

Resilience in the Malawi Agri-food System Amid the COVID-19 Crisis

Evidence from a 2021 nationally representative household survey

Catherine Ragasa, Kelvin Balakasi, and Lucia Carrillo

Abstract

This report provides a farm-level analysis of the effects of the COVID-19 crisis, 12–15 months in, using a nationally representative rural household survey conducted in June–July 2021. We draw three major observations from the survey. First, farming activities, access to inputs and extension services, production, and sales were largely unaffected by the crisis. There were temporary challenges in accessing inputs during lockdown and mobility restrictions, and input prices and transportation costs increased; however, production and sales volume and value were largely unaffected. Second, although farming was not affected, other nonfarm livelihoods of a large proportion of farmers were negatively affected because of lower demand and fewer buyers. Eighty-two percent of rural households were engaged in various nonfarm livelihoods, and 32 percent reported negative impacts of the crisis on their nonfarm incomes. Third, direct responses from sample households indicate no negative impacts of the crisis on food access and food consumption by most rural households. Comparisons between 2018 and 2021 of various food security indicators show improvements in food access and dietary diversity. Improvements are likely attributable to better harvests overall and greater awareness of the need to eat healthy and nutritious foods to combat COVID-19 and other diseases. Results show overall resilience of rural households and the agriculture sector amid the COVID-19 crisis. Nonetheless, the survey was conducted right after harvest, and the situation needs to be monitored during the lean season.

1. Introduction

Malawi's economy is predominantly agrarian, with the agriculture and food sector (AFS) contributing profoundly to livelihoods, food and nutrition security, and economic growth (MoAIWD 2018). The economy's heavy dependence on the AFS makes both Malawi as a whole and its AFS in particular vulnerable to external shocks such as the COVID-19 crisis. Both the direct and indirect impacts of COVID-19 are likely to have significant effects on the welfare of the people and the economy in general, related, in part, to the predominant role of agriculture in Malawi's economy (Chadza et al. 2020; Baulch et al. 2021). Estimates show that the AFS gross domestic product (GDP) declined because of income losses and supply chain disruptions, even though food supplies were exempt from lockdown restrictions. An estimated 36 percent of the national GDP losses (which range from 6.2 percent to 7.7 percent from 2019 levels) came from the AFS (Pauw et al. 2021).

During the survey (June–July 2021), Malawi continued to experience a third wave of the COVID-19 pandemic. Recent data indicate that—unlike the trend in the first and second waves of the pandemic, during which most cases were reported in the cities of Blantyre, Lilongwe, and Mzuzu—75 percent of newly reported cases in the current wave were in rural areas.¹ As of November 18, 2021, Malawi had recorded a cumulative total of 61,815 cases, including 2,302 deaths, with a case fatality rate at 3.72 percent.² As of August 5, 2021, 463,236 people had received the first dose of a COVID-19 vaccine and 158,982 the second dose.³ On August 7, 2021, Malawi received 302,400 doses of the single-dose Johnson & Johnson vaccine, raising the total of vaccine doses thus far received in the country to 814,000.

Although the COVID-19 response measures implemented by the government of Malawi have been essential for mitigating the spread of the disease and saving lives, the people engaged in Malawi's agri-food system are highly likely to experience adverse economic effects. Measures such as restrictions on movement and regulations on when agricultural produce markets may be open could negatively affect farmers by curtailing their access to their fields, farm input sellers, and outputs markets. Previous authors have emphasized that little attention seems to have been paid to AFS, with many of the measures understandably skewed toward the immediate concerns for the health sector and social protection (Chadza et al. 2020). It is crucial to continue to monitor the impact of COVID-19 crisis on this critical sector.

This Note looks at the perspective of small-scale rural households in Malawi using a nationally representative sample of 2,445 households covering issues related to agricultural production, marketing, and food security during 2018 (prior to the COVID-19 crisis) and 2021 (12–15 months into the COVID-19 crisis). It complements other available studies that have looked at the immediate impact of COVID-19 in early 2020 (Chadza et al. 2020), simulations of the economic impact (Baulch et al. 2020; Pauw et al. 2021), and the monitoring of rural and urban food security (WFP 2021).

¹ UNICEF Malawi, *Malawi COVID-19 Situation Report* for the period July 1–August 10, 2021, August 10, 2021.

² Daily updates can be monitored at covid19.health.gov.mw/.

³ UNICEF Malawi, *Malawi COVID-19 Situation Report*, August 10, 2021.

2. Methods

This Note is based on the household panel survey data collected in July–August 2016, July–August 2018, and June–July 2021 by the International Food Policy Research Institute (IFPRI) and Wadonda Consult to monitor the status of agricultural extension and technology adoption (see details at <https://www.ifpri.org/project/pluralistic-extension-system-malawi>). It is a nationally representative survey covering all districts except Likoma. The sampling is proportional to the size or number of rural populations in the district, so that each rural household has an equal chance of being selected for the survey. To account for oversampling in some of the districts—for example, some districts of interest were oversampled to allow for analysis at the district level—sampling weights were applied so that the sample remains representative to the total rural population in the districts of interest.

The survey questionnaire covers multiple topics, including plot-level production, engagement in several agricultural and nonagricultural activities, food security, measures of assets and expenditures, access to extension services from various sources, and awareness and adoption of different agricultural practices. In the 2021 round, we included questions that ask respondents directly about whether they were affected by the COVID-19 crisis and how they were affected, using yes/no, Likert scale (1=not affected, 2=somewhat affected, 3=affected, 4=severely affected), and open-ended questions. Most of the questions relate to the 2020/21 cropping season, from land use decisions and access to inputs, labor, services, and information to changes in production practices, marketing, and sales. We also asked about changes in other farm and nonfarm enterprises and other income-generation activities.

