

## Introduction

Food insecurity worsened significantly following the onset of the COVID-19 pandemic in sub-Saharan Africa. Data from high-frequency phone surveys implemented as part of the Living Standards Measurement Study - Integrated Survey on Agriculture (LSMS-ISA) – indicate that food insecurity was particularly high in Nigeria with a longitudinal analysis suggesting that the prevalence of moderate or severe food insecurity increased from 46.8 percent of the adult population in 2018-2019 to 75.1 percent of the adult population in Nigeria in June 2020 (Amankwah & Gourlay, 2021).

The health and labor impacts of COVID-19, and some policy and other responses to contain its spread, have contributed to supply chain disruptions and likely exacerbated food insecurity. Nationwide curfews led to the closure of many business operations and resulted in reduced opportunities for informal workers (FGN, 2020). The lockdown caused major disruptions in social and economic activities. In addition, supply chain disruptions likely resulted in increases in food shortages and price hikes. 90 percent of the Nigerian households reported price increases in July 2020. Amankwah & Gourlay (2021) report that these price increases significantly affect households' purchasing power and likely led to reductions in food expenditures, especially for the poorest households.

Savings groups may help mitigate some of the negative consequences of COVID-19. Savings groups may, for example, provide members with savings and credit with which to absorb economic losses and increases in food prices (Demont, 2013; Karlan et al., 2017; Walcott et al., 2021). Households could, for example, use savings and credit to cope with increases in food prices Amankwah & Gourlay, 2021). This study examines whether savings group membership in Nigeria is

## Key Takeaways

- Over 70 percent of adults in Nigeria were impacted by moderate or severe food insecurity in the immediate aftermath of the start of the COVID-19 pandemic in June 2020 (Amankwah & Gourlay, 2021).
- This study contributes to the literature on resilience by examining the role of savings group membership in improving food security after COVID-19 in Nigeria.
- Households with female savings group members were, on average, 3.7 percentage points less likely to report that they faced any food security challenges than households without female group members after controlling for various baseline and demographic characteristics between April and August 2020.
- There was only limited evidence of a longer term relationship between savings group membership and food security in November 2020.
- Access to savings and credit likely contributed to the association between savings group membership and food security between April and August 2020. Households with a female savings group member were 24.5 percentage points more likely to have a female household member with savings in August 2020, and 10.8 percentage points more likely to have obtained a loan between March and August 2020.
- It is unclear whether savings groups can also contribute to long-term food security when covariate shocks, such as COVID-19, and food price increases have longer-term negative effects on savings and access to credit as shown in de Milliano et al. (2022) and Sanyal et al. (2022).

associated with enhanced resilience of households against food insecurity in the immediate aftermath of COVID-19.

## Methodology

### Research Questions

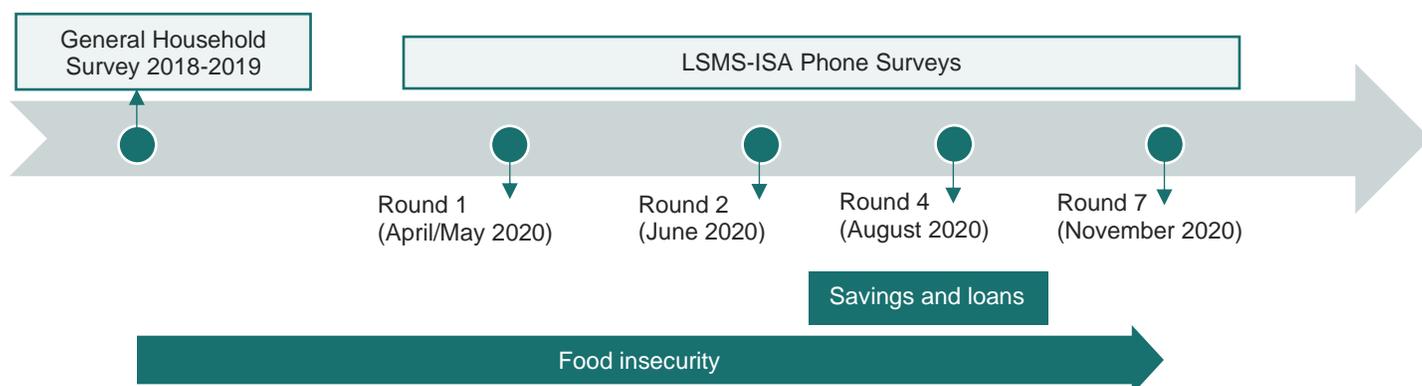
This study seeks to answer three main research questions on the association between savings group membership and resilience of Nigerian households after COVID-19:

1. What is the association between savings group membership and changes in savings during the COVID-19 pandemic?
2. What is the association between savings group membership and changes in access to credit during the COVID-19 pandemic?
3. What is the association between savings group membership and changes in food insecurity during the COVID-19 pandemic?

