say to what degree these changes have become embedded in local communities, but CARE staff believe that, since it is a community-driven change process, improvements in gender equality are permanent.

Table 45: Attitudes about gender equity

Indicator	Sample Size	
	BL	EL
OC 5.1: % respondents expressing attitudes that support gender-equitable roles in family life		
Female respondents	45.4	25.5 ***
Male respondents	21.5	20.0
OC 5.2: % respondents expressing attitudes that reject gender-based household violence		
Female respondents	40.8	17.3 ***
Male respondents	30.0	20.9

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

3.11.2 Women’s Mobility

To understand freedom of mobility, female respondents were asked if they have to ask permission from their spouse or another family member to go to ten different locations. Four responses were possible: ‘Yes, always’ ‘Yes, most often’ ‘yes, but only now and then’, and ‘No, never.’ Table 46 presents the data as a mean score of women’s individual answers.²⁴ The maximum score is 30. Women with a score of 16 or greater are considered mobile.

Results in Table 46 indicate that across the sample freedom of mobility has risen from 10.2% in the baseline to 46.4% at endline. The mobility of women in male-headed households has increased more than ten-fold, rising from less than 4% to 36.8%, while mobility for women heading their own households more than doubled from 36.0% to 82.6%. Still, both male and female FGs indicated that many women have restrictions on their mobility and are not able to travel long distances to do business.

Indicator	Sample Size	
	BL	EL
OC 5.3 % of women with a mobility score of 16 or greater (= “mobile”)		
All households	10.2	46.4 ***
Female HHHs	36.0	82.6 ***
Male HHHs	3.9	36.8 ***

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

3.11.3 Gender-based Barriers to Group Participation

To better understand changes to gender-based barriers to group participation, the surveys ask women who report they are not a member of an existing group in their community why they are not a member. One potential response is they cannot join the group due to their sex.

Table 47 shows that at endline, 20% of the women interviewed see this as a barrier, compared to about less than 4% at baseline. Women reported their sex is a barrier to participating in agriculture/livestock groups, forest user groups, and government, but not other groups. Gender-based restrictions on group participation do not appear to be universal across the program area and may be changing. Table 27 (earlier in this section) shows that women are participating (at least in some communities) in livestock, forest users groups, and government.

²⁴ The scores for women’s mobility are calculated by taking the mean across women’s individual scores. They are calculated using the following categories and score values from 3 (most mobile) to 0 (least mobile): “Never” (3), “Yes, but only now and then” (2), and “most often” (1) and ‘always’ (0).

Table 47: Women reporting their sex as a barrier to participation in local groups

Indicator			Sample Size		
	BL	EL	BL	EL	
OC 5.4 % women reporting their sex as a barrier to participation in local groups					
All households	3.5	20.0	***	57	85
Female HHHs	^	25.0	***	6	20
Male HHHs	3.9	18.5	***	51	65

Statistically different from baseline at the 10% (*), 5%(**) or 1%(***) levels.

^ Sample size less than 20.

4 Project management

Relations with partners

The Pathways project has good working relationships with its government and non-government partners. Pathways collaborates with the Department of Agriculture in MoFA. MoFA considers CARE a good partner that involves them and keep them informed. MoFA staff state that they were involved in project design and the initial mobilization of communities, establishing the layout of demonstration farms, and guiding farmers on the timing of inputs. Pathways also works to engage government staff, consulting with them regularly, and inviting them to participate in reviews and to give feedback. In Phase II Pathways is looking to institutionalize collaboration through a memorandum of understanding that will help integrate Pathways activities into regular government programs. CARE aims to integrate Pathways activities into MoFA after the project ends. MoFA would provide technical training to CBEAs. MoFA has few staff and currently uses the CBEAs for mobilization when MoFA has messages to pass to the communities, and schedules its extension agents meetings to coincide with VSLA meetings so it can meet as many farmers as possible. MoFA also noted that the VSLA helps farmers to repay input credit from MoFA on time. Presently, CARE does not have an MOU with MoFA but is considering one for future activities.

