

NURU NIGERIA

2021 MIDPOINT REPORT



RAY MARSHALL CENTER FOR THE STUDY OF HUMAN RESOURCES

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2021 MIDPOINT IMPACT REPORT

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This report is commissioned by Nuru International

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EXECUTIVE SUMMARY

INTRODUCTION

This report documents the analysis of the midpoint data collected for the four-year impact evaluation (2019-2023) of Nuru Nigeria's interventions.¹ Nuru Nigeria's vision is to cultivate lasting meaningful choices in the most vulnerable and marginalized communities in the world, starting in northeast Nigeria. By 2025, the organization's mission is to build resilience corridors of strong, locally owned farmer cooperatives driving profitable livelihoods in eight conflict-vulnerable local government areas of Adamawa, Borno, and Yobe states. The overarching goal of Nuru Nigeria is to equip rural, vulnerable households to improve livelihoods and build resilience capacities to cope with conflict, environmental, economic, and social shocks and stressors for stability and prosperity. The intervention is being evaluated on the basis of its foundational work in one local government area (LGA) of northern Adamawa State, Nigeria.

METHODOLOGY

The goal of this evaluation is to provide insight into how Nuru interventions in Nigeria impacts (1) household resilience, (2) household resilience capacities, and (3) well-being outcomes. This report sets out the midpoint status of these objectives. The impact evaluation utilizes a mixed-method approach with both quantitative and qualitative components. Quantitative data collection included the administration of the baseline household survey in 2019 prior to the start of intervention activities. Qualitative data collection included focus group discussions (FGDs) and key informant interviews (KIIs). The study design includes an intervention group that participates in Nuru interventions and a non-intervention comparison group. These groups were assigned through a clustered random control trial design. Following the evaluation protocol establishment, statistical techniques designed for improving inter-group comparability were applied. These included applications of propensity score matching and other techniques to the midpoint data with the intent of bringing the intervention and comparison groups as closely into balance as possible. Indicators of resilience and indexes of resilience capacities were calculated following the methodology outlined by the Resilience Evaluation, Analysis and Learning

¹ Due to security concerns, the exact location of Nuru Nigeria's project has been intentionally anonymized. Nuru International is a partner to locally-led organization Nuru Nigeria.

(REAL) Consortium.² The difference-in-differences (DID) approach was used to measure program impact on key outcomes. The DID approach compares the change in these outcomes for the intervention group and the comparison group. Qualitative data was analyzed using constant comparison analysis. The qualitative findings were triangulated and integrated with the quantitative findings. Data from the baseline and midline have been cleaned of personally identifiable information and made available via the Ray Marshall Center at the University of Texas at Austin website³.

FINDINGS

Shocks and stressors

Unemployment for youths, increasing food prices, increased prices of farm inputs, crop pests, crop diseases, weeds, variable rain (drought), and excessive rain (flooding) were the most frequently reported shocks at the midpoint. Focus group and interview participants also described how the COVID-19 pandemic contributed to multiple shocks and stressors. These included restricted access to health care facilities by the government leading to the death of household members, children dropping out of schools due to pandemic lockdowns, and loss of employment and businesses due to lockdowns. Notably, conflict shocks such as theft of assets, theft of livestock, destruction of local markets, and trauma associated with insurgency were reported by only a small proportion of households. Overall, the shocks with the strongest impact at the midpoint were unemployment for youth, increasing food prices, and loss of land.

Much higher proportions of intervention households reported both that their ability to meet basic needs was currently better than before and that they believed their ability to meet basic needs in the future will be better than before. The most commonly reported strategies used to deal with shocks and stressors were using in-kind (livestock) savings, taking out a loan within the community, selling protective assets, selling productive assets, and using cash savings.

Resilience

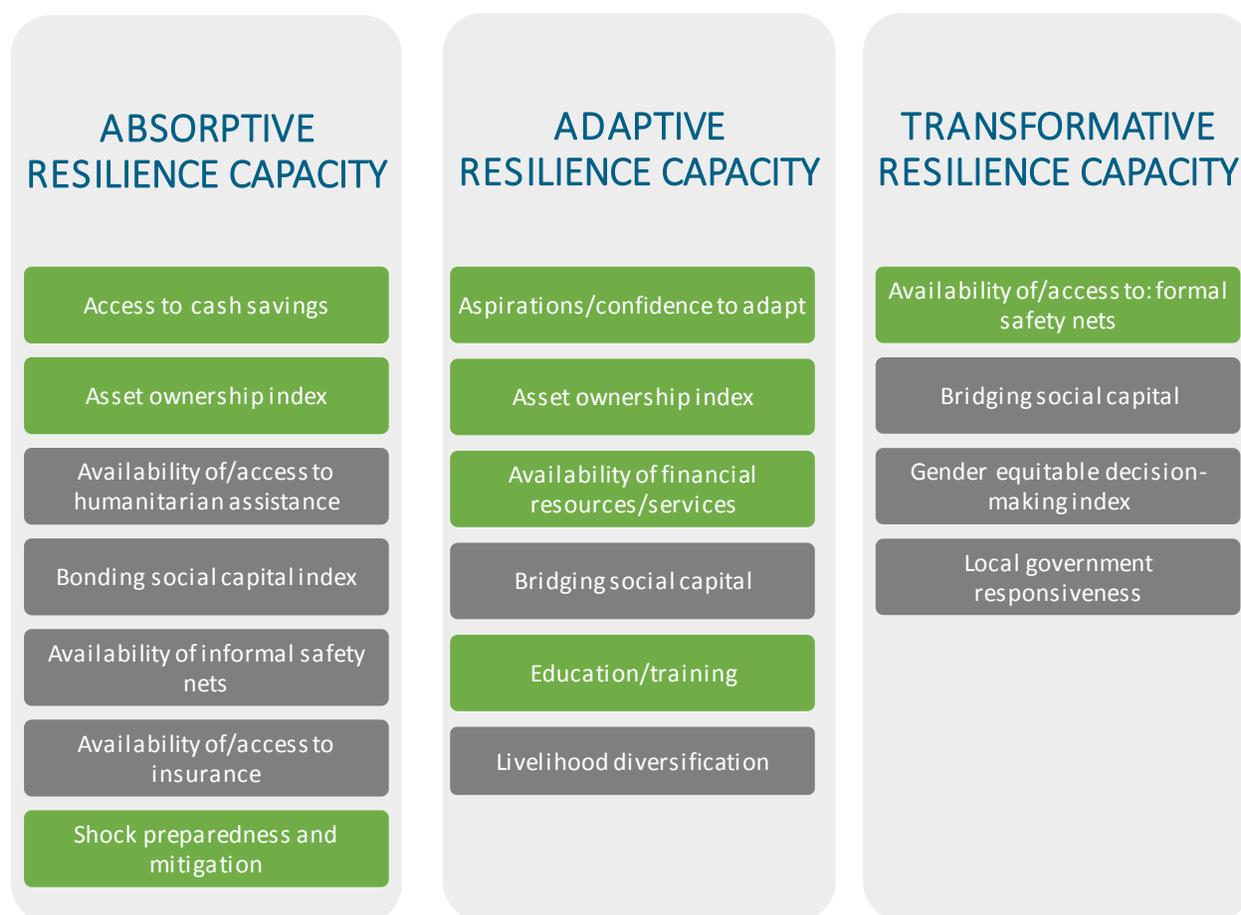
The impact analysis found that, at midpoint, Nuru interventions had no significant program impact on overall resilience, but did have impacts on adaptive resilience capacity and transformative resilience capacity. The impact analysis also found that Nuru had significant program impacts on several key

² TANGO International. (2018). Methodological Guide: A Guide for Calculating Resilience Capacity. Produced by TANGO International as part of the Resilience Evaluation, Analysis and Learning (REAL) Associate Award.

³ <https://raymarshallcenter.org/>

resilience indicators, including access to cash savings, asset ownership, shock preparedness and mitigation, aspirations/confidence to adapt/locus of control, availability of financial resources, education/training, and availability of/access to formal safety nets. Figure E-1 illustrates the intervention impacts on resilience indicators, broken out by resilience capacity. Green indicates a significant positive impact, grey indicates no program impact detected, and orange indicates a significant negative impact. There were no significant negative impact results observed. These midpoint results suggest that Nuru interventions are strengthening adaptive and transformative resilience capacities.

Figure E-1. Resilience indicators



Immediate program impacts

The impact analysis also found that Nuru had significant and often large program impacts on short-term outcomes like saving money, saving cash crops from loss, household dietary diversity, using zinc supplements to treat diarrhea, using soap before meals, and using soap after returning from the farm. While the impact analysis did not find any significant program impacts on small livestock outcomes, the

descriptive analysis noted encouraging trends such as an increase in the use of certain improved fattening practices as well as an increase in households reporting more income due to improved practices. Nuru's M&E team also found that Nuru intervention households had a 65 percent increase in crop equivalent yield (CEY) from 2019 to 2020, exceeding the target of a 32 percent increase in CEY, as well as a 107 percent increase in agricultural income, exceeding the target of 30 percent.

CONCLUSION

Overall, the midpoint findings suggest that Nuru Nigeria's interventions are having positive impacts on both short-term outcomes and resilience indicators. The midpoint results can help inform Nuru Nigeria's program implementation and be used to make decisions about where to focus program efforts. However, considering the short time period between the baseline and the midpoint, it is too early for the evaluation team to draw any major conclusions from the midpoint study. The endline analysis is scheduled to be conducted in 2023 and will cover a four-year program implementation period, which should be sufficient to identify and measure the impacts of Nuru Nigeria's programs in total.

CHAPTER 1. INTRODUCTION

OVERVIEW

Nuru Nigeria and Nuru International share in a global vision to cultivate lasting meaningful choices in the most vulnerable and marginalized communities in the world. Nuru considers fragile states to continue to be a source of instability and relative deprivation in the world.⁴ Vulnerabilities in marginalized communities are ripe for exploitation by violent extremist groups and ideologies.⁵ Nuru envisions a world in which all people live in an enabling environment with lasting, meaningful choices. Free of the burdens and vulnerabilities that threaten the stability and resilience of households and communities, people will be able to thrive and exercise their agency.

Nuru International works to achieve this global vision with and through an ecosystem of local changemakers, implementers, and visionary leaders. Nuru believes that building resilient communities is best done by local leaders with the temporary scaffolding support of external experience and resources. Nuru Nigeria, a locally-led non-governmental organization established in Nigeria in 2017, is the leading implementer of Nuru's global vision in the country of Nigeria. Nuru Nigeria's mission is by 2025 to build resilience corridors of strong, locally owned farmer cooperatives driving profitable livelihoods in eight conflict-vulnerable local government areas (LGAs) of Adamawa, Borno, and Yobe states. Nuru Nigeria's goal is to equip rural, vulnerable households (in the above-mentioned LGAs in Northeastern Nigeria) to improve livelihoods and build resilience capacities to cope with conflict, environmental, economic, and social shocks and stressors for stability and prosperity within the program implementation period. Nuru is committed to eliminating extreme poverty through investments in self-sustaining and scalable entities. With this aim, Nuru Nigeria implements livelihood and income-generating interventions through and with farmer-owned organizations.

The Ray Marshall Center (RMC), an organized research unit in the LBJ School of Public Affairs at The University of Texas, has been a partner in providing technical assistance to support Nuru's monitoring and evaluation (M&E) efforts. The RMC's experience and expertise support Nuru's work by demonstrating the effectiveness and robustness of its integrated approach to addressing resilience-building interventions. RMC was brought in before the inception of Nuru interventions in Nigeria, which

⁴ OECD (2018), *States of Fragility 2018*. OECD Publishing, Paris.

⁵ United Nations and World Bank (2018). *Pathways for Peace: Inclusive Approaches to Preventing Violent Conflict*. Washington, DC: World Bank.

enabled the co-creation of a highly structured and rigorous research agenda to orient the outlook on the impact of Nuru's work as its vision unfolded in Nigeria.

The RMC has been at the forefront of pro-poor education, workforce, and social policy research since its creation in 1970. The RMC identifies and fosters creative solutions to challenging problems through a variety of applied research activities, including policy research analysis, state-level consulting on capacity development, program monitoring, and evaluation, and impact evaluations, using both quantitative and qualitative methods. The RMC research staff is composed of a core of Ph.D. and master's level researchers trained in quantitative and qualitative research and evaluation skills from a wide range of disciplines, including international development, economics, education, social policy, public affairs, public health, sociology, and geography.

CONTEXT

Nuru Nigeria (NN) is currently working in one local government area (LGA) of northern Adamawa State, Nigeria. The LGA is located in northeast Nigeria and bordered on the east by the Republic of Cameroon. The Boko Haram terrorist group seized the LGA in September 2014 in its efforts to create an Islamic state (caliphate). The area was recaptured by the Nigerian military in January 2015. However, locals who fled the area returned to find burned-out houses, destroyed bridges, ransacked banks, ruined schools and hospitals, and desecrated Christian churches and cemeteries. The community is also struggling with the challenge of Boko Haram fighters or sympathizers in the local population.

Whereas the area is historically marginalized economically and politically, it had been trending positively on economic development. The unmitigated consequences and stigma of recent conflict still weigh heavily on the development of the area. While major hostilities in the immediate proximity have ceased, low-intensity conflict has persisted throughout the implementation period. Critical infrastructure such as essential bridges, roads, electric lines, telecommunications infrastructure, and water were destroyed during the 2014-2015 hostilities. While some of this infrastructure was repaired, it has yet to be fully restored either due to lagging development or out of fears that unsecured infrastructure will again fall target to violent extremist actors. Similarly, commercial interests such as banks have not yet fully returned to re-establish operations in the LGA. However, agriculture and trading activities, particularly those activities that are seasonal and transitory, have returned strongly. Just as the signs of past conflict are still visible from ruined buildings or still-damaged infrastructure, the stain of conflict still weighs heavily on the psychology of the population. Low-intensity conflict events are present in the greater region.

PROGRAM IMPLEMENTATION

The overarching goal of Nuru Nigeria is to equip rural, vulnerable households to improve livelihoods and build resilience capacities to cope with conflict, environmental, economic, and social shocks and stressors for stability and prosperity. Nuru Nigeria has been working with local leaders and farmer groups to build resilience in vulnerable communities in Northeastern Nigeria. The organization has also worked towards supporting the creation of farmer cooperatives as a vehicle for market access, revolving funds, and financial sustainability. The ultimate goal is that local leaders and cooperatives develop the capacities and assets to design solutions within their communities to further support Nigerian civil society's self-reliance, build stability, and reduce vulnerabilities within communities.



Nuru Nigeria launched a program planning process in 2019 to design intervention activities with local communities. Initial activities were launched with 500 households (3,000 individuals) in 2019. Nuru Nigeria activities are delivered as a coordinated integrated intervention involving the following activities:

- Community mobilization
- Establishing farmer associations and organizations
- Training for local farmers on best agronomic practices
- Savings groups through financial inclusion programming on a mobile money platform
- Loans to increase crop yield and income through agricultural programming such as vegetable permagardens, cash crop production of soybeans and groundnuts, and harvest and post-harvest activities (including the sale and training on the use of Purdue Improved Crop Storage (PICS) bags)
- Income diversification activities such as small ruminants fattening

- Market support services to provide access to good markets through aggregation, storage, and commercialization of farm produce so that farmers get fair prices and establish relationships with off-takers and processors through the collective bargaining power of groups
- Access to digital financial tools that make transactions easier and safer.

ORGANIZATION OF THE REPORT

The objective of this report is to document the midpoint measures of key variables important to studying resilience: shocks, household coping strategies, household resilience, and household resilience capacities. The remainder of this document proceeds as follows: the next section describes the evaluation methodology in detail, including the qualitative and quantitative data collection, sampling design, data collection instruments, data analysis, timeline, work plan, and deliverables. The following sections describe midpoint results. The final section of the report provides a summary of the results and discusses the next steps for the evaluation.

CHAPTER 2. METHODOLOGY

The midpoint study utilized a mixed-methods approach with both quantitative and qualitative components. The purpose of the quantitative component was to collect information on the current situation of the community at the midpoint; this information will help to measure the impact and effectiveness of Nuru Nigeria programs when compared to baseline and end-line assessments. The purpose of the qualitative component was to collect information from a wide range of people — including community leaders, professionals, and residents — who have first-hand knowledge about the community. This information aided in the analysis and interpretation of the intermediate intervention outcomes. The sections below outline the methodologies used for collecting and analyzing the Nuru Nigeria quantitative and qualitative midpoint data.

