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Impact evaluation of resilience interventions on food security, livelihoods and women empowerment in Rwanda

Impact evaluation report

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The study has been pre-registered in the American Economic Association Registry for randomized controlled trials (AEA RCT Registry) at: https://www.socialscienceregistry.org/trials/6851. We are grateful to all individuals who contributed to data collection, and in particular the respondents for their time.

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Disclaimer

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Contents

List of figures

List of tables

Executive summary

1. Despite significant agricultural growth in the last decade, one-fifth of the population of Rwanda is food insecure.[1] The low level of food security combined with the effects of climate change such as drought or irregular rainfall jeopardize rural households' ability and resilience to cope with shocks.[2] Additionally, gender inequality in Rwanda is pervasive. The World Economic Forum (WEF) *Global Gender Report 2021* ranks Rwanda 48th of 156 countries on its Gender Gap for Economic Participation and Opportunity Index, suggesting that this is an area for improvement (WEF, 2021).

2. Between 2020 and 2023, the WFP Rwanda Country Office implemented the Sustainable Market Alliance and Asset Creation for Resilient Communities and Gender Transformation (SMART) programme. The programme aimed to contribute to community resilience through a package of support, including a stronger soil and water management asset base, livelihood strengthening and diversification, farmer organization capacity strengthening and access to inputs and markets, and social cohesion and gender transformation activities.

3. As part of the resilience package, SMART provided an opportunity to build productive assets in the form of food assistance for assets (FFA), whereby the most vulnerable households received a wage (only in cash in the case of Rwanda) as a condition for participating in asset work activities, including hillside terracing and marshland restoration. The creation of the assets lasted approximately six months.

4. This project has benefited from an impact evaluation that is part of the Cash-Based Transfers (CBT) and Gender and the Climate and Resilience Impact Evaluation Windows, both created by the World Food Programme (WFP) Office of Evaluation and respective programme teams, and delivered in partnership with the World Bank's Development Impact Evaluation (DIME) group.

5. The evaluation estimates the impact of FFA (plus complementary activities to enhance the impacts of this intervention) by randomizing the opportunity to engage in FFA across 78 communities in five rural sectors of Rwanda. In half of the communities engaging in FFA, only women could be registered to work; in the other half, either men or women could be registered. This allowed us to assess the impacts of women's participation in FFA on gender equality outcomes.

6. The main impact evaluation questions (EQs) are:

Cash-based transfers and gender questions:

EQ1. What is the impact of women's participation in FFA (working outside the household and receiving cash in return) on their social and economic empowerment?
EQ2. Does participation in FFA affect key food security outcomes of interest and are these outcomes better when women participate in FFA, as opposed to men?

Climate and resilience questions:

EQ3. Does participation in FFA affect key food security outcomes of interest? Can FFA increase the overall resilience of households?
EQ4. How does FFA affect the resilience over time and throughout the seasons?

Main findings on gender

7. The gender analysis compares two programme modalities: 1) Regular FFA; and 2) FFA targeted for women. It also includes a third (comparison) group that did not participate in the project. The analysis used the midline (during project implementation) and endline data collections (after the project has ended).

8. At midline, targeting women through the FFA programme led to an 11-percentage point increase in women's participation in WFP activities. However, both the FFA for women group and standard FFA project group experienced a significant *reduction* in women's agency over consumption. This is compared to the

[1] World Food Programme. 2018. *Rwanda: Comprehensive food security and vulnerability analysis.*
[2] Clay, N. & King, B. 2019. Smallholders' uneven capacities to adapt to climate change amid Africa's 'green revolution': Case study of Rwanda's crop intensification program. *World Development*, 116, 1-14.

comparison group that did not participate for the duration of the project. In the FFA for women group, men's positive attitudes towards women's agency also declined, accompanied by an increase in psychological abuse and feelings of loss of control. There were no shifts in the Food Consumption Score (FCS) at midline, but Food Insecurity Experience Scale (FIES) scores improved for the FFA for women group (and are significantly improved for both groups at endline).

9. By the endline, women's agency over consumption showed a significant positive shift in the FFA for women group when compared to the standard FFA group, and attitudes towards time use and agency over consumption also improved. Both groups saw enhancements in subjective well-being, but the FFA for women group exhibited stronger positive effects, particularly in terms of changing perceptions of social norms and men's attitudes towards time use. Both FFA groups also experienced significantly higher subjective well-being when compared to the comparison group. These results suggest that the FFA for women programme – in the longer run – may be more effective at promoting women's empowerment than the traditional FFA approach.

10. Findings from this impact evaluation, alongside similar research in El Salvador, support the theory that cash transfers targeting women and offering work opportunities outside the home have the potential to significantly enhance women's agency, attitudes, and well-being in the longer run. The FFA for women programme was a more effective strategy for contributing to women's empowerment in the long term compared to the standard FFA model.

Main findings on resilience

11. The resilience analysis compared all households in communities that received FFA interventions (FFA and FFA targeting women) with comparison communities that did not receive FFA during the evaluation timeframe.

12. Results measured at endline show that FFA led to modest increases in food security in communities that received FFA relative to comparison communities that did not receive FFA. The food security increase is observed during the FFA implementation period, and also six months to a year after the programme ended and when participants were no longer receiving cash transfers from FFA. However, the food security impacts eventually dissipated 12-18 months after the programme ended – at least among a subsample of households, which the evaluation continued to collect data for over a further six months through high-frequency phone surveys.

13. Findings indicate that changes in food security were not driven by increased agricultural productivity, livestock management, nor wage employment opportunities. Lack of impacts on agricultural productivity can be explained by the fact that assets were built on private land – many programme participants did not own land, and therefore did not benefit from improved land for crop production following the asset work on marshland restoration or hill terracing.

14. Instead, the evaluation finds that beneficiary households were more likely to have higher expenditures on food and non-food items by 8 percent and 15 percent, respectively (not statistically significant).

15. Beneficiary households were also more likely to apply for a loan and borrow more (a 37 percent increase in borrowing), along with an increase in business ownership, albeit from a very low base of 6 percent to 11percent as well as increased monthly business profits. It is unlikely that business expansion alone is the mechanism behind improved food security, given the small share of households generating income from business. Rather, it may be a combination of better access to credit markets and business profits, as well as better smoothing of wage income received from FFA participation.

16. Programme impacts could have been more pronounced had every household selected to participate in FFA. Some of the reasons why every eligible beneficiary did not participate in the programme include long distances to travel to work sites, competing tasks (such as own farm work), and low daily wage.

17. Consistent with improved food security, beneficiary households also reported that their stress level is lower and satisfaction with life is higher (relative to the households in the comparison group). There is no change in depression and intimate partner violence, though.

18. Finally, the impact evaluation collected bi-monthly phone survey data for almost two years to map out the evolution of food security over time, and investigated its interaction with agricultural seasonality. The

evaluation finds that the food security impacts of FFA are stronger for some calendar months than for others. This is not fully explained by the number of communities participating in given months, suggesting that the programme impacts interact with agricultural seasonality and external factors.

Considerations for future programming

19. The evaluation findings highlight several considerations to enhance the impact of future WFP FFA programmes:

Cash-based transfer and gender conclusions and considerations:

Consideration 1. Find ways to boost participation rates in general and specifically for women. Boosting project participation rates, especially for women, is crucial. Effective communication, better strategies to enable women's involvement, increased compensation, and limiting men's participation in women-focused programmes could improve these rates.

Consideration 2. Consider supplementary programming to diminish the backlash women face during programme implementation. While some positive shifts in men's attitudes occurred by the endline, women faced reduced agency and increased psychological violence during project implementation. Supplementary programming (such as gender equality training or community dialogues) is needed to reduce backlash against women during implementation.

Consideration 3. Examine alternative timeframes and types of livelihood support for women. Extending the duration and diversity of approaches to support could help women overcome barriers to working outside the home and achieve longer-lasting impacts.

Consideration 4. Better address both access to food and dietary quality in future interventions. Addressing both food access and dietary quality is essential, as improvements for the FIES were noted, but progress in the Food Consumption Score for the FFA for women group was lacking. Complementary activities such as nutrition education and extended support could lead to more holistic food security outcomes. Boosting participation rates is also important to achieve these goals.

Climate and resilience conclusions and considerations:

Consideration 5. Better align supply and demand of public works projects through improved targeting and additional incentives. It is recommended that the labour needed to complete FFA projects be aligned with the available number of households that are interested in participating, through improved targeting and additional incentives.

Consideration 6. Study complementarities between FFA and other resilience programmes. The asset and project selection process may be improved to maximize the benefits derived from the assets created.

Consideration 7. Explore ways to maximize the access to and the benefits derived from the assets created. While the assets created through public works were meant to provide benefits to communities beyond project implementation, findings show that only a small fraction of households had access to the assets created.

Consideration 8. Consider including other cost-effective activities as part of the resilience programming. In settings where the political economy makes it challenging to involve communities for asset selection and asset sharing, consider other individual-level cost-effective activities such as cash transfers as part of the resilience programming.

Introduction

20. This impact evaluation is part of the Cash-based Transfers and Gender and Climate and Resilience Impact Evaluation Windows. Both windows were created by the WFP Office of Evaluation (OEV) in partnership with the WFP Programme Divisions,[3] and with the World Bank's Development Impact Evaluation (DIME) group. WFP's impact evaluation windows aim to establish portfolios of impact evaluations across a series of countries using the same (or very similar) designs to increase generalizability of results.

21. This impact evaluation estimates the effects of receiving cash transfers in exchange for asset creation activities (or food assistance for assets (FFA), as referred to in WFP) plus complementary activities, implemented as part of the Rwanda Country Office Sustainable Market Alliance and Asset Creation for Resilient Communities and Gender Transformation (SMART) programme, on the overall resilience of its beneficiaries, as well as on intra-household dynamics. The rationale is that the programme should result in increased short-term and long-term capacities to absorb and cope with stressors and shocks. The programme aims to help households and communities improve: food security and diversified livelihoods; community capacities to plan, prepare, and implement actions to reduce their vulnerabilities to shocks and stressors; and household income and well-being over time. This impact evaluation also estimates the effects of participating in FFA activities on gender equality and women's social and economic empowerment.

22. The Inception Report and Baseline Report for this evaluation were published in 2021 and 2022, respectively. This evaluation employs a clustered randomized controlled trial (RCT) across 78 communities and 1,170 households, with three waves of panel surveys and shorter high-frequency surveys collected bi-monthly, capturing a wide range of outcomes such as consumption, food security, earnings, shocks and coping strategies, and financial outcomes. In addition to quantitative data, the evaluation also incorporates qualitative insights.

23. The **Cash-based Transfers and Gender Window** focuses on the impacts of cash-based transfer (CBT) interventions targeting women on gender equality and women's empowerment, as well as food security and psychosocial well-being outcomes. The first round of impact evaluations selected for this window, as laid out in the first pre-analysis plan, estimated the impacts on women's social and economic empowerment of increasing their participation in work outside the household (through the FFA programmes), as a condition of receiving cash transfers, and directly receiving the transfer themselves. This is the second and final report from this window, following the first completed impact evaluation from El Salvador.[4]

24. The **Climate and Resilience Window** aims to understand how WFP FFA – or integrated programming layered on FFA activities (depending on the country) – contribute to resilience (more details could be found in the window pre-analysis plan). This is the third final report from this window, following completed impact evaluations in Niger and South Sudan. The concept of resilience has gained attention because it recognizes the importance of addressing shorter-term humanitarian needs while simultaneously supporting communities in their efforts to cope with future crises induced by climate change, conflict, and other factors. Many institutions, including WFP, have increasingly used this concept of resilience as a basis for their programming.

25. The primary audience for this evaluation includes the WFP Rwanda Country Office and its collaborating partners. The report begins by providing an overview of Rwanda's country context (chapter 2) and the background of the SMART programme (chapters 3 and 4). It then outlines the impact evaluation design (chapter 5) and project findings (chapter 6), and conclusions and considerations for future programming (chapter 7). Annexes 1 to 10 provide more in-depth details, including a description of stakeholders, ethical considerations of the evaluation, the baseline results and participation rates, surveys and data analysis.

[3] The Climate and Resilience Window was developed in partnership with the Asset Creation and Livelihoods Unit (PRO-L). The Cash-based Transfers and Gender Window was developed in partnership with the Cash-based Transfers Division, and Gender Office.

[4] Christian et al. 2023. *Impact evaluation of cash-based transfers on food security and gender equality in El Salvador*. WFP Office of Evaluation.

Country context

26. Rwanda has one of the highest population densities in Africa. The country is highly prone to natural hazards, and 40 percent of the country's population are exposed to recurrent risks, including droughts, landslides, floods, earthquakes, and windstorms, which have negative economic and social impacts on development. As a result of climate change and low incomes, vulnerable households are increasingly exposed to natural hazards that disrupt their lives and livelihoods, resulting in an increase in vulnerability and a high rate of food insecurity and malnutrition. This hampers Rwanda's effort to eradicate extreme poverty.

27. Countrywide, 53 percent of households in Rwanda use livelihood coping strategies to face food shortages during the months before the harvest – for example, half of households engage in crisis coping strategies such as harvesting immature crops, consuming seed stocks, or decreasing expenditure on productive assets, which may seriously impact household's livelihood and resilience to future shocks.[5] In rural areas, food-insecure households mainly depend on agriculture, either through production on their own land (average land size is below 0.5 ha) or through the provision of unskilled daily labour. Smallholder farmers generally cultivate a few (two to three) crops and do not have a vegetable garden, resulting in unbalanced diets and high levels of malnutrition.

28. Gender dynamics are also an important factor in determining household vulnerability, with a much higher proportion of households headed by women categorized with *Ubudehe* status.[6] For instance, 31 percent of the households headed by women are classified in *Ubudehe 1* (lowest household welfare category), against 11 percent of households headed by men. The World Economic Forum (WEF) *Global Gender Report 2021* ranks Rwanda 48th out of 156 countries on their Global Gender Gap Index for economic participation and opportunity, suggesting that this is an area for improvement (World Economic Forum, 2021).

29. WFP has played an important role in supporting vulnerable populations in Rwanda through the implementation of FFA programmes. In many cases, the programmes also take into consideration gender-specific concerns by ensuring that men and women work together on these programmes to strengthen their sense of self-worth. Under the 2019-2023 Country Strategic Plan (CSP)[7] for Rwanda, WFP implements a portfolio of resilience and social protection activities (Strategic Outcome 2) that focus on ensuring that vulnerable populations in food-insecure areas have improved access to adequate and nutritious food all year.

30. Against this backdrop, WFP launched the Sustainable Market Alliance and Asset Creation for Resilient Communities and Gender Transformation (SMART) programme to contribute to community resilience through a package of support, including a stronger soil and water management asset base, livelihood strengthening and diversification, farmer organization capacity strengthening and access to inputs and markets, and social cohesion and gender transformation activities. The next section describes this programme.

5 World Food Programme. 2018. *Rwanda: Comprehensive food security and vulnerability analysis*.

[6] *Ubudehe* is a traditional Rwandan practice and modern government programme aimed at promoting collective action and mutual support within communities. It has evolved into a social classification system used for targeting social programmes and resources to different socioeconomic groups in Rwanda.

7 World Food Programme. 2019. *Rwanda Country Strategic Plan 2019-2023* (WFP/EB.2/2018/8-A/8)

Programme description

31. The Sustainable Market Alliance and Asset Creation for Resilient Communities and Gender Transformation (SMART) programme aims to enhance food security and resilience to shocks, strengthen smallholder farmer production and market access, and build community and government capacities related to nutrition-, gender- and climate-sensitive social protection.

Food Assistance for Assets

32. The SMART programme selectively targeted communities with households that were categorized in the lower national social and economic vulnerability categories. In contrast to other programmes that target the "ultra-poor" with unconditional cash or asset transfers, SMART engaged vulnerable people who were paid a wage to engage in activities linked to the creation of productive assets (for example, hillside terracing that creates stepped, horizontal platforms on sloped terrain for farming, and marshland restoration to produce additional farmland). These activities are referred to by WFP as Food Assistance for Assets (FFA). The daily wage of RWF 1,300 or USD 1.30 was set to cover a standard food basket for a family of four and is in line with the daily wage provided by the Government of Rwanda through the national Vision 2020 Umurenge Programme's public works.[8]

33. The assets that women and men developed or contributed to included livestock rearing, building or enhancing irrigation facilities, enhancing crop cultivation practices, reforestation, road repair, and communal infrastructure upgrades. The type of asset was often selected by local leaders, WFP's implementation partners, or sometimes collectively.

Complementary activities

34. The SMART programme also provided other complementary activities in programme villages for beneficiaries participating in the FFA group or FFA for women group:

- Mobile crèches: In all asset creation sites, WFP established mobile day-care centres (crèches) to provide equal opportunities for women and men to work. As women tend to face difficulties in working outside the home and rearing children at the same time, the mobile crèches encouraged women and men with children aged under 3 years old to join the activities.
- Social and behaviour change communication/training: These activities cover various topics such as nutrition, the Gender Action Learning System (GALS), good agricultural practices, and post-harvest handling and storage.
    1. **Nutrition awareness:** The crèches served as a powerful way to improve nutrition through provision of nutritious food for infants, while their parents were invited for cooking and nutrition education sessions, which were organized regularly during the FFA activity period.
    2. **GALS training and dialogue:** GALS training sessions were conducted to advance gender equality and women's empowerment (GEWE) within communities. Through dialogues addressing gender roles, decision-making processes, and resource access, the programme aimed to empower women and promote gender equity in household dynamics and livelihood opportunities. GALS training was conducted in both FFA and comparison sites.
- Agricultural inputs: This includes the provision of seeds, fertilizers, pesticides, and related supplies.
- Saving groups and improved market access: These interventions were integral parts of the SMART programme, aimed at boosting the economic resilience of smallholder farmers. Through financial literacy training and access to credit via savings groups, farmers were empowered to better manage their finances. The project also intended to improve market access for farmers by linking

8 Socialprotection.org, 2017. Vision 2020 Umurenge Programme (VUP), https://socialprotection.org/discover/programmes/vision-2020-umurenge-programme-vup, (accessed on 14 February 2022).

them with potential buyers for their agricultural produce. These interventions were specifically implemented in the project sites.[9]

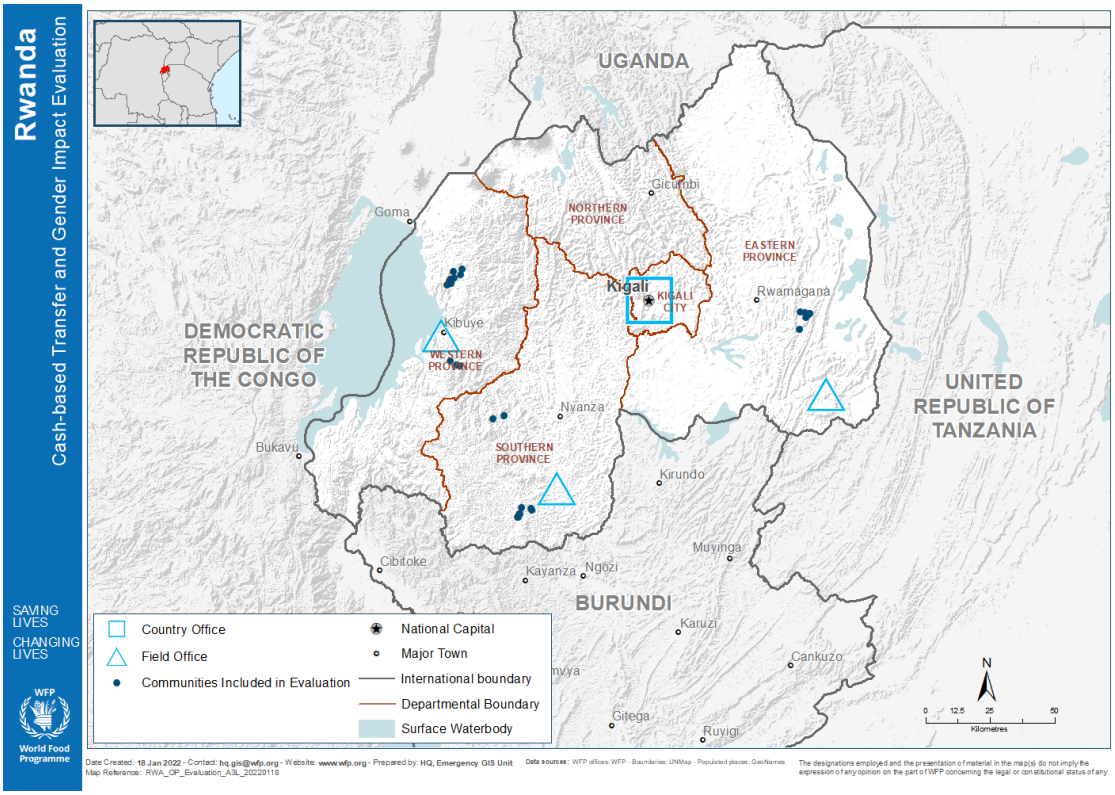
Project locations

35. The project was implemented in eight sectors across five different districts. These districts have high levels of food insecurity, and they are highly vulnerable to climate shocks:

- Western Province: Rwankuba and Ruganda sectors (Karongi district) and Ruhango and Mukura sectors (Rutsiro district) have the highest prevalence of food-insecure households (up to 62 percent in Rutsiro) as well as exposure to flood and land degradation.
- Southern Province: Kaduha and Kamegeri sectors (Nyamagabe district) and Rusenge sector (Nyaruguru district) have the highest proportion of households adopting crisis and emergency coping strategies to respond to shocks.
- Eastern Province: Murama sector (Kayonza district), where 78 percent of households are affected by drought.

36. Across these sectors, 180,000 people benefited from the SMART programme (36,000 direct beneficiaries, 144,000 indirect beneficiaries), including 4,500 refugees. The impact evaluation focused on five sectors within the SMART programme areas. The map in Figure 1 illustrates the locations of the communities involved in the impact evaluation.

Figure 1: Map of project locations included in the impact evaluation

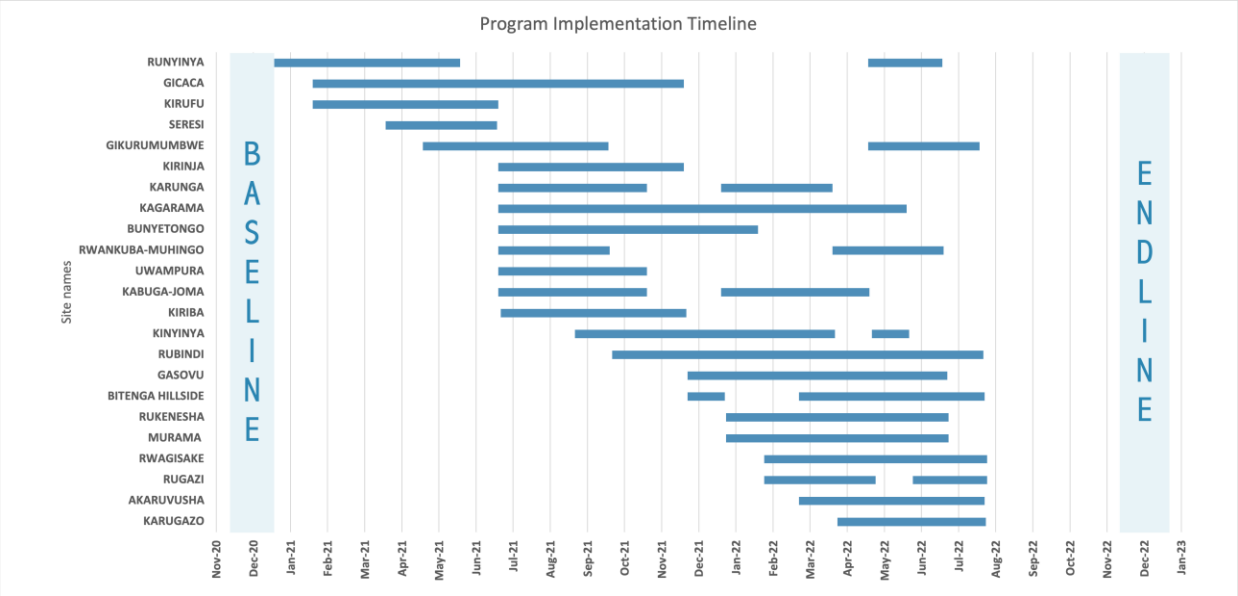


[9] In districts where the SMART programme operates, WFP established a direct connection between smallholder farmers and nearby schools (home grown school feeding programme). This initiative facilitated the procurement of agricultural products directly from local smallholder farmers for school meals. By promoting local agricultural production and enhancing the nutritional quality of school meals, the initiative significantly contributed to food security and economic empowerment within the community.

Project implementation

37. Figure 2 shows the timeline of the asset creation activities for each of the 23 asset sites in relation to the baseline and endline data collection for the impact evaluation. As shown in the graph, there is variability in the timing of the Food Assistance for Assets (FFA) activity and its duration across sites. Due to the capacity constraints of the cooperating partners, not all sites started building assets at the same time. For example, the earliest site started in January 2021, while the latest site started implementing asset work in April 2022. The duration of the FFA ranges from three to 11 months. This variation in the implementation implies that households received wages at different times, and that the total wage amount also varies according to the duration of FFA activity in each site.

Figure 2: Programme implementation timeline



Participation rates

38. Table 1 presents the breakdown of participation by group at the time of the midline survey answering the question: "*Did anyone in the household participate in work for the Food-for-Assets programme since you were registered?*"

39. At **midline**, the percentage of households participating in asset work varied across the two FFA groups. In households receiving FFA for women, 59.0 percent of households had at least one member participating, with 51.1 percent of households involving a woman (87 percent of those participating), and 42.1 percent of households with only women participating. Households under the regular FFA arm showed higher participation, with 70.4 percent of households involved, 40.3 percent including women (57 percent of those participating), and 29.8 percent with only women participating. Comparison households exhibited significantly lower participation rates, with only 6.8 percent involved, 4.6 percent including a woman, and 3.8 percent with only women participating.

40. By **endline**, participation increased in both FFA groups. In the FFA for women group, 65.5 percent of households had someone participating in asset work, with 56.3 percent involving a woman and 49.9 percent exclusively women. For the FFA group, 75.6 percent of households participated, with 48.7 percent involving a woman and 34.5 percent with only women participating.

41. Comparison households, those not targeted for participation in the programme, reported a relatively low participation rate, with 10.7 percent of households participating, 6.2 percent involving women, and 5.1 percent with only women. While participants in the comparison group were not offered any asset work,

there were instances where the households owned the land on which the work component of the project was going to take place, thus they had to be included.

Table 1: Participation by programme groups[10]

	Household participation					
Programme status	**Midline Anyone from household participating**	**Midline Households with a woman participating (of all HHs)**	**Midline Households with ONLY women participating (of all households)**	**Endline Anyone from household participating**	**Endline Households with a woman participating (of all households)**	**Endline Households with ONLY women participating (of all households)**
FFA for women	59.0%	51.1%	42.1%	65.5%	56.3%	49.9%
FFA	70.4%	40.3%	29.8%	75.6%	48.7%	34.5%
Comparison	6.8%	4.6%	3.8%	10.7%	6.2%	5.1%

42. The overall participation rate (defined as having engaged in FFA for at least a day or more during the entire implementation period of FFA, according to the survey interviews conducted) was 75.6 percent among the households assigned to receive FFA (either FFA for women or regular FFA), while it was 10.7 percent among those in the comparison communities. If the programme was implemented perfectly, the participation rate among comparison households would have been zero. In practice, due to the complex nature of the implementation of the large-scale FFA programme and households migrating to different communities, a small level of participation in the comparison communities was observed as well.

Transfer payments

43. The cash transfers were planned to be made in two of the programme arms – FFA for women and the FFA group. As shown in Table 2, 55 percent of households in the FFA for women group and 72 percent in FFA group received transfers by the midline survey. The survey shows that only 4.3 percent of households at midline received transfers in the comparison group also (which is in line with the households that participated in the work component in Table 2). By endline, 67.2 percent of households in the FFA for women group, and 79.5 percent in the FFA group, reported to have received transfers. Of comparison households, 10.7 percent also received transfers.[11]

Table 2: Percentage of households that received cash transfer by programme group

	Percent of households that received cash transfers by group	
Programme status	**Midline**	**Endline**
FFA for women	55.3%	67.2%
FFA	72.0%	79.5%
Comparison	4.3%	10.7%

44. Not all eligible participants decide to participate in the programme, while a small percentage of people who are not residents of programme villages do end up participating. Because of this "imperfect compliance" in both the comparison and programme groups, all results are presented as intent-to-treat (ITT) estimates. ITT analysis – a methodological approach often used in randomized controlled trials (RCTs) – includes every participant initially enrolled/invited to the programme in the study, regardless of their subsequent adherence or withdrawal. This provides an unbiased measure of the impact of a WFP intervention on the initial targeted population for any measured outcomes, within a context where some

[10] This analysis only includes the households that include both a woman and a man.
[11] More details on participation rates – including days per month worked – and transfer sizes can be found in Annex 4.

people choose (or are able) to participate, while others may not. This means that the analysis includes data from all women initially planned to be involved in the FFA for women group, despite a lower than anticipated actual household participation rate. This underrepresentation of women, and "over-involvement" of men in the FFA for women group may mute the results on women's economic empowerment.

Evaluation design and methodology

45. To identify the causal impacts of the Sustainable Market Alliance and Asset Creation for Resilient Communities and Gender Transformation (SMART) programme, the impact evaluation implemented a clustered randomized controlled trial (RCT) design. Impact evaluation results fed into the design of upcoming food assistance for assets programming in Rwanda and the next WFP Rwanda Country Strategic Plan, which focuses on strengthening institutions and filling gaps in the coverage of government food security and nutrition programmes. The detailed design is available in the Inception Report.

46. The WFP Rwanda office, in coordination with cooperating partners, identified 59 potential food assistance for assets (FFA) sites in five sectors where hillside terracing and marshland restoration activities could be implemented.[12] Out of the 59 sites, the programme initially selected the 39 largest sites (covering 128 villages) to be included in the impact evaluation.[13] After excluding additional villages that could not be part of the random assignment due to their close proximity to the FFA sites, 78 villages across 24 sites were then identified as the impact evaluation sample, as shown in Table 3.[14]

47. In a second step, the 78 communities were randomly assigned into either one of the two FFA groups (referred hereafter as 'programme groups') or the comparison group (see Figure 3), producing the clustered randomized design, stratified at the "hypersite" level. A hypersite was constructed by combining multiple smaller sites to ensure that there are at least three villages mapped for each hypersite before conducting the stratified-random assignment of villages. The baseline characteristics and randomization balance check can be found in Annex D and E.

48. Within communities, households who had not received WFP assistance previously and those with *Ubudehe* category 1 or 2 were prioritized, a poverty classification set by the Government of Rwanda. The eligible households in the communities assigned to receive FFA were registered to work on the assets, attend training sessions, and receive FFA transfers (expected were on average 12 working days per month over six months, with a maximum of 22 days, with a daily wage of RWF 1,300 or USD 1.30).

