Agriculture and Food Security in the Face of COVID-19: Evidence from High Frequency Phone Surveys in Five African Countries

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Background

• African countries have not been spared of the negative impact of the COVID-19 crisis
• Governments in the region responded by
  • Implementing various containment measures, including nationwide or partial lockdowns
• Possible impacts on food security, as the crisis has the potential to exacerbate an already fragile food security environment
• How is the agriculture sector responding?
  • Serve as a buffer as it has done in previous crisis periods (SOFI 2009)?
• Articulating a policy response requires understanding:
  • how and which households have been impacted
  • the coping mechanisms households are employing
• Micro-level data is necessary to facilitate these understandings, yet government lockdowns disrupted traditional face-to-face household-level data collection
Objectives

Using high-frequency phone survey data from Burkina Faso, Ethiopia, Malawi, Nigeria and Uganda:

1) Examine the impact of the COVID-19 crisis on household agriculture

2) Assess the state of food security in the pandemic environment

Receive inputs from AGF GP colleagues for design of upcoming HFPS rounds.
• Government lockdowns interrupted regular face-to-face (F2F) data collection

• The World Bank’s Living Standards Measurement Study and Poverty GP teams are collaborating with National Statistics Offices and other partners to conduct multiple rounds of phone surveys

• HFPS builds on the foundation of longitudinal household survey programs established under the Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA) program

• A uniform methodology was adopted in sampling, weighting, and implementation across countries, making cross-country comparison feasible

• Data and documentation for all LSMS-supported phone surveys are available at www.worldbank.org/lsms-covid19.
Data – High-Frequency Phone Surveys (HFPS)

• Pre-COVID-19 LSMS-ISA data is used in the calculation of sampling weights that counteract potential selection bias due to:
  o Not being able to interview the LSMS-ISA households without phone contact information.
  o Not being able to reach all targeted LSMS-ISA households - primarily due to phones being off and non-working phone numbers.

• For this analysis → data from five countries: Burkina Faso, Ethiopia, Malawi, Nigeria, and Uganda.

• Note: given the timing of the agricultural seasons, this seminar uses primarily pre-harvest data. Additional data and analysis will be conducted following the harvest.
<table>
<thead>
<tr>
<th>Country</th>
<th>Recent Pre-COVID Face-to-Face Survey</th>
<th>Sample size</th>
<th>Survey Name/Year</th>
<th>Sample size Included in the Analysis</th>
<th>Rounds Included in the Analysis</th>
<th>Months of Survey</th>
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<tbody>
<tr>
<td>Burkina Faso</td>
<td>EHCVM 2018/19</td>
<td>7,010</td>
<td></td>
<td>1,860</td>
<td>1, 2</td>
<td>July, August,</td>
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<td>Ethiopia</td>
<td>ESS 2018/2019</td>
<td>4,954</td>
<td></td>
<td>3,011</td>
<td>1, 2, 3</td>
<td>April/May, June, July</td>
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<td>Malawi</td>
<td>IHPS 2019</td>
<td>3,181</td>
<td></td>
<td>1,646</td>
<td>1, 2</td>
<td>May/June, July,</td>
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<td>Nigeria</td>
<td>GHS-Panel 2018/2019</td>
<td>4,976</td>
<td></td>
<td>1,790</td>
<td>1, 2, 3, 4</td>
<td>April/May, June, July, August</td>
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<td>Uganda</td>
<td>UNPS 2019</td>
<td>3,076</td>
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<td>2,157</td>
<td>1, 2</td>
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</table>
## COVID-19 High-Frequency Phone Surveys

HFPS compares well to last F2F at the household level

<table>
<thead>
<tr>
<th></th>
<th>Nigeria</th>
<th>Ethiopia</th>
<th>Malawi</th>
<th>Uganda</th>
<th>Burkina Faso</th>
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<tbody>
<tr>
<td></td>
<td>Pre-COVID LSMS-ISA</td>
<td>HFPS</td>
<td>Pre-COVID LSMS-ISA</td>
<td>HFPS</td>
<td>Pre-COVID LSMS-ISA</td>
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<td>Sample size (completed interviews)</td>
<td>4,976</td>
<td>1,950</td>
<td>4,954</td>
<td>3,249</td>
<td>3,181</td>
</tr>
<tr>
<td></td>
<td>4,976</td>
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<td>3,249</td>
<td>3,181</td>
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<tr>
<td></td>
<td>Pre-COVID LSMS-ISA</td>
<td>HFPS</td>
<td>Pre-COVID LSMS-ISA</td>
<td>HFPS</td>
<td>Pre-COVID LSMS-ISA</td>
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<tr>
<td>Average household size</td>
<td>5.5</td>
<td>5.5</td>
<td>4.7</td>
<td>4.7</td>
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<tr>
<td>Households head characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Female head (%)</td>
<td>18.6</td>
<td>18.6</td>
<td>30.6</td>
<td>31.1</td>
<td>29.6</td>
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<tr>
<td>Age</td>
<td>48.8</td>
<td>49.2</td>
<td>46.4</td>
<td>46.6</td>
<td>45.9</td>
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<tr>
<td>Literate (%)</td>
<td>74.4</td>
<td>74.4</td>
<td>51.1</td>
<td>49.3</td>
<td>74.2</td>
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<td>Asset ownership</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Television</td>
<td>45.1</td>
<td>48.1</td>
<td>24.1</td>
<td>20.7</td>
<td>15.2</td>
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<td>Refrigerator</td>
<td>17.3</td>
<td>18.7</td>
<td>9.9</td>
<td>7.8</td>
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<tr>
<td>Car</td>
<td>9.6</td>
<td>9.4</td>
<td>2.6</td>
<td>1.9</td>
<td>2.5</td>
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<td></td>
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<tr>
<td></td>
<td>*Based on last face-to-face (F2F) survey, weighted</td>
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</table>
Results: Agriculture
• Share of households involved in agriculture seem higher after the outbreak than before the start of the pandemic

• Across countries, participation is higher for crop than livestock farming
• The share of households that have gone into crop farming appears higher than those that have exited
• Across countries, the percentage of households going into livestock production appears higher than those going into crop farming since the start of the pandemic
• More households have exited livestock farming in Uganda than those entering
• Increase in participation seems higher among urban than rural households, except for livestock farming in Uganda.

• About 25% of urban households in Nigeria who did not undertake crop farming pre-pandemic are doing in the current season, compared to 7% rural households.
Households reported income loss since the start of the pandemic.

As lockdown eases, the share reporting income loss reduces.

While agriculture has been impacted by the pandemic, the effect seems less compared to other sources of livelihood.

Non-farm business and remittances seem the most affected across time.
Has your household been affected by …… since mid-March?

- **Input price shock**
  - Malawi – 29%
  - Nigeria – 46%
  - Uganda – 6%

- **Output price shock**
  - Malawi – 30%
  - Nigeria – 22%
  - Uganda – 11%
• There is some evidence of household’s having issues crop farming

• 34% of farming households in Nigeria not able to farm as normal in April/May

Percentage of households **unable** to conduct their agricultural activities normally
Crop output and sales expectation among farming households in Nigeria

- Most crop farming households in Nigeria have positive outlook for output and sales
- Mild worsening of expectations over time for crop harvests

Expectations concerning crop harvests (% of agriculture households)

Expectations regarding revenue from crop sales (% of agriculture hhs who normally sell)
• While expectations for livestock sales improved between August and September
Food Security in the COVID-19 World
Food insecurity as a pre-pandemic problem

Integration of the Food Insecurity Experience Scale (FIES) questions in the HFPS allows for current and repeated assessments of the prevalence of food insecurity.

Adjustment to reference period from 12 mo to 30 days.