QUANTITATIVE DATA COLLECTION AND ANALYSIS

Sample design

At baseline, Nuru Nigeria used a cluster randomization approach to randomly assign two wards to the intervention, two wards to comparison, and two wards to future scaling, to the effect that the six wards are all assigned one of the three treatments or non-treatments.⁶ Only the intervention and comparison groups were included in the evaluation. The list of six wards was generated based on an operational assessment that Nuru Nigeria would be able to work in any of the areas. This randomization is further justified in the limitation that the NGO did not initially have funding to fully saturate the area with interventions, which therefore supported maintaining a control group for the study duration. Nuru Nigeria plans to offer interventions in the control wards following the completion of the evaluation after 2023.

There were 496 treatment households included in the study in the two intervention wards whereas, 1,136 households from the comparison wards were randomly selected, prior to project implementation, to be included in the study (see Table 1). Random selection of non-intervention households at baseline was conducted via a geospatial technique in which housing units were identified through remote sensing and selected for inclusion or exclusion using a random number generator. The sampling design involving intervention and comparison groups facilitates the use of an inverse probability weighting

⁶ Nigeria's administrative units are divided into states, which are then further divided into local government areas and subsequently into wards.

approach to balance covariates, and a difference-in-differences approach to measuring NN’s impact across several outcomes, including those related to resilience, vulnerabilities, and CVE.

Table 1. Sampling design

| Assignment type | Ward 1 | Ward 2 | Ward 3 | Ward 4 |
|-----------------|----------------|----------------|----------------|----------------|
| Treatment | 248 households | 248 households | - | - |
| Control | - | - | 568 households | 568 households |

Household survey design

At baseline, a household questionnaire was developed that adapted modules from multiple sources:

- existing Nuru household surveys;
- the resilience-focused household questionnaire developed by the Resilience Evaluation, Analysis and Learning (REAL) Consortium (funded by the USAID Center for Resilience and led by Save the Children with Food for the Hungry, Mercy Corps, and TANGO International as partners);⁷
- the women’s empowerment focused BRIDGE household questionnaire, developed by Mercy Corps;⁸
- the CVE focused Vulnerability and Resilience Assessment Initiative (VRAI) household questionnaire, developed by Mercy Corps.⁹

Elements of the resilience capacity components and responses were adapted to the local context, with the final resilience instrument reflecting context-specific goals, as well as contextualized language and terminology. Preliminary findings from the qualitative data collection at baseline were also used to refine the survey instruments.

The instrument allows the evaluation team to measure shock exposure, resilience capacities, responses, and recovery. Specifically, the instrument allows for the measurement of resilience capacities as a set of indexes, one for each of the three dimensions of resilience capacity—absorptive capacity, adaptive capacity, and transformative capacity—and one overall index combining these three indexes.

⁷ TANGO International. (2018). *Resilience and Resilience Capacities Measurement Options: Full Approach—Household Questionnaire*. Produced by TANGO International as part of the Resilience Evaluation, Analysis and Learning (REAL) Associate Award.

⁸ Anderson, A., Theis, S., and Bryan, E. (2018). *Measuring Gender Dynamics in Resilience: Tools for integrating gender into resilience-focused programs*. Portland, OR: Mercy Corps

⁹ Mercy Corps. (2018, March). *Vulnerability and Resilience Assessment Initiative to counter violent extremism (VRAI) Final Synthesis Report*.

Training, piloting, and pre-testing

The baseline survey was administered with 32 research assistants (RAs), while the midpoint survey was administered with 26 RAs. These personnel were trained for three days prior to the start of the survey. The training consisted of research ethics, Do No Harm, the survey tool, interviewing skills, and logistics. Nuru staff went into an adjacent community and piloted the survey by administering the survey to 20 people.

Incentives for survey participants

The intervention group was not compensated for their participation in the survey. Comparison group participants were given NGN 500 (\$1.47) for their time (approximately two hours). The amount allotted intended to compensate the participants for their time, not to be coercive. One can earn approximately NGN 500 in the equivalent hours of work.

Household survey administration

Baseline surveys were administered in June 2019 and July 2019.¹⁰ Midpoint surveys were administered in May 2021.

Intervention group

The intervention group comprises 500 registered female farmers in two wards. During the baseline survey, 496 female farmers were reached, as a few were not available due to farming activities, inconvenience, and other personal reasons. All of the participating farmers were asked to come to centralized locations in groups to complete the baseline and midpoint surveys. RAs were assigned a semi-private space in the area to conduct the interviews with the women, where they could be seen by others, but not easily heard. At the midpoint, a total of 284 intervention group respondents were reached in the survey. From baseline to the midpoint, there was attrition in the intervention group due to dropout from the intervention and a handful of respondents who declined to participate in the follow up survey.

Comparison group

The comparison group comprises 1,136 households randomly spread across communities in two wards, separate from the intervention group. At baseline, Nuru International's Chief Program Officer used GIS analysis to identify all household structures in the LGA intervention and comparison wards. Clusters of

¹⁰ The timing of the survey made it difficult to get respondents in their houses because June-July is a period when people engaged in farming activities.

households were identified using spatial random sampling based on a random number generation technique. For each survey day, a delineated section of household clusters was asked to stay home for the morning (or afternoon) for RAs to come to their homes for the survey. If RAs arrived at a cluster of houses, they would toss a pen in the air to indicate a random choice between the various houses present.

At the midpoint, RAs used personally identifiable information from baseline including names, identification, and phone numbers, to identify the same panel of respondents as the baseline. At the midpoint, a total of 799 comparison group respondents were reached in the survey. Three attempts were made to follow up with baseline respondents in the comparison group. Of those who were not able to be contacted at the midpoint, the majority had moved away permanently or temporarily, and a small portion had passed away.

Data entry and processing

QuickTapSurvey (QTS) was used for data collection during the baseline and the KoBo ToolBox Platform was used for data collection at the midpoint. Both are real-time data collection tools used by enumerators. The translated survey was entered into QTS and KoBo ToolBox Platform by Nuru International and Nuru Nigeria staff. The surveys were then downloaded from the QTS and KoBo ToolBox Platform servers. Hausa translations were removed. Identification numbers were assigned to comparison group cases. Cross tabs were done on several variables to spot errors.

Quantitative data analysis

As data files were received, they were inspected for anomalies and missing data. Necessary data cleaning was completed to prepare it for analysis. RMC maintained the data on a secure server, housed at the University of Texas, Austin, and access to the data was limited to RMC evaluators and Nuru staff.

Using the intermediate approach and methodology shared by the REAL Consortium, RMC evaluators calculated the individual components of resilience capacity as well as the three resilience capacity indexes—absorptive, adaptive, and transformative capacities—and an overall resilience index. The indexes were compared from baseline to midpoint for both the treatment and the control groups to measure the change in resilience.

Indicators are reported by intervention status. Tests for statistically significant differences in the indicators across the groups were undertaken, and differences are considered significant if statistically

significant at the five percent level. Bold text in charts indicates statistically significant differences between the treatment and the control group.

QUALITATIVE DATA COLLECTION AND ANALYSIS

Qualitative data collection tools

The qualitative methodology for the 2021 midline collection was founded on the baseline protocols, with modifications to address challenges from the baseline protocols, supplement survey data, and capture information on key events since the baseline (e.g. COVID-19). Both Focus Group Discussion (FGD) and in-depth interview (IDI) techniques with key informants were used to collect rich insights from participants. FGDs and IDIs were conducted in English and/or Hausa, which is one of the main languages spoken and understood in each location. Updates to the baseline tools were made by the Nuru Nigeria M&E team, and updates to the Hausa translations were conducted by the NN M&E Officer.

Focus Group Discussions

Focus groups were used to collect information from participants who fell within the target population to assess their perceptions and experiences on issues to be discussed. In addition to the direct Q&A approach, projective techniques were employed to further elicit reactions that are situated in participants' subconscious which are not easily revealed in a direct question and answer format.

In-Depth Interview via Key Informant Interviews (KII)

The Key Informant Interview (KII) approach was employed among secondary target participants who were relevant stakeholders or experts, such as community leaders, religious leaders, government personnel, women leaders, vigilante leaders,¹¹ and health workers to gather their opinion on the subject areas. IDIs were used to elicit information from opinion leaders or experts whose individual opinions were required due to the sensitive nature of the study to either complement participants' findings or provide expert views on the issues.

Training, piloting, and pretesting

The study used experienced and responsible field workers who have worked previously as moderators. Field workers were properly and adequately briefed on the purpose of the study and methodology through one-on-one briefings. Moderators underwent a four-day training on the comprehensive midline

¹¹ In the LGA in question vigilante groups are characteristically a utonomous but Nigerian Government-sanctioned local militia groups.

survey, the FGD/KII protocol, general moderating and interviewing skills, and research ethics. Moderators were fluent in Hausa. Six RAs were trained over two days on interviewing skills, research ethics, and the qualitative tool. RAs piloted the tool with four individuals and eight participants in a focus group in an adjacent community.

Incentives for focus group discussions

The intervention group was not compensated. FGD comparison group participants were given NGN 1,000 (\$2.94 USD) for their time (approximately one and a half hours plus travel time to the FGD location). The compensation amount was intended to compensate for the participants' time however, not to be coercive. One can earn roughly this amount of NGN for this equivalent amount of work.

KII implementation

Before the baseline, stakeholder mapping was conducted to identify the groups and organizations from which key informants should be drawn. These included religious leaders, women's association leaders, hunter/vigilante members, and government officials. For the midline, the addition of *bulamas* (local village heads) were made to the KIIs, as these leaders are highly influential members of the community with a deep understanding of community needs and challenges. A total of 14 KIIs were conducted amongst relevant stakeholders in all four wards as follows:

- 2 *bulamas*/village heads
- 2 religious leaders
- 2 government officials
- 2 women's group leaders
- 2 health workers
- 2 teachers
- 2 vigilante or hunter leaders/ members

FGD implementation

Nuru Nigeria conducted FGDs in the four intervention communities and four communities in the comparison wards. A total of 12 FGDs were conducted among female and male participants who were separated by gender in all four wards as described in Table 2. In the intervention communities, 20 names were randomly selected from the list of registered farmers to participate in each focus group. In the comparison wards, with the support of the village heads, Nuru Nigeria recruited 40 participants who were between the ages of 18-70 years old and who have lived in the LGA for five or more years.

Table 2. Focus group implementation

| Female FGDs | Male FGDs | Total |
|-----------------|-----------------|-----------------|
| 8 | 4 | 12 |
| 64 participants | 32 participants | 96 participants |

Quality control

All participants were checked by the moderator before the commencement of group discussions to ensure they were appropriate for such group categories. Discussion venues with a relaxed and informal atmosphere to encourage spontaneity in responses were used (e.g. town halls, community centers, etc.). The discussion venue was checked before the scheduled time to ensure it was appropriate for its purpose. Specifically, quieter and cozier areas were preferred. All groups were moderated with a note-taker in attendance to ensure that other non-verbal expressions were noted. All discussions were audiotaped for transcription and documentation. Efforts were made to debrief after each group so that issues that arose in one location could be cross-checked in another location.

Qualitative data analysis

Findings from the two approaches were triangulated to provide robust findings for the study. For the FGDs and KIIs, a summary template was prepared and summaries from each group were drafted. These summaries provided an overview of findings from each group. They also aided in the drafting of reports used to triangulate quantitative findings.

A content analysis approach was used for a detailed analysis of data collected from the study. The approach involved:

- Developing framework/coding
- Coding with relevant examples/data entry
- Linking of findings to (general) themes

The entire group discussions and activities were captured on digital audio recorders (with the permissions of the research participants) and the audio recordings were typed into transcripts. These transcripts were then fed into an analysis framework (Excel) sheet capturing all themes and organizing data to be analyzed in line with the research questions.

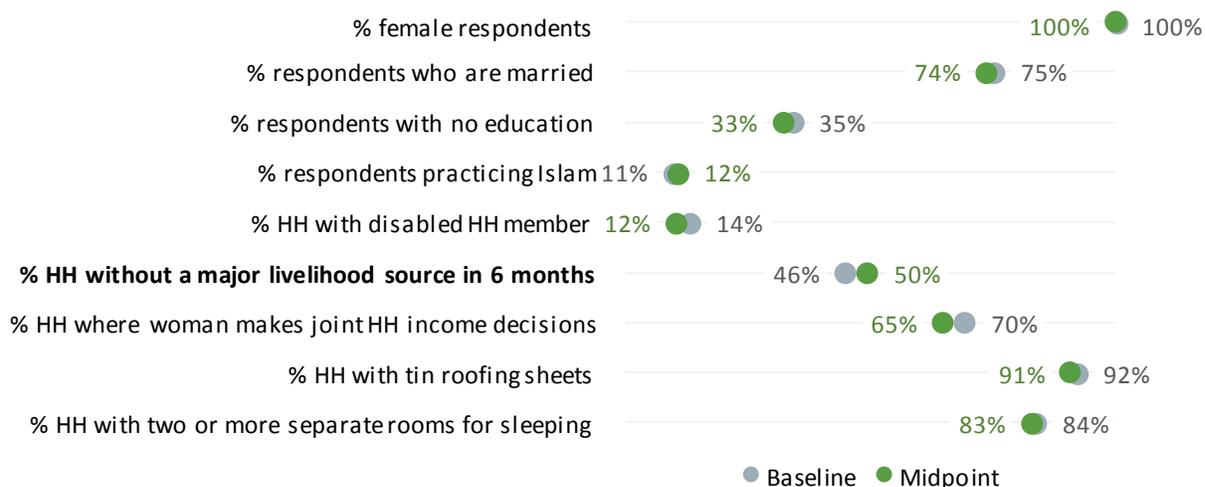
CHAPTER 3. HOUSEHOLD DEMOGRAPHICS AND LIVELIHOODS

DEMOGRAPHICS

A total of 496 households from the intervention group and 1,136 households from the comparison group were surveyed at baseline, while a total of 284 households from the intervention group and 799 households from the comparison group were surveyed at the midpoint. Figure 1 presents baseline and midpoint household demographic information for the 1,083 intervention and comparison group households surveyed at the midpoint, with statistically significant differences highlighted in bold text.

All respondents were female. Three-quarters of respondents reported that they were married. Only a third reported having no education. One tenth of respondents reported practicing Islam. A small proportion of respondents reported having a disabled household member (14 percent at baseline). Nearly half of all respondents (46 percent at baseline) reported that their household was without a major source of livelihood in the past six months. About two-thirds of respondents reported that the woman decided jointly with her husband how household income was used. Housing characteristics can provide important insight into the wealth and health status of families in NN intervention areas; the vast majority of households (83 percent at baseline) reported a two-room dwelling and tin roofing material.

Figure 1. Demographic characteristics by timepoint



Although the study sample at follow-up was smaller than the study sample at baseline, there were little to no differences in these key demographic characteristics between baseline and follow-up. Notably, the proportion of households reporting no major livelihood for the past six months increased slightly, from 46 percent at baseline to 50 percent at the midpoint.

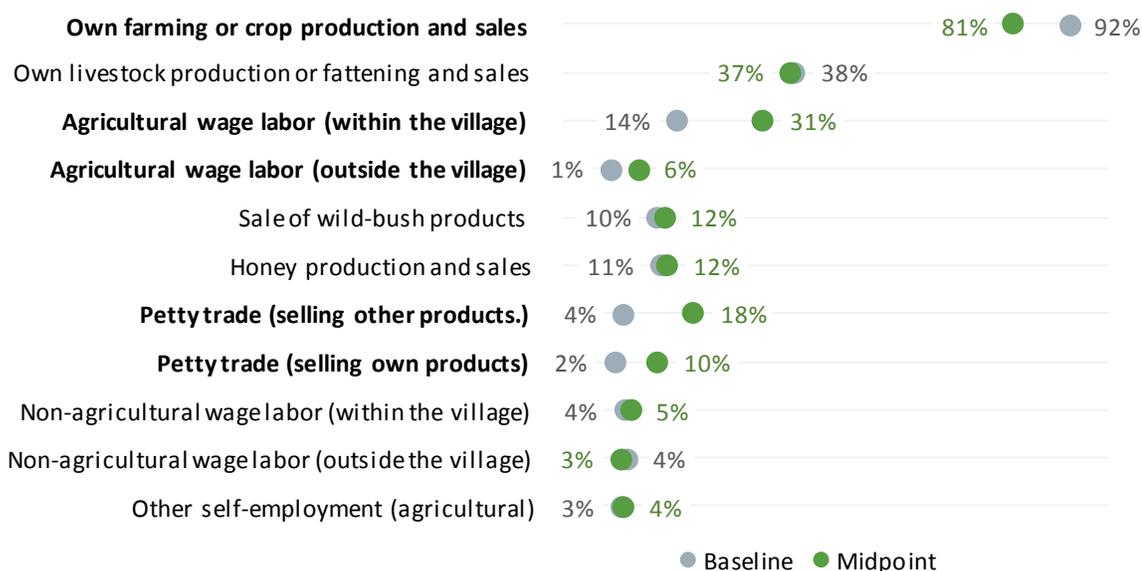
“...at JSS 3 [equivalent to 9th grade in the US] most girls drop out, though some drop out at SS2, SS3 [equivalent to 11th grade and 12th grade in the US] so that they can marry. Reasons are they believe that they do not have the brains to study so they drop out... parents believe that girls are men's property so no need to sponsor them...” - Female focus group participant

Focus groups and key stakeholder interviews provide context to high dropout rates among young girls and women from school. Reasons mentioned by both the intervention and comparison communities included poverty, unwanted pregnancy, peer pressure, adolescent sexuality, early marriage, religion, parental perceptions, juvenile delinquency, lack of knowledge on the impact of girl’s education, and disinterest.