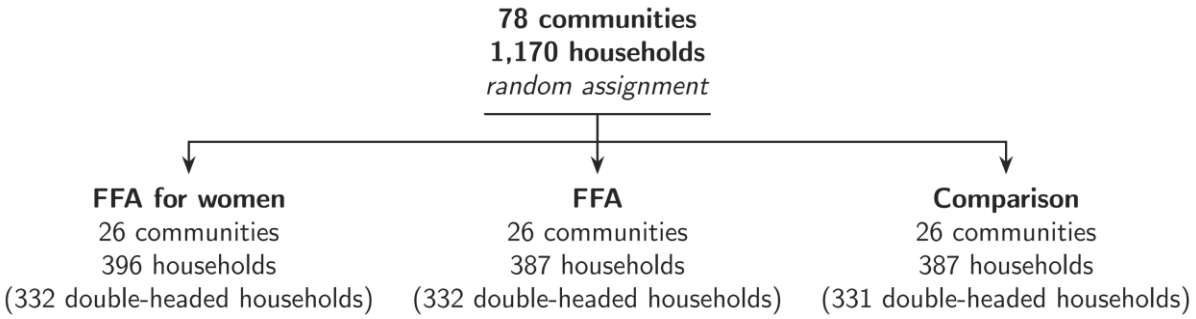
49. Among the eligible households, 15 households in each community were randomly selected for data collection, resulting in the impact evaluation sample of 783 programme households and 387 comparison households. The targeting process was led by WFP's implementing partners.

Table 3: Locations of impact evaluation communities

Partners	District	Sector	Comparison	FFA	FFA for women	Total
GNI	Karongi	Rwankuba	9	9	8	26
	Nyamagabe	Kaduha	3	3	3	9
	Nyaruguru	Rusenge	3	4	4	11
Duhamic	Kayonza	Murama	7	6	7	20
	Rutsiro	Ruhango	4	4	4	12
Total			**26**	**26**	**26**	**78**

[12] Sites were selected following two constraints imposed by WFP for budgetary, political, and logistical reasons: (i) the total area of sites where WFP can conduct interventions should not exceed 1,000 hectares; and (ii) 375 hectares of sites were pre-selected.
[13] The SMART programme target was 1,000 hectares, but 375 hectares were pre-selected and could not be part of the evaluation, and therefore the selected 39 sites collectively cover an area of 625 hectares.
[14] Of the 128 villages, 44 were excluded because they were precisely located at the site, and they could not be part of the random assignment. Another six villages were excluded because the sites they were mapped to were too small.

Figure 3: Impact evaluation groups



50. Details of the two programme arms and the comparison group are:

- **FFA for women group**: 396 households in this programme group were targeted to receive a conditional cash transfer (maximum USD 30 per month for six months) – where the primary female decision maker was invited to register to work on the asset, attend training sessions, and receive the transfer. This group benefited from the complementary activities.
- **FFA group:** 387 households in this programme group were targeted to receive a conditional cash transfer (maximum of USD 30 per month for six months) – where the primary male or female decision maker was invited to work on the asset, attend training sessions, and receive the transfer. This group also benefited from the complementary activities.
- **Comparison group:** 387 households did not receive assistance from WFP as they were outside the project target areas.

51. The FFA and the FFA for women groups also received the complementary programme interventions.

52. Of the 1,170 total households, 985 were included in the Cash-based Transfers and Gender Window analysis as these households were "double-headed", meaning households had both a man and a woman that could be considered to be heading the household and available to participate in the FFA activities.

53. For the Climate and Resilience Window analysis, the status quo group (FFA) and the FFA for women group are pooled together (referred to as the programme group), and compared to the households in the Comparison group, which were not targeted for programme participation.

54. The stakeholder analysis for this evaluation identifies individuals and groups potentially influencing or affected by the evaluation's outcomes. The main user of this evidence is the WFP Country Office (CO) in Rwanda, with a broader aim for use of the findings. Stakeholders include internal WFP staff in Rwanda and beyond, affected communities, and external groups such as non-governmental organizations (NGOs), donors, and government bodies. Engagement methods vary by stakeholder group and include document review, input during evaluation design, workshop participation, and feedback on reports.

55. The evaluation follows the 2020 United Nations Evaluation Group ethical guidelines, with WFP's Office of Evaluation (OEV) and World Bank's Development Impact Evaluation (DIME) group ensuring adherence to ethical standards, such as informed consent, privacy, confidentiality, cultural sensitivity, and participant autonomy. Ethical approval for the study was obtained from Solutions IRB on 10 March 2020, with annual renewals. Informed consent was secured separately for survey participation, and privacy during interviews was maintained through appropriate locations and trained personnel, including female enumerators. Enumerators received comprehensive training on sensitive topics, and ongoing ethical oversight was maintained. The study is registered with the American Economic Association (AEA) RCT Registry for transparency.

56. The following sections summarize the two designs used to evaluate the programme from: (i) cash-based transfer (CBT) and gender design; and (ii) climate and resilience design.

5.1 Cash-based transfer and gender design

57. This section outlines how the evaluation questions and literature informed the impact evaluation design. The design is very similar to the El Salvador Impact Evaluation, which is also part of the Cash-based Transfers and Gender Window. A full discussion of the theory that informed the Cash-based Transfer and Gender design is in Annex 5.

5.1.1 Evaluation questions for cash-based transfer and gender

58. The first hypothesis tested is that involving women in activities (asset creation through participation in the FFA programme), and participating in educational sessions, would directly impact:

i. their time use (shifts towards paid work outside the home); and
ii. their earnings, as they are paid directly for their work.

59. The second (following) hypothesis is that, in the medium run, these combined shifts in time use and earnings could impact women's economic empowerment by altering:

iii. perceptions of gender norms;
iv. attitudes;
v. agency;
vi. consumption patterns; and
vii. well-being (physical, social, and psychological).

60. The main **cash-based transfers and gender impact evaluation questions (EQs)** are:

EQ1. What is the impact of targeting women's with FFA (working outside the household and receiving cash in return) on their social and economic empowerment?
EQ2. Does FFA affect key food security outcomes of interest?

5.1.2 Data collection for cash-based transfers and gender

61. Quantitative data for this part of the impact evaluation was collected in three rounds in addition to qualitative data collection. The baseline data collection was completed between December 2020 and January 2021. The midline survey was completed in a phased manner across the communities between April 2021 and June 2022. This was necessary because the intervention was rolled out in a staggered manner across multiple regions, as can be seen in Figure 4. The endline data was collected between November 2022 and December 2022 (see Section 4: Project implementation for the timeline).

62. The survey was administered primarily to households with both male and female heads of household.[15] Of the 985 households in the sample, 924 were successfully surveyed at midline and 896 were surveyed at endline.[16]

63. Following quantitative data collection and preliminary analysis, qualitative data collection was carried out in June 2023 in the form of in-depth interviews (IDIs), focus group discussions (FGDs), and key informant interviews (KIIs) were collected eight months after the quantitative endline survey.

64. Trained research assistants conducted all IDIs, KIIs and FGDs in Kinyarwanda language; FGDs lasted about 1.5 hours, and IDIs and KIIs about 1 hour each. Each FGD was comprised of ten participants. All FGDs, IDIs and KIIs were recorded, translated, and transcribed into English. All final transcripts were cleaned and de-identified. All beneficiaries, community leaders and implementing partners provided their oral informed consent to participate in the evaluation.

65. Outcomes measuring gender empowerment and women's well-being, and which are covered during baseline, midline and endline include time use, earnings, consumption, food security, decision making, attitudes, perception of norms, well-being, and abuse. More information on how these indicators and indices were constructed is provided in Annexes 5 to 7.

[15] Please also refer to the Inception Report for a more detailed discussion of household inclusion criteria.
[16] The Baseline Report includes results for 985 households.

5.2 Climate and resilience design

5.2.1 Evaluation theory for climate and resilience

66. This evaluation complements a growing body of literature on the impacts of multifaceted programmes on household well-being.[17] The focus is on documenting impacts on household food security and welfare over time. The evaluation will also directly assess how the programme affects households' ability to mitigate the effects of shocks on their food security and welfare.

67. Past literature on resilience relied on measuring programme impacts at a single point in time, and documenting positive gains in well-being, sometimes by comparing household in communities exposed or not to shocks.[18, 19, 20] This impact evaluation considers the fact that the capacities needed to improve and sustain well-being are likely to evolve over time, depending on the type and severity of shocks encountered. Evaluating the effect of programmes on resilience therefore requires measuring well-being over time, including across seasons, before and after shocks, as well as absorptive, adaptive, and transformative capacities.

68. Building on proposals from Barrett and Constas (2014)[21] and Cissé and Barrett (2018)[22] to conceptualize resilience as avoidance of poverty in the face of shocks and stressors, each evaluation in the Climate and Resilience Window directly measures welfare dynamics to understand resilience outcomes. These measures are calculated from a minimum set of indicators collected at higher frequencies in each country supported.

5.2.2 Evaluation questions for climate and resilience

69. The primary hypothesis being tested in Rwanda is that participation in the FFA programme will result in increased short-term and medium-term capacities to absorb and cope with stressors and shocks. The improved resilience may ultimately translate into households' and communities' improved food security and diversified livelihoods, capacities to plan, prepare, and implement actions to reduce their vulnerabilities to shocks and stressors, and to increase household income and well-being over time.

70. The main **climate and resilience impact EQs** are:

EQ3. Does participation in FFA affect key food security outcomes of interest? Can FFA increase the overall resilience of households?

EQ4. How does FFA affect the resilience over time and throughout the seasons?

71. The evaluation is intended to isolate the impact of FFA on the overall resilience of its beneficiaries, as well as resilience over time – both post-harvest and in lean seasons. Measuring resilience requires a two-pronged approach. First, the data collection uses multi-dimensional indices at baseline and endline covering various outcomes. Second, high-frequency measures of food security and shocks are used to assess trajectories of welfare and vulnerability over time, taking into account fluctuations due to seasonality, climatic stressors, and idiosyncratic shocks.

5.2.3 Data collection for climate and resilience

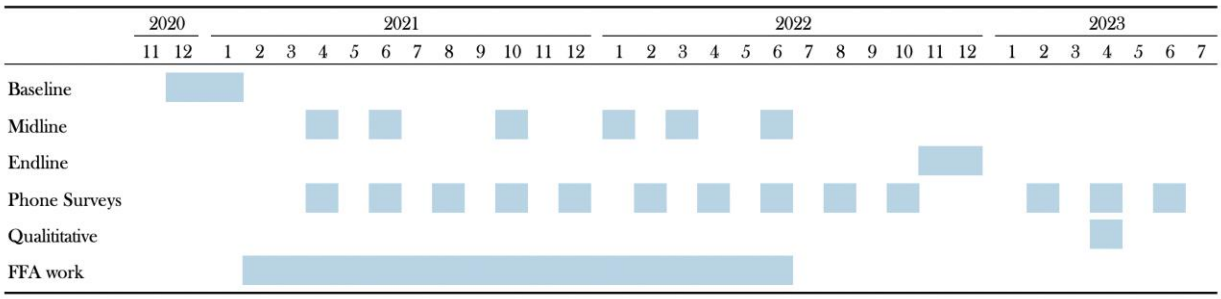
72. Quantitative data for this impact evaluation was collected in three survey rounds (baseline, midline, endline), and complemented by qualitative data collection. As shown in Figure 4, the baseline data collection was completed between December 2020 and January 2021. The endline data was collected between November and December 2022, and the midline data in between baseline and endline. Beyond the in-person surveys, the evaluation also included bi-monthly phone surveys for 653 households that had a mobile phone

[17] Banerjee et al. 2015. A multifaceted program causes lasting progress for the very poor: Evidence from six countries. *Science*, 348(6236), 126-799.
[18] Gunnsteinsson et al., 2019. Protecting infants from natural disasters. *NBER Working Paper Series*. No. 35.
[19] Macours, Premand & Vakis. 2020. *Transfers, diversification and household risk strategies*. Working Paper
[20] Premand & Stoeffler. 2020. *Do cash transfers foster resilience?* Policy Research Working Paper No. 9473. World Bank, Washington, DC.
[21] Barrett, C., & Constas, M. 2014. *Toward a theory of resilience for international development applications*. Proceedings of the National Academy of Sciences of the United States of America. 111 (40):14625–14630.
[22] Cissé, J., & Barrett, C. 2018. Estimating development resilience: A conditional moments-based approach. *Journal of Development Economics* 135:272–284.

at baseline. Finally, qualitative data collection was carried out in 13 communities across Rwanda in April 2023 (i.e. FGDs in seven communities and IDIs in six communities). In total, the qualitative research included interviews with 172 beneficiaries, 13 community leaders, and 12 project staff.

73. The resilience analysis uses baseline, endline, and high-frequency data and, as opposed to the gender analysis, it does not include midline data. There are two main reasons for this: first, midline surveys covered different cohorts at different times, which makes impacts on resilience indicators harder to interpret. Second, the resilience analysis uses the high-frequency data to document impacts throughout the implementation period, and even after endline.

Figure 4: Timeline



74. Outcomes covered during baseline and endline include food security, consumption and expenditures, income-generating activities (i.e. employment, business, and livestock), savings and credit, assets, shocks and coping strategies, and psychosocial well-being (i.e. locus of control, stress, life satisfaction, and measures of anxiety and depression). The specific outcome metrics can be found in Annex 9.[23] The high-frequency survey (bi-monthly surveys following the baseline) collected data on a subset of indicators, including food security, coping strategies, and shocks, as well as self-reported programme participation over time. A key feature of the resilience measurement approach adopted for this evaluation is reliance on high-frequency data to explore the dynamics of well-being throughout the evaluation period. This approach to resilience measurement differs from previous resilience indices, which are static and measure resilience at one point in time, or before and after an intervention. Annex 6 briefly defines the key outcomes of interest for the impact evaluation in Rwanda.

5.3 Limitations

75. Internal validity: As with any RCT, spillover across communities and differential attrition are potential risks for the evaluation. The team worked closely with the implementing partners on the ground to monitor potential spillover risks and design clear implementation protocols. However, it is observed that a small number of comparison communities also received FFA, and therefore the results can be interpreted as the lower bound of the potential impacts that can be expected when FFA is cleanly implemented without imperfect compliance. The evaluation does not find differential attrition for endline data collection (Annex Figure 4).

76. Disentangling the effect of cash vs work: The impacts of the programme arm focusing on FFA are a combination of engaging in work outside the household and receiving a direct cash transfer (as pay for their work). The impact evaluation design estimates the combined impact of both features, which makes it hard to disentangle the relative importance of either one. However, working outside the household usually entails direct pay, which makes this combination operationally relevant to investigate. There is also already a large body of literature on the impacts of cash transfers alone, and the contribution of our study therefore is more focused on the work component.

77. Disentangling the effect of FFA vs other SMART activities: The impact evaluation team worked closely with the country office to consolidate programme monitoring data to track implementation of the various programme activities at each site. However, the programme monitoring system did not allow for precise

[23] The indices related to depression and anxiety are proxy measures and should not be understood as clinical measures.

tracking of household-level participation to programme components or payment made over time. This limited the impact evaluation team's ability to analyse and account for differences in participation in programme components at the household level, which could only be estimated using self-reported data collected in the high-frequency survey sample. Finally, detailed cost data could not be obtained to perform a cost-benefit analysis.

78. External validity: The results of a single evaluation might not generalize to other settings. However, the robustness of the findings across contexts can be assessed through a synthesis of results from all the countries that participate in the Climate and Resilience Window (see the Window pre-analysis plan for details). The use of coordinated survey instruments and data collection protocols will help to ensure that the data collected in Rwanda is comparable to other countries in the window and in other WFP supported evaluation windows, to maximize the potential to draw more general conclusions.

79. Direct income vs work effect: The impacts of the programme arm focusing on FFA for women are a combination of engaging in work outside the household and receiving a direct cash transfer (as pay for their work). The impact evaluation design estimated the combined impact of both features, which makes it hard to disentangle the relative importance of either one. However, work outside the household entailed a direct pay, which makes this combination operationally relevant. There is also already a large body of literature on the impacts of cash transfers to women alone, and the contribution of our study therefore is more focused on the work component.

80. Endline timing: The project was implemented in a staggered manner, leading to variations in the timing of project completion relative to the endline data collection. While some households completed the project as early as July 2021, others finished in August 2022. Consequently, for households where the project ended earlier, the effects may have diminished by the time of the endline survey, potentially skewing the overall results downward. An analysis of heterogeneity, comparing early versus late completers, could help shed light on these effects, but this has not yet been conducted.

81. There is no clean way of interpreting the dynamic pattern of food security results. First, the high-frequency analysis is completed only for the 50 percent of the sample who, on average, are richer with better food security because mobile phone ownership was the prerequisite. Therefore, it is difficult to directly compare the phone survey results with the endline results from the overall sample. Second, because of the non-random roll-out of FFA, part of the dynamic impact is due to the fact that some months had a large number of communities engaging in paid work. Therefore, the evaluation cannot isolate the seasonal variation in food security from the mechanical impacts of participation.

Main findings

82. This chapter describe the findings related to the impact of the Sustainable Market Alliance and Asset Creation for Resilient Communities and Gender Transformation (SMART) programme on all outcomes measured, as detailed in the Inception Report. The analysis is divided into two sections that align with the two different designs outlined above, with the first section focusing on Cash-based Transfers and Gender Window findings, and the second section focusing on Climate and Resilience Window findings. Additional results tables can be found in Annex 7.

83. Findings are based on examining differences between the programme and comparison groups. The baseline data helped to ensure that the groups are statistically similar at the beginning of the evaluation, as outlined in the Baseline Report. However, many different factors influence changes over time in both the programme and comparison groups, such as weather, and inflation, among others. Before and after comparisons over time can therefore be misleading. For the Cash-based Transfers and Gender analysis, the evaluation uses midline and endline data to compare the Food Assistance for Assets (FFA) for women group, the standard FFA group, and the comparison group. For the resilience analysis, the evaluation uses the high-frequency and endline data to compare the combined FFA group (women and standard FFA) with the comparison group.

6.1 Cash-based transfers and gender findings

84. This section describes the impacts of the Cash-based Transfers and Gender Window findings.[24] The analysis compares the impacts of the FFA for women group to the comparison group, and of the standard FFA group to the comparison group. In addition, in some cases, both groups are combined to measure the impact of benefiting from either modality vs the comparison group. The analysis also compares targeting women with FFA to the standard FFA group.

85. The order of the results section follows the order of expected impacts stemming from the evaluation theory, from more direct to more indirect impacts of participating in the project. The results discuss baseline findings, as well as the midline and endline results for each indicator section. The structure matches the El Salvador Impact Evaluation Report, which followed a very similar design, showing the same outcome categories:

- time use;
- earnings;
- consumption;
- food security;
- decision-making authority (agency);
- attitudes;
- perceptions of norms;
- well-being; and
- abuse.

86. All the analyses use an intent-to-treat (ITT) estimation of the programme's impact, using **both the midline and endline data**. However, this approach can underestimate the effect of the intervention on individual households, since it includes all households where women were targeted for participation (even if the women choose not to participate). This is to ensure that the estimates accurately represent the causal

[24] The analysis has been intent-to-treat (ITT) and compares communities randomly assigned to the FFA group to communities randomly assigned to the FFA for women group. This analysis estimates the impact of this community-level assignment. Alternatively, we may be interested in the impacts of women's *participation* in FFA; under the additional assumption that the shift from FFA to FFA for women affects household outcomes through changes in women's participation, we can divide our estimated ITT results by the effect of the shift on women's participation in FFA to calculate the impacts of women's participation, a treatment-on-the-treated (ToT) analysis. We find that FFA for women increases women's participation in FFA by 11 percentage points; a ToT analysis therefore implies that women's participation in FFA increases household outcomes by nine times as much as the ITT estimates.

impacts of the programme under real-world conditions, where households maintained agency over their decision to participate.

6.1.1 Time use

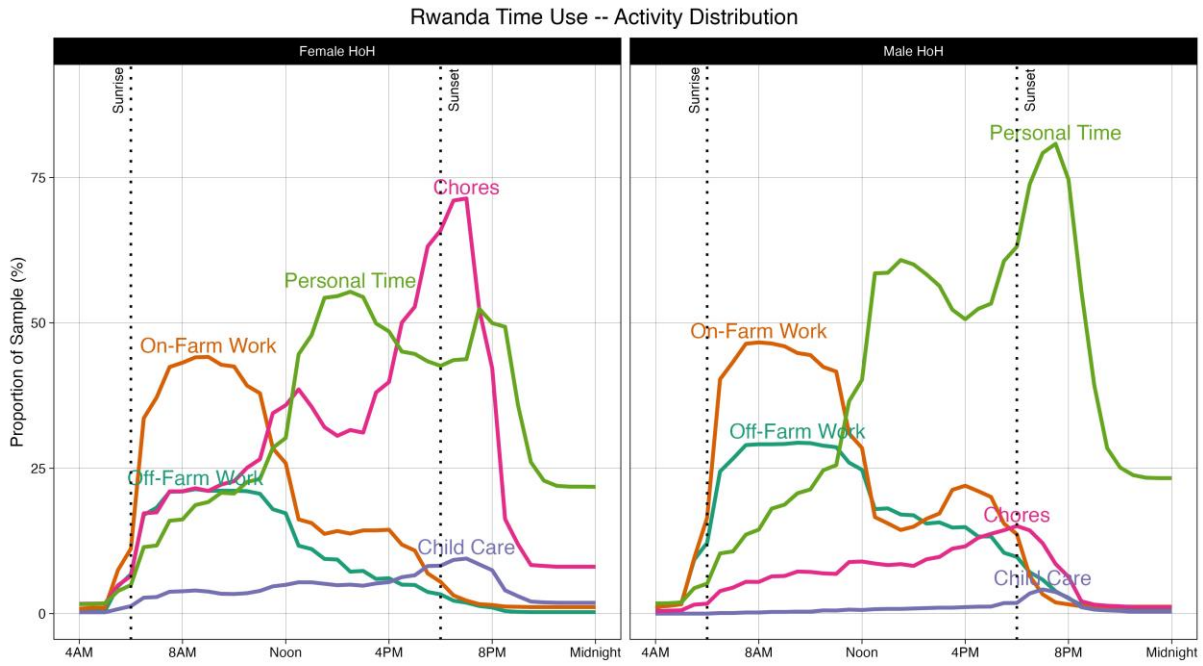
Summary of findings: The baseline findings confirmed traditional gender roles, with women spending more time on chores and less time outside the home than men. While women assigned to FFA for women spent more time in the programme than women in the standard FFA branch, participation in the FFA for women programme does not lead to women spending more time outside the house and has no significant impact on their time allocation compared to other groups (at midline and endline).

87. An important measure of agency across genders is how much time is spent on productive activities and chores daily. In the literature, a striking fact about gender differences in time use is that, when women work for a wage, they reduce leisure time, whereas men do not shift their time into home chores.[25, 26]

88. Overall, the results are in line with this literature. Women spent 5 hours per day on chores, while men only spent 1 hour per day on chores. The mean time spent outside the home is 7.4 hours for men compared with only 5.5 hours for women heads of household – nearly a two-hour difference.[27] Similarly, male heads of household spent more time on salaried and agricultural work (with a mean of 1.9 hours and 3.5 hours, respectively) than female heads of household (with a mean of 1.2 hours and 2.9 hours, respectively). This is consistent with the reported earnings differential between the genders observed in Section 6.1.2. Figure 5 suggests that the increase in hours spent on chores by women is accompanied by reduced personal time after sunset compared to men.

89. At midline households' participation rates in the WFP project were 70 percent for the FFA arm and only 59 percent in the FFA for women arm (measured at midline). Women's participation rates were lower, namely 40 percent (FFA) and 51 percent (FFA for women), respectively. Thus, targeting women with FFA reduced participation rates across households, but boosted women's participation.

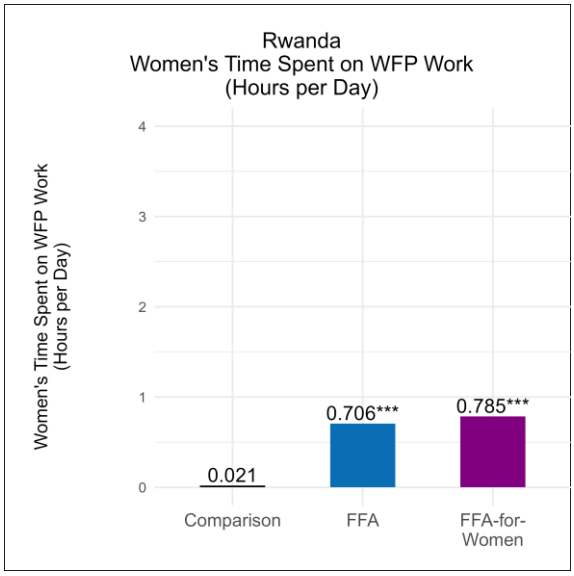
Figure 5: Time use on a typical day for women and men (at baseline)



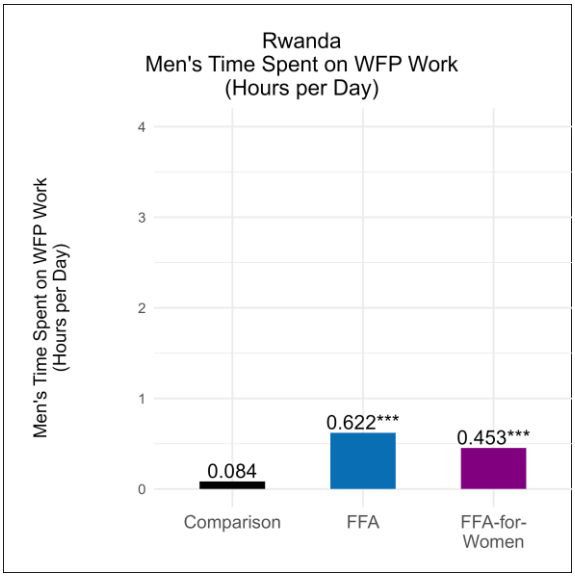
[25] Hochschild & Machung, 2012. *The second shift: Working families and the revolution at home*, Penguin Publishing Group.
[26] Bertrand et al., 2015. Gender identity and relative income within households, *The Quarterly Journal of Economics*, Volume 130, Issue 2, Pages 571–614
[27] For time use, data from the last two working days and a rest day is used to calculate a weekly average.

Figure 6: Midline – Daily average hours working in WFP project on a typical day

Women



Men



These figures refer to the average over all households in each group for which the corresponding survey question was answered (312 in the control group, 294 in the FFA for women arm, and 308 in the FFA arm).

90. Women spend, on average, 6.0 days per month working on FFA in the FFA for women group, and 4.7 days per month in the FFA group (see Annex Table 4). At midline, as seen in Figure 6, this corresponds to an increase in time spent on programme participation "on a typical day" for women in the FFA for women arm compared with the FFA arm, where men spend more time on programme activities. Women in the FFA for women arm report spending 48 minutes in the programme on average per day (0.79 hours) while women spend 40 minutes in the FFA group (0.71 hours) and one minute in the comparison group. As expected, men spend more time working in FFA arm with 33 minutes per day (0.62 hours) compared with 23 minutes in the FFA for women arm (0.45 hours) and five minutes in the comparison arm. While women's participation in both the FFA for women arm and the FFA programme arm are relatively low at midline (51 percent and 40 percent), this suggests that targeting women increases the time they spend working, whenever they do choose to participate in FFA.

91. As per the evaluation theory, women working on the programme sites should lead to an increase in time spent outside the household by women. However, increased participation in the programme did not translate to women reporting spending more time outside the home or time spent on paid work in FFA for women arm compared to the FFA arm, as seen in Table 4. The women in the FFA for women arm report spending 16 minutes (0.262 Standard Deviation (SD)) more minutes per day outside the home compared with the FFA arm, a statistically insignificant result. Similarly, the women reported spending no more time on paid work in the FFA for women arm compared with the FFA arm. This might indicate that women already spent time outside the home prior to the project, and those women who joined the FFA programme shifted away from those other activities.

92. In the qualitative interviews, some women reported spending increased time on FFA activities while continuing to perform caregiving activities at home. Others said they had to come home late because of the FFA work.

> Participant 1: So, the time you used spent doing household chores and doing your conventional job was decreasing. You see, we used to leave very early in the morning only to return around three or four o'clock in the evening. Whereas we were at work, they were also some members of the family who had to remain at home. Sometimes, we could even arrive back at home from work around five o'clock. Now, certainly, around the said time, one could not do anything except for preparing supper. We could, therefore, hardly do anything with this remaining time (…)
>
> *Female respondent, FFA for women group*

93. At **endline** there are no significant detectable changes in time use for either men or women because of the FFA arm or participating in the FFA for women arm.

6.1.2 Earnings

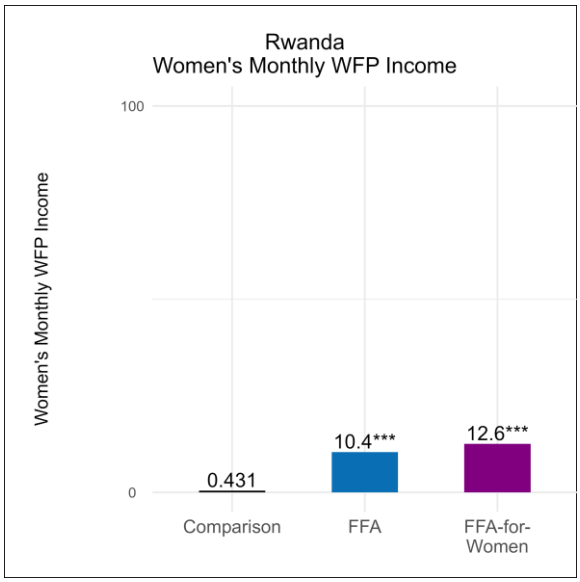
Summary of findings: At midline, there is an increase in the WFP income reported by women in both FFA (+USD 10) and FFA for women arms (+USD 12) when contrasted with the comparison group. These differences are statistically significant. Also, non-WFP earnings for women increased significantly in the FFA for women group compared with the FFA group by USD 7, which corresponds to an increase by 49 percent of the women's monthly non-WFP earnings compared with the FFA group at midline. This suggests that participation in the WFP programme allowed women to earn an additional income outside the home, even when they were not working on programme activities. At endline, these differences between the groups dissipate.

94. The first step in the theory of women's economic empowerment suggests that there may be a "wage effect" on women's agency over household decisions. To test this theory in the context of WFP's programme, the evaluation examined whether offering households the opportunity to participate in FFA resulted in any changes in their earned income (WFP and non-WFP earnings). Prior to the project (at baseline), women's yearly earnings (2019 purchasing power parity USD) were USD 43.54 or USD 3.63 per month, much less than earnings by men (USD 235.29).

95. At **midline**, as women in both the FFA and FFA for women group received WFP transfers, an increase in WFP earnings is seen in both groups when contrasted with the comparison group by USD 10.4 and USD 12.6, respectively, and both are statistically significant (about USD 2.10 to USD 2.20 per day worked in the project). This can be seen in Figure 7 which shows the average estimates of women's monthly WFP income for each programme arm. These estimates in WFP income correspond to 38 percent and 46 percent of household's average monthly income at baseline. Additionally, the FFA for women group "earned" more – through non-WFP-related income – when compared to the benchmark FFA arm by USD 7, and this difference is statistically significant (the recall period being the last month prior to the survey). This suggests that participation in the FFA for women programme allowed women to participate in other non-WFP work as well.

Figure 7: Women's monthly WFP income (at midline)

Midline



96. At **endline**, women report no WFP wage income, which is explained by the fact that data was collected after the programme's intended end date. The evaluation also does not find any increase in non-WFP income three months or more after the programme ended. This suggests that there may have been no other outside options for women to continue to earn an income.

97. In line with the midline findings, in the qualitative interviews, participants in both the FFA and FFA for women groups reported improvements in their household earnings as a result of participating in the project. However, beneficiaries in the FFA for women group reported more often than beneficiaries in the FFA communities that they were able to save or invest their money into savings cooperatives, agricultural inputs and livestock.

6.1.3 Consumption

Summary of findings: At midline, both the FFA and FFA for women groups showed an increase in estimated household consumption, though these results were not statistically significant. Similarly, at endline, both groups experienced increases in predicted household consumption compared to the comparison group, but these increases also did not reach statistical significance.

98. As described in the evaluation theory, and the pre-analysis plan, an increase in earnings is expected to result in an increase in consumption.[28]

99. At **midline**, while the programme was ongoing for both the FFA and the FFA for women groups, household consumption increased (2.5 percent increase in FFA group and 13.7 percent increase in FFA for women group compared with the comparison group). However, these increases are not statistically significant. The estimated monthly household consumption for the comparison group at midline is USD 103.9 per month.

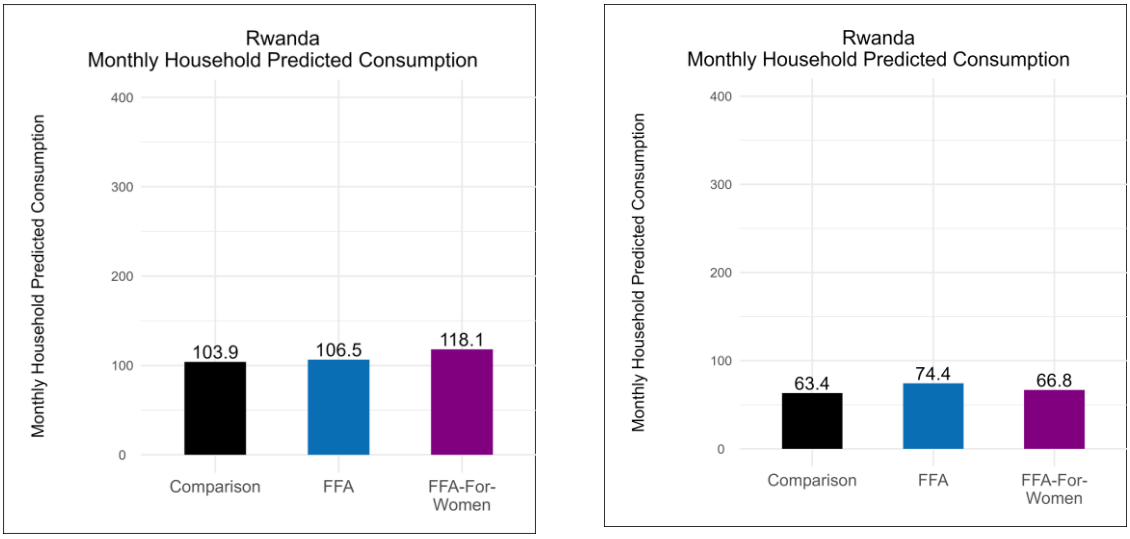
100. At **endline**, predicted consumption dropped for all groups. For both the FFA and the FFA for women groups, household consumption also shows increases (17.4 percent and 5.4 percent increase in household

[28] The consumption variable is being estimated using data on five goods and coefficients produced by a LASSO regression based on 2016-2017 EICV5 data (Integrated Household Living Conditions Survey). The goods that predict consumption best in that dataset are educational expenditures, airtime, women's footwear, women's tailoring, and beauty and cosmetic products.

consumption for FFA and FFA for women groups respectively compared with the comparison group). However, these increases are also not statistically significant. The estimated monthly household consumption for the comparison group at endline is USD 63.4 per month.

Figure 8: Monthly household predicted consumption (in USD)

Midline ***Endline***



101. In the qualitative interviews, across all intervention groups, beneficiaries pointed to improved household consumption from buying beans, rice, cooking oils, soap and body oil, among other items. However, these improvements did not last after the project ended. In the quotes below, a female participant recalls how their household food consumption improved during the project, but this change did not last after the programme ended:

> Participant: [During the project] I would get what to eat on credit and then pay later.
>
> Interviewer: Did you consume enough food during that time?
>
> Participant: Yes, but not so much.
>
> Interviewer: Did your diet change in a good way or a bad way?
>
> Participant: It had changed well.
>
> Interviewer: Did it change during that time, or it continued even after
>
> Participant: It did not continue, how can it continue when the work stopped?

Food security

Summary of findings: At midline, both the FFA and FFA for women groups showed modest improvements in food security measured by the Food Consumption Score (FCS), with increases of 0.5 and 0.7 points, respectively, though neither was statistically significant. In contrast, the inverted Food Insecurity Experience Scale (FIES) showed a significant improvement of 0.369 standard deviations (0.4 points) for the FFA for women group compared to the comparison group.

However, by endline, both groups reported significant improvements in inverted FIES scores, with increases of 0.300 and 0.342 standard deviations (0.3 points), respectively. However, the FFA group demonstrated a significant 3.1-point increase in FCS compared to the comparison group, while the FFA for women group showed no change in FCS.

Overall, the results indicate increases in food security, with the FFA for women group showing significant midline improvements in FIES, and both groups reporting significant gains in FIES by endline. The FFA group also showed a notable impact on FCS at endline, suggesting that both modalities contributed to improved food security, particularly dietary diversity, compared to the comparison group.

102. An increase in household earnings – resulting from receiving a transfer through either the FFA or FFA for women – has the potential to enhance food security. To assess this impact, two complementary measures of food security were employed: the Food Consumption Score (FCS) and the Food Insecurity Experience Scale (FIES).

103. The FCS records how often households consume food items from different food groups during the seven days before the survey. The FIES scale captures the number of types of food insecurity experiences a household had over the last 30 days. Food insecurity experiences include being worried about not having enough food, being unable to eat nutrition foods, eating a smaller variety of foods, having to skip a meal, eating less, running out of food, being hungry and not eating, and going a day without eating. The scale is reversed so that a maximum score of 8 indicates that a household has not had any of these experiences, and a score of 0 indicates the worst possible food insecurity.

104. The FCS assesses households' food security by examining three key dimensions: caloric availability; dietary diversity; and the relative nutritional value of the food groups consumed. In contrast, the FIES provides self-reported insights into food insufficiency and challenges in accessing food, as experienced directly by respondents. While each measure focuses on different facets of food security, their combined use offers a comprehensive and nuanced understanding of household food security levels.

105. The baseline data showed that 67 percent of households were experiencing “borderline” or “poor” food security (equivalent to an FCS score under 35). On FIES, 37 percent of the households at baseline reported experiencing severe food insecurity, while 52 percent reported experiencing moderate food insecurity.

106. At **midline**, while the programme was still ongoing, both the FFA and FFA for women households see small and insignificant increases in food security (FCS) regarding the comparison group (0.5 and 0.7 FCS points or 0.040 and 0.056 SD, respectively). For the (inverted) FIES at midline, the data shows modest improvements for both groups: insignificantly (0.088 SD) for the FFA group and significantly by 0.4 points (0.369 SD) for the FFA for women group when compared with the comparison group.[29] In addition, when comparing the FFA for women group with the FFA group, the increase is also significant (0.281* SD).

107. A positive change in the FIES, coupled with insignificant changes in the FCS, indicate that households may feel more secure or less stressed about food access, reflecting a reduction in the emotional burden of food insecurity. However, the FCS suggests that diet quality and diversity remain unchanged, meaning that households were not consuming more nutritious or varied foods.

108. By the **endline**, after the programme had concluded, the FIES showed improvements for both FFA and FFA for women groups, compared to the comparison group. The FFA group improved by 0.300** SD and the FFA for women group by 0.342**, both statistically significant when compared to the comparison group (+0.3 FIES for both groups). However, significant improvements in FCS are also observed in the FFA group but not in the FFA for women group. The FFA group saw an increase of 0.209** SD compared to the comparison group, a statistically significant difference (+3.1 FCS points). These findings shows that the standard FFA programme was successful in raising FCS (for the FFA group) and FIES scores even after the programme had ended.

109. Figures 9 and 10 visualize the FCS and inverted FIES scores for the midline and endline. Household participation rates were significantly lower at midline in the FFA for women arm (-0.144** SD), which led to households in this group receiving less WFP cash support (-0.199*** SD). This might have contributed to this finding and further underscores the need to find ways to boost participation rates (see also Consideration #1).

[29] The FIES score has been inverted to show an increase in the scale as an improvement.

Figure 9: Food Consumption Score

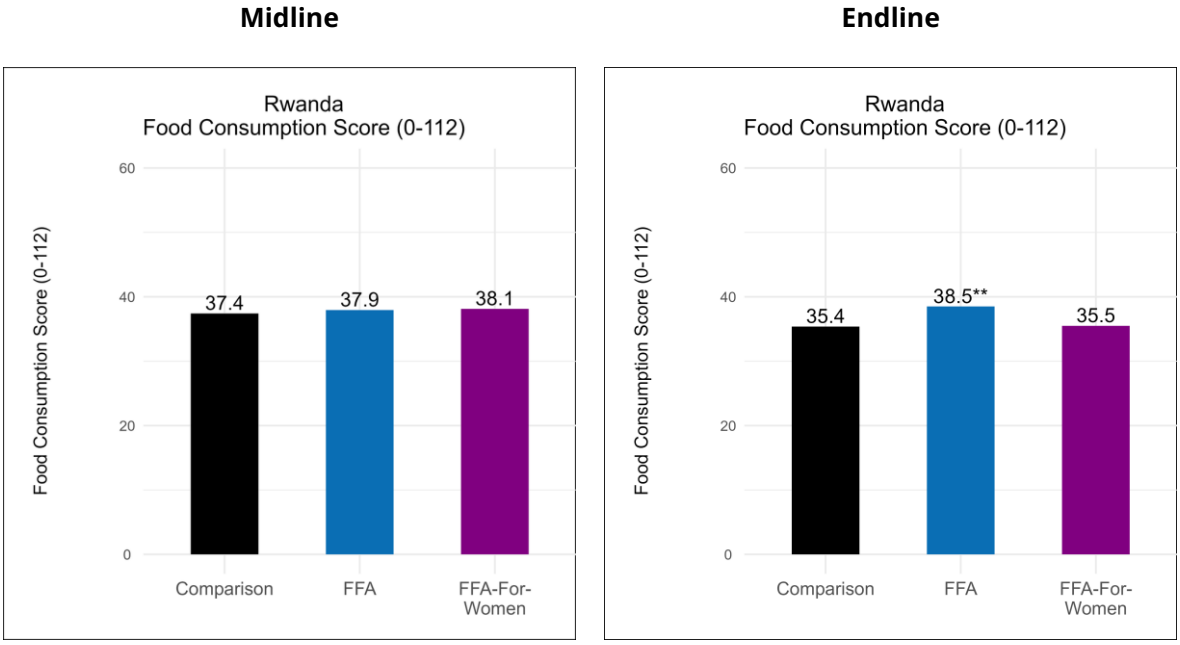
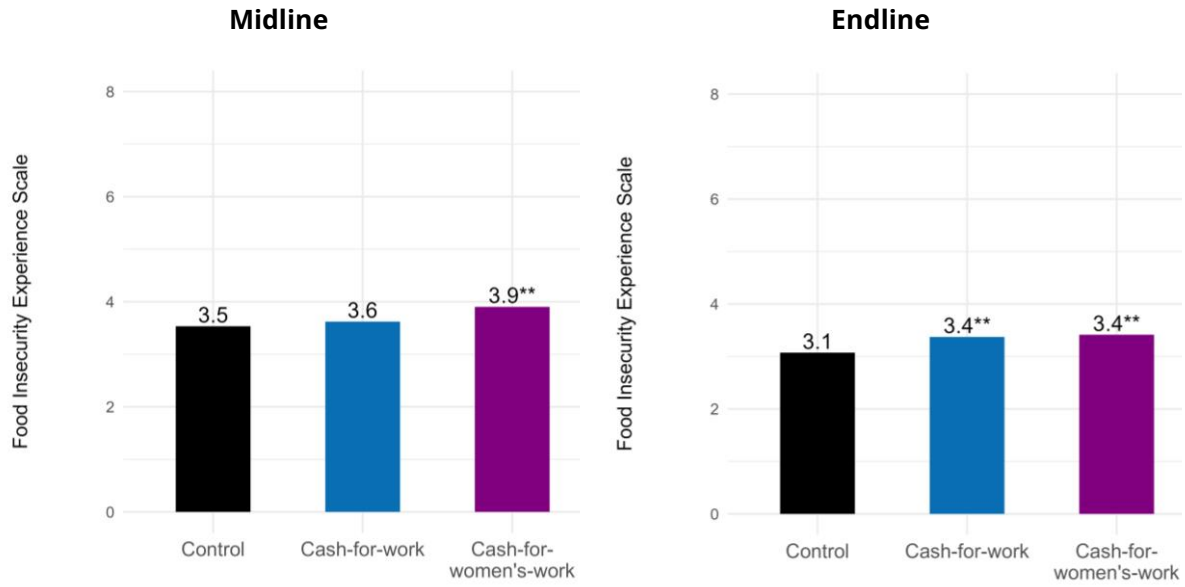


Figure 10: Food Insecurity Experience Scale (0-8; inverted)



110. These results are broadly comparable to the analysis in Section 6.2 Climate and resilience findings. However, that section does not report the same significant findings for the food consumption score at endline. This is potentially because that analysis also included single-headed households, which might not have benefited as much from the programme as double-headed households.

111. In the **qualitative** data collection, across the intervention groups, female and male beneficiaries pointed to improved household consumption as the most important benefit from participating in the cash transfer programmes. They indicated that the improvements in food came from both quantity and nutritional value. But these changes did not last after the programme ended.

112. One female beneficiary (regular FFA) shared how the cash transfer and training impacted food consumption in her household:

> Participant: How things changed, before when we ate potatoes and beans, we thought that was enough, and okay. And after working with WFP, we eventually bought chicken that would lay eggs to give to children, and we would get manure and we plant vegetables, and we learned to prepare a balanced diet [...] We learned how to get the children out of malnutrition. [...]
>
> *Female respondent, FFA group*

6.1.4 Decision-making authority (agency)

Summary of findings: At midline, during the programme, there were negative and significant differences in women's decision-making authority (agency) over consumption between the FFA group (-0.263 SD) and the comparison group. The impact was smaller but also negative and significant for the FFA for women group (-0.157 SD).

However, at endline, after the programme ended, women in the FFA for women group experienced a positive and significant gain in agency regarding the comparison group, with a 0.137 SD difference, while for the FFA group a negative and significant difference remained (-0.147 SD) with the comparison group. This indicates that targeting women for FFA improved women's decision-making authority over consumption in the longer run. However, there were no notable impacts on agency over time use**.**

113. According to the evaluation theory (see Annex 5), if women become earning members of the household, it could lead to an increase in their decision-making authority and agency. "Agency" here refers to the ability to define and act on goals and make decisions. For example, whether women have the agency to decide how they use their time, on self-employed work, salaried work, household chores or leisure, or having agency over household consumption decisions.[30]

114. The following sections on agency, attitudes, and perception of norms (for time use and consumption) use indices that are similar in their construction, using four components each. For each individual question that is part of an index, the responses were then coded as values +1, 0, or -1, respectively for each respondent.[31]

115. For agency, women were asked who (in their view) decides on their *time use* for four key activities in their household: the women themselves (the female head of the household), the male head of the household, or both. The activities (four index components) were:

- Her time working (self-employed)
- Her time working (salaried)
- Her time doing household chores
- Her leisure

116. In addition, women were asked about who has agency over *consumption decision* in the household, which consists of the following four index components:

- Larger household purchases
- Male heads of household purchases
- Female heads of household purchases
- Female heads of household health purchases

117. To complete the index, a weighted average across responses is calculated that takes values between -1 and +1, where -1 would suggest the male head of the household has total agency, +1 would suggest the female head of the household has total agency, and 0 would suggest both have equal agency.

118. Table 4 provides the combined index scores from the baseline data collection, as well as a breakdown of its components (combining all three intervention groups). An overall index score of -0.399 for women's

[30] Lundberg, S. & Pollak, R.A. 1993. Separate spheres bargaining and the marriage market. *Journal of Political Economy,* 101(6): 988–1010.

[31] See also Annex 9 for a more detailed description of the index construction.

agency over men's time use (Panel B) compared with a similar overall index score of 0.178 for agency over women's time use suggests that men generally are more likely to decide how much time men spend on the four activities compared with women. An index score of 0.102 for women's agency over consumption (Panel C) suggests that women have limited agency on how much money is spent within the household.

Table 4: Baseline – Women's agency over time use and consumption

	Mean	Standard Deviation	N
Panel A: Agency over women's time use – index	**0.178**	**0.411**	**946**
Work (Self-employed)	0.061	0.693	981
Work (Paid)	-0.188	0.742	960
Chores	0.656	0.541	985
Leisure	-0.312	0.746	972
Panel B: Agency over men's time use – index	**-0.399**	**0.44**	**949**
Work (Self-employed)	-0.302	0.659	980
Work (Paid)	-0.489	0.614	967
Chores	-0.066	0.855	977
Leisure	-0.632	0.576	971
Panel C: Agency over consumption – index	**0.102**	**0.382**	**966**
Household purchases	0.12	0.711	983
Male head of household purchases	-0.201	0.678	977
Female head of household purchases	0.289	0.603	978
Female head of household health purchases	0.121	0.742	986

Notes: So that these values can be compared, the table displays results only for double-headed households. Each index is created based on questions about the four displayed activities: self-employed work, paid work, chores, and leisure. For time-use questions, the respondent was asked who they thought should accomplish each of these activities: the male head of household, the female head of household, or both. The consumption index was based on questions about large household purchases, purchases made using each head of household's income, and the female head of household's healthcare expenses. The indices were constructed using inverse covariance weighting. Values are between -1 and 1, with 1 roughly meaning perception of full agency and beneficial attitudes towards the female head of household and -1 meaning no agency and harmful attitudes towards the female head of household.

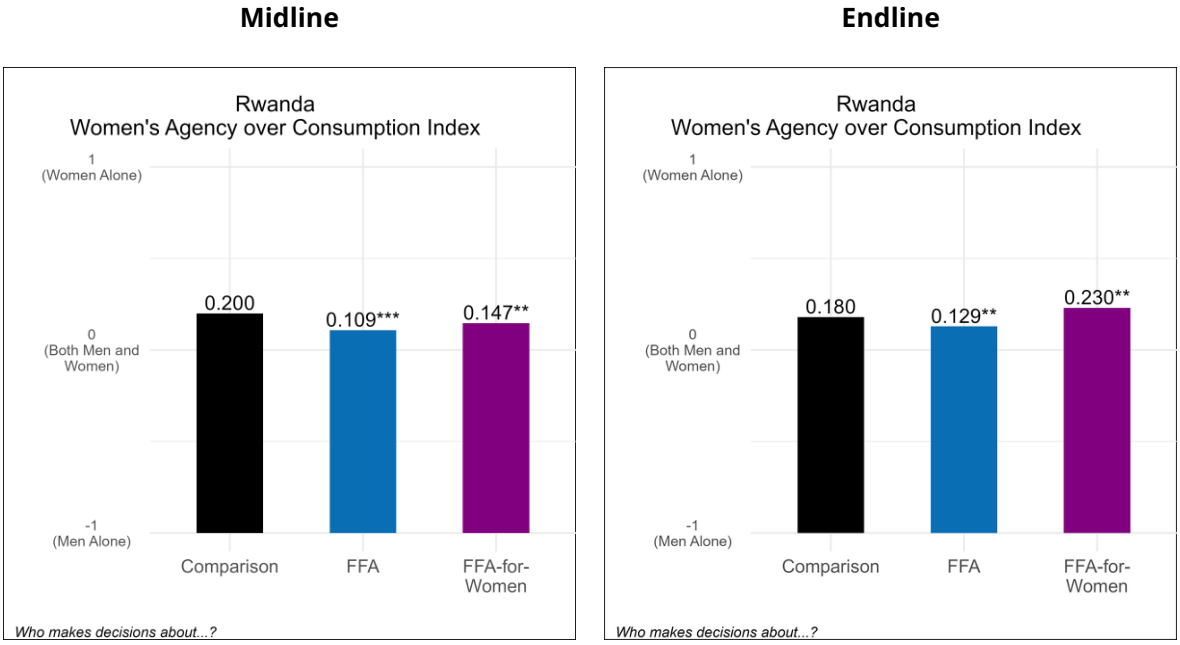
119. At **midline**, when the programme was ongoing, the agency over consumption index was actually 0.157 SD lower in the FFA for women group than in the comparison group (0.147 vs 0.200 points). Women's agency in the FFA group also reduced statistically significantly by 0.263 (0.109 vs 0.200 points) SD compared to the comparison group. This suggests that all households participating in WFP's FFA programming experienced an initial reduction in women's agency over consumption. However, this reduction in agency is smaller for households in the FFA for women group compared with the regular FFA group.[32] Agency over time use was unchanged at midline (and also at endline).

120. At **endline**, the impact of participating in the programme on women's agency over consumption in the FFA for women group turns positive and significant when compared with the comparison group by 0.137 SD (0.230 vs 0.180 points). This suggests a reversal of the negative impact measured at midline. However, the benchmark FFA group continues to show a negative and statistically significant impact on women's agency over consumption of 0.147 (0.129 vs 0.180 points) SD compared to the comparison group. While this is an improvement over the negative impact at midline, when compared with the FFA for women group, this suggests a positive and statistically significant impact of targeting women equivalent to 0.284 SD. Figure 11 indicates the absolute index values, with the measure of changes expressed as SD described in this text and illustrated in Table 4 above.

121. These findings suggest that targeting women with FFA has resulted in an overall gain in women's agency – at least in the longer run (by endline) in contrast with both the comparison group and the FFA group. However, the evaluation did not find any impacts on women's agency over time use in either group.

[32] Similar results are found in the El Salvador Impact Evaluation following a comparable design.

Figure 11: Women's agency over consumption index



122. In the qualitative interviews, beneficiaries in the FFA for women group more frequently expressed a greater ability to make different household decisions because of participating in the project, compared to women in other groups. Female and male beneficiaries talk about how participating in the programme helped to make decisions about purchases jointly with their partner or other household members, and about labour and time spent inside and outside the household. For example, one beneficiary from the FFA for women group shared how the project helped her feel more confident about working outside the household, by "demonstrating" to men that women can also work outside the household during the community projects. Below is a quote from a male participant in the FFA for Women group explaining how the GALS and dialogue training given by the programme, improved women empowerment in decision making within household:

> There was a change because this project entailed discussions and mentorship for my wife and me. I used to just go have a walk without telling my wife, but after getting the WFP mentorship, I did everything after agreeing with my wife. [...] The change is that you reached out to us, you mentored the man and the woman separately and asked us how we use things at home, you asked us every detail of what's going on in our households. The change I've noticed is that sometimes the men used to go mostly for bars, but after that they changed and started contributing at home and bring maybe RWF 1,000, and when it's done, I also contributed like RWF 500 and bought tomatoes for RWF 100, a soap for RWF 100 and onions for RWF 100 and you find that RWF 500 has helped us, and I have also done my part.
>
> *Male respondent, FFA for women group*

6.1.5 Attitudes

Summary of findings: At midline, there were no significant shifts in women's *attitudes towards agency over time use*. There was a significant reduction in men's attitudes towards women's decision-making authority (agency) over consumption in the FFA for women group compared with the FFA group.

At endline, women's attitudes towards time use (*who should do)* saw a statistically significant improvement in both the FFA for women group and the FFA group compared to the comparison group.

The impacts are diametrically opposite when it comes to women's *attitudes towards agency over consumption* a statistically significant improvement was found in the FFA for women group and a statistically significant worsening of women's attitudes was found in the FFA group.

Men's attitudes towards women's time use turn positive and significant for both the FFA and FFA for women group compared with the comparison group. No impacts on men's attitudes towards women's agency over time use or agency over consumption were seen.

123. Having considered actual time use and who makes decisions about time use, this section explores who men and women think: (i) should spend more time; and (ii) should make decisions about time spent on each of the four activities. This can be understood as attitudes towards: (i) time use; and (ii) agency over time use (Dhar et al., 2018).

124. As per above, in this section, the index considers attitudes on time use for self-employed work, salaried work, chores, and leisure, and uses values -1 to 1. For time use, 1 means that women should spend more time on a particular activity. For agency over time use, 1 means that women should make decisions about time spent on a particular activity.

125. At baseline, women's overall index value for **attitudes towards time use** *("who should do it?";* -0.639), and men's attitudes towards time use (-0.631) suggest that both women and men accepted an unequal division of labour responsibilities (more work and leisure for men and more chores for women). However, women's attitudes towards time use varied by activity. For example, women reported that men should spend more time on paid work and leisure (with mean scores of -0.554 and -0.766), and spend less time on chores, with a mean score of 0.902. Women assessed that both genders should spend balanced time on self-employed work, with a mean score of 0.028 (close to zero).

126. With an overall index score of 0.296 and 0.127 at **baseline**, both men and women assessed that most of the **decisions about women's time use** *("who should decide who does it?")* on average should be made by women. However, there is a difference between men and women on who they think should decide on women's agency over paid and self-employed work. While women think it should be by both or only by women, with scores of 0.005 and 0.209 respectively, men think that men should have slightly more agency over these tasks, with a score of -0.172 and -0.005 respectively. Leisure is an activity where men and women think men should have more agency than women, with scores of -0.137 and -0.151. Both men and women think women should have more agency over chores, with scores of 0.492 and 0.705 respectively. Women gaining decision-making authority within the household could lead men to potentially oppose this shift.

127. At **midline**, while the programme was ongoing, there is no significant impact on women's attitudes. Men's attitudes towards women's agency over consumption is positive but insignificant for the FFA group and negative and insignificant for FFA for women group. However, the difference between the two is so large that it is negative and statistically significant at -0.317 SD.

128. At **endline**, women's attitudes towards time use improve in both the FFA for women group and the FFA group by statistically significant level of 0.358 and 0.201 SD compared to the comparison group. The following graphs illustrate the index score differences of -0.496 and -0.538 respectively vs -0.592 points for the comparison group. Women's attitudes towards agency over consumption improves statistically significantly by 0.129 SD in the FFA for women group and it is reduced by -0.125 SD in the FFA group (not graphically displayed).

129. Men's attitudes towards time use see a positive and significant impact at endline for both the FFA group and the FFA for women group compared with the comparison group by 0.431 and 0.421 respectively (-0.516 and -0.512 points vs -0.670 points for the comparison group). No impacts on men's attitudes towards women's agency over time use or agency over consumption were found.

Figure 12: Women's attitudes towards women's time use

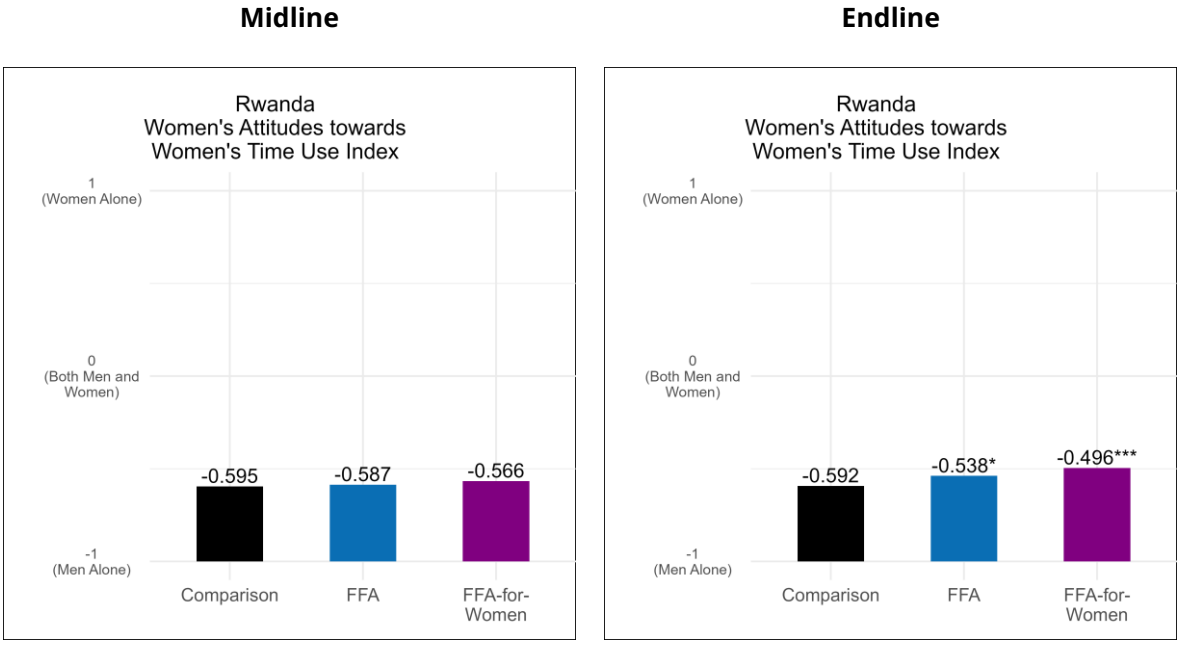
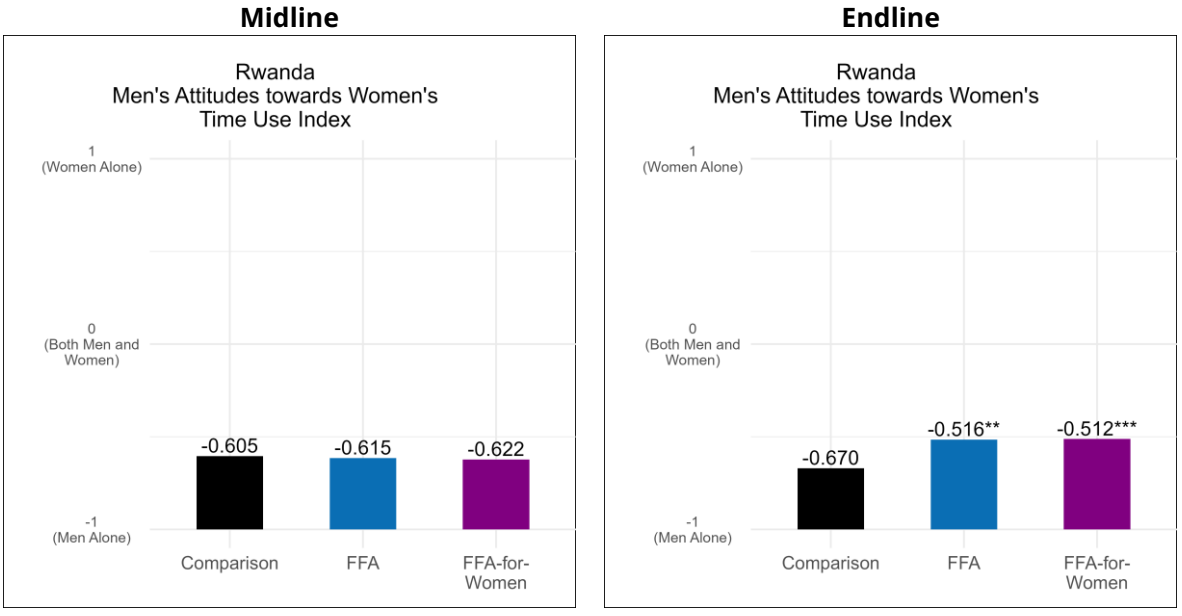


Figure 13: Men's attitudes towards women's agency over time use



130. During **qualitative** interviews, beneficiaries across all intervention arms expressed gender equitable attitudes and processes prior to participating in the project. Some participants talked about changes in attitudes about work and time use in their communities. More specifically, a few female beneficiaries in the FFA for women intervention group shared that the "community work" design of the conditional cash transfer helped change some attitudes about labour and time use. Below, one female beneficiary shared how the community work helped catalyse dialogue among women about how women and men divide up work in their community:

Interviewer: Is there any change that was seen in terms of gender equality?