Prevalence of Food Insecurity (% of adults)

- Burkina Faso: Moderate or Severe 42, Severe 8
- Ethiopia: Moderate or Severe 47, Severe 13
- Malawi: Moderate or Severe 72, Severe 31
- Nigeria: Moderate or Severe 76, Severe 34
- Uganda: Moderate or Severe 43, Severe 9

Food insecurity in the face of the pandemic
Those in poorer households experience disproportionately high rates of food insecurity.
Food insecurity more prevalent in rural areas

Prevalence of Moderate or Severe Food Insecurity (% of adults)
**COVID-19 High-Frequency Phone Surveys**

**Incidence of Specific Food-Related Behaviors**

- **Burkina Faso**: Majority of households had a member who worried they wouldn’t have enough food in the last 30 days.
- **Ethiopia**: As many as 71% of households had a member that skipped a meal in the last 30 days.
- **Malawi**: At least 10% of all households in each country had a member who went a whole day without eating in the last 30 days.

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**Prevalence of food insecurity: what does it look like?**
Linking the HFPS with the LSMS-ISA supported GHS-Panel survey in Nigeria allows for tracking of food security status over time.

- **Moderately or Severely Food Insecure**
  - 71% of households considered secure in 2018 were **moderately or severely** food insecure in 2020.

- **Severely Food Insecure**
  - 43% of households not severely insecure in 2018 were **severely** food insecure in 2020.
Households are enduring a variety of shocks, including those brought on by the pandemic, locusts, oil prices...

- Over **83%** of households reported experiencing at least one shock in Nigeria, Malawi, and Burkina Faso

- **Food price shocks** were among the most common:
  - 66% in Malawi
  - 90% in Nigeria
  - 53% in Burkina Faso
Unpacking today’s food insecurity

Households reducing food consumption to cope with shocks

66% of households reducing food consumption to cope with shocks in Nigeria (July 2020)

Statistically similar incidence across consumption quintiles, generally
Implementation of HFPS in consecutive months allows for tracking changes over time.

Evidence of increasing food insecurity as the pandemic continues.

Reduction in food consumption increasing most dramatically amongst poorer households.

Households reducing food consumption to cope with shocks, over time.
Conclusions

• Agriculture seems to be acting as a buffer for households in the region
  • Households transitioning into agriculture since the start of the pandemic
  • Transition is more prevalent among urban than rural households
  • Majority of households are able to perform their agricultural activities normally
  • However, households are still experiencing input and output shocks

• Food security situation remains fragile across the region, particularly for the poor and rural.
  • Evidence of a worsening food security situation as COVID continues to disrupt normal activities, particularly in Nigeria

• Phone surveys offer an opportunity to monitor and understand agriculture and food security as the pandemic (and other confounding crises) persists
Resources

• **World Bank LSMS-Supported HFPS on COVID-19**
• **Questionnaire Template for HFPS on COVID-19** and **Interviewer Manual** (World Bank)
• **Sampling Guidelines for HFPS on COVID-19** (World Bank)
• **CATI Implementation Guidelines for HFPS on COVID-19** (World Bank)
• **Mobile Phone Panel Surveys in Developing Countries: A Practical Guide for Microdata Collection** (World Bank)
• **Data Collection in Fragile States: Innovations from Africa and Beyond** (World Bank)
• **Listening to Africa; Listening to Tajikistan** (World Bank)
• **Phone Surveys for Understanding COVID-19 Impacts: Sampling and Mode** (World Bank)
• **Phone Surveys for Understanding COVID-19 Impacts: Response, Quality and Questions** (World Bank)
• **Reducing Attrition in Phone Surveys** (World Bank)
Timing of HFPS and COVID-19 Government Response Stringency Index

COVID-19 High-Frequency Phone Surveys

Nigeria

Malawi

Uganda

COVID-19 Government Response Stringency Index

HFPS
• Across countries, the movement of households into crop farming since the outbreak seems to be more prevalent in urban than in rural locations.

• About 25% of urban households in Nigeria who did not undertake crop farming pre pandemic are doing in the current season, compared to 7% rural households.