

Midline Study of the FIOVANA Resilience Food Security Activity in Madagascar



May 2024

IMPEL | Implementer-Led Evaluation & Learning Associate Award



ABOUT IMPEL

The Implementer-Led Evaluation & Learning Associate Award (IMPEL) works to improve the design and implementation of Bureau for Humanitarian Assistance (BHA)-funded resilience food security activities (RFSAs) through implementer-led evaluations and knowledge sharing. Funded by the United States Agency for International Development (USAID) BHA, IMPEL will gather information and knowledge in order to measure performance of RFSAs, strengthen accountability, and improve guidance and policy. This information will help the food security community of practice and USAID to design projects and modify existing projects in ways that bolster performance, efficiency, and effectiveness. IMPEL is an eight-year activity (2019–2027) implemented by Save the Children (lead), TANGO International, Tulane University, Causal Design, Innovations for Poverty Action, and International Food Policy Research Institute.

RECOMMENDED CITATION

IMPEL. (2024). *Midline Study of the FIOVANA Resilience Food Security Activity (RFSa) in Madagascar*. Washington, DC: The Implementer-Led Evaluation & Learning Associate Award.

PHOTO CREDIT

Narindra Rakotonanahary / Save the Children

DISCLAIMER

This report is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of the Implementer-Led Evaluation & Learning (IMPEL) award and do not necessarily reflect the views of USAID or the United States Government.

CONTACT INFORMATION

IMPEL Associate Award

c/o Save the Children

899 North Capitol Street NE, Suite #900

Washington, DC 20002

www.fsnnetwork.org/IMPEL

IMPEL@savechildren.org

PREPARED BY:



ACKNOWLEDGMENTS

The Causal Design research team would like to recognize several individuals instrumental in creating and refining this document. This includes Emanuel da Costa, Tsarafidy Rasendraharrison, Joseph Menakuntuala, Fahim Safi, and Jacques Zily with ADRA, and Mohamoud Ahmed, Tom Spangler, Terrie Soule, and Corena Sharp with IMPEL. Special thanks also to Mara Mordini, Justin Mupeyiwa, Benita O’Colmain, Arif Rashid, and Adam Trowbridge with USAID for their ongoing technical support. Thanks also to Tom Spangler, Mohamoud Ahmed, Terrie Soule, and Corena Sharp with the IMPEL Associate Award.

TABLE OF CONTENTS

Acknowledgments	i
List of Tables	iii
List of Figures	iv
Acronyms	v
Executive Summary	vi
1. Introduction	1
1.1 Overview of the Evaluation Research	1
1.1.1 Overview of the Baseline Study	1
1.1.2 Overview of the Midline Study	2
1.1.3 Overview of Endline Study	2
1.1.4 Overview of Cost-Effectiveness Analysis	2
1.2 Midline Study	2
1.2.1 Midline Research Objective	2
1.2.2 Research Question	2
2. Methodology and Limitations	3
2.1 Evaluation Design	3
2.1.1 Randomization and Sampling Strategy at Baseline.....	3
2.1.2 Randomization and Sampling Strategy at Midline.....	4
2.1.3 Sampling Frame.....	6
2.1.4 Questionnaire Development.....	6
2.1.5 Outcome Indicators.....	7
2.1.6 Field Preparation.....	9
2.1.7 Data Collection.....	9
2.2 Limitations and Challenges	10
2.2.1 Limitations.....	10
2.2.2 Challenges	11
3. Impacts of FIOVANA	12
3.1 Characteristics of the Study Population.....	12
3.2 Food Security.....	14
3.3 Child Nutrition and Health	16
3.4 Women’s Nutrition, Health, and Reproductive Care	18
3.5 Water, Sanitation, and Hygiene Practices.....	19
3.6 Agriculture.....	20
3.7 Access to Financial Services For Men and Women in a Union.....	26
3.8 Community Participation and Women’s Empowerment	28
4. Attrition Exercise	31
5. Conclusion	35
References	38
Annex A: ANCOVA Results for Section 3	39
Annex B: Midline Changes to the Household Roster	58
Annex C: Midline as a Representative Sample	62
Annex D: Matching Baseline and Midline Data	69
Annex E: Additional Summary Tables	71

LIST OF TABLES

Table 1. Number of communes selected at baseline and midline per district	4
Table 2. Sampling strategy	5
Table 3. FIOVANA RFSa indicators list for the midline	7
Table 4. Custom indicators for midline	8
Table 5. Planned versus actual survey numbers by FIOVANA commune and assignment at the midline .	10
Table 6. Number of replacement households used by commune and assignment at the midline.....	10
Table 7. Household-level characteristics	12
Table 8. Responses to FIES questions	14
Table 9. Prevalence of severe and moderate food insecurity and FCS	15
Table 10. Breastfeeding practices and diet.....	16
Table 11. Infant and child health indicators	17
Table 12. Women's nutrition and reproductive care.....	18
Table 13. WASH outcomes.....	20
Table 14. Crop and livestock.....	22
Table 15. Use of specific value chain interventions.....	23
Table 16. Improved practices for target crops.....	24
Table 17. Improved practices for livestock.....	25
Table 18. Percent of farming households growing the three target crops or raising poultry (baseline, midline comparisons).....	26
Table 19. Access to credit by gender and age.....	27
Table 20. Participation in community groups.....	28
Table 21. Income-generating activities and women's empowerment	30
Table 22. Attrition rates and percentage of missing households that could be found	31
Table 23. Reasons for missing households leaving their baseline fokontany (percentages)	32
Table 24. P-values for attrition tests IV-R and IV-P using different baseline indicators.....	33
Table 25. Values for three indicators that did not pass the IV-P test.....	34
Table 26. Summary of estimated effect of treatment on FIOVANA midline outcomes	35
Table 27. ANCOVA results for FIES questions	39
Table 28. ANCOVA results for FIES and Baseline Indicator 6.....	40
Table 29. ANCOVA results for FCS.....	40
Table 30. ANCOVA results for Baseline Indicators 13, 12, and 39.....	41
Table 31. ANCOVA results for Baseline Indicators 14 and 15.....	41
Table 32. ANCOVA results Baseline Indicator 15 (cont.)	42
Table 33. ANCOVA results for MDD, Baseline Indicators 11 and 26.....	42
Table 34. ANCOVA results for Baseline Indicators 27 and 20.....	43
Table 35. ANCOVA results for Baseline Indicator 16	43
Table 36. ANCOVA results for Baseline Indicators 17, 18, 19, and 27	44
Table 37. ANCOVA results for Baseline Indicators 29 and 30.....	44
Table 38. ANCOVA results for improved value chain practices for crops.....	44
Table 39. ANCOVA results for improved value chain practices for crops (cont.)	45
Table 40. ANCOVA results for improved value chain practices for crops (cont.)	46
Table 41. ANCOVA results for improved value chain practices for livestock	46
Table 42. ANCOVA results for improved value chain practices for livestock (cont.).....	46
Table 43. ANCOVA results for target crops and improved management practices	47
Table 44. ANCOVA results for improvement practices for cassava	47

Table 45. ANCOVA results for improvement practices for cassava (cont.)	48
Table 46. ANCOVA results for improvement practices for cassava (cont.)	48
Table 47. ANCOVA results for improvement practices for rice	48
Table 48. ANCOVA results for improvement practices for rice (cont.).....	49
Table 49. ANCOVA results for improvement practices for rice (cont.).....	49
Table 50. ANCOVA results for improvement practices for cloves	50
Table 51. ANCOVA results for improvement practices for cloves (cont.).....	50
Table 52. ANCOVA results for improvement practices for cloves (cont.).....	50
Table 53. ANCOVA results for poultry.....	51
Table 54. ANCOVA results for improvement practices for poultry.....	51
Table 55. Table 56. ANCOVA results for improvement practices for poultry (cont.)	52
Table 57. ANCOVA results for Baseline Indicator 42	52
Table 58. ANCOVA results for Baseline Indicator 42 (cont.).....	53
Table 59. ANCOVA results for Baseline Indicator 43	53
Table 60. ANCOVA results for Baseline Indicator 43 (cont.).....	54
Table 61. ANCOVA results for Baseline Indicator 31	54
Table 62. ANCOVA results for SLA Participation	55
Table 63. ANCOVA results for Baseline Indicator 41	55
Table 64. ANCOVA results for Baseline Indicator 41	56
Table 65. ANCOVA results for women's empowerment questions.....	56
Table 66. ANCOVA results for income-generating activities	57
Table 67. Number of household members reported as departed at midline compared to the baseline ..	58
Table 68. Reasons given household members reported as departed at midline	58
Table 69. Number of members reported as additions at midline	60
Table 70. Reasons given for the addition of household members reported at midline.....	61
Table 71. Select balance test results for Module B variables	62
Table 72. Select balance test for Module C variables.....	63
Table 73. Select balance test for Module F variables	64
Table 74. Balance test results for all Module B variables	64
Table 75. Balance test results for all Module C variables	66
Table 76. Balance tables for all Module F variables.....	67
Table 77. Baseline and midline people in the 1,258 households interviewed at midline	69
Table 78. Criteria to match baseline and midline people within a given household.....	70
Table 79. Disaggregated tables for Module B.....	71
Table 80. Disaggregated tables for Module C.....	75
Table 81. Disaggregated tables for Module D	81
Table 82. Disaggregated tables for Module E.....	83
Table 83. Disaggregated tables for Module F	85
Table 84. Disaggregated tables for Module G	88
Table 85. Disaggregated tables for Module K.....	92
Table 86. Disaggregated tables for community participation and women's empowerment.....	94

LIST OF FIGURES

Figure 1. Histogram for attrition rate at fokontany level	31
---	----

ACRONYMS

ADRA	Adventist Development Relief Agency
ANCOVA	Analysis of Covariance
ANC	Antenatal Care
ATE, ATE-R	Average Treatment Effect (for the Respondent)
BHA	Bureau for Humanitarian Assistance
BL	Baseline
ML	Midline
CEA	Cost-Effectiveness Analysis
FAO	Food and Agriculture Organization
FCS	Food Consumption Score
FIES	Food Insecurity Experience Scale
IE	Impact Evaluation
ID	Identification
IGA	Income Generating Activity
IMPEL	Implementer-Led Evaluation & Learning Associate Award
IV-P	Internal Validity–Study Population
IV-R	Internal Validity–Respondent Subpopulation
MAD	Minimum Acceptable Diet
MDD, MDD-C	Minimum Dietary Diversity (for Children)
NGO	Non-Governmental Organization
ORT	Oral Rehydration Therapy
RFSA	Resilience Food Security Activity
SACCO	Savings and Credit Co-Operative Society
SLA	Savings and Loan Association
USAID	United States Agency for International Development
USG	United States Government
WASH	Water, Sanitation, and Hygiene
WRA	Girls or Women of Reproductive Age
VSLA	Village Savings and Loans Association

EXECUTIVE SUMMARY

This report captures midline survey data collected from March 2023 to April 2023 for the impact evaluation (IE) of the FIOVANA resilience food security activity (RFSA), which is funded by the United States Agency for International Development Bureau for Humanitarian Assistance and implemented by the Adventist Development Relief Agency (ADRA) in the southeastern region of Madagascar. This activity attempts to address and mitigate acute levels of food insecurity experienced by communities in this region of Madagascar. The midline study examined a smaller set of intermediate indicators than those collected at the baseline, focusing on those where the most progress was expected. Indicators studied at the midline include food security; child nutrition and health; women's maternal nutrition and reproductive health; water, sanitation, and hygiene (WASH) practice; agricultural practices; gender access to financial services; and community participation. An accompanying attrition exercise was conducted to understand the rate of attrition among participating households. The baseline survey was conducted in March 2021. A complementary endline survey with an accompanying cost-effective analysis is tentatively planned for late 2024.

Midline Study Methodology

Enumerators surveyed 4,300 households at the baseline. The midline study surveyed a subsample of the households initially surveyed at the baseline. Evaluators paired treatment communes with control communes and randomly selected 45 of the 50 pairs. Within the 90 selected communes, there were two fokontany, at most. Either seven or 14 households per fokontany were randomly selected for inclusion. The total number of households interviewed at midline was 1,257.

Study Limitations

One limitation, which was anticipated, was the small sample size for indicators looking at individuals of specific ages (e.g., children under 6 months, children under 5 years, and girls or women between the ages of 15–49 years). Given that households were randomly sampled, as well as the smaller sample size at midline compared to baseline, 92.5% did not have any infants under 6 months. Of the households selected, 34% did not have any children under 5 years, and 14.5% of households did not have any girls or women of reproductive age. The reduced sample sizes reduce the power that the study has to detect some of the subgroup effects. Additionally, out of 6,272 people surveyed at the midline that were not new members, it was only possible to match 6,176 (98.4%) with their baseline observations due to a lack of unique identifications for specific members, discrepancies in the way names were reported at the baseline and midline, recall errors in the age, and mistakes entering the gender of some participants that were not present.

Key Findings

Demographic Profiles

By the end of data collection efforts, enumerators had surveyed 7,680 individuals across 1,257 households. The average household has between five and six members. There were little to no observed trends of variance between the treatment and control group on household characteristics, suggesting that the midline sample is balanced across overall demographics.

Food Security

The responses suggest that food insecurity in this area is still high, reflected in the prevalence of moderate to severe food insecurity. There were no differences between treatment and control areas in food security measures at midline.

Child Nutrition and Health

8.4% of children between 6–23 months consume a minimum acceptable diet¹ across the whole sample, with no difference between treatment and control areas. There are no statistically significant differences between treatment and control areas.

Women’s Nutrition, Health, and Reproductive Care

Minimum dietary diversity scores were similar across treatment and control groups. In treatment areas, more women were aware of different modern family planning methods, reported making decisions about contraceptive use, and used modern family planning methods. However, only the difference in the number of modern family planning methods known was statistically significant.

Water, Sanitation, and Hygiene Practices

The WASH outcomes show clear trends in treatment effects. Treatment households are seven percentage points more likely to have access to drinking water services, with a large difference in using an improved drinking water source. Treatment areas are also three percentage points more likely to have a handwashing station with soap/ash and water available, and water treatment technology use in these areas is ten percentage points higher. Basic sanitation services are slightly less likely (by one percentage point) in treatment areas. Open defecation and access to sanitation services show somewhat worse outcomes in treatment areas and should be explored further.

Agriculture

Adopting improved practices was statistically significant for all outcomes² except for the target crop cloves. Across the target crops cassava, rice, and cloves, as well as poultry farming, more farmers in treatment areas used at least one of the improved practices. Farmers in treatment areas were more likely to practice a promoted value-chain intervention and to use financial services, particularly savings. No significant differences were found in livestock practices. However, the largest improvements were seen in extension services, technology adoption, and the marketing and sales of crops, with new technology adoption three times higher in treatment areas.

Access to Financial Services

Both men and women in treatment areas have greater access to credit across nearly all age groups by 16 percentage points. Treatment areas also saw a large statistically significant increase in participation in group-based savings, micro-finance, or lending programs by nearly 26 percentage points, with increases in both credit and savings membership. There is no difference seen between treatment and control areas in who makes borrowing decisions.

Community Participation and Women’s Empowerment

The study’s findings show the strong impact of programming on participation in community groups and income-generating activities overall. It also shows a strong impact on nearly all measures of adolescent girls’ empowerment, including the percentage of adolescent girls participating in activities to increase productive economic resources and those feeling confident or strongly confident in their ability to report and seek help with violence. Reported community participation is higher for both genders across nearly all age groups that have available data.

Attrition Exercise

The attrition rate is 8.7%, similar across treatment and control areas. While the midline attrition rate is slightly higher than the attrition rate planned for at the baseline (5%), it is not unusually so. If a similar

¹ Baseline Indicator 12

² Baseline Indicators 29, 30, and 21

attrition rate is observed between midline and endline, the total attrition rate by endline would be around 17%, which could be mitigated by surveying new households at the endline. The results of attrition tests show that internal validity is not threatened; however, further investigation into why attritors in treatment areas were less likely to implement improved management practices for rice and poultry is needed to fully assess external validity implications.

1. INTRODUCTION

1.1 Overview of the Evaluation Research

The primary objective of the impact evaluation (IE) is to measure the impact of the FIOVANA resilience food security activity (RFSA) package of interventions on improving health, nutrition, and income in the targeted communities and to determine possible attribution to changes in key indicators. Funded by the United States Agency for International Development Assistance (USAID) Bureau for Humanitarian Assistance (BHA) and implemented by the Adventist Development Relief Agency (ADRA), FIOVANA aims to achieve the sustainable improvement of food and nutrition security and resilience of vulnerable populations in southeastern regions. The RFSA serves a large population of households in the Atsimo Atsinanana and Vatovavy-Fitovinany regions with interventions designed to improve maternal and infant health and nutrition, increase incomes, and improve resilience capacities. The IE aims to measure the impact of this support on reducing food insecurity and increasing well-being for households in southern Madagascar.

The IE uses a randomized control trial design which randomized communes into treatment and control groups and determined which communities would receive the activities. By comparing outcomes between FIOVANA treatment areas that received FIOVANA interventions with control areas that did not receive FIOVANA interventions, the marginal effect of the interventions can be estimated. The IE seeks to inform the larger knowledge base around the efficacy of the RFSA among vulnerable populations and how benefits to vulnerable households can be expanded and sustained. Based on this, this IE focuses on the following research question:

- What is the impact of the FIOVANA RFSA on food insecurity, nutrition, and other wellbeing outcomes in targeted communities?

The IE study comprises the following four reports:

- A baseline report which summarized and analyzed baseline survey data.
- A midline report which summarizes and analyzes midline survey data.
- An impact evaluation (IE) report that will use the baseline, midline, and Endline data to estimate the impact of the RFSA.
- A cost-effectiveness analysis (CEA) at endline, tied to IE data.

This report summarizes the results of the midline study conducted from March to April 2023. The midline study relies on quantitative methods to measure midline indicators collected in the RFSA target area and to evaluate the progress made on those indicators since the baseline survey. The following subsections briefly describe all the activities part of the IE, while the rest of the document will focus on the analysis of the midline data.

1.1.1 Overview of the Baseline Study

The baseline study used a randomized controlled trial design to collect quantitative data in the RFSA target area in April–May 2021. The survey provided baseline data on the status of communities and households across BHA standard indicators and the recipient’s custom indicators. Causal Design worked closely with BHA and relevant stakeholders to identify other key learning objectives to ensure that the baseline study could contribute to this learning where possible. Enumerators surveyed 4,300 households for baseline.

1.1.2 Overview of the Midline Study

The midline study examined a smaller set of intermediate indicators and was conducted in the RFSA target area in March 2023. Causal Design worked closely with BHA and ADRA, the recipient, to identify the most relevant intermediate indicators where the most progress was expected. The midline revisited a random subsample of both treatment and control households surveyed at baseline. 1,257 households were surveyed for the full midline survey. The team attempted to contact an additional 2,305 households from the baseline survey to assess the level of attrition. This was a particular concern following the severe cyclones in 2022 that caused widespread damage in the region.

1.1.3 Overview of Endline Study

The endline study will collect survey data from the same communities and households in the baseline survey to estimate the ability of the RFSA intervention to directly impact household food security and well-being indicators as listed in BHA’s standard indicators. The endline study will likely be carried out between April and May of 2025, mirroring the timing of the baseline survey and allowing suitable time for any potential benefits to occur. A follow-up survey will be administered to the same households as in the baseline activity to ensure comparability across the two periods.

1.1.4 Overview of Cost-Effectiveness Analysis

The CEA will rely on endline data from the IE, which will be tied to the financial data to understand the costs associated with results found in the IE. Additionally, this analysis will be supported by additional contextual information about other programming in the area that may have contributed to any measured benefits, as well as insights from the RFSA team as to what they believe was completed relatively cost-effectively and which aspects of their programming they perceived to be relatively expensive. The results of the CEA will be presented in the endline report.

1.2 Midline Study

The midline survey is a progress assessment conducted 2 years after the baseline. Rather than the full comprehensive survey, the midline is a shorter survey designed to focus on the indicators and intermediate outcomes more likely to change over a shorter time frame. Indicators that were not expected to have been impacted by RFSA activities over the 2 years between baseline and midline were omitted from the midline survey. These indicators include expenditure, agricultural yield, and anthropometric measures. Additionally, the midline survey was administered to a subsample of the households interviewed at baseline. The midline survey was also an opportunity to document household migration and threats to internal validity so that strategies to mitigate the influence of these threats could be developed before the endline. These threats included attrition, largely a result of the ongoing effects of the severe cyclones in southeastern Madagascar, and spillover effects of treatment to control areas.

1.2.1 Midline Research Objective

The objectives of the midline survey were to (1) evaluate progress made since baseline on a select set of indicators and (2) assess the rate of attrition among households 2 years after baseline.

1.2.2 Research Question

The research question for the midline exercise was: “What has been the impact of treatment on shorter-term indicators since baseline in 2021?”

2. METHODOLOGY AND LIMITATIONS

The IE of FIOVANA uses a cluster randomized control treatment design. Communes were randomly assigned to the treatment and control groups, and only the households in the treatment communes received FIOVANA programming and assistance. The estimated effect reflects the impact of FIOVANA's support and programming. The midline survey was conducted from March to April 2023 and took place midway between the baseline survey conducted in 2021, and the endline survey, which will likely be conducted from April to May 2025. A CEA, which will utilize both quantitative and qualitative methods, will also be conducted in conjunction with the endline report.

2.1 Evaluation Design

2.1.1 Randomization and Sampling Strategy at Baseline

The households sampled at the midline were a subsample of the households sampled at the baseline. In discussions with the RFSa recipient, village or fokontany-level randomization was deemed infeasible because (1) there were several planned commune-level interventions, and (2) there were logistical and political complications that arose when excluding some fokontany from programs within a commune. Commune-level randomization was also deemed infeasible as communes were considered too large for randomization, given that the average population had over 11,000 people. Implementing at the commune level would have caused the RFSa recipient to implement in almost double the number of communes than originally planned. The best solution, guided by power calculations, was determined to be commune-level randomization with the random sampling of fokontany within a commune.

Commune Selection

Based on criteria the RFSa recipient shared to determine the eligibility of communes within the districts Farafangana, Manakara, Mananjary, Vangaindrano, Vohipeno, and Vondrozo, 124 of 178 communes were eligible. To ensure better balance prior to baseline data collection, a matched pair randomization was selected rather than stratified random sampling. The selection criteria for the matching procedure variables related to outcomes, and included population, level of poverty, length of the lean season, remoteness, security, and access to a health clinic. The same criteria were used to determine commune eligibility. Units were first matched based on these variables. One unit was then randomly assigned one unit from each pair to treatment and another similar unit to control to create pairs or small groups of similar communes. Groupings were made based on (1) being in the same district, (2) having similar population totals, (3) having similar distances to the district capital, and (4) having an ongoing USAID project. Communes were excluded or unmatched due to outlier values on one or more of the characteristics. The RFSa recipient reviewed the eligible groupings and modified or excluded groupings or communes based on their additional knowledge, including geographic location (for example, coastal versus inland) or other characteristics deemed relevant for the types of interventions that might be carried out. Communes that the RFSa recipient did not want to be included for randomization for programmatic or logistical reasons were also excluded. The finalized list had 50 communes in treatment and 50 in control.

Household Sampling

Household lists were not reliably available. Field teams would first work with fokontany leaders to create a list of all hamlets and the approximate number of households in each. The number of households to be surveyed in each hamlet was determined by a field method equivalent to sampling by

probability proportional to size. Finally, random numbers were chosen, for example, five, seven, and 19, and at the fokontany level the fifth, seventh, and nineteenth homes were surveyed by following the same direction around the fokontany. The baseline sample consisted of 215 fokontany across 100 selected communes. 2,345 control households and 2,266 treatment households were surveyed at the baseline.

2.1.2 Randomization and Sampling Strategy at Midline

Based on the results of the power calculations,³ the evaluation team planned to sample 14 households in each of the 90 communes for an approximate total of 1,260 households. This section will discuss the strategy used to sample communes, fokontany, households, and individuals within the households. At the end of the section, a description of the operationalization of the sampling is provided.

Commune Selection

The baseline sample consisted of households across 100 communes, distributed over six districts. The treatment assignment was conducted using a matched pair randomization approach.⁴ 50 of these communes were assigned to the control group, while their associated commune pairs were assigned to the treatment group. For the midline, 45 communes in the control group and their associated 45 treatment commune pairs were randomly selected. To improve and ensure representativeness in the midline sample, the study randomly selected more communes in districts with more communes, as outlined in Table 1.

Table 1. Number of communes selected at baseline and midline per district

District	Number of Baseline Communes	Number of Midline Communes
Farafangana	20	18
Manakara Atsimo	26	22
Mananjary	14	12
Vangaindrano	18	16
Vohipeno	14	14
Vondrozo	8	8

Fokontany Selection

For the baseline sample, 1–2 fokontany were sampled in each of the 100 communes participating in the impact evaluation. For the midline sample, of the 90 communes selected to be sampled, the study selected at most two fokontany. For communes with 1–2 fokontany, all fokontany were selected. For communes with three fokontany, two of the three fokontany were randomly selected for inclusion in the study. Budgetary decisions largely drove the decision to limit the number of fokontany per commune selected. Of the 100 communes participating in the IE, one commune has one fokontany, 82 communes have two fokontany, and 17 communes have three fokontany. Based on the sampling strategy outlined, the number of fokontany surveyed was 179 of the 216. Ninety-two fokontany were located in control communes and 87 in treatment communes.

³ See Section 3.5.1 Power Calculations in the FIOVANA Midline Pre-analysis Plan.

⁴ See Annex A: Risk Mitigation Plan for a description of the matched pair randomization approach.

Household Inclusion Criteria

For the baseline sample, a total of 20 households were surveyed in each selected commune. To maintain the representativeness of the sample within the smaller budget, seven to 14 households were planned to be surveyed in each selected commune. For the one commune with one fokontany, if selected, 14 randomly selected households were surveyed as part of the midline study. In all other communes which had two fokontany selected, seven households per fokontany were randomly selected.

Households were selected using the full roster of households sampled at baseline as the sampling frame. All households sampled at baseline were randomly ranked and the first ten numerically ranked households were selected to be surveyed. If a household could not be found, the next ranked household was randomly selected.

Within Individual Household Selection

Within sampled households, one target individual for each outcome was randomly or purposely⁵ selected. While it was likely that adults selected to be interviewed at midline had been interviewed at baseline, there was not a purposeful intent at midline to select the same individuals sampled at baseline. Situations where an adult newly added to the household was selected to be interviewed or households where the children interviewed at baseline age out of the relevant age group (0–59 months) present instances where the individuals interviewed at midline would not have been interviewed at baseline. To reduce the time spent on each survey, one eligible individual for each module was selected as opposed to interviewing every eligible individual. Note that interviewing one per household did not impact the statistical power of the study since, in general, outcomes would be highly correlated within households. For example, all women of reproductive age in a household would likely have similar diets. There might be small variation found, but consumption does not significantly change across household members that meet the same criteria. Generally, interviewing multiple individuals per household is most useful to compare outcomes across individuals within the same household. For example, in polygamous households, outcomes could be compared between the first and the second wife. However, given that no such analysis had been planned for midline, the benefit that the additional information would have been provided would have been limited and, ultimately, its collection would not have merited the additional costs required. Allocating resources to surveying more households than more individuals in fewer households more effectively powered the evaluation. Given these considerations, Table 2 provides more detail about the sampling strategy.

Table 2. Sampling strategy

Module	Sampling choice
D: Children’s Nutritional Status and Feeding Practices ⁶	Prevalence of exclusive breastfeeding (children ages 0–5 months): randomly sample one child in this age range. Prevalence of exclusive breastfeeding (children ages 6–23 months): randomly sample one child in this age range.

⁵ This selection will be used when we want to target one person more knowledgeable about the set of questions.

⁶ Causal Design randomly selected children between 0–5 months and 0–59 months. These selections were done independently of each other so that the same child could be selected twice (e.g., a child of eight months old could be selected for both the 6–23-month age bracket and the 0–59-month age bracket).

Module	Sampling choice
	Children’s diarrhea (children ages 0–59 months): randomly sample one child in this age range.
E: Women’s Health, Nutritional Status, Dietary Diversity, and Family Planning	Randomly sample one girl or woman of reproductive age (ages 15–49). Randomly sample one adolescent girl or young woman (ages 15–26)
F. Water, Sanitation, and Hygiene	Select an adult familiar with water use in the household.
G: Agriculture	Select an adult knowledgeable about agriculture production in the household. ⁷
K: Gender Access to Credit and Group Participation	Select a consenting adult knowledgeable about household affairs and spouse. ⁸

2.1.3 Sampling Frame

The sampling frame was constructed using the list of households initially surveyed at baseline.

2.1.4 Questionnaire Development

The midline household questionnaire was derived from the baseline questionnaire, which drew from selected BHA indicators from the BHA baseline/endline Indicators Handbook. As mentioned previously, the midline questionnaire was shorter in length and focused on assessing progress toward baseline and endline intermediate outcome indicators. The questionnaire was streamlined in close collaboration with BHA, IMP endline, and the RFSA recipient. It excluded modules H (Expenditure) and R (Resilience) as well as components of other modules as noted below. The questionnaire included the following modules:

- Module A: Household identification and informed consent
- Module B: Household roster
- Module C: Food access (Food Consumption Score (FCS) and Food Insecurity Experience Scale (FIES))
- Module D: Children’s nutrition and health (excluding anthropometry measures)
- Module E: Women’s nutrition, breastfeeding, and antenatal
- Module F: Household water, sanitation, and hygiene (WASH)
- Module G: Agriculture (excluding questions related to yield)
- Module K: Access to financial services, community participation, and women’s empowerment

Where required, the survey was adapted to the local context. Adjustments were largely introduced during enumerator training and the piloting period at the suggestion of the data collection firm.

⁷ This selection was done by asking the household head. To address issues around ownership and control, the survey contained follow up questions on specific individuals involved in different activities.

⁸ In the case that the household head is not married or in a union, the questions related to a couple were not asked. In the case of polygamous households, one wife was randomly selected from available wives.

2.1.5 Outcome Indicators

The modules as well as the indicators selected reflected discussions with USAID-BHA and the recipient based on the interventions implemented by the RFSA recipient in target areas. The comprehensive list of standard BHA indicators collected can be found in Table 3 below.

Table 3. FIOVANA RFSA indicators list for the midline

Baseline (BL) Indicator	FIOVANA RFSA Indicators	Relevant Modules
BL 6	Prevalence of moderate and severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)	C
BL 10	Percent of households with poor, borderline, and adequate food consumption score (FCS)	C
BL 12	Prevalence of children (ages 6–23 months) receiving a minimum acceptable diet (MAD)	D
BL 13	Prevalence of exclusive breastfeeding of children (under 6 months of age)	D
BL 14	Percent of children (under age 5) who had diarrhea in the prior 2 weeks	D
BL 15	Percent of children (under 5 years old) with diarrhea treated with Oral Rehydration Therapy	D
BL 39	Prevalence of children (ages 6–23 months) consuming a diet of minimum diversity (MDD-C)	D
BL 11	Percent of women of reproductive age consuming a diet of minimum diversity, required if applicable	E
BL 20	Contraceptive Prevalence Rate	E
BL 26	Percent of births receiving at least four antenatal care (ANC) visits during pregnancy	E
BL 36	Percent of women in a union who have knowledge of modern family planning methods that can be used to delay or avoid pregnancy	E
BL 37	Percent of women in a union who made decisions about modern family planning methods in the past 12 months	E
BL 16	Percent of households using basic drinking water services	F
BL 17	Percent of households with soap and water at a handwashing station on premises	F
BL 18	Percent of households in target areas practicing correct use of recommended household water treatment technologies	F
BL 19	Percent of households in target areas practicing open defecation	F
BL 27	Percent of households with access to a basic sanitation service	F
BL 21	Percent of producers who have applied improved management practices or technologies	G

Baseline (BL) Indicator	FIOVANA RFSAs Indicators	Relevant Modules
BL 29	Percent of farmers who used financial services (savings, agricultural credit, and/or agricultural insurance) in the past 12 months	G
BL 30	Percent of farmers who practiced the value chain interventions promoted by the activity in the past 12 months	G
BL 41	Percent of women/men in a union who are members of a community group	K
BL 42	Percent of women/men in a union with access to credit	K
BL 43	Percent of women/men in a union who make decisions about credit	K
BL 31	Percent of households participating in group-based savings, micro-finance or lending programs	R/K

Custom indicators were also added to assess outcomes that were intermediate to final endline indicators, where movement was most expected. This included the addition of custom indicators assessing the percentage of households practicing open defecation around the home and the percentage of households with access to limited or unimproved sanitation services. Additional custom indicators were also newly included in the midline at the request of the recipients to tailor the questionnaire to the specific programming implemented and to assess participant uptake and potential spillover as in the inclusion of the custom indicators assessing participation in Savings and Loan Association (SLA) programming. The RFSAs focus on the empowerment of adolescent girls and aims to delay early pregnancy and early marriage. Accordingly, five custom indicators focusing on sexual and reproductive health were added at the request of ADRA to assess the intermediary impact of these activities as well as to collect more data on early pregnancy, early marriage, and autonomy related to adolescent girls. All custom indicators included at the midline can be found below in Table 4.

Table 4. Custom indicators for midline

FIOVANA RFSAs Indicators
Age at first marriage
Percent of women and youth participating in an income generating activity (IGA) with United States Government (USG) Assistance
Percentage of girls and women (ages 15–29, married and unmarried) who report having a say in important decisions.
Percentage of girls and women (ages 15–29) participating in programs designed to increase access to productive economic resources (assets, credit, income, or employment).
Percentage of girls and women (ages 15–29 married and unmarried) who feel confident in their ability to report and seek help with violence.
Percentage of households with member(s) participating in the SLA
For those households with member(s) participating in the SLA, the percentage accessing loans from the SLA
Percentage of households in target areas practicing open defecation around the home

FIOVANA RFSa Indicators
Percent of households with access to rudimentary sanitation service (shared or unimproved)

2.1.6 Field Preparation

Enumerator training was conducted from March 20, 2023 – March 24, 2023, and was held in the coastal city of Manakara located in southeastern Madagascar. On Day 1, presentations to enumerators were given by ADRA staff and by Causal Design staff to contextualize both the FIOVANA project and the impact evaluation. The rest of the training was then focused on achieving full comprehension of each survey question and all possible responses as well as on ensuring the accuracy of the translations. While most of the survey was initially translated and finetuned at baseline, minor adjustments were introduced during enumerator training to accommodate new questions. Additionally, enumerator training was focused on testing the survey tool. A research analyst from Causal Design joined enumerator training and piloting onsite to support training, which streamlined clarifications and enabled the introduction of immediate adjustments to the survey tool. Piloting took place on Day 4 of training and was conducted in two fokontany located just outside of the city limits of Manakara. Both fokontany had also participated in the piloting of the baseline questionnaire. Final adjustments based on piloting were then introduced followed by conclusive checks of the survey tool and all gathered data before data collection commenced.

In terms of organization, 30 field staff were organized into six teams. Each team was composed of four enumerators and one supervisor, and each team was gender representative and included at minimum one female enumerator and one male enumerator. All field staff that participated in FIOVANA’s midline also participated in Maharo baseline efforts apart from two staff members who already had familiarity with standard BHA indicator questions having previously participated in similar data collection efforts. Additionally, the data collection team comprised two teams of supervisors who oversaw the entire data collection effort and worked to resolve any logistical or technological problems such as issues with sending the data.

2.1.7 Data Collection

Overview

Data collection began on March 25, 2023, and concluded on April 17, 2023. At midline, a total of 1,257 households representing 7,680 individuals, were surveyed. An additional 2,305 households were captured by the attrition exercise. Reflecting the distribution of the baseline sample, more households were surveyed in the control areas (642) compared to treatment areas (612) at midline. In most cases, two fokontany were sampled in each commune (see Table 5). There is one commune with only one fokontany and three fokontany were sampled in the largest communes.

Table 5. Planned versus actual survey numbers by FIOVANA commune and assignment at the midline

Fokontany sampled at midline per commune	Treatment at Midline				Control at Midline			
	Number of communes sampled	Total Number of fokontany sampled	Total number of HHs planned to be surveyed	Number of HHs surveyed	Number of communes sampled	Total Number of fokontany sampled	Total number of HHs planned to be surveyed	Number of HHs surveyed
1	1	1	14	14	-	-	-	-
2	36	62	490	489	39	78	546	544
3	8	16	112	112	6	12	98	98
Total	45	79	616	615	45	90	644	642

Slightly fewer (3) households were surveyed than planned, as seen in Table 5. The reduction in sample size was largely a result of attrition when no additional households from the baseline were available in a fokontany. Households selected to be surveyed at midline that attrited were replaced where possible, as seen in Table 6.

Table 6. Number of replacement households used by commune and assignment at the midline

Number of fokontany sampled at midline	Number of treatment replacement households used at midline	Number of control replacement households used at midline
1	0	-
2	29	51
3	10	5
Total	39	56

2.2 Limitations and Challenges

2.2.1 Limitations

Limitation #1: Limited available sample size of household members meeting specific age criteria

One of the limitations encountered was a limited available sample size of infants under 6 months and children under 60 months, as well as of girls or women of reproductive age (15–49 years old). From the 1,257 households surveyed at midline, 93 infants under 6 months were surveyed,⁹ 275 children 6–23 months old were surveyed, 824 children under 5 years were surveyed, and 1,059 girls or women of reproductive age (WRA) were surveyed. Midline was a subsample of the households surveyed at baseline thus, the corresponding number of households selected, and the available sample size, was smaller. As the participating households were randomly sampled, not all households selected had household members that fit the criteria. Additionally, many of the children initially surveyed at baseline

⁹ One child under 6 months, one child 6–23 months, and one child 0–59 months old per household were randomly selected among eligible household members. For a more detailed explanation of sampling, see Section 2.1.1 Sample Size and Power Calculations.

had aged out and no longer met the age criteria of the survey. Of the households randomly sampled, 92.5% did not have any infants under 6 months. Of the households selected, 34% did not have any children under 5 years, and 14.5% of households did not have any girls or women of reproductive age. Households, in which no girl or woman of reproductive age was interviewed, either did not have any eligible members or the WRA was away for an extended amount of time and could not be interviewed. The main problem is that the limited available sample size of certain household members causes the study to be underpowered to detect some of the subgroup effects.

Limitation #2: Matching specific household members at baseline to midline

The unique household identification (ID) enabled midline households to be matched with their baseline data with 100% accuracy. Matching specific household members at midline with their baseline data proved to be more challenging for several reasons: lack of unique IDs for specific members, discrepancies in the way names were reported at baseline and midline, and errors in the reported age or gender of household members.

Midline individuals who were not specified as being new members were matched with baseline members who were not specified as missing, using the names, gender, age, and position in the household. This was followed by a manual check. Out of 6,272 people surveyed at midline who were not new members, it was possible to match 6,176 (98.4%) with their baseline observations.

The problem with not being able to match baseline and midline household members is that the sample size for the Analysis of Covariance (ANCOVA) regressions that use the individual's baseline value is reduced. To account for this, some of the ANCOVA regressions replace the individual's baseline value with the baseline household or fokontany mean.

2.2.2 Challenges

Challenge #1: Rainy season delays

The rainy season in Madagascar begins in November and lasts until April. During data collection, heavy rains caused flooding, decreasing accessibility to already remote fokontany. Some fokontany were only accessible by foot, such as Anivotsara in Farafangana or Ambohitsara and Ambalagavo in Vohipeno. Other fokontany were only accessible by boat or ferry, such as Marozano in Farafangana. Data collection was extended by 3 days to enable the data collection team to access all sampled fokontany, given the difficulty of travel. This challenge does not affect the interpretation or analysis of the results.

Challenge #2: Missing households in the aftermath of the cyclone

In February 2022, Madagascar was hit by Batsirai, a deadly tropical cyclone. The district of Mananjary suffered particularly severe damage. Batsirai left hundreds dead and destroyed thousands of homes, leaving many homeless in Mananjary. 32 households were unable to be found as no one knows where these households went following the aftermath. In Manambidala in the Vondrozo district, many farmers lost their entire crop. Some of these households migrated for 2–3 months to look for gold in Ivohibe in the commune of Maropaika.

3. IMPACTS OF FIOVANA

This section presents the main findings of the 2023 FIOVANA midline survey. The main objective of the section is to understand the progress of the FIOVANA RFSA over the past 2 years since the baseline survey in 2021. Each of the subsections contains two types of tables.

To test the difference in outcomes for indicators between treatment and control for statistical significance, the last column includes the coefficient from an ANCOVA regression. This method is preferred to a standard t-test because it allows us to control for baseline values. The full ANCOVA results are included in the annex. We omit ANCOVA results for certain subgroups when the number of observations is low. When the outcome is the percentage of households or individuals, the ANCOVA coefficient is interpreted as the percentage point difference between treatment and control. When the outcome is a count or index, the ANCOVA coefficient represents the number of units that treatment increases or decreases the outcome. We have included stars for statistical significance.

Overall, areas covered by FIOVANA have clear, improved outcomes in the areas of WASH, agriculture, and financial services. Important contextual factors to consider when assessing the impact of FIOVANA include cyclone damage, *soudure* or lean season, misrepresentation of consumption by participants, and the expected timeframe for indicators to change. A series of cyclones that occurred in 2021 and 2022 added significant challenges to FIOVANA, destroying progress already achieved in programming, such as crops and WASH infrastructure. Heavy rains before the data collection also contributed to the further flooding and destruction of crops. Data collection of both baseline and midline occurred during *soudure* or lean season where consumption levels are at the lowest. This could lead to underestimating RFSA effects if the RFSA helps to reduce but not eliminate the *soudure* period. Another consideration is that households may believe they will benefit from exaggerating their need if the survey is tied to RFSA benefits. Enumerators were trained to explain that household survey responses would not affect the level of support, but it is difficult to verify household responses. Finally, some of the indicators included at the midline may not have changed because not enough time had elapsed between the baseline and endline. Details and results for all outcomes are discussed below.

3.1 Characteristics of the Study Population

This section presents the basic demographic information for the midline sample. Similar to the baseline, the sample is well-balanced. Annex A: ANCOVA Results for Section 3 provides comparisons of the baseline survey to the midline survey as well as a summary of new and departed members. The sample includes 7,680 individuals across both treatment and control. The average household has between seven and eight members. In terms of targeted populations, 20% of the sample are girls and WRA, and 15.7% are children under 5.

Table 7. Household-level characteristics

Outcome	N	Control	N	Treatment
Average household size	643	7.2	615	7.47
Average number of children (under the age of 5) in the household	643	1.1	615	1.21
Average age of household head	644	48.3	615	49.02
Percent of household heads in a union	644	80.8	615	75.65

Outcome	N	Control	N	Treatment
Percent of household head who are not married, divorced, widowed, or separated	644	19.2	615	24.35
Percent of household head with some schooling	644	65.4	614	65.82
Percent of female household heads	644	17.6	615	22.95
Average age of female household head	147	47.6	174	50.56
Percent of female household heads with some schooling	147	59.0	174	50.63
Percent of male household heads	644	82.5	615	77.05
Average age of male household head	497	48.4	441	48.57
Percent of male household heads with some schooling	497	66.8	440	70.35
Percent households with adult males and females	643	84.448	615	84.39
Percent households with adult males only	643	2.177	615	1.626
Percent households with adult females only	643	13.375	615	13.984
Individual Characteristics				
Average age	3,914	21.601	3,766	22.065
Percent of children (under 5 years)	3,914	15.508	3,766	15.693
Percent of children (ages 5–14)	3,914	32.524	3,766	32.183
Percent of adults (ages 30+)	3,914	25.6	3,766	25.969
Percent of females	3,914	50.077	3,766	50.717
Percent of women of reproductive age	3,914	20.439	3,766	20.42
Percent of adults who are married	2,034	50.787	1,963	47.071
Percent of women (ages 15+) who are married	1,041	49.76	1,036	44.788
Percent of men (ages 15+) who are married	993	51.863	927	49.622
Average age at first marriage	1,287	20.9	1,247	20.24
Average age at first marriage – Men	531	22.8	479	22.26
Average age at first marriage – Women	756	19.6	768	18.97
Percent of people (ages 20-24) who were married or in a union before age 25	261	3.5	249	0.25
Percent of people (ages 15+) with at least some schooling	2,026	64.2	1,961	65.15
Percent of population (ages 5+) with at least some schooling	3,299	65.1	3,172	65.77

Outcome	N	Control	N	Treatment
Percent of children (ages 8–20) that attended school in 2022	1,454	70.7	1,362	71.94
Percent of people (ages 15+) who are farmers	2,034	41.7	1,963	39.55
Percent of people (ages 10+) who did any work in the last 12 months	2,502	54.0	2,420	52.11
Percent of people (ages 10+) who did any work and were paid in cash	2,488	53.8	2,409	51.90

3.2 Food Security

This section presents findings on household food security. The first indicator in this section is the prevalence of food insecurity in the past 7 days, measured using the FIES developed by the Food and Agriculture Organization of the United Nations (FAO). The eight questions that make up the FIES are presented in Table 8. More than 90% of households answered yes to the first three questions and, on average, households answered yes to 5.5 questions. The percentage of households that went without eating for a whole day because of a lack of money or other resources is higher in treatment areas and is the only question for which a statistically significant effect was observed. The difficult food security situation in the area is also reflected in the high prevalence of moderate to severe food insecurity. While the percentage of households experiencing moderate or severe food insecurity is higher in treatment areas, the ANCOVA results did not find this difference to be statistically significant.

Baseline Indicator 6, based on the FIES, and Baseline Indicator 10, based on the food consumption scores, are reported in Table 9. Generally, treatment shows slightly better food security and consumption outcomes, but none of the differences are statistically significant. FIOVANA activities focused on improving household food production. While programming, such as the Farmer Field School, could have increased household food production, this may not have impacted household consumption prior to the 2023 harvest. The direct connection between increased food production and household consumption is unclear, as households could have opted to sell the additional production to pay off other expenses rather than increase or diversify their food consumption. A difference in household food production might have occurred; however, yields were not measured at midline. The additional influence of cyclones, rains, and *soudure*, as discussed, also likely affected household food consumption.

Table 8. Responses to FIES questions

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
1. Percent of households that were worried they would not have enough food to eat because of a lack of money or other resources	638	94.04	607	94.95	1.0	†
2. Percent of households that were unable to eat healthy and nutritious food because of a lack of money or other resources	638	92.63	607	90.81	-1.4	†

Outcome	N	Control	N	Treat ment	Estimated Effect of Treatment	
3. Percent of households that ate only a few kinds of foods because of a lack of money or other resources	638	94.89	607	96.58	0.7	†
4. Percent of households that had to skip a meal because there was not enough money or other resources to get food	638	58.03	607	56.70	3.0	†
5. Percent of households that ate less than they thought they should because of a lack of money or other resources	638	89.99	607	93.06	3.8	†
6. Percent of households that did not have food because of a lack of money or other resources	638	28.65	607	29.29	2.0	†
7. Percent of households that were hungry but did not eat because there was not enough money or other resources	638	52.87	607	61.23	4.0	†
8. Percent of households that went without eating for a whole day because of a lack of money or other resources	638	29.33	607	39.79	9.0**	†
Raw FIES score (scale 0 to 8)	638	5.40	607	5.62	0.2	†
Percent of households that answered yes to all eight questions	638	17.78	607	18.38	1.2	†
Percent of households that answered no to all eight questions	638	0.80	607	0.79	0.2	†

† Based on results of an ANCOVA regression with treatment dummy and baseline value of the outcome. – Indicates that the value was not collected at baseline and the ANVOCA regression was run using only the treatment dummy value of the outcome. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ NA = Not estimated. For the outcomes shown, the coefficients shown represent the percentage point change in the outcome due to treatment.

Table 9. Prevalence of severe and moderate food insecurity and FCS

Outcome	N	Control	N	Treat ment	Estimated Effect of Treatment	
BL 6. Percent of households that experienced approximately severe food insecurity	638	30.564	607	35.75	4.1	†
BL 6. Percent of households that experienced approximately moderate-or-severe food insecurity	638	90.909	607	92.422	1.7	†
BL 10. Food Consumption Score (0–112)	628	36.22	598	36.29	0.6	†
BL 10. Percent of households with poor consumption score (<22)	628	5.30	598	4.66	-0.2	†

Outcome	N	Control	N	Treat ment	Estimated Effect of Treatment	
BL 10. Percent of households with borderline consumption score (22–35)	628	53.14	598	50.66	-3.1	†
BL 10. Percent of households with acceptable consumption score (>35)	628	41.56	598	44.68	3.6	†

† Based on results of an ANCOVA regression with treatment dummy and baseline value of the outcome. – Indicates that the value was not collected at baseline and the ANVOCA regression was run using only the treatment dummy value of the outcome. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ NA = Not estimated. For the outcomes shown, the coefficients shown represent the percentage point change in the outcome due to treatment.

3.3 Child Nutrition and Health

This section presents findings on child nutrition and health, covering aspects around breastfeeding practices as well as the incidence of diarrhea. Table 10 shows that the percentage of children consuming a minimum acceptable diet (Baseline Indicator 12) is only 8.4 for the whole sample and the percentage consuming a diet of minimum diversity is 14.2 (Baseline Indicator 39). It should be noted that the numbers of children in these categories can be quite small; there is no clear trend in the differences between treatment and control areas. The potential health impacts of FIOVANA could have also been weakened by stunting and disease, which affect both treatment and control areas. None of the differences in outcomes are statistically significant in the ANCOVA model.¹⁰ Anthropometric measures were not collected at the midline.

Table 10. Breastfeeding practices and diet

Outcome	N	Control	N	Treat ment	Estimated Effect of Treatment	
BL 13. Prevalence of exclusive breastfeeding of children (under 6 months)	45	44.44	48	52.08	26.0	†
Prevalence of exclusive breastfeeding of male children (under 6 months)	16	43.75	25	56.00	NA	†
Prevalence of exclusive breastfeeding of female children (under 6 months)	29	44.83	23	47.83	NA	†
BL 12. Percent of children (ages 6–23 months) receiving a minimum acceptable diet	132	9.09	143	7.69	-4.8	†
Percent of male children (ages 6–23 months) receiving a minimum acceptable diet	69	8.70	69	5.80	-8.7	†
Percent of female children (ages 6–23 months) receiving a minimum acceptable diet	63	9.52	74	9.46	-3.6	†

¹⁰ ANCOVA models were run using information aggregated at the fokontany level at baseline in this case because the children in these age groups at baseline are not the same children in these groups at the midline.

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
BL 39. Prevalence of children (ages 6–23 months) consuming a diet of minimum diversity	132	14.39	143	13.99	-2.6	†
Prevalence of male children ages (6–23 months) consuming a diet of minimum diversity	69	15.94	69	13.04	-10.4	†
Prevalence of female children (ages 6–23 months) consuming a diet of minimum diversity	63	12.70	74	14.87	5.4	†

† Based on results of an ANCOVA regression with treatment dummy and baseline value of the outcome. – Indicates that the value was not collected at baseline and the ANCOVA regression was run using only the treatment dummy value of the outcome. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ NA = Not estimated. For the outcomes shown, the coefficients shown represent the percentage point change in the outcome due to treatment.

In Table 11, a greater percentage of children are treated for diarrhea with Oral Rehydration Therapy (ORT) in treatment areas. However, this difference is not statistically significant. Boys in treatment areas were reported to have to have diarrhea at higher rates and this result was statistically significant. However, this could be due to greater awareness among parents. Table 11 also shows that children in treatment areas are more likely to be taken to a clinic for diarrhea or respiratory illness.

Table 11. Infant and child health indicators

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
BL 14. Percent of children under 5 (ages 0–59 months) who had diarrhea in the prior 2 weeks	417	17.27	407	22.36	4.0	†
Percent of male children under 5 (ages 0–59 months) who had diarrhea in the prior 2 weeks	202	18.32	226	26.11	10.6**	†
Percent of female children under 5 (ages 0–59 months) who had diarrhea in the prior 2 weeks	215	16.28	181	17.68	0.7	†
BL 15. Percent of children under 5 (ages 0–59 months) with diarrhea treated with ORT	72	19.44	91	28.57	10.9	†
Percent of male children under 5 (ages 0–59 months) with diarrhea treated with ORT	37	16.22	59	33.90	NA	†
Percent of female children under 5 (ages 0–59 months) with diarrhea treated with ORT	35	22.86	32	18.75	NA	†
Percent of children (ages 0–59 months old) that experienced either fever, diarrhea, or an acute respiratory infection in the past 15 days	417	50.60	407	57.74	4.9	-

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
Percent of children (ages 0–59 months old) that experienced fever in the past 15 days	417	35.73	407	39.56	4.5	-
Percent of children (ages 0–59 months old) that experienced fever in the past 15 days and received treatment from any health facility or health service within 24 hours of experiencing symptoms of a fever	149	53.69	161	62.73	7.3	-
Percent of children (ages 0–59 months old) that experienced diarrhea in the past 15 days and received treatment from any health facility or health service within 24 hours of experiencing symptoms	63	22.22	90	43.33	25.0	-
Percent of children (ages 0–59 months old) that experienced an acute respiratory infection in the past 15 days	417	12.47	407	15.97	1.2	-
Percent of children (ages 0–59 months old) that experienced an acute respiratory infection in the past 15 days and received treatment from any health facility or health service within 24 hours of experiencing symptoms	52	38.46	65	41.54	3.3	-

† Based on results of an ANCOVA regression with treatment dummy and baseline value of the outcome. – Indicates that the value was not collected at baseline and the ANCOVA regression was run using only the treatment dummy value of the outcome. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ NA = Not estimated. For the outcomes shown, the coefficients shown represent the percentage point change in the outcome due to treatment.

3.4 Women’s Nutrition, Health, and Reproductive Care

This section covers the nutrition of girls and WRA, antenatal care (ANC), and family planning methods. Table 12 shows no difference in the minimum dietary diversity score, but women were somewhat more likely to receive at least four antenatal care (ANC) visits during pregnancy in treatment areas. However, the effect is not statistically significant. Women in a union in treatment areas were aware of more family planning methods that can be used to delay or avoid pregnancy, and this is statistically significant. Specifically, the women in treatment areas know, on average, 0.5 more methods. The lack of impact seen in modern family planning method usage can likely be attributed to poor community access to these methods, which FIOVANA is working to widen.

Table 12. Women's nutrition and reproductive care

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
Minimum Dietary Diversity Score	541	2.90	518	2.91	0.0	†
BL 11. Percent of women of reproductive age consuming a diet of minimum diversity	541	6.10	518	5.41	-1.43	†

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
BL 26. Percent of births receiving at least four ANC visits during pregnancy	298	69.46	303	73.93	4.6	†
BL 36. Percent of women in a union who have knowledge of modern birth control that can be used to delay or avoid pregnancy	291	91.07	276	91.67	0.3	†
Number of contraceptive methods women married or in a union know (0-12)	291	5.708	276	6.33	0.5**	†
BL 37. Percent of women in a union who made decisions about modern family planning methods in the past 12 months	127	90.551	131	93.13	-3.3	†
BL 20. Contraceptive prevalence rates among women married or in a union	262	41.985	242	48.76	8.8	†

† Based on results of an ANCOVA regression with treatment dummy and baseline value of the outcome. – Indicates that the value was not collected at baseline and the ANCOVA regression was run using only the treatment dummy value of the outcome. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ NA = Not estimated. For the outcomes shown, the coefficients shown represent the percentage point change in the outcome due to treatment.

3.5 Water, Sanitation, and Hygiene Practices

The percentage of households using basic drinking water services is an indicator defined by the following criteria: (1) having access to an improved water source, such as a public tap or protected well, (2) having that source within 30 minutes round-trip from the home, (3) having that source available year-round, and (4) accessing at least 20 liters of water per person per day. The last criterion was not measured at baseline for all households and, therefore, is omitted from the ANCOVA analysis. Additional WASH outcomes relate to hand washing and access to and use of sanitation services.

The WASH outcomes show clear trends in the effect of treatment. Even though households in treatment areas are not more likely to use basic drinking water services (Baseline Indicator 16),¹¹ the increase in the usage of an improved water source is substantial: households in treatment areas are nearly nine percentage points more likely to use an improved water source. While the overall percentage of households with soap/ash and water at a handwashing station is low in treatment areas (3.6%), it is less than 1% in control areas, and this improvement is statistically significant. Water treatment technology use is 10 percentage points higher in treatment areas. This result is mostly explained by more treatment households boiling water before drinking. Basic sanitation services are slightly less likely (by one percentage point) in treatment areas, but this is a very small number of households (seven) who report having access to these services.

As seen in Table 13, the midline values for Baseline Indicator 27, “Basic sanitation service are lower than their values at baseline.” This can likely be attributed to the cyclone Batsirai, which hit Madagascar in

¹¹ The Baseline Indicator 16 is equal to 1 if the following four criteria are satisfied: water is available year-round, households use an improved drinking water source, households can fetch water in 30 minutes or less and households can extract at least 20 liters of water per person per day. Due to a CAPI error at baseline, the last variable was not collected for all the households. The estimated effect of treatment on Baseline Indicator 16 (Table 13) was computed using only the 639 midline households (out of 1,257) that had information for water per person per day at baseline.

February 2022. Field teams report that many latrines were destroyed following the cyclone. Additionally, the Baseline Indicator 27 does not consider latrines that do not satisfy BHA's indicator standards. Often latrines that are self-built are made of local materials, do not meet the standard, and are especially vulnerable to cyclone damage.¹²

Table 13. WASH outcomes

Outcome	N	Control	N	Treat ment	Estimated Effect of Treatment	
BL 16. Percent of households using basic drinking water services	641	3.432	615	5.854	0.6	† ¹³
Percent of households using an improved drinking water source	642	12.928	615	21.951	9.0**	†
Percent of households able to fetch water in 30 minutes or less	642	59.346	615	61.951	2.8	†
Per capita volume of water a household draws per day	641	16.058	615	16.289	-0.3	†
Percentage of households consuming at least 20 liters per day per person of water	641	27.925	615	30.732	-1.0	† ¹⁴
BL 17. Percent of households with soap or ash, and water at a handwashing station	642	0.779	615	3.577	3.1***	†
BL 18. Percent of households in target areas practicing correct use of recommended household water treatment technologies	642	44.704	615	54.472	9.7***	†
BL 19. Percent of households practicing open defecation	642	67.757	615	64.065	-5.2	†
BL 27. Percent of households with access to a basic sanitation service	642	1.09	615	0	-1.0***	†

† Based on results of an ANCOVA regression with treatment dummy and baseline value of the outcome. – Indicates that the value was not collected at baseline and the ANVOCA regression was run using only the treatment dummy value of the outcome. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ NA = Not estimated. For the outcomes shown, the coefficients shown represent the percentage point change in the outcome due to treatment.

3.6 Agriculture

The agriculture programming of FIOVANA promotes access to financial services and activities to improve the production and marketing of agricultural goods. The RFSA specifically targets rice, cassava, and clove

¹² Latrine options included in the survey were as follows: flush to a piped sewer system, flush to a septic tank, flush to a pit latrine, flush to somewhere else, flush—do not know where pit latrine, ventilated improved pit latrine, pit latrine with slab, pit latrine without slab/open pit, composting toilet, bucket toilet, hanging toilet/hanging latrine, no facility—around the home, no facility, in bush/field, other (specify), don't know, and refuse.

¹³ The ANCOVA regressions for this variable were run on the subsample of households (639 out of 1,257) that had information for the Baseline Indicator 16.

¹⁴ The ANCOVA regressions for this variable were run on the subsample of households (639 out of 1,257) that had information for the Baseline Indicator 16.

production as well as poultry production. Of the 1,181 farmers interviewed, 652 farmers stated that they cultivated the crops or raised and bought livestock with the specific intention to sell to earn income. Only the farmers who specified their intention to sell their outputs were asked questions regarding value chains.

Farmers in treatment areas were nearly 16 percentage points more likely to use financial services, particularly savings, which is more than 22 percentage points higher in treatment areas. Observations made by field staff note that farmers are particularly interested in savings actions and display strong intentions to improve household financial management and resilience to shocks, particularly in the wake of the destruction left by cyclones.

Farmers in treatment areas were more likely to practice one of the promoted value-chain interventions by a wide margin (22%). A lower percentage of farmers grew cassava in treatment areas, but they were more likely to use one of the targeted improved practices. Nearly all households (93%) grew rice in this area, but treatment farmers were more likely to use one of the targeted improved practices. Cloves were not as widely grown, and there was no difference in the percentage of farmers growing cloves between treatment and control. However, similar to the other two crops, more of those farmers in treatment areas used one of the improved practices. Farmers were also more likely to raise poultry in treatment areas and, again, more likely to use an improved practice.

Table 16 and Table 17 present results associated with the use of improvement practices for the three targeted crops and poultry. For cassava compost, crop rotation, and Intercropping and agroforestry practices show a statistically significant difference between treatment and control households, with compost experiencing the largest change (9 percentage points). In the case of rice, the two improvement-practices with a statistically significance difference between treatment and control households were the use of improved seeds (6 percentage points) and the use of climate information (9 percentage points). None of the improvement practices for cassava showed a statistically significant difference between treatment and control. Finally, in the case of poultry, only habitat improvement showed a statistically significant difference (2 percentage points).

Table 14. Crop and livestock

Outcome	N	Control	N	Treatment	Estimated effect of Treatment	
BL 29. Percent of farmers who used financial services (savings, agricultural credit, and/or agricultural insurance) in the past 12 months	612	36.928	579	52.332	15.8***	†
Percent of farming households using agricultural credit	612	22.876	579	26.598	4.8	†
Percent of farming households who saved	612	18.464	579	41.105	22.5***	†
Percent of farming households using insurance	612	0.49	579	0.518	0.0	†
BL 30. Percent of farming households who practiced at least one value chain activity	328	37.5	324	59.6	23.3***	†
Percent of farming households growing cassava	609	88.67	573	80.105	-6.9**	†
BL 21. Percent of producers who have applied targeted improved management practices or technologies (cassava)	540	55.37	459	68.192	12.4***	†
Percent of farming households growing rice	609	93.924	573	93.019	1.2	†
BL 21. Percent of producers who have applied targeted improved management practices or technologies (rice)	572	47.203	533	61.351	12.4***	†
Percent of farming households growing cloves	609	34.647	573	34.031	-1.6	†
BL 21. Percent of producers who have applied targeted improved management practices or technologies (cloves)	211	57.346	195	64.103	6.6	†
Percent of farming households raising poultry	613	65.09	579	72.021	7.4**	†
BL 21. Percent of producers who have applied targeted improved management practices or technologies (poultry)	399	29.323	417	40.048	11.1*	†

† Based on results of an ANCOVA regression with treatment dummy and baseline value of the outcome. – Indicates that the value was not collected at baseline and the ANCOVA regression was run using only the treatment dummy value of the outcome. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ NA = Not estimated. For the outcomes shown, the coefficients shown represent the percentage point change in the outcome due to treatment.

Table 15 summarizes the use of specific value-chain interventions for crops and livestock. The largest differences are in the areas of extension services, technology adoption, and the marketing and sales of crops. The percentage adopting new technologies is three times higher in treatment areas (18% compared to 6%). There are no significant differences in livestock practices.

Table 15. Use of specific value chain interventions

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
Crops						
Purchase inputs for crops	328	26.52	321	34.89	11.9*	†
Use of training and extension services	328	8.23	321	21.18	15.04***	†
Contract farming	328	0.00	321	0.62	1.0	†
Drying produce	328	5.49	321	9.35	2.0	†
Processing produce	328	0.61	321	1.56	2.0*	†
Trading or marketing produce through agro dealers and/or community associations	328	1.22	321	3.12	2.7	†
Use of formal marketing systems for crops	328	0.31	321	1.56	1.8*	†
Trade or sale of crops from your home/community with buyer from outside of your community	328	7.01	321	10.90	5.1*	†
Trade or sale of /crops from your home/community with buyer within your community	328	6.10	321	14.33	10.7***	†
Trade or sale of crops from primary regional market	328	10.67	321	14.64	5.8*	†
Adoption of new farming technique	328	5.79	321	18.38	14.4***	-
Sale of products	328	10.06	321	17.76	6.9**	-
Control of pest	328	3.66	321	10.28	6.8***	-
Livestock						
Purchase inputs for livestock	249	5.22	269	6.69	-2.4	†
Use of training and extension services	249	3.61	269	3.72	-1.8	†
Use of formal marketing systems for livestock	249	0.40	269	1.12	0.1	-
Contract farming	249	0.00	269	0.00	N/A	-
Animal care	249	8.03	269	7.06	0.7	-
Breed improvement	249	0.80	269	0.74	0.4	-
Habitat improvement	249	3.61	269	6.32	3.9	-

† Based on results of an ANCOVA regression with treatment dummy and baseline value of the outcome. – Indicates that the value was not collected at baseline and the ANVOCA regression was run using only the treatment dummy value of the outcome. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ NA = Not estimated. For the outcomes shown, the coefficients shown represent the percentage point change in the outcome due to treatment.

Table 16. Improved practices for target crops

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
Cassava						
Organic manure	539	3.21	459	3.92	0.96	†
Compost	539	9.51	459	17.64	8.92***	†
Performing weedings	539	2.84	459	3.72	0.71	-
Sowing after useful rain	539	5.86	459	8.75	1.79	†
Crop association	539	15.81	459	20.51	3.37	†
Crop rotation	539	15.45	459	21.43	6.99**	†
Use of improved seeds	539	11.1	459	0.21	-0.85	†
Use of climate information (rain forecast, disaster risks, etc.)	539	5	459	11.32	5.64**	-
Wind break	539	0.18	459	1.1	1.02	-
Soil cover	539	1.67	459	1.3	-0.33	†
Micro doses of fertilizer	539	0.18	459	0	-0.26	†
Intercropping and agroforestry practices particularly for cash crops	539	0.55	459	1.74	1.1*	†
Slopy land to reduce erosion and preserve soil	539	1.67	459	2.39	0.41	†
Rice						
Organic manure	571	6.13	533	8.81	2.95	†
Compost	571	3.85	533	6.94	2.15	†
Performing weedings	571	3.32	533	4.31	0.51	†
Sowing after useful rain	571	17.68	533	23.07	3.68	†
Crop association	571	1.57	533	2.25	1.24	†
Crop rotation	571	5.25	533	5.62	0.26	†
Use of improved seeds	571	1.92	533	8.44	6.23***	†
Use of climate information (rain forecast, disaster risks, etc.)	571	7.88	533	16.88	8.94***	†
Wind break	571	0	533	0	0	-
Soil cover	571	0.17	533	0	-0.17	†
Micro doses of fertilizer	571	5.07	533	4.87	-0.21	†
Intercropping and agroforestry practices particularly for cash crops	571	0.87	533	0.56	0.06	†

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
Slopy land to reduce erosion and preserve soil	571	0	533	0.188	0.21	-
Cloves						
Organic manure	210	4.76	195	5.64	-2.91	†
Compost	210	9.04	195	10.25	3.85	†
Performing weedings	210	0	195	2.56	3.71	-
Sowing after useful rain	210	1.42	195	2.56	1.44	†
Crop association	210	19.52	195	14.25	-1.22	†
Crop rotation	210	0.47	195	0.51	0	†
Use of improved seeds	210	0.95	195	0	-0.73	†
Use of climate information (rain forecast, disaster risks, etc.)	210	3.33	195	2.05	-0.24	-
Wind break	210	0.95	195	0.51	0.48	-
Soil cover	210	4.76	195	8.2	0.10	†
Micro doses of fertilizer	210	0.47	195	0	0	-
Intercropping and agroforestry practices particularly for cash crops	210	19.52	195	17.43	-2.33	†
Slopy land to reduce erosion and preserve soil	210	2.38	195	1.02	-2.11	-

† Based on results of an ANCOVA regression with treatment dummy and baseline value of the outcome. – Indicates that the value was not collected at baseline and the ANCOVA regression was run using only the treatment dummy value of the outcome. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ NA = Not estimated. For the outcomes shown, the coefficients shown represent the percentage point change in the outcome due to treatment.

Table 17. Improved practices for livestock

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
Poultry						
Use of improved poultry variety/breed	400	0.5	417	0.71	-0.31	†
Use of improved feed	400	1.25	417	0.24	-1.16	-
Use of improved shelters	400	0.5	417	2.15	2.03	†
Use of improved fodder production	400	0	417	0	0	†
Vaccinations	400	6.75	417	10.07	4.23	†
Antiparasitic treatment	400	0.25	417	1.67	1.55	-

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
Use of para-veterinary services for poultry	400	0.25	417	1.67	-0.28	†
Food preservation	400	0.25	417	0	-0.67	-
Progenitor choice	400	0.5	417	0	-0.98	†
Habitat	400	3.75	417	2.87	1.5*	†

† Based on results of an ANCOVA regression with treatment dummy and baseline value of the outcome. – Indicates that the value was not collected at baseline and the ANVOCA regression was run using only the treatment dummy value of the outcome. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ NA = Not estimated. For the outcomes shown, the coefficients shown represent the percentage point change in the outcome due to treatment.

Table 18 shows that a similar percentage of farming households at baseline and midline grew cassava, rice, or raised poultry. For cloves, a larger share of farming households grew those crops in midline than in the baseline, with cloves experiencing an increase of 4.5 percentage points.

Table 18. Percent of farming households growing the three target crops or raising poultry (baseline, midline comparisons)

Outcome	Baseline		Midline (ML)		BL–ML Difference
	N		N	Mean	
Crops					
Percent of farming households growing cassava	1,161	84.55	1,181	84.50	0.16
Percent of farming households growing rice	1,161	93.14	1,181	93.48	-0.34
Percent of farming households growing cloves	1,161	29.84	1,138	34.29	4.49**
Livestock					
Percent of farming households raising poultry	1,183	68.92	1,191	68.59	0.32

3.7 Access to Financial Services For Men and Women in a Union

This section covers access to financial services for men and women in a union. Men and women in treatment areas have greater access to credit. This is true for nearly all age groups. Treatment areas show a large increase in participation in group-based savings, micro-finance, or lending programs compared to control areas. Those in treatment areas are 16 percentage points more likely to have access to credit (Baseline Indicator 42). This result is the same for both men and women. There is no difference between treatment and control areas in who makes borrowing decisions. Participation in group-based savings, micro-finance, or lending programs is nearly 26 percentage points higher for treatment areas (Baseline Indicator 31). This is not solely driven by credit or saving, since both are higher in treatment areas.

Table 19. Access to credit by gender and age¹⁵

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
BL 42. Percent of men married or in a union who have access to credit	452	44.912	403	58.809	16.1***	†
Percent of men married or in a union who have access to credit (ages 20–29)	53	64.151	41	65.854	3.8	†
Percent of men married or in a union who have access to credit (ages 30–49)	215	46.512	188	60.638	19.7***	†
Percent of men married or in a union who have access to credit (ages 50+)	183	37.158	174	55.172	19.4**	†
BL 42. Percent of women married or in a union who have access to credit	466	45.708	416	59.375	16.5***	†
Percent of women married or in a union who have access to credit (ages 15–19)	8	25	10	50	NA	†
Percent of women married or in a union who have access to credit (ages 20–29)	95	60	85	57.647	NA	†
Percent of women married or in a union who have access to credit (ages 30–49)	249	46.185	212	62.264	17.8***	†
Percent of women married or in a union who have access to credit (ages 50+)	114	34.211	109	55.963	27.2*	†
BL 43. Percent of men in a union who report making the borrowing decisions	203	43.84	237	36.71	0.5	†
Percent of men married or in a union who report making the borrowing decision (ages 20–29)	34	44.12	27	48.15	NA	†
Percent of men married or in a union who report making the borrowing decision (ages 30–49)	100	45.00	114	40.35	-1.9	†
Percent of men married or in a union who report making the borrowing decision (ages 50+)	68	42.65	96	29.17	-6.0	†
BL 43. Percent of women in a union who make decisions about credit	213	38.97	247	38.87	5.8	†
Percent of women married or in a union who report making the borrowing decision (ages 15–19)	2	0.00	5	20.00	NA	†

¹⁵ It was not possible to construct Baseline Indicator 41, because the associated questions were mistakenly omitted from the survey tool.

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
Percent of women married or in a union who report making the borrowing decision (ages 20–29)	57	36.84	49	44.90	NA	†
Percent of women married or in a union who report making the borrowing decision (ages 30–49)	115	40.87	132	37.88	-14.2	†
Percent of women married or in a union who report making the borrowing decision (ages 50+)	39	38.46	61	37.71	NA	†
BL 31 Percent of men and women married or in a union who participate in group-based savings, micro-finance, or lending programs	915	14.86	819	41.64	26.8***	†
Percent of men and women married or in a union who took loans or borrowed from non-governmental organizations (NGOs), Village Savings and Loans Associations (VSLAs), or Savings and Credit Co-Operative Societies (SACCOs)	918	9.70	819	24.79	15.6***	†
Percent of men and women married or in a union who participate in group-based saving programs	915	13.66	819	40.05	27.1***	†

† Based on results of an ANCOVA regression with treatment dummy and baseline value of the outcome. – Indicates that the value was not collected at baseline and the ANCOVA regression was run using only the treatment dummy value of the outcome. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ NA = Not estimated. For the outcomes shown, the coefficients shown represent the percentage point change in the outcome due to treatment.

3.8 Community Participation and Women’s Empowerment

This final section looks at the participation of those in a union in community groups as well as custom questions related to the empowerment of young women. Reported participation is higher for both genders and across most of the age groups that have observations for both treatment and control areas, as seen in Table 20. However, the differences between treatment and control are significantly higher using a standard t-test for most categories.

Table 20. Participation in community groups

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
BL 41. Men in a union who are members of a community group	365	81.37	368	90.76	9.4***	-
Men in a union who are members of a community group (ages 15-20)	1	0	0	0	N/A	-
Men in a union who are members of a community group (ages 20–29)	46	69.57	39	89.74	19.1	-

Outcome	N	Control	N	Treatment	Estimated Effect of Treatment	
Men in a union who are members of a community group (ages 30–49)	177	81.36	171	90.64	10.0**	-
Men in a union who are members of a community group (ages 50+)	141	85.82	158	91.14	7.0	-
BL 41. Women in a union who are members of a community group	363	77.41	361	86.70	9.6**	-
Women in a union who are members of a community group (ages 15-19)	5	80.00	7	100.00	N/A	-
Women in a union who are members of a community group (ages 20–29)	76	67.11	74	93.24	21.2*	-
Women in a union who are members of a community group (ages 30–49)	192	76.04	182	84.07*	8.8*	-
Women in a union who are members of a community group (ages 50+)	90	88.89	98	85.71	0.3	-

*† Based on results of an ANCOVA regression with treatment dummy and baseline value of the outcome. – Indicates that the value was not collected at baseline and the ANCOVA regression was run using only the treatment dummy value of the outcome. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ NA=Not estimated. For the outcomes shown, the coefficients shown represent the percentage point change in the outcome due to treatment.*

The next table presents the custom questions related to specific activities of the partner around income-generating activities and women’s empowerment. The treatment areas show much higher participation in income-generating activities (IGAs) promoted with USG assistance.¹⁶ This result is not surprising since these are activities promoted in treatment areas, but it does suggest that there is very little, if any, spillover to other communes of these activities.

The percentage of adolescent girls participating in programs designed to increase access to productive economic resources is also much higher in treatment areas (21% compared to 7%). Adolescent girls report feeling confident or strongly confident in their ability to report and seek help with violence at higher rates in treatment areas. In Table 21, only the percentage of girls reporting having high or very high input over important decisions shows no effect of treatment. FIOVANA activities are focused on increasing the participation of youth, particularly of young women, as well as sensitizing, collaborating, and mobilizing influential community members on the importance of youth and female participation. Overall, the results in this section show a strong impact of programming on participation in community groups and income-generating activities, in addition to several measures of empowerment among adolescent girls.

¹⁶ IGAs refer to all activities that all agricultural and non-agricultural activities aimed at helping participant households improve their income that the project promotes. IGAs include food crop production, cash crops, fish, beekeeping, livestock, non-farm, and off-farm activities, including other services.

Table 21. Income-generating activities and women’s empowerment

Outcome	N	Control	N	Treat ment	Estimated Effect of Treatment	
Participation in income generating activities with USG assistance (all)	2,028	2.12	1,959	21.082	19.4***	-
Participation in income generating activities with USG assistance (women and youth)	1,548	1.744	1,514	18.56	17.2***	-
Percentage of adolescent girls participating in programs designed to increase access to productive economic resources (assets, credit, income, or employment)	356	6.742	329	20.669	13.9***	-
Percentage of adolescent girls (married and unmarried) who feel confident or strongly confident in their ability to report and seek help with violence	356	38.483	329	50.76	11.4***	-
Percentage of girls (married and unmarried) who report having high or very high input over important decisions	229	73.362	215	68.372	-4.9	-

† Based on results of an ANCOVA regression with treatment dummy and baseline value of the outcome. – Indicates that the value was not collected at baseline and the ANVOCA regression was run using only the treatment dummy value of the outcome. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ NA = Not estimated. For the outcomes shown, the coefficients shown represent the percentage point change in the outcome due to treatment.

4. ATTRITION EXERCISE

One of the objectives of the midline activity is to understand the pervasiveness of attrition in the population and to determine if attrition might pose problems in estimating the causal impact of the FIOVANA RFSA at the endline. For this reason, in each of the fokontany in all the selected communes included in the midline (180), enumerators asked about the presence of all the baseline households (3,560). This section presents basic descriptive statistics of missing households and a set of statistical tests that help us understand the impact of attrition on the IE of the FIOVANA RFSA.

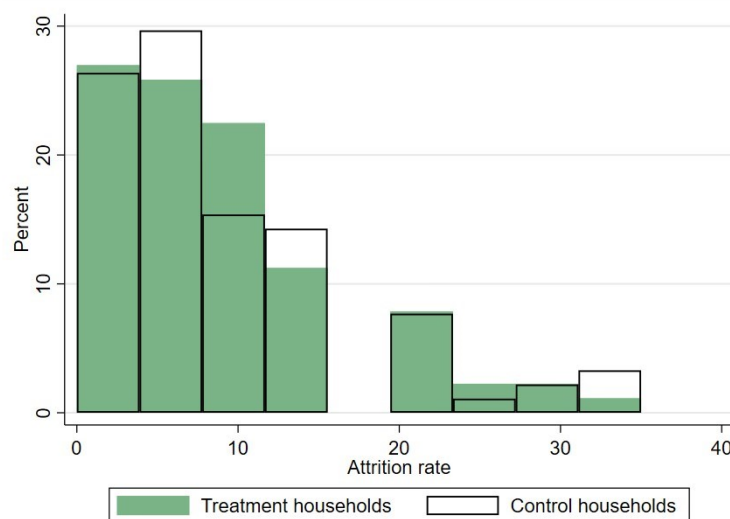
The attrition rate for the whole midline sample was 8.7% (311 households). Table 22 shows that the attrition rate in control areas was slightly higher than in treatment areas (0.56 percentage points). Even though the difference across treatment arms is not statistically significant, a proper assessment of the impacts of differential attrition rates relies on comparing baseline outcomes, as will be shown in the last part of this section.

Table 22. Attrition rates and percentage of missing households that could be found

Outcome	N	Control	N	Treatment	Difference
Percent of baseline households missing at midline	1,780	8.989	1,780	8.427	-0.562
		(28.61)		(27.79)	(1.19)
Percent of households missing at midline whose migration location is known	160	63.125	151	67.55	4.425
		(48.40)		(46.97)	(6.93)

To understand how the attrition rate varies between fokontany, Figure 1 shows the histogram of attrition at the fokontany level. Around 73% of the fokontany have attrition rates of 10% or lower, while around 54% of the fokontany have attrition rates below 5%. The histograms for control and treatment households look very similar.

Figure 1. Histogram for attrition rate at fokontany level



For all the missing households, enumerators tried to find out more information about their migration (e.g., where they migrated to and reasons for migration). Out of 310 missing households, it was possible to obtain additional information about 202 of them. In most cases, the information about the missing households was provided by the president of the fokontany. The answers were provided as text information and were grouped into seven mutually exclusive categories (Table 23). The most important reasons were “work, search for better land” (31.68%) and “Other N/A” (28.71%). For most households included in the latter category, either no reason was provided (N/A), or it was simply stated that the household moved to another location. Note that for less than 10% of households, the main reason to leave was the negative impact of the cyclone or “extreme hunger.” This proportion, the 10%, should be considered as a lower bound, as other migration reasons (e.g., search for work) might be related to extreme hunger or cyclones.

Table 23. Reasons for missing households leaving their baseline fokontany (percentages)

Reason	Control	Treatment	All
Cyclone	5.66	3.13	4.46
Death, sickness	17.92	7.29	12.87
Family event	5.66	4.17	4.95
Extreme hunger	3.77	2.08	2.97
Marriage or separation	12.26	16.67	14.36
Other, n/a	28.30	29.17	28.71
Work, search for better land	26.42	37.50	31.68
Number of households	106	96	202

Despite missing information on the reasons for attrition, it is still possible to test if attrition may cause a problem for the evaluation by using baseline outcomes. The main threat attrition poses to the evaluation is if attrition is related to treatment. For example, certain households could be more likely to stay in treatment areas because of the interventions. Ghanem et Al. (2022) document the use of attrition tests in field experiments and create two tests to understand the implications of attrition on the estimation of treatment effects. The tests exploit the baseline outcomes of both attritors and respondents,¹⁷ and help assess if attrition affects the internal or external validity of the study. The internal validity of the study is related to the average treatment effect for the respondent subpopulation (ATE-R). The objective of the attrition test in this case (called internal validity for the respondent subpopulation (IV-R)) is to assess if the households present at the midline in the control communes are a good counterfactual for the households present at the midline in the treatment communes. On the other hand, the external validity is related to the average treatment effect for the study population (ATE). The attrition test for this case (called internal validity for the study population (IV-P)) assesses if the treatment and control households present at the midline can be used to identify the average treatment effect of the FIOVANA RFSA on the target population. For the FIOVANA IE, both tests are important and the results for both are presented below.

¹⁷ In the case of the midline survey, attritors are the households interviewed at baseline but were missing at midline, while respondents are households that were present for both the baseline and the midline.

To conduct the attrition tests, the main regression run is given by:

$$y_{bl,i} = \delta_{pair} + \pi_{01}R_i + \pi_{10}T_i + \pi_{11}T_iR_i + \epsilon_i$$

where R_i is equal to one if the household was present at the midline and zero if it was missing, and T_i is one if the household lives in a treatment commune.

Following Ghanem et Al. (2022), we ran tests of internal and external validity for the eleven outcomes presented in Table 24.¹⁸ All but one of the eleven outcomes selected passed the internal validity test, meaning that there is no evidence that treatment and control households are systematically different based on those ten outcomes. In the case of the external validity test, all but three outcomes (Baseline Indicators 6, 21 rice, and 21 poultry) pass the test; there is no evidence that the four groups (treatment attritors, control attritors, treatment respondents, and control respondents) differ for eight of the eleven outcomes.

Table 24. P-values for attrition tests IV-R and IV-P using different baseline indicators

Test	N	Pass IV-R Test	Pass IV-P Test
BL 6. Prevalence of severe food insecurity in the household	3,554	NO	NO
BL 10. Percent of households with poor FCS (<22)	3,474	YES	YES
BL 26. Percent of births receiving at least four ANC visits during pregnancy	2,563	YES	YES
BL 1. Prevalence of Poverty: Percent of people living on less than \$1.90/day 2011 PPP	3,560	YES	YES
BL 29. Percent of farming households who used financial services	3,281	YES	YES
BL 30. Percent of farmers reporting at least one value chain activity	2,541	YES	YES
BL 21. Percent of farming households growing cassava who have applied targeted improved practices	2,726	YES	YES
BL 21. Percent of farming households growing rice who have applied targeted improved practices	3,001	YES	NO
BL 21. Percent of farming households growing cloves who have applied targeted improved practices	925	YES	YES
BL 21. Percent of farming households raising poultry who have applied targeted improved practices	2,336	YES	NO
BL 18. Percent of households in target areas practicing correct use of recommended household water treatment technologies	3,560	YES	YES

¹⁸ The two attrition tests are related by the following null hypothesis: (i) internal validity, $H_0: \pi_{10} = \pi_{11} = 0$, and (ii) external validity, $H_0: \pi_{01} = \pi_{10} = \pi_{11} = 0$.

Test	N	Pass IV-R Test	Pass IV-P Test
BL 19. Percent of households in target areas practicing open defecation	3,560	YES	YES

For the three indicators that did not pass the IV-P test, Table 25 shows the mean values for the four groups (treatment attritors, control attritors, treatment respondents, and control respondents). The main reason why Baseline Indicator 6 does not pass the IV-P test (and the IV-R) is because more treatment than control households experienced severe food insecurity, and not because of behaviors specific to attrition households. This is corroborated by regressions using the whole baseline sample, which show the baseline sample was not balanced in that specific indicator.¹⁹ With respect to the Baseline Indicator 21, Table 25 shows that attritors in treatment areas are less likely to have implemented improvement practices for rice and poultry.

Table 25. Values for three indicators that did not pass the IV-P test

Test	N	BL 6	N	BL 21 Rice	N	BL 21 Poultry
Treatment respondents	1,627	26.18	1,364	29.43	1,059	9.44
Control respondents	1,618	18.78	1,400	28.28	1,110	10.54
Treatment attritors	150	30.66	111	13.51	79	2.53
Control attritors	159	18.23	126	32.93	88	12.5

The results of this section showed that the attrition rate was similar in control and treatment areas. More importantly, attrition does not pose a problem for the internal validity of the study. In the case of the external validity, results shown in Table 25 suggest that it is important to further investigate why the attritors in treatment areas were less likely to implement improvement management practices for rice and poultry.

The average attrition rate in the study is not unusual in experimental studies, although it is slightly higher than what was accounted for at baseline (5%). Nonetheless, it is important to keep in mind that the endline survey will take place in 18 months. By that time, most likely, more baseline households will leave the areas of study. For example, if a similar attrition rate of 8.7% is observed between midline and endline, the total attrition rate from baseline to endline would be around 17%. The attrition tests run in this section suggest that surveying new households at the endline to compensate for the attritors can be a promising strategy.

¹⁹ This is not a problem necessarily. Even though the treatment assignment was done randomly, it is possible that some variables have a statistically significant difference across treatment arms by chance.

5. CONCLUSION

The midline evaluation finds several notable areas of progress in the FIOVANA RFSA areas. Table 26 summarizes the estimated effects. For WASH outcomes, for example, there were improvements in the percentage of households using basic drinking water services (Baseline Indicator 16), the percentage of households with soap or ash and water at a handwashing station (Baseline Indicator 17), and the percentage of households in target areas practicing correct use of recommended household water treatment technologies (Baseline Indicator 18). In agriculture, more farmers in treatment used financial services (savings, agricultural credit, and/or agricultural insurance) in the past 12 months (Baseline Indicator 29) and practiced the value chain interventions promoted by the activity in the past 12 months (Baseline Indicator 30). More producers applied targeted improved management practices or technologies in rice, cassava, and poultry (Baseline Indicator 21). Finally, there were large increases in the percentage of both men and women with access to credit (Baseline Indicator 42) and in the percentage who participated in group-based savings, micro-finance, or lending programs (Baseline Indicator 31). Progress was made despite devastating cyclones in the region in 2022.

The cyclones also raised concerns about potentially high rates of attrition if households were forced to move or migrate. However, the analysis shows that attrition was not high enough to be a concern at this point (8.7%) and the internal validity of the results is not threatened.

Table 26. Summary of estimated effect of treatment on FIOVANA midline outcomes

Outcome	Estimated Effect of Treatment †
BL 6. Percent of households that experienced approximately severe food insecurity	4.1
BL 6. Percent of households that experienced approximately moderate-or-severe food insecurity	1.7
BL 10. Food Consumption Score (0–112)	0.6
BL 10. Percent of households with poor consumption score (<22)	-0.2
BL 10. Percent of households with borderline consumption score (22–35)	-3.1
BL 10. Percent of households with acceptable consumption score (>35)	3.6
BL 13. Prevalence of exclusive breastfeeding of children (under 6 months)	26.0
BL 12. Percent of children (ages 6–23 months) receiving a minimum acceptable diet	-4.8
BL 39. Prevalence of children (ages 6–23 months) consuming a diet of minimum diversity	-2.6
BL 14. Percent of children under 5 (ages 0–59 months) who had diarrhea in the prior 2 weeks	4.0
BL 15. Percent of children under 5 (ages 0–59 months) with diarrhea treated with ORT	10.9

Outcome	Estimated Effect of Treatment †
BL 11. Percent of women of reproductive age consuming a diet of minimum diversity	-1.4
BL 26. Percent of births receiving at least four ANC visits during pregnancy	4.6
BL 36. Percent of women in a union who have knowledge of modern family planning methods that can be used to delay or avoid pregnancy	0.3
Number of contraceptive methods women married or in a union know (0-12)	0.5**
BL 37. Percent of women in a union who made decisions about modern family planning methods in the past 12 months	-3.3
BL 20. Contraceptive prevalence rates among women married or in a union	8.8
BL 16. Percent of households using basic drinking water services	7.3**
BL 17. Percent of households with soap or ash, and water at a handwashing station	3.1***
BL 18. Percent of households in target areas practicing correct use of recommended household water treatment technologies	9.7***
BL 19. Percent of households practicing open defecation	-5.2
BL 27. Percent of households with access to a basic sanitation service	-1.0***
BL 29. Percent of farmers who used financial services (savings, agricultural credit, and/or agricultural insurance) in the past 12 months	15.8***
BL 30. Percent of farmers who practiced the value chain interventions promoted by the activity in the past 12 months	24.6***
Percent of farming households growing cassava	-6.9**
BL 21. Percent of producers who have applied targeted improved management practices or technologies (cassava)	12.4***
Percent of farming households growing rice	1.2
BL 21. Percent of producers who have applied targeted improved management practices or technologies (rice)	12.4***
Percent of farming households growing cloves	-1.6
BL 21. Percent of producers who have applied targeted improved management practices or technologies (cloves)	6.6
Percent of farming households raising poultry	7.4**
BL 21. Percent of producers who have applied targeted improved management practices or technologies (poultry)	11.1*
BL 42. Percent of men married or in a union who have access to credit	16.9***
BL 42. Percent of women married or in a union who have access to credit	16.5***

Outcome	Estimated Effect of Treatment †
BL 43. Percent of men in a union who make decisions about credit	1.1
BL 43. Percent of women in a union who make decisions about credit	7.5
BL 41. Men in a union who are members of a community group	9.4***
BL 41. Women in a union who are members of a community group	9.6**
BL 31. Percent of men and women married or in a union who participate in group-based savings, micro-finance, or lending programs	28.1***

† Based on results of an ANCOVA regression with treatment dummy and baseline value of the outcome. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ NA = Not estimated. For the outcomes shown, the coefficients shown represent the percentage point change in the outcome due to treatment.

REFERENCES

- FAO. Voices of the Hungry. (N.d.). *Modeling Food Insecurity on Bivariate and Regression Analyses*. <http://www.fao.org/3/a-bp091e.pdf>.
- IMPEL. (2021). *Baseline Study of the FIOVANA Resilience Food Security Activity in Madagascar (Vol. I)*. Washington, DC: The Implementer-Led Evaluation & Learning Associate Award.
- IMPEL. (2021). *Baseline Study of the Maharo Resilience Food Security Activity in Madagascar (Vol. I)*. Washington, DC: The Implementer-Led Evaluation & Learning Associate Award.
- IMPEL. (2023). *RFSA FIOVANA IE Pre-Analysis Plan*. Washington, DC: The Implementer-Led Evaluation & Learning Associate Award.
- USAID Bureau for Humanitarian Assistance. (2021a). *Bureau for Humanitarian Assistance Indicator Handbook Part I: Indicators for Baseline and Endline Surveys for Resilience Food Security Activities*. United States Agency for International Development.
- USAID Bureau for Humanitarian Assistance. (2021b). *Bureau for Humanitarian Assistance Indicator Handbook Supplement to Part I: BHA Baseline/Endline Questionnaire and Indicator Tabulations for Resilience Food Security Activities*. United States Agency for International Development.

ANNEX A: ANCOVA RESULTS FOR SECTION 3

This annex presents the full ANCOVA results for the indicators in Section 3. To test the difference in outcomes between treatment and control for statistical significance, the tables present the results of ANCOVA regressions. This method is preferred to a standard t-test because it allows us to control for baseline values. Each column is a linear regression of an outcome on a treatment indicator plus the baseline value for the outcome and controls for the matched pairs.

Specifically, with an outcome of interest, y , we run a regression of the form:

$$y_{ml,i} = \beta_0 + \beta_1 \cdot Treatment_i + \gamma \cdot y_{bl,i} + \delta_{pair} + \epsilon_i$$

The coefficient of interest for this section is β_1 . A statistically significant value for this coefficient means that treatment and control households have a significant difference in the outcome of interest. The regression tables display the value of β_0 (Constant), β_1 (Treatment), and γ (baseline value). The standard deviation for each coefficient is displayed in parenthesis below the coefficient. The matched pair control (δ) is included to improve the precision of results, but not shown.

When the outcome is the percentage of households or individuals, the coefficient for treatment is the percentage point difference in the outcome between treatment and control. When the outcome is a count or index, the interpretation of the coefficient for treatment is the number of units that the outcome increases or decreases because of treatment.

The coefficient for the baseline values is the estimated relationship between the observed baseline value for the outcome and the midline value. Specifically, the interpretation is the amount the midline value changes for a one-unit increase in the baseline value. Generally, we should expect a positive correlation between baseline and midline values and the size and significance of the coefficient reveal how close the relationship is.

Module C

Table 27. ANCOVA results for FIES questions

Variables	1. Worried about lack of food	2. Ate less healthy foods	3. Ate fewer kinds of foods	4. Skipped meals	5. Ate less	6. Did not have food	7. Went hungry
Treatment	0.988 (1.910)	-1.407 (1.648)	0.711 (1.149)	2.999 (3.705)	3.824 (2.363)	2.044 (2.845)	3.973 (3.658)
Baseline value	0.0645* (0.0335)	0.0228 (0.0268)	0.0364 (0.0301)	0.114*** (0.0328)	0.0612* (0.0356)	0.104** (0.0401)	0.0358 (0.0313)
Constant	79.18*** (2.978)	68.90*** (2.741)	81.31*** (2.903)	41.84*** (2.755)	82.37*** (2.503)	1.873 (1.516)	52.57*** (2.139)
Observations	1,244	1,244	1,244	1,244	1,244	1,244	1,244
R-squared	0.094	0.159	0.058	0.133	0.095	0.168	0.228

Variables	1. Worried about lack of food	2. Ate less healthy foods	3. Ate fewer kinds of foods	4. Skipped meals	5. Ate less	6. Did not have food	7. Went hungry
Pair-match dummies	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 28. ANCOVA results for FIES and Baseline Indicator 6

Variables	Raw FIES score	Answered yes to all questions	Answered no to all questions	BL 6. Severe food insecurity	BL 6. Moderate food insecurity
Treatment	0.193	1.244	0.154	4.054	1.651
	(0.135)	(2.767)	(0.680)	(3.065)	(2.148)
Baseline value	0.139***	0.0922***	0.0753	0.0866**	0.0720**
	(0.0296)	(0.0316)	(0.0572)	(0.0377)	(0.0285)
Constant	3.851***	-0.987	3.624***	16.10***	67.09***
	(0.147)	(1.443)	(0.352)	(1.612)	(2.529)
Observations	1,244	1,244	1,244	1,244	1,244
R-squared	0.179	0.226	0.044	0.149	0.093
Pair-match dummies	YES	YES	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 29. ANCOVA results for FCS

Variables	BL 10. FCS	Poor FCS	Borderline FCS	Acceptable FCS
Treatment	0.557	-0.231	-3.053	3.558
	(0.896)	(1.291)	(3.405)	(3.746)
Baseline value	0.252***	0.0986**	0.130***	0.192***
	(0.0406)	(0.0466)	(0.0322)	(0.0315)
Constant	30.42***	0.125	46.07***	39.11***
	(1.565)	(0.699)	(2.442)	(2.355)
Observations	1,197	1,197	1,197	1,197
R-squared	0.132	0.069	0.073	0.106
Pair-match dummies	YES	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 30 shows the estimated effect of treatment on the three indicators (Baseline Indicators 13–15). Because the same children or even the same households were not always observed in both baseline and midline as children aged out or were not selected to be interviewed, the baseline fokontany average replaces the baseline individual value in the estimation. The unit of observation is still the individual child at midline, but the child is compared to the fokontany average at baseline.

Module D

Table 30. ANCOVA results for Baseline Indicators 13, 12, and 39

Variables	BL 13. Prevalence of exclusive breastfeeding	BL 12. Children receiving a MAD	BL 39. Children consuming a diet of minimum diversity
Treatment	26.00	-4.816	-2.617
	(23.92)	(4.325)	(6.940)
BL fokontany average	-0.412	0.0644	-0.378
	(0.486)	(0.148)	(0.311)
Constant	74.00***	36.54***	43.41***
	(23.92)	(2.883)	(4.627)
Observations	57	138	130
R-squared	0.616	0.342	0.389
Pair-match dummies	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 31. ANCOVA results for Baseline Indicators 14 and 15

Variables	BL 14. Children with diarrhea in the prior 2 weeks	BL 14. Male children	BL 14. Female children	BL 15. Children with diarrhea in the prior 2 weeks receiving ORT
Treatment	3.968	10.55**	0.666	10.88
	(3.420)	(4.582)	(5.425)	(11.18)
BL fokontany average	-0.305	-0.195	0.0906	-0.000351
	(0.233)	(0.254)	(0.223)	(0.00190)
Constant	16.70***	12.49***	10.13***	19.56***
	(2.584)	(2.723)	(3.021)	(5.592)
Observations	178	162	171	93
R-squared	0.314	0.346	0.261	0.513
Pair-match dummies	YES	YES	YES	YES

Table 32. ANCOVA results Baseline Indicator 15 (cont.)

Variables	Children with Fever, Diarrhea, or Respiratory Infection	Fever only	Received Treatment for Fever	Diarrhea Only	Received Treatment for Diarrhea	Respiratory Infection Only	Received Treatment for Respiratory Infection
Treatment	4.911	4.547	7.328	5.963*	24.97	1.164	3.283
	(5.180)	(5.292)	(9.192)	(3.509)	(14.95)	(2.613)	(32.31)
BL fokontany average	-	-	-	-	-	-	-
	-	-	-	-	-	-	-
Constant	(0.00175)	(0.00225)	(0.00183)	(0.00234)	(0.00219)	(0.00200)	(0.00306)
	64.21***	49.47***	66.46***	15.07***	87.67***	28.99***	96.72***
Observations	(5.686)	(6.475)	(18.52)	(2.185)	(15.31)	(1.432)	(32.31)
R-squared	178	178	133	178	73	178	49
Pair-match dummies	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Module E

Table 33. ANCOVA results for MDD, Baseline Indicators 11 and 26

Variables	Minimum Dietary Diversity Score	BL 11. Women consuming MDD	BL 26. Women receiving at least four ANC visits
Treatment	-0.0144	-1.443	4.629
	(0.0626)	(1.482)	(4.542)
Baseline value	0.142***	-0.0360**	0.252***
	(0.0414)	(0.0148)	(0.0527)
Constant	2.859***	9.605***	83.06***
	(0.112)	(0.780)	(3.143)
Observations	992	992	482
R-squared	0.124	0.063	0.227
Pair-match dummies	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 34. ANCOVA results for Baseline Indicators 27 and 20

Variables	Number of modern family planning methods women married or in a union know (0–12)	BL 37. Percent of women in a union who made decisions about modern family planning methods in the past 12 months	BL 20. Contraceptive prevalence rates among women married or in a union
Treatment	0.510**	-3.274	8.802
	(0.242)	(8.856)	(6.178)
Baseline value	0.255***	0.0646	0.290***
	(0.0479)	(0.209)	(0.0473)
Constant	3.184***	93.54***	-4.666
	(0.227)	(20.91)	(3.335)
Observations	517	125	417
R-squared	0.268	0.334	0.216
Pair-match dummies	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Module F

Table 35. ANCOVA results for Baseline Indicator 16

Variables	BL 16. Basic drinking water services (first 3 criteria)	BL 16. Year-round availability	BL 16. Improved source	BL 16. Water in under 30 min.	BL 16. Liters per capita	BL 16. Min of 20 l per person per day
Treatment	7.287**	-0.293	8.955**	2.837	-0.291	-0.924
	(3.234)	(2.905)	(3.631)	(3.645)	(1.063)	(3.988)
Baseline value	0.269***	0.0585	0.394***	0.243***	0.0732*	0.0404
	(0.0485)	(0.0417)	(0.0524)	(0.0446)	(0.0420)	(0.0521)
Constant	0.616	80.84***	4.173**	33.18***	15.76***	32.36***
	(1.619)	(3.759)	(1.916)	(4.614)	(1.606)	(4.430)
Observations	1,257	1,257	1,257	1,257	639	639
R-squared	0.203	0.087	0.299	0.265	0.130	0.144
Pair-match dummies	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 36. ANCOVA results for Baseline Indicators 17, 18, 19, and 27

Variables	BL 17. Handwashing station	BL 18. Water treated	BL 19. Practice open defecation	BL 27. Basic sanitation service
Treatment	3.133***	9.675***	-5.215	-1.01***
	(1.018)	(3.452)	(4.144)	(0.370)
Baseline value	0.00159	0.117***	0.254***	0.0582
	(0.0180)	(0.0270)	(0.0424)	(0.0432)
Constant	-1.572***	36.98***	54.12***	0.506***
	(0.489)	(1.635)	(3.023)	(0.185)
Observations	1,257	1,257	1,257	1,257
R-squared	0.056	0.128	0.241	0.050
Pair-match dummies	YES	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Module G

Table 37. ANCOVA results for Baseline Indicators 29 and 30

Variables	BL 29. Farmers used financial services	BL 29. Farmers used credit	BL 29. Farmers saved	BL 30. Value chain interventions
Treatment	15.83***	4.764	22.54***	23.25***
	(3.519)	(3.036)	(3.351)	(5.531)
Baseline value	0.115**	0.148***	0.0908**	0.0350
	(0.0426)	(0.0528)	(0.0404)	(0.0536)
Constant	41.93***	20.34***	22.83***	73.24***
	(1.938)	(1.583)	(1.903)	(8.030)
Observations	1,141	1,141	1,141	431
R-squared	0.125	0.090	0.151	0.294
Pair-match dummies	YES	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 38. ANCOVA results for improved value chain practices for crops

Variables	Purchase inputs for crops	Use of training and extension services	Contract farming	Drying produce	Processing produce	Trading or marketing produce through agro dealers and/or community associations
Treatment	11.93*	15.04***	0.955	1.999	2.033*	2.670

Variables	Purchase inputs for crops	Use of training and extension services	Contract farming	Drying produce	Processing produce	Trading or marketing produce through agro dealers and/or community associations
	(6.654)	(4.106)	(0.692)	(2.975)	(1.100)	(1.680)
Baseline value	-0.0841	-0.0647	-	0.0930	0.273	-0.0779***
	(0.0617)	(0.0520)	-	(0.108)	(0.257)	(0.0174)
Constant	60.34***	18.30***	-0.955	58.47***	-11.13	-2.670
	(8.647)	(4.106)	(0.692)	(8.573)	(8.799)	(1.680)
Observations	503	503	503	503	503	503
R-squared	0.220	0.194	0.075	0.213	0.182	0.088
Pair-match dummies	0.226	0.144	0.096	0.227	0.255	0.447

Table 39. ANCOVA results for improved value chain practices for crops (cont.)

Variables	Use of formal Marketing Systems For Crops	Trade or sale of crops from your home/ community with buyer from outside of your community	Trade or sale of /crops from your home/ community with buyer within your community	Trade or sale of crops from primary regional market	Adoption of new farming technique	Sale of products
Treatment	1.751*	5.145*	10.67***	5.767*	14.36***	6.850**
	(1.000)	(2.681)	(3.709)	(3.359)	(3.146)	(3.308)
Baseline value	0.00584*	0.0703	0.0409	-0.0163	-	-
	(0.00333)	(0.132)	(0.0979)	(0.0755)	-	-
Constant	-1.751*	-5.145*	22.66***	-5.767*	16.03***	58.22***
	(1.000)	(2.681)	(3.709)	(3.359)	(1.966)	(2.067)
Observations	503	500	500	500	649	649
R-squared	0.088	0.171	0.231	0.304	0.135	0.191
Pair-match dummies	YES	YES	YES	YES	YES	YES

Table 40. ANCOVA results for improved value chain practices for crops (cont.)

Variables	Control of pests
Treatment	6.828***
	(2.383)
Baseline value	-
	-
Constant	8.232***
	(1.489)
Observations	649
R-squared	0.099
Pair-match dummies	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 41. ANCOVA results for improved value chain practices for livestock

Variables	Purchase inputs for livestock	Use of training and extension services	Contract farming	Use of formal marketing systems for livestock	Animal care	Breed improvement
Treatment	-2.388	-1.760	0	0.143	0.737	0.400
	(2.815)	(2.204)	(0)	(0.775)	(2.992)	(1.120)
Baseline value	-0.250***	0.00122	-	-	-	-
	(0.0477)	(0.00552)	-	-	-	-
Constant	2.388	1.760	0	-0.143	19.56***	-0.240
	(2.815)	(2.204)	(0)	(0.775)	(1.795)	(0.672)
Observations	337	337	337	337	518	518
R-squared	0.280	0.132		0.145	0.127	0.082
Pair-match dummies	YES	YES	YES	YES	YES	YES

Table 42. ANCOVA results for improved value chain practices for livestock (cont.)

Variables	Habitat Improvement
Treatment	3.906
	(2.633)
Baseline value	-
	-
Constant	17.66***
	(1.580)
Observations	518

Variables	Habitat Improvement
R-squared	0.119
Pair-match dummies	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 43. ANCOVA results for target crops and improved management practices

Variables	Grows cassava	BL 21 Improved management practices for cassava	Grows rice	BL 21 Improved management practices for rice	Grows cloves	BL 21 Improved management practices for cloves
Treatment	-6.946**	12.37***	1.208	12.38***	-1.600	6.605
	(3.169)	(3.465)	(1.138)	(3.650)	(3.732)	(7.095)
Baseline value	0.296***	0.056*	0.154***	0.075**	0.338***	0.028
	(0.0484)	(0.0289)	(0.0564)	(0.0355)	(0.0336)	(0.0640)
Constant	66.73***	77.45***	85.24***	72.03***	40.78***	93.72***
	(4.548)	(1.602)	(5.255)	(2.438)	(2.011)	(7.296)
Observations	1,122	881	1,122	1,013	1,122	224
R-squared	0.226	0.144	0.096	0.227	0.255	0.447
Pair-match dummies	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 44. ANCOVA results for improvement practices for cassava

Variables	Organic manure	Compost	Performing weedings	Sowing after useful rain	Crop association	Crop rotation
Treatment	0.962	8.923***	0.714	1.709	3.375	6.994**
	(1.245)	(2.898)	(2.656)	(3.724)	(2.445)	(2.979)
Baseline value	0.179	0.250**	-	-0.128***	0.0365	0.00437
	(0.121)	(0.103)	-	(0.0456)	(0.0370)	(0.0766)
Constant	-0.433	15.98***	-0.321	0.511	12.75***	71.79***
	(0.560)	(1.304)	(1.195)	(1.670)	(1.310)	(1.943)
Observations	880	880	880	880	880	880
R-squared	0.102	0.160	0.281	0.163	0.279	0.294
Pair-match dummies	YES	YES	YES	YES	YES	YES

Table 45. ANCOVA results for improvement practices for cassava (cont.)

Variables	Use of improved seeds	Use of climate information (rain forecast, disaster risks, etc.)	Wind break	Soil cover	Micro doses of fertilizer	Intercropping and agroforestry practices particularly for cash crops
Treatment	-0.851	5.642**	1.009	-0.333	-0.263	1.102*
	(0.738)	(2.485)	(0.776)	(1.223)	(0.268)	(0.550)
Baseline value	-0.00370	-	-	-0.00128	0.00139	-0.00123
	(0.00321)	-	-	(0.00471)	(0.00142)	(0.00351)
Constant	0.383	32.46***	-0.454	0.150	0.118	-0.496*
	(0.332)	(1.118)	(0.349)	(0.551)	(0.121)	(0.248)
Observations	880	880	880	880	880	880
R-squared	0.053	0.262	0.071	0.120	0.039	0.092
Pair-match dummies	YES	YES	YES	YES	YES	YES

Table 46. ANCOVA results for improvement practices for cassava (cont.)

Variables	Slopy land to reduce erosion and preserve soil
Treatment	0.413
	(1.122)
Baseline value	-0.0552***
	(0.0182)
Constant	4.814***
	(0.505)
Observations	880
R-squared	0.112
Pair-match dummies	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 47. ANCOVA results for improvement practices for rice

Variables	Organic manure	Compost	Performing weedings	Sowing after useful rain	Crop association	Crop rotation
Treatment	2.958	2.150	0.518	3.681	1.245	0.268
	(2.242)	(1.437)	(2.256)	(2.545)	(0.840)	(1.540)
Baseline value	0.0159	0.0777	0.000207	0.00206	-0.0516*	0.00835
	(0.0418)	(0.0466)	(0.00217)	(0.0343)	(0.0270)	(0.0458)

Variables	Organic manure	Compost	Performing weedings	Sowing after useful rain	Crop association	Crop rotation
Constant	2.676**	7.480***	4.055***	71.73***	-0.704	21.59***
	(1.267)	(0.812)	(1.275)	(1.872)	(0.475)	(0.870)
Observations	1,012	1,012	1,012	1,012	1,012	1,012
R-squared	0.152	0.092	0.213	0.507	0.105	0.157
Pair-match dummies	YES	YES	YES	YES	YES	YES

Table 48. ANCOVA results for improvement practices for rice (cont.)

Variables	Use of improved seeds	Use of climate information (rain forecast, disaster risks, etc.)	Wind break	Soil cover	Micro doses of fertilizer	Intercropping and agroforestry practices particularly for cash crops
Treatment	6.233***	8.940***	0	-0.174	-0.210	0.0647
	(2.116)	(2.411)	(0)	(0.178)	(1.774)	(0.483)
Baseline value	-0.0374***	0.0447***	-	-1.51e-05	0.0656	-0.000349
	(0.0127)	(0.0121)	-	(0.000702)	(0.151)	(0.00260)
Constant	0.825	60.16***	0	0.0981	4.466***	-0.0366
	(1.196)	(1.363)	(0)	(0.101)	(1.003)	(0.273)
Observations	1,012	1,012	1,012	1,012	1,012	1,012
R-squared	0.116	0.327		0.047	0.117	0.085
Pair-match dummies	YES	YES	YES	YES	YES	YES

Table 49. ANCOVA results for improvement practices for rice (cont.)

Variables	Slopy land to reduce erosion and preserve soil
Treatment	0.211
	(0.216)
Baseline value	-
	-
Constant	-0.119
	(0.122)
Observations	1,012
R-squared	0.044
Pair-match dummies	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 50. ANCOVA results for improvement practices for cloves

Variables	Organic manure	Compost	Performing weedings	Sowing after useful rain	Crop association	Crop rotation
Treatment	-2.911	3.853	3.718	1.443	-1.222	0
	(4.652)	(3.998)	(2.917)	(2.858)	(5.504)	(1.935)
Baseline value	0.115	-0.0181	-	0.0103	-0.0652	-0
	(0.239)	(0.114)	-	(0.0204)	(0.0631)	(0.000209)
Constant	35.27***	-2.569	-2.479	-0.962	34.15***	0
	(3.101)	(2.666)	(1.945)	(1.905)	(3.669)	(1.290)
Observations	223	223	223	223	223	223
R-squared	0.428	0.320	0.224	0.214	0.397	0.201
Pair-match dummies	YES	YES	YES	YES	YES	YES

Table 51. ANCOVA results for improvement practices for cloves (cont.)

Variables	Use of improved seeds	Use of climate information (rain forecast, disaster risks, etc.)	Wind break	Soil cover	Micro doses of fertilizer	Intercropping and agroforestry practices particularly for cash crops
Treatment	-0.733	-0.244	0.488	0.102	0	-2.335
	(0.798)	(1.614)	(1.593)	(1.278)	(0)	(6.559)
Baseline value	-0.00139	-	-	0.0353	-	0.253
	(0.00376)	-	-	(0.0330)	-	(0.212)
Constant	0.535	33.50***	-0.325	33.27***	0	68.22***
	(0.592)	(1.076)	(1.062)	(0.852)	(0)	(4.373)
Observations	223	223	223	223	223	223
R-squared	0.143	0.277	0.126	0.602		0.427
Pair-match dummies	YES	YES	YES	YES	YES	YES

Table 52. ANCOVA results for improvement practices for cloves (cont.)

Variables	Slopy land to reduce erosion and preserve soil
Treatment	-2.115
	(2.924)
Baseline value	-

Variables	Slopy land to reduce erosion and preserve soil
	-
Constant	34.74***
	(1.950)
Observations	223
R-squared	0.308
Pair-match dummies	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 53. ANCOVA results for poultry

Variables	Percent of farming households raising poultry	BL 21. Percent of farming households who have applied targeted improved practices or technologies for poultry	Percent of farming households using at least one improvement practice for poultry
Treatment	8.315**	11.59*	6.299
	(3.126)	(6.243)	(3.808)
Baseline value	0.142***	0.133	0.117
	(0.0358)	(0.0922)	(0.0969)
Constant	51.29***	-9.948**	-6.151**
	(2.442)	(4.326)	(2.906)
Observations	962	485	485
R-squared	0.155	0.185	0.122
Pair-match dummies	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 54. ANCOVA results for improvement practices for poultry

Variables	Use of improved poultry variety/breed	Use of improved feed	Use of improved shelters	Use of improved fodder production	Vaccinations	Anti-parasitic treatment
Treatment	-0.307	-1.165	2.029	0	4.238	1.509*
	(0.455)	(0.706)	(1.340)	(0)	(3.411)	(0.798)
Baseline value	-0.0695***	-	-0.0295	0	0.185**	-
	(0.00292)	-	(0.0282)	(0)	(0.0851)	-
Constant	0.171	0.647	-1.127	0	-2.354	-0.754*
	(0.253)	(0.392)	(0.744)	(0)	(1.895)	(0.399)
Observations	608	608	608	608	608	817

Variables	Use of improved poultry variety/ breed	Use of improved feed	Use of improved shelters	Use of improved fodder production	Vaccinations	Anti-parasitic treatment
R-squared	0.066	0.095	0.075		0.140	0.060
Pair-match dummies	YES	YES	YES	YES	YES	YES

Table 55. Table 56. ANCOVA results for improvement practices for poultry (cont.)

Variables	Use of para-veterinary services for poultry	Food preservation	Progenitor choice	Habitat
Treatment	1.552	-0.286	-0.676	-0.981
	(0.997)	(0.293)	(0.493)	(1.892)
Baseline value	-0.00841	-	-7.63e-05	0.111
	(0.00540)	-	(0.00278)	(0.0837)
Constant	-0.862	0.159	0.376	-0.690
	(0.554)	(0.163)	(0.274)	(1.291)
Observations	603	603	603	603
R-squared	0.067	0.043	0.056	0.155
Pair-match dummies	YES	YES	YES	YES

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

Module K

Table 57. ANCOVA results for Baseline Indicator 42

Variables	Percent of people married or in a union who earned cash in the past 12 months	BL 42. Percent of men married or in a union who have access to credit	Percent of men married or in a union who have access to credit (20–29)	Percent of men married or in a union who have access to credit (30–49)	Percent of men married or in a union who have access to credit (50+)
Treatment	15.88***	16.06***	3.779	19.68***	19.42**
	(3.971)	(4.138)	(18.95)	(6.244)	(7.441)
Baseline value	0.122***	0.129***	0.205	0.189***	0.0616
	(0.0402)	(0.0405)	(0.155)	(0.0581)	(0.0790)
Constant	43.27***	32.47***	98.11***	64.72***	20.56***
	(2.085)	(2.322)	(9.477)	(3.635)	(6.194)
Observations	865	807	76	323	289
R-squared	0.192	0.173	0.605	0.292	0.221

Variables	Percent of people married or in a union who earned cash in the past 12 months	BL 42. Percent of men married or in a union who have access to credit	Percent of men married or in a union who have access to credit (20–29)	Percent of men married or in a union who have access to credit (30–49)	Percent of men married or in a union who have access to credit (50+)
Pair-match dummies	YES	YES	YES	YES	YES

Table 58. ANCOVA results for Baseline Indicator 42 (cont.)

Variables	BL 42. Percent of women married or in a union who have access to credit	Percent of women married or in a union who have access to credit (15–19)	Percent of women married or in a union who have access to credit (20–29)	Percent of women married or in a union who have access to credit (30–49)	Percent of women married or in a union who have access to credit (50+)
Treatment	16.49***	-0	15.06	17.81***	27.16**
	(4.073)	(195.4)	(10.30)	(5.376)	(13.00)
Baseline value	0.127***	0.500	0.111	0.123*	0.0564
	(0.0418)	(0.977)	(0.116)	(0.0669)	(0.114)
Constant	52.54***	0	100***	46.86***	44.03***
	(2.630)	(195.4)	(0)	(3.560)	(10.83)
Observations	798	15	133	336	152
R-squared	0.203	0.583	0.417	0.274	0.344
Pair-match dummies	YES	YES	YES	YES	YES

Table 59. ANCOVA results for Baseline Indicator 43

Variables	BL 43. Percent of men married or in a union who report making the borrowing decision	Percent of men married or in a union who report making the borrowing decision (15–19)	Percent of men married or in a union who report making the borrowing decision (20–29)	Percent of men married or in a union who report making the borrowing decision (30–49)	Percent of men married or in a union who report making the borrowing decision (50+)
Treatment	0.505	N/A	N/A	-1.941	-6.016
	(11.98)			(16.23)	(43.49)
Baseline value	0.00165	0	0.519**	0.0106	-0.0680
	(0.115)	(0)	(0.188)	(0.204)	(0.214)
Constant	19.67	0	-0	-0.709	62.82
	(11.96)	(0)	(0)	(13.61)	(50.27)
Observations	192	3	31	85	47
R-squared	0.210	1.000	0.736	0.459	0.540

Variables	BL 43. Percent of men married or in a union who report making the borrowing decision	Percent of men married or in a union who report making the borrowing decision (15–19)	Percent of men married or in a union who report making the borrowing decision (20–29)	Percent of men married or in a union who report making the borrowing decision (30–49)	Percent of men married or in a union who report making the borrowing decision (50+)
Pair-match dummies	YES	YES	YES	YES	YES

Table 60. ANCOVA results for Baseline Indicator 43 (cont.)

Variables	BL 43. Percent of women married or in a union who report making the borrowing decision	Percent of women married or in a union who report making the borrowing decision (15–19)	Percent of women married or in a union who report making the borrowing decision (20–29)	Percent of women married or in a union who report making the borrowing decision (30–49)	Percent of women married or in a union who report making the borrowing decision (50+)
Treatment	10.08	N/A	-8.754	-14.17	N/A
	(10.01)		(50.91)	(20.00)	(0)
Baseline value	0.124	0	-0.120	-0.189	-0
	(0.0952)	(0)	(0.471)	(0.244)	(0)
Constant	37.57***	0	16.43	18.90	-0
	(9.520)	(0)	(68.27)	(24.41)	(0)
Observations	177	7	39	67	21
R-squared	0.225	1.000	0.658	0.597	1.000
Pair-match dummies	YES	YES	YES	YES	YES

Table 61. ANCOVA results for Baseline Indicator 31

Variables	Percent of men and women married or in a union who took loans or borrowed from NGOs, VSLAs or SACCOs	Percent of men and women married or in a union who participate in group-based saving programs	BL 31. Percent of men and women married or in a union who participate in group-based savings, micro-finance, or lending programs
Treatment	15.60***	27.13***	26.75***
	(3.101)	(3.915)	(3.750)
Baseline value	0.426***	0.414***	0.424***
	(0.0900)	(0.0815)	(0.0680)
Constant	12.66***	11.44***	11.63***

Variables	Percent of men and women married or in a union who took loans or borrowed from NGOs, VSLAs or SACCOs	Percent of men and women married or in a union who participate in group-based saving programs	BL 31. Percent of men and women married or in a union who participate in group-based savings, micro-finance, or lending programs
	(1.550)	(1.958)	(1.875)
Observations	866	866	866
R-squared	0.250	0.268	0.288
Pair-match dummies	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 62. ANCOVA results for SLA Participation

Variables	Percent of households that participated in the SLA	Percent of households that participated in the SLA associated with FIOVANA	Percent of households that participated in the SLA not associated with FIOVANA	Percent of households participating in a FIOVANA SLA that accessed loans
Treatment	31.30***	38.44***	-4.960	N/A
	(4.795)	(3.593)	(3.251)	
Baseline value	-	-	-	-
	-	-	-	-
Constant	19.81***	12.05***	11.07***	83.33***
	(2.293)	(1.718)	(1.555)	(0)
Observations	884	884	884	145
R-squared	0.230	0.328	0.126	0.394
Pair-match dummies	YES	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Community Participation and Women's Empowerment

Table 63. ANCOVA results for Baseline Indicator 41

Variables	BL 41. Women in a union who are members of a community group	Women in a union who are members of a community group (15–19)	Women in a union who are members of a community group (20–29)	Women in a union who are members of a community group (30–49)	Women in a union who are members of a community group (50+)
Treatment	9.558**	0	21.20*	8.790*	0.275
	(4.182)	(0)	(10.80)	(4.509)	(6.111)
Baseline value	-	-	-	-	-
	-	-	-	-	-

Variables	BL 41. Women in a union who are members of a community group	Women in a union who are members of a community group (15–19)	Women in a union who are members of a community group (20–29)	Women in a union who are members of a community group (30–49)	Women in a union who are members of a community group (50+)
Constant	69.16***	100***	100***	39.09***	90.76***
	(1.981)	(0)	(0)	(1.933)	(3.333)
Observations	724	12	150	374	188
R-squared	0.147	0.455	0.408	0.241	0.199
Pair-match dummies	YES	YES	YES	YES	YES

Table 64. ANCOVA results for Baseline Indicator 41

Variables	BL 41. Men in a union who are members of a community group	Men in a union who are members of a community group (15–19)	Men in a union who are members of a community group (20–29)	Men in a union who are members of a community group (30–49)	Men in a union who are members of a community group (50+)
Treatment	9.382***	N/A	19.09	10.01**	6.983
	(2.958)		(13.10)	(4.144)	(4.913)
Baseline value	-	-	-	-	-
	-	-	-	-	-
Constant	87.70***	N/A	100***	78.00***	93.79***
	(1.775)	N/A	(0)	(0.829)	(4.367)
Observations	733	N/A	85	348	299
R-squared	0.119	N/A	0.577	0.198	0.202
Pair-match dummies	YES	N/A	YES	YES	YES

Table 65. ANCOVA results for women's empowerment questions

Variables	Percentage of adolescent girls participating in programs designed to increase access to productive economic resources (assets, credit, income, or employment)	Percentage of adolescent girls (married and unmarried) who feel confident or strongly confident in their ability to report and seek help with violence	Percentage of girls (married and unmarried) who report having high or very high input over important decisions
Treatment	13.94***	11.43***	-4.907
	(3.454)	(4.158)	(4.453)
Baseline value	-	-	-

Variables	Percentage of adolescent girls participating in programs designed to increase access to productive economic resources (assets, credit, income, or employment)	Percentage of adolescent girls (married and unmarried) who feel confident or strongly confident in their ability to report and seek help with violence	Percentage of girls (married and unmarried) who report having high or very high input over important decisions
	-	-	-
Constant	3.562*	28.57***	75.85***
	(2.031)	(2.446)	(2.833)
Observations	685	685	444
R-squared	0.110	0.168	0.145
Pair-match dummies	YES	YES	YES

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 66. ANCOVA results for income-generating activities

Variables	Participation in income generating activities with USG assistance (all)	Participation in income generating activities with USG assistance (women and youth)
Treatment	19.40***	17.23***
	(1.631)	(1.603)
Baseline value	-	-
	-	-
Constant	1.382	0.767
	(0.962)	(0.951)
Observations	3,987	3,062
R-squared	0.120	0.110
Pair-match dummies	YES	YES

Robust standard errors in parentheses.*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

ANNEX B: MIDLINE CHANGES TO THE HOUSEHOLD ROSTER

The midline questionnaire included a series of questions added at the beginning of the survey to understand any changes to the household roster since baseline. The survey displayed the names of each household member reported at baseline, and the household would be asked to indicate which individuals were still a part of the household. For the members who reported to have left the household, the household was asked to specify a reason for their departure. Households were then asked to report new members since baseline and indicate a reason for their addition.

Members Departed from the Household Roster Since the Baseline

Of the total number of members interviewed at baseline, 16% of the household members originally reported had since departed. Both treatment and control groups experienced member departure consistently at the same rate. 607 members or 16.8% of the member observations recorded at baseline from the treatment group were removed. For the control group, 581 members, or 15.2% of baseline observations, were no longer household members at midline.

Table 67. Number of household members reported as departed at midline compared to the baseline

	Number of people interviewed at BL	Number of departed observations	Share of departed observations (%)
Treatment	3,613	607	16.8%
Control	3,819	581	15.2%
Total	7,432	1,188	16%

The two most common reasons for departure were to join family already living in another location, which occurred in 276 instances (23.2%) across the sample, and for marriage or cohabitation reasons, which occurred in 241 cases (20.3%) across the sample. For the treatment area, the third most prevalent reason for departure was to move with family, which 92 individuals (15%) did, while the third most prevalent reason for departure in the control group was for work, which 89 individuals (15%) did. Rates of departure were relatively consistent across treatment and control groups, except for a household member wrongly recorded at baseline. The departure rate occurred in 26 instances (4%) in treatment group households, while for control group households, it occurred in only 8 instances (1%).

Table 68. Reasons given household members reported as departed at midline

Reasons Given for Missing Person	Treatment		Control		Total	
	Number of People Left	Share of People Left (%)	Number of People Left	Share of People Left (%)	Number of People Left	Share of People Left (%)
Divorce/Separation	27	5%	30	5%	57	4.8%
Left for studies or an educational opportunity	31	5%	30	5%	61	5.1%
Left for work	89	15%	70	12%	159	13.4%
Left to find better land	10	2%	7	1%	17	1.4%
Health reasons	2	0%	0	0%	2	0.2%
For marriage/cohabitation	114	20%	127	21%	241	20.3%
To join family already living in another location	147	25%	129	21%	276	23.2%
Moved with family	74	13%	92	15%	166	14.0%

Reasons Given for Missing Person	Treatment		Control		Total	
	Number of People Left	Share of People Left (%)	Number of People Left	Share of People Left (%)	Number of People Left	Share of People Left (%)
Left to set up own home	13	2%	18	3%	31	2.6%
Deceased	49	8%	51	8%	100	8.4%
Stayed with original household	7	1%	12	2%	19	1.6%
Never been a member/recorded wrongly in baseline	8	1%	26	4%	34	2.9%
Never been a member—falsely reported by household at baseline	8	1%	12	2%	20	1.7%
Other	2	0%	3	0%	5	0.4%

Members Added to the Household Roster Since Baseline

1,399 members were reported as additions to the household rosters across treatment and control groups since baseline. Both treatment and control groups experienced member additions at roughly the same rate. 744 new observations (19.8%) were added to the treatment households, while 655 (16.8%) new members were reported as additions in control households. The number of additions occurred in the treatment group at a slightly increased rate compared to the control group.

Table 69. Number of members reported as additions at midline

	Number of people interviewed at midline	Number of new observations	Share of new observations (%)
Treatment	3,766	744	19.8%
Control	3,905	655	16.8%
Total	7,671	1,399	18.2%

The share of additions was relatively consistent across treatment and control households. The most common reason for the addition of a household member was that the member had originally been a member at baseline but had been mistakenly forgotten or otherwise not reported. This occurred in 369 instances and accounted for 26% of the household additions. Control households added 195 individuals (30%), while treatment households added 174 individuals (30%).

This phenomenon seems to be a fairly common occurrence. Household members can often be forgotten if they are away from home often or for extended periods of time. The second most prevalent reason for a household member's addition was birth. Control households had 165 newborns join their households (25% of additions to control households) and treatment households added 168 newborns (23%). In total, births accounted for 24% of total household member additions. The third most common reason for household member addition across both treatment and control groups was to move in with a parent or relative, which occurred in 239 circumstances, accounting for 17% of total household additions. It was more prevalent in treatment households where it occurred in 146 instances (20%). In control households, it occurred in 93 instances or 14%.

Table 70. Reasons given for the addition of household members reported at midline

Reasons Given for Added HH Member	Treatment		Control		Total	
	Number of People Added	Share of People Added (%)	Number of People Added	Share of People Added (%)	Number of People Added	Share of People Added (%)
Newborn	165	25%	168	23%	333	24%
Adopted child	11	2%	16	2%	27	2%
Marriage/Cohabitation	42	6%	43	6%	85	6%
Divorce/Separation	23	4%	30	4%	53	4%
Return from college/university	1	0%	0	0%	1	0%
Returned from institution	15	2%	17	2%	32	2%
Moved in with parent or relative	93	14%	146	20%	239	17%
Shared accommodation	1	0%	4	1%	5	0%
Return from work migration	64	10%	99	13%	163	12%
Mistakenly not reported or forgotten last visit	195	30%	174	23%	369	26%
Fled problem areas/Internally displaced persons/Crisis	29	4%	22	3%	51	4%
Other	16	2%	25	3%	41	3%

ANNEX C: MIDLINE AS A REPRESENTATIVE SAMPLE

The households surveyed at midline were a randomly selected sub-sample of those surveyed at baseline. Of the households originally interviewed at baseline, 1,257 of those households were surveyed again at midline. Treatment clusters were matched with control clusters, and 45 out of the 100 pairs were chosen randomly. Within these ninety clusters, up to two fokontany (local administrative units) per cluster were selected at random, with fourteen households per fokontany also randomly chosen for the survey. For further details on the sampling strategy, see Section 2.1.2.

To provide further evidence that the midline sample of selected households is a representative sample of households surveyed at baseline, this annex presents the findings of balance tests comparing the sample of the households selected at midline and the sample of households not selected. The comparisons will focus on Modules B, C, and F. The samples were compared using 52 variables.

Of the 52 variables, no variables were statistically significant. The balance tests' findings—that of the 52 tests conducted—no test resulted in statistically significant differences, which corroborates that the two samples are similar.

Module B Variables

Balance tests were conducted for 21 variables in Module B, and no test resulted in statistically significant results. For the variable household size, the difference between samples was -0.002, indicating that the midline sample had an average household size 0.002 smaller than the sample not selected, a very minor and statistically insignificant difference. Similarly, small differences were seen in the other conducted balance tests. Findings indicated that the midline sample had -0.916% fewer children younger than 5 years old in the household and -0.036% fewer WRA. The largest difference was seen for the variable percentage of male household heads with some schooling, which yielded a difference of -2.45, meaning that the households selected at midline had fewer male household heads with some schooling by 2.45 percentage points than the sample selected. This difference was not found to be statistically significant. A complete table comparing all Module B variables can be found in Table 59.

Table 71. Select balance test results for Module B variables

Outcome	N	Not ML	N	ML	Difference	CI 95%- Lower	CI 95%- Upper
Household size	3,424	5.462	1,171	5.301	-0.002	-0.2304	0.2262
		(2.53)		(2.50)	(0.12)		
Percent of children younger than 5 years old in the household	3,424	25.359	1,171	24.88	-0.916	-2.1176	0.2858
		(18.70)		(18.61)	(0.61)		
Percent of male household heads with some schooling	2,124	29.143	714	28.151	-2.458	-7.984	3.0684
		(45.45)		(45.01)	(2.78)		
Percent of WRA in the household	3,424	33.876	1171	33.853	0.036	-1.921	1.9936
		(22.29)		(22.20)	(0.99)		

Notes: Standard deviations are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. Standard errors are clustered at the kebele level.

Module C Variables

Balance tests were also conducted for 17 variables in Module C. For the variable food consumption score, the difference between samples was 0.383, meaning that the midline sample's food consumption score was on average -0.383 more. Minor, statistically insignificant differences were also seen with the variables, "percentage of households that answered yes to all eight questions" (-0.968), "percentage of households that answered no to all eight questions" (0.110), and with the "percentage of households that experienced approx. severe food insecurity" (0.110). The largest difference seen was in the test result for the variable "no food a whole day," where—the sample selected went without eating for a whole day—1.098 percentage points less than the households not selected. No variables were found to have a statistically significant difference; the results suggest that samples were balanced on these variables. A complete table comparing all Module C variables can be found in Table 60.

Table 72. Select balance test for Module C variables

Outcome	N	Not ML	N	ML	Difference	CI 95% - Lower	CI 95% - Upper
Food Consumption Score (0–100)	3,316	25.601	1,133	24.827	0.383	-0.9556	1.7206
		(12.44)		(12.90)	(0.67)		
Percent of households that answered yes to all eight questions	3,402	70.106	1,162	70.31	-0.968	-4.8759	2.9402
		(45.79)		(45.71)	(1.97)		
Percent of households that answered no to all eight questions	3,402	0.206	1,162	0.344	0.110	-0.4639	0.6833
		(4.53)		(5.86)	(0.29)		
Percent of households that experienced approx. severe food insecurity	3,402	81.746	1,162	80.034	-0.402	-3.0315	2.2265
No food whole day: Went without eating for a whole day because of a lack of money	3,402	76.19	1,162	75.645	-1.098	-4.6666	2.4708
		(42.60)		(42.94)	(1.80)		

Notes: Standard deviations are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. Standard errors are clustered at the kebele level.

Module F Variables

Balance tests were conducted for 14 variables in Module F. No balance test yielded statistically significant differences between samples. The balance test for Indicator 16 yielded a difference of 0.557, signifying that the sample selected had around half a percentage point higher access to basic drinking water services, including water use. Negligible differences were also found between samples for "percentage with a water source within 30 minutes" (-0.559), "percentage with handwashing available" (-0.45), and "percentage with water available year-round" (-0.309). The largest difference found in the tests was for Baseline Indicator 18, "percent treating water," which found a 1.628 difference. The sample selected treated their water 1.628 percentage points less than the sample not selected for the midline. This difference was not statistically significant, indicating that the samples were balanced. A complete table comparing all Module F variables can be found in Table 61.

Table 73. Select balance test for Module F variables

Outcome	N	Not ML	N	ML	Difference	CI 95% - Lower	CI 95% - Upper
Percent with water available year-round	3,420	66.93	1,170	62.735	-0.309	-4.7025	4.0843
		(47.05)		(48.37)	(2.21)		
Percent with a water source within 30 minutes	3,417	30.524	1,170	24.701	-0.559	-4.8683	3.7512
		(46.06)		(43.15)	(2.17)		
BL 16. Percent with access to basic drinking water services including water use	1,563	0.704	539	0.557	-0.042	-0.8497	0.7658
		(8.36)		(7.45)	(0.41)		
BL 17. Handwashing available	3,052	4.227	1,025	3.415	-0.405	-2.2045	1.3946
		(20.12)		(18.17)	(0.91)		
BL 18. Percent treating water	3,420	44.532	1,170	44.359	-1.628	-7.5593	4.3035
		(49.71)		(49.70)	(2.99)		

Notes: Standard deviations are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. Standard errors are clustered at the kebele level.

Complete tables comparing all Module B, C, and F variables can be found below.

Table 74. Balance test results for all Module B variables

Outcome	N	Not ML	N	ML	Difference	CI 95% - Lower	CI 95% - Upper
Household size	3,424	5.462	1,171	5.301	-0.002	-0.2304	0.2262
		(2.53)		(2.50)	(0.12)		
Percent of children younger than 5 years old in the household	3,424	25.359	1,171	24.88	-0.916	-2.1176	0.2858
		(18.70)		(18.61)	(0.61)		
Average age of household head	3,421	42.08	1,167	42.638	1.280	-0.2767	2.8375
		(16.95)		(17.53)	(0.78)		
Percent of household heads who are married	3,421	57.629	1,167	55.955	-0.081	-5.257	5.0956
		(49.41)		(49.67)	(2.61)		
Percent of household head with some schooling	3,418	31.202	1,165	31.502	-0.917	-4.5087	2.6744
		(46.33)		(46.47)	(1.81)		
Percent of household heads that are female	3,421	37.884	1,167	38.689	-0.131	-5.3287	5.0664
		(48.49)		(48.70)	(2.62)		
Average age of female household head	1,298	42.634	452	41.518	0.572	-2.3902	3.5347
		(18.40)		(17.65)	(1.49)		
Percent of female household heads with some schooling	1,297	34.695	452	36.726	2.156	-5.8727	10.1855
		(47.62)		(48.26)	(4.05)		

Outcome	N	Not ML	N	ML	Difference	CI 95% - Lower	CI 95% - Upper
Percent of household heads that are male	3,421	62.116	1,167	61.311	0.131	-5.0664	5.3287
		(48.49)		(48.70)	(2.62)		
Average of male household head	2,127	41.713	716	43.378	1.645	-0.3641	3.6547
		(16.00)		(17.44)	(1.01)		
Percent of male household heads with some schooling	2,124	29.143	714	28.151	-2.458	-7.984	3.0684
		(45.45)		(45.01)	(2.78)		
Percent of children 5–14 years old in the household	3,424	30.488	1,171	30.235	-0.137	-2.0446	1.7698
		(21.78)		(22.29)	(0.96)		
Percent of young people (15–29 years old) in the household	3,424	22.745	1,171	22.794	-0.705	-2.3538	0.9441
		(21.17)		(22.13)	(0.83)		
Percent of adults (more than 30 years) in the household	3,424	19.731	1,171	20.091	1.054	-0.4907	2.598
		(19.42)		(19.83)	(0.78)		
Percent of female in the household	3,424	53.516	1,171	53.988	0.117	-1.8109	2.0449
		(21.09)		(21.18)	(0.97)		
Percent of WRA in the household	3,424	33.876	1,171	33.853	0.036	-1.921	1.9936
		(22.29)		(22.20)	(0.99)		
Percent of people older than 15 in the household that are farmers	3,424	56.493	1,171	58.411	0.095	-2.4143	2.605
		(30.56)		(30.39)	(1.26)		
Percent of people older than 5 years in the household with at least some schooling	3,424	49.882	1,171	51.503	1.432	-1.2325	4.097
		(35.09)		(34.99)	(1.34)		
Percent of adults (older than 15 years) in the household with at least some schooling	3,424	38.689	1,171	38.898	0.089	-2.8107	2.9886
		(39.70)		(39.92)	(1.46)		
Percent of people older than 10 years in the household who did any work in the last 12 months	3,424	51.64	1,171	54.341	-0.480	-3.4425	2.4829
		(33.66)		(33.85)	(1.49)		
Percent of people older than 10 years who did any work in the household and were paid cash	3,424	57.125	1,171	59.758	-0.353	-3.4881	2.782
		(36.51)		(37.04)	(1.58)		

Notes: Standard deviations are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. Standard errors are clustered at the kebele level.

Table 75. Balance test results for all Module C variables

Outcome	N	Not ML	N	ML	Difference	CI 95% - Lower	CI 95% - Upper
Food Consumption Score (0–100)	3,316	25.601	1,133	24.827	0.383	-0.9556	1.7206
		(12.44)		(12.90)	(0.67)		
Percent with poor consumption score (<22)	3,424	44.042	1,171	47.054	-1.151	-5.6188	3.3175
		(49.65)		(49.93)	(2.25)		
Percent with borderline consumption score (22–35)	3,424	32.856	1,171	31.085	1.748	-2.7949	6.2903
		(46.98)		(46.30)	(2.29)		
Percent with acceptable consumption score (>35)	3,424	23.102	1,171	21.862	-0.597	-4.6916	3.4974
		(42.15)		(41.35)	(2.06)		
Raw FIES score (scale 0 to 8)	3,402	7.312	1,162	7.257	-0.037	-0.1474	0.0741
		(1.28)		(1.38)	(0.06)		
Percent of households that answered yes to all eight questions	3,402	70.106	1,162	70.31	-0.968	-4.8759	2.9402
		(45.79)		(45.71)	(1.97)		
Percent of households that answered no to all eight questions	3,402	0.206	1,162	0.344	0.110	-0.4639	0.6833
		(4.53)		(5.86)	(0.29)		
Percent of households that experienced approx. severe food insecurity	3,402	81.746	1,162	80.034	-0.402	-3.0315	2.2265
		(38.63)		(39.99)	(1.32)		
Percent of households that experienced approx. moderate-or-severe food insecurity	3,402	98.236	1,162	97.504	-0.307	-1.5753	0.961
		(13.16)		(15.61)	(0.64)		
Worried: Were you worried you would not have enough food to eat because of a lack of money or other resources	3,402	99.383	1,162	99.484	0.152	-0.6904	0.9943
		(7.83)		(7.17)	(0.42)		
Healthy: Were unable to eat healthy and nutritious food because of a lack of money or other resources	3,402	99.471	1,162	99.398	-0.162	-0.9769	0.6526
		(7.26)		(7.74)	(0.41)		
Ate few: Ate only a few kinds of foods because of a lack of money or other resources	3,402	99.53	1,162	99.398	-0.146	-0.9465	0.6542
		(6.84)		(7.74)	(0.40)		
Skipped meals: Had to skip a meal because there was not enough money or other resources	3,402	93.827	1,162	93.89	0.149	-1.8387	2.1359
		(24.07)		(23.96)	(1.00)		
Ate less: Ate less than you thought you should because of a lack of money or other resources	3,402	98.178	1,162	97.246	-0.111	-1.4525	1.2306
		(13.38)		(16.37)	(0.68)		

Outcome	N	Not ML	N	ML	Difference	CI 95% - Lower	CI 95% - Upper
Runout: Did not have food because of a lack of money or other resources	3,402	82.305	1,162	81.497	-1.192	-4.3414	1.9578
		(38.17)		(38.85)	(1.59)		
Hungry: Were hungry but did not eat because there was not enough money or other resources	3,402	82.334	1,162	79.174	-1.260	-4.4513	1.9321
		(38.14)		(40.62)	(1.61)		
No food whole day: Went without eating for a whole day because of a lack of money or other resources	3,402	76.19	1,162	75.645	-1.098	-4.6666	2.4708
		(42.60)		(42.94)	(1.80)		

Notes: Standard deviations are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. Standard errors are clustered at the kebele level.

Table 76. Balance tables for all Module F variables

Outcome	N	Not ML	N	ML	Difference	CI 95% - Lower	CI 95% - Upper
Percent with water available year-round	3,420	66.93	1,170	62.735	-0.309	-4.7025	4.0843
		(47.05)		(48.37)	(2.21)		
Percent with improved water source	3,417	38.777	1,170	31.026	0.358	-3.8134	4.5297
		(48.73)		(46.28)	(2.10)		
Percent with a water source within 30 minutes	3,417	30.524	1,170	24.701	-0.559	-4.8683	3.7512
		(46.06)		(43.15)	(2.17)		
Water use per capita (liters)	1,563	7.895	539	7.377	-0.110	-1.1218	0.9012
		(6.63)		(7.42)	(0.51)		
BL 16. Percent with access to basic drinking water services including water use	1,563	0.704	539	0.557	-0.042	-0.8497	0.7658
		(8.36)		(7.45)	(0.41)		
BL 17. Handwashing available	3,052	4.227	1,025	3.415	-0.405	-2.2045	1.3946
		(20.12)		(18.17)	(0.91)		
BL 18. Percent treating water	3,420	44.532	1,170	44.359	-1.628	-7.5593	4.3035
		(49.71)		(49.70)	(2.99)		
Percent with treated water by adding bleach or chlorine before drinking	3,420	4.825	1,170	5.385	-0.299	-2.5607	1.9626
		(21.43)		(22.58)	(1.14)		
Percent with treated water by flocculation before drinking	3,420	28.012	1,170	28.376	-1.509	-6.5144	3.4962
		(44.91)		(45.10)	(2.52)		
Percent with treated water by filtration before drinking	3,420	3.655	1,170	3.162	-1.417	-3.3141	0.4792
		(18.77)		(17.51)	(0.96)		

Outcome	N	Not ML	N	ML	Difference	CI 95% - Lower	CI 95% - Upper
Percent with treated water by solar disinfection before drinking	3,420	14.474	1,170	13.248	0.820	-3.0458	4.6851
		(35.19)		(33.92)	(1.95)		
Percent with treated water by boiling before drinking	3,420	0.38	1,170	0.427	0.310	-0.3337	0.9537
		(6.15)		(6.53)	(0.32)		
BL 19. Percent practicing open defecation	3,420	55.439	1,170	55.897	1.612	-2.3989	5.6235
		(49.71)		(49.67)	(2.02)		
BL 27. Percent using improved sanitation facilities	3,420	5.292	1,170	4.872	-0.631	-1.9204	0.6582
		(22.39)		(21.54)	(0.65)		

Notes: Standard deviations are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct. Standard errors are clustered at the kebele level.

ANNEX D: MATCHING BASELINE AND MIDLINE DATA

The sampling frame to select midline households was constructed using the list of households initially surveyed at baseline. To be able to carry out different exercises it was necessary to match midline households and individuals with the corresponding baseline data. Since households at baseline have unique IDs, it was possible to match midline households with their baseline data with 100% accuracy. Matching specific household members at midline with their baseline data proved to be challenging for several reasons: lack of unique IDs for specific members, discrepancies in the way names were reported at baseline and midline, recall errors in the age and mistakes entering the gender of some participants that were not present. This annex presents the methodology used to match midline with baseline individual-level data.

The first step of a matching methodology is to clearly define the datasets that will be matched. In the case of this report, the objective was to match individual-level data at midline, with the corresponding data at baseline. During the last 2 years since the baseline survey was done some household members left the households, while new members joined (see Annex B for more details). This meant that only a subset of the baseline and midline individuals should be matched. More precisely, only baseline individuals reported not to be missing at midline and midline individuals reported not to be new members of as household were used. Out of 7,460 people interviewed at baseline in 1,258 households interviewed at midline, 6,272 individuals were not reported missing. In the case of midline individuals, out of 7,680 people interviewed at midline, 6,295 people were not reported to be new members (Table 62). The objective of the matching methodology was then to match 6,272 people at baseline with 6,295 people at midline.

Table 77. Baseline and midline people in the 1,258 households interviewed at midline

	Baseline	Midline
Total number of people	7,460	7680
People reported to be missing	1,188	-
People reported to be new members	-	1,387
People reported to be present at baseline and midline	6,272	6,295

Because a unique ID identifies households in midline and baseline, matching people takes place within a household. For example, for a household identified with the ID 11298, the objective was to match the seven non-missing members at the baseline with the seven non-new members at the midline. Given that this had to be done for the 1,258 midline households, a combination of machine and manual matching was used. Four individual-level variables were used to match baseline and midline individuals: (i) name,²⁰ (ii) age, (iii) gender, and (iv) position in the family.²¹ Households were matched in a sequential way following the criteria presented in Table 63. For example, all the baseline and midline people who could not be matched in Rounds 1–5 were included in Round 6.

²⁰ A Jaro-Winkler distance measure was used to determine if two names are similar. This measure ranges from 0 to 1. It takes a value of 0 if the match is perfect and higher values as the match is more imperfect.

²¹ E.g., Household head, spouse, child.

Table 78. Criteria to match baseline and midline people within a given household.

Round	Criteria
1	Perfect match: name is exactly the same, person at midline is 1–3 years older than at baseline, same gender and same family position.
2	Perfect name match, same gender and same family position.
3	Perfect name match, same gender and age difference between baseline and midline is 6 years or less.
4	Jaro-Winkler name distance is less than 0.1, person at midline is 1–3 years older than at baseline, same gender and same family position.
5	Jaro-Winkler name distance is less than 0.1, age difference between baseline and midline is 6 years or less, same gender and same family position.
6	Jaro-Winkler name distance is less than 0.1, age difference between baseline and midline is 12 years or less, same gender and same family position.
7	Jaro-Winkler name distance is less than 0.1, age difference between baseline and midline is 12 years or less.
8	Jaro-Winkler name distance is less than 0.2 and there is only one potential match.
9–14	The different criteria are further relaxed (e.g., Jaro-Winkler name distance is less than 0.16 and same gender and age difference between baseline and midline is 6 years or less).
15	Manual match, age difference between baseline and midline is 6 years or less.
16	Manual match, age difference between baseline and midline is more than 6 years and the name match is not very certain.

Rounds 1–15 use a machine, not manual, matching, while Rounds 15–16 use a manual matching. Around 39% (2,451) of midline people were perfectly matched to the corresponding midline person. Out of 629 midline people who couldn't be matched in rounds 1–15, it was possible to manually match 545 of them. This means that out of 6,295 people in 1,258 households surveyed at midline that were not new members, 84 people in 62 households couldn't be matched.

ANNEX E: ADDITIONAL SUMMARY TABLES

Module B

Table 79. Disaggregated tables for Module B

Outcome	N	Control	N	Treatment	N	All	Difference
Household level characteristics							
Average household size	6,430	6.087	615	6.124	1,258	6.105	0.036
		(2.57)		(2.64)		(2.60)	(0.16)
Average number of children under the age of 5 in the household	643	0.944	615	0.961	1,258	0.952	0.017
		(0.86)		(0.89)		(0.88)	(0.06)
Percent of children under 5 in the household	643	15.264	615	15.506	1,258	15.382	0.242
		(13.97)		(13.98)		(13.97)	(1.11)
Average age of household head	643	47.146	615	48.569	1,258	47.842	1.423
		(14.04)		(14.78)		(14.42)	(1.13)
Percent of household heads in a union	643	74.184	615	68.78	1,258	71.542	-5.403*
		(43.80)		(46.38)		(45.14)	(2.93)
Percent of household heads with some schooling	643	68.974	614	69.381	1,257	69.173	0.408
		(46.25)		(46.13)		(46.17)	(2.93)
Percent of female household heads	643	22.784	615	28.293	1,258	25.477	5.509**
		(41.93)		(45.08)		(43.57)	(2.72)
Average age of female household heads	147	49.007	174	51.236	321	50.215	2.229
		(14.85)		(14.84)		(14.86)	(1.74)
Percent of female household heads with some schooling	147	59.184	174	55.747	321	57.321	-3.437
		(49.32)		(49.81)		(49.54)	(5.35)
Percent of household heads that are male	643	77.216	615	71.707	1,258	74.523	-5.509**
		(41.93)		(45.08)		(43.57)	(2.72)
Average of male household heads	497	46.624	441	47.517	938	47.044	0.893
		(13.76)		(14.64)		(14.18)	(1.23)
Percent of male household heads with some schooling	497	71.831	440	74.773	937	73.212	2.942
		(45.03)		(43.48)		(44.31)	(3.14)
	643	30.616	615	30.337	1,258	30.48	-0.278

Outcome	N	Control	N	Treatment	N	All	Difference
Percent of children (ages 5–14) in the household		(18.65)		(18.15)		(18.40)	(1.10)
Percent of young people (ages 15–29) in the household	643	24.845	615	24.471	1,258	24.662	-0.374
		(18.28)		(18.49)		(18.38)	(1.18)
Percent of adults (ages 30+ years) in the household	643	27.685	615	28.156	1,258	27.915	0.471
		(18.40)		(17.40)		(17.91)	(1.24)
Percent of female in the household	643	51.631	615	52.333	1,258	51.974	0.702
		(20.50)		(20.19)		(20.35)	(1.24)
Percent of WRA in the household	643	20.727	615	20.844	1,258	20.784	0.117
		(13.63)		(13.20)		(13.41)	(0.71)
Percent of adolescent female women in the household	643	11.765	615	11.694	1,258	11.731	-0.071
		(12.78)		(12.64)		(12.70)	(0.60)
Percent of people (ages 15+) in the household that are farmers	643	52.386	615	50.897	1,258	51.658	-1.489
		(29.57)		(29.88)		(29.72)	(2.23)
Percent of people (ages 5+ years) in the household with at least some schooling	643	69.509	615	70.322	1,258	69.907	0.813
		(31.09)		(29.71)		(30.42)	(2.66)
Percent of adults (ages 15+ years) in the household with at least some schooling	643	67.691	615	67.26	1,258	67.48	-0.431
		(34.65)		(34.40)		(34.52)	(2.91)
Percent of people (ages 10+) in the household who did any work in the last 12 months	643	62.589	615	62.718	1,258	62.652	0.129
		(30.26)		(29.13)		(29.70)	(1.99)
Percent of people (ages 10+) who did any work in the household	642	62.297	615	62.6	1,257	62.445	0.303
		(30.43)		(29.19)		(29.82)	(2.00)
Percent of households with at least one child younger than 5 years	643	65.163	615	66.504	1,258	65.819	1.341
		(47.68)		(47.24)		(47.45)	(3.24)
Percent of households with at least one child (ages 5–14)	643	83.981	615	85.203	1,258	84.579	1.222
		(36.71)		(35.54)		(36.13)	(2.06)
Percent of households with at least one girl or woman of reproductive age	643	85.226	615	86.179	1,258	85.692	0.953
		(35.51)		(34.54)		(35.03)	(1.85)
	643	56.143	615	54.959	1,258	55.564	-1.184

Outcome	N	Control	N	Treatment	N	All	Difference
Percent of households with at least one adolescent female woman		(49.66)		(49.79)		(49.71)	(2.70)
Percent of households with at least one farmer	643	95.645	615	94.309	1,258	94.992	-1.336
		(20.42)		(23.19)		(21.82)	(1.56)
Percent households with adult male and female	643	84.448	615	84.39	1,258	84.42	-0.058
		(36.27)		(36.32)		(36.28)	(2.49)
Percent households with adult female only	643	2.177	615	1.626	1,258	1.908	-0.551
		(14.61)		(12.66)		(13.69)	(0.75)
Percent households with adult male only	643	13.375	615	13.984	1,258	13.672	0.609
		(34.06)		(34.71)		(34.37)	(2.33)
Individual level characteristics							
Average age	3,914	21.601	3,766	22.065	7,680	21.828	0.463
		(19.12)		(19.78)		(19.45)	(0.53)
Percent of children (under age 5)	3,914	15.508	3,766	15.693	7,680	15.599	0.185
		(36.20)		(36.38)		(36.29)	(0.97)
Percent of children (ages 5–14)	3,914	32.524	3,766	32.183	7,680	32.357	-0.342
		(46.85)		(46.72)		(46.79)	(1.07)
Percent of adults (ages 30+ years)	3,914	25.6	3,766	25.969	7,680	25.781	0.369
		(43.65)		(43.85)		(43.75)	(1.01)
Percent of females	3,914	50.077	3,766	50.717	7,680	50.391	0.640
		(50.01)		(50.00)		(50.00)	(1.08)
Percent of women of reproductive age (WRA)	3,914	20.439	3,766	20.42	7,680	20.43	-0.020
		(40.33)		(40.32)		(40.32)	(0.62)
Percent of adolescent females as per ADRA's definition (AF)	3,914	11.599	3,766	11.551	7,680	11.576	-0.049
		(32.03)		(31.97)		(32.00)	(0.63)
Percent of adults in a union	2,034	50.787	1,963	47.071	3,997	48.962	-3.716*
		(50.01)		(49.93)		(50.00)	(2.20)
Percent of women (ages 15+) who are in a union	1,041	49.76	1,036	44.788	2,077	47.28	-4.972*
		(50.02)		(49.75)		(49.94)	(2.59)
Percent of men (ages 15+) who are in a union	993	51.863	927	49.622	1,920	50.781	-2.241
		(49.99)		(50.03)		(50.01)	(2.33)

Outcome	N	Control	N	Treatment	N	All	Difference
Percent of people (ages 15+) with at least some schooling	2,026	67.67	1,961	68.027	3,987	67.845	0.356
		(46.79)		(46.65)		(46.71)	(2.62)
Percent of population (ages 5+) with at least some schooling	3,299	68.9	3,172	69.325	6,471	69.108	0.426
		(46.30)		(46.12)		(46.21)	(2.42)
Percent of children (ages 8–20) that attended school in 2022	1,454	75.241	1,362	75.551	2,816	75.391	0.310
		(43.18)		(42.99)		(43.08)	(2.87)
Percent of people (ages 15+) who are farmers	2,034	45.034	1,963	44.218	3,997	44.633	-0.816
		(49.77)		(49.68)		(49.72)	(1.91)
Percent of people (ages 10+) who did any work in the last 12 months	2,502	56.635	2,420	56.322	4,922	56.481	-0.312
		(49.57)		(49.61)		(49.58)	(1.91)
Percent of people (ages 10+) who did any work and were paid in cash in the last 12 months	2,488	56.391	2,409	56.123	4,897	56.259	-0.268
		(49.60)		(49.63)		(49.61)	(1.93)
Percent of people participating in USG IGA activities	2,028	2.12	1,959	21.082	3,987	11.437	18.962***
		(14.41)		(40.80)		(31.83)	(1.71)
Percent of youth and women participating in USG IGA activities	1,548	1.744	1,514	18.56	3,062	10.059	16.816***
		(13.10)		(38.89)		(30.08)	(1.62)
Percent of youth (ages 15–29) participating in USG IGA activities	973	0.34	928	9.43			
		(0.20)		(1.05)			
Percent of girls and women participating in USG IGA activities	1,038	2.45	1,033	19.88			
		(0.58)		(1.51)			
Percent of girls and women participating in IGA with USG Assistance (ages 15–19)	227	0.10	199	4.18			
		(0.10)		(1.47)			
Percent of women participating in IGA with USG Assistance (ages 20–29)	236	1.45	248	18.81			
		(0.93)		(2.80)			
Percent of women participating in IGA with USG Assistance (ages 30–49)	335	5.48	319	31.52			
		(1.57)		(3.37)			
Percent of women participating in IGA with USG Assistance (ages 50+)	240	1.60	267	20.85			
		(0.82)		(3.08)			

Notes: Standard deviations are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct.

Module C

Table 80. Disaggregated tables for Module C

Outcome	N	Control	N	Treatment	N	All	Difference
F&M BL 10 Food Consumption Score (0–112)	530	35.714	505	35.883	1,035	35.797	0.169
		(12.12)		(11.78)		(11.95)	(0.92)
FNM BL 10 Food Consumption Score (0–112)	85	32.024	84	33.839	169	32.926	1.816
		(10.29)		(10.59)		(10.45)	(1.80)
MNF BL 10 Food Consumption Score (0–112)	13	30.538	9	37.889	22	33.545	7.350
		(10.41)		(16.44)		(13.36)	(6.78)
F&M BL 10 Percent of households with poor consumption score (<22)	530	5.094	505	4.95	1,035	5.024	-0.144
		(22.01)		(21.71)		(21.85)	(1.52)
FNM BL 10 Percent of households with poor consumption score (<22)	85	9.412	84	10.714	169	10.059	1.303
		(29.37)		(31.12)		(30.17)	(4.64)
MNF BL 10 Percent of households with poor consumption score (<22)	13	15.385	9	11.111	22	13.636	-4.274
		(37.55)		(33.33)		(35.13)	(15.30)
F&M BL 10 Percent of households with borderline consumption score (22–35)	530	51.887	505	50.891	1,035	51.401	-0.996
		(50.01)		(50.04)		(50.00)	(3.23)
FNM BL 10 Percent of households with borderline consumption score (22–35)	85	67.059	84	51.19	169	59.172	-15.868*
		(47.28)		(50.29)		(49.30)	(9.30)
MNF BL 10 Percent of households with borderline consumption score (22–35)	13	53.846	9	55.556	22	54.545	1.709
		(51.89)		(52.70)		(50.96)	(20.42)
F&M BL 10 Percent of households with acceptable consumption score (>35)	530	43.019	505	44.158	1,035	43.575	1.140
		(49.56)		(49.71)		(49.61)	(3.67)
FNM BL 10 Percent of households with acceptable consumption score (>35)	85	23.529	84	38.095	169	30.769	14.566*
		(42.67)		(48.85)		(46.29)	(8.36)
MNF BL 10 Percent of households with acceptable consumption score (>35)	13	30.769	9	33.333	22	31.818	2.564
		(48.04)		(50.00)		(47.67)	(22.38)
F&M Raw FIES score (scale 0 to 8)	539	5.408	511	5.669	1,050	5.535	0.261*
		(1.82)		(1.72)		(1.77)	(0.14)
FNM Raw FIES score (scale 0 to 8)	86	5.767	86	5.965	172	5.866	0.198
		(1.62)		(1.82)		(1.72)	(0.22)
MNF Raw FIES score (scale 0 to 8)	13	6.538	10	6.3	23	6.435	-0.238

Outcome	N	Control	N	Treatment	N	All	Difference
		(1.71)		(1.95)		(1.78)	(0.81)
F&M Percent of households that answered yes to all eight questions	539	18.924	511	20.744	1,050	19.81	1.820
		(39.21)		(40.59)		(39.88)	(2.80)
FNM Percent of households that answered yes to all eight questions	86	25.581	86	31.395	172	28.488	5.814
		(43.89)		(46.68)		(45.27)	(6.13)
MNF Percent of households that answered yes to all eight questions	13	46.154	10	30	23	39.13	-16.154
		(51.89)		(48.30)		(49.90)	(22.40)
F&M Percent of households that answered no to all eight questions	539	1.113	511	0.978	1,050	1.048	-0.135
		(10.50)		(9.85)		(10.19)	(0.69)
FNM Percent of households that answered no to all eight questions	86	0	86	1.163	172	0.581	1.163
		(0.00)		(10.78)		(7.62)	(1.15)
MNF Percent of households that answered no to all eight questions	13	0	10	0	23	0	0.000
		(0.00)		(0.00)		(0.00)	(.)
F&M Percent of households that experienced approx. severe food insecurity	539	29.314	511	33.855	1,050	31.524	4.542
		(45.56)		(47.37)		(46.48)	(3.32)
FNM Percent of households that experienced approx. severe food insecurity	86	34.884	86	43.023	172	38.953	8.140
		(47.94)		(49.80)		(48.91)	(7.18)
MNF Percent of households that experienced approx. severe food insecurity	13	53.846	10	70	23	60.87	16.154
		(51.89)		(48.30)		(49.90)	(22.78)
F&M Percent of households that experienced approx. moderate-or-severe food insecurity	539	90.353	511	92.368	1,050	91.333	2.015
		(29.55)		(26.58)		(28.15)	(2.43)
FNM Percent of households that experienced approx. moderate-or-severe food insecurity	86	94.186	86	94.186	172	94.186	0.000
		(23.54)		(23.54)		(23.47)	(3.24)
MNF Percent of households that experienced approx. moderate-or-severe food insecurity	13	92.308	10	80	23	86.957	-12.308
		(27.74)		(42.16)		(34.44)	(15.65)
F&M Staples	530	6.96	505	6.937	1,035	6.949	-0.024
		(0.38)		(0.48)		(0.43)	(0.03)
FNM Staples	85	7	84	6.917	169	6.959	-0.083
		(0.00)		(0.47)		(0.33)	(0.05)
MNF Staples	13	7	9	6.889	22	6.955	-0.111

Outcome	N	Control	N	Treatment	N	All	Difference
		(0.00)		(0.33)		(0.21)	(0.11)
F&M Pulses	530	0.475	505	0.489	1,035	0.482	0.014
		(1.06)		(1.14)		(1.10)	(0.08)
FNM Pulses	85	0.318	84	0.321	169	0.32	0.004
		(0.73)		(0.70)		(0.71)	(0.10)
MNF Pulses	13	0.077	9	0.667	22	0.318	0.590**
		(0.28)		(0.71)		(0.57)	(0.25)
F&M Vegetables	530	5.898	505	5.885	1,035	5.892	-0.013
		(1.80)		(1.81)		(1.80)	(0.15)
FNM Vegetables	85	5.682	84	5.512	169	5.598	-0.170
		(1.90)		(2.09)		(1.99)	(0.32)
MNF Vegetables	13	6.077	9	7	22	6.455	0.923
		(2.06)		(0.00)		(1.63)	(0.60)
F&M Fruit	530	3.689	505	4.121	1,035	3.9	0.432
		(3.15)		(3.09)		(3.13)	(0.26)
FNM Fruit	85	3	84	4.274	169	3.633	1.274**
		(3.08)		(2.98)		(3.09)	(0.53)
MNF Fruit	13	3.538	9	4.444	22	3.909	0.906
		(3.50)		(3.17)		(3.32)	(1.44)
F&M Meat and fish	530	1.628	505	1.523	1,035	1.577	-0.106
		(2.06)		(1.94)		(2.00)	(0.14)
FNM Meat and fish	85	1.306	84	1.393	169	1.349	0.087
		(1.92)		(1.96)		(1.93)	(0.25)
MNF Meat and fish	13	0.846	9	1.667	22	1.182	0.821
		(1.91)		(3.04)		(2.40)	(1.13)
F&M Milk and Dairy	530	0.117	505	0.154	1,035	0.135	0.037
		(0.82)		(0.93)		(0.88)	(0.05)
FNM Milk and Dairy	85	0.012	84	0.048	169	0.03	0.036
		(0.11)		(0.34)		(0.25)	(0.05)
MNF Milk and Dairy	13	0	9	0	22	0	0.000

Outcome	N	Control	N	Treatment	N	All	Difference
		(0.00)		(0.00)		(0.00)	(.)
F&M Sugar	530	4.085	505	3.802	1,035	3.947	-0.283
		(3.32)		(3.35)		(3.33)	(0.23)
FNM Sugar	85	3.318	84	2.929	169	3.124	-0.389
		(3.41)		(3.32)		(3.36)	(0.64)
MNF Sugar	13	4.846	9	3.889	22	4.455	-0.957
		(3.36)		(3.69)		(3.45)	(1.51)
F&M Oil	530	3.513	505	3.853	1,035	3.679	0.340
		(3.14)		(3.04)		(3.09)	(0.30)
FNM Oil	85	2.918	84	4.06	169	3.485	1.142**
		(3.02)		(3.09)		(3.10)	(0.54)
MNF Oil	13	1.769	9	4.111	22	2.727	2.342
		(3.03)		(3.14)		(3.22)	(1.42)
F&M Condiments	530	4.434	505	3.994	1,035	4.219	-0.440*
		(3.23)		(3.33)		(3.29)	(0.23)
FNM Condiments	85	3.776	84	3.286	169	3.533	-0.491
		(3.35)		(3.32)		(3.34)	(0.57)
MNF Condiments	13	4.308	9	3.889	22	4.136	-0.419
		(3.54)		(3.69)		(3.52)	(1.51)
F&M Worried: Percent of households that were worried they would not have enough food to eat because of a lack of money or other resources?	539	92.95	511	94.716	1,050	93.81	1.766
		(25.62)		(22.39)		(24.11)	(2.07)
FNM Worried: Percent of households that were worried they would not have enough food to eat because of a lack of money or other resources?	86	100	86	95.349	172	97.674	-4.651*
		(0.00)		(21.18)		(15.12)	(2.70)
MNF Worried: Percent of households that were worried they would not have enough food to eat because of a lack of money or other resources?	13	92.308	10	90	23	91.304	-2.308
		(27.74)		(31.62)		(28.81)	(12.57)
	539	93.692	511	92.368	1,050	93.048	-1.324

Outcome	N	Control	N	Treatment	N	All	Difference
F&M Healthy: Percent of households that were unable to eat healthy and nutritious food because of a lack of money or other resources?		(24.33)		(26.58)		(25.45)	(1.76)
FNM Healthy: Percent of households that were unable to eat healthy and nutritious food because of a lack of money or other resources?	86	97.674	86	95.349	172	96.512	-2.326
		(15.16)		(21.18)		(18.40)	(2.73)
MNF Healthy: Percent of households that were unable to eat healthy and nutritious food because of a lack of money or other resources?	13	100	10	90	23	95.652	-10.000
		(0.00)		(31.62)		(20.85)	(9.99)
F&M Ate few: Percent of households that ate only a few kinds of foods because of a lack of money or other resources?	539	95.176	511	96.477	1,050	95.81	1.301
		(21.45)		(18.45)		(20.05)	(1.23)
FNM Ate few: Percent of households that ate only a few kinds of foods because of a lack of money or other resources?	86	97.674	86	96.512	172	97.093	-1.163
		(15.16)		(18.46)		(16.85)	(2.49)
MNF Ate few: Percent of households that ate only a few kinds of foods because of a lack of money or other resources?	13	100	10	90	23	95.652	-10.000
		(0.00)		(31.62)		(20.85)	(9.99)
F&M Skipped meals: Percent of households that had to skip a meal because there was not enough money or other resources to get food?	539	56.957	511	61.252	1,050	59.048	4.295
		(49.56)		(48.77)		(49.20)	(4.01)
FNM Skipped meals: Percent of households that had to skip a meal because there was not enough money or other resources to get food?	86	62.791	86	62.791	172	62.791	0.000
		(48.62)		(48.62)		(48.48)	(7.63)
MNF Skipped meals: Percent of households that had to skip a meal because there was not enough money or other resources to get food?	13	69.231	10	70	23	69.565	0.769
		(48.04)		(48.30)		(47.05)	(20.11)
F&M Ate less: Percent of households that ate less than you thought you should because of a lack of money or other resources?	539	87.941	511	92.172	1,050	90	4.232*
		(32.60)		(26.89)		(30.01)	(2.51)
FNM Ate less: Percent of households that ate less than you thought you should because of a lack of money or other resources?	86	93.023	86	95.349	172	94.186	2.326
		(25.62)		(21.18)		(23.47)	(3.17)

Outcome	N	Control	N	Treatment	N	All	Difference
MNF Ate less: Percent of households that ate less than you thought you should because of a lack of money or other resources?	13	100	10	90	23	95.652	-10.000
		(0.00)		(31.62)		(20.85)	(9.99)
F&M Runout: Percent of households that did not have food because of a lack of money or other resources?	539	29.128	511	31.898	1,050	30.476	2.770
		(45.48)		(46.65)		(46.05)	(3.10)
FNM Runout: Percent of households that did not have food because of a lack of money or other resources?	86	34.884	86	40.698	172	37.791	5.814
		(47.94)		(49.42)		(48.63)	(7.43)
MNF Runout: Percent of households that did not have food because of a lack of money or other resources?	13	61.538	10	70	23	65.217	8.462
		(50.64)		(48.30)		(48.70)	(20.73)
F&M Hungry: Percent of households that were hungry but did not eat because there was not enough money or other resources for food?	539	56.772	511	61.057	1,050	58.857	4.285
		(49.59)		(48.81)		(49.23)	(3.91)
FNM Hungry: Percent of households that were hungry but did not eat because there was not enough money or other resources for food?	86	58.14	86	61.628	172	59.884	3.488
		(49.62)		(48.91)		(49.16)	(6.60)
MNF Hungry: Percent of households that were hungry but did not eat because there was not enough money or other resources for food?	13	76.923	10	70	23	73.913	-6.923
		(43.85)		(48.30)		(44.90)	(21.02)
F&M No food whole day: Percent of households that went without eating for a whole day because of a lack of money or other resources?	539	28.2	511	36.986	1,050	32.476	8.786**
		(45.04)		(48.32)		(46.85)	(3.61)
FNM No food whole day: Percent of households that went without eating for a whole day because of a lack of money or other resources?	86	32.558	86	48.837	172	40.698	16.279**
		(47.13)		(50.28)		(49.27)	(7.11)
MNF No food whole day: Percent of households that went without eating for a whole day because of a lack of money or other resources?	13	53.846	10	60	23	56.522	6.154
		(51.89)		(51.64)		(50.69)	(22.99)

Notes: Standard deviations are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct.

Module D

Table 81. Disaggregated tables for Module D

Outcome	N	Control	N	Treatment	N	All	Difference
BL 12. Percent of children (ages 6–23 months) receiving a minimum acceptable diet	132	9.091	143	7.692	275	8.364	-1.399
		(28.86)		(26.74)		(27.73)	(3.43)
Percent of male children (ages 6–23 months) receiving a minimum acceptable diet	69	8.696	69	5.797	138	7.246	-2.899
		(28.38)		(23.54)		(26.02)	(5.03)
Percent of female children (ages 6–23 months) receiving a minimum acceptable diet	63	9.524	74	9.459	137	9.489	-0.064
		(29.59)		(29.47)		(29.41)	(4.89)
BL 13. Prevalence of exclusive breastfeeding of children (under 6 months)	45	44.444	48	52.083	93	48.387	7.639
		(50.25)		(50.49)		(50.24)	(10.56)
Prevalence of exclusive breastfeeding of male children (under 6 months)	16	43.75	25	56	41	51.22	12.250
		(51.23)		(50.66)		(50.61)	(16.39)
Prevalence of exclusive breastfeeding of female children (under 6 months)	29	44.828	23	47.826	52	46.154	2.999
		(50.61)		(51.08)		(50.34)	(13.96)
BL 39. Prevalence of children (ages 6–23 months) consuming a diet of minimum diversity	132	14.394	143	13.986	275	14.182	-0.408
		(35.24)		(34.81)		(34.95)	(5.23)
BL 39. Prevalence of male children (ages 6–23 months) consuming a diet of minimum diversity	69	15.942	69	13.043	138	14.493	-2.899
		(36.87)		(33.92)		(35.33)	(6.97)
BL 39. Prevalence of female children (ages 6–23 months) consuming a diet of minimum diversity	63	12.698	74	14.865	137	13.869	2.166
		(33.56)		(35.82)		(34.69)	(5.84)
BL 14. Percent of children under 5 (ages 0–59 months) who had diarrhea in the prior 2 weeks	417	17.266	407	22.359	824	19.782	5.093*
		(37.84)		(41.72)		(39.86)	(2.87)
Percent of male children under 5 (ages 0–59 months) who had diarrhea in the prior 2 weeks	202	18.317	226	26.106	428	22.43	7.789**
		(38.78)		(44.02)		(41.76)	(3.81)
Percent of female children under 5 (ages 0–59 months) who had diarrhea in the prior 2 weeks	215	16.279	181	17.68	396	16.919	1.400
		(37.00)		(38.26)		(37.54)	(4.07)

Outcome	N	Control	N	Treatment	N	All	Difference
BL 15. Percent of children under 5 (ages 0–59 months) with diarrhea treated with Oral Rehydration Therapy	72	19.444	91	28.571	163	24.54	9.127
		(39.85)		(45.43)		(43.16)	(6.55)
Percent of male children under 5 (ages 0–59 months) with diarrhea treated with Oral Rehydration Therapy	37	16.216	59	33.898	96	27.083	17.682*
		(37.37)		(47.74)		(44.67)	(8.98)
Percent of female children under 5 (ages 0–59 months) with diarrhea treated with Oral Rehydration Therapy	35	22.857	32	18.75	67	20.896	-4.107
		(42.60)		(39.66)		(40.96)	(10.25)
Percent of children (ages 0–59 months) that experienced either fever, diarrhea, or an acute respiratory infection in the past 15 days	417	50.6	407	57.74	824	54.126	7.140
		(50.06)		(49.46)		(49.86)	(4.42)
Percent of children (ages 0–59 months) that experienced fever in the past 15 days	417	35.731	407	39.558	824	37.621	3.826
		(47.98)		(48.96)		(48.47)	(4.17)
Percent of children (ages 0–59 months) that experienced fever in the past 15 days and received treatment from any health facility or health service within 24 hours of experiencing symptoms of a fever	149	53.691	161	62.733	310	58.387	9.042
		(50.03)		(48.50)		(49.37)	(5.95)
Percent of children (ages 0–59 months) that experienced diarrhea in the past 15 day	417	15.108	407	22.113	824	18.568	7.005**
		(35.86)		(41.55)		(38.91)	(3.01)
Percent of children (ages 0–59 months) that experienced diarrhea in the past 15 day and received treatment from any health facility or health service within 24 hours of experiencing symptoms	63	22.222	90	43.333	153	34.641	21.111***
		(41.91)		(49.83)		(47.74)	(6.47)
Percent of children (ages 0–59 months) that experienced an acute respiratory infection in the past 15 days	417	12.47	407	15.971	824	14.199	3.500*
		(33.08)		(36.68)		(34.93)	(2.08)
Percent of children (ages 0–59 months) that experienced an acute respiratory infection in the past 15 days and received treatment from any health facility or health service within 24 hours of experiencing symptoms	52	38.462	65	41.538	117	40.171	3.077
		(49.13)		(49.66)		(49.24)	(8.84)

Notes: Standard deviations are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct.

Module E

Table 82. Disaggregated tables for Module E

Outcome	N	Control	N	Treatment	N	All	Difference
Minimum Dietary Diversity Score	541	2.896	518	2.911	1,059	2.904	0.015
		(1.02)		(0.98)		(1.00)	(0.06)
BL 11. Percent of women of reproductive age consuming a diet of minimum diversity	541	6.1	518	5.405	1,059	5.76	-0.694
		(23.95)		(22.63)		(23.31)	(1.43)
Percent of women of reproductive age consuming a diet of minimum diversity (ages 15–18)	102	6.863	78	3.846	180	5.556	-3.017
		(25.41)		(19.36)		(22.97)	(3.63)
Percent of women of reproductive age consuming a diet of minimum diversity (ages 19+)	439	5.923	440	5.682	879	5.802	-0.241
		(23.63)		(23.18)		(23.39)	(1.42)
BL 26. Percent of births receiving at least four ANC visits during pregnancy	298	69.463	303	73.927	601	71.714	4.464
		(46.13)		(43.98)		(45.08)	(4.24)
Percent of women of reproductive age consuming grains and roots	541	99.815	518	99.807	1,059	99.811	-0.008
		(4.30)		(4.39)		(4.34)	(0.27)
Percent of women of reproductive age consuming pulses (beans, peas, and lentils)	541	7.579	518	7.143	1,059	7.365	-0.436
		(26.49)		(25.78)		(26.13)	(1.76)
Percent of women of reproductive age consuming nuts and seeds (including groundnuts)	541	2.218	518	1.737	1,059	1.983	-0.481
		(14.74)		(13.08)		(13.95)	(0.91)
Percent of women of reproductive age consuming dairy	541	1.109	518	1.931	1,059	1.511	0.821
		(10.48)		(13.77)		(12.20)	(0.76)
Percent of women of reproductive age consuming meat, poultry, and fish	541	28.835	518	29.923	1,059	29.367	1.087
		(45.34)		(45.84)		(45.57)	(3.41)
Percent of women of reproductive age consuming eggs	541	1.848	518	1.158	1,059	1.511	-0.690
		(13.48)		(10.71)		(12.20)	(0.81)
Percent of women of reproductive age consuming dark green leafy veg	541	85.397	518	86.293	1,059	85.836	0.896
		(35.35)		(34.42)		(34.88)	(2.99)
Percent of women of reproductive age consuming other vitamin A-rich fruits and veg	541	29.945	518	27.413	1,059	28.706	-2.531
		(45.84)		(44.65)		(45.26)	(3.23)

Outcome	N	Control	N	Treatment	N	All	Difference
Percent of women of reproductive age consuming other veg	541	5.73	518	4.054	1,059	4.91	-1.676
		(23.26)		(19.74)		(21.62)	(1.66)
Percent of women of reproductive age consuming other fruit	541	27.172	518	31.66	1,059	29.367	4.488
		(44.53)		(46.56)		(45.57)	(3.34)
BL 36. Percent of women in a union who have knowledge of modern family planning methods that can be used to delay or avoid pregnancy	291	91.065	276	91.667	567	91.358	0.601
		(28.57)		(27.69)		(28.12)	(2.55)
BL 36. Percent of women in a union who have knowledge of modern family planning methods that can be used to delay or avoid pregnancy (ages 15–19)	18	72.222	15	93.333	33	81.818	21.111*
		(46.09)		(25.82)		(39.17)	(12.26)
BL 36. Percent of women who are in a union who have knowledge of modern family planning methods that can be used to delay or avoid pregnancy (ages 20–29)	92	95.652	95	90.526	187	93.048	-5.126
		(20.50)		(29.44)		(25.50)	(3.68)
BL 36. Percent of women who are in a union who have knowledge of modern family planning methods that can be used to delay or avoid pregnancy (ages 30–49)	181	90.608	166	92.169	347	91.354	1.561
		(29.25)		(26.95)		(28.14)	(3.36)
Number of modern family planning methods that can be used to delay or avoid pregnancy that women in a union know (0–12)	291	5.708	276	6.33	567	6.011	0.622**
		(2.63)		(2.83)		(2.74)	(0.25)
BL 37. Percent of women in a union who made decisions about modern family planning methods in the past 12 months	127	90.551	131	93.13	258	91.86	2.579
		(29.37)		(25.39)		(27.40)	(3.05)
Percent of women in a union who made decisions about modern family planning methods in the past 12 months (ages 15–19)	7	85.714	5	100	12	91.667	14.286
		(37.80)		(0.00)		(28.87)	(15.40)
Percent of women in a union who made decisions about modern family planning methods in the past 12 months (ages 20–29)	45	91.111	50	92	95	91.579	0.889
		(28.78)		(27.40)		(27.92)	(5.42)
Percent of women in a union who made decisions about modern family planning methods in the past 12 months (ages 30–49)	75	90.667	76	93.421	151	92.053	2.754
		(29.29)		(24.96)		(27.14)	(4.18)

Outcome	N	Control	N	Treatment	N	All	Difference
BL 20. Contraceptive prevalence rate among women in a union	262	41.985	242	48.76	504	45.238	6.776
		(49.45)		(50.09)		(49.82)	(5.58)
Percentage of adolescent girls participating in programs designed to increase access to productive economic resources (assets, credit, income, or employment)	356	6.742	329	20.669	685	13.431	13.927***
		(25.11)		(40.55)		(34.12)	(3.36)
Percentage of adolescent girls (married and unmarried) who feel confident or strongly confident in their ability to report and seek help with violence	356	38.483	329	50.76	685	44.38	12.277***
		(48.72)		(50.07)		(49.72)	(4.00)
Percentage of girls (married and unmarried) who report having high or very high input over important decisions	229	73.362	215	68.372	444	70.946	-4.990
		(44.30)		(46.61)		(45.45)	(4.20)

Notes: Standard deviations are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct.

Module F

Table 83. Disaggregated tables for Module F

Outcome	N	Control	N	Treatment	N	All	Difference
BL 16. Percent of households using basic drinking water services	541	2.773	519	5.78	1060	4.245	3.008
		(16.43)		(23.36)		(20.17)	(1.81)
F&M BL 16. Percent of households using basic drinking water services	86	8.14	86	5.814	172	6.977	-2.326
		(27.50)		(23.54)		(25.55)	(5.51)
FNM BL 16. Percent of households using basic drinking water services	14	0	10	10	24	4.167	10.000
		(0.00)		(31.62)		(20.41)	(9.97)
MNF BL 16. Percent of households using basic drinking water services	642	0.156	615	0.488	1257	0.318	0.332
		(3.95)		(6.97)		(5.63)	(0.32)
BL 16. Percent with access to basic drinking water services – meeting only three of the four criteria	642	3.115	615	3.089	1257	3.103	-0.026
		(17.39)		(17.32)		(17.35)	(1.04)
Percent of households with water available year-round	642	0.935	615	0.325	1257	0.636	-0.609
		(9.63)		(5.70)		(7.96)	(0.70)
Percent of households using an improved drinking water source	642	0	615	0	1257	0	0.000
		(0.00)		(0.00)		(0.00)	(.)
	642	42.523	615	52.52	1257	47.414	9.997***

Outcome	N	Control	N	Treatment	N	All	Difference
Percent of households able to fetch water in 30 minutes or less		(49.48)		(49.98)		(49.95)	(3.23)
Average per day per capital water consumption	542	1.107	519	0	1061	0.566	-1.107**
		(10.47)		(0.00)		(7.50)	(0.43)
Percentage of households consuming at least 20 liters per day per person of water	86	1.163	86	0	172	0.581	-1.163
		(10.78)		(0.00)		(7.62)	(1.10)
BL 17. Percent of households with soap/detergent, and water at a handwashing station on premises	14	0	10	0	24	0	0.000
		(0.00)		(0.00)		(0.00)	(.)
F&M BL 17. Percent of households with soap/detergent, and water at a handwashing station on premises	542	67.343	519	63.006	1,061	65.221	-4.337
		(46.94)		(48.33)		(47.65)	(4.94)
FNM BL 17. Percent of households with soap/detergent, and water at a handwashing station on premises	86	69.767	86	67.442	172	68.605	-2.326
		(46.20)		(47.13)		(46.55)	(8.54)
MNF BL 17. Percent of households with soap/detergent, and water at a handwashing station on premises	14	71.429	10	90	24	79.167	18.571
		(46.88)		(31.62)		(41.49)	(15.26)
Percent of households with soap, detergent or ash and water at a handwashing station on premises	542	1.661	519	2.505	1,061	2.074	0.844
		(12.79)		(15.64)		(14.26)	(1.12)
Percent of households with ash and water at a handwashing station on premises	86	1.163	86	0	172	0.581	-1.163
		(10.78)		(0.00)		(7.62)	(1.15)
Percent of households with ash but not water at a handwashing station on premises	14	7.143	10	0	24	4.167	-7.143
		(26.73)		(0.00)		(20.41)	(6.74)
Percent of households with mud/sand and water at a handwashing station on premises	542	65.683	519	60.501	1,061	63.148	-5.182
		(47.52)		(48.93)		(48.26)	(4.94)
Percent of households with mud/sand but not water at a handwashing station on premises	86	68.605	86	67.442	172	68.023	-1.163
		(46.68)		(47.13)		(46.77)	(8.45)
BL 18. Percent of households practicing correct use of recommended household water treatment technologies	14	71.429	10	90	24	79.167	18.571
		(46.88)		(31.62)		(41.49)	(15.26)
Percent of households who treated water by adding bleach or chlorine before drinking	542	0.738	519	1.927	1,061	1.32	1.189
		(8.57)		(13.76)		(11.42)	(0.76)
	86	0	86	3.488	172	1.744	3.488*

Outcome	N	Control	N	Treatment	N	All	Difference
Percent of households who treated water by flocculation before drinking		(0.00)		(18.46)		(13.13)	(2.07)
Percent of households who treated water by filtration before drinking	14	0	10	0	24	0	0.000
		(0.00)		(0.00)		(0.00)	(.)
Percent of households who treated water by boiling before drinking	541	2.773	519	5.78	1,060	4.245	3.008
		(16.43)		(23.36)		(20.17)	(1.81)
BL 19. Percent of households practicing open defecation in bush or field, or around home	86	8.14	86	5.814	172	6.977	-2.326
		(27.50)		(23.54)		(25.55)	(5.51)
F&M BL 19. Percent of households practicing open defecation in bush or field, or around home	14	0	10	10	24	4.167	10.000
		(0.00)		(31.62)		(20.41)	(9.97)
FNM BL 19. Percent of households practicing open defecation in bush or field, or around home	642	0.156	615	0.488	1,257	0.318	0.332
		(3.95)		(6.97)		(5.63)	(0.32)
MNF BL 19. Percent of households practicing open defecation in bush or field, or around home	642	3.115	615	3.089	1,257	3.103	-0.026
		(17.39)		(17.32)		(17.35)	(1.04)
BL 19. Percent of households practicing open defecation around home	642	0.935	615	0.325	1,257	0.636	-0.609
		(9.63)		(5.70)		(7.96)	(0.70)
F&M BL 19. Percent of households practicing open defecation around home	642	0	615	0	1,257	0	0.000
		(0.00)		(0.00)		(0.00)	(.)
FNM BL 19. Percent of households practicing open defecation around home	642	42.523	615	52.52	1,257	47.414	9.997***
		(49.48)		(49.98)		(49.95)	(3.23)
MNF BL 19. Percent of households practicing open defecation around home	542	1.107	519	0	1,061	0.566	-1.107**
		(10.47)		(0.00)		(7.50)	(0.43)
BL 19. Percent of households practicing open defecation in bush or field	86	1.163	86	0	172	0.581	-1.163
		(10.78)		(0.00)		(7.62)	(1.10)
F&M BL 19. Percent of households practicing open defecation in bush or field	14	0	10	0	24	0	0.000
		(0.00)		(0.00)		(0.00)	(.)
FNM BL 19. Percent of households practicing open defecation in bush or field	542	67.343	519	63.006	1,061	65.221	-4.337
		(46.94)		(48.33)		(47.65)	(4.94)
MNF BL 19. Percent of households practicing open defecation in bush or field, or around home	86	69.767	86	67.442	172	68.605	-2.326
		(46.20)		(47.13)		(46.55)	(8.54)

Outcome	N	Control	N	Treatment	N	All	Difference
BL 27. Percent of households with access to a basic sanitation service	14	71.429	10	90	24	79.167	18.571
		(46.88)		(31.62)		(41.49)	(15.26)
F&M BL 27. Percent of households with access to a basic sanitation service	542	1.661	519	2.505	1,061	2.074	0.844
		(12.79)		(15.64)		(14.26)	(1.12)
FNM BL 27. Percent of households with access to a basic sanitation service	86	1.163	86	0	172	0.581	-1.163
		(10.78)		(0.00)		(7.62)	(1.15)
MNF BL 27. Percent of households with access to a basic sanitation service	14	7.143	10	0	24	4.167	-7.143
		(26.73)		(0.00)		(20.41)	(6.74)

Notes: Standard deviations are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct.

Module G

Table 84. Disaggregated tables for Module G

Outcome	N	Control	N	Treatment	N	All	Difference
BL 29. Percent of farming households who used financial services	611	36.989	579	52.332	1190	44.454	15.343***
		(48.32)		(49.99)		(49.71)	(3.46)
Male: BL 29. Percent of farming households who used financial services	494	25.439	452	34.329	946	29.686	8.890***
		(42.87)		(46.32)		(44.75)	(3.13)
Female: BL 29. Percent of farming households who used financial services	347	27.666	333	44.82	680	36.066	17.154***
		(44.15)		(49.14)		(47.41)	(4.39)
Percent of farming s using agricultural credit	611	22.913	579	26.598	1190	24.706	3.684
		(42.06)		(44.22)		(43.15)	(2.77)
Male: Percent of farming households using agricultural credit	494	16.633	452	19.211	946	17.865	2.578
		(36.63)		(38.74)		(37.65)	(2.76)
Female: Percent of farming households using agricultural credit	347	14.841	333	19.294	680	17.022	4.453
		(35.30)		(39.07)		(37.23)	(2.80)
Percent of farming households who saved	611	18.494	579	41.105	1190	29.496	22.611***
		(38.86)		(49.25)		(45.62)	(3.44)
Male: Percent of farming households who saved	494	10.29	452	22.05	946	15.909	11.760***
		(30.09)		(40.45)		(35.89)	(2.94)
Female: Percent of farming households who saved	347	15.85	333	37.087	680	26.25	21.237***
		(35.98)		(47.99)		(43.57)	(3.96)
	611	0.491	579	0.518	1190	0.504	0.027

Outcome	N	Control	N	Treatment	N	All	Difference
Percent of farming households using insurance		(7.00)		(7.19)		(7.09)	(0.34)
Male: Percent of farming households using insurance	494	0.607	452	0.442	946	0.529	-0.165
		(7.78)		(6.64)		(7.25)	(0.36)
Female: Percent of farming households using insurance	347	0	333	0.3	680	0.147	0.300
		(0.00)		(5.48)		(3.83)	(0.30)
BL 30. Percent of farming households who practiced at least one value chain activity	328	37.5	324	59.568	652	48.466	22.068***
		(48.49)		(49.15)		(50.01)	(4.33)
Male: BL 30. Percent of farming households who practiced at least one value chain activity	279	33.094	263	49.24	542	40.929	16.145***
		(46.86)		(48.77)		(48.43)	(4.30)
Female: BL 30. Percent of farming households who practiced at least one value chain activity	177	29.096	186	37.948	363	33.632	8.852*
		(45.39)		(48.15)		(46.97)	(4.79)
Percent of farming households with a plot over which they make decisions, who practiced at least one value chain activity	328	37.5	321	60.125	649	48.69	22.625***
		(48.49)		(49.04)		(50.02)	(4.34)
Male: Percent of farming households with a plot over which they make decisions, who practiced at least one value chain activity	279	32.736	262	48.282	541	40.265	15.546***
		(46.73)		(48.74)		(48.30)	(4.36)
Female: Percent of farming households with a plot over which they make decisions, who practiced at least one value chain activity	177	29.096	183	38.297	360	33.773	9.201*
		(45.39)		(48.09)		(46.94)	(4.75)
Percent of farming households with animals, who practiced at least one value chain activity	249	15.663	269	27.138	518	21.622	11.475***
		(36.42)		(44.55)		(41.21)	(3.71)
Male: Percent of farming households with animals, who practiced at least one value chain activity	216	4.167	223	2.915	439	3.531	-1.252
		(20.03)		(15.83)		(18.01)	(1.91)
Female: Percent of farming households with animals, who practiced at least one value chain activity	140	4.286	153	5.065	293	4.693	0.780
		(20.33)		(21.34)		(20.83)	(1.94)
Percent of farmers that have purchased inputs for crops during the past 12 months	328	26.524	321	34.891	649	30.663	8.367
		(44.21)		(47.74)		(46.14)	(5.45)
Percent of farmers that have used training and extension services during the past 12 months	328	8.232	321	21.184	649	14.638	12.952***
		(27.53)		(40.92)		(35.38)	(3.21)

Outcome	N	Control	N	Treatment	N	All	Difference
Percent of farmers that have practiced contract farming during the past 12 months	328	0	321	0.623	649	0.308	0.623
		(0.00)		(7.88)		(5.55)	(0.43)
Percent of farmers that have dried produce during the past 12 months	328	5.488	321	9.346	649	7.396	3.858
		(22.81)		(29.15)		(26.19)	(2.37)
Percent of farmers that have processed produce during the past 12 months	328	0.61	321	1.558	649	1.079	0.948
		(7.80)		(12.40)		(10.34)	(0.81)
Percent of farmers that have traded or marketed produce through agro-dealers and/or community associations during the past 12 months	328	1.22	321	3.115	649	2.157	1.896
		(10.99)		(17.40)		(14.54)	(1.34)
Percent of farmers that have used formal marketing systems for crops during the past 12 months	328	0.305	321	1.558	649	0.924	1.253*
		(5.52)		(12.40)		(9.58)	(0.73)
Percent of farmers that have traded or sold crops from their home/community with a byer from outside of their community during the past 12 months	328	7.012	321	10.903	649	8.937	3.891*
		(25.57)		(31.22)		(28.55)	(2.08)
Percent of farmers that have traded or sold crops from their home/community with a buyer from their community during the past 12 months	328	6.098	321	14.33	649	10.169	8.233***
		(23.97)		(35.09)		(30.25)	(2.95)
Percent of farmers that have traded or sold crops at a primary regional market during the past 12 months	328	10.671	321	14.642	649	12.635	3.971
		(30.92)		(35.41)		(33.25)	(2.47)
Percent of farmers that have adopted new farming techniques during the past 12 months	328	5.793	321	18.38	649	12.018	12.587***
		(23.40)		(38.79)		(32.54)	(2.98)
Percent of farmers that have sold products during the past 12 months	328	10.061	321	17.757	649	13.867	7.696**
		(30.13)		(38.27)		(34.59)	(3.20)
Percent of farmers that have practiced pest control during the past 12 months	328	3.659	321	10.28	649	6.934	6.622***
		(18.80)		(30.42)		(25.42)	(2.32)
Percent of farmers that have purchased inputs for livestock during the past 12 months	249	5.221	269	6.691	518	5.985	1.471
		(22.29)		(25.03)		(23.74)	(2.46)
Percent of farmers that have used training and extension services during the past 12 months	249	3.614	269	3.717	518	3.668	0.103
		(18.70)		(18.95)		(18.82)	(2.36)

Outcome	N	Control	N	Treatment	N	All	Difference
Percent of farmers that have used formal marketing systems for livestock during the past 12 months	249	0.402	269	1.115	518	0.772	0.714
		(6.34)		(10.52)		(8.76)	(1.19)
Percent of farmers that have practiced contract farming during the past 12 months	249	0	269	0	518	0	0.000
		(0.00)		(0.00)		(0.00)	(.)
Percent of farmers that have practiced animal care during the past 12 months	249	8.032	269	7.063	518	7.529	-0.969
		(27.23)		(25.67)		(26.41)	(3.02)
Percent of farmers that have practiced breed improvement during the past 12 months	249	0.803	269	0.743	518	0.772	-0.060
		(8.94)		(8.61)		(8.76)	(0.80)
Percent of farmers that have practiced habitat improvement during the past 12 months	249	3.614	269	6.32	518	5.019	2.705
		(18.70)		(24.38)		(21.86)	(2.59)
Percent of farming households growing cassava	608	88.651	573	80.105	1181	84.505	-8.547**
		(31.74)		(39.96)		(36.20)	(3.94)
Percent of farming households who have applied at least one improvement practice for cassava	539	46.197	459	61.002	998	53.006	14.806***
		(49.90)		(48.83)		(49.93)	(3.47)
Percent of farming households growing rice	608	93.914	573	93.019	1181	93.48	-0.895
		(23.93)		(25.50)		(24.70)	(1.51)
BL 21. Percent of farming households who have applied targeted improved practices or technologies for rice	571	47.285	533	61.351	1104	54.076	14.065***
		(49.97)		(48.74)		(49.86)	(3.54)
Percent of farming households who have applied at least one improvement practice for rice	571	34.501	533	50.281	1104	42.12	15.781***
		(47.58)		(50.05)		(49.40)	(3.65)
Percent of farming households growing cloves	608	34.539	573	34.031	1181	34.293	-0.508
		(47.59)		(47.42)		(47.49)	(4.41)
BL 21. Percent of farming households who have applied targeted improved practices or technologies for cloves	210	57.619	195	64.103	405	60.741	6.484
		(49.53)		(48.09)		(48.89)	(5.66)
Percent of farming households who have applied at least one improvement practice for cloves	210	44.762	195	42.564	405	43.704	-2.198
		(49.84)		(49.57)		(49.66)	(6.65)
Percent of farming households raising poultry	612	65.359	579	72.021	1191	68.598	6.661**
		(47.62)		(44.93)		(46.43)	(3.17)

Outcome	N	Control	N	Treatment	N	All	Difference
Percent of farming households using at least one improvement practice for poultry	400	8.75	417	12.95	817	10.894	4.200
		(28.29)		(33.62)		(31.17)	(3.23)

Notes: Standard deviations are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct.

Module K

Table 85. Disaggregated tables for Module K

Outcome	N	Control	N	Treatment	N	All	Difference
Percent of people in a union who have access to credit	918	45.316	819	59.096	1,737	51.813	13.781***
		(49.81)		(49.20)		(49.98)	(3.90)
BL 42. Percent of men in a union who have access to credit	452	44.912	403	58.809	855	51.462	13.897***
		(49.80)		(49.28)		(50.01)	(3.94)
BL 42. Percent of women in a union who have access to credit	466	45.708	416	59.375	882	52.154	13.667***
		(49.87)		(49.17)		(49.98)	(4.07)
Percent of men in a union who have access to credit (ages 15–19)	1	100			1	100	
Percent of men in a union who have access to credit (ages 20–29)	53	64.151	41	65.854	94	64.894	1.703
		(48.41)		(48.01)		(47.99)	(11.08)
Percent of men in a union who have access to credit (ages 30–49)	215	46.512	188	60.638	403	53.102	14.127**
		(49.99)		(48.99)		(49.97)	(5.51)
Percent of men in a union who have access to credit (ages 50+)	183	37.158	174	55.172	357	45.938	18.014***
		(48.46)		(49.88)		(49.90)	(6.02)
Percent of women in a union who have access to credit (ages 15–19)	8	25	10	50	18	38.889	25.000
		(46.29)		(52.70)		(50.16)	(25.04)
Percent of women in a union who have access to credit (ages 20–29)	95	60	85	57.647	180	58.889	-2.353
		(49.25)		(49.71)		(49.34)	(7.75)
Percent of women in a union who have access to credit (ages 30–49)	249	46.185	212	62.264	461	53.579	16.079***
		(49.95)		(48.59)		(49.93)	(5.14)
Percent of women in a union who have access to credit (ages 50+)	114	34.211	109	55.963	223	44.843	21.753**
		(47.65)		(49.87)		(49.85)	(8.13)
Percent of men and women in a union who report making the borrowing decision	416	41.346	484	37.81	900	39.444	-3.536
		(49.30)		(48.54)		(48.90)	(3.35)
	203	43.842	237	36.709	440	40	-7.134

Outcome	N	Control	N	Treatment	N	All	Difference
BL 43. Percent of men in a union who report making the borrowing decision		(49.74)		(48.30)		(49.05)	(4.67)
BL 43. Percent of women in a union who report making the borrowing decision	213	38.967	247	38.866	460	38.913	-0.101
		(48.88)		(48.84)		(48.81)	(4.82)
Percent of men in a union who report making the borrowing decision (ages 15–19)	1	0			1	0	
		(.)				(.)	
Percent of men in a union who report making the borrowing decision (ages 20–29)	34	44.118	27	48.148	61	45.902	4.031
		(50.40)		(50.92)		(50.25)	(12.76)
Percent of men in a union who report making the borrowing decision (ages 30–49)	100	45	114	40.351	214	42.523	-4.649
		(50.00)		(49.28)		(49.55)	(6.56)
Percent of men in a union who report making the borrowing decision (ages 50+)	68	42.647	96	29.167	164	34.756	-13.480*
		(49.82)		(45.69)		(47.77)	(7.01)
Percent of men in a union who report making the borrowing decision (ages 15–19)	2	0	5	20	7	14.286	20.000
		(0.00)		(44.72)		(37.80)	(21.17)
Percent of men in a union who report making the borrowing decision (ages 20–29)	57	36.842	49	44.898	106	40.566	8.056
		(48.67)		(50.25)		(49.34)	(10.72)
Percent of men in a union who report making the borrowing decision (ages 30–49)	115	40.87	132	37.879	247	39.271	-2.991
		(49.37)		(48.69)		(48.93)	(5.91)
Percent of men in a union who report making the borrowing decision (ages 50+)	39	38.462	61	37.705	100	38	-0.757
		(49.29)		(48.87)		(48.78)	(10.48)
Percent of men and women in a union who took loans or borrowed from NGOs, VSLAs or SACCOs	918	9.695	819	24.786	1,737	16.811	15.091***
		(29.61)		(43.20)		(37.41)	(3.16)
Percent of men and women in a union who participate in group-based saving programs	915	13.661	819	40.049	1,734	26.125	26.388***
		(34.36)		(49.03)		(43.94)	(3.89)
BL 31. Percent of men and women in a union who participate in group-based savings, micro-finance, or lending programs	915	14.863	819	41.636	1,734	27.509	26.773***
		(35.59)		(49.33)		(44.67)	(3.88)
Percent of households that participated in the SLA	469	17.697	415	48.434	884	32.127	30.737***
		(38.21)		(50.04)		(46.72)	(4.76)
	469	0	415	38.554	884	18.1	38.554***

Outcome	N	Control	N	Treatment	N	All	Difference
Percent of households that participated in the SLA associated with FIOVANA		(0.00)		(48.73)		(38.52)	(3.49)
Percent of households that participated in the SLA not associated with FIOVANA	469	17.697	415	12.048	884	15.045	-5.649*
		(38.21)		(32.59)		(35.77)	(3.26)
Percent of households participating in a FIOVANA SLA that accessed loans			145	69.655	145	69.655	
				(46.13)		(46.13)	

Notes: Standard deviations are in parentheses. * denotes significance at 10 pct., ** at 5 pct., and *** at 1 pct.

Community Participation and Women's Empowerment

Table 86. Disaggregated tables for community participation and women's empowerment

Outcome	N	Control	N	Treatment	N	All	Difference
BL 41. People in a union who are members of a community group	728	79.396	729	88.752	1,457	84.077	9.356***
		(40.47)		(31.62)		(36.60)	(2.97)
BL 41. Men in a union who are members of a community group	365	81.37	368	90.761	733	86.085	9.391***
		(38.99)		(29.00)		(34.63)	(2.78)
BL 41. Women in a union who are members of a community group	363	77.41	361	86.704	724	82.044	9.293**
		(41.87)		(34.00)		(38.41)	(3.95)
BL 41. Women in a union who are members of a community group (ages 15–19)	5	80	7	100	12	91.667	20.000
		(44.72)		(0.00)		(28.87)	(15.32)
BL 41. Men in a union who are members of a community group (ages 15–19)	1	0			1	0	
		(.)				(.)	
BL 41. Women in a union who are members of a community group (ages 20–29)	76	67.105	74	93.243	150	80	26.138***
		(47.30)		(25.27)		(40.13)	(7.68)
BL 41. Men in a union who are members of a community group (ages 20–29)	46	69.565	39	89.744	85	78.824	20.178**
		(46.52)		(30.74)		(41.10)	(8.48)
BL 41. Women in a union who are members of a community group (ages 30–49)	192	76.042	182	84.066	374	79.947	8.024*
		(42.79)		(36.70)		(40.09)	(4.55)
BL 41. Men in a union who are members of a community group (ages 30–49)	177	81.356	171	90.643	348	85.92	9.287***
		(39.06)		(29.21)		(34.83)	(3.36)
	90	88.889	98	85.714	188	87.234	-3.175

Outcome	N	Control	N	Treatment	N	All	Difference
BL 41. Women in a union who are members of a community group (ages 50+)		(31.60)		(35.17)		(33.46)	(5.01)
BL 41. Men in a union who are members of a community group (ages 50+)	141	85.816	158	91.139	299	88.629	5.324
		(35.01)		(28.51)		(31.80)	(3.96)