LIVELIHOODS

Figure 2 describes the major livelihood activities reported by all households at baseline and midpoint, with statistically significant differences highlighted in bold text. The main livelihood in the Nuru Nigeria program area is farming, reported as a main source of livelihood by 92 percent of respondents at baseline. Over a third of respondents also engage in livestock production.

Figure 2. Livelihoods by timepoint

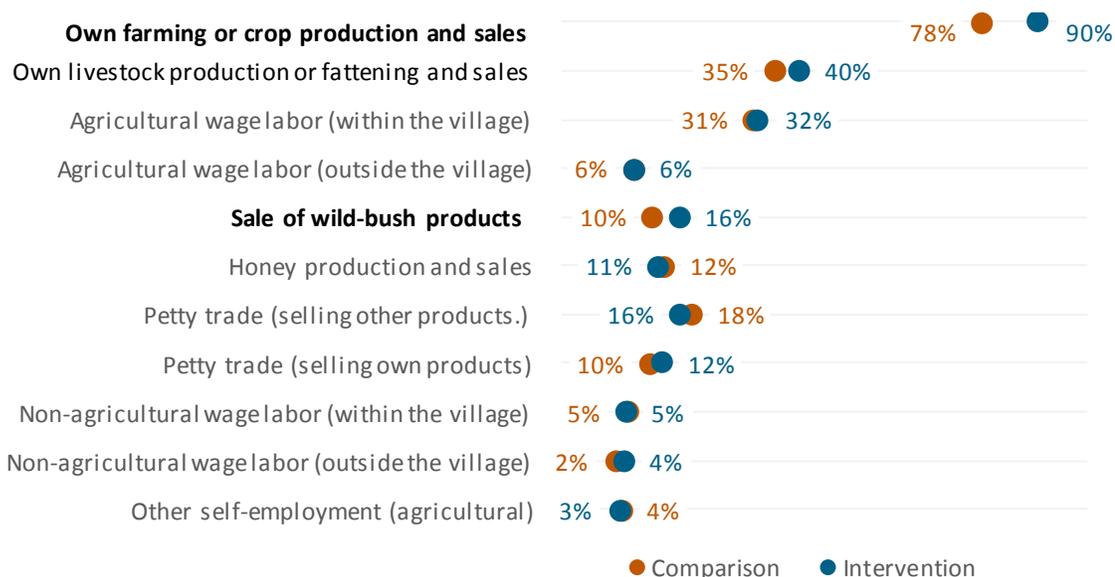


From baseline to the midpoint, we observe some shifts in livelihood engagement. The proportion of households engaged in farming reduced from 92 percent at baseline to 81 percent at the midpoint, while the proportion of households engaged in agricultural wage labor (both within the village and

outside the village) increased significantly from baseline to midpoint. The proportion of households engaged in petty trade, both selling their own products and selling other products, also increased significantly from baseline to midpoint.

Figure 3 reports on livelihoods by intervention status at the midpoint, with statistically significant differences highlighted in bold text. A higher proportion of intervention households reported farming and sale of wild bush products as major livelihoods, compared to the comparison group.

Figure 3. Livelihoods at the midpoint, by intervention status



MATCHING

The intervention group and the comparison group differed on some demographic characteristics. These differences need to be accounted for in evaluating program impact. The evaluators employed a variation of existing methods designed to bring covariates into closer balance.¹² This process involved matching treatment group participants with their one or two closest matches from the comparison group, based on similarity in propensity scores (using a caliper width of 0.2 of the score’s standard deviation) derived from an identification model. Relatively weak matches were excluded from the analysis. Covariate balance was reexamined and found to be somewhat improved. *The tables in the remainder of this report compare intervention group households to matched comparison group members.*

¹² Imai, Kosuke and Marc R. Kenworthy. (2014). “Covariate Balancing Propensity Score.” *Journal of the Royal Statistical Society, Series B (Statistical Methodology)*, Vol. 76, No. 1 (January), pp. 243-246.

CHAPTER 4. WELL-BEING OUTCOMES

COPING STRATEGIES INDEX

Food security, as defined by the United Nations’ Committee on World Food Security,¹³ means that “all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.” Food security is measured through the Coping Strategies Index (CSI), an experiential indicator. The CSI is a scale that considers the frequency and severity of coping strategies employed to deal with food insecurity. The CSI is computed following methods developed by Maxwell, Caldwell, and Langworthy.¹⁴ For Nuru Nigeria, the CSI can range from zero to 175. Higher scores correspond to worse conditions, that is, the use of more negative strategies to deal with food shortages.

Table 3 shows that the comparison group experienced a bigger increase in the CSI from the base line to the midpoint (16 percent vs. two percent for the intervention group). However, the difference-in-difference analysis found no statistically significant program impact on the CSI.

Table 3. Coping Strategies Index

| Index | 2019 | 2021 | Change from baseline | DID estimate |
|--------------|------|------|----------------------|--------------|
| Comparison | 11.8 | 13.7 | 16% | -1.587 |
| Intervention | 13.1 | 13.4 | 2% | |

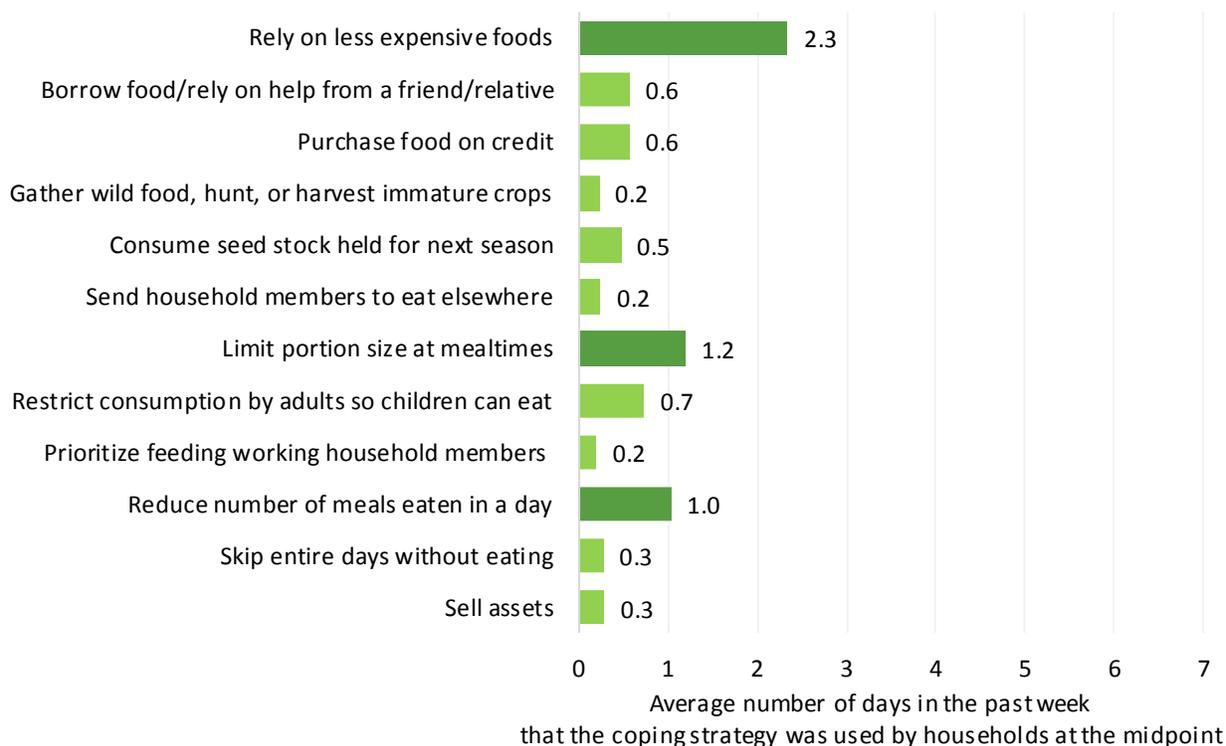
Figure 4 reports the coping strategies¹⁵ utilized by all intervention and comparison households at the midpoint. Relying on less preferred and less expensive foods was the most commonly reported strategy – on average, respondents reported using this strategy on more than two days in the past week. Two other commonly reported strategies were limiting portion size at mealtimes and reducing the number of meals eaten in a day.

¹³ Food and Agriculture Organization of the United Nations. *Trade Reforms and Food Security: Conceptualizing the Linkages*. Food and Agriculture Organization of the United Nations; Rome, Italy: 2003. p. 313.

¹⁴ Maxwell, D., Caldwell, R., & Langworthy, M. (2008). Measuring food insecurity: Can an indicator based on localized coping behaviors be used to compare across contexts? *Food Policy*, 33(6), 533-540.

¹⁵ Each indicator in the Coping Strategies Index can range from zero to seven. Higher scores correspond to more frequent use of the negative strategy to deal with food shortages.

Figure 4. Coping strategies at the midpoint



ABILITY TO RECOVER

Household resilience is the ability of a household to manage or recover from shocks and stresses. One way to measure it is a subjective, or “experiential,” indicator based on households’ own reports of their ability to recover from the shocks they experienced. The ability to recover index is based on an estimation of the ability of households to recover from the typical types of shocks that occur in the program area, based on data regarding the shocks that households experienced in the year prior. The index can range from two to six. Table 4 shows that the intervention group experienced a greater increase in their ability to recover and difference-in-difference analysis found **a statistically significant program impact** of 0.3 points on the index.

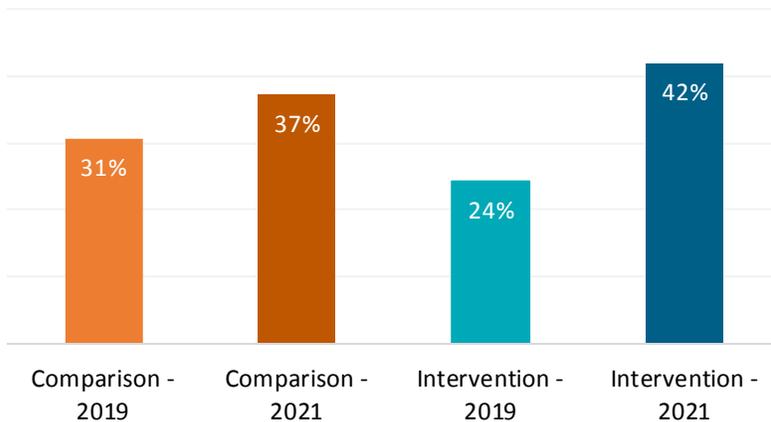
Table 4. Ability to recover index

| Index | 2019 | 2021 | Change from baseline | DID estimate |
|--------------|------|------|----------------------|--------------|
| Comparison | 3.7 | 3.9 | 6% | 0.306 |
| Intervention | 3.6 | 4.1 | 15% | |

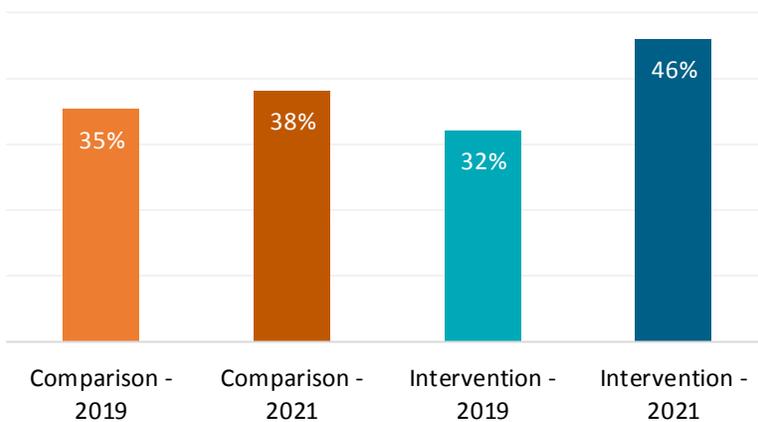
Figure 5 compares the responses of intervention and comparison households at the baseline and the midpoint. Much higher proportions of intervention households reported both that their ability to meet basic needs was currently better than before and that they believed their ability to meet basic needs in the future will be better than before.

Figure 5. Ability to recover sub-indicators

% of households reporting ability to meet basic food needs is **currently** better than before



% of households reporting ability to meet basic food needs **will be** better than before

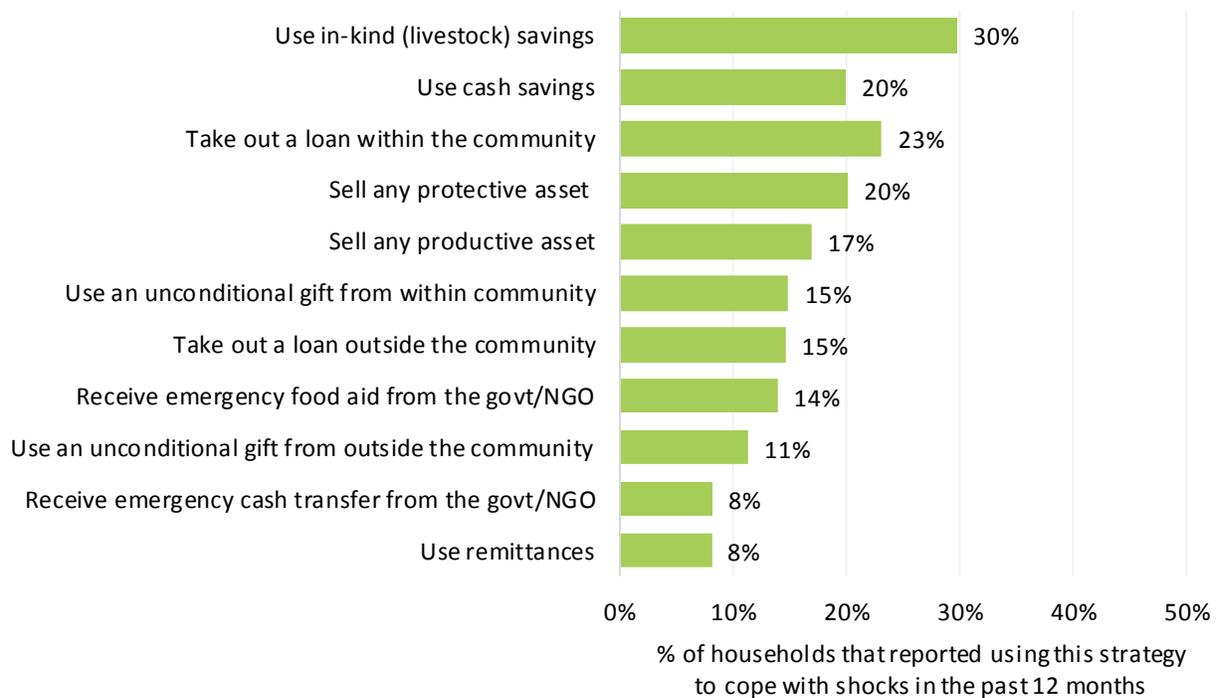


SHOCK COPING STRATEGIES

Figure 6 presents information on the strategies that households used at the midpoint in response to shocks/stressors in the past 12 months. The most commonly reported strategies were using in-kind

(livestock) savings, taking out a loan within the community, selling protective assets, selling productive assets, and using cash savings.

Figure 6. Dealing with shocks sub-indicators



“[In response to lack of land access] The people decided to change their farmland and rent another. While in the case of livestock [illness and injury], we invited a veterinary doctor to inject them, to some extent, it improved our situation...” – Female focus group participant

Focus group and key stakeholder interview participants described additional strategies to cope with shocks, including educating children on savings and entrepreneurship, finding sources for improved seeds, saving money at banks, praying, engaging family members in diverse businesses, collectively farming for income, keeping surroundings pest free, and boiling drinking and washing water to avoid illness.

CHAPTER 5. SHOCK EXPOSURE AND IMPACTS

This chapter first describes the exposure of households to shocks in the Nuru Nigeria program area during the year preceding the midpoint survey, including climate shocks, biological shocks, conflict shocks, and economic shocks. The quantitative data is used to report on all four types of shocks as well as to create a perception-based shock exposure measure. Qualitative data is triangulated with quantitative findings.

SHOCK EXPOSURE

Resilience is about being able to prepare for, withstand, and recover from shocks and stressors. Thus, measuring the exposure of households to shocks is important for understanding resilience. The shock exposure index measures the overall degree of shock exposure for each household. The index is based on household data regarding (1) the number of shocks to which a household is exposed in the past 12 months, and (2) the perceived severity of the shocks. In Nigeria, Nuru surveyed households about 21 shocks/stressors, and the shock exposure index could thus range from one to 168. Table 5 shows the shock exposure index for both groups at the baseline and the midpoint.

Table 5. Shock exposure index

| Index | 2019 | 2021 |
|--------------|------|------|
| Comparison | 50.7 | 47.7 |
| Intervention | 48.5 | 52.5 |

Figure 7 reports shocks and stressors experienced by all intervention and comparison households at the midpoint. Unemployment for youths, increasing food prices, increased prices of farm inputs, crop pests, crop diseases, weeds, variable rain (drought), and excessive rain (flooding) were the most frequently reported shocks at the midpoint.

“Due to the [COVID-19] lockdown, there was no business and no shops, so it really affected the income and our resources”. – Female focus group

“... during COVID-19 people find it difficult to access medical care since most people are scared to come close to the sick patient.” – Village head

Focus group and interview participants also described how the COVID-19 pandemic contributed to multiple shocks and stressors, such as restricted access to health care facilities by the government leading to the death of household members, children dropping out of schools due to pandemic lockdowns, and loss of employment and businesses due to lockdowns.

Figure 7. Shock exposure at the midpoint

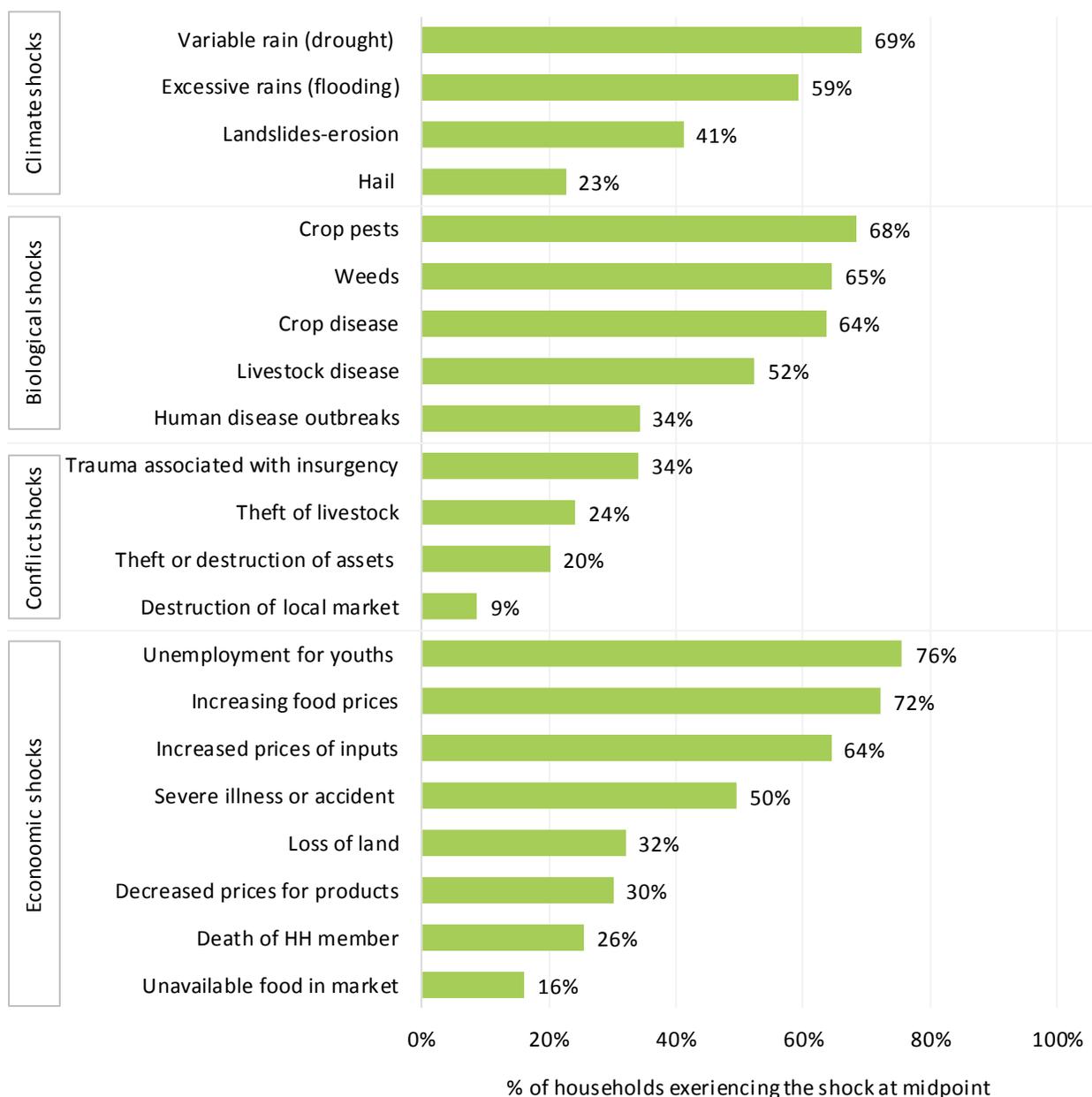
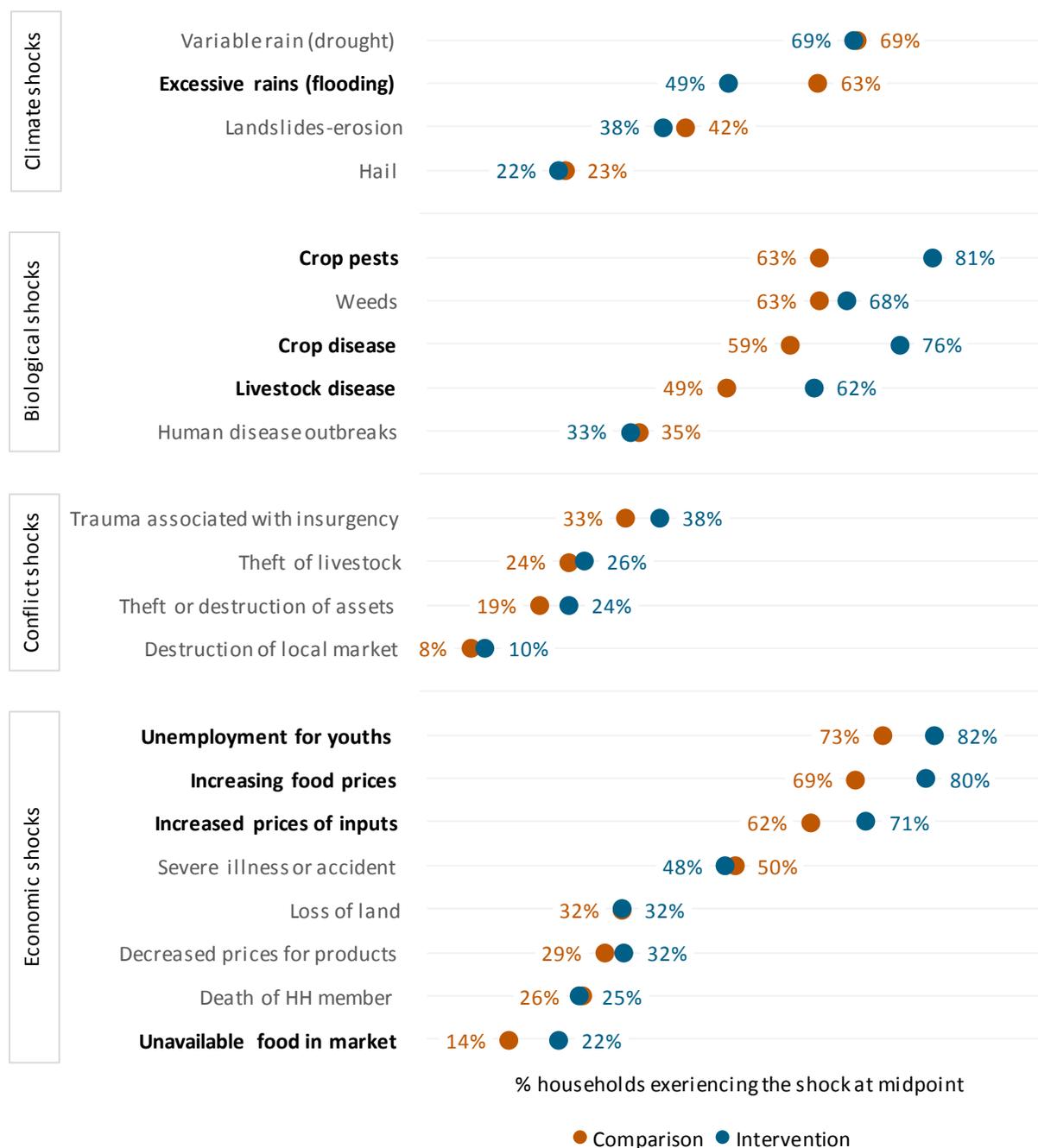


Figure 8 compares the shocks and stressors experienced by intervention and comparison households at the midpoint. A significantly higher proportion of comparison households reported experiencing excessive rain (flooding) at the midpoint. In contrast, a significantly higher proportion of intervention households reported experiencing biological shocks like crop disease, crop pests, and livestock disease at the midpoint. A significantly higher proportion of intervention households also reported experiencing economic shocks like increasing food prices, unavailable food in the market, increased prices of farm inputs, and unemployment for youths at the midpoint.

Figure 8. Shock exposure by intervention status at the midpoint



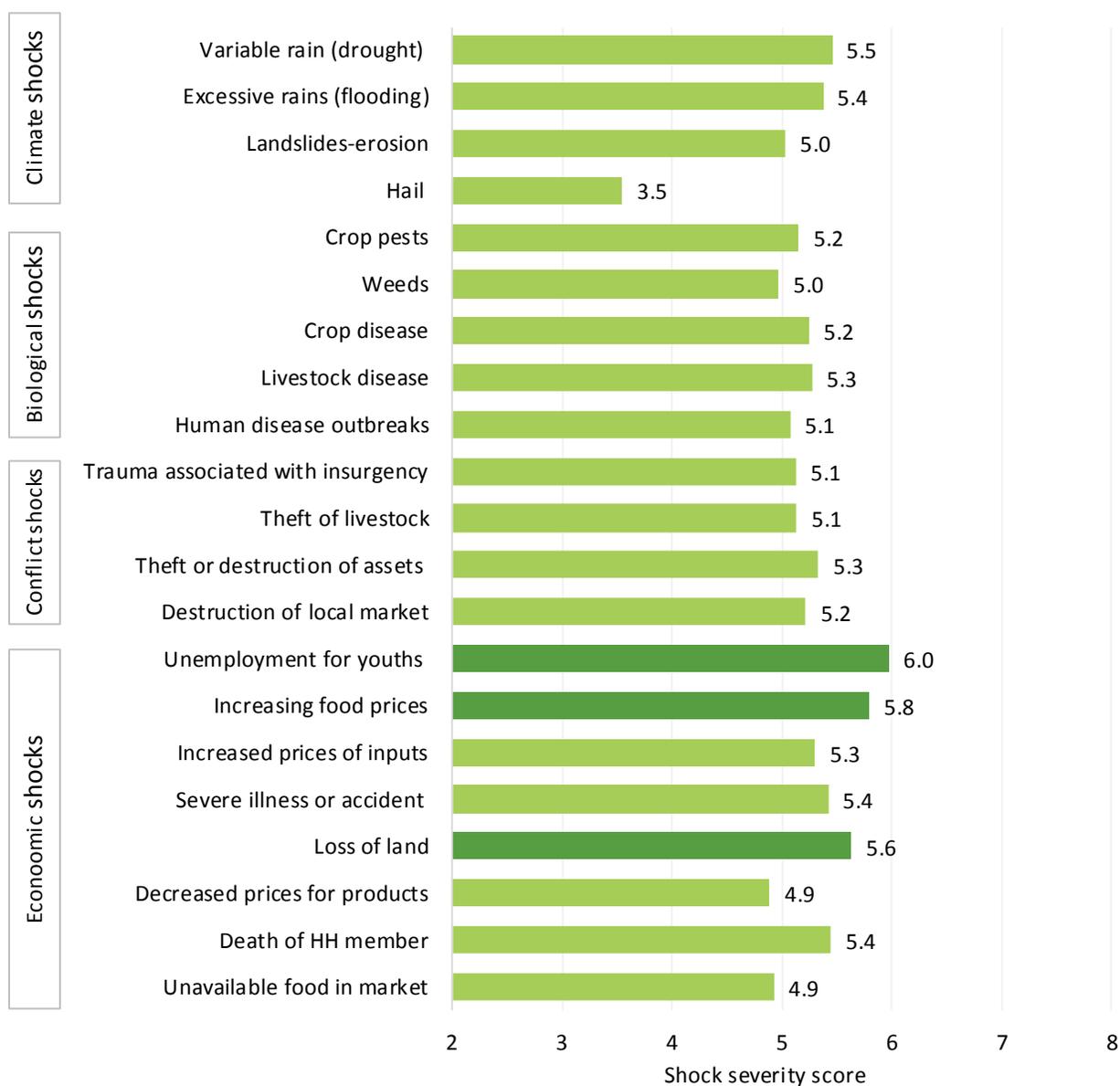
SHOCK IMPACTS

As part of the household survey, respondents who reported that their household experienced a shock were subsequently asked about the severity of the shock. Perceived severity is measured using two variables: the impact on income security and the impact on food consumption. The variables are based

on respondents’ answers to the questions, “How severe was the impact on your income?” and “How severe was the impact on household food consumption?” which are asked of each shock or stressor experienced. The responses to the two questions are combined into one variable that has a minimum value of two and a maximum value of eight.

Figure 9 describes the severity of shocks and stressors experienced by all households at the midpoint. Each impact score in the chart below can range from two to eight. Higher scores correspond to a higher impact on household income and food consumption. Overall, the shocks with the strongest impact at the midpoint were unemployment for youth, increasing food prices, and loss of land.

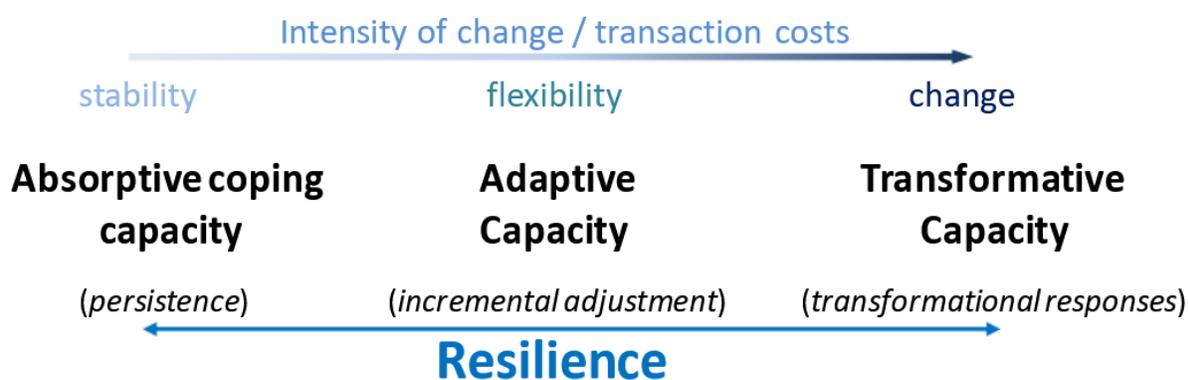
Figure 9. Shock impacts at the midpoint



CHAPTER 6. HOUSEHOLD RESILIENCE CAPACITIES

Resilience is defined by USAID as “the ability of households, communities, and nations to absorb and recover from shocks, whilst positively adapting and transforming their structures and means for living in the face of long-term stresses, change, and uncertainty.”¹⁶ Resilience capacities are a set of conditions, attributes, or skills that enable households and communities to achieve such resilience. The 3-D Resilience Framework proposes that resilience emerges as the result of three capacities: (1) absorptive resilience capacities, i.e. the ability to minimize exposure to shocks and recover quickly when exposed; (2) adaptive resilience capacities, i.e. the ability to make informed choices about alternative livelihood strategies based on changing conditions; and, (3) transformative resilience capacities, i.e. the system-level enabling conditions for lasting resilience.¹⁷ Building resilience capacities is key to assisting households to pull themselves out of poverty.