CARE has also worked with the District Assembly in Garu-Tempene district, providing financial support to its Medium Term Development Plan and playing an instrumental role in making community development plans and budgets more gender-sensitive, according to DA members. CARE is scheduled in early 2016 to provide gender training to all DA members and heads of departments, which will include training on women’s land rights, and increasing awareness of how to make the regulatory environment more favorable for crops grown by women (e.g, the government fertilizer and seed subsidy program). CARE is also engaging with other government bodies, including the recently formed Ministry of Gender and Child Protection. CARE is a

member of a Gender and Social Protection Working Group chaired by the Ministry of Gender and Child Protection that will engage with the Ministry on issues around women's rights.

Pathways has a good relationship with SARI, a government research unit. SARI helps the project to get recommended seed varieties and provides technical input. Pathways also works with private input suppliers to help ensure that participants have access to certified seed and other high quality inputs.

Another important partner is PRUDA. Project activities in Lambussie-Karni district are implemented by PRUDA, a local NGO, under an annual contract with CARE. PRUDA performance is good and they have completed all their work on target, and are trusted by the communities. PRUDA also considers CARE a good partner. PRUDA was working on four CARE projects at the time of the endline, and its association with CARE has enabled it to attract new partners, though this has also put pressure on PRUDA to handle more activities. CARE audits PRUDA regularly and has an independent audit annually. PRUDA notes that meeting demand for services is a major challenge as Pathways has limited funds and many communities want to join the project.

Pathways also has a number of informal collaborations, such as with the Savannah Marketing Company for soya purchases, and with regional input dealers. Some intended partnerships, such as working with national gender networks, have not been implemented due to lack of funding. According to project management, the original design also included forming networks of women producers engaging with District Assemblies, but Pathways was unable to implement this activity when the project was scaled down due to funding constraints.

Monitoring and evaluation

Project monitoring data are collected but results tend to be too late to be useful and, according to project staff, usually tell implementing partners what they already know. The Ghana Pathways project has a real need for usable monitoring data. Several data collection methods are in place but vary in their usefulness. Project staff cited long delays (from 6 months up to a year are not uncommon) between data collection and reporting and results that serve only to 'validate' what they already know. Pathways staff suggest adopting the PROMISE system of "PIMs and POMs" (Project Impact Matrix and Project Outcome Matrix). This could provide the needed detail in a timely manner for Pathways, and allow project staff to regularly know if they are on, or off, track in terms of project performance and targets. The M&E uses multiple processes to collect data and provide feedback. These include:

A Participatory Performance Tracker (PPT) is used semi-annually to track farmers' adoption rate of improved agriculture practices. PPT uses close-ended questions and collects data using group

as a platform. PPT1 is designed to capture practices covering pre-sowing to vegetative stage and PPT2 data is collected after the harvest or at end of the crop cycle. It collects information around Good Agricultural Practices (GAPs), gender, savings, and marketing. The PPT plays a key role in supporting the team track the adoption practices by project participants. The Participatory discussions are aimed at fostering joint monitoring in the project. However, the paper based data collection makes the turnaround time lengthy which limits the program's ability to make adjustments to project activities if they are not yielding the intended outcomes, and use the information in a timely manner.

Annual review study (ARS) follows a group of farmers and the recommendations are built in for planning and course corrections. The findings of the ARS are used for the semi-annual and annual reports and for measuring performance of indicators.

Semi-annual, annual reports and informal monthly monitoring. This includes unstructured observations completed by program officers and field facilitators. Although this process does not have a formal format, it works well and provides staff with timely results.

Activity reporting template. This process started in August 2015. It tracks outcomes and challenges. It is, in effect, a more formalized version of informal monthly monitoring. The process is intended to facilitate smoother writing of annual and quarterly reports and to identify key issues in the field sooner. This process does not have a mechanism to aggregate results and provide reports back to program officers and field facilitators.