### Methods and Data

We use high frequency phone survey data collected by the World Bank during COVID-19 and data from Nigeria's general household survey (GHS) supported by the LSMS-ISA to analyze the association between female savings group membership and whether the household saved and from which sources (see Figure 1). For the first and second research question, we use the phone survey data focused on savings and credit to analyze the association between female savings group membership and whether the household saved or obtained credit and from which sources. For both research questions we use covariates on household-level variables (e.g., household composition, education level, assets, and women's decision-making power) derived from the 2018-2019 GHS to use as control variables in the analysis. For the third research question, we combined the data on female savings group membership with in-person 2018-2019 GHS data on food insecurity and phone-based survey data from August 2020 on food insecurity to examine associations between savings group membership and differences in food insecurity before and after COVID-19.

**Figure 1. Survey data used for the analysis**



For each analysis, we conduct regression analyses that control for the same household-level variables from the 2018-2019 GHS data. We conduct analyses that combine the survey waves from each phone-based

survey in Nigeria in one aggregate analysis in addition to conducting separate analyses for each phone-based survey round. To limit potential selection bias from phone ownership, we weigh the regression with the inverse probability of participation in the phone surveys. We estimated this probability using a logistic model that predicts participation in the phone-based surveys using various control variables from the in-person GHS survey. Finally, we conduct a robustness check controlling for Google mobility data to proxy for the intensity of the COVID-19 restrictions at the time the survey data were collected.<sup>1</sup>

### Box 1: Main Variables of Interest



**Savings and Loans:** Respondents indicated whether any female household member had savings at a bank or other financial institution or cooperative, and whether any household member took out a loan since mid-March and if so from where.



**Food Insecurity:** Food insecurity experience scale (0-8) with 8 being food insecure in all instances. Scale includes whether in the last 30 days the respondent was worried about not having enough food, unable to eat healthy food, ate few kinds of food, skipped a meal, ate less than they thought they should, ran out of food, hungry but did not eat, or went without food for a whole day.

Our main analysis for savings and credit (see Box 1) is based on the regression from Equation 1 below:

$$(1) Y_{it} = \alpha + \beta_1 * \text{formal savings group membership}_{it} + \beta_2 * X_{i, \text{GHS}} + \varepsilon_{it}$$

Here  $Y_{it}$  refers to the dependent variable, which is related to savings for research question 1, and credit for research question 2, formal savings group membership<sub>i</sub> is a dummy variable indicating savings group membership for a female in the household  $I$  at time  $t$ ,  $X_{i, \text{GHS}}$  are control variables from the in-person GHS survey data, and  $\varepsilon_{it}$  is the error term.  $\beta_1$  refers to the association between savings group membership and savings or credit after controlling for other factors.

Our main analysis for food insecurity (see Box 1) is based on the regression from Equation 2 below:

$$(2) Y_{it} - Y_{i, \text{GHS}} = \alpha + \beta_1 * \text{formal savings group membership}_i + \beta_2 * X_{i, \text{GHS}} + \text{Survey}_t + \varepsilon_{it}$$

Here  $Y_{it}$  refers to the food insecurity reported during the phone-based survey, and  $Y_{i, \text{GHS}}$  refers to the food insecurity measure during the in-person GHS survey, formal savings group membership<sub>i</sub> is a dummy variable indicating savings group membership for a female in the household,  $X_{i, \text{GHS}}$  are control variables from the in-person GHS survey data,  $\text{Survey}_t$  are survey fixed effects for each survey round, and  $\varepsilon_{it}$  is the error term.  $\beta_1$  refers to the association between savings group membership and differences in food security after controlling for various variables.

We triangulate the results with longer-term analyses on how COVID-19 may have affected savings groups and their members in Nigeria. For this triangulation we relied on quantitative analyses by de Milliano et al. (2022) who examine reductions in savings, access to credit and savings group functioning in Nigeria in 2021. Further, we triangulate the results with a qualitative study on how savings group members perceived the impact of COVID-19 on savings, access to credit, and the ability of savings groups to continue functioning in Nigeria in 2021 (Sanyal et al, 2022).

<sup>1</sup> We did not use the robustness check with Google mobility data as our main specification because there were a substantial number of missing values for the Google mobility data.

## Study Findings

### Households with female savings group members were more likely to save during the COVID-19 pandemic

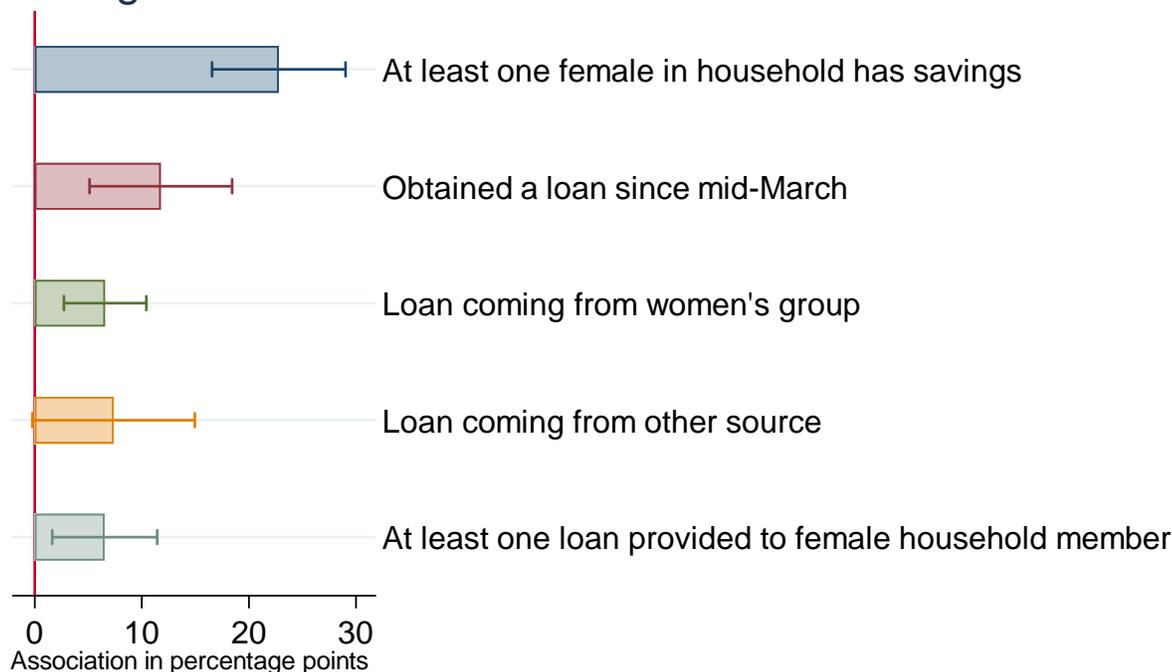
The cross-sectional analysis revealed that households with female savings group members were more likely to have female household members who saved than households without a female savings group member during the early months of the COVID-19 pandemic. Households with a female savings group member were 22.8 percentage points more likely to have a female household member with savings in August 2020 ( $p < 0.01$ ). This result is robust to adjusting for differences across households in demographic and socio-economic characteristics. Figure 1 depicts the associations based on the analysis of August 2020 data.

### Households with female savings group members accessed more credit during the COVID-19 pandemic

We found that households with female savings group members were statistically significantly more likely to access credit than households without female savings group members after COVID-19. Households with a female savings group member were 11.8 percentage points more likely to have obtained a loan since March 2020, and 6.5 percentage points more likely to have female household members who had a loan since March 2020. The statistically significant differences were primarily driven by an increase in the loans from savings and other women's groups. These results hold regardless of the control variables we use. Figure 2 depicts the associations based on the cross-sectional analysis.

**Figure 2: Association between female savings group membership, savings, and loans**

### Savings and Loans



Note 1: Values on the x-axis indicate the association between having a female savings group member in the household and the outcomes on the y-axis.

Note 2: The length of the bar indicates the magnitude of the association. The capped spikes indicate the 95% confidence interval.

Note 3: If the capped spike crosses 0, it indicates that the coefficient is not statistically significant.

Data Source: World Bank High-Frequency Phone Surveys Nigeria, August 2020

Households with female savings group members had lower food insecurity between April and August 2020

While food insecurity spiked during the COVID-19 months, the analysis showed statistically significantly smaller increases in food insecurity for households with female savings group members. Households with female savings group members were 3.4 percentage points less likely to report skipping a meal, 3.3 percentage points less likely to report eating portion sizes less than they should, 3.3 percentage points less likely to report running out of food, 3.6 percentage points less likely to report going hungry but not eating, and 4.3 percentage points less likely to go a whole day without food between April and August 2020. The associations were consistent across the survey rounds between April and August 2020. Though we cannot establish causality, female savings group membership may have contributed to household resilience in the immediate aftermath of COVID-19. Figure 3 depicts these results.