The data set covers panel households interviewed in 2016, 2018, and 2021. We used the 2018 data to illustrate the status just before COVID-19 and the 2021 data to illustrate the status 12 to 15 months into the crisis. The original 2016 sample is 3,001 households, and the total 2021 sample is 2,445 households, with 19 percent attrition. To address any attrition bias, we ran a probit model modeling the factors associated with successful reinterview (versus attrition) and used the inverse probability from this probit model as weight in the descriptive statistics. It must be noted that the comparison between 2018 (pre-COVID) and 2021 (during COVID) can be partly attributable to the COVID-19 crisis and affected by other factors. Nonetheless, direct responses from farmers provide strong indications of the impact of the COVID-19 crisis from their own perspectives.

3. Results

3.1 Changes in area cultivated, crop production, and sales

According to the information gathered from the 2018 and 2021 household surveys, the average area cultivated was similar between 2018 and 2021 (Table 1). Results suggest that the average and median quantity of crops harvested and productivity per hectare have increased for plots with maize. Sample households cultivated few plots without maize, and, in these plots, we see a decrease in the average production and an increase in the median from 2018 to 2021, which indicates more nonmaize plots with high production and yield values in 2018 and more nonmaize

plots with low production and yield values in 2021. In terms of actual sales (by June–July 2018 and June–July 2021), we see similar average sales value; the percentage of produce sold in some crops has decreased and yet has increased for other crops (Tables 1 and 2).

Table 1. Cultivated area, production, and sales, 2018 vs. 2021

Year	Mean	Median	SD	Min	Max	N
Average cultivated area per HH (ha)						
2018	1	0.8	0.8	0.007	9.2	2,627
2021	1	0.8	1.3	0.01	17.4	2,449
Average production per HH, plots with maize (kg)						
2018	749	350	2,128	100	112,050	2,537
2021	1,140	550	1,816	100	23,000	2,355
Average productivity per HH, plots with maize (kg/ha)						
2018	1,287	926.6	1,250.7	100	10,000	2,537
2021	1,738	1,235.5	1,660.7	100	12,940	2,355
Average production per HH, plots without maize (kg)						
2018	1,535	250	5,719.9	100	40,000	90
2021	1,152	350	2,887	100	19,200	94
Average productivity per HH, plots without maize (kg/ha)						
2018	1,379	617.8	1,935	100	10,000	90
2021	1,289	803.1	1,511	100	8,031	94
Sales value (MK)						
2018	21,155	1,580	85,324	0	1,368,550	2,601
2021	20,756	0	91,885	0	2,342,660	2,448

Source of raw data: IFPRI/Wadonda household surveys (July–August 2018; June–July 2021). HH = household; kg/ha = kilograms per hectare; MK = Malawi kwacha; SD = standard deviation.

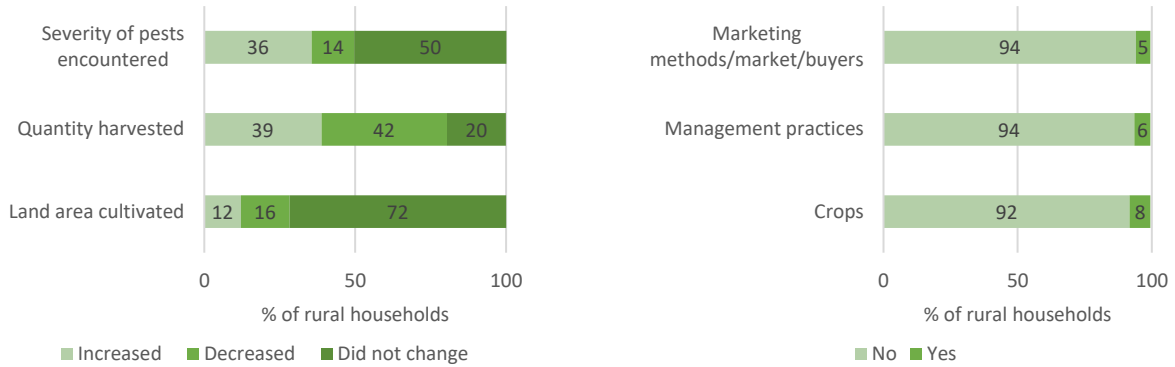
Table 2. Percentage of commercialization by crop type, 2018 vs. 2021

Average percentage of sales by crop type				
Crop type	2018		2021	
	% of sales	Number of farmers producing	% of sales	Number of farmers producing
Maize (Chimanga)	6	2,474	4	2,253
Rice (Mpunga)	31	109	26	145
Cereals (wheat, millet, sorghum)	5	379	3	304
Tubers/Rootcrops	40	347	49	142
Beans (Nyemba), including soybean	27	1,522	36	937
Groundnut (Mtedza)	22	991	22	668
Vegetables	6	703	8	364
Oilseeds (sunflower, sesame)	64	43	86	45
Fibers	90	86	97	36
Tobacco (Fodya)	93	203	74	95
All (average)	19	6,861	17	4,995

Source of raw data: IFPRI/Wadonda household surveys (July–August 2018; June–July 2021). Note that the survey months were June–July 2018 and 2021, and some farmers may not have harvested or sold their produce yet.

Direct responses from sample households also indicate similar trends in 2021 for most indicators, although with varying responses on the quantity harvested (Figure 1). Seventy-two percent of respondents reported the same area harvested; over 90 percent reported the same production management practices, crops, and marketing practices between 2018 and 2021. When asked about severity of crop pests and diseases encountered, half mentioned no change, 36 percent reported increased severity, and 14 percent reported decreased severity. On quantity harvested, responses varied, with 20 percent reporting the same, 39 percent reporting an increase, and 42 percent reporting a decrease.

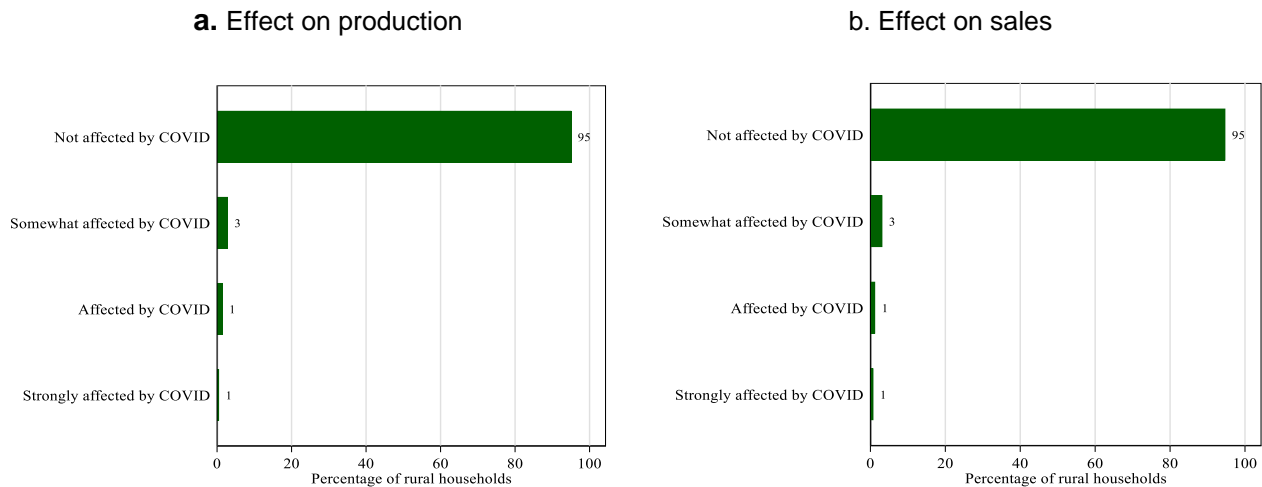
Figure 1. Changes in agricultural production and marketing indicators between 2018 and 2021 (% of rural households)



Source of raw data: IFPRI/Wadonda rural household survey (June–July 2021).

When asked about the effect of the COVID-19 crisis on their crop production and sales, 95 percent of the sample households reported that their crop production and sales during the 2020/21 cropping season were not affected; only 5 percent reported that their crop production and sales had been affected (Figure 2).

Figure 2. Effect of the COVID-19 crisis on crop production and sales (% of rural households)

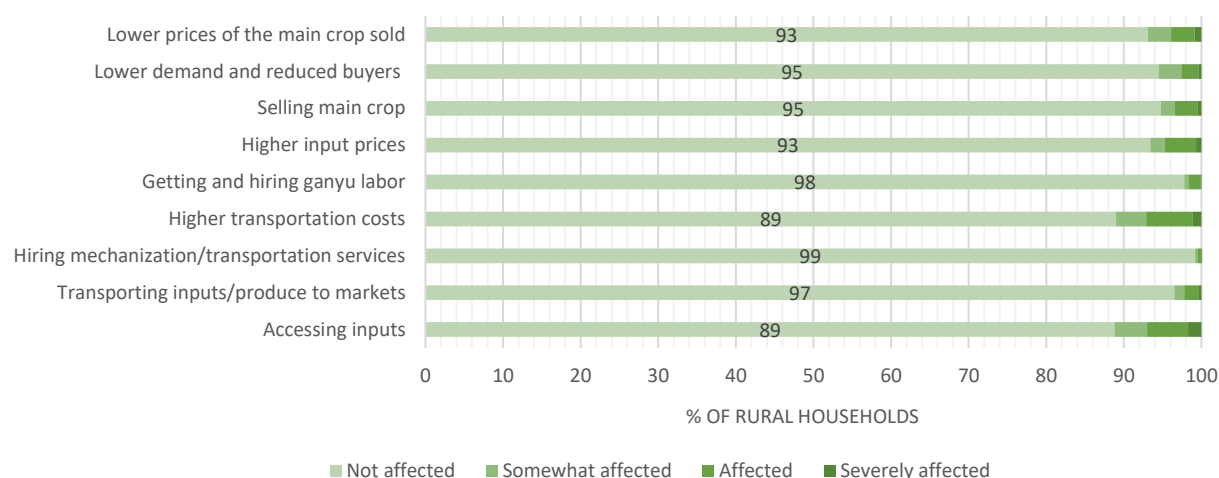


Source of raw data: IFPRI/Wadonda rural household survey (June–July 2021).

We asked the respondents to rate the effect of COVID-19 on specific activities using a Likert scale (1=not affected, 2=somewhat affected, 3=affected, 4=severely affected). Eighty-nine percent of households mentioned that they were not affected by or did not face difficulties during

the COVID-19 crisis on their access to input and output markets, labor, and other services (Figure 3). Eleven percent reported difficulties in accessing inputs or problems with higher transportation costs. Seven percent reported lower prices for the main crop sold or higher input prices. When asked for specific descriptions of these difficulties, households mentioned that many were caused by government restrictions imposed in response to the pandemic. “Closing of borders and movement restrictions caused low supply of inputs,” said one farmer. “Transport costs were high due to movement restrictions,” said another farmer. “Markets were closed due to COVID-19 so we could not buy inputs and even buy some food and essential things,” said another farmer.

Figure 3. Difficulties faced during the COVID-19 crisis (% of rural households)



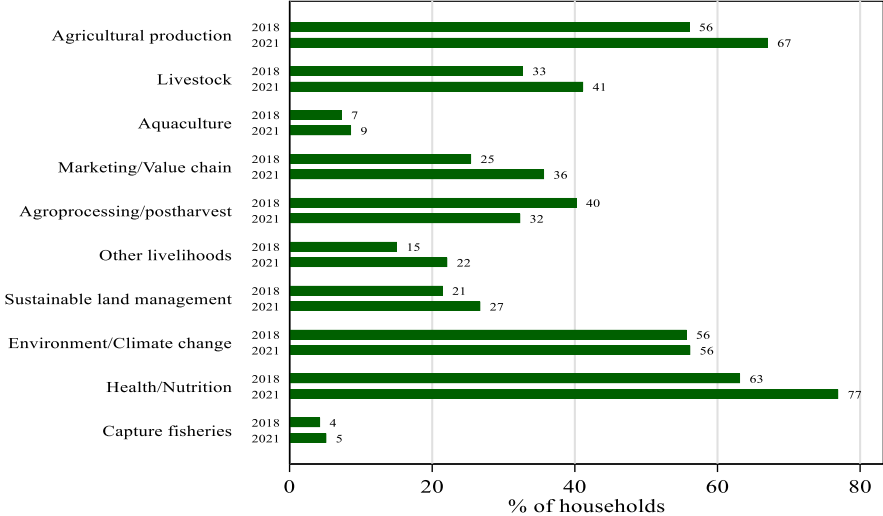
Source of raw data: IFPRI/Wadonda household survey (June–July 2021).

Note: Ganyu labor describes an arange of short-term rural labour relationships. The most common activities related are piecework weeding or ridging on the fields of other smallholders, or on agricultural estates.

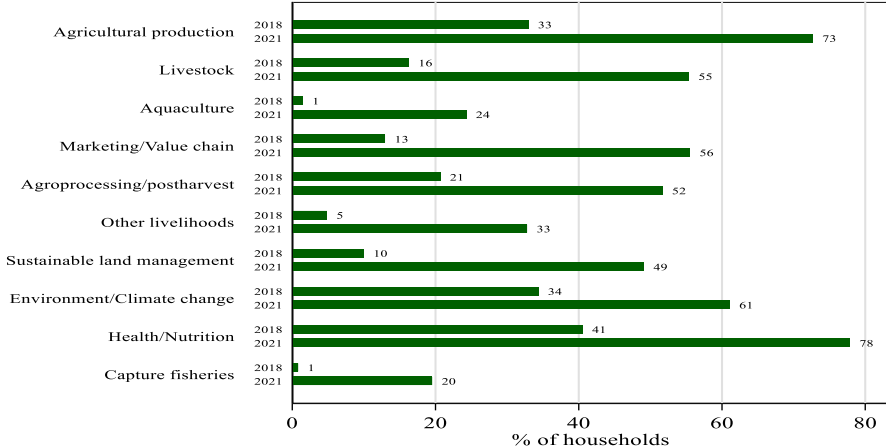
The survey also asked how access to extension services was affected by the COVID-19 crisis. When comparing changes in access to extension services in the previous two years, by topic, between 2018 and 2021, survey results showed that the percentage of households having access to different extension services topics increased in 2021 (Figure 4a). For access to extension services access in the previous 12 months, the increase from 2018 to 2021 was even larger (Figure 4b).

Figure 4. Access to extension services, by topic, 2018 vs. 2021 (% of rural households)

a. Received advice in the past two years



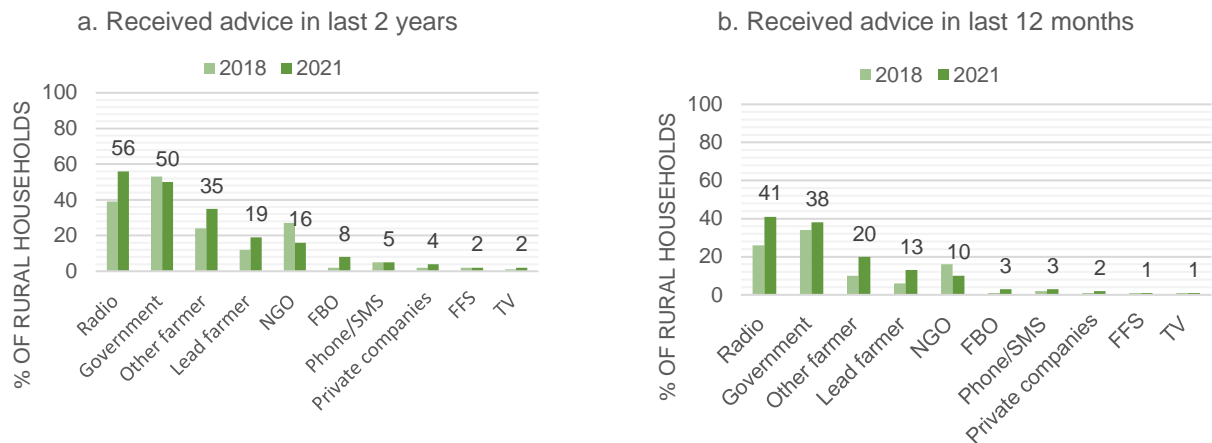
b. Received advice in the past 12 months



Source of raw data: IFPRI/Wadonda household surveys (July–August 2018; June–July 2021).

Regarding the source of advice for agriculture topics, access to radio programming increased significantly during COVID-19, as did advice from lead farmers, other farmers, and farmer-based organizations or groups (Figure 5). Conversely, face-to-face visits and advice from non-governmental organization agents decreased in 2021 compared to 2018.

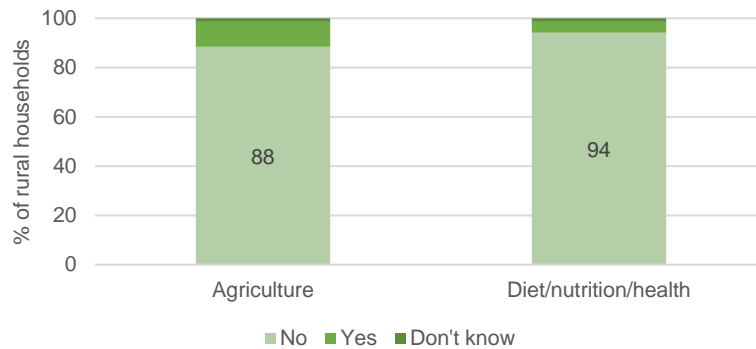
Figure 5. Access to agriculture advice, by source, 2018 vs. 2021 (% of rural households)



Source of raw data: IFPRI/Wadonda household surveys (July–August 2018; June–July 2021). FBO = farmer-based organizations; FFS = farmer field schools; NGO = nongovernmental organization; SMS = Short Message Service.

When asked directly if their access to extension services related to agriculture or nutrition changed during the COVID-19 crisis, respondents answered overwhelmingly that the pandemic had not affected their access to extension services (Figure 6).

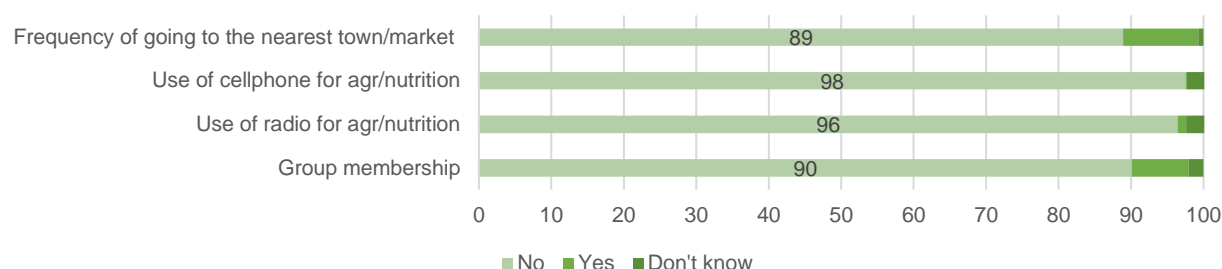
Figure 6. Changes in information and advice about extension services (% of rural households)



Source of raw data: IFPRI/Wadonda household survey (June–July 2021).

Figure 7 displays information about changes in means of access to extension services. Survey results suggest that between 89 and 98 percent of households reported not perceiving any changes in means of access, such as frequency of going to the nearest town/market, use of cell phone for agriculture/nutrition extension service, use of radio for agriculture/nutrition extension service, or group memberships.

Figure 7. Changes in means of access to extension services (% of rural households)



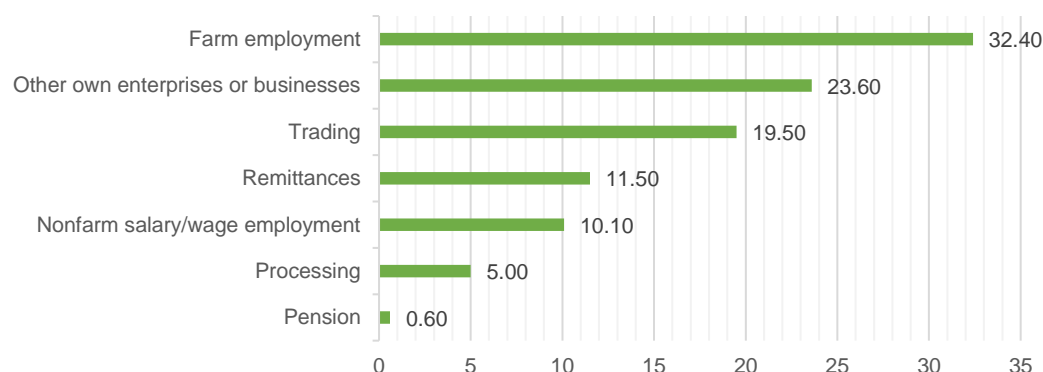
Source of raw data: IFPRI/Wadonda household survey (June–July 2021).

3.2 Changes in other farm and nonfarm livelihoods

Most rural households have multiple sources of income in addition to crop farming. Seventy-three percent of rural households had some livestock (mainly chicken and goats), and 13 percent reported that the COVID-19 crisis had affected their livestock management practices and production. The national survey captured few households engaged in aquaculture and fisheries (only 11 households engaged in these activities); all except 1 of those 11 reported that they were not affected by the COVID-19 crisis.

In terms of other sources of income during 2021, 82 percent of households were engaged in some nonfarm livelihoods. About 32 percent of rural households reported farm employment, 24 percent reported owning other enterprises, and 20 percent reported trading (Figure 8). Less than 12 percent of households reported other sources such as remittances, nonfarm employment, processing, and pensions.

Figure 8. Other sources of income in 2021 (% of rural households engaged)

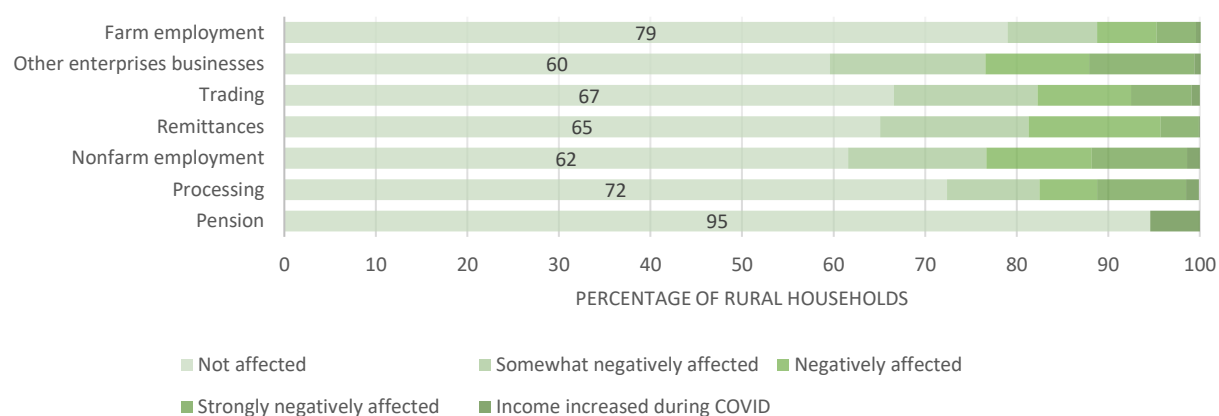


Source of raw data: IFPRI/Wadonda household survey (June–July 2021).

When asked about the effects of the COVID-19 crisis on other sources of income, most households reported not being affected, but a greater proportion of households reported some effects

of COVID-19 crisis on these other sources of income. The pandemic most affected own enterprises or businesses (40 percent of households), mainly because of lower demand or fewer buyers (Figure 9). Thirty-eight percent reported that their nonfarm salary employment was affected by the crisis mainly because of less demand for their labor or no hiring. A third of households reported that income from remittances or from their trading or processing business was affected. The macro-level changes and external shocks (such as reduced tobacco export revenues, declining foreign remittances, losses in foreign direct investment, and the collapse of the tourism industry and the associated services) described in Baulch et al. (2021) and Pauw et al. (2021) seem to have manifested in the nonfarm livelihoods and incomes of rural households more than their farm incomes.

Figure 9. Effect of COVID-19 on other sources of income (% of rural households)

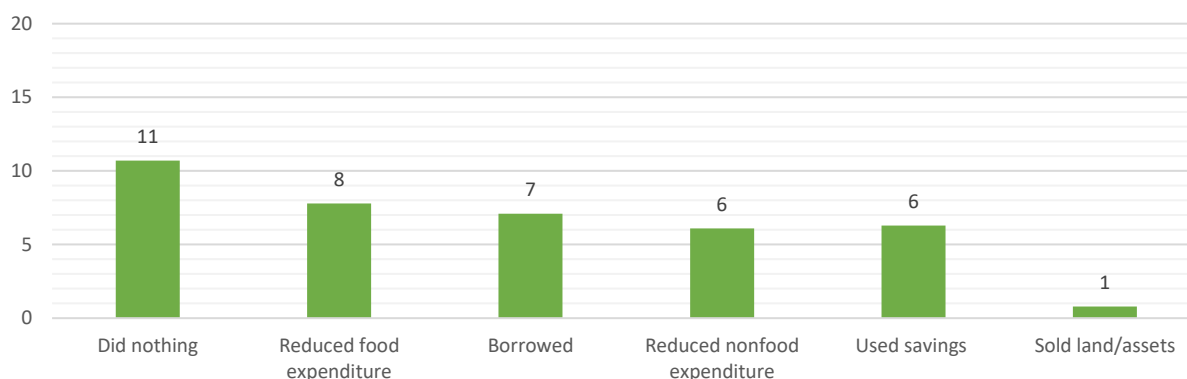


Source raw data: IFPRI/Wadonda household survey (June–July 2021).

3.3 Coping strategies used by households to deal with the COVID-19 crisis

Fifty-five percent of households reported maintaining income during the COVID-19 crisis, whereas 45 percent reported losing income. Most of those affected had some coping mechanisms, although 11 percent said they did not and could not do anything. To cope with income loss, 8 percent of households reported reducing food expenditure, 7 percent reported borrowing some money, 6 percent reported reducing nonfood expenditure or using savings, and 1 percent reported selling assets (Figure 10).

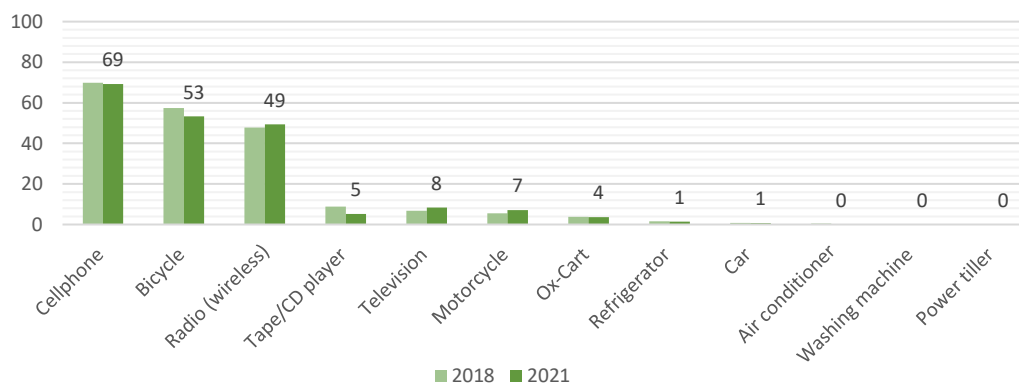
Figure 10. Coping strategies to deal with income loss during COVID-19 (% of rural households)



Source of raw data: IFPRI/Wadonda household survey (June–July 2021). About 6 percent reported being affected negatively by COVID-19 but did not provide any coping mechanism.

Comparing asset ownership data between 2018 and 2021, we found no significant difference, consistent with the few households reporting distress sale of assets as a coping strategy in response to the COVID-19 crisis (Figure 11). Assets were largely maintained during the COVID-19 crisis.

Figure 11. Percentage of rural households, by type of asset ownership, 2018 vs. 2021



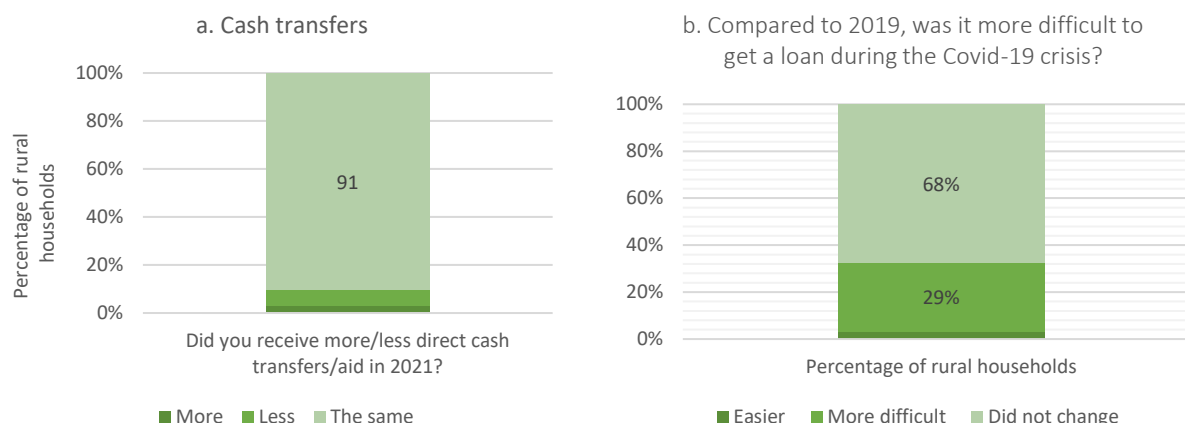
Source of raw data: IFPRI/Wadonda household surveys (July–August 2018; June–July 2021).

3.4 Changes in transfers

To analyze the effect of the COVID-19 crisis on cash transfers and loans, we gathered information about changes in the amount of cash transfers received in 2021 and the difficulty of getting a loan in 2021 compared to 2019. Although only 13 percent of households reported receiving cash transfers in 2018, survey results show that 91 percent of these households received

the same amount in 2021 (Figure 12). Moreover, in terms of loan difficulty, 35 percent of households had at least one member apply for a loan in 2021; 68 percent of households reported that the difficulty did not change, but 29 percent reported otherwise.

Figure 12. Changes in cash transfers and loan difficulty (% of rural households)



Source of raw data: IFPRI/Wadonda household survey (June–July 2021).

3.5 Changes in food security measures

We compared the results of the household dietary diversity score (HDDS) and the food consumption score (FCS) for 2018 and 2021 using the 2018 and 2021 surveys. We found no significant changes in the HDDS but some significant improvements in the FCS indicator between 2018 and 2021 (Table 3). Whereas in 2018 the mean value of the index score was 37 for all households, in 2021 it was 45.

Table 3. Food security indicators, HDDS and FCS, 2018 vs. 2021

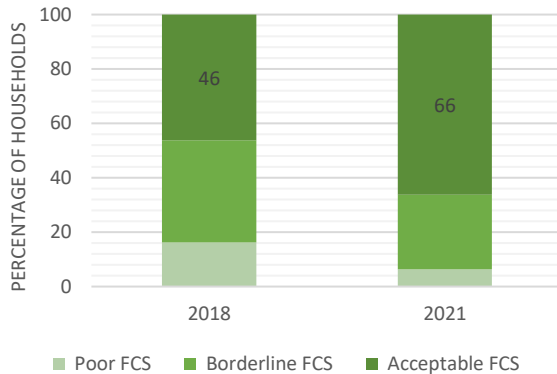
Year	Mean	Median	Sd	Min	Max	N
HDDS						
2018	5.5	5.0	1.8	1.0	10.0	2,587
2021	7.0	7.0	1.9	1.0	10.0	2,445
FCS						
2018	37.4	34.0	16.5	2.0	126.0	2,587
2021	44.8	42.5	17.7	5.0	126.0	2,445

Source of raw data: IFPRI/Wadonda household surveys (July–August 2018; June–July 2021).

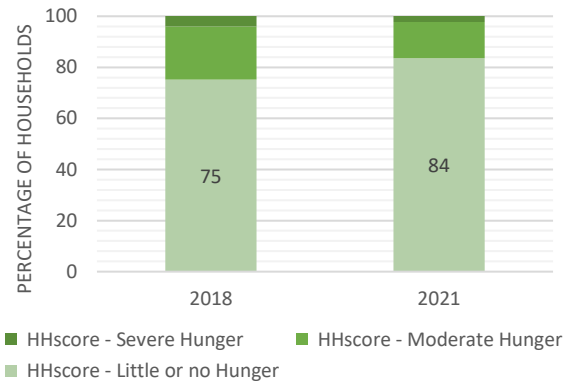
Furthermore, results show that the percentage of households with an acceptable FCS has increased from 46 percent in 2018 to 66 percent in 2021—amid the COVID-19 crisis (Figure 13). Similarly, the percentage of households with a household hunger score (HHS) suggesting little or no hunger increased between 2018 and 2021 from 75 percent to 84 percent.

Figure 13. Food security status, 2018 vs. 2021 (% of rural households)

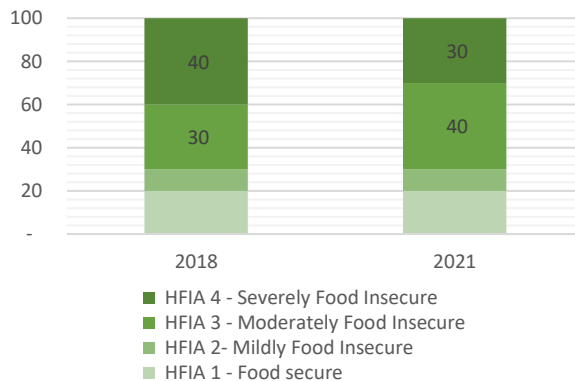
a. Based on food consumption score



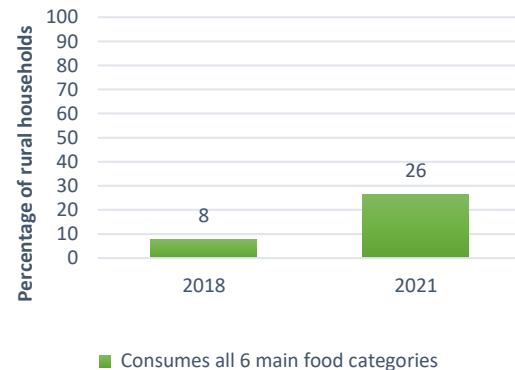
b. Based on household hunger score



c. Based on Household Food Insecurity Access (HFIA) Score



d. Based on minimum food requirement in Malawi



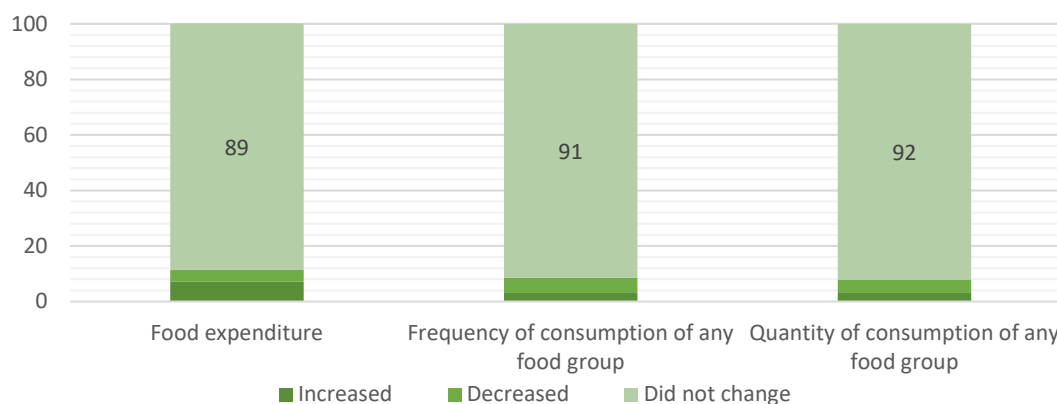
Source of raw data: IFPRI/Wadonda household surveys (July–August 2018; June–July 2021).

We then analyzed changes in food category consumption between 2018 and 2021. Percentages of households consuming all six main food categories increased from 8 percent in 2018 to 26 percent in 2021, despite the COVID-19 crisis.

We also directly asked the respondents about the changes they experienced in food access and consumption. Eighty-nine percent of households reported no changes in their food expenditure, 91 percent reported no change in their frequency of consumption, and 92 percent reported no

change in the quantity of their consumption of any food group (Figure 14). Very few households had decreases and few had increases in these indicators.

Figure 14. Changes in food security measures from 2018 to 2021



Source of raw data: IFPRI/Wadonda household survey (June–July 2021).

4. Conclusions

This report provides a farm-level assessment of the effects of the COVID-19 crisis, 12–15 months in, using a nationally representative rural household survey conducted in June–July 2021. We draw three major observations from the survey. First, farming, production, and sales were largely unaffected by the crisis. There were temporary challenges in accessing inputs during lockdown and mobility restrictions, and increases in input prices and transportation costs; however, production and sales volume and value were largely unaffected in the 2020/21 cropping and selling seasons. Ninety-five percent of rural households reported that the crisis did not affect their production practices, quantity harvested, or sales. The 2020/21 cropping season covered by the survey was also the first year of implementation of the new Affordable Input Programme, which replaced the Farm Input Subsidy Programme. The new program was implemented despite numerous logistical challenges unrelated to the COVID-19 crisis. Evidence shows that, even with the COVID-19 crisis, the program realized the following benefits: assistance to more beneficiaries, greater use of inorganic fertilizer, and greater productivity and production in 2020/21 than in the 2017/18 cropping season.

Second, although farming was largely unaffected, nonfarm livelihoods of the rural households were affected. In 2018, 82 percent of the rural households had other livelihoods aside from farming; in 2021, 32 percent reported that their nonfarm livelihoods were negatively affected by the crisis. Of the one-third of rural households engaged in trading or other enterprises, 40 percent reported negative impacts of the crisis on their livelihoods.

Third, direct responses from sample households indicate no negative impacts of the crisis on food access or food consumption by most rural households. Surprisingly, comparisons between 2018 and 2021 of various food security indicators show improvements in food access and dietary diversity. These improvements are likely attributable to better harvests overall and greater awareness of the need to eat

healthy and nutritious foods to combat COVID-19 and other diseases. Results show overall resilience of rural households and the agriculture sector amid the COVID-19 crisis. Nonetheless, the survey was conducted right after harvest, and the situation needs to be monitored during the lean season.

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