Cross project sharing (CARE Ghana). This is called a 'no travel week' and takes place every two months. Staff from all CARE Ghana projects meet to do project cross-sharing. Participants indicated that the time frame and feedback are appropriate, but meetings could be completed in less than five days.

5 Conclusions

5.1 Overall impact: food security, economic security, livelihoods resilience, and women's empowerment

Over the course of three years (2012-2015), households in Ghana participating in the Pathways program show improvement in some indicators of economic security, livelihoods resilience, and women's empowerment. Mean monthly per capita income has risen almost three-fold (from \$3.41 to \$9.90). Women's empowerment scores have risen by 11.9% (from .52 to .59). Women's involvement in VSLAs and soya production through Pathways appears to have a key role in increasing household income and women's empowerment. Since Pathways, women have been able to contribute to household income, which in turn, they have used to pay school fees and buy books and send more children to school. Qualitative research shows that since Pathways, school enrollment is higher than it was four years ago. Qualitative findings also document

positive benefits in gender relations. Men are reported to appreciate women's contributions and respect their knowledge and have started to allow women to cultivate part of their land and share in responsibilities for raising livestock. However, positive change in access to land and livestock is not uniform across the region.

CARE Ghana defines its core impact group as "women earning less than \$1 per day per capita in their households and who are food insecure."²⁵ Food insecure households are those that report that they did not have enough food or money to buy food in past three months. Because women's earnings are available only for agricultural activities, the estimate uses household per capita income of less than \$1 per day (USD2015). The shares of households meeting the core impact definition are nearly the same (around 80%) at baseline and endline.

Notably, at endline, every household reported experiencing one or more shocks, up from 77.7% at baseline. Shock exposure may be dampening Pathways program effectiveness. However, household responses to shocks are improving. More households are engaging in adaptive strategies to mitigate against future shocks. At endline, nearly nine out of ten households reported using adaptive strategies, up from just over half at baseline.

However, survey data also indicate a drop in share of households reporting that they have savings. Survey data do not indicate statistically significant change in other impact indicators.

5.2 Change Lever 1 – Capacity

Nearly all women sampled are active members of at least one formal or informal group existing in their community, though quantitative data do not indicate a change in women's participation in groups. VSLA membership is the highest compared to other groups. Also, nearly all report that they are a member of a group and women belong to a larger variety of groups than they did at baseline. The Pathways project is linked to increases in the proportion of women holding leadership positions in formal and informal groups. Women hold leadership positions in groups that are primarily made up of women, but their leadership roles in mixed groups is also increasing. Qualitative research links this change to more shared decision-making within the household, and consequently men respect women's knowledge and opinions and allow them larger roles in organizations and greater participation in community meetings once reserved for men. In one community, women reportedly organized and a woman was elected to a government position.

²⁵ Estimates of the impact group use household-level income, not just earnings by women. Information about women's earnings in the survey includes agricultural activities only.

5.3 Change Lever 2 – Access

The Ghana Pathways Project has greatly improved linkages between women farmers and input sources, output markets, and agricultural extension services. However, access to output markets is not project-wide. About one-third (35%) of women farmers report that they have access to output markets, and most women still sell individually in local markets. Many women feel pressure to sell their harvest immediately to obtain cash and cannot wait to arrange bulk sales. Qualitative research shows that market information and linkages are not available in most communities. At endline, VSLAs were the primary funding source for women, whereas at baseline own income and savings was the primary source. The number of women reporting that they met with an agricultural extension worker in the last 12 months increased dramatically and nearly every woman respondent reports satisfaction with the service. The FFBS demonstration fields and the CBEA services were ranked among the most effective interventions, and many women obtained access to these types of services for the first time under Pathways.