Leader: It is clear, since people were working, a woman would work and the husband could stay behind doing different kind of work, or the husband would go to work, and the wife would stay doing different works, and they would all work together, these are the changes that occurred.

Interviewer: Are there households that gave women value and gave her the capacity to work at home or to go for shopping for her family or she was given value in general?

Leader: It happened, since women would appear on the [project] lists, and she would go to work because her husband valued her in that work.

Interviewer: Did that collaboration continue even after the completion of the project work?

Leader: They continued, the conflicts we used to see caused by a man who has worked for money and considered it as his own money, has been reducing.

131. Thus, while the project may not have completely "changed" attitudes around household labour and time use, the community work component in the FFA for women intervention group may have helped to *'nudge'* more dialogue about how women and men should and typically divide up non-household labour and care.

6.1.6 Perception of norms

Summary of findings: At midline, there were no significant shifts in men's or women's perceptions of norms. By the endline, after the programme ended, women's perceptions of norms towards time use were positive and significant in the FFA for women group compared with the comparison group.

Men's perceptions of norms turn positive and significant for women's time use in both the FFA and FFA for women group compared with the comparison group.

Men's perceptions of norms on women's decision making over time use is lower in the FFA for women group compared with the comparison group. This is also true for the FFA group compared with the comparison group, although the change is not significant in that case. These results suggest that men's perceptions of norms around women's decision making over time use worsened by the endline.

132. Perceptions of community norms play an important role in determining women's agency.[33,34] How people perceive other community members' time use, and women's decision-making role within a household, may feed into their own decision making. As participation in FFA for women was expected to increase women's interactions with other members of their community, a shift in perceptions of community norms could be a mechanism through which household decision making is affected during the programme.

133. Regarding norms, the impact evaluation questionnaire asked women and men what they thought – in their community – are the norms, by gender, and a similar index was constructed including:

- The actual time use distribution
- Who makes decisions about time use?
- Who should spend time on certain activities?
- Who should make decisions about time use?

134. At **midline**, while the programme is ongoing, women's perceptions of community norms are unchanged in relation to each other. Men's perceptions of norms regarding women's agency over time use also remain unchanged.

135. At the **endline,** however, there are changes for both men and women. Women's perceptions of norms concerning women's time use improves in the FFA for women group by 0.245 SD, which is statistically

[33] Beaman et al. 2009. Powerful women: Does exposure reduce bias? *The Quarterly Journal of Economics,* 124(4): 1497–1540.
[34] Bursztyn, L., González, A. L. & Yanagizawa-Drott, D. 2018. *Misperceived social norms: Female labor force participation in Saudi Arabia.* Technical report, National Bureau of Economic Research.

significant when compared to the comparison group (-0.480 points vs -0.530 for the comparison group). All other perceptions of norms remain unchanged.

136. Men's perceptions of norms on women's time use is positive and significant in both the FFA for women group (0.515 SD) and the FFA group (0.439 SD) when compared to the comparison group (-0.460 and -0.486 vs -0.621 points for the comparison group as seen in Figure 14). However, men's perceptions of norms towards women's *decision making* over time use is negative and significant in the FFA for women group (-0.339 SD) compared with the comparison group. The FFA group is indistinguishable from the comparison group, which is why the difference between the FFA group and FFA for women group is also negative and significant with an impact of -0.335 SD. This suggests that the male household head's perceptions of norms around women's decision making over time use have worsened at endline.

137. In the **qualitative** sessions, beneficiaries and community leaders expressed perceived changes in men's behaviour around non-household work and leisure. Very few participants claimed that norms around women's labour and time use changed, and women now feel more empowered to work outside the house.

Figure 14: Women's perception of norms about time use

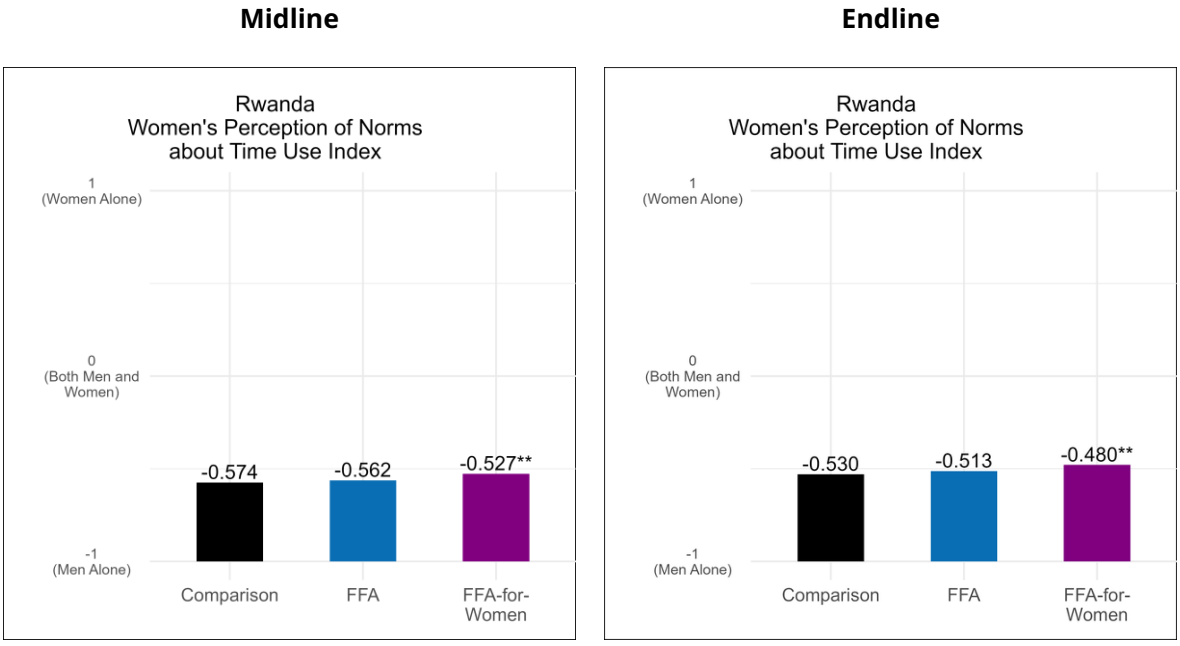
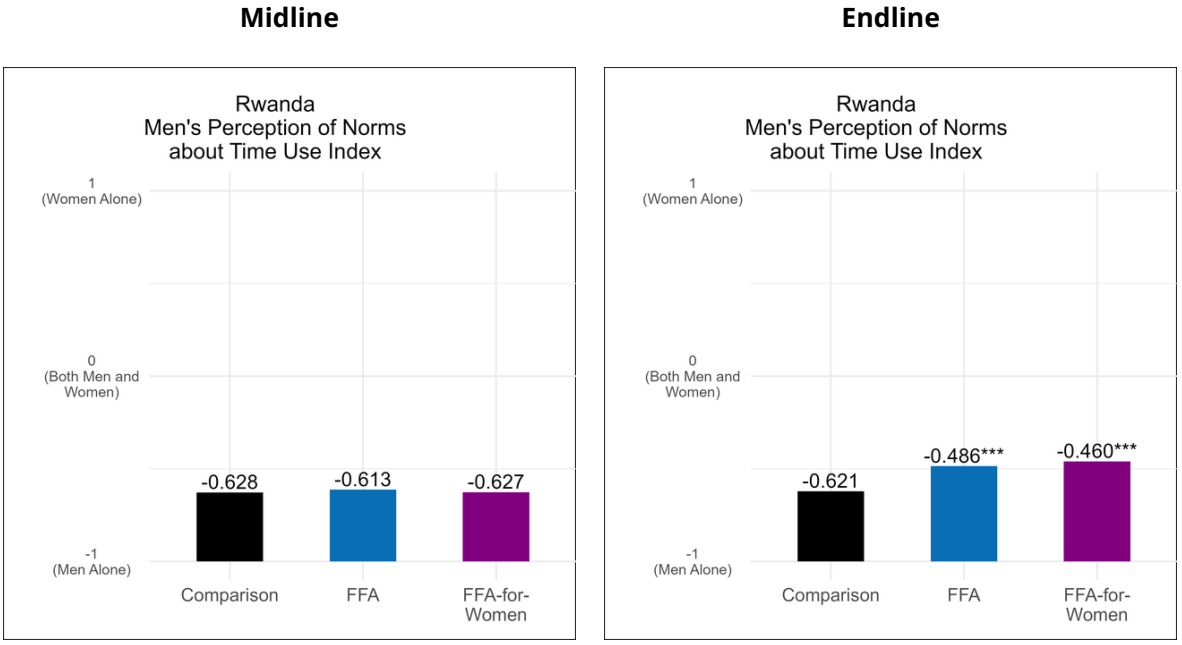


Figure 15: Men's perception of norms about time use



138. The female participant below shares how the community work project changed norms around work for women, and "motivated" women to work:

> Participant: It has changed us because it has empowered women to work and not always depend on men to provide for them so that they can buy what they need for themselves without always asking their husbands for money.
> Interviewer: Did these changes only happen while you were working in WFP, or are they still being applied?
> Participant: They are still being applied.

6.1.7 Well-being

Summary of findings: At the programme's midline survey, there were no significant impacts on well-being. However, by the endline survey, both the FFA group and FFA for women group showed significant increases in their well-being scores by 0.199 and 0.201 SD, respectively, reflecting positive impacts observed in qualitative findings as well.

139. As a result of the programme, the households receiving assistance may experience higher subjective well-being with decreases in stress or life dissatisfaction. The subjective well-being index is constructed by combining three different measures (life satisfaction, stress, and mental health). The index uses inverse-variance weights to combine the variables – where variables with less variance are provided a higher weight.

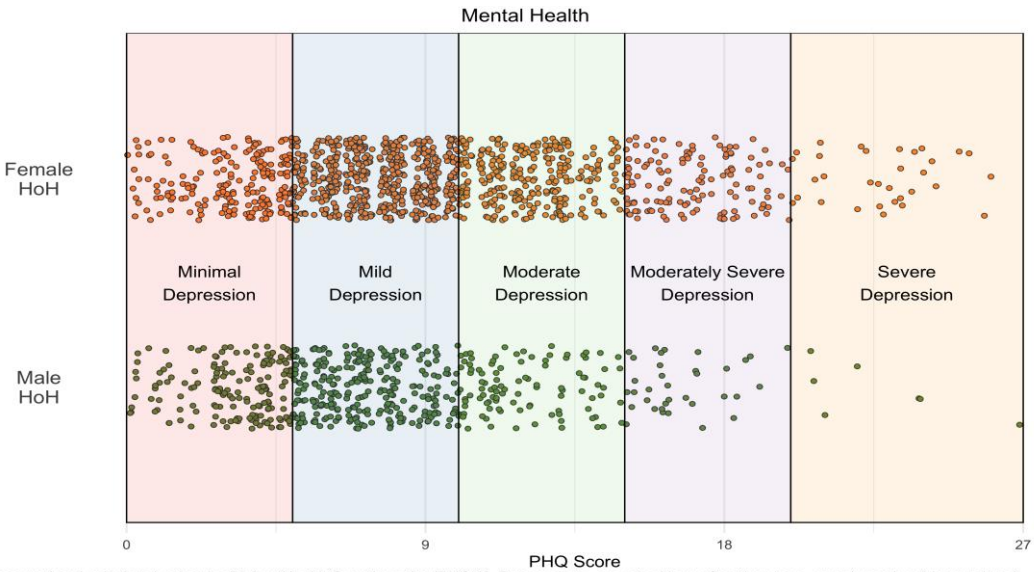
- Life satisfaction was measured as a score using the Diener et al. (1985) method.[35]
- The stress scores were calculated using the Perceived Stress Scale from Cohen, Kamarck and Mermelstein (1983).[36]
- Mental health was measured using the standard Patient Health Questionnaire (PHQ-9).

[35] Diener et al. 1985. The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49(1): 71–75.

[36] Cohen, S., Kamarck, T. & Mermelstein, R. 1983. A global measure of perceived stress. *Journal of Health and Social Behavior*, 24(4): 385–396.

140. Men and women reported relatively high levels of life satisfaction at baseline (above 65 percent for both genders when combining the categories "high" and "very high" satisfaction). However, among people less satisfied, there are considerable frequencies of reported depression, with 46 percent of men and a third of women (31 percent) reporting at least mild depression symptoms: 5 percent of women stated they were moderately severe or severely depressed, compared with 3 percent of men; and 80 percent of women reported they were either moderately or highly stressed at baseline, whereas 69 percent of men reported being moderately or highly stressed.

Figure 16: Patient Health Questionnaire (PHQ-9) scores at baseline



Measured and calculated using the Patient Health Questionnaire (PHQ-9). Respondents are asked how often they have experienced problems related to depression in the past two weeks. A higher score indicates a higher level of depression.

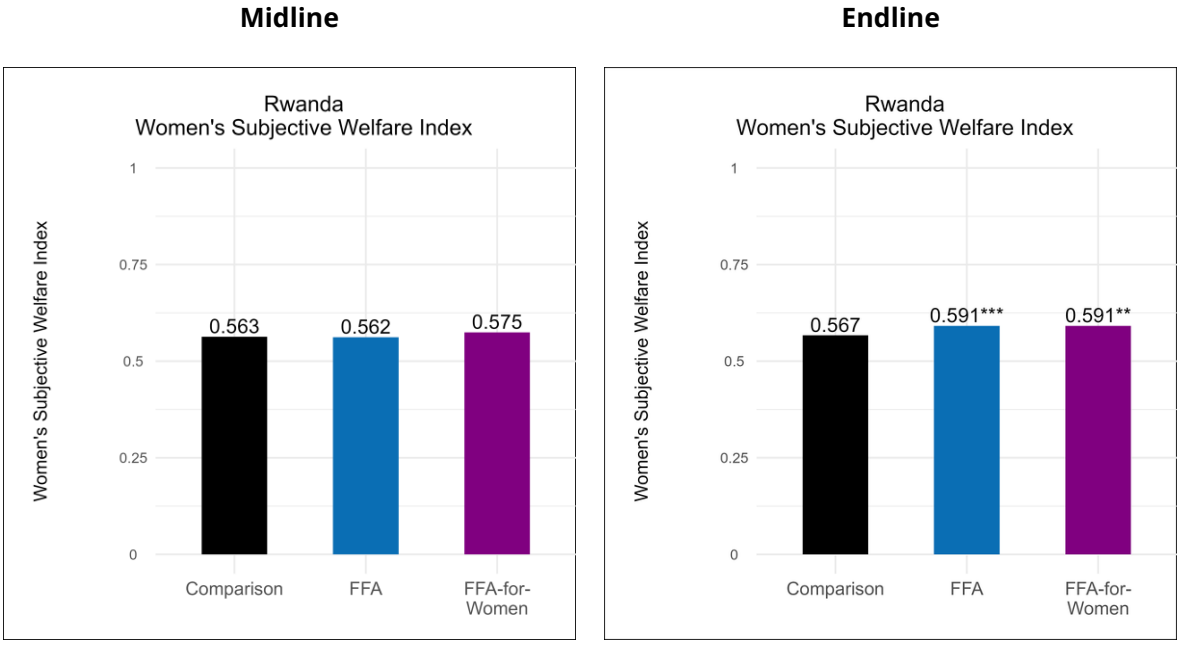
141. A significant aspect of (measuring) agency is understanding whether the respondents perceive a sense of control over their life and can initiate actions. This is referred to as "locus of control". The locus of control score was computed using the Rotter's (1954) method. A high locus of control score signifies greater external control over respondents' decisions and therefore the lower the sense of internal control individuals perceive to have over their life. On a scale from 0 to 10, at baseline, the analysis shows the locus of control to be 5.21 and 4.82 among women and men, respectively. The slightly higher score for women compared with men suggests the slightly lower perceived sense of control women have compared with men.

142. At **midline**, while the programme was ongoing, the subjective well-being difference between receiving any assistance (through the FFA or FFA for women group) and the comparison group is not significant. The locus of control index was higher for women in the FFA for women group with respect to the comparison group by 0.251 SD, a statistically significant difference. This suggests that women in the FFA for women group experienced a higher perceived sense of external control over their lives than women in the comparison group. However, there are no significant differences seen in the subjective well-being index across groups.

143. At **endline**, when the programme had been completed, significant differences emerge in subjective well-being reported by female heads of households. Households receiving any assistance through FFA (0.199 SD) or FFA for women groups (0.201 SD) both exhibit an increase in their subjective well-being index score compared with the comparison group. These findings are statistically significant and are also reflected in the qualitative findings. This can be seen in the absolute values in Figure 17, as opposed to changes reported in Table 4.

144. During **qualitative** interviews, beneficiaries across all intervention groups reported feeling "happiness" because of receiving the programme. As one female beneficiary in the FFA for women group shared: *"When you have money, the husband deems you valuable. There are less quarrels at home."* The increase in happiness was closely linked to the improvements in partner relationship and communication.

Figure 17: Women's subjective well-being index



6.1.8 Abuse

Summary of findings: Overall, the evaluation found that abuse levels were high (60 percent) in communities supported by the programme at baseline. At midline, the level of psychological abuse reported by women in the FFA for women group was significantly higher than women in the comparison group (by 0.136 SD). The same is true when comparing these women with those in the FFA group (by 0.120 SD; albeit insignificant).

The higher negative values should be Interpreted as increased reporting of psychological abuse. This could be interpreted as a backlash effect on women for gaining more agency through the FFA for women group compared with the FFA group.

However, at endline, the differences in the FFA group and FFA for women group disappear. This suggests that women's participation in the programme had no significant impacts on abuse levels by the end of the programme, even while women gained decision-making authority over consumption.

Figure 18: Proportion of baseline sample that reported intimate partner violence

	Mean	St. Dev.	N
Suffered any of the below abuses	0.6	0.49	970
Panel A: Psychological Abuse	0.57	0.49	970
He gets jealous or angry if you talk to other men.	0.33	0.47	965
He tries to limit your contact with your family.	0.19	0.39	966
He does not permit you to meet your female friends.	0.15	0.36	967
He frequently accuses you of being unfaithful.	0.12	0.33	968
He insists on knowing where you are at all times.	0.34	0.47	968
He said or did something to humiliate you in front of others.	0.13	0.33	966
He threatened to hurt or harm you or someone you care about.	0.2	0.4	970
He insulted you or made you feel bad about yourself.	0.33	0.47	967
Panel B: Physical Abuse	0.23	0.42	970
He pushed you, shook you, or threw something at you.	0.15	0.36	968
He slapped you.	0.15	0.36	968
He twisted your arm or pulled your hair.	0.07	0.25	969
He punched you with his fist or with something that could hurt you.	0.13	0.34	964
He kicked you, dragged you, or beat you up.	0.07	0.25	969
He tried to choke you or burn you on purpose.	0.05	0.21	967
He threatened or attacked you with a knife, gun, or other weapon.	0.05	0.21	969
Panel C: Sexual Abuse	0.18	0.38	970
He physically forced you to have sexual intercourse with him when you did not want to.	0.17	0.37	966
He physically forced you to perform any other sexual acts you did not want to.	0.09	0.29	968
He forced you with threats or in any other way to perform sexual acts you did not want to.	0.07	0.25	969

145. Intimate partner violence and abuse are serious issues faced by many women around the world. Women with limited agency or living in poor households are found to be disproportionately affected. As Haushofer et al. (2019) have argued, improvements in economic outcomes of the household, such as receiving cash transfers, may reduce intimate partner violence.[37] However, an increase in women's decision-making authority, could also lead to a potential backlash from men during the programme.

146. At baseline, as seen in Figure 18, many women (60 percent) reported having suffered any one type of abuse. Among the women interviewed, 57 percent of women reported psychological abuse, 23 percent of women reported physical abuse, and 18 percent of women reported sexual abuse.[38]

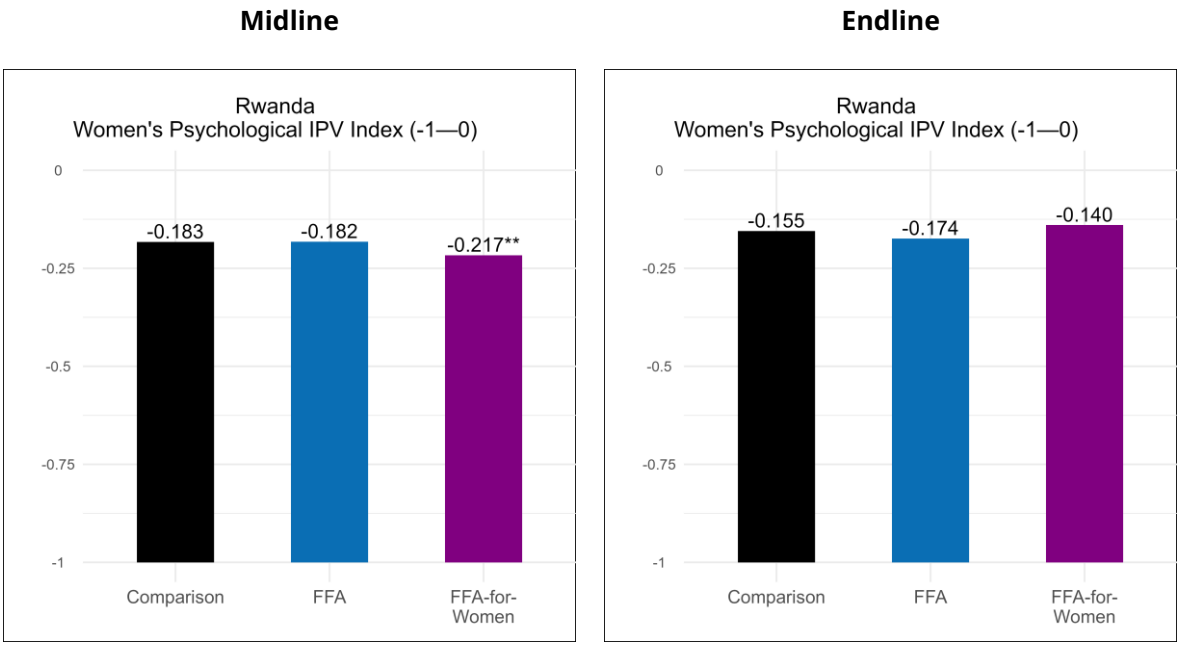
[37] Haushofer et al. 2019. *Income changes and intimate partner violence: Evidence from unconditional cash transfers in Kenya.* Working Paper 25627, National Bureau of Economic Research.

[38] It must be noted that, because data collection on intimate partner violence involves raising sensitive questions that require respondents to recollect trauma, all efforts were made to ensure that the interviewers were trained in this regard. A half-day training was provided by the gender specialist at WFP. Enumerators were trained on how to approach

147. At **midline**, while the programme was ongoing, there is a significant increase in reported rates of psychological abuse by women in the FFA for women group (by 0.136 SD when compared with the comparison group, and by 0.120 SD when compared with the FFA group), indicating an increase of psychological abuse as a result of the project variant. Both are large and significant, suggesting an increase in psychological abuse faced by female heads of households in the FFA for women group. This can be understood as a backlash effect from male heads of households for the increased agency experienced by women as a result of the participation in the programme. This is presented in Figure 19 in absolute values (as opposed to changes reported in standard deviations in Table 4) where a lower value translates to higher levels of psychological abuse.

148. At **endline**, after the end of the programme, no impacts are measured on any form of abuse. Thus, the negative impact observed during the midline is seen to go away while the positive impact on women's agency, (as discussed in the previous sections), persists after the programme ends.

Figure 19: Women's psychological abuse index



sensitive questions about gender-based violence and intimate partner violence. If the respondent reported a case of intimate partner violence, enumerators had to follow a strict protocol that included referral services to non-profits that offer assistance to victims.

6.2 Climate and resilience findings

149. This section presents the impacts of FFA relative to the comparison group who did not receive the FFA programme. The outcomes reported include changes in consumption, income-generating activities, financial outcomes, assets, shocks and coping strategies, and psychological well-being.

150. Unlike the results for CBT and gender above, in this section the households in FFA and FFA for women groups are combined and compared to the Comparison group. All numbers in this section are based on estimated coefficients from regressions with control variables selected using double-selection lasso linear regressions.

6.2.1 Consumption

Summary of findings: The impact evaluation found an increase in food security, which persisted six months to a year after the programme ended, when measured by the FIES. Consistent with this finding, the programme increased both monthly non-food expenditure by 15 percent on a base of RWF 3,436 (significant at 10 percent level) and monthly food expenditure by 8 percent on a base of RWF 32,008. However, increases in food consumption did not translate into child nutrition improvements.

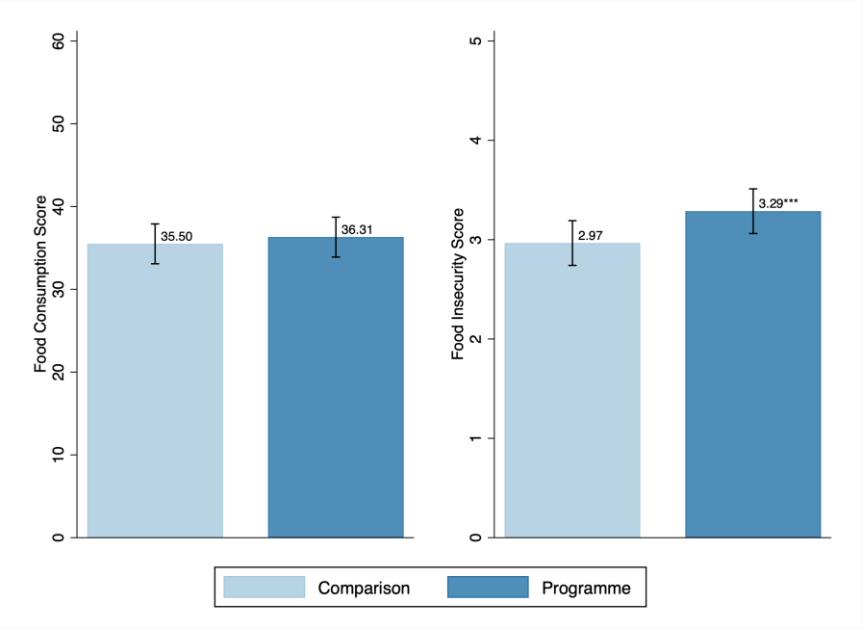
6.2.1.1 Food security

151. Changes in food security were measured using both the FCS and FIES. When comparing the full FFA group with the comparison group, modest evidence shows that FFA increased food security at endline, six months to a year after the programme ended.

152. In line with the findings presented in the previous section (from the CBT and gender analysis) the impact on food security is pronounced for FIES but not for FCS. Figure 20 shows that the programme increased (reversed) FIES by 0.32 points on a base of 2.97 in the comparison group, suggesting that household food security improved. This persistent increase in food security is encouraging, given that the programme ended and stopped providing wage income to households six months to a year before the endline data collection. This suggests that the programme created a mechanism by which households continue to maintain food security even after the programme ended, which is explored below.

153. Beyond FIES, there is not a big difference in FCS between the comparison and the programme groups (i.e. 35.5 versus 36.3) when the two programme groups (FFA and FFA for women) are analysed together. The section above, which disaggregates the effects of FFA and FFA for women, showed a significant increase in FCS only among the FFA group; however, when analysing these two groups together as one programme group, significant differences are no longer observed, as the lack of impacts among the FFA for women group renders the overall effect insignificant. The differences in impacts observed on the FCS and the FIES may be related to the fact that FCS focuses on short-term consumption with specific food security measures, such as frequency and the number of food groups, while FIES focuses on qualitative dimensions of food security. Taken together, the programme appeared to have improved food security, but the increase is small, and the level of food security remains quite low, as indicated by the FCS and FIES, even in the programme group.

Figure 20: Impacts on food security



Notes: Food Consumption Score (FCS) ranges from 0 to 112. The individual food groups in FCS typically include cereals and tubers, pulses and legumes, milk and milk products, meat, fish or eggs, vegetables, fruits, oils and fats, and sugar or sweets and condiments. The Food Insecurity Experience Scale (FIES) ranges from 0 to 8. The scale is reversed, so a higher score indicates that the household has better food security.

154. In Annex 4, the impact of "participating" in the FFA programme is also reported (while Figure 20 shows the impact of "being offered to work for the FFA" including those who decided not to participate). The (reversed) FIES increases by 0.49 points which is statistically significant. The magnitude is bigger than the estimated impact of offering FFA (0.32 points in Figure 20). This is because the impact is scaled up by the proportion of households that participated in the FFA programme. Similarly, participation in the FFA programme increases FCS by 1.46 points but this is statistically indistinguishable from zero, as is the case in Figure 9. While all impact estimates can be presented either as an intent to treat (i.e. the impact of offering an opportunity for FFA) or as a "treatment effect on the treated" (i.e. the impact of participating), intent-to-treat results only are presented in the subsequent sections because these estimates account for non-compliance and are partially inclusive of potential spillover effects on those who were offered FFA and decided not to participate, which are common features in real-world settings.