Figure 10. The 3D resilience framework (derived from Béné et al., 2012)



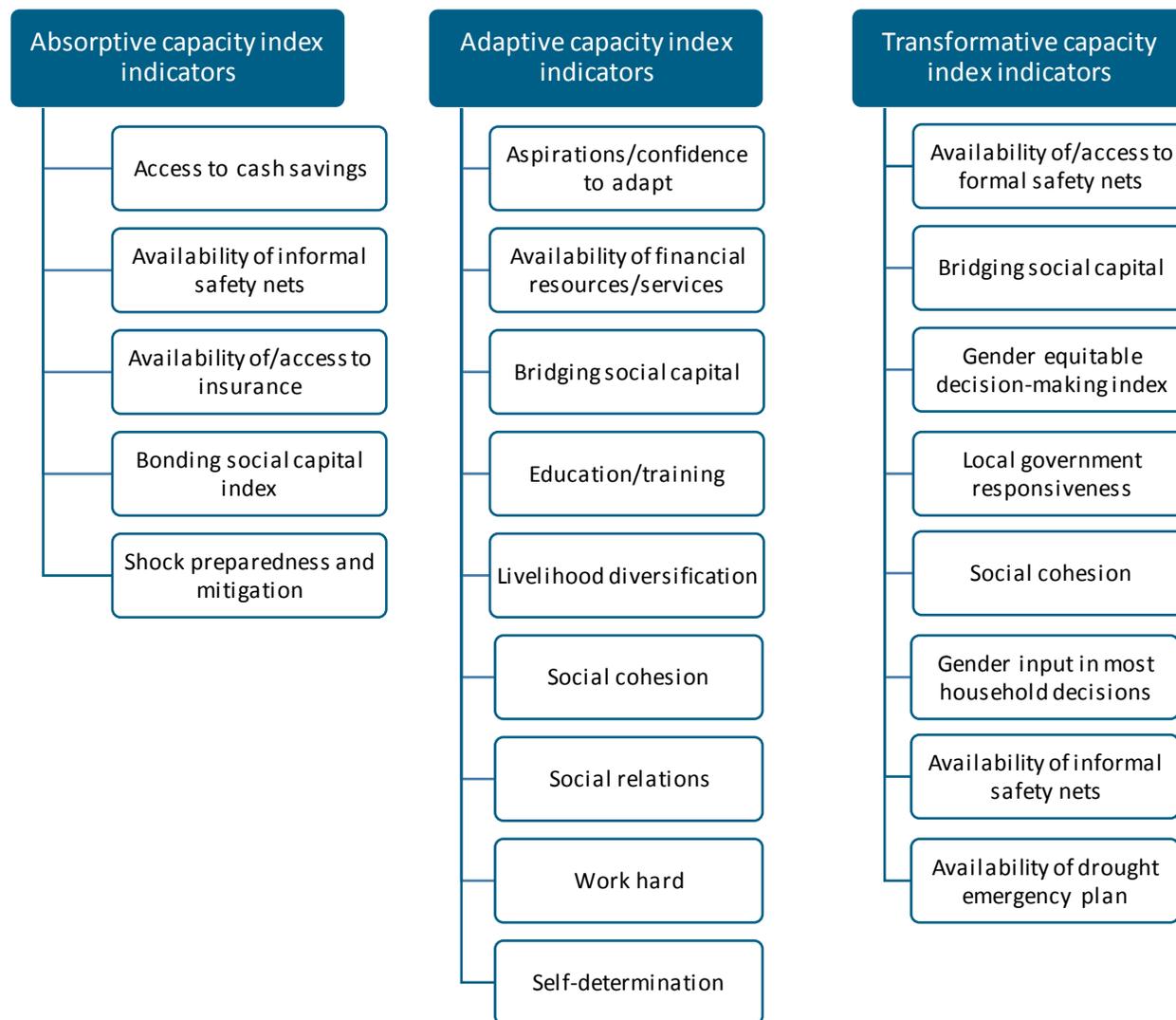
Source: Béné, C., Wood, R. G., Newsham, A., & Davies, M. (2012). *Resilience: new utopia or new tyranny? Reflection about the potentials and limits of the concept of resilience in relation to vulnerability reduction programmes.* IDS Working Papers, 2012(405), 1-61.

Figure 11 lays out the indicators used to measure each of the three capacities in this report. These indicators are combined into indexes of the three capacities and an overall index of resilience capacity using factor analysis, based on the methodology developed by TANGO International for USAID.

¹⁶ USAID (2013). Evaluating USAID’s CVE Projects in East and West Africa.

¹⁷ Béné, C., R. G. Wood, A. Newsham and M. Davies (2012). "Resilience: new utopia or new tyranny? Reflection about the potentials and limits of the concept of resilience in relation to vulnerability reduction programmes." IDS Working Papers 2012(405): 1-61.

Figure 11. Household resilience capacities and indicators



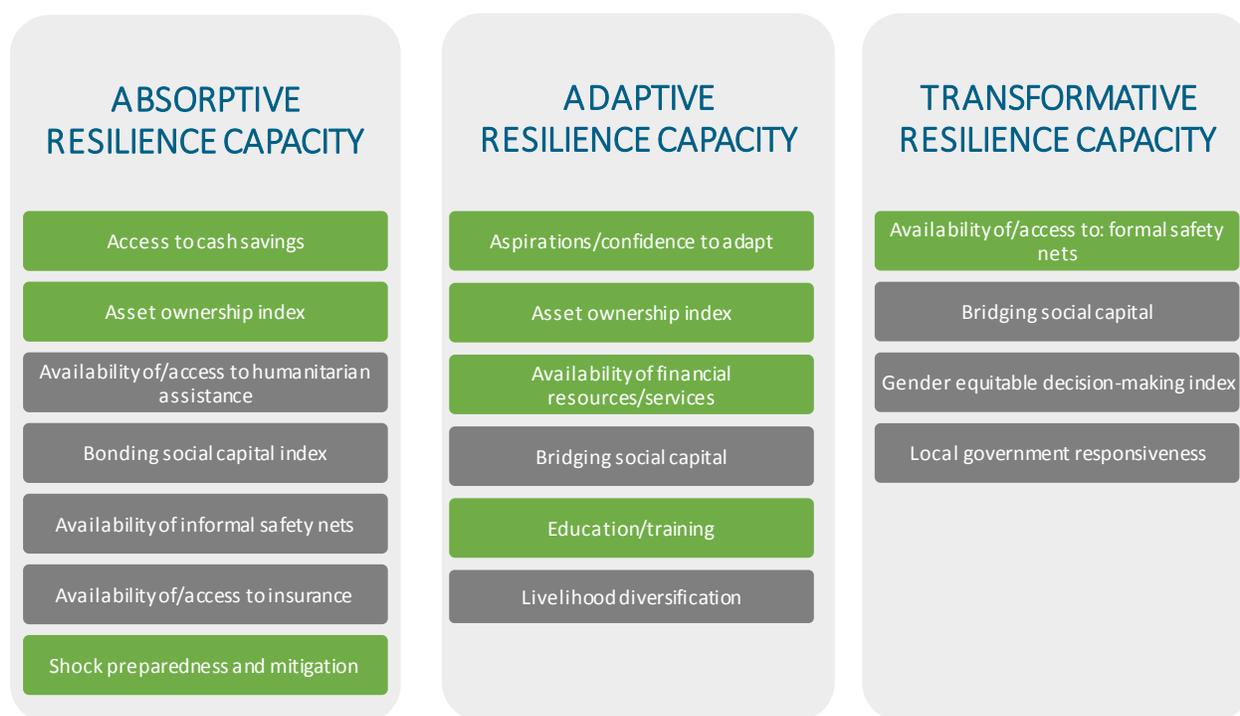
RESILIENCE INDEXES

Table 6 reports the values of the household resilience indexes across intervention status and timepoint. From the baseline to the midpoint, the absorptive capacity increased for the comparison group but decreased for the intervention group. The adaptive capacity remained unchanged for the comparison group but increased for the intervention group. Notably, the transformative capacity decreased for the comparison group but increased for the intervention group. The difference-in-difference methodology was used to determine program impact on each resilience indicator. Figure 12 illustrates the program impacts on the resilience indicators, broken out by resilience capacity. Green indicates a significant positive impact, grey indicates no program impact detected, and orange indicates a significant negative impact. The following sections of this chapter examine each indicator in detail.

Table 6. Resilience capacity index indexes¹⁸

| Resilience index | Comparison | 2019 | 2021 | DID estimate |
|--------------------------|--------------|------|------|--------------|
| Absorptive index | Comparison | 0.47 | 0.58 | -0.19 |
| | Intervention | 0.63 | 0.55 | |
| Adaptive index | Comparison | 0.63 | 0.63 | 0.07 |
| | Intervention | 0.53 | 0.6 | |
| Transformative index | Comparison | 0.56 | 0.52 | 0.18 |
| | Intervention | 0.33 | 0.47 | |
| Overall resilience index | Comparison | 0.56 | 0.58 | 0.02 |
| | Intervention | 0.50 | 0.54 | |

Figure 12. Resilience indicators



¹⁸ The index scores range between 0-1, are relevant only to Nuru Nigeria, and are meaningful to the extent that they permit us to track change in these indices over time and within the context of this intervention. They were created for the purposes of this intervention and, as such, are not comparable to similar indices created for other interventions.

RESILIENCE INDICATORS

Access to cash savings

Access to cash savings is a measure of absorptive resilience capacity and is measured as a binary variable equal to one if the respondent reported that a household member regularly saves cash. Table 7 shows that both groups reported very little access to cash savings, with less than a third of all households reporting saving cash at the baseline. Both groups reported a decrease in this indicator from the baseline to the midpoint. However, the comparison group reported a larger decrease and difference-in-difference analysis found a **statistically significant program impact** of 0.1 points for this indicator.

Table 7. Access to cash savings

| Access to cash savings | 2019 | 2021 | Change from baseline | DID estimate |
|------------------------|------|------|----------------------|--------------|
| Comparison | 0.3 | 0.1 | -79% | 0.122 |
| Intervention | 0.3 | 0.2 | -33% | |

Availability of informal safety nets

The availability of informal safety nets is a measure of absorptive resilience capacity and is measured by the total number of community organizations that typically serve as informal safety nets that are available in a community and have been active in the 12 months prior to the survey. For Nuru Nigeria, five community organizations are studied (savings groups, mutual help groups, religious groups, mothers' groups, and women's groups), and thus the indicator can range from zero to five.

Table 8. Availability of informal safety nets

| Availability of informal safety nets | 2019 | 2021 | Change from baseline | DID estimate |
|--------------------------------------|------|------|----------------------|--------------|
| Comparison | 3.0 | 3.1 | 6% | -0.001 |
| Intervention | 3.1 | 3.3 | 6% | |

Table 8 shows that both groups reported high availability of informal safety nets with households reporting an average score of about 3.0 at baseline. Both groups reported a small increase in this indicator from the baseline to the midpoint. However, the difference-in-difference analysis found no statistically significant program impact on this indicator.

Availability of/access to insurance

The availability of/access to insurance is a measure of absorptive resilience capacity. The availability of/access to insurance is measured as a binary variable equal to one if crop, livestock, health, or another type of insurance is available in the respondent’s village or the respondent’s household reports having crop, livestock, health, or any other type of insurance.

Table 9. Availability of/access to insurance

| Availability of/access to insurance | 2019 | 2021 | Change from baseline | DID estimate |
|-------------------------------------|------|------|----------------------|--------------|
| Comparison | 0.01 | 0.02 | 89% | 0.002 |
| Intervention | 0.02 | 0.03 | 45% | |

Table 9 shows that both groups reported very low availability of and access to insurance with households reporting an average score of just 0.01 for this indicator at baseline. Both groups reported an increase in this indicator from the baseline to the midpoint. However, the difference-in-difference analysis found no statistically significant program impact on this indicator.

Bonding social capital

Bonding social capital is a measure of absorptive resilience capacity and refers to relationships or associations within a group or community. The bonding social capital index ranges from zero to six and is based on responses to two questions: (1) whether the household indicates it would be able to get help from various categories of people living within their community if they needed it, and (2) whether the household indicates it would be able to give help to people living within their community who needed it.

Table 10. Bonding social capital

| Bonding social capital index | 2019 | 2021 | Change from baseline | DID estimate |
|------------------------------|------|------|----------------------|--------------|
| Comparison | 1.8 | 2.1 | 20% | 0.203 |
| Intervention | 1.5 | 2.1 | 36% | |

Table 10 shows that both groups reported a very low bonding social capital with households reporting an average score of just 1.7 for this indicator at baseline. Both groups experienced a slight increase in bonding social capital from the baseline to the midpoint. However, the difference-in-difference analysis found no statistically significant program impact on this indicator.

Shock preparedness

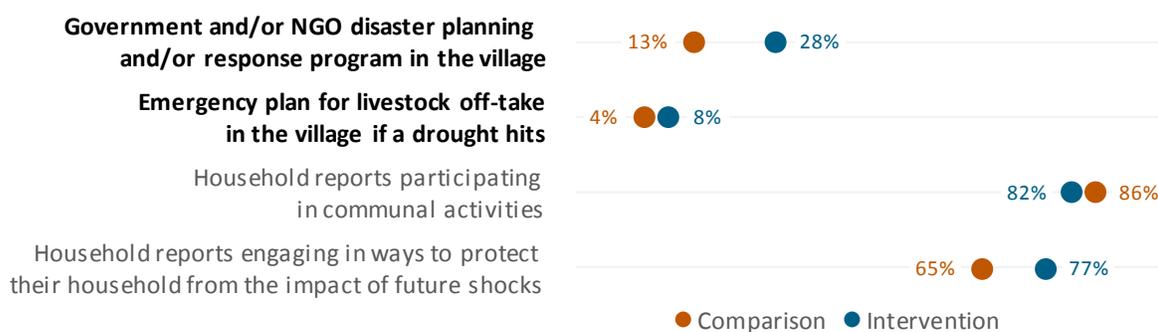
Shock preparedness and mitigation is a measure of absorptive resilience capacity. The shock preparedness and mitigation indicator is measured as a summary variable that can range from zero to four. Table 11 shows that both groups reported low levels of shock preparedness with households reporting an average score of just 1.4 for this indicator at baseline. Both groups reported a decrease in this indicator from the baseline to the midpoint. However, the comparison group experienced a larger decrease than the intervention group and difference-in-difference analysis found a **statistically significant program impact** of 0.1 points for this indicator.

Table 11. Shock preparedness and mitigation

| Shock preparedness and mitigation | 2019 | 2021 | Change from baseline | DID estimate |
|-----------------------------------|------|------|----------------------|--------------|
| Comparison | 1.3 | 1.1 | -21% | 0.078 |
| Intervention | 1.5 | 1.2 | -14% | |

A close examination of the sub-indicators in Figure 13 reveals that significantly higher proportions of the intervention group reported government and/or NGO disaster planning and/or response programs in their community as well as emergency plans for livestock off-take. Three-quarters of the intervention group also reported engaging in ways to protect their household from the impact of future shocks, compared to about two-thirds of the comparison group.

Figure 13. Shock preparedness and mitigation sub-indicators



Availability of financial resources

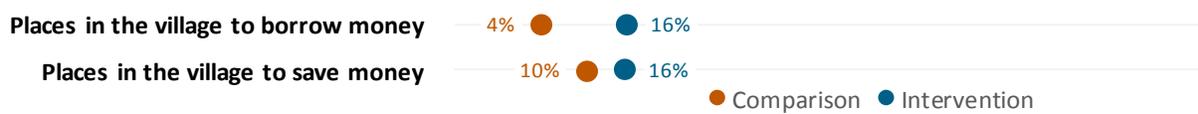
The availability of financial resources is a measure of adaptive resilience capacity and is equal to zero if there is no institution in a village that provides credit or savings support, equal to one if there is only one type of support, and equal to two if there are both types of support.

Table 12. Availability of financial resources

| Availability of financial resources/services | 2019 | 2021 | Change from baseline | DID estimate |
|--|------|------|----------------------|--------------|
| Comparison | 0.3 | 0.1 | -54% | 0.175 |
| Intervention | 0.3 | 0.3 | 9% | |

Table 12 shows that both groups reported low availability of financial resources with households reporting an average score of just 0.3 for this indicator at the baseline. Notably, the comparison group reported a large decrease in this indicator from the baseline to the midpoint, while the intervention group experienced a slight increase. Difference-in-difference analysis found a **statistically significant program impact** of 0.2 points for this indicator. A close examination of the sub-indicators in Figure 14 reveals that significantly higher proportions of the intervention group reported places in the village to borrow money as well as places in the village to save money.

Figure 14. Availability of financial resources sub-indicators



Aspiration, confidence to adapt, and locus of control

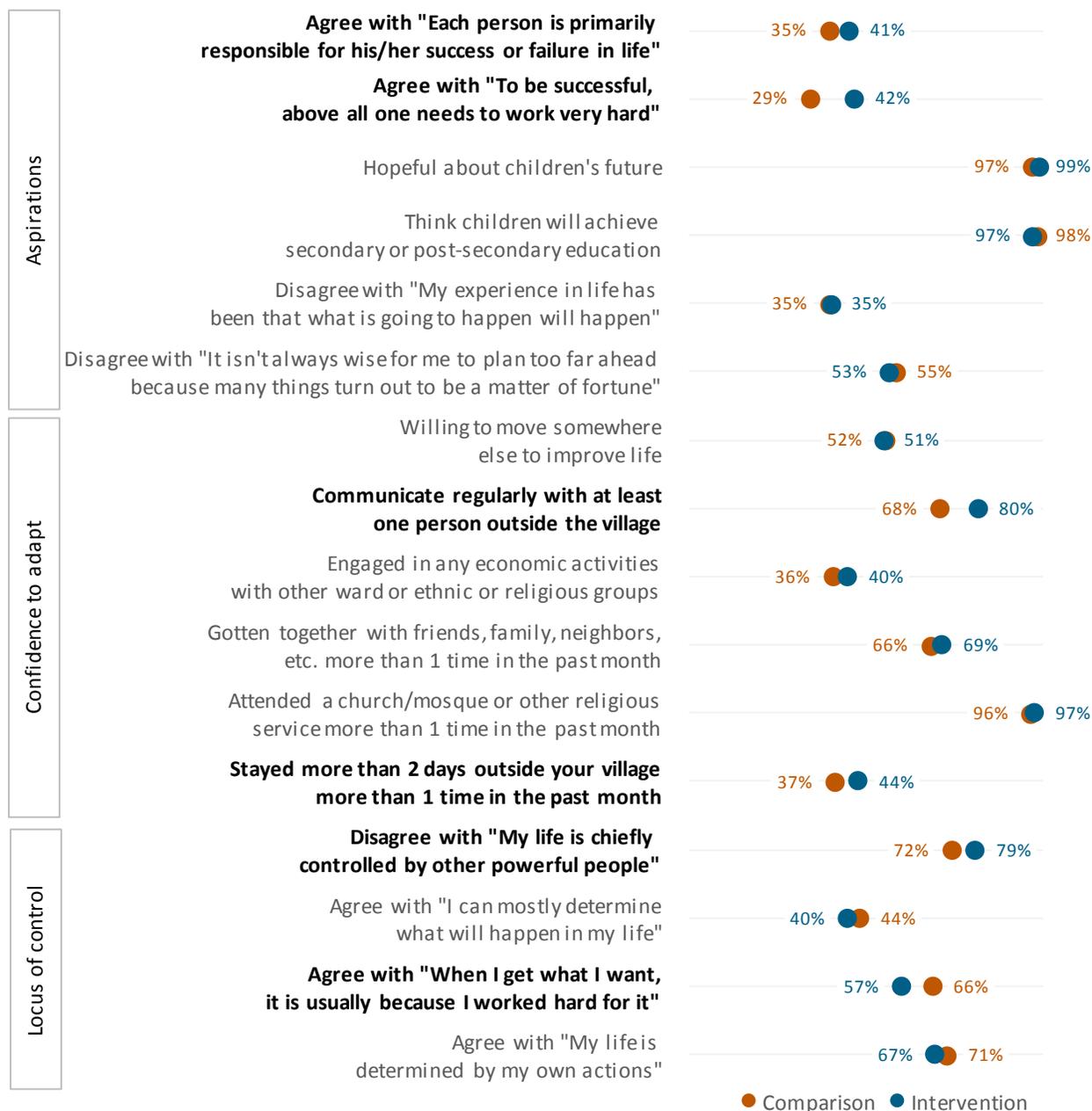
Aspiration, confidence to adapt, and locus of control are measures of adaptive resilience capacity. The aspirations index is based on the absence of fatalism and belief in the future and can range from zero to six. The confidence to adapt indicator is based on the degree to which the respondent is exposed to alternatives and can range from zero to six. The locus of control indicator is constructed from a 6-point agreement scale of four questions and can range from zero to four. The aspirations-confidence to adapt-locus of control index is calculated by combining these three indexes into an additive index that ranges from zero to 16.

Table 13 shows that both groups reported a similar aspirations-confidence to adapt-locus of control index of about 9.5 at the baseline. Notably, while the comparison group reported no change from the baseline to the midpoint, the intervention group reported a small increase and difference-in-difference analysis found a **statistically significant program impact** of 0.3 points for this indicator. A close examination of the sub-indicators in Figure 15 reveals that a significantly higher proportion of the intervention group reported an absence of fatalism. Significantly higher proportions of the intervention group also communicated with people outside the village and spent time outside the village.

Table 13. Aspiration, confidence to adapt, and locus of control indexes

| Aspirations/confidence to adapt | 2019 | 2021 | Change from baseline | DID estimate |
|---------------------------------|------|------|----------------------|--------------|
| Comparison | 9.5 | 9.5 | 0% | 0.347 |
| Intervention | 9.5 | 9.9 | 4% | |

Figure 15. Aspirations, confidence to adapt, and locus of control sub-indicators



Bridging social capital index

Bridging social capital is a measure of adaptive resilience capacity as well as transformative resilience capacity. Bridging social capital refers to relationships or associations between social groups, social class, race, religion, or other important sociodemographic or socioeconomic characteristics. The bridging social capital index ranges from zero to six and is based on responses to two questions: (1) Whether the household indicated it would be able to get help from various categories of people living outside of their community if they needed it, and (2) whether the household indicated it would be able to give help to people living outside of their community who needed it.

Table 14. Bridging social capital

| Bridging social capital | 2019 | 2021 | Change from baseline | DID estimate |
|-------------------------|------|------|----------------------|--------------|
| Comparison | 2.1 | 2.0 | -4% | 0.134 |
| Intervention | 1.8 | 1.8 | 3% | |

Table 14 shows that both groups reported very low bonding social capital with households reporting an average score of just 2.0 for this indicator at the baseline. The comparison group reported a small decrease in this indicator from the baseline to the midpoint, while the intervention group experienced a slight increase. However, the difference-in-difference analysis found no statistically significant program impacts for this indicator.

Livelihood diversification

Livelihood diversification is a measure of adaptive resilience capacity. Livelihood diversification is measured as the total number of livelihood activities engaged in over the last year. Table 15 shows that both groups reported low levels of livelihood diversification with households reporting an average score of just 1.9 for this indicator at the baseline. Both groups reported an increase in this indicator from the baseline to the midpoint. However, the difference-in-difference analysis found no statistically significant program impact on this indicator.

Table 15. Livelihood diversification

| Livelihood diversification | 2019 | 2021 | Change from baseline | DID estimate |
|----------------------------|------|------|----------------------|--------------|
| Comparison | 1.9 | 2.2 | 16% | 0.174 |
| Intervention | 1.8 | 2.3 | 27% | |

Education and training

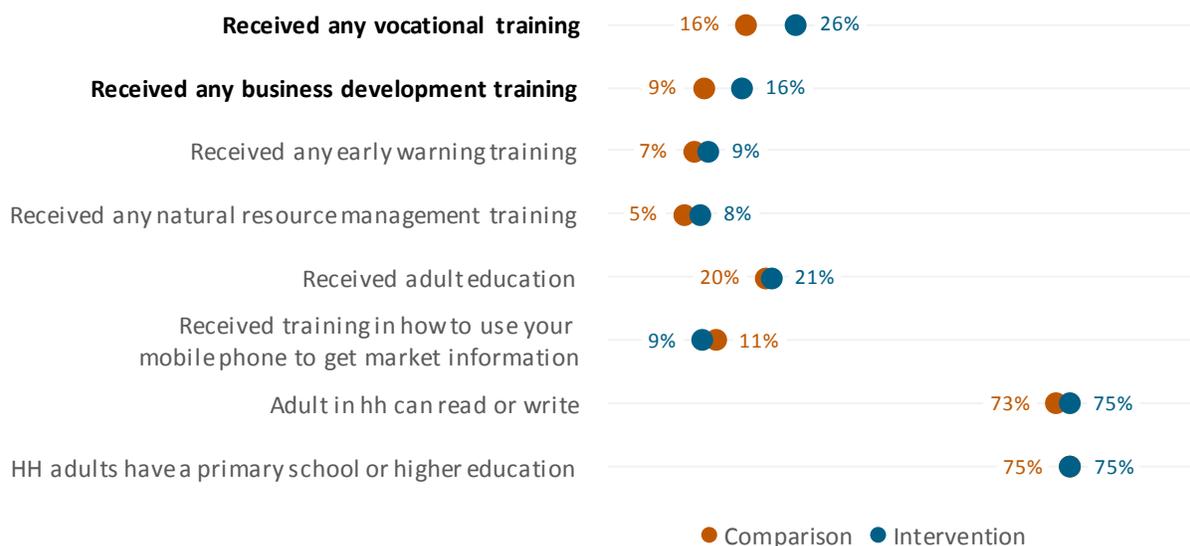
Education and training are measured as an additive index that can range from zero to three. Table 16 shows that both groups reported robust education and training with households reporting an average score of 2.2 at the baseline. Both groups reported a decrease in this indicator from the baseline to the midpoint. However, the intervention group experienced a smaller decrease and difference-in-difference analysis found a **statistically significant program impact** of 0.2 points for this indicator.

Table 16. Education & training

| Education/training | 2019 | 2021 | Change from baseline | DID estimate |
|--------------------|------|------|----------------------|--------------|
| Comparison | 2.2 | 1.8 | -19% | 0.222 |
| Intervention | 2.2 | 1.9 | -9% | |

A close examination of the sub-indicators in Figure 16 reveals that while adult literacy and adult educational achievement were similar in both groups at the midpoint, the intervention group reported significantly higher proportions of households receiving vocational training and business development training.

Figure 16. Education and training sub-indicators



Availability of formal safety nets

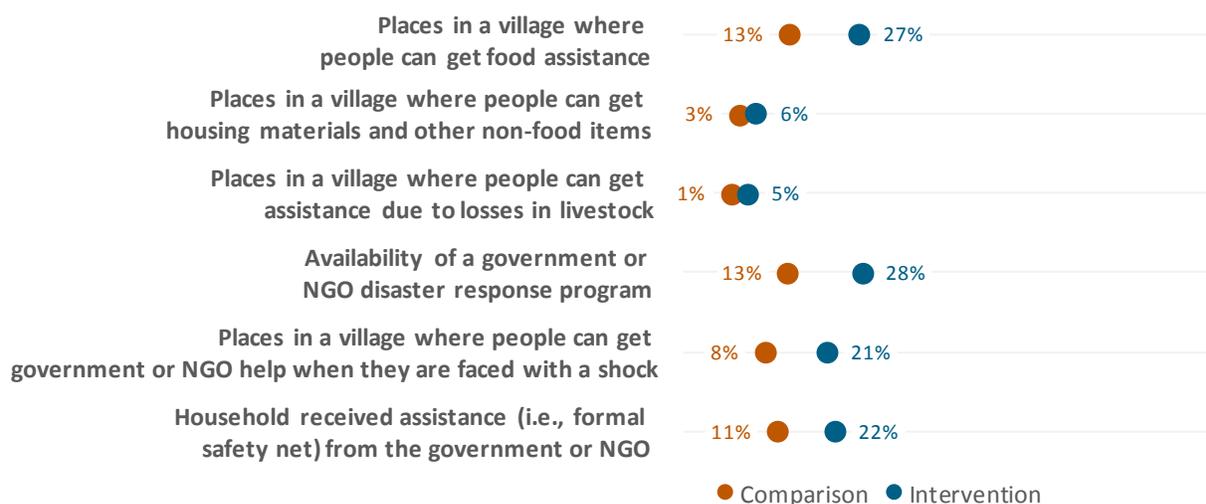
The availability of formal safety nets is a measure of transformative resilience capacity. This indicator measures the number of formal safety nets available in a household’s village and can range from zero to

six. Table 17 shows that both groups reported low availability of formal safety nets with households reporting an average score of just 0.9 for this indicator at the baseline. Notably, the comparison group reported a large decrease from the baseline to the midpoint, while the intervention group reported a small increase; difference-in-difference analysis found a **statistically significant program impact** of 0.4 points for this indicator. A close examination of the sub-indicators in Figure 17 reveals that significantly higher proportions of the intervention group reported the availability of formal safety nets, across all six sub-indicators.

Table 17. Availability of formal safety nets index

| Availability of/access to: formal safety nets | 2019 | 2021 | Change from baseline | DID estimate |
|---|------|------|----------------------|--------------|
| Comparison | 0.8 | 0.4 | -48% | 0.442 |
| Intervention | 0.9 | 0.9 | 4% | |

Figure 17. Availability of formal safety nets sub-indicators



Gender equitable decision-making index

Gender equitable decision-making is a measure of transformative resilience capacity and is based on four types of decision-making control within households: control of income, control over health and nutrition decisions, control over household purchases, and control over children’s education. The summary variable is constructed using a five-point scale and ranges from zero to 20. Table 18 shows that both groups reported robust levels of gender-equitable decision making with households reporting an average score of 13.6 for this indicator at the baseline. Both groups reported an increase in this indicator

from baseline to midpoint. However, the difference-in-difference analysis found no statistically significant program impact on this indicator.

Table 18. Gender equitable decision-making index

| Gender equitable decision-making index | 2019 | 2021 | Change from baseline | DID estimate |
|--|------|------|----------------------|--------------|
| Comparison | 13.6 | 15.8 | 16% | 0.194 |
| Intervention | 13.7 | 16.0 | 17% | |

“Men control about 70% of the income while women control 30%” – Female focus group participant

Qualitative findings from focus groups and key stakeholder interviews suggest that the husband is usually considered the breadwinner and main contributor of income and hence controls decision-making on income. However, decision-making on household purchases, health and nutrition, and education, can vary from household to household with women making the decisions in some households.

Local government responsiveness

Local government responsiveness is a measure of transformative resilience capacity. Local government responsiveness is based on whether and how the local government responded to community requests for improving community assets or services over the five years prior to the survey. Local government responsiveness is measured in a mean score, calculated as the sum of the response value for identified community asset/service needs divided by the total number of community asset/service needs for which any community member requested assistance from the local government. The mean score ranges from zero to three.

Table 19. Local government responsiveness

| Local government responsiveness | 2019 | 2021 | Change from baseline | DID estimate |
|---------------------------------|------|------|----------------------|--------------|
| Comparison | 0.4 | 0.4 | -3% | -0.024 |
| Intervention | 0.4 | 0.4 | -8% | |

Table 19 shows that both groups reported low levels of local government responsiveness with households reporting an average score of just 0.4 for this indicator at the baseline. Both groups reported a slight decrease in this indicator from the baseline to the midpoint. The difference-in-difference analysis found no statistically significant program impact on this indicator.

Social cohesion

Social cohesion is a measure of transformative resilience capacity and is a key intervening variable between social capital and violent conflict. Social cohesion refers to the norms and networks that enable collective action; greater social cohesion is believed to lead to or produce greater resilience. Weak social cohesion increases the risk of social disorganization, fragmentation, and exclusion, potentially manifesting itself in violent conflict. Social cohesion is measured with items focusing on whether groups come together either socially or to help others. Social cohesion is an additive index ranging from zero to five.

Table 20 shows that both groups reported robust levels of social cohesion with households reporting an average score of 2.9 for this indicator at the baseline. Both groups reported a decrease in this indicator from the baseline to the midpoint. The difference-in-difference analysis found no statistically significant program impact on this indicator.

Table 20. Social cohesion index

| Social cohesion | 2019 | 2021 | Change from baseline | DID estimate |
|-----------------|------|------|----------------------|--------------|
| Comparison | 3.0 | 2.6 | -11% | -0.031 |
| Intervention | 2.7 | 2.3 | -14% | |

However, the focus groups and key stakeholder interviews found that most participants reported a greater sense of belonging and acceptance in the community as well as a perception that they could influence decision making in their communities.

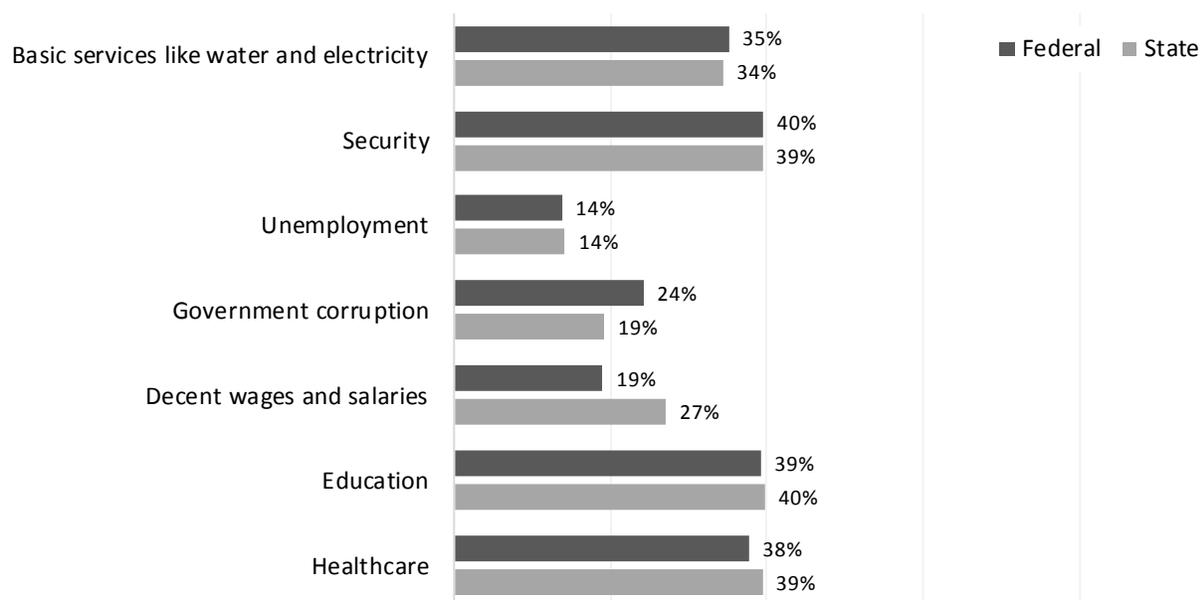
“... [Social cohesion] has increased positively since the Boko Haram attack which has helped strengthen their bond as they share food with one another, especially the needy.” – Female focus group participant

CHAPTER 7. COUNTERING VIOLENT EXTREMISM (CVE) INDICATORS

CONFIDENCE IN GOVERNMENT

RMC is also measuring certain indicators related to countering violent extremism as informative contextual variables around Nuru Nigeria’s intervention and is not necessarily anticipating the intervention to have a targeted impact on citizen perceptions of governance per se. More than a third of respondents reported that both the federal and state governments were doing a good job at security, education, and healthcare. In contrast, only 14 percent reported that the governments were doing a good job at addressing unemployment. Only about a quarter reported that the governments were doing a good job at addressing government corruption and decent wages and salaries.

Figure 18. Confidence in government indicators at the midpoint



SOCIAL RELATIONS

Overall, social relations appear to be generally strong across both intervention and comparison groups, with no statistically significant differences between the groups at the midpoint. A vast majority reported having friends or people that they sympathize with who are from other ethnic groups and being open to the possibility of getting married to someone from another ethnic group.

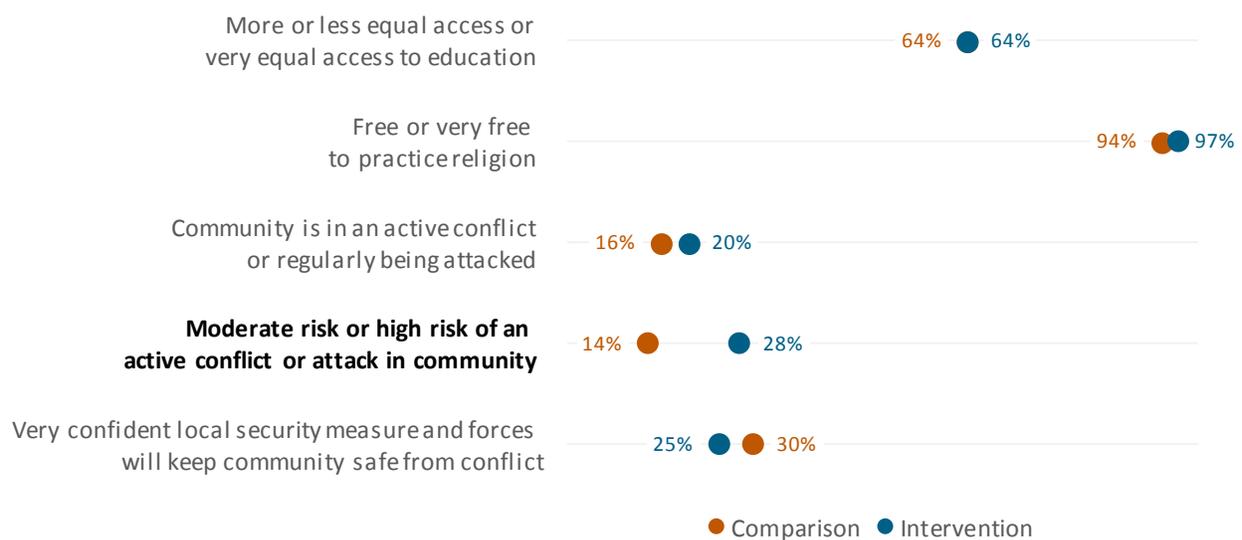
Figure 19. Social relations indicators



ADDITIONAL SOCIETAL INDICATORS

Nearly all respondents in both groups reported feeling free to practice their religions at the midpoint. Nearly two-thirds of all respondents reported having equal access to education. Only about a fifth of respondents reported that their community was in active conflict or regularly being attacked. Notably, a significantly higher proportion of the intervention group reported feeling that there was a moderate to high risk of active conflict in their community.

Figure 20. Additional societal indicators



“To protect households from conflicts or attack, we put an order that once it is 9 pm people should be home. Secondly, we engage the vigilante to help protect the road, if they see a visitor they probe for details and if they are not satisfied, they hand him over to security operatives. We also notify the security operatives whenever we receive visitors from anywhere.” – Village head

Qualitative findings from focus groups and key stakeholder interviews support these results with most participants reporting that their communities were not in any active conflict. However, some participants mentioned cases of kidnapping and herders encroaching into their communities. Focus group and interview participants also reported measures put in place by communities to protect themselves, including recruit more hunters and vigilantes to mount checkpoints at strategic locations in the community, set curfew time, inform security personnel of any suspicious person/item/activity in the community, and seek assistance from the government.

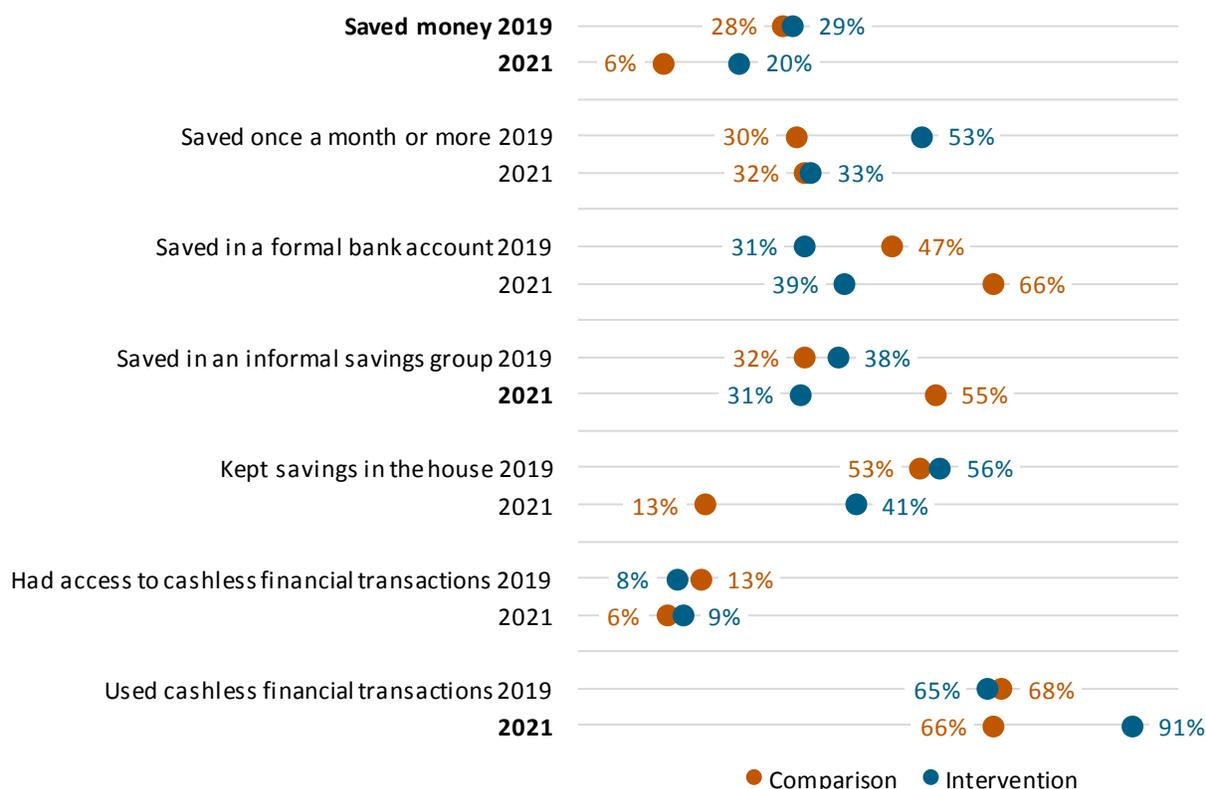
CHAPTER 8: SHORT-TERM PROGRAM IMPACTS 2021

This chapter examines the impact of Nuru Nigeria’s interventions on short term outcomes. Between the baseline and the midpoint, Nuru Nigeria also conducted a follow-up survey of 230 intervention households in June 2020. Although the follow-up analysis only included a convenience sample of the intervention group (due to restrictions on surveying activity during COVID-19 related measures in June 2020), the results indicated that intervention households appeared to have made early small gains across multiple short-term outcomes. The results from the current impact analysis conducted using a rigorous difference-in-difference methodology at the midpoint confirm and extend the early findings from 2020.

FINANCIAL SAFETY NET

Figure 21 describes savings behaviors of households from both intervention and comparison groups at the baseline and at the midpoint. Both groups reported an overall decrease in the percent of households saving money; however, the decrease was much larger for the comparison group and difference-in-difference analysis found a **statistically significant program impact** of 12 percentage points.

Figure 21. Financial safety net indicators



Among those who save, we observe that the proportion of households saving once a month or more frequently remained unchanged for the comparison group but decreased from 53 percent at baseline to 33 percent at the midpoint for the intervention group. The proportion of households saving in a formal bank account increased for both groups from the baseline to the midpoint, but the increase was much larger for the comparison group. The proportion of households saving in an informal savings group remained unchanged for the intervention group but increased for the comparison group from 32 percent at the baseline to 55 percent at the midpoint. The proportion of households saving at home decreased for both groups from the baseline to the midpoint, but the decrease was much larger for the comparison group. However, we cannot draw inferences from these descriptive findings due to the small sample size of households saving money.

Access to cashless financial transactions was relatively low at the baseline and remained mostly unchanged at the midpoint. Among those with access to cashless financial transaction, usage remained unchanged for the comparison group but increased from 65 percent to 91 percent for the intervention group. However, we cannot draw an inference from this finding due to the small sample size of households with access to cashless financial savings.

HEALTH

Breastfeeding

Figure 22 describes breastfeeding behaviors of households from both groups at the baseline and at the midpoint. Among households with a child under the age of three, the vast majority of respondents at both baseline and at the midpoint reported having breastfed their child. The difference-in-difference analysis found no program impacts on breastfeeding behaviors.

Figure 22. Breastfeeding indicators



Household dietary diversity

Household dietary diversity is defined as the number of unique foods consumed by household members over a given period and is used to measure household food access. The household dietary diversity score (HDDS) ranges from zero to 12. Table 21 shows that both groups reported an increase in this score from the baseline to the midpoint, but the intervention group had a larger increase and the difference-in-difference analysis found a **statistically significant program impact** of nearly one point.

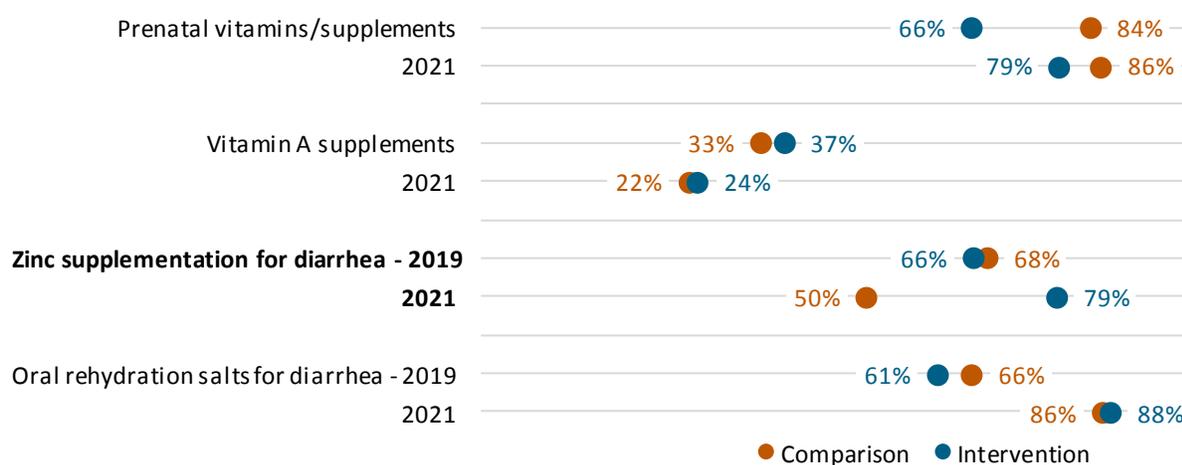
Table 21. Household dietary diversity

| HDDS | 2019 | 2021 | Change from baseline | DID estimate |
|--------------|------|------|----------------------|--------------|
| Comparison | 4.6 | 5.1 | 9% | 0.888 |
| Intervention | 4.6 | 5.9 | 29% | |

Micronutrients

Figure 23 describes micronutrient use by households from both groups at the baseline and at the midpoint. Notably, the difference-in-difference analysis found a **statistically significant program impact** of 32 percentage points on the use of zinc supplementation for diarrhea. The difference-in-difference analysis found no program impacts on the use of prenatal vitamins, vitamin A supplements, or oral rehydration salts for diarrhea. Descriptively, we found that the use of oral rehydration salts for diarrhea increased for both groups from the baseline to the midpoint while the use of vitamin A supplements decreased from the baseline to the midpoint. The use of prenatal vitamins also increased for the intervention group but remained unchanged for the comparison group.

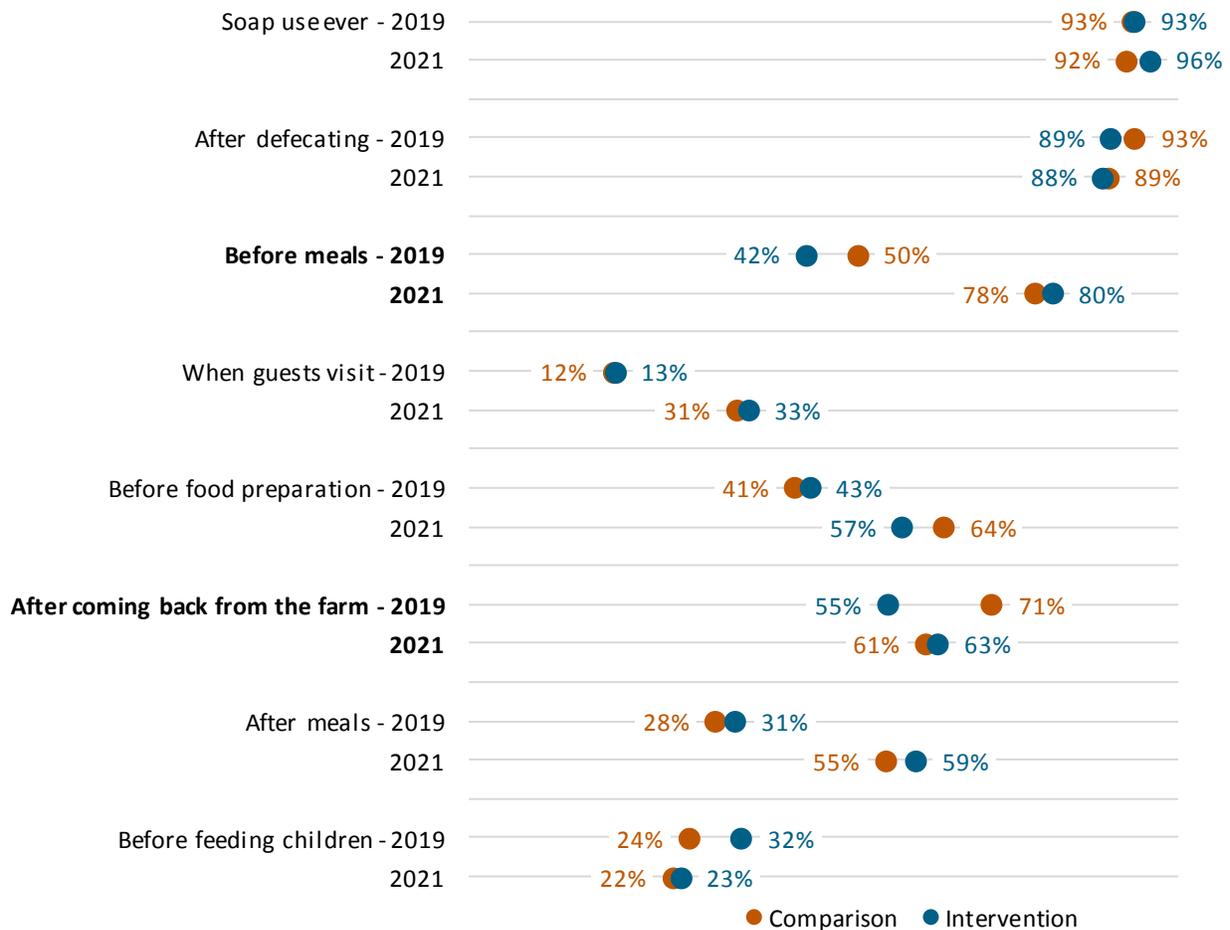
Figure 23. Micronutrient indicators



Hygiene

Figure 24 describes soap use behaviors of households from both groups at baseline and at midpoint. Notably, the difference-in-difference analysis found a **statistically significant program impact** of 11 percentage points on soap use before meals and a significant program impact of 11 percentage points on soap use after returning from the farm. The difference-in-difference analysis found no program impacts on other soap use behaviors. Descriptively, we observe that the proportion of households using soap when guests visit, before food preparation before meals, and after meals has increased for both groups.

Figure 24. Soap use behaviors

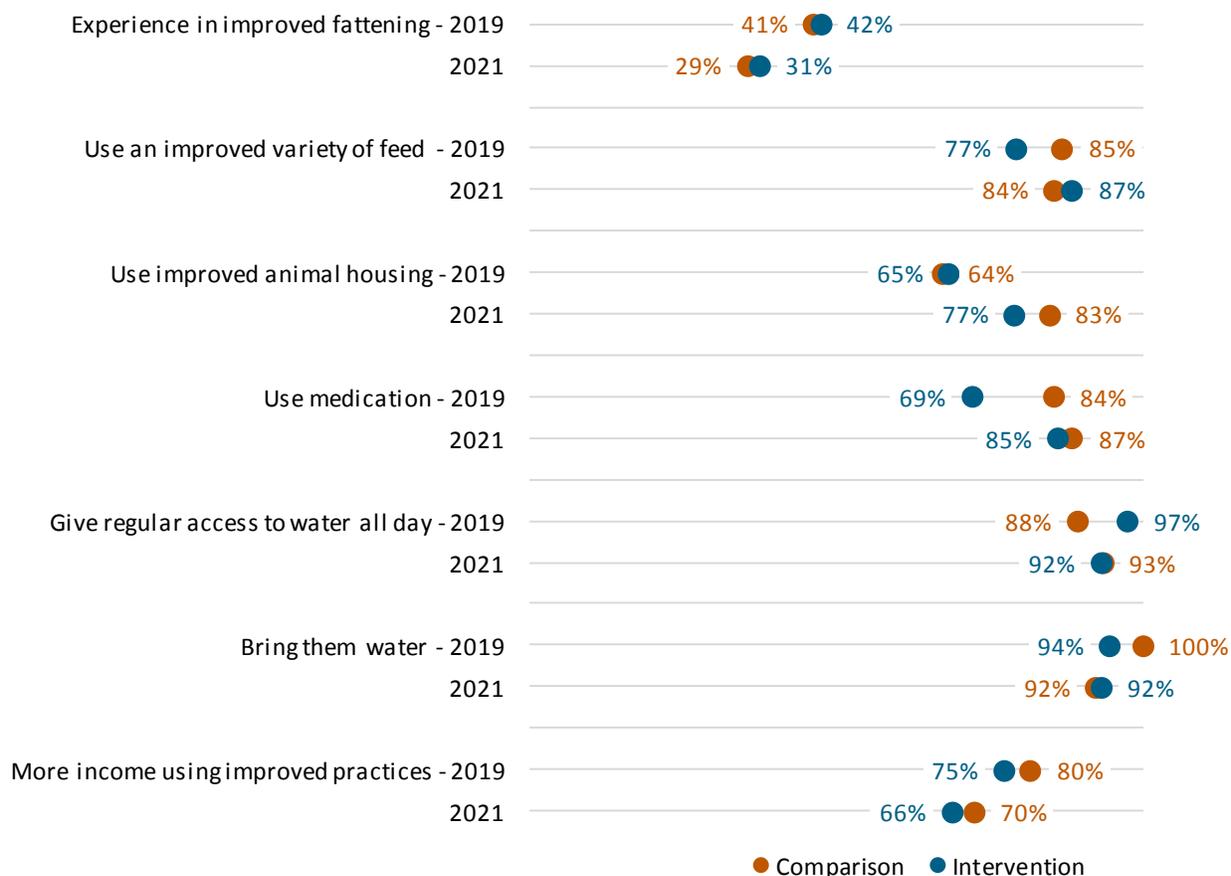


LIVESTOCK

Figure 25 describes sheep and goat livestock practices by households from both groups at baseline and at midpoint. The difference-in-difference analysis found no program impacts on these indicators. The

descriptive analysis found an overall decrease in the proportion of households reporting experience with improved fattening practiced for both groups.

Figure 25. Sheep & goat livestock practices



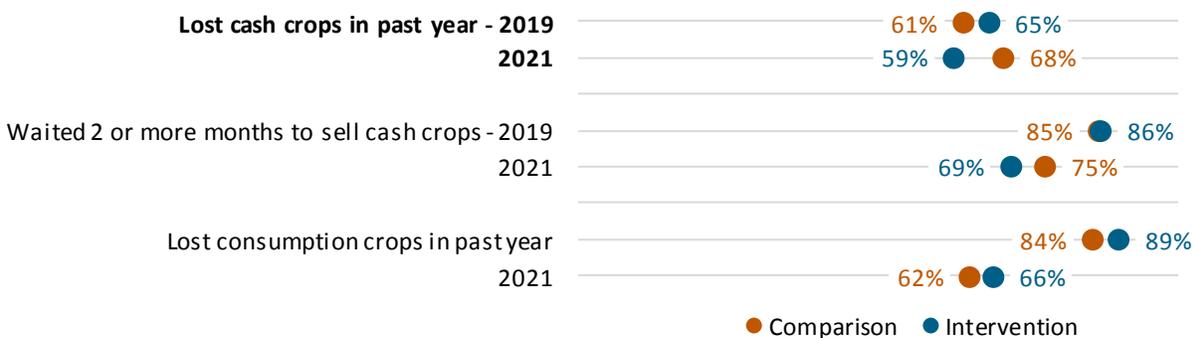
Among households with experience in improved fattening, a close examination of individual practices finds that the intervention group reported large increases in the use of improved feed, improved animal housing, and use of medication. Notably, the proportion of households reporting more income by using improved practices increased from the baseline to the midpoint for the intervention group but decreased for the comparison group.

POST-HARVEST

Figure 26 describes post-harvest outcomes of households from both groups at the baseline and at the midpoint. The difference-in-difference analysis found a **statistically significant program impact** of 14 percentage points on loss of cash crops - the proportion of households reporting losing cash crops in the past year increased for the comparison group but decreased for the intervention group from the

baseline to the midpoint. The difference-in-difference analysis found no program impacts on the loss of consumption crops.

Figure 26. Post-harvest indicators



CROP YIELD

Nuru uses a crop equivalent yield (CEY) calculation to convert the different yields of multiple crops and their prevailing local market prices (i.e. groundnuts and soybeans in 2020) into one standard statistical measurement. One way to interpret this calculation is to ask: *If Nuru farmers only grew soybean this season, how much more/less soybean would they have produced compared to the previous season?* Nuru intervention households reported a 65% increase in CEY from 2019 to 2020, exceeding the target of a 32% increase in CEY.

AGRICULTURAL INCOME

Nuru also uses an income model to estimate increased income. Revenue is calculated by multiplying the average crop yield by the prevailing local market prices for groundnuts and soybeans in Nuru Nigeria’s operating LGA, adjusted for inflation. The costs of production for Nuru farmers pre-intervention are based on price estimates from the traditional sources of seed and fertilizer in local spot markets in 2019. The 2020 costs for Nuru farmers is taken as the loan price for the improved farm inputs (i.e. seed, fertilizer, and other treatments) delivered by Nuru Nigeria for production in the 2020 season. Finally, the net gain or loss of income from participating in the Nuru Nigeria crop and market linkage activities is calculated by subtracting the costs of production from revenue.

Nuru found that intervention farmers increased their income by 107% over their own baseline as a result of Nuru related crop activities, exceeding the target of 30%. In absolute terms, participant farmers increased their income from \$13 USD to \$27 USD on a half hectare plot providing them with an additional \$14 USD per half hectare.

CHAPTER 9. CONCLUSION AND DISCUSSION

This midpoint report describes household demographics and livelihoods, shock exposure and impacts, well-being outcomes, and resilience capacity indexes and indicators for both the comparison group and intervention group at both the baseline and the midpoint. The difference-in-differences evaluation methodology was used to measure program impact on key outcomes. The DID approach compares the change in these outcomes for the intervention group and the comparison group.

KEY FINDINGS

The impact analysis found that, at midpoint, Nuru interventions had no significant program impact on overall resilience, but did have impacts on adaptive resilience capacity and transformative resilience capacity. Moreover, these improvements over the comparison group are achieved despite Nuru households recording significantly *higher* scores on the shock exposure index as compared to the comparison households, underscoring the strength of the interventions. The impact analysis also found that Nuru Nigeria interventions had significant program impacts on several key resilience indicators, including access to cash savings, asset ownership, shock preparedness and mitigations, aspirations/confidence to adapt/locus of control, availability of financial resources, education/training, and availability of/access to formal safety nets.

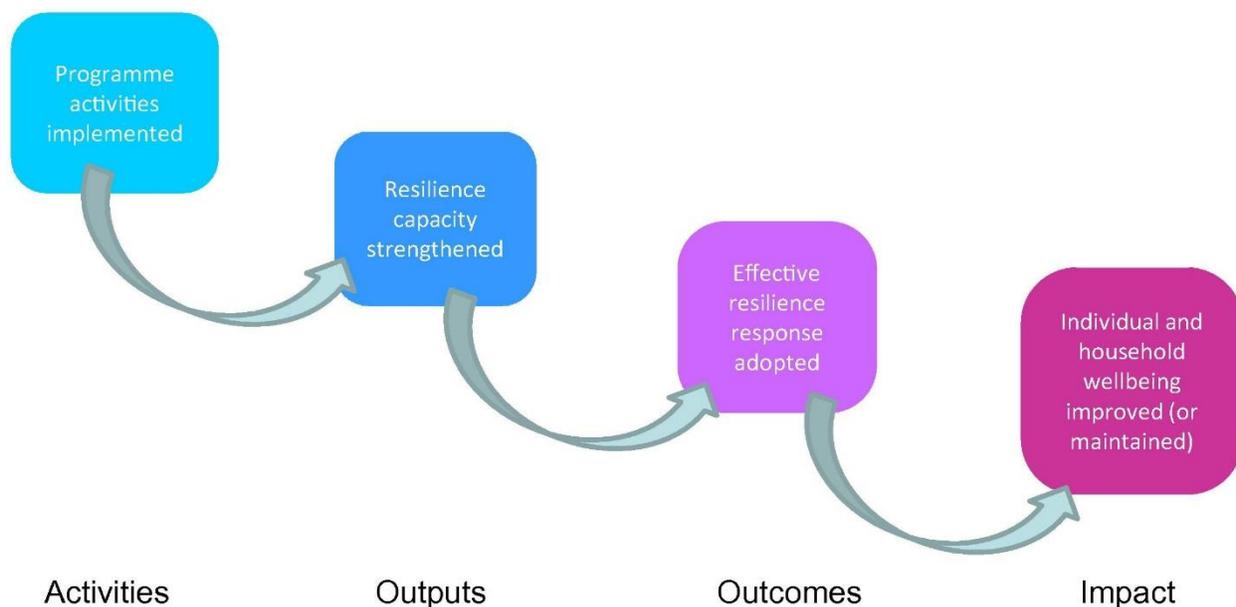
The impact analysis also found that Nuru had significant and often large program impacts on short-term outcomes in 2021 like saving money, saving cash crops from loss, household dietary diversity, using zinc supplements to treat diarrhea, using soap before meals, and using soap after returning from the farm. While the impact analysis did not find any significant program impacts on small livestock outcomes, the descriptive analysis noted encouraging trends such as an increase in the use of certain improved fattening practices as well as an increase in households reporting more income due to improved practices. Nuru's M&E team also found that Nuru intervention households had a 65 percent increase in crop equivalent yield (CEY) from 2019 to 2020, exceeding the target of a 32 percent increase in CEY, as well as a 107 percent increase in agricultural income, exceeding the target of 30 percent.

DISCUSSION

Research on resilience in recent years has framed a generic theory of change of a resilience intervention wherein resilience is not seen as the final goal, but instead as an intermediate outcome required to achieve a longer term goal, typically improvement of wellbeing (see Figure 27). The Nuru Nigeria midpoint analysis suggests that Nuru interventions are strengthening adaptive and transformative

resilience capacities, and improving wellbeing as measured through agricultural income and the ability to recover indicator.

Figure 27. Generic theory of change of a resilience intervention (derived from Béné et al., 2015)



Source: Béné, C., Frankenberger, T., & Nelson, S. (2015). Design, monitoring and evaluation of resilience interventions: Conceptual and empirical considerations. IDS Working Paper 459, Brighton: Institute of Development Studies, 23 p.

The resilience capacities are measured by combining a variety of resilience indicators. Nuru Nigeria’s interventions are not designed to target every resilience indicator used in the resilience calculations. The midpoint findings of positive impact on only the adaptive and transformative resilience capacities likely reflects the impact of Nuru Nigeria’s interventions on specific resilience indicators.

For example, the positive impact on transformative resilience capacity is likely largely driven by the positive impact on the resilience indicator related to the availability of and access to formal safety nets. Nuru Nigeria provided many direct services and supports to intervention households during a period in which households experienced multiple challenges, including the COVID-19 pandemic, crop disease, crop pests, livestock disease, early stoppage of rains, increasing food prices, unavailable food in the market, increased prices of farm inputs, and unemployment. Nuru Nigeria also helped connect intervention households to government supports and services. Thus, it is likely not surprising that intervention households reported a greater increase in the availability of and access to formal safety nets, and thus an increase in their transformative resilience capacity, than the comparison group.

Similarly, the positive impact on adaptive resilience capacity is driven by the positive impacts on the resilience indicators related to aspirations/confidence to adapt/locus of control, asset ownership, availability of financial resources/services, and education/training. Again, the positive impacts on these adaptive resilience indicators result from Nuru Nigeria's interventions. Nuru Nigeria's trainings on best agronomic practices and financial inclusion likely led to the intervention group reporting a greater increase in the proportion of households that received training, and thus a greater increase in the education and training indicator, than the comparison group. Nuru Nigeria's loans, savings groups support, and digital financial tools likely led to the intervention group reporting a greater increase in the availability of financial resources/services, than the comparison group. Nuru Nigeria's activities focusing on community mobilization and the establishment of farmer associations and organizations are associated with the positive impacts on the aspirations/confidence to adapt/locus of control resilience indicators.

Overall, the midpoint findings suggest that Nuru Nigeria's interventions are having positive impacts on both short-term outcomes and resilience indicators. The midpoint results can help inform Nuru Nigeria's program implementation and be used to make decisions about where to focus program efforts. However, considering the short time period between the baseline and the midpoint, it is too early for the evaluation team to draw any major conclusions from the midpoint study. The endline analysis is scheduled to be conducted in 2023 and will cover a four-year program implementation period, which should be sufficient to identify and measure the impacts of Nuru Nigeria's interventions in total.