5.4 Change Lever 3 – Productivity

The promotion of soya production by the project has had impressive results in terms of household income, nutrition and women's empowerment. However, data do not indicate statistically significant changes in net income from crops and crop yields. In fact, women report less net income from agricultural production at endline than at baseline. However, these numbers should be interpreted with caution: most women were unable to provide information about income and the cost of inputs for this calculation. Other survey data indicate that about three quarters do not keep financial records, making data unreliable. In addition, 88% of households reported experiencing drought or flooding as a major shock to their households over the past five years, which would have a negative impact on production. The share of women using two or more post-harvest processes has almost doubled to 83% but the use of improved storage practices dropped markedly, to 16%. In some areas, men are starting to allow women to participate in livestock rearing, which women were prohibited from doing before Pathways.

5.5 Change Lever 4 – Household Influence

Women show significant gains in sole or joint decision-making in several areas, particularly in decision-making over agricultural income and expenditures, and control of assets (both household and agricultural). For women in male-headed households the increase in control over assets (household and agricultural) nearly doubled (from 28.0% to 43.7%) for household assets, and more than doubled (from 20.4% to 42.5%) for agricultural assets. FGDs with female farmers confirmed these data. Before the start of Pathways, women were not given access to their own land to grow crops. As a result of the community-based gender dialogues, the

activities of gender champions, and other training, Pathways participants report that their husbands were convinced to give them access to land to grow crops. The ability of female farmers to grow crops on their own land and generate income to contribute to household expenses has helped transform gender relations in many Pathways households. Women report that their new status as income-earners has gained them the respect of their husbands and of community leaders.

5.6 Change Lever 5 - Enabling Environment

There is evidence that Pathways is helping to create a stronger enabling environment for women in homes and communities. In line with increased earnings from soya production, women report higher levels of participation in household decision-making regarding agricultural income and expenditures. A positive trend noted in qualitative interviews is the reduction in gender-based violence. However, this is not collaborated by survey data. The share of women who support gender equitable roles in family life dropped from 45.4% to 25.5%. Similarly, women who reject household based gender violence dropped from 40.8% to 17.3%. However, FGD participants in all communities visited say that relationships and communication between husbands and wives have improved under Pathways, there is greater harmony in households. More men are helping their wives with domestic chores. The increased ability of women to contribute to household expenses is cited by many women as a reason for the improved relations. Some of the discrepancy between quantitative and qualitative data on gender equity may be due to perceptions about the definition of an “empowered woman.” In some communities this is a positive attribute, while other communities still hold some negative views of empowered women before the project.

6 Recommendations

Based on the findings of the final evaluation, this section provides modest suggestions for a follow-up phase of Pathways or any future program designed to overcome the constraints to women’s productive and equitable engagement in agriculture.

1. Redefine the core impact group using data from the survey, such as measures of food security. The current definition uses women's earnings, which are not measured. Measures of food security seem to be more reliable than income-based measures because there are fewer non-responses and less respondent reporting error. The large number of non-responses, and the small share of women reporting that they maintain financial records, indicate that they could be data quality issues with income-based measures.
2. Estimate impacts separately for the core impact group.

3. Build on successes of soya production and consumption and establish market linkages. Participants have also requested earlier access to inputs, better prices for inputs, and tractor or bullock services for tilling. Future projects should find ways to link participants to these services, provide value-added activities, and/or financial support (where appropriate).
4. Given the importance of children's education to VSLA participants, and the long-term benefits of having children in school, incorporate schooling (enrollment, attendance, retention figures by sex and age) into the long-term impact indicator. This could involve more in-depth research into the longer-term benefits of education and the institutional importance of schools.
5. The lack of education, particularly among women, is a challenge to training. Pathways should consider training women to improve basic numeracy and build fundamental budgeting and accounting skills.
6. Commission in-depth qualitative studies to examine the relationship between household shock exposure, Pathways participation and changes in Pathways impact indicators.
7. Analyze baseline and endline data with respect to household shock exposure, and Pathways participation for a better understanding of how Pathways interventions function in the face of shocks.