**Figure 3: Association between female savings group membership and food security between April and August 2020**



Note 1: Values on the x-axis indicate the association between having a female savings group member in the household and the outcomes on the y-axis.

Note 2: The length of the bar indicates the magnitude of the association. The capped spikes indicate the 95% confidence interval

Note 3: If the capped spike crosses 0, it indicates that the coefficient is not statistically significant.

Data Source: World Bank High-Frequency Phone Surveys Nigeria, April-November 2020

*There is only some evidence for lower food insecurity among households with female savings group members in November 2020*

We only found some evidence for a statistically significant relationship between female savings group membership and food insecurity in November 2020. While households with female savings group members were 2.5 percentage points less likely than other households to go a whole day without food, we did not find other statistically significant differences in food security measures between households with and without female savings group members. Figure 4 depicts the results.

**Figure 4: Association between female savings group membership and food security in November 2020**



Note 1: Values on the x-axis indicate the association between having a female savings group member in the household and the outcomes on the y-axis.

Note 2: The length of the bar indicates the magnitude of the association. The capped spikes indicate the 95% confidence interval

Note 3: If the capped spike crosses 0, it indicates that the coefficient is not statistically significant.

Data Source: World Bank High-Frequency Phone Surveys Nigeria, November 2020

## Conclusion

This study finds an association between savings group membership and less food insecurity in the immediate aftermath of COVID-19. Female savings group members were less likely to experience food security challenges than households without female savings group members from April – August 2020. A larger propensity to save and increased credit likely contributed to the ability of savings group members to limit

reductions to food expenditures. We found limited evidence of a relationship between female savings group membership and food insecurity in November 2020, possibly because of the relaxing of COVID-19 restrictions, including supply chain restrictions, or because of tightening financial constraints and savings within the group.

While savings groups may provide a short-term buffer, it is unclear whether they can contribute to long-term food security when covariate shocks, such as COVID-19 have longer-term consequences. Recent studies suggest that COVID-19 had longer-term negative effects on savings and access to credit of savings group members in Nigeria and Uganda (de Milliano et al., 2022; Sanyal et al., 2022). While the negative effects were likely larger in Uganda because of the COVID-19 induced lockdown, we also found evidence for negative effects on savings and credit in Nigeria (de Milliano et al., 2022; Sanyal et al., 2022). These reductions in savings and access to credit may limit the ability of Nigerian savings group members to mitigate the negative effects of new and longer-term covariate shocks (i.e., a resurfacing of COVID-19 restrictions, food price increases, or climate change related shocks, such as droughts and floods). We also plan further testing of the longer-term associations between savings group membership and food security as additional phone survey data are available. These analyses will aim for examining the linkages of the association between savings group membership and food security with other covariate shocks, including food and fertilizer shortages associated with global increases in food prices.

Savings group members and their community may require cash transfers, food assistance, and vouchers to improve their food security outcomes considering the continued reduction in savings in Nigeria reported by de Milliano et al. (2022) and Sanyal et al. (2022). This is even more important considering the difficulties households in northeast Nigeria face caused by low purchasing power and atypically high food prices (FEWS NET, 2022). The Nigerian government could, for example, integrate existing savings group programs with cash transfers or other social protection mechanisms. Recent evidence suggests that integrated social protection programs may achieve larger improvements in food security for Nigerian households than stand-alone programs (e.g., Bossuroy et al., 2022; de Hoop et al., 2022). It will remain important, however, to assess the external validity of these results as well as to examine the costs, cost-effectiveness, and return on investment of such integrated programs.

In addition, it is critical to examine the impact and cost-effectiveness of alternative approaches to improve food security, including but not limited to more cost-effective and nutritionally appropriate food aid formulation (Ignowski et al., 2021). Savings groups may contribute to improving food security, but it is not their main objective. While studies in Malawi, Burkina Faso, and Sierra Leone examined the impacts of food assistance commodities (Kumwenda et al., 2015; Cliffer et al., 2018; Griswold et al., 2020) there is limited evidence on (a) the effects of food assistance programming through supplementation on women's nutrition outcomes, especially in emergency contexts; (b) the risk factors associated with wasting prevalence and causes of relapse; and (c) the long-term nutrition and health impacts of protracted reliance on food assistance in humanitarian contexts. Future research also could focus on examining how specific program design choices may affect nutrition outcomes and at what costs. Achieving this goal requires a strong focus on implementation research and cost-effectiveness analyses.

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