155. **Qualitative findings support and help explain the quantitative results.** Some participants in programme groups shared that they are having a more balanced diet as a result of the project, which also helped to address child malnutrition. One female participant describes the changes in the household food consumption and nutrition as a result of the project:

> Participant: How things changed, before when we ate potatoes and beans, we thought that was enough, and okay. And after working with WFP, we eventually bought chicken that would lay eggs to give to children, and we would get manure and we plant vegetables, and we learned to prepare a balanced diet [...] We learned how to get the children out of malnutrition. [...]
>
> Interviewer 1: Are you still enjoying those changes? Are you still in those changes that took place?
>
> Participant: We are still in them.
>
> - Female beneficiary, FFA

156. Most participants reported that improvements in household food consumption and nutrition did not last after the project ended.

Participant: [During the project] I would get what to eat on credit and then pay later.

Interviewer: Did you consume enough food during that time?

Participant: Yes, but not so much.

Interviewer: Did your diet change in a good way or a bad way?

Participant: It had changed well.

Interviewer: Did it change during that time, or it continued even after?

Participant: It did not continue, how can it continue when the work stopped?

- Female beneficiary, FFA

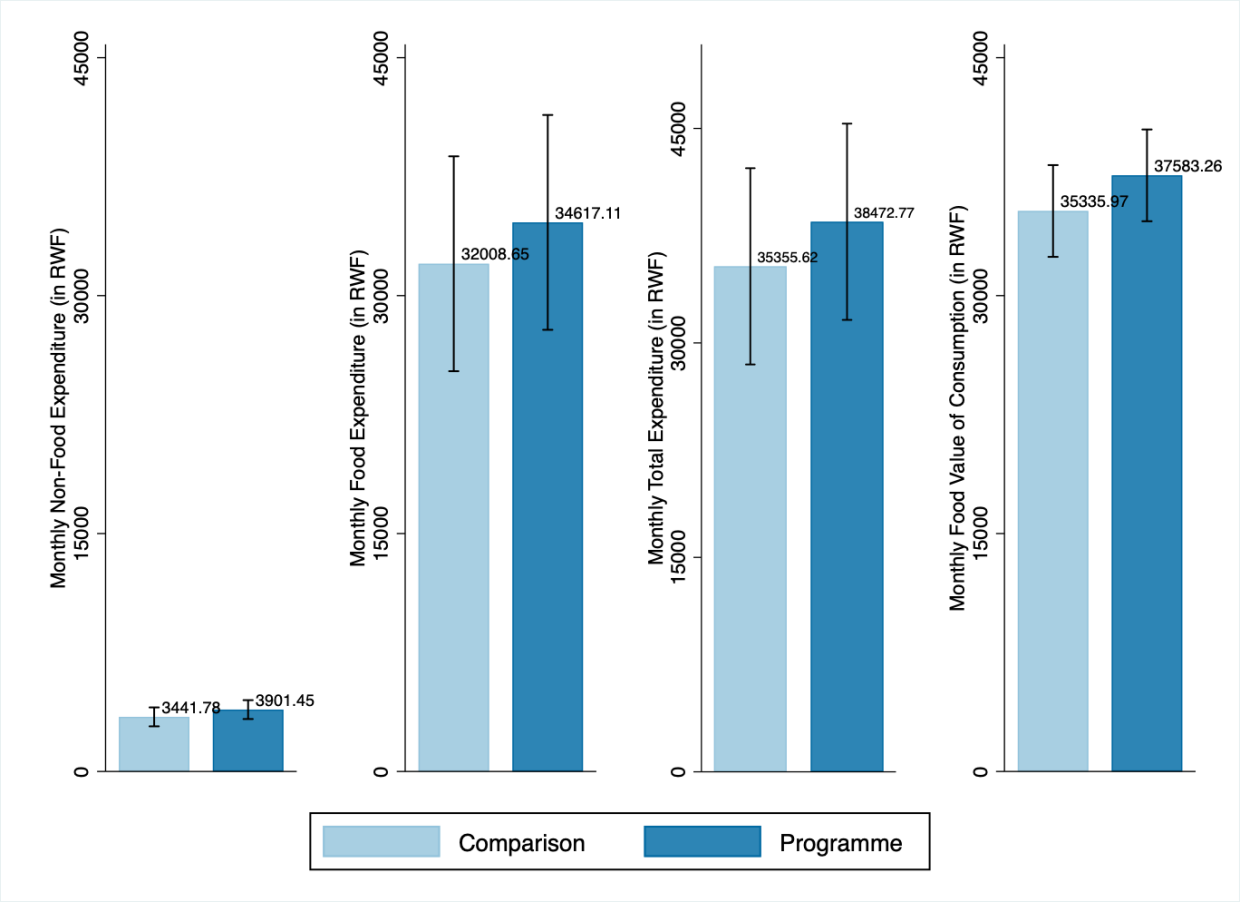
6.2.1.2 Expenditure

157. In addition to overall food security measures, we look at consumption more directly by investigating changes in food and non-food expenditures, as well as the value of consumption. Figure 21 shows that the programme increased monthly non-food expenditure by 15 percent on a base of RWF 3,436 (significant at 10 percent level) and monthly food expenditure by 8 percent on a base of RWF 32,008.

158. While expenditure results show how much households spent on food and non-food items, they do not include the value of consumption from their own production. Figure 21 also reports the monthly value of food consumption, which includes both purchases and own production. For consumption from own production, the median food price across the study sample was multiplied to convert the quantity consumed into a monetary figure. The impact evaluation finds a modest increase of 6.5 percent in the value of food consumption despite the lack of significance.

159. The increases in food expenditure and the value of food consumption at endline are consistent with improved food security. In settings where agricultural intensification and business expansion are limited, with few opportunities for paid work, smoothing consumption from the FFA income may allow for persistent food security.

Figure 21: Impacts on expenditure and consumption



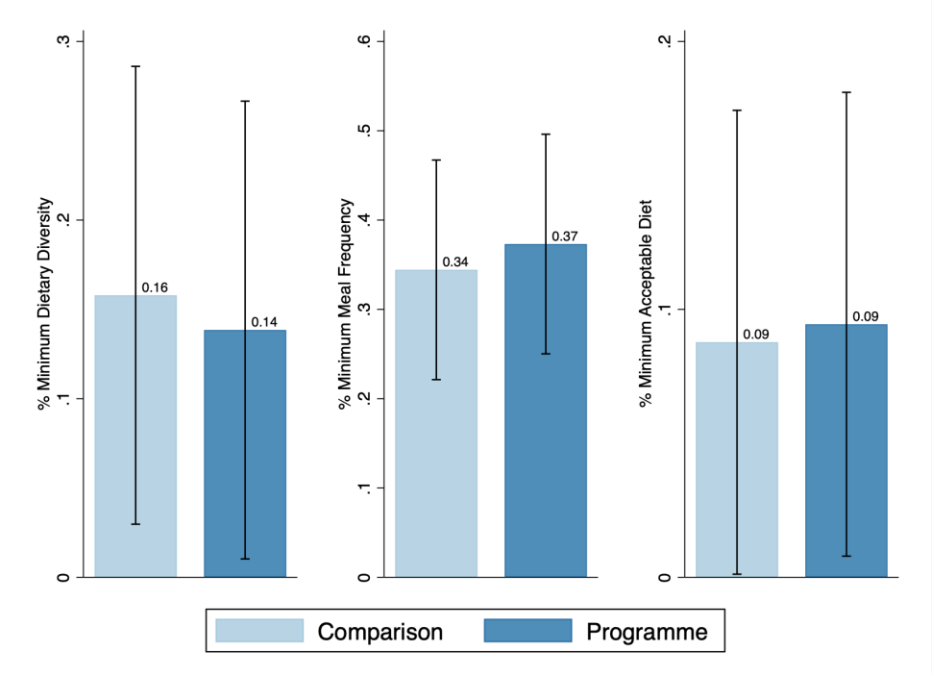
6.2.1.3 Child nutrition

160. Did modest improvement in food security at the household level translate to better nutrition for young children? Figure 22 measures child nutrition for those aged 6-23 months using three indicators: percentage of children who meet minimum dietary diversity (MDD); percentage of children who meet minimum meal frequency (MMF); and percentage of children who meet minimum acceptable diet (MAD). MDD measures the percentage of children who consumed "five or more food groups yesterday". MMF assesses the proportion of breastfed and non-breastfed children 6-23 months of age who consumed solid, semi-solid or soft foods (but also including milk feeds for non-breastfed children) at least the minimum number of times during the previous day. MAD is a composite indicator of MDD and MMF, defined as the proportion of children who met both MDD and MMF the previous day.

161. When restricting the households to those with children between the ages of 6-23 months, the sample size decreases to 193, losing statistical power to detect changes, and therefore the results should be interpreted with caution.

162. We find that FFA does not increase child nutrition across the three nutrition measures. The proportion of children who meet MDD is similar between the two groups (16 percent vs 14 percent), as is MMF (34 percent vs 37 percent) as well as MAD (9 percent vs 9 percent). However, the uncertainty around these estimates is large, as indicated by large error bars due to the lack of power driven by the small sample size.

Figure 22: Impacts on child nutrition



6.2.2 Income-generating activities

Summary of findings: The impact evaluation does not detect increased agricultural productivity, livestock management, or wage employment opportunities for programme participants. The observed lack of impacts on agricultural productivity can be explained by the fact that assets were built on private land, and many programme participants did not own land, therefore they did not benefit from improved land for crop production following the work on marshland restoration or hill terracing. However, the impact evaluation finds that the programme led to increased business ownership (from 6 percent to 11 percent) alongside increased business profits.

163. To further explore what might have led to improvements in food security, this section investigates the impacts of the WFP resilience programme on household income-generating activities and livelihood outcomes across four categories: agriculture; livestock; business; and wage labour.

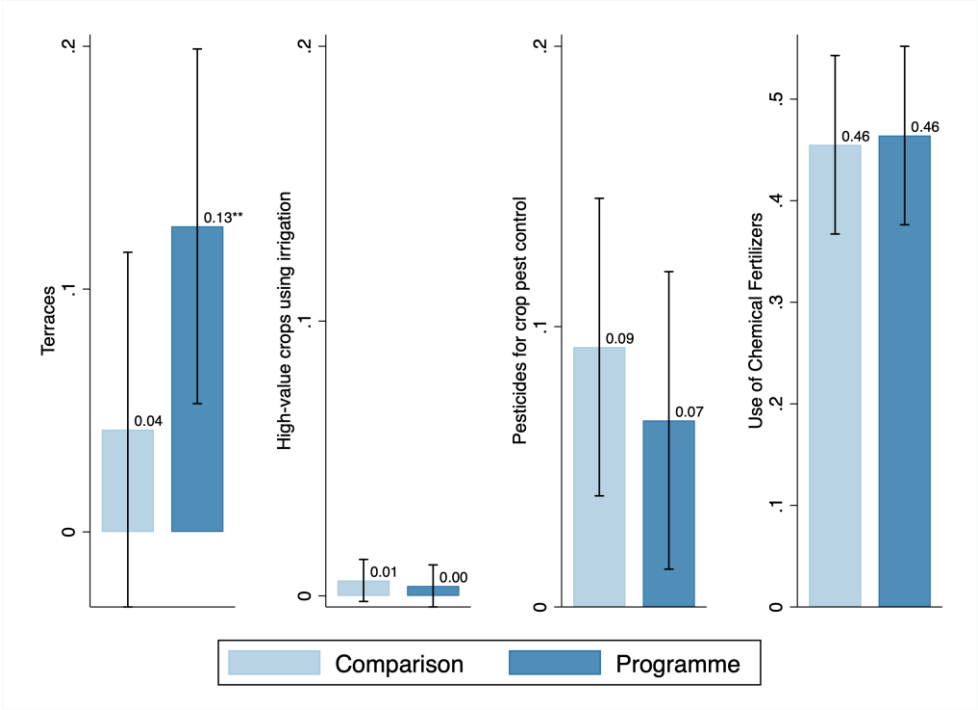
6.2.2.1 Agriculture

164. For agricultural activities, a wide range of outcomes on input use, productivity, and commercialization are considered.

165. One main activity of the FFA was to build assets such as land terracing on steep hillsides to convert the slopes into croplands and to also prevent land erosion and landslides. Households were asked what modern agricultural practices they used to improve productivity, and it is observed that the percentage of households reporting to have used terraces increased from 4 percent in the comparison group to 13 percent in the programme group (Figure 23). The project was targeted to deliver terracing activities in 70 percent of public works sites (while 30 percent were marshland restoration) on privately owned lands. The effect suggests that households were able to access and use terraces for farming, although those were not owned by the households directly.

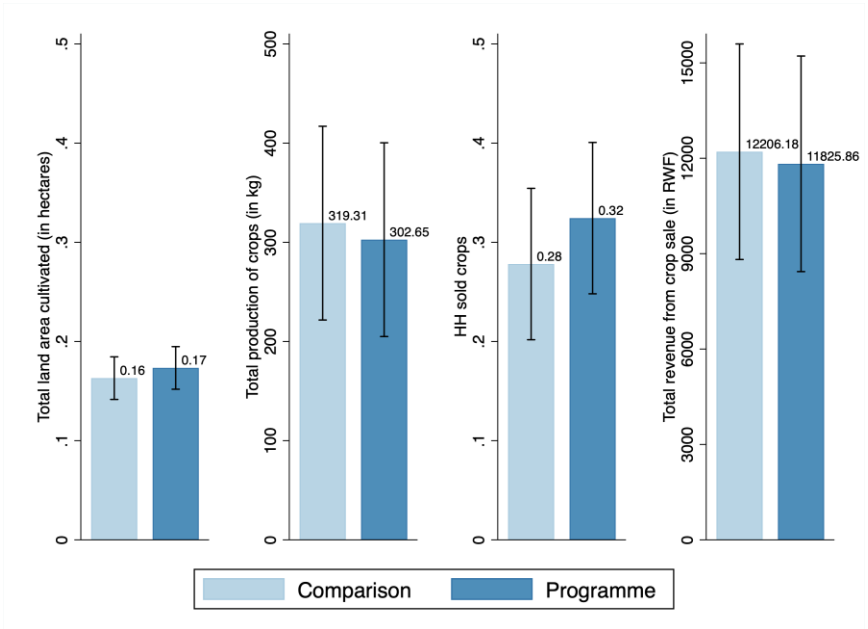
166. Beyond terraces, there are little to no impacts on other input use such as using irrigation, pesticides, or chemical fertilizers. The lack of results on agricultural input use is not surprising given that the SMART programme, (the umbrella project that included FFA as a component), also provided smallholder farmers with input support such as fertilizer and seeds as well as post-harvest management support across the comparison and the programme groups in the study areas.

Figure 23: Impacts on the use of agricultural inputs



167. In Figure 24, the downstream effects, including agricultural production and sales, are examined. Note that there is no change in the area cultivated past 12 months. Despite the increased access to terraces, it did not lead to an increase in land area cultivated. Consistent with the lack of changes in land and agricultural inputs, there are no meaningful changes in total production of crops, the likelihood of selling crops, or total sales revenue. The average productivity of Rwandan households is extremely low, producing only 300 kg of crops. This is partly due to very small land size (i.e. 0.16-0.17 hectares on average). The unconditional sales revenue is merely USD 9.

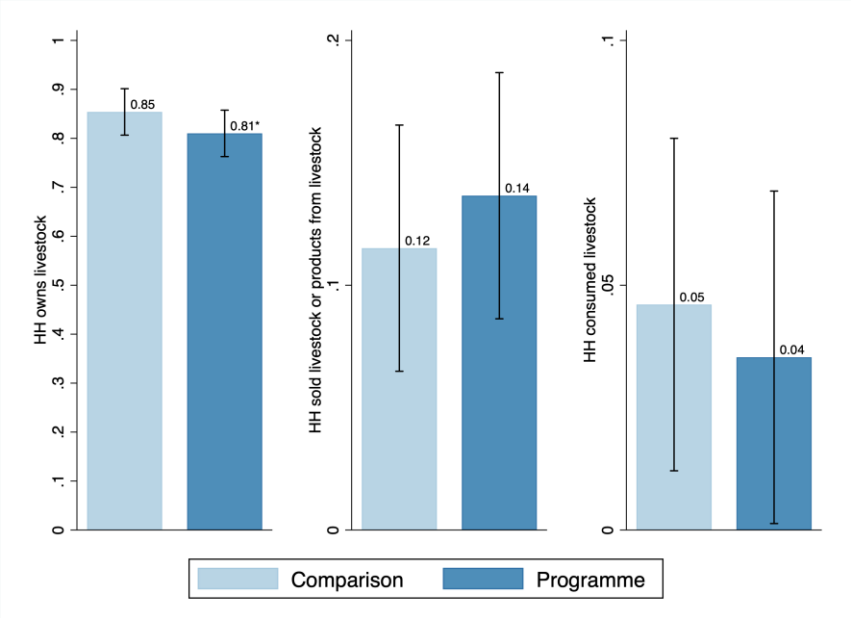
Figure 24: Impacts on agricultural productivity and commercialization



6.2.2.2 Livestock

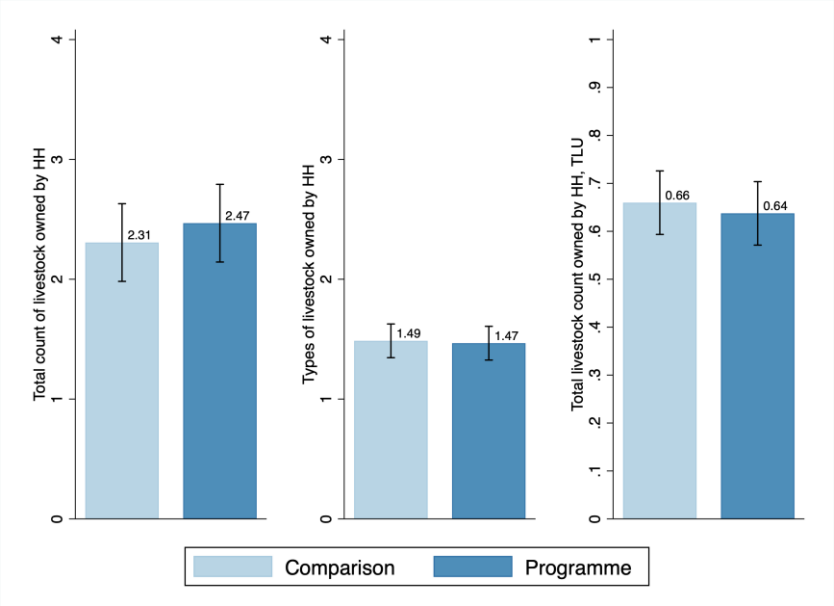
168. For livestock ownership and consumption, and sales of livestock and animal product, there are no changes in livestock management, as shown in Figure 25. The percentage of households that own any livestock is not affected: the FFA group shows a slightly lower level in engaging in livestock tendering, if at all. There are no changes in sales nor consumption of livestock and animal products.

Figure 25: Impacts on livestock ownership, sales, and consumption



169. As shown in Figure 26, the intervention's influence on the overall livestock portfolio – the total count of livestock, (measured in both regular and tropical livestock units), and the diversity of livestock types maintained by households – is minimal. On average, households own a little more than two livestock animals and one or two different types of animals, which are not differential across the comparison and the programme groups. There is no difference found in the measure for tropical livestock unit (TLU) which is used to account for different biomass of livestock of different species. In the unreported results, no changes in the number of livestock owned by households are found, even when broken down by type of livestock.

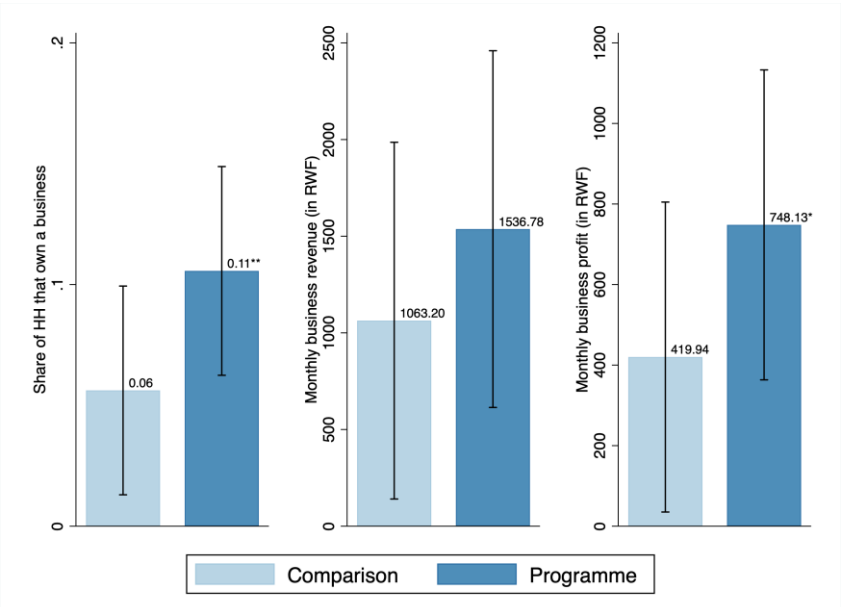
Figure 26: Impacts on livestock asset accumulation



6.2.2.3 Business

170. This subsection explores changes in business ownership and income from businesses. The share of households with business ownership increased from 6 percent to 11 percent, as indicated by Figure 27. It may be possible that households invested some of the income generated through FFA activity into starting a business. The increase in business activity is also consistent with increased business revenue and profits. However, the changes in income are quite small in magnitude. Monthly household profit in the programme group is RWF 748 (relative to 420 in the comparison group), which is less than the daily wage households were earning through FFA (i.e. RWF 1,300). Therefore, it is unlikely that business activities or income from business activities contributed to food security.

Figure 27: Impacts on business ownership, revenue, and profit



In the focus group discussions (FGDs), participants shared one of the ways that programme participation led to increased business activity:

Interviewer: And how about the actions of business, is there anything this programme made easier for you?

Participant 3: People worked for money in terraces and bought things from traders – as a result, traders benefited.

Female beneficiaries, FFA

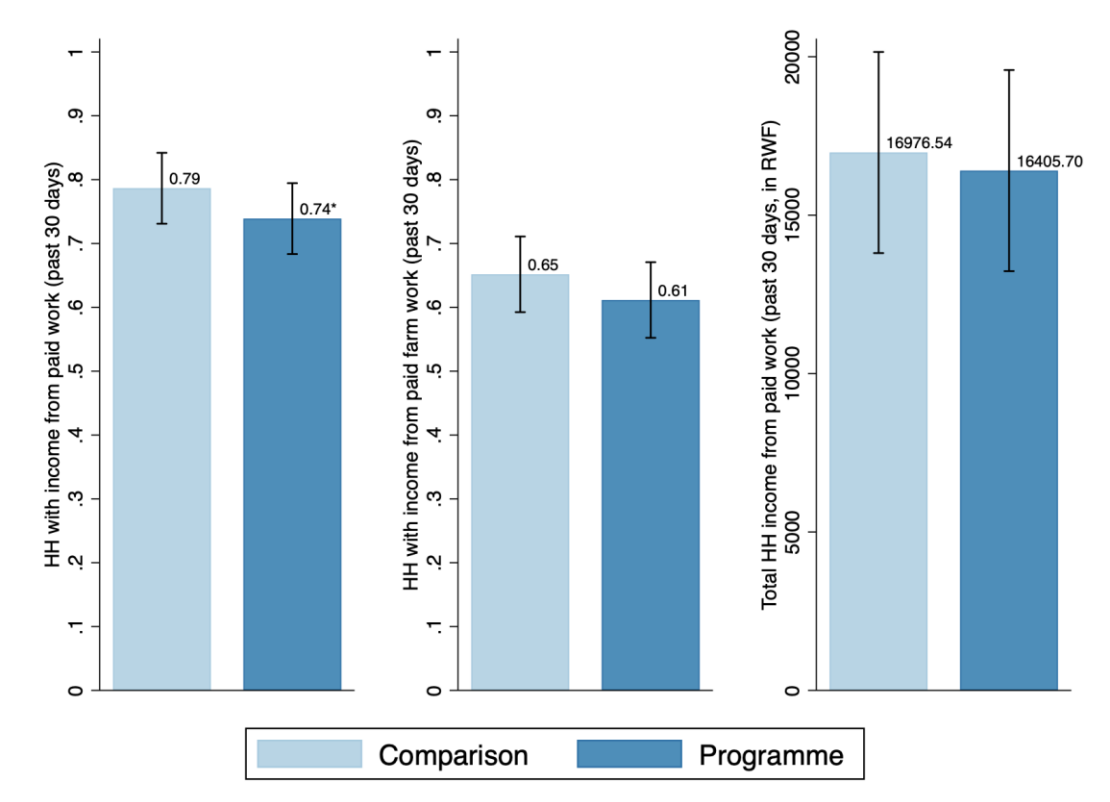
6.2.2.4 Employment

171. In theory, the impact of one-time participation in short-term FFA activities on future labour force participation is ambiguous. It may lead to persistent increase in labour force participation if households gain experiences and skills from the initial participation, or if this encourages households to continue engaging in similar paid work by improving social norms or intra-household bargaining. However, improved income may discourage households from working for paid manual labour work, if this form of income generation is the last resort for meeting consumption needs.

172. Households were asked if they and their household members engaged in any paid work in the past 30 days (excluding WFP public works). Figure 28 shows that 79 percent of households in the comparison group reported that at least one member in their household generated income from paid work, while the number is slightly lower for households in the programme group by 5 percentage points. When looking at the types of paid work, it is mostly driven by reduction in paid farm work as this is the most common types of job opportunities available in these communities.

173. Total household income is calculated by adding up the earnings from primary and secondary employment sources within a household across all members. Despite slightly lower participation in paid work for beneficiary households, there is little difference in the total household income in the past month. Overall, there is no evidence that income from paid work is driving improved food security for the beneficiary households.

Figure 28: Impact on wage employment



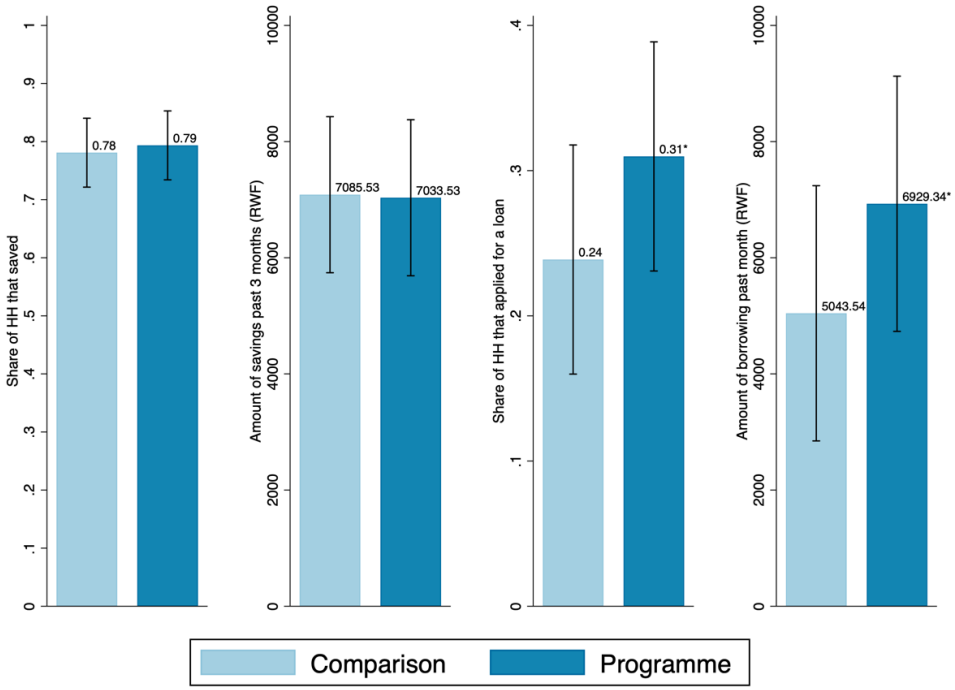
6.2.3 Financial outcomes

Summary of findings: Following participation in the programme, beneficiary households were more likely to apply for a loan. In addition, borrowing increased by 37 percent.

174. Households engage in savings and borrowing actively. The percentage of households that saved money in the past 12 months is almost 80 percent, which is not differential across the comparison and the programme groups. Households, on average, saved RWF 7,000 in the past three months, which is equivalent to six days of wage income from paid work. Overall, it appears that FFA did not change the savings behaviour, as indicated by the similar savings amounts in Figure 29.

175. There is a noticeable shift in borrowing; the proportion of households that applied for a loan in the past month increased from 24 percent to 31 percent. This increase in the share of households getting a loan is also reflected in the total amount of borrowing in the past month, which increased from RWF 5,044 to RWF 6,929 (i.e. a 37 percent increase). At least this pattern is consistent with the increased expenditure and business ownership among the FFA households observed in the previous sections. Among the programme households, 43 percent of those that own a business have loans (32 percent for those that do not have a business). This finding is consistent with households using loans for business investment or for smoothing consumption.

Figure 29: Impact on savings and borrowing



176. In the FFA mixed group, participants commonly reported being able to invest their money into a savings group, and pay for health insurance. One male participant shared how the project helped him join a savings group and buy a domesticated animal:

> Participant: Prior to its arrival, we could not manage to be active members of the locally based Credit and Savings groups, but now we earn money and then decide together and say, this amount will be saved and this other will be allocated to other household needs.
>
> Interviewer: You were not members of any group before?
>
> Participant: No, never, it is the WFP project that taught us how join groups and how to make savings. […] What the WFP project benefited me is that, with its arrival, it allowed me the opportunity to earn money income, joined credit and savings groups, borrowed a loan, and bought a cow, which I did not have prior to the arrival of WFP project.
>
> *Male beneficiary, FFA*

6.2.4 Assets

Summary of findings: The impact evaluation did not detect increases in asset ownership due to the programme. Qualitative findings highlight that people were unable to afford new assets, as they are expensive.

177. This subsection explores whether FFA helped households to accumulate assets, including ownership of assets such as a mobile phone, bed, table, bicycle, hoes/shovels, hatchets/axes, sickles, knives, and picks. Figure 30 shows the list of assets by the proportion of households who own them. Assets such as hoes/shovels are almost universally owned, followed by mobile phones (76 percent), sickles and knives (65%), and household durable assets such as a table and bed (63 percent and 61 percent, respectively).

178. It is not observed that FFA increases asset accumulation on the extensive nor intensive margins, at least among the basic farm tools and household items examined. As shown in Figure 31, the proportion of households that own an asset, the total number of assets, the types of assets, and the value of assets have no meaningful differences between the comparison and the programme groups.

179. From **the qualitative findings**, a female participant from an FFA for women community shares the reasons she and her partner were unable to buy "expensive" things with the project earnings:

> Participant: We couldn't afford to buy an expensive animal. For example, now I have borrowed money, and I am planting tea. We are working and paying back. So we can't buy expensive things. First of all, I borrowed money to change so that I could move out of a high-risk area, we lived in a high-risk area. [...] We first borrowed money and moved out of a high-risk area, and when we paid back the money, we borrowed more to pay for the tea plantation. Now that we are paying, we can't afford expensive things.
>
> Interviewer: Has WFP made a difference to your decision to buy an expensive asset for your household?
>
> Participant: We want to buy it, but we do not have the capacity to buy it.
>
> *Female beneficiary, FFA*

Figure 30: Type of assets owned by households

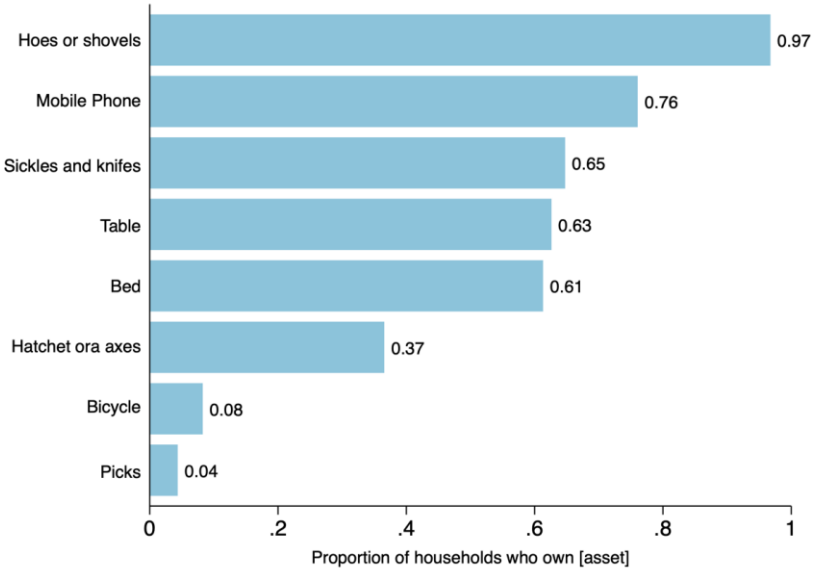
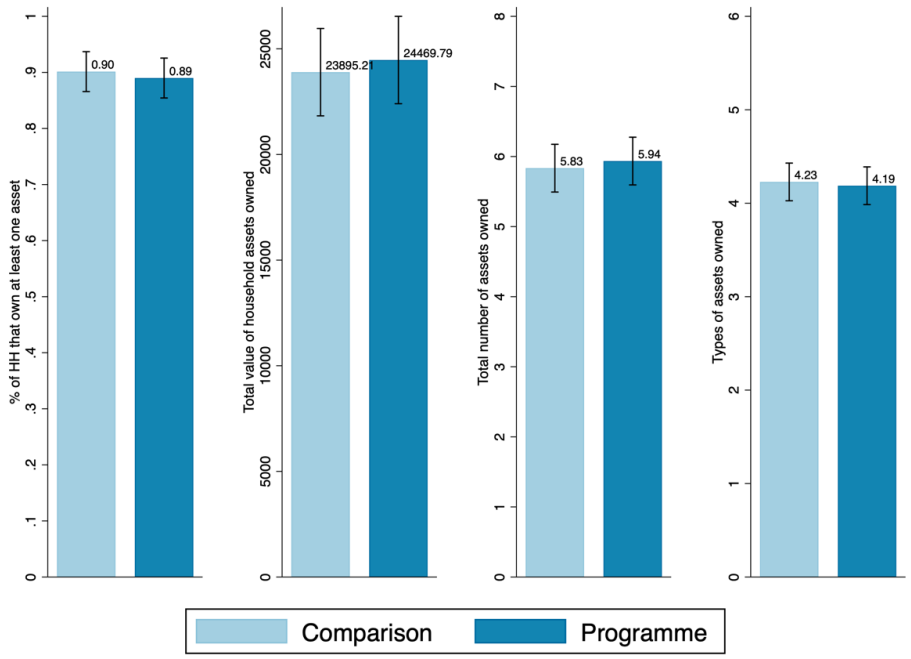


Figure 31: Impacts on farm assets and household items



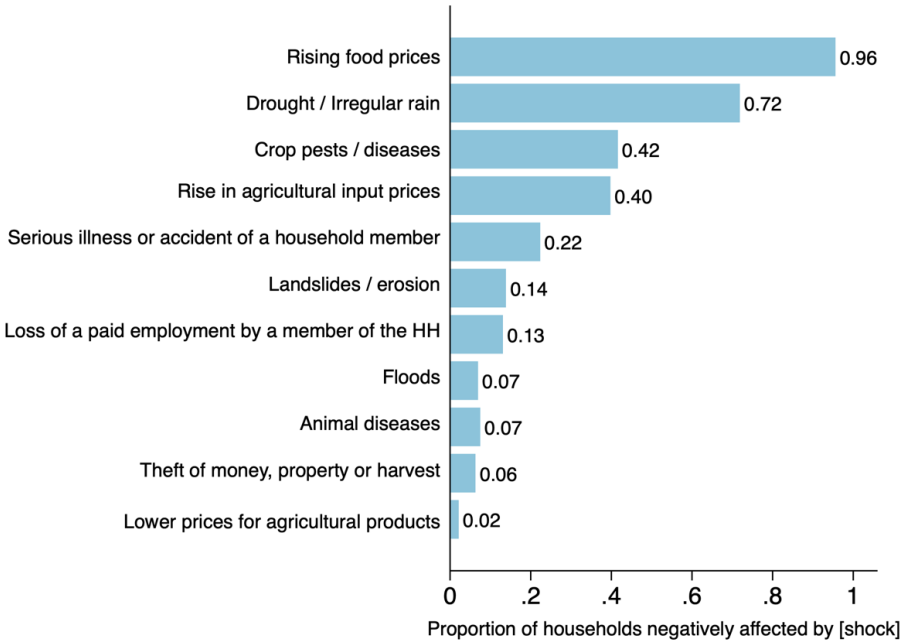
6.2.5 Shocks and coping strategies

Summary of findings: Almost all households reported being affected by price shocks, and more than 70 percent reported suffering from a drought shock. Households participating in the programme were less likely to be affected by inflation and crop and pest diseases; however, no differences are observed in terms of coping strategies employed to deal with these shocks.

180. To explore how food insecurity and poverty are affected by shocks, respondents were asked whether their household had been negatively affected by a list of 22 predefined shocks in the previous 12 months. This reference period captures shocks that occurred mostly in 2022.

181. Figure 32 shows the list of shocks by the proportion of households that were negatively affected by each shock. Almost all households are affected by rising food prices, followed by drought or irregular rain experienced by 72 percent of households, and crop pests and diseases experienced by 42 percent of households. In unreported results, households said that they were negatively affected by three to four shocks in the past 12 months.

Figure 32: Types of shocks experienced by households



182. Figures 33 and 34 show the impact of shocks separately by the comparison and programme group. Note that the questions are designed to find out whether households are negatively affected by shocks rather than the occurrence of shocks. And, therefore, there may be differential responses regarding the impact of shocks across the two groups if households perceived some shocks as having no direct impact on them.

183. There doesn't appear to be any strong pattern of being impacted by shocks across the most common eight types of shocks. If any, households in the FFA villages are less likely to report that they were negatively affected by rising food prices or crop pests and diseases. It may be possible that improved income from FFA helped beneficiary households to better cope with rising food prices. But it is difficult to argue to what extent FFA and similar agricultural input support contributed to protecting households against crop diseases, given that the comparison group also received similar agricultural support.

Figure 33: Shock exposure and its impact

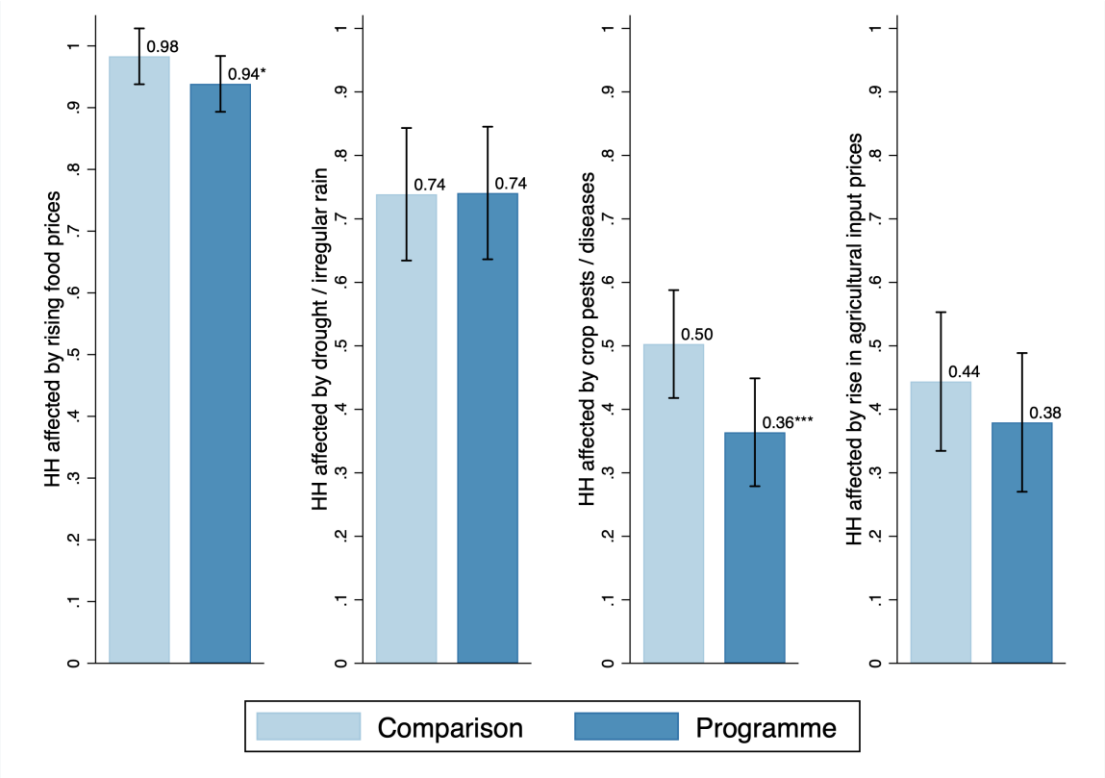
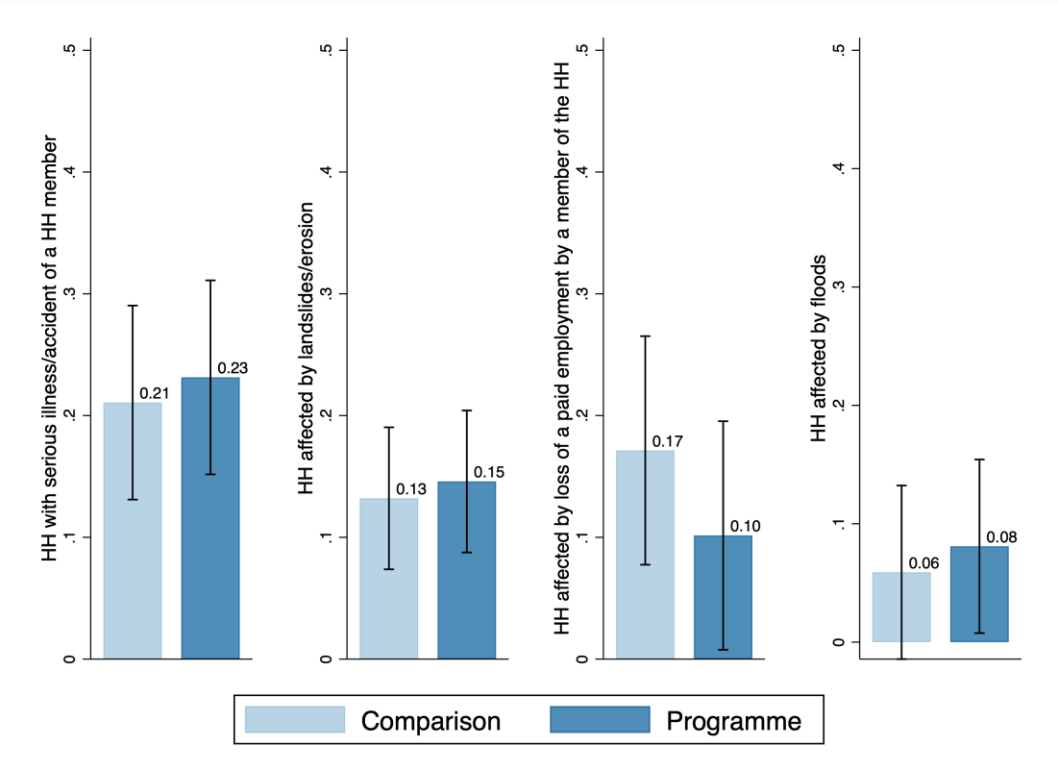


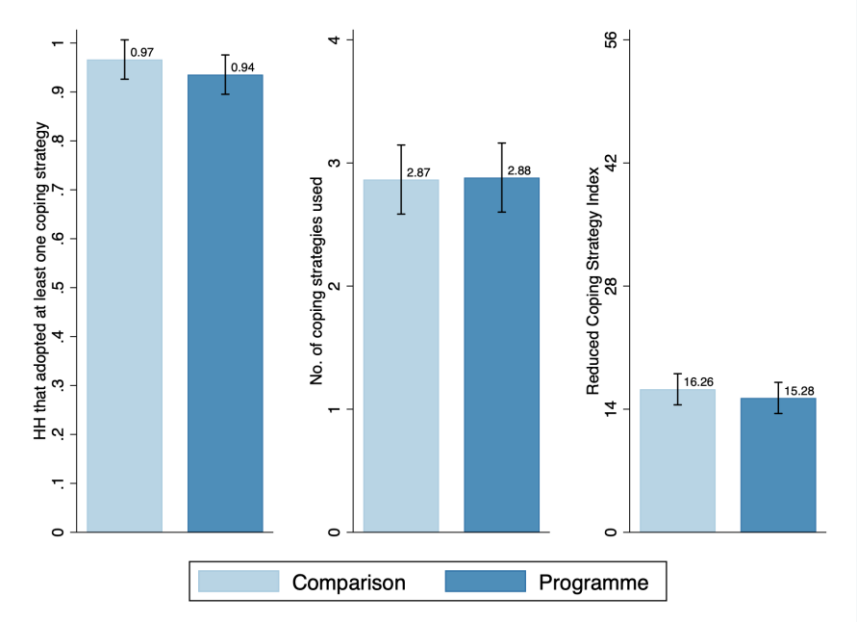
Figure 34: Shock exposure and its impact (cont.)



184. The analysis directly assesses the coping strategies used by households in the past 30 days, including selling assets, borrowing money/food, consuming seed stocks saved for the next season, begging, and reducing expenditure and food consumption. Figure 35 shows that almost all households reported using at least one of these unhealthy coping strategies and, on average, employed three different strategies. However, there is no difference in the use of these strategies between the comparison and the programme groups.

185. The Reduced Coping Strategies Index (rCSI), a proxy indicator of household food insecurity, was also constructed. It considers both the frequency and severity of pre-selected coping strategies that the household used in the past seven days, based on the use of the following five strategies: (i) rely on less preferred and less expensive food; (ii) borrow food or rely on help from relatives or friends; (iii) limit portion size at meals; (iv) restrict consumption by adults, leaving more for small children to eat; (v) reduce the number of meals eaten in a day. The evaluation finds that there is no difference in the frequency and the types of coping strategies used between the comparison and the programme groups.

Figure 35: Impacts on coping strategies of households



186. In a qualitative interview, a female participant in a FFA community shares how they tried to cope with agricultural shocks by planting seeds from the WFP asset project in small plots of land, without much success:

> Interviewer: How did you handle those challenges of lack of seeds, the sun, the rain that did not come in the right time?
>
> Participant: We tried and failed.
>
> Interviewer: Did you do something to overcome them, like when you say the seeds were expensive, how did you try to handle the problem?
>
> Participant: We received support of seed [from WFP].
>
> Interviewer: Those who didn't receive the support, what did you do?
>
> Participant: We planted seeds on a small piece of land.
>
> Interviewer: How did you want to get the seeds? Those who were able to look for seed?
>
> Participant: Actually, the way things are, only the owners of land were given the seeds. For me, would I go for seeds without land?
>
> *Female beneficiary, FFA*

6.2.6 Psychosocial well-being

Summary of findings: The impact evaluation finds that the programme led to higher satisfaction with life and lower levels of reported stress.

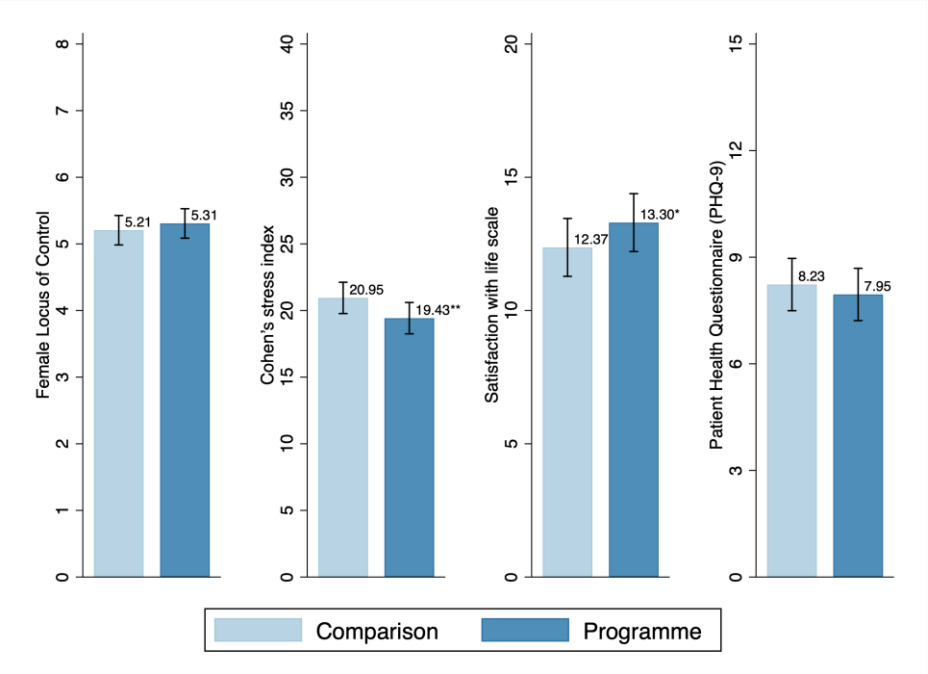
187. An important determinant of resilience could be psychological well-being. As mentioned in the CBT and gender findings, the evaluation finds that the programme impacts psychosocial well-being. When comparing households in the FFA group to those in the comparison group, it appears that the improved food security may ultimately improve the overall psychosocial well-being of households. This subsection reports four standard measures of psychosocial well-being: (i) external locus of control (an adapted version of Rotter 1954); (ii) stress (Cohen's Perceived Stress Scale); (iii) life satisfaction (Diener's Satisfaction with Life Scale); and (iv) depression (PHQ-9).[39]

188. The external locus of control ranges from 0 to 10. A high score indicates that individuals asserted that external factors may have a significant impact, leading to a lower perception of internal control in their lives. Cohen's Perceived Stress Scale range is based on ten questions on the frequency of feelings of stress in life events, with a minimum of 0 and maximum of 40, with higher numbers meaning more stress. Diener's Satisfaction with Life Scale ranges from 5 to 35, with a higher score indicating higher satisfaction with life. The PHQ-9 measures the degree of depression from minimal depression (0-4) to severe depression (20-27).

189. Figure 36 shows that the programme has a significant impact on stress and life satisfaction. While the magnitudes of the differences between the comparison and the programme groups are small, beneficiary households experience lower level of stress and a higher satisfaction with life. However, villages that received FFA have similar levels of locus of control as well as depression relative to the villages that did not receive FFA. Overall, the results are encouraging in that the programme led to increased psychosocial well-being beyond improved food security. These results are in line with those described in Section 6.1 Cash-based transfers and gender findings, showing positive effects on subjective well-being at endline, for both the FFA for women and the FFA group. While Section 6.1 reports an overall well-being index, this section shows the different measures of psychological well-being that compose this index, and results are robust.

[39] Rotter, J.B. 1966. Generalized expectancies for internal versus external control of reinforcement. *Psychological monographs: General and applied,* 80(1), 1.

Figure 36: Impacts on psychosocial well-being



190. Qualitative findings shed light on pathways the programme used to lead to improvements in psychological well-being, for instance by improving marital relationships and increasing happiness at home**:**

> Participant 1: When you have money, the husband deems you valuable.
>
> Interviewer: Now that … happiness reigns at home, free of quarrels, [would] others also add and … something?
>
> Participant 1: There are less quarrels at home.
>
> Participant 2: Happiness came. […] Like after getting the money, I could buy a litre of cooking oil, buy beans, and put it at home, and we eat with the children. And when you reach home, you give him the money to go and drink a bottle of beer. […]
>
> Participant 3: And you pay for the association without begging the husband, and he becomes happy that my wife worked for money.
>
> *Female beneficiaries, FFA*

6.2.7 Measuring resilience through high-frequency results

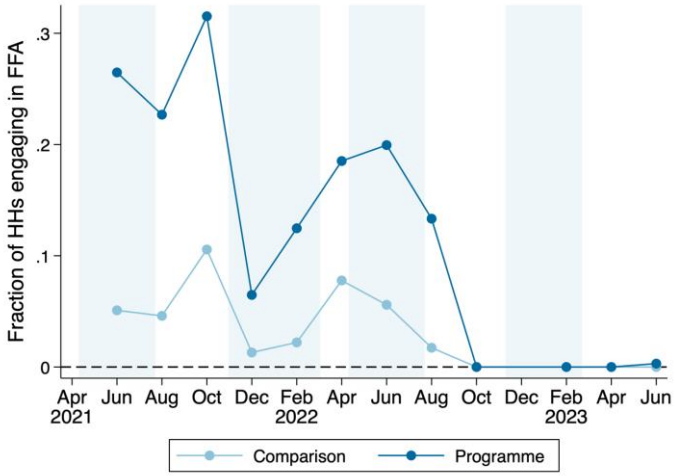
Summary of findings: High-frequency surveys reveal that food security impacts are greater in some months which is not fully explained by participation intensity. It can take three to four months for the food security effects to emerge after the FFA wages are transferred. Eventually, food security impacts dissipate 12 to 18 months after the programme ended.

191. The impact of WFP programmes on resilience could be dynamic in nature. Short, high-frequency surveys conducted every two months for two years allowed us to track the pattern of food security impacts.

192. There are two factors that may change the interpretation of the dynamic results. First, FFA activities were rolled out gradually across different project sites with varying intensity of participation across calendar months. Figure 37 shows that, in any given month, the average participation in the programme villages changes from 30 percent in June-October 2021 to 5-10 percent toward the end of 2021, which goes back up to 20 percent in April-June 2022. Therefore, the dynamic impact of FFA on food security must be interpreted with this participation pattern in mind.

193. Second, the high-frequency surveys were only collected among a subset of the overall sample. The high-frequency survey sample is not representative of the overall sample because the survey was exclusively completed over the phone (except for December 2022, when the data collection was done in person for endline) and therefore only the households with phone ownership at baseline were included in this sample.

Figure 37: Participation rates for FFA over time

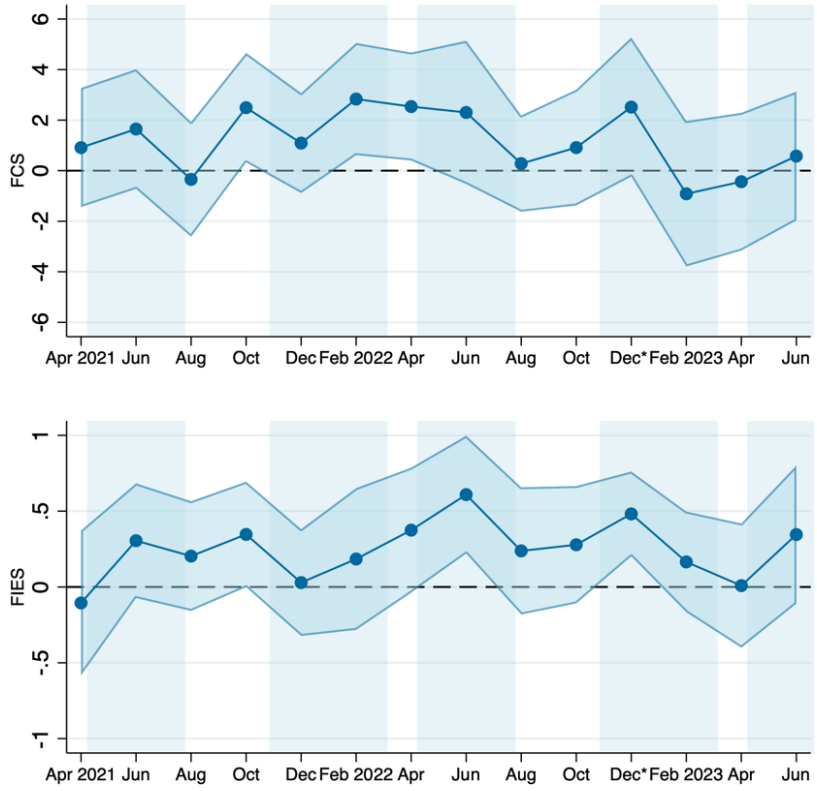


Note: The dynamic participation rates are based on 653 households in the high-frequency phone surveys.

194. While the dynamic food security impacts are mostly noisy, the effects appear stronger in some months. For example, February to June 2022 (for FCS) and April to June 2022 (for FIES) are the months with strongest food security impacts. This large difference is partly due to a relatively high participation rate, as shown in Figure 38. However, it does not fully explain the result, because impacts in the other months with higher participation rates (i.e. June to October 2021) are smaller, even with higher levels of participation.

195. From August 2022 onwards, the impact measured from participation in FFA declined until December 2022, when the effect increases again. The December impact must be interpreted with caution. The estimate is based on in-person surveys conducted during the endline data collection in December 2022, while all other rounds were almost exclusively completed through phone surveys. The difference in survey modality may have affected how food security questions were answered, which may have interacted with whether villages received FFA or not. To at least make the analysis sample consistent across months, the December endline sample was restricted to those in the high-frequency survey sample.

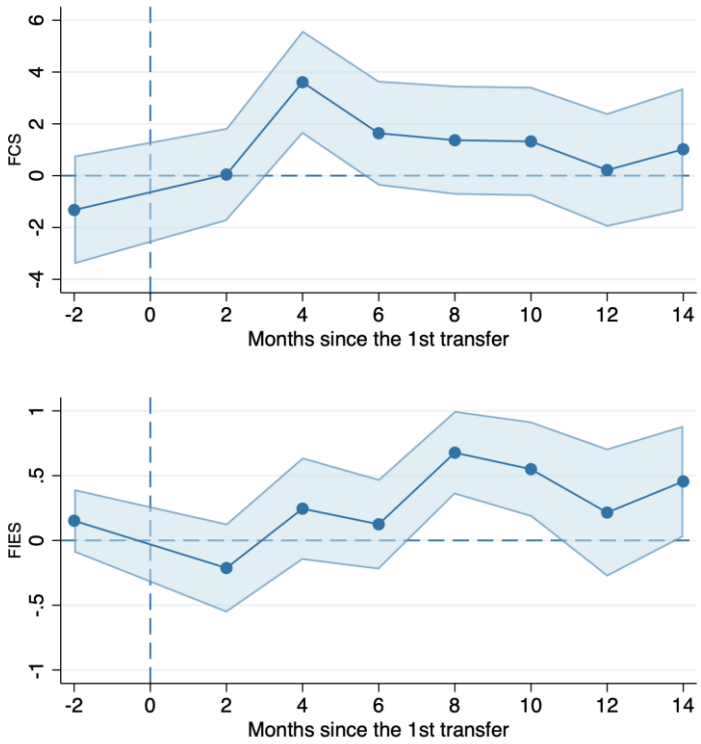
Figure 38: The impacts of FFA on food security over time



Note: The dynamic food security impacts are based on 653 households in the high-frequency phone surveys.

196. An alternative way of measuring the dynamic impacts is to see how long it takes for food security measures to improve after households participated in FFA. Figure 39 re-centres by showing the months since households received their first wage transfer from FFA. Interestingly, there is no immediate increase in food security right after receiving the wage transfer. Instead, the effects start emerging four months after the transfer for FCS and eight months after the transfer for FIES. Since FIES measures the experiential scale of food security, it appears that it takes some time for households to fully register how their food security situations have improved, whereas the effect on FCS is detected quickly because it measures the quantity and frequency of food consumed over the past seven days. For both measures, the effects dissipate by 12 months after the first transfer.

Figure 39: The impacts of FFA on food security since the first transfer



197. Overall, food security impacts fluctuate over time. This is driven by fluctuating project participation rates, the agricultural seasonal calendar, and other unforeseen shocks.

Conclusions and considerations for future programmes

198. This section answers the evaluation questions (EQs) posed by the impact evaluation (also see the Inception Report) and discusses considerations for future WFP programmes. The section is divided by the two evaluation windows. The Sustainable Market Alliance and Asset Creation for Resilient Communities and Gender Transformation (SMART) programme aimed at enhancing food security and resilience to shocks, strengthening smallholder farmer production and market access, and building community and government capacities related to nutrition-, gender- and climate-sensitive social protection.

7.1 Cash-based transfers and gender conclusions and considerations

EQ1. What is the impact of targeting women with food assistance for assets (FFA) (working outside the household and receiving cash in return) on their social and economic empowerment?

199. **At midline**, specifically targeting women with FFA programming led to more women being engaged in WFP's FFA programme, rising by 11 percentage points from 40 percent to 51 percent.

200. However, both FFA and FFA for women significantly reduced women's agency over consumption compared to the comparison group. The decrease was slightly less pronounced for households in the FFA for women group.

201. At midline, women in the FFA for women group saw an increase in psychological abuse by 0.136* Standard Deviation (SD) and an increased feeling of external "locus of control score" (by 0.251* SD, when compared to the comparison group). Despite these shifts, there were no statistically significant differences at midline on other measures of subjective well-being between the three groups.

202. Taken together, at midline, the data shows a complex dynamic where participation in FFA for women had mixed effects, including a reduction in women's agency over consumption, alongside increases in psychological abuse and external locus of control. No significant impact on overall subjective well-being was observed across the groups.

203. However, **at endline,** the survey data and qualitative data support the theory that participation in FFA for women impacts on women's empowerment positively in the longer run.

- Women's agency over consumption remains negatively impacted in the standard FFA group (-0.147** SD) but becomes positive for women in the FFA for women group (0.137** SD). Thus, FFA for women households show a 0.284*** SD shift in agency when compared to FFA households in the longer run.
- Women's attitudes towards time use are improved for both groups, albeit more so for women in the FFA for women group (0.358*** SD for FFA for women and 0.201* SD for FFA).
- The same holds for women's attitudes towards women's agency over consumption, which is negatively impacted in the standard FFA group (-0.125** SD) but positively in the FFA for women group (0.129* SD). This is a shift of 0.254** SD.
- Women's perception of norms towards time use is positively impacted in the FFA for women group (0.245** SD), but not significantly in the FFA group.
- The subjective well-being index is equally positively impacting women in both FFA groups (0.199*** SD in FFA and 0.201** SD in FFA for women).
- Remarkably, men's attitudes towards time use and men's perceptions of norms towards time use are positively impacted by both programme arms (0.431** SD in FFA and 0.421** SD in FFA for women for attitudes, and 0.439*** SD in FFA and 0.515*** SD in FFA for women for perception of norms).

204. Although women's attendance in FFA projects is only about 11 percentage points higher when compared to regular FFA conditions (51 percent instead of 40 percent), targeting women for FFA does show significant results.[40] It is also possible that these results would be much greater if more women participated when targeted for FFA.

205. The findings from this impact evaluation (and the impact evaluation with a similar design in El Salvador) support the theory that targeting women for cash transfers and offering them opportunities to work outside the house can have a significant impact on agency, attitudes, and subjective well-being for women. The findings also show that, in the longer run, providing FFA for women appears to be significantly more effective at supporting women's economic empowerment than standard FFA.

EQ2. Does participation in FFA affect key food security outcomes of interest and are these outcomes better when women participate in FFA, as opposed to men?

206. At midline, during the programme, both FFA and FFA for women households showed small, insignificant improvements in food security compared to the comparison group (0.040 and 0.056 SD in the Food Consumption Score (FCS)). However, on the (inverted) Food Insecurity Experience Scale (FIES), the FFA for women group saw a modest but significant improvement of 0.3 points (0.369** SD, compared to 0.088 SD for the FFA group). This indicates that, while food access stress decreased, dietary quality did not improve.

207. By endline, both groups saw notable improvements in food security on the (inverted) FIES (0.300** SD for FFA and 0.342** SD for FFA for women), suggesting that there were lasting impacts on experiences of food access, even though the FCS remained unchanged in the FFA for women group.

Consideration 1. Find ways to boost participation rates in general and specifically for women.

208. Households' participation rates at midline in the WFP project were 70 percent for the FFA group and 59 percent in the FFA for women group. Women's participation rates were lower, at 40 percent and 51 percent, respectively. Future WFP programmes should explore ways to: effectively communicate the opportunities created by these initiatives to men and women in the targeted communities; develop better strategies to ensure that women are willing and able to participate in FFA when they are the intended beneficiaries; consider raising compensation to encourage greater participation; and implement measures to limit men's participation in FFA projects specifically designed for women.

Consideration 2. Consider supplementary programming to diminish the backlash women face during programme implementation.

209. Although there are positive shifts in attitudes among men in the longer run, during the programme, the households' participation in either group leads to reduced agency over consumption for women, as well as an increase in psychological violence against women. This shows that FFA alone is not enough to boost women's empowerment in the shorter run. Future programmes should consider piloting additional complementary interventions (also targeting men) to support women's agency when providing cash transfers. Examples of such programmes could include: gender equality training; community dialogues on shared household decision making; financial literacy programmes for women; and awareness campaigns aimed at reducing gender-based violence and promoting healthy relationships. These initiatives could help foster a more supportive environment for women's empowerment.

Consideration 3. Examine alternative timeframes and types of livelihood support for women.

210. The effects on women's agency did not lead to a significant increase in non-WFP income for women by the end of the programme. Nonetheless, both qualitative and quantitative findings show that women's agency improved through their participation, and they appreciated the opportunity.

211. To better overcome the obstacles preventing women from engaging in work outside the home and boosting their incomes, WFP could consider extending the support duration and exploring alternative livelihood approaches. This could help identify a combination of interventions that build on the short-term improvements in agency and empowerment.

[40] The analysis used an intent-to-treat (ITT) approach, comparing villages assigned to the FFA group with those assigned to the FFA for women group, estimating the overall impact of the community-level treatment/programme assignment, but not actual participation.

Consideration 4. Better address both access to food and dietary quality in future interventions.

212. A key programme consideration stemming from this finding is the need to address both access to food and dietary quality in future interventions. While participation in the FFA programme successfully improved overall food access (as seen in the FIES improvements), the lack of significant progress in dietary diversity and quality (FCS) for the FFA for women group suggests that more targeted support may be needed to further improve nutritional outcomes. The programme could consider introducing complementary activities, such as nutrition education or diversified food sourcing initiatives. Extending the duration or intensity of support might help to ensure that both food access and quality are improved, leading to more holistic food security outcomes. The fact that household participation rates at midline were significantly lower in the FFA for women group (-0.144** SD) which led to households receiving less WFP cash support (-0.199*** SD) might have contributed to this finding. This underscores the need to understand why people did not participate more, and to explore ways to boost participation rates (see also Consideration #1).

7.2 Climate and resilience conclusions and considerations

EQ3. Does participation in FFA affect key food security outcomes of interest? Can FFA increase the overall resilience of households?

213. The impact evaluation found that WFP's programme had modest but persistent impacts on households' food security, expenditures and consumption, and psychosocial well-being. The fact that these effects are observed six months to a year after the FFA programme ended suggests that the programme created ways for households to become more resilient by smoothing consumption over a longer period of time.

214. The results show that the improved food security cannot be explained by increased income from agriculture, or from paid employment activities. There is no difference in livestock and household assets between the comparison and the programme groups. Instead, beneficiary households were able to smooth wage benefits from FFA well after the programme ended and complement this source of income with better access to financial markets, as indicated by an increase in borrowing. A small number of households also generated additional income from businesses.

EQ4. How does FFA affect the resilience over time and throughout the seasons*?*

215. A unique feature of four impact evaluations in the Climate and Resilience Window are the high-frequency surveys collected over two years. Phone surveys continued for another six months after the endline data collection. While not directly comparable with the endline data (because the phone surveys collected data from a subset of the endline sample), the phone surveys reveal two main findings. First, the food security impacts are stronger for some months, which are not fully explained by participation intensity. Also, it takes three to four months for the food security effects to emerge after the FFA wages are transferred. Second, the impacts on food security dissipate over time. While the FFA programme improved the households' overall resilience and the impacts lasted after the programme ended, the effects were still temporary. The food security levels of comparison and programme groups eventually converged 12-14 months after the programme ended.

Consideration 5. Better align supply and demand of public works projects through improved targeting and additional incentives.

216. Although the data collection targeted households that were eligible for FFA and who registered under WFP's SCOPE (beneficiary information and transfer management) platform, through initial community mobilizations, the overall participation rate (at any point in time) was 79 percent. The main reasons mentioned for foregoing the opportunity to participate in FFA and to earn wages were: (i) lower daily wage rates offered by FFA; (ii) the long distance to the public works sites; (iii) competing tasks such as own farm work; and (iv) the exclusion of certain *Ubudehe* categories. The mapping between FFA sites and villages/workers was further complicated due to the coordination needed between the private landowners, the amount of labour needed to complete an identified project at the site, and the uncertainty around the available communities in the catchment area. It was also difficult to estimate the labour supply from the number of households willing to participate in the WFP projects. This process resulted in a shortage of labour and so a longer duration for the public works than anticipated, which may have also overlapped with busy agricultural seasons. The programme may want to consider ways to recruit the necessary labour by offering

additional incentives to ensure that public works projects are completed on time, without disrupting the timing of rural farm work that most households are engaged in.

Consideration 6. Study complementarities between FFA and other resilience programmes.

217. The impact evaluation does not find differences in agricultural productivities or assets between the comparison and the programme communities. However, the evaluation is ultimately not able to assess the complementarities between FFA and other resilience programmes such as agricultural input support activities, as these components were not part of the evaluation. The results from the impact evaluation show that wage transfers from FFA works alone is not sufficient to sustainably improve households' resilience. The programme's short-term effects on food security dissipate over time. Therefore, incorporating other complementary interventions, such as agricultural input support combined with market access interventions, or business training and grants, may contribute to households' lasting resilience.

Consideration 7. Explore ways to maximize the access to and the benefits derived from the assets created.

218. While the assets created through public works were meant to provide benefits to communities beyond project implementation, our findings show that only a small fraction of households had access to the assets created. This is most likely because the assets were created on privately owned lands in distant areas. For example, 70 percent of the public works sites were engaged in creating terraces on hillsides, but the percentage of households that used terraces was merely 13 percent because terraces were on private land located far from where most households lived. Future programmes may want to involve communities in identifying a project most suitable for each community, and to find ways to directly link the asset creation with the continuing use and maintenance of the assets once they are built. From the **qualitative findings**, male participants from an FFA for women community share how the terracing projects primarily benefited the landowners, rather than the workers:

> Participant 1: The reason why we shall not benefit from them is that they made terraces in their own farmlands. They will till the land and then proceed and harvest their crops. Now, the reason why I will not benefit is because I will not go and till the land there and manage it!
>
> Interviewer: It is another sector?
>
> Participant 1: It is from another sector. He will grow crops and make a good harvest. We shall never benefit from that.
>
> Interviewer: Now if they finish cultivating, will they come and sell their produce here?
>
> Participant 2: If this benefit comes, it will come unexpectedly. To expect that one will grow crops and bring them to me, this may happen, sometimes he may take them elsewhere.
>
> Participant 3: This cannot be possible.
>
> *Male beneficiaries, FFA*

Consideration 8. Consider including other cost-effective activities as part of the resilience programming.

219. There are settings where the political economy can make it challenging to involve communities in selecting and sharing assets. Public works often involve very complex coordination and costly monitoring mechanisms while the effective benefits of the assets for community households may be limited. In settings where the asset selection and the shared use of the assets are limited, resilience programming may want to consider other cost-effective means to improve household resilience. This could include cash transfers, savings training, and business training, commonly found in other economic inclusion programmes.

7.3 Overall assessment

220. In conclusion, this evaluation shows that the SMART programme had positive impacts on women's empowerment and household food security that lasted after the programme ended. Targeting women specifically for FFA showed promise in the long run for improving women's decision-making power, attitudes, and general well-being compared to standard FFA. The finding that benefits lasted after the programme ended also suggests improvements in household resilience.

221. However, the positive impact on women's empowerment came after negative effects early on, including reduced decision-making power and increased psychological abuse while the programme was running. Looking ahead, programmes targeting women should explore providing additional support right from the start (such as involving men and challenging harmful social beliefs) to reduce negative reactions and make sure that economic opportunities lead to real empowerment.

222. Future WFP programmes should also find ways to increase participation, especially for women, by tackling issues around pay, travel, and information, while also making sure that public works fit with community needs and farming schedules. Furthermore, the way assets are created needs a critical rethink to ensure that communities see greater benefits. This could include involving communities more in choosing projects, or looking at other effective ways to build resilience (such as direct cash payments or business support) if it is hard for everyone to benefit from the assets.

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Acronyms

AAHRPP	Association for Accreditation of Human Research Protection Programs
AEA	American Economic Association
CBT	cash-based transfers
CO	country office
CSP	country strategic plan
DIME	Development Impact Evaluation (World Bank)
EQ	evaluation question
FCS	Food Consumption Score
FFA	food assistance for assets
FGD	focus group discussion
FIES	Food Insecurity Experience Scale
GALS	Gender Action Learning System
GEWE	Gender Equality and Women's Empowerment
IDI	in-depth interview
KII	key informant interview
KOICA	Korea International Cooperation Agency
MAD	minimum acceptable diet
MDD	minimum dietary diversity
MMF	minimum meal frequency
NGO	non-governmental organization
OEV	Office of Evaluation
PHQ	Patient Health Questionnaire
RBN	Regional Bureau of Eastern Africa
rCSI	Reduced Coping Strategies Index
RCT	randomized controlled trial
SD	Standard Deviation
SMART	Sustainable Market Alliance and Asset Creation for Resilient Communities and Gender Transformation
TLU	tropical livestock unit
ToT	treatment on the treated
UCT	unconditional cash transfers
USD	United States dollar
WEC	World Economic Forum
WFP	World Food Programme

Annex 1: Stakeholder analysis

223. The stakeholder analysis for this evaluation identifies those who may influence or be influenced by the evaluation's outcomes. Stakeholders encompass internal and external parties, including programme beneficiaries. The primary user is the World Food Programme (WFP) Country Office (CO) in Rwanda, but the evaluation aims for broader utilization of its findings.

224. Stakeholder categories include:

a. internal Rwanda-based stakeholders: key personnel within the country office;

b. internal stakeholders outside of Rwanda: involving the WFP Office of Evaluation, the WFP Regional Bureau of Eastern Africa (RBN), and headquarters divisions;

c. populations in need: both resident communities and migrants of various demographics;

d. external stakeholders: comprising international non-govermental organizations (NGOs), donors, United Nations agencies, and local forums; and

e. national stakeholders: encompassing government entities at national and subnational levels, as well as local NGOs.

225. Stakeholder engagement methods differ by category but may involve reviewing and providing input on evaluation documents, actively monitoring the evaluation's design during programme implementation, participating in workshops, and offering feedback on evaluation reports. The engagement aims to ensure that diverse perspectives are considered and that the evaluation's results are effectively used by stakeholders. A richer stakeholder analysis is presented in the Inception Report.

Annex 2: Ethical considerations

226. WPF impact evaluations conform to 2020 United Nations Evaluation Group ethical guidelines. Accordingly, the Office of Evaluation and the World Bank's Development Impact Evaluation (DIME) group are responsible for safeguarding and ensuring ethics at all stages of the evaluation cycle. This includes, but is not limited to, ensuring informed consent, protecting privacy, confidentiality, and anonymity of participants, ensuring cultural sensitivity, respecting the autonomy of participants, ensuring fair recruitment of participants (including women and socially excluded groups) and ensuring that the evaluation results in no harm to participants or their communities. During the inception phase, the following ethical issues, related risks, safeguards, and measures have been considered.

227. Key ethical principles and practices were rigorously implemented:

- **Accreditation:** The impact evaluation window design, as well as the specifics of the Rwanda study, received ethical approval on 10 March 2020 by Solutions IRB, which is a private commercial Institutional Review Board fully accredited by the Association for Accreditation of Human Research Protection Programs (AAHRPP), and renewed every year.
- **Informed consent:** Households participating in the study initially consented to WFP programme involvement, followed by separate consent for participation in baseline, midline, and endline surveys. Refusing to take part in the survey had no bearing on eligibility for WFP support.
- **Privacy during interviews:** To ensure respondent privacy and comfort, interviews occurred at central village locations, away from others' hearing range. Male decision makers eligible for the FFA programme received a reduced set of questions. Female enumerators were deployed when needed, and childcare support was provided through WFP and community leaders.
- **Training and protocols:** Enumerators underwent extensive training and piloting, ensuring uniform and contextually appropriate questioning. Third-party experts trained enumerators on handling sensitive questions related to intimate partner violence.
- **Ethical oversight:** Ongoing monitoring and management of ethical issues occurred during the study, with additional concerns addressed in line with established guidelines.

228. To increase the transparency of the work, the evaluation is registered through the American Economics Association's trial registry.

229. In summary, the study prioritizes ethical conduct, covering informed consent, privacy, cultural sensitivity, and vulnerable participant protection. Ethical integrity was consistently upheld and monitored to safeguard participants throughout the research process.

Annex 3: Baseline characteristics

230. Due to the impact evaluation's design and inclusion criteria, all 1,170 selected households had a woman in the household who was considered to be "heading" or at least "co-heading" the household. In addition, 84 percent of the 1,170 households in our sample had both male and female heads of household; and, as can be seen in Annex Table 1, 82 percent of the female heads of household were married. The average ages of the female and male heads of household were comparable, at 40 and 42 years respectively. Similarly, the average education time for heads of household was 3.5 years for both men and women. The average household size was five members, with an average of two or more children under the age of 18 years per household. Only 6 percent of the households included elderly members (over the age of 65).

Annex Table 1: Demographics

	Mean	St. Dev.	N
Panel A: Female head of household			
Age	40.27	12	1,170
Years of education	3.41	2.87	1,170
Panel B: Male head of household			
Age	42.76	12.47	986
Years of education	3.48	2.95	986
Panel C: Household			
Household size	5.06	1.98	1,170
Number of children (<18 years)	2.53	1.62	1,170
There is a household member with a disability	0	0	1,170
There is a household member with a chronic illness	0	0	1,170
There is a household member who is over 65 years old	0.06	0.28	1,170
Female head of household – marital status			
Single	0.04	0.2	1,170
Married	0.82	0.39	1,170
Divorced / Separated	0.05	0.22	1,170
Widowed	0.07	0.26	1,170
Other	0.02	0.14	1,170
Notes: Categorical variables are displayed as "yes/no" variables where a respondent answering "yes" ascribes a value of 1, and "no" a value of 0. Thus, the mean value displayed here represents the proportion of the sample that belongs in a given category. For example, according to the table above, it can be seen that 82 percent of the sampled female heads of household are married.			

For more details on the main outcomes at the baseline, see the full Baseline Report.

Annex Table 2: Baseline balance table

	(1) Programme		(2) Comparison		(1)-(2) Pairwise t-test	
Variable	N/Clusters	Mean/(SE)	N/Clusters	Mean/(SE)	Mean/(SE)	N/Clusters
Food Consumption Score (0 to 112)	783	30.741	387	30.787	1170	-0.046
	52	(0.677)	26	(0.897)	78	
(Reversed) Food Insecurity Experience Scale (0 to 8)	783	2.309	387	2.264	1170	0.046
	52	(0.067)	26	(0.143)	78	
Age of household head	783	40.619	387	39.564	1170	1.055
	52	(0.519)	26	(0.761)	78	
Total # of members in a household	783	5.140	387	4.886	1170	0.254
	52	(0.093)	26	(0.143)	78	
Total # of adults employed members in a household	783	1.250	387	1.321	1170	-0.091
	52	(0.051)	26	(0.069)	78	
Proportion of households that own a business	783	0.051	387	0.041	1170	0.010
	52	(0.009)	26	(0.011)	78	
Total # of businesses owned by a household	783	0.051	387	0.044	1170	0.007
	52	(0.009)	26	(0.013)	78	
Total # of assets	771	4.765	380	4.571	1151	0.194
	52	(0.133)	26	(0.166)	78	
Proportion of households that have sold crops	668	0.296	323	0.288	991	0.008
	52	(0.031)	26	(0.042)	78	
Proportion of households with livestock	783	0.773	387	0.804	1170	-0.031
	52	(0.019)	26	(0.027)	78	
Proportion of households with savings	778	0.581	387	0.579	1165	0.002
	52	(0.022)	26	(0.037)	78	
Monthly food expenditure (in RWF)	781	30841.044	387	28171.731	1168	2669.312
	52	(2429.451)	26	(2722.674)	78	
Monthly non-food expenditure (in RWF)	783	13163.107	387	14005.543	1170	-842.435
	52	(735.826)	26	(1123.378)	78	
Total # of shocks faced	783	4.304	387	4.114	1170	0.190
	52	(0.098)	26	(0.187)	78	
Average # of shocks faced	783	0.227	387	0.217	1170	0.010
	52	(0.005)	26	(0.010)	78	
Locus of control (0 to 10)	783	5.230	387	5.181	1170	0.049
	52	(0.067)	26	(0.106)	78	
Cohen's Stress Index (0 to 40)	783	19.378	387	19.871	1170	-0.493
	52	(0.270)	26	(0.315)	78	
Life Satisfaction Score (5 to 35)	783	11.160	387	11.096	1170	0.064
	52	(0.196)	26	(0.305)	78	
PHQ-9 Score (0 to 27)	783	9.450	387	9.209	1170	0.240
	52	(0.245)	26	(0.339)	78	

Note: The value displayed for t-tests are the differences in the means across the groups. Errors are clustered at the village level. Significance: ***=.01, **=.05, *=.1.

Annex 4: Participation rates and transfer payments

231. The data in Annex Table 3 shows the average months that women and men participated in the programme, broken down by treatment status at midline. Households in the Food Assistance for Assets (FFA) for women group saw women participating for an average of 3.91 months and men for 3.21 months. In the general FFA group, women participated slightly more, averaging 4.12 months, with men participating for an average of 4.08 months. In contrast, the comparison group had lower participation rates, with women participating for an average of 2.83 months and men for 2.61 months.

Annex Table 3: Average months participated in programme (estimates) – by gender

	Midline (estimates)	
Treatment status	**Average months worked (women)**	**Average months worked (men)**
FFA for women	3.91	3.21
FFA	4.12	4.08
Comparison	2.83	2.61
The average transfer size and average days worked is estimated over all surveyed households. When the household did not receive a transfer or did not participate in work, the input value is 0.		

For more details, see also subsection 6.1.1. on time use in Section 6 of the report.

Transfer payments

232. Annex Table 4 provides estimates of the average monthly transfer size and average days worked monthly for both women and men. The initially expected number of days worked was a maximum of 22 per household, which would have corresponded with a USD 30 payment. Households in the FFA for women group received an average monthly transfer of USD 16.2, with women working six days and men working 1.7 days on average, totalling 7.7 days per month combined. The FFA group received a higher monthly transfer of USD 23.4, with women working 4.7 days and men working 4.7 days, leading to a combined average of 9.4 days worked per month. The control group, by contrast, received no transfers and did not participate in work activities, resulting in zero days worked. These figures highlight that the FFA programme provided more substantial financial support and involved more balanced participation between men and women, while the FFA for women group maintained a stronger focus on women's engagement.

Annex Table 4: Average transfer sizes (estimates)

	Midline (estimates)			
Treatment status	**Average monthly transfer size (USD) to household**	**Average days worked monthly: Female head of household**	**Average days worked monthly: Male head of household**	**Combined days worked (monthly)**
FFA for women	16.2	6.0	1.7	7.7
FFA	23.4	4.7	4.7	9.4
Comparison	1.5	0	0	0
The average transfer size and average days worked is estimated over all surveyed households. When the household did not receive a transfer or did not participate in work, the input value is 0.				

233. The qualitative surveys provide further insights on how respondents felt about programme implementation. According to responses received from focus group discussions (FGDs) and in-depth interviews (IDIs), implementation of the programme was managed, coordinated and planned well between project partners. There were some recommendations provided on how they could further strengthen the programme in the future. The recommendations include:

1. improving the participant selection criteria to include participants based on household living conditions and not *Ubudehe* categories;
2. increasing the payment amounts; and
3. reducing the working hours and the distance to the FFA work sites.

Annex 5: Cash-based transfers and gender evaluation theory

234. The evaluation uses the theory of change as described in the pre-analysis plan for its design. By specifically targeting women as recipients of cash transfers and involving them in work activities, programmes could initiate a transformative process. First, theory leads us to anticipate a direct "wage effect" of receiving cash transfers for the duration of the Food Assistance for Assets (FFA) project. Household members make labour supply decisions by trading off household consumption gains with the opportunity costs of work outside the home, including foregone leisure and home production. A striking observation is that women working for a wage often substitute leisure for work which creates a "second shift" while men do not.[41,42] In a unitary household model, this is explained by differences in men's and women's utility functions, or their home production functions. However, a large body of empirical work rejects the unitary household model, with a key mechanism being that men and women have agency over "separate spheres" of household decisions.[43,44,45]

235. Second, an "empowerment effect" of women's temporary participation in FFA may result in lasting shifts in labour market attachment through changes in intra-household agency, attitudes, and perceptions of norms. Recent experimental work has demonstrated that attitudes and norms shape women's agency and, in turn, women's labour supply.[46,47,48,49] In practice, norms, attitudes, and women's agency are also likely endogenous to women's labour supply decisions; if so, shifts in women's participation in FFA may also affect household decision making through these channels. These impacts may cascade, leading to persistent shifts in women's labour supply in response to temporary women's labour demand shocks.[50,51]

236. As women become earning members of the household, their increased earnings could lead to changes in women's decision-making authority and agency over their time use and consumption. In turn, these changes in women's decision-making authority could then impact on men's attitudes towards their authority. Lastly, seeing other women working outside the household in the community could also shift the perception of social norms around women working outside the home. After the programme ends, women may retain greater decision-making authority over their time use and/or consumption. Having observed other women from the community working outside (shift in perception of norms), and demonstrated their earning potential, women could continue pursuing opportunities to earn outside of the household – leading to increased earnings. Thus, in the longer run, the hypothesis is that targeting women as the recipients of cash transfers and including women in work outside the home could initiate a "virtuous cycle".

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237. The first hypothesis is that involving women in activities (asset creation through participation in the FFA programme), and participating in educational sessions, would directly impact on:

- their time use (shifts towards paid work outside the home); and
- their earnings as they are paid directly for their work.

238. The second (following) hypothesis is that – in the medium run – these combined shifts in time use and earnings could impact women's economic empowerment by altering:

- perceptions of gender norms;
- attitudes;
- agency;
- consumption patterns; and
- well-being (physical, social, and psychological).

Annex 6: Estimation and additional analysis (cash-based transfers and gender)

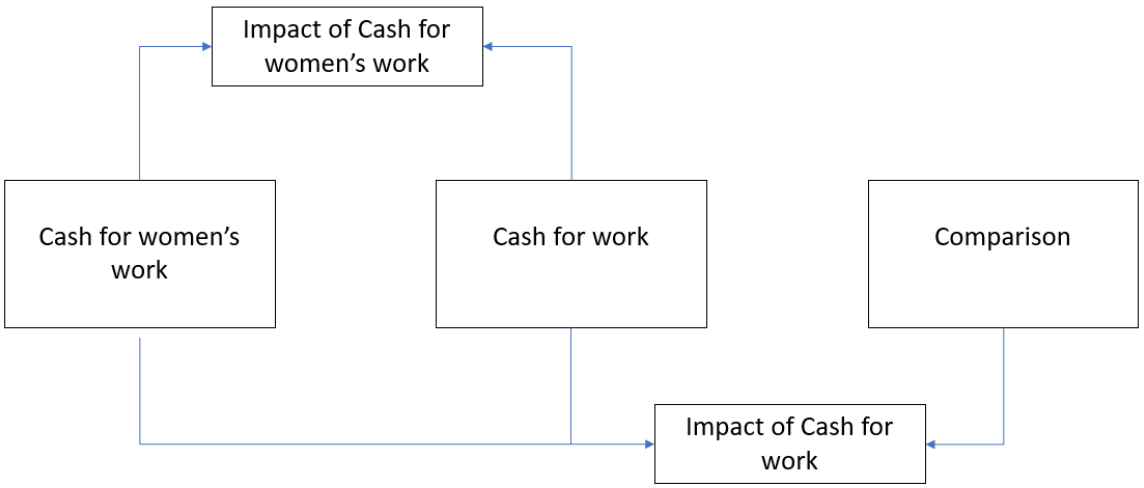
239. The impact evaluation analysis is aligned with the pre-analysis plan (PAP) registered with the American Economic Association's registry for randomized controlled trials. The pre-analysis plan includes detailed information on primary outcomes, research design, randomization method, randomization unit, clustering, sample size (total number, number of clusters, and units per intervention arm), and regression specifications. The purpose of the pre-analysis plan is to outline the set of hypotheses and analyses that will be performed on the data before it is collected, ensuring transparency of the process.

240. The evaluation estimates the following model in each country c and survey wave t. Letting $Yhct$ be outcome Y for household h in country c in survey wave t (0 for baseline, 1 for midline, and 2 for endline):

$$Y_{hct} = \beta_{1,ct} Cash\ for\ women's\ work_{hc} + \beta_{2,ct}\ Cash\ for\ work_{hc} + X'_{hc} + \varepsilon_{ct}$$

where $X'hc$ is a vector of controls, which includes the value of the outcome of interest at baseline and any stratifying variables used for randomization. The primary coefficient of interest is $\beta 1,ct - \beta 2,ct$ - the estimated impact of shifting household participation from men to women through FFA for women. The analysis also estimates $\beta 1,ct - \beta 2,ct2$ - the average impacts of programme participation (receiving either type of assistance). Standard errors are clustered at the community level, in accordance with the clustered randomization design.

Annex Figure 1: The two types of primary comparisons



241. The impacts of offering women participation in the FFA for women versus the FFA group. This comparison holds the transfer amount equal between the two groups, with the difference being that in the FFA for women group, women work outside the home and receive a direct transfer, whereas for the FFA group men work outside the home and the transfer is made to the household head (who is often a man).

242. "Pooled" FFA for women and FFA compared with the comparison group provides the joint impacts of receiving any type of WFP assistance versus not receiving the assistance. Each of the types of assistance are also compared individually to the comparison.

Annex 7: Cash-based transfers and gender regression tables

Annex Table 5: Midline CBT and gender results

	Any Treatment vs. Comparison	FFA vs. Comparison	FFA for Women vs. Comparison	FFA for Women vs. FFA	Comparison Mean	Num. of Observations
	(1)	(2)	(3)	(4)		
Any WFP Work	0.606*** (0.049)	0.674*** (0.055)	0.530*** (0.055)	-0.144** (0.061)	0.074	914
Any WFP Transfer	0.633*** (0.050)	0.727*** (0.054)	0.528*** (0.061)	-0.199*** (0.068)	0.032	914
Female Non-WFP Work	-0.032 (0.039)	-0.045 (0.043)	-0.018 (0.051)	0.027 (0.053)	0.494	914
Female WFP Work	0.403*** (0.041)	0.356*** (0.049)	0.455*** (0.049)	0.100* (0.053)	0.048	914
Female WFP Transfer	0.405*** (0.044)	0.369*** (0.049)	0.445*** (0.058)	0.076 (0.062)	0.019	914
Monthly Predicted Household Consumption	8.040 (10.124)	2.536 (10.646)	14.212 (12.495)	11.676 (11.489)	103.932	914
Women's Non-WFP Wage Income	2.500 (2.712)	-0.824 (2.393)	6.159 (3.740)	6.984** (3.472)	15.001	914
Women's WFP Wage Income	11.010*** (1.736)	10.015*** (1.966)	12.122*** (2.148)	2.107 (2.189)	0.431	914
Men's Non-WFP Wage Income	2.940 (3.115)	1.969 (3.686)	4.026 (3.460)	2.057 (3.548)	27.409	912
Time Spent						
Outside the Home (Women) (Hours per Day)	0.392* (0.224)	0.521** (0.258)	0.247 (0.259)	-0.273 (0.262)	6.329	914
Outside the Home (Men) (Hours per Day)	-0.067 (0.325)	0.117 (0.342)	-0.273 (0.413)	-0.390 (0.387)	9.391	893
Working (Self Employment, Women) (Hours per Day)	-0.486** (0.223)	-0.404 (0.250)	-0.575** (0.262)	-0.171 (0.259)	3.775	914
Working (Self Employment, Men) (Hours per Day)	0.135 (0.261)	0.005 (0.303)	0.279 (0.315)	0.274 (0.328)	3.742	893
Working (Paid, Women) (Hours per Day)	-0.020 (0.192)	-0.002 (0.208)	-0.041 (0.263)	-0.039 (0.272)	0.967	914
Working (Paid, Men) (Hours per Day)	-0.399 (0.267)	-0.366 (0.312)	-0.435 (0.308)	-0.069 (0.313)	2.351	893
Working (Chores, Women) (Hours per Day)	-0.223 (0.221)	-0.155 (0.253)	-0.300 (0.243)	-0.145 (0.225)	4.019	914
Working (Chores, Men) (Hours per Day)	0.138 (0.149)	0.152 (0.209)	0.123 (0.168)	-0.029 (0.236)	0.811	893
Women's Agency Over						
Consumption (Index Standard Deviations)	-0.212*** (0.066)	-0.263*** (0.078)	-0.157** (0.073)	0.106 (0.073)	0.002	899
Time Use (Index Standard Deviations)	0.067 (0.103)	-0.009 (0.106)	0.152 (0.127)	0.161 (0.114)	-0.008	896
Women's Attitudes towards						
Time Use (Index Standard Deviations)	-0.021 (0.067)	-0.043 (0.072)	0.005 (0.082)	0.048 (0.075)	-0.004	914
Women's Agency over Time Use (Index Standard Deviations)	0.070 (0.082)	0.008 (0.086)	0.139 (0.106)	0.130 (0.102)	-0.004	901
Women's Agency over Consumption (Index Standard Deviations)	-0.010 (0.071)	-0.037 (0.085)	0.021 (0.077)	0.058 (0.075)	-0.000	898
Men's Attitudes towards						
Time Use (Index Standard Deviations)	-0.091 (0.140)	-0.070 (0.183)	-0.107 (0.155)	-0.038 (0.189)	0.000	292
Women's Agency over Time Use (Index Standard Deviations)	0.082 (0.166)	0.198 (0.197)	0.003 (0.212)	-0.195 (0.245)	0.000	285
Women's Agency over Consumption (Index Standard Deviations)	0.049 (0.126)	0.231 (0.149)	-0.086 (0.127)	-0.317** (0.144)	0.000	291
Women's Perception of Norms						
Time Use (Index Standard Deviations)	0.068 (0.078)	0.008 (0.090)	0.135 (0.089)	0.126 (0.092)	-0.017	914
Women's Agency over Time Use (Index Standard Deviations)	-0.012 (0.098)	-0.074 (0.113)	0.057 (0.109)	0.131 (0.103)	-0.004	914
Attitudes towards Time Use (Index Standard Deviations)	0.098 (0.084)	0.061 (0.097)	0.139 (0.095)	0.078 (0.095)	-0.013	914
Attitudes towards Women's Agency over Time Use (Index Standard Deviations)	0.066 (0.106)	0.014 (0.116)	0.124 (0.124)	0.110 (0.114)	-0.002	914
Men's Perception of Norms						
Time Use (Index Standard Deviations)	-0.003 (0.138)	0.033 (0.183)	-0.031 (0.159)	-0.064 (0.200)	0.000	292
Women's Agency over Time Use (Index Standard Deviations)	-0.037 (0.134)	0.129 (0.174)	-0.167 (0.157)	-0.295 (0.193)	-0.000	292
Locus of Control Score	0.169* (0.096)	0.096 (0.103)	0.251* (0.129)	0.155 (0.127)	5.343	914
Subjective Well-Being Index (Index Standard Deviations)	0.036 (0.084)	-0.014 (0.106)	0.092 (0.091)	0.106 (0.111)	0.006	914
Psychological Abuse Index (Index Standard Deviations)	-0.072 (0.064)	-0.015 (0.072)	-0.136* (0.078)	-0.120 (0.079)	0.001	896
Physical Abuse Index (Index Standard Deviations)	0.016 (0.057)	0.015 (0.065)	0.016 (0.072)	0.001 (0.074)	-0.005	889
Sexual Abuse Index (Index Standard Deviations)	0.056 (0.063)	0.053 (0.069)	0.059 (0.073)	0.006 (0.065)	-0.003	901
IPV Index (Index Standard Deviations)	0.034 (0.060)	0.034 (0.067)	0.034 (0.072)	-0.000 (0.071)	-0.004	874
Food Security (Standard Deviations)	0.048 (0.074)	0.040 (0.088)	0.056 (0.089)	0.016 (0.096)	0.014	913
Food Insecurity Experience Scale (Inverted)	0.221 (0.148)	0.088 (0.160)	0.369** (0.176)	0.281* (0.166)	3.534	911

Annex Table 6: Endline CBT and gender results

	Any Treatment vs. Comparison	FFA vs. Comparison	FFA for Women vs. Comparison	FFA for Women vs. FFA	Comparison Mean	Num. of Observations
	(1)	(2)	(3)	(4)		
Any WFP Work	0.010** (0.005)	0.011* (0.006)	0.010 (0.007)	-0.001 (0.008)	0.003	883
Any WFP Transfer	0.003 (0.002)	0.000 (0.002)	0.007* (0.004)	0.006* (0.004)	0.000	883
Female Non-WFP Work	-0.025 (0.034)	-0.030 (0.039)	-0.019 (0.038)	0.012 (0.039)	0.535	883
Female WFP Work	0.006 (0.005)	0.005 (0.005)	0.007 (0.007)	0.002 (0.008)	0.003	883
Female WFP Transfer	0.002 (0.002)	0.001 (0.001)	0.004 (0.003)	0.003 (0.003)	0.000	883
Monthly Predicted Household Consumption	7.357 (6.116)	11.019 (6.790)	3.353 (7.750)	-7.666 (7.912)	63.415	882
Women's Non-WFP Wage Income	-0.109 (1.532)	0.102 (2.046)	-0.337 (1.826)	-0.439 (2.386)	14.640	883
Women's WFP Wage Income	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000	883
Men's Non-WFP Wage Income	1.254 (2.441)	1.373 (2.752)	1.125 (2.893)	-0.248 (2.820)	22.792	883
Time Spent						
Outside the Home (Women) (Hours per Day)	-0.000 (0.233)	0.143 (0.241)	-0.157 (0.278)	-0.301 (0.226)	6.758	883
Outside the Home (Men) (Hours per Day)	-0.331 (0.344)	-0.220 (0.377)	-0.450 (0.433)	-0.230 (0.432)	9.497	852
Working (Self Employment, Women) (Hours per Day)	-0.132 (0.198)	-0.217 (0.226)	-0.041 (0.236)	0.177 (0.238)	3.853	883
Working (Self Employment, Men) (Hours per Day)	-0.008 (0.277)	-0.080 (0.325)	0.068 (0.319)	0.148 (0.330)	4.049	852
Working (Paid, Women) (Hours per Day)	-0.032 (0.169)	0.006 (0.191)	-0.074 (0.217)	-0.080 (0.232)	0.982	883
Working (Paid, Men) (Hours per Day)	-0.265 (0.298)	-0.223 (0.332)	-0.309 (0.355)	-0.086 (0.342)	2.209	852
Working (Chores, Women) (Hours per Day)	-0.311 (0.197)	-0.236 (0.204)	-0.393* (0.228)	-0.157 (0.177)	4.176	883
Working (Chores, Men) (Hours per Day)	-0.243 (0.175)	-0.108 (0.197)	-0.388* (0.213)	-0.279 (0.213)	0.868	852
Women's Agency Over						
Consumption (Index Standard Deviations)	-0.011 (0.049)	-0.147** (0.056)	0.137** (0.061)	0.284*** (0.073)	-0.012	866
Time Use (Index Standard Deviations)	0.002 (0.090)	0.054 (0.101)	-0.056 (0.108)	-0.111 (0.109)	-0.015	857
Women's Attitudes towards						
Time Use (Index Standard Deviations)	0.276*** (0.100)	0.201* (0.113)	0.358*** (0.112)	0.157 (0.108)	0.002	882
Women's Agency over Time Use (Index Standard Deviations)	-0.004 (0.075)	-0.016 (0.090)	0.011 (0.092)	0.027 (0.105)	-0.012	851
Women's Agency over Consumption (Index Standard Deviations)	-0.004 (0.050)	-0.125** (0.062)	0.129* (0.068)	0.254*** (0.088)	-0.006	867
Men's Attitudes towards						
Time Use (Index Standard Deviations)	0.426*** (0.155)	0.431** (0.198)	0.421** (0.171)	-0.010 (0.199)	0.017	315
Women's Agency over Time Use (Index Standard Deviations)	-0.097 (0.127)	-0.053 (0.150)	-0.136 (0.168)	-0.082 (0.196)	0.012	306
Women's Agency over Consumption (Index Standard Deviations)	0.084 (0.102)	0.030 (0.117)	0.128 (0.121)	0.098 (0.125)	0.017	309
Women's Perception of Norms						
Time Use (Index Standard Deviations)	0.159 (0.097)	0.079 (0.107)	0.245** (0.118)	0.166 (0.116)	-0.003	882
Women's Agency over Time Use (Index Standard Deviations)	0.049 (0.098)	0.026 (0.113)	0.074 (0.121)	0.048 (0.128)	0.005	882
Attitudes towards Time Use (Index Standard Deviations)	0.106 (0.101)	0.051 (0.114)	0.166 (0.120)	0.115 (0.120)	-0.014	882
Attitudes towards Women's Agency over Time Use (Index Standard Deviations)	0.083 (0.113)	0.076 (0.132)	0.092 (0.133)	0.016 (0.139)	0.009	882
Men's Perception of Norms						
Time Use (Index Standard Deviations)	0.479*** (0.116)	0.439*** (0.134)	0.515*** (0.150)	0.076 (0.163)	0.021	315
Women's Agency over Time Use (Index Standard Deviations)	-0.181 (0.127)	-0.004 (0.140)	-0.339** (0.160)	-0.335* (0.171)	0.011	315
Locus of Control Score	0.136 (0.114)	0.141 (0.131)	0.130 (0.138)	-0.012 (0.141)	5.168	883
Subjective Well-Being Index (Index Standard Deviations)	0.200*** (0.064)	0.199*** (0.075)	0.201** (0.087)	0.003 (0.098)	0.013	883
Psychological Abuse Index (Index Standard Deviations)	-0.003 (0.084)	-0.078 (0.096)	0.078 (0.096)	0.156 (0.099)	0.005	843
Physical Abuse Index (Index Standard Deviations)	-0.046 (0.068)	-0.036 (0.089)	-0.057 (0.079)	-0.021 (0.100)	-0.004	849
Sexual Abuse Index (Index Standard Deviations)	-0.030 (0.080)	0.019 (0.090)	-0.083 (0.096)	-0.102 (0.094)	0.013	856
IPV Index (Index Standard Deviations)	-0.063 (0.083)	-0.051 (0.098)	-0.077 (0.100)	-0.026 (0.106)	0.006	822
Food Security (Standard Deviations)	0.113 (0.088)	0.209** (0.095)	0.007 (0.111)	-0.202* (0.111)	-0.008	883
Food Insecurity Experience Scale (Inverted)	0.320*** (0.114)	0.300** (0.141)	0.342** (0.151)	0.042 (0.182)	3.073	881

Annex 8: Resilience estimation and additional analysis

243. The impact evaluation analysis is aligned with the pre-analysis plan registered with the American Economic Association's registry for randomized controlled trials. The pre-analysis plan includes detailed information on primary outcomes, research design, randomization method, randomization unit, clustering, sample size (total number, number of clusters, and units per intervention arm), and regression specifications. The purpose of the pre-analysis plan is to outline the set of hypotheses and analyses that will be performed on the data before it is collected, ensuring transparency of the process.

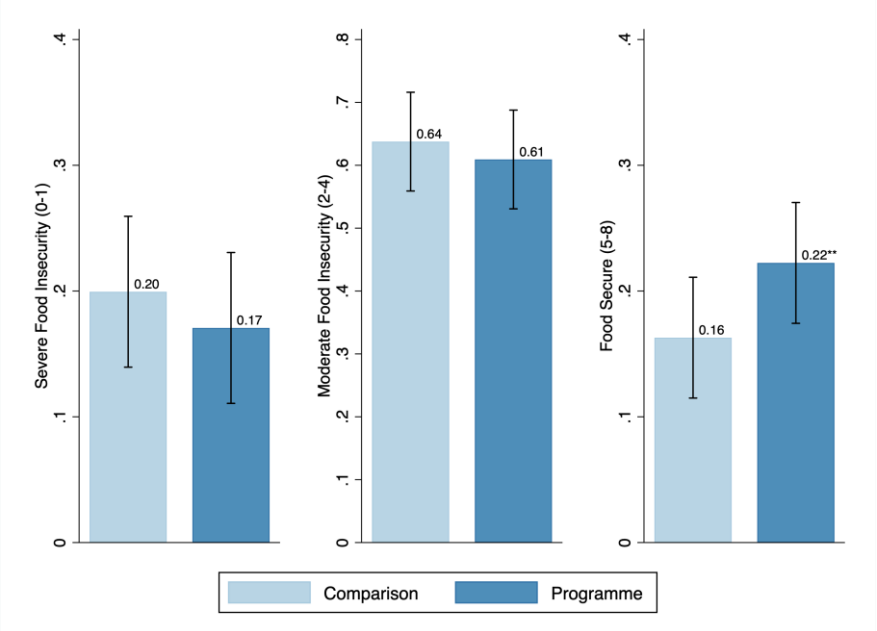
244. To estimate the impacts of the resilience programme on the different outcomes of interest (primary and secondary outcomes), the following specification for endline analysis was completed:

$$Y_{iv} = \beta_0 + \beta_1 FFA_v + \emptyset_{s(v)} + X_{iv} + \varepsilon_{iv} \quad (1)$$

Where Y_{iv} is the outcome variable for household *i* in village *v*, FFA_v is an indicator for whether a village *v* is assigned to receive the integrated resilience programme; X_{iv} is a vector of controls including the baseline outcome when available and other baseline controls selected through a double-selection LASSO procedure, and $\emptyset_{s(v)}$ are strata fixed effects (i.e. districts and hyper sites). The primary coefficient of interest is β_1 which captures the estimated impact on households in villages assigned to the resilience programme. Standard errors are clustered at the village level.

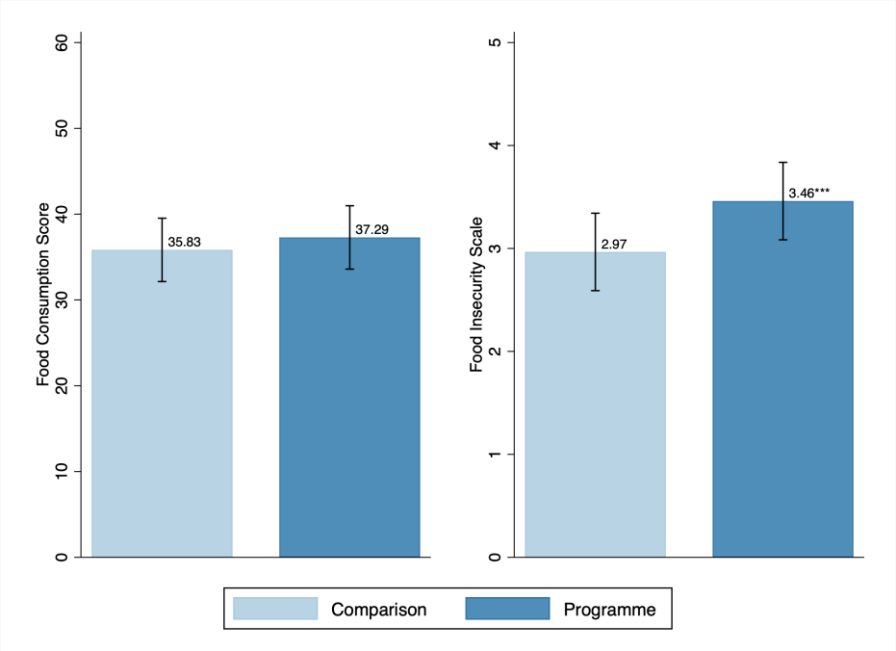
245. The study operationalizes resilience measurement by collecting high-frequency data to analyse the evolution of food security indicators over time. It is done by estimating equation (1) separately for each high-frequency data collection round.

Annex Figure 2: Impacts on components of food insecurity scale



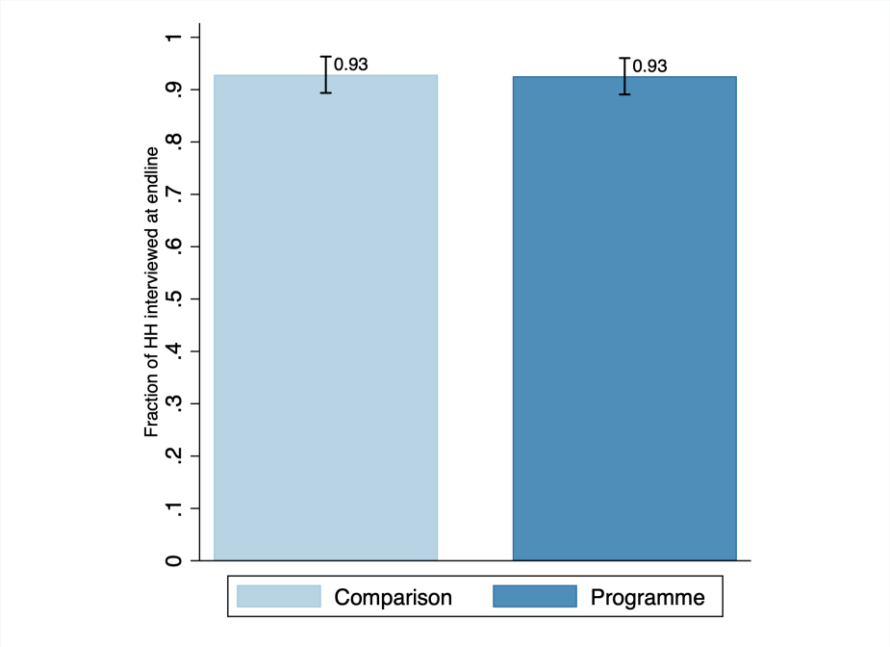
Notes: The Food Insecurity Experience Scale (FIES) ranges from 0 to 8. The scale is reversed, so a higher score indicates that the household has more food security.

Annex Figure 3: Impacts on food security



Notes: Food Consumption Score (FCS) ranges from 0 to 112. The individual food groups in the FCS typically include cereals and tubers, pulses and legumes, milk and milk products, meat, fish or eggs, vegetables, fruits, oils and fats, and sugar or sweets, and condiments. The FIES ranges from 0 to 8. The scale is reversed, so a higher score indicates that the household has more food security.

Annex Figure 4: Attrition for endline



Annex 9: Quantitative surveys

246. The questionnaires were developed with input from the WFP Country Office and extensively piloted with local communities in Rwanda to ensure that questions were gender sensitive and relevant to the context. The duration of the endline survey was two hours. Data was collected using Android tablets running the SurveyCTO data collection software.

247. The Impact Evaluation team formulated extensive protocols to guide data collection for the enumerator teams. Training for enumerators was conducted in a classroom over two weeks and included field pilots. The training protocols included gender considerations such as involving female enumerators in the data collection process. Also, the pilot testing of the instruments made sure that the questions were gender sensitive.

248. During the data collection, high-frequency consistency and performance quality checks were conducted daily. These checks included flagging missing observations, duplicate observations, unusual survey duration, unusual number of "no-consent" responses, and other inconsistent patterns in the data. Any anomalies were immediately pointed out to the Data Collection team for correction. To ensure that data collection met the highest data quality standards, the team also performed a set of back-checks. This refers to drawing a random 10–20 percent sample of households and revisiting them to validate some of their answers. Cross-checking the data allowed us to provide immediate feedback to the field teams in case of divergences or other problems. The data collection followed the agreed timeline with the country office, and no significant challenges were faced.

249. Of the total 1,170 households surveyed at baseline, 1,084 (or 92 percent) of the households were surveyed at endline. This high response rate was achieved thanks to thorough data quality checks and field protocols.

250. The team did not find significant differential attrition between the Food Assistance for Assets (FFA) groups and the comparison group.

251. While specific outcomes are discussed in detail in Section 6. Main findings, the main outcome categories of interest for the impact evaluation are as follows in Annex Table 7.

Annex Table 7: Main outcomes of interest

Outcome type	Outcome name	Definition	Measurement level	Source
Primary	Consumption and food security	FCS/FIES/consumption	Household/ individual	Baseline, endline, and high-frequency surveys
Secondary	Assets	Number and value of assets owned by the household from a contextually pre-defined list	Household	Baseline, endline, and high-frequency surveys
Secondary	Income- generating activities	Participation in agriculture and livestock, or wage employment and revenue from these activities	Household/ individual	Baseline, endline, and high-frequency surveys
Secondary	Shocks and coping mechanisms	Shocks encountered by the household, including the severity of shocks, and coping strategies used. Selection of shocks from a pre-defined list	Household/ individual	Baseline, endline, and high-frequency surveys
Secondary	Financial outcomes	Current savings levels, the number of loans they have taken and their current outstanding debt	Household/ individual	Baseline and endline surveys
Secondary	Psychosocial well-being	Stress, life satisfaction, PHQ-9 and intimate partner violence	Household/ individual	Baseline and endline surveys
Secondary	Women's empowerment	Locus of control, agency, attitudes and perceptions of norms	Household/ individual	Baseline and endline surveys
Secondary	Time use	List of activities from 24-hour recall over past two days; asked separately of men and women	Individual	Baseline and endline surveys

Index construction for agency, attitudes, and norms

252. For each individual question that is part of an index, the responses were then coded as values +1, 0, or -1, respectively for each respondent.

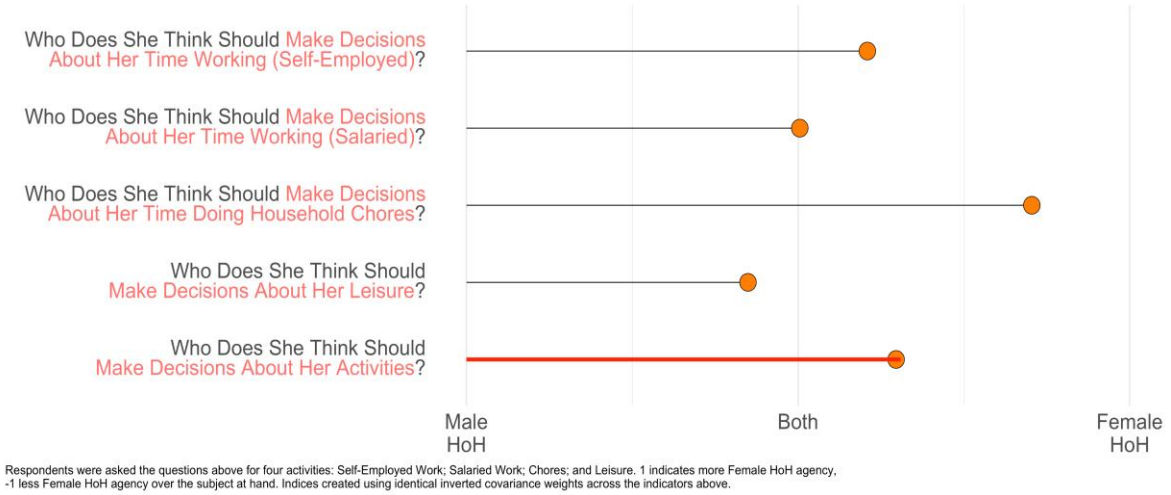
253. Annex Table 8 illustrates the three concepts (left column) and how the corresponding questions are phrased in the questionnaire.

Annex Table 8: Index construction for agency, attitudes and norms

Indicator	Question
Agency	
Agency over Women's Time Use	Who makes decisions about women's time spent...?
Agency over Men's Time Use	Who makes decisions about men's time spent...?
Agency over Consumption	Who makes decisions about purchases for...?
Attitudes	
Women's Attitudes towards Time Use	Who does she think should spend more time...?
Men's Attitudes towards Time Use	Who does he think should spend more time...?
Women's Attitudes towards Agency over Women's Time Use	Who does she think should make decisions about women's time spent...?
Men's Attitudes towards Agency over Women's Time Use	Who does he think should make decisions about women's time spent...?
Perception of Norms	
Women's Perception of Norms of Time Use	Who does she think spends more time... in her community?
Women's Perception of Norms of Agency over Women's Time Use	Who does she think makes decisions about women's time spent... in her community?
Women's Perception of Norms of Attitudes towards Time Use	Who does she think people in her community think should spend more time...?
Women's Perception of Norms of Attitudes towards Agency over Women's Time Use	Who does she think people in her community think should make decisions about women's time spent...?

254. To complete the index, a weighted average across responses is calculated that takes values between -1 and +1, where -1 would suggest the male head of the household has total agency, +1 would suggest the female head of the household has total agency, and 0 would suggest both have equal agency. The below is a visual example of how the index is constructed for agency over time use at baseline.

Annex Figure 5: Index for how agency is measured over time



Respondents were asked the questions above for four activities: Self-Employed Work; Salaried Work; Chores; and Leisure. 1 indicates more Female HoH agency, -1 less Female HoH agency over the subject at hand. Indices created using identical inverted covariance weights across the indicators above.

Annex 10: Qualitative surveys

255. The objectives of this qualitative research were threefold: (i). Identify beneficiaries' perceived changes, or lack thereof; (ii). Understand how FFA project implementation and processes contributed to, or hindered, the achievement of measured outcomes; and (iii). Understand how households benefited from the community FFA assets, and perceived changes in their ability to respond to agricultural and climate-related shocks, as well as changes in food security.

256. The qualitative research was carried out in 13 project communities across four districts of Rwanda: Karongi, Kayonza, Nyamagabe and Rutsiro (n=5 FFA women-only programme communities; n=5 FFA mixed communities; n=3 control communities).

Methods

257. ***Gender in-depth interviews (IDIs) and focus group discussions (FGDs) sample.*** The sampling frame was generated by randomly selecting 13 communities that participated in the project. Then, each community was randomly allocated to one method, either FGD or IDI. Within each programme arm, the distribution of methods was as follows:

- **FFA women-only:** three communities were assigned to FGDs (two female FGD communities, one male FGD community), while two communities were assigned to IDIs (one female IDI community, one male IDI community).
- **FFA mixed:** three communities were assigned to FGDs (two female FGDs, one male FGD), while two communities were assigned to IDIs (one female IDI, one male IDI).
- **Control group:** one community was assigned to FGD (one mixed women/men FGD), while the other two were assigned to IDIs (one female IDI, one male IDI).

258. In each community, the researchers randomly selected households to participate in the qualitative study. In each IDI community, ten participants were selected to participate in gender equality and women's empowerment (GEWE) IDIs; in each FGD community, ten participants were selected to participate in a GEWE FGD.

259. **RESILIENCE FGD sample.** Male and female participants who participated in GEWE IDIs were also selected and invited to participate in a RESILIENCE FGD (that is, RESILIENCE FGD participants were the same participants as the GEWE IDI participants). Three FGDs were conducted in FFA women-only communities, three FGDs in FFA mixed communities, and one in a control group community (n=7). In total, three of these FGDs were conducted with women, three with men, and one FGD was conducted with a mixed group of women and men.

260. For both GEWE and RESILIENCE methods, the final list of participants was communicated with the implementing partners and the community leaders, who, in turn, contacted the participants either in person or by telephone. They explained the objectives of the research and asked people if they were interested in participating in an interview. If participants agreed to participate, they were informed about the date and place for the scheduled meeting.

261. ***Community leader and project staff sample***. All community leaders were selected based on input from the WFP and implementing partners teams. Project staff were selected based on their participation and involvement in the implementation of the impact evaluation and following the recommendations of the WFP. A total of 13 community leaders and 12 project staff participated in key informant interviews (KIIs).

262. In total, 60 GEWE IDIs and 14 FGDs – including seven GEWE FGDs and seven RESILIENCE FGDs – were conducted with 172 beneficiaries from project participating households. The team also conducted 25 KIIs with 13 community leaders and 12 project staff (total n= 197).

Annex Table 9: Distribution of data collection methods and participants

Qual method	Target participants	Number of transcripts
FGDs	Programme beneficiaries and non-beneficiaries	14 (7 GEWE FGDs with women and men: *4 FGDs with women; 2 FGDs with men; 1 FGD mixed)* (7 RESILIENCE FGDs with women: *3 FGDs with women, 3 FGDs with men; 1 FGD mixed)*
IDIs	Programme beneficiaries and non-beneficiaries *(male + female)*	60
KIIs	Community leaders (*male + female)*	13
KIIs	Programme staff	12
Total		**99**

Annex Table 10: Number of participants by type of community

	Programme 2 (female only) Communities	Programme 1 (standard) Communities	Control Communities	Total
GEWE FGD participants	24 *(3 FGDs)*	24 *(3 FGDs)*	8 *(1 FGD)*	**56** **(7 FGDs)**
Resilience FGD participants	24 *(3 FGDs)*	24 *(3 FGDs)*	8 *(1 FGD)*	**56** **(7 FGDs)**
IDI beneficiary participants	20	20	20	**60**
Community leader participants	5	8	0	**13**
Programme staff participants	--	--	--	**12**
Total	**73**	**76**	**36**	**197**

Annex Table 11: Data collection instruments, by county and type of intervention community

	Programme 2 communities	Programme 1 communities	Control communities

	(n = 20 IDIs, 3 GEEW FGDs, 2 RESILIENCE FGDs)	(n = 20 IDIs, 3 GEWE FGDs, 2 Resilience FGDs)	(n = 20 IDIs, 1 GEWE FGD, 3 Resilience FGDs)
Karongi	• 1 FGD GEWE • 20 IDI beneficiaries	• 2 FGD GEWE • 10 IDI beneficiaries	• 10 IDI beneficiaries
Kayonza		• 10 IDI beneficiaries	• 1 FGD GEWE • 10 IDI beneficiaries
Nyamagabe	• 1 FGD GEWE		
Rutsiro	• 1 FGD GEWE	• 1 FGD GEWE	

Data collection

263. Qualitative data were collected in March and April 2023. Trained research assistants conducted all IDIs, KIIs and FGDs in Kinyarwanda; FGDs lasted about 1.5 hours, and IDIs and KIIs about 1 hour. Each FGD was comprised of ten participants. All FGDs, IDIs and KIIs were recorded, translated, and transcribed into English. All final transcripts were cleaned and de-identified.

264. All beneficiaries, community leaders and implementing partners provided their oral informed consent to participate in the study; beneficiaries and community leaders were compensated for their time. The impact evaluation window design, as well as the specifics of the El Salvador study, received ethical approval on 10 March 2020 by Solutions IRB, which is a private commercial Institutional Review Board fully accredited by the Association for Accreditation of Human Research Protection Programs (AAHRPP).

Study tools

265. FGDs with female and male beneficiaries focused on the following thematic areas: (i) resilience and FFA programme participation in their community; (ii) resilience programme targeting and selection; (iii) use of community assets; (iv) nutrition support; (v) resilience capacities; (vi) programme feedback; and (vii) changes in beneficiary activities and outcomes.

266. KIIs with community leaders and project staff focused primarily on project implementation processes, and to a secondary extent, perceived benefits of the project in participating communities. Implementation questions focused broadly on: (i) uptake of the project; (ii) perceived project benefits and feedback on key beneficiary outcomes; (iii) community selection processes; and (iv) coordination, communication, and monitoring aspects of the project.

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