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A MULTI-PHASE ASSESSMENT OF THE EFFECTS OF COVID-19 ON FOOD SYSTEMS AND RURAL LIVELIHOODS IN SUB-SAHARAN AFRICA

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APRA COVID-19 Synthesis Report 3
April 2022

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Acknowledgements

We would like to thank the APRA Country Teams in Ethiopia, Ghana, Malawi, Nigeria, Tanzania and Zimbabwe, and APRA partners at the Tegemeo Institute of Agricultural Policy and Development in Kenya and the University of Zambia, for collecting and providing the key informant interview data and multi-phase assessment reports on which this paper draws. We would also like to thank Susanna Cartmell and Olivia Frost in the APRA Impact, Communication and Engagement Team for their helpful editorial assistance on this paper and the entire APRA COVID-19 series. Finally, we would like to thank our external reviewer for constructive comments and guidance.

We would also like to acknowledge the support of Rachel Sabates-Wheeler in reviewing the research design.

Funding for this research was provided through the APRA Programme contract from UK Foreign, Commonwealth and Development Office to the Future Agricultures Consortium's Directorate at the Institute of Development Studies, UK.

Ethiopia

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Key findings

- This paper presents the results of a three-round assessment (combining a telephone survey and key informant interviews) of the effects of COVID-19 on the farming, labour and marketing practices, food and nutrition security, and well-being of over 800 male- and female-headed rural households in eight countries – Ethiopia, Ghana, Kenya, Malawi, Nigeria, Tanzania, Zambia and Zimbabwe.
- Tracking these households and communities for nearly a year (May 2020 to March 2021), we find that state responses to the COVID-19 pandemic – in the form of mobility restrictions, suspension of markets, businesses and schools, and other restrictions – had a measurable effect on their local food systems and livelihoods.
- These disruptions were exacerbated by a set of intersecting environmental and social crises – e.g., civil conflict and insecurity, droughts and floods, pest infestations, and other shocks and stresses, which occurred over the same period in the study communities.
- The shock of COVID-19 did not result in a food production crisis, as had been predicted by many international agencies and experts at the start of the pandemic. Instead, many households continued to operate their farms and household/business enterprises, even with limited access to agricultural inputs, labour and credit, various restrictions on transport, and the closure of local, domestic, regional and international markets. Some even reported good harvests at the end of their growing seasons.
- However, government control measures did lead to a multi-dimensional income-nutrition-livelihood crisis for some of the study households and communities, mainly by causing economic activities to decline. This, in turn, led to a significant loss of income and reduced purchasing power for many, and a multitude of food-system wide shocks.
- By the end of the third-round survey, we find that, as most governments had relaxed or even removed many of their original COVID-19 control measures, several study households and communities had managed to adapt their farming and economic activities and continued to operate.
- However, some households appeared to be less resilient than others, particularly those poor and vulnerable households who had already been exposed to existing inequities and insecurities, making them more vulnerable to the COVID-19 restrictions and other shocks and stresses. As prices rose for key inputs, farm labour, transport, and food products and incomes declined, their food and nutritional security suffered, and they struggled to maintain control over their lives.
- Furthermore, the location of our study communities also played a role, as those that are situated closer to or are more connected to urban markets (as in the Kenyan or Nigerian context) or are engaged in cross-border trade (as in Zambia), faced more severe effects than some others.

1. Introduction

Since it began in early 2020, the COVID-19 pandemic led to considerable concerns about the viability of local food systems and rural livelihoods across sub-Saharan Africa. At the start of the crisis, the World Food Programme projected a doubling of the number of people going hungry in the year following the outbreak of the virus, with severe outcomes for sub-Saharan Africa (Anthem, 2020; FSIN, 2020). However, as the emergency unfolded, global agricultural markets were forecasted to remain stable well into 2021 (Schmidhuber, 2020), with evidence from various phone-based surveys and rapid studies suggesting that food value chains had been more resilient than originally predicted (Hirvonen *et al*., 2020; Tesfaye *et al*., 2020; Hirvonen *et al*., 2021). Yet, this should not detract from the short-term risks to food and nutrition security and livelihoods that continue to be felt unevenly in many rural areas (Carreras *et al*., 2020a; Carreras *et al*., 2020b; Reardon *et al.*, 2020).

In this paper, we argue that when we closely examine the lived experiences of people in different

country contexts, results suggest that the immediate restrictions and strict control measures imposed by governments at the start of the pandemic on social and commercial activities acted as a major shock to the well-being of many rural households and communities (GHI, 2020; WFP, 2020). Furthermore, while some households and communities were able to find ways to cope or adapt to the COVID-19-related disruptions, for others the pandemic coincided with a number of other shocks and stresses (extreme weather events, locust infestations, conflict and insecurity, or a combination of these), exacerbating some of the observed risks. Overall, our multi-phase assessment found differential effects in the selected study sites and across households, with those least able to cope often the most affected.

This paper presents findings from a three-wave assessment, led by the Agricultural Policy Research in Africa (APRA) Programme of the Future Agricultures Consortium (FAC), to examine how COVID-19 affected local food systems and rural livelihoods in eight countries – Ethiopia, Ghana, Kenya, Malawi, Nigeria, Tanzania, Zambia and Zimbabwe. It builds on phone-based household surveys and key informant interviews conducted in those countries in June-July 2020 (R1), October-November 2020 (R2), and February-March 2021 (R3).[1] For each study context, we drew on pre-pandemic data gathered by the APRA Programme and partners to enable us to purposively select specific locations in each country for a deeper dive and monitoring of responses and developments over the three rounds.

The paper is divided into five sections. Following the introduction, Section 2 provides a brief review of the context in which COVID-19 disrupted food systems and livelihoods in sub-Saharan Africa, followed by a more detailed description of the data in Section 3. We then discuss the results for our study contexts in Section 4, starting with the description of local awareness of the spread and responses to COVID-19 as the situation unfolded across the different countries. This is followed by a focus specifically on the effects on farming, labour and marketing activities, and a review of the evidence on disruptions to household food and nutrition and livelihood security. The concluding section describes the implications of our results, summarising the key findings and highlighting further research priorities on the effects of COVID-19 on local food systems and rural livelihoods.

2. Context

The disruptions caused by COVID-19 to food systems and livelihoods in sub-Saharan Africa were largely related to the effects of movement restrictions on food products and inputs on the supply side, and to the risk of reduced incomes on the demand side (Devereux *et al*., 2020; Josephson *et al*., 2020; Amare *et al*., 2020; Hirvonen *et al*., 2021). However, the true magnitude of these challenges remained largely obscured by significant national and subnational variability in risk factors (Rice *et al*., 2021), likely driven by differences in the type and severity of restrictions on movements as well as the local capacities to cope.

We used data representative of study areas in the eight countries to analyse how COVID-19 affected households and implemented detailed phone surveys and key informant interviews from early June 2020 in the immediate aftermath of the restrictions, monitoring developments until the end of March 2021 (a 10-month time span).[2] As expected, the socioeconomic costs of the COVID-19 crisis were high, as was observed globally (Swinnen and McDermott, 2020; FAO, 2021; Kansiime *et al*., 2021; Thompson *et al*., 2021). In line with this observation, we find that a considerable proportion of respondents in the study sites across the eight countries reported experiencing some rise in their cost of living. We also noted that the disruptions continued to be felt across the three rounds by many in the study communities. When we investigated this subjective evidence further, we find households reported less control over their own lives relative to before the pandemic and that this situation persisted over time.

The later easing of control measures in R2 and still relatively low rates of infection in most study countries, allowed some rural households and communities to cope by reorienting their marketing activities towards shorter, more localised value chains or diversifying their off-farm business enterprises. Yet, others continued to report disruptions in farming and

1 Implementation of the Round 1 phone survey and key informant interviews in Zambia was delayed for logistical reasons. The first round of that study took place in October 2020, while the second round was conducted in February-March 2021, when Round 3 was carried out in the other seven countries. The findings from both rounds of the Zambia assessment are reported in this synthesis, along with the full three rounds of results from the other countries.

2 A fourth round of this multi-phase assessment was planned for June 2021, which would have allowed a full year for tracking the study households and key informants, but funds were not available to complete that work.

business activities, especially those more dependent on sales beyond their villages or districts. Many also reported substantial losses in employment and income from both on- and off-farm sources, within and outside their villages, which reduced their purchasing power.

When we looked at the overall availability of food items, there were few changes in most countries; but there were shifts in the composition of food groups, and many households reported a decrease in the availability of certain foods in local markets and more pronounced increases in corresponding food prices.

The above risks to incomes, specific decreases in food availability, and increases in food prices were reflected in local diets across the rounds. However, by the third round, we find some evidence that the overall food security concerns were reducing. Additionally, when we explored the relationship between food security and perceived control over life across the three rounds, we find evidence that, despite a general perception of continued inability of control, households may have been finding ways to cope better with food insecurity.

Overall, this paper highlights how the response to COVID-19 by national governments resulted in intersecting income, food security and livelihood crises, mainly by causing economic activities (including agricultural production and marketing) to decline – which, in turn, led to income losses and reduced household purchasing power for some, exacerbated by a multitude of food system shocks. However, in dealing with the pandemic shocks, some households found ways to adapt to these disruptions over time, although significant uncertainties and risks persist.

To understand these intersecting crises, we begin with a detailed analysis of the spread of, and response to, COVID-19 across the APRA study sites. We then contrast these interventions with an analysis of the effects on agricultural and trading activities. This is followed by a review of evidence on how these responses and effects of COVID-19 affected food and nutrition security and livelihoods, examining the links between food and nutrition security and reports of reduced control over life.

3. Data

For this study, we followed up with respondents and informants previously recruited from the study areas surveyed as part of the APRA Programme's panel studies and longitudinal studies of agricultural commercialisation and livelihood security during 2017-2020, in Ethiopia, Ghana, Malawi, Nigeria, Tanzania, Zambia and Zimbabwe (Matenga and Hichaambwa, 2017; Alemu *et al*., 2018; Matita *et al*., 2018; Muyanga *et al*., 2019; Dzanku *et al*., 2020; Isinika *et al*., 2020; Tozooneyi *et al*., 2020). To extend the analysis further, we added complementary studies in Kenya led by colleagues at the Tegemeo Institute of Agricultural Policy and Development of Egerton University,[3] and in Zambia by collaborators at the University of Zambia with support from partners at the Institute for Poverty, Land and Agrarian Studies (PLAAS), the University of the Western Cape (UWC), South Africa.[4]

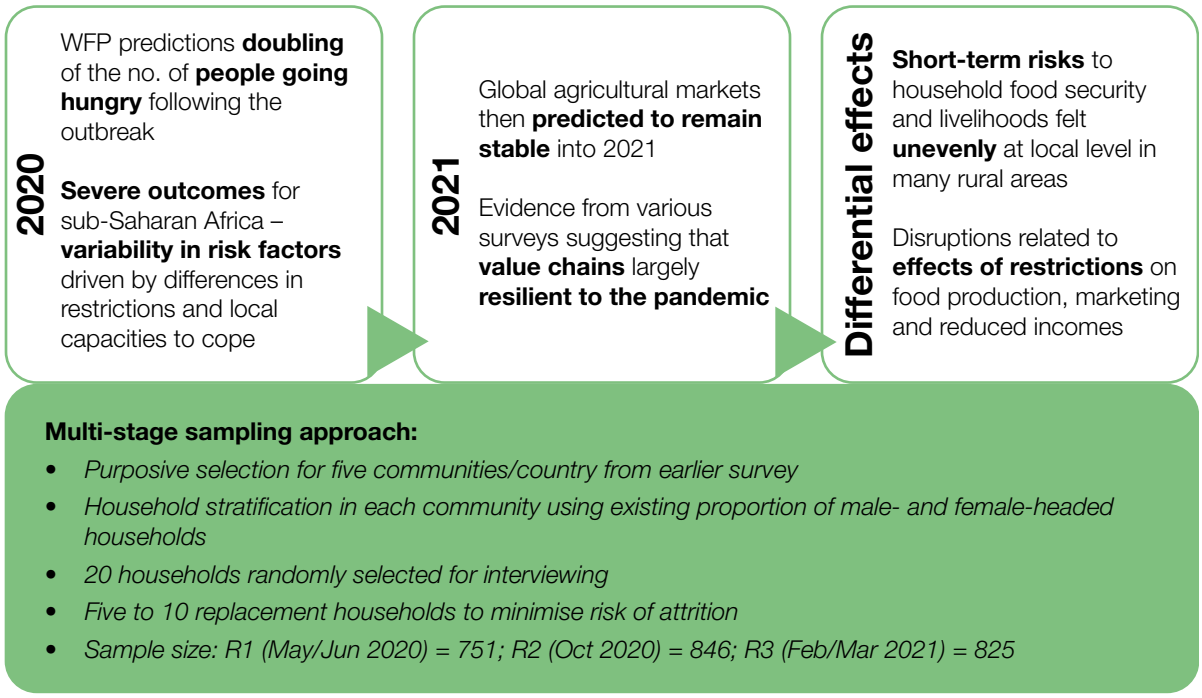
The original APRA studies were mixed-methods analyses, combining detailed household surveys with extensive qualitative research (focus group discussions, key informant interviews, life histories, etc.). While there were small differences in the exact nature of original sampling methods used in these studies, the selection of villages and local informants followed a rigorous approach using common guidelines and were meant to be representative of study areas that included highly commercialised households. Detailed rosters were available for each sample household, with the complete list of all members and their age, sex, education, occupations, and other socio-economic information. We also obtained contact phone numbers for household heads, which enabled the research teams to contact them for this study.

To implement the phone surveys, we adopted a multi-stage sampling approach (**Appendix A**). Our samples included a reasonable proportion of female- as well as male-headed households. In total, 751 households were interviewed in Round 1 over June and July 2020. To implement the second and third round of our phone surveys, we re-interviewed female- and male-headed

3 Tegemeo Institute has been collecting household-level data on various aspects of agriculture and rural livelihoods in Kenya for well over two decades. We have drawn on that panel for this study – http://tegemeo.org/index.php/resources/data.html.

4 Partners at the University of Zambia built on household-level dataset from a three-country study on 'Land and Agricultural Commercialisation in Africa' (LACA) under the Future Agricultures Consortium, which was supported by colleagues at PLAAS. They selected communities in the commercial farming areas in the Mkushi Farm Block for this study – https://www.future-agricultures.org/projects/land-and-agricultural-commercialisation-in-africa-laca-project/.

Figure 1: Context and APRA's approach to assessing effects of COVID-19



Source: Authors' own, using data from Anthem, 2020; FSIN, 2020; Schmidhuber, 2020; Swinnen and McDermott, 2020; FAO, 2021; Kansiime *et al*., 2021; Thompson *et al*., 2021; sampling details from design of APRA COVID-19 Rapid Assessment – R1, R2 and R3.

households sampled. In total, 846 households were interviewed in Round 2 over October 2020, and in total, 825 households were interviewed in Round 3 over February-March 2021 (**Figure 1**).

Our Ethiopian study locations were spread across several communities (*kebeles*) in the Fogera Plain, where rice production and marketing are of primary importance. Communities in Ghana were based in the southwestern oil palm belt with a concentration of processing activities. The Kenya study locations are drawn from Tegemeo's multi-phase panel and included diverse small-scale farming areas near the major urban markets of Mombasa and Nairobi. The sample communities in Malawi were in Mchinji and Ntchisi districts, where groundnuts, tobacco and maize are grown, and were selected based on their proximity to trading centres in Central Region. The Nigerian households were in Ogun and Kaduna states in some of the wards most affected by COVID-19, where both small- and medium-scale producers grow a variety of crops, including roots and tubers, maize and rice. The sample households in Tanzania were in villages in Mngeta Division that rely on rice production and marketing. In Zambia, the households were in the Mkushi Farm Block in the Central Province, some 170km south-east of the Copperbelt mining hub on the Great North Road linking Lusaka to Dar es Salaam. The area has attracted both small- and medium-scale satellite vegetable farms that have been established on customary land surrounding the farm block. Finally, in Zimbabwe, the field sites were in Mvurwi Farming Area in Mazowe District, Mashonaland Central, where two farming models have emerged: the small-scale A1 and larger-scale A2 farms, which produce maize and tobacco and experienced some disruptions to their production and marketing activities.

4. Results

4.1. Spread and responses to COVID-19

In each of the three rounds of the APRA phone surveys and key informant interviews, we asked respondents about the status of the spread of COVID-19, as well as their responses to it. Most informants reported that they followed the guidelines in place at national level. In addition, respondents were asked about COVID-19 symptoms[5] in their own household, as well as confirmed cases in either their own village or other villages in their district. We noted an overall surge in symptoms, in line with global reporting,[6] with respondents reporting some increase in their own households, and much larger proportions of known cases in their village or other neighbouring villages. This observation of increased COVID-19 cases held

5 High temperature, continuous cough, loss or change to your sense of smell or taste.

6 See the Coronavirus Tracker for Africa https://www.bbc.co.uk/news/resources/idt-4a11d568-2716-41cf-a15e-7d15079548bc for the latest number of cases by country.

"Farmers witnessed deaths of well-known people in the neighbouring areas from COVID-19, especially within Mchinji Boma. Some people they know had fallen sick from the virus and were admitted to the district hospital. Church and village leaders have gone flat-out to sensitise communities about the second wave of outbreak in late 2020/early 2021. They encouraged community members to wear masks, observe social distancing and embrace frequent handwashing. Compliance with these was encouraged in public gatherings, like church congregations, funerals and village meetings."

- Agricultural Extension Development Officer, Mchinji District, Central Region, Malawi

"There was a campaign to create awareness about COVID-19 control. People know about the virus and about the required precautionary measures. Surprisingly, after August 2020, no-one talked about COVID-19 in the kebele (village) and no-one abided with the measures put in place. Most people associate this pandemic with the political interest of the government, as they believe they want to control our behaviour."

- Model Farmer, Fogera District, South Gondar Region, Ethiopia

Table 1: Presence of symptoms of COVID-19 – Rounds 1, 2 and 3 (% of respondents)

Country	Have you or anyone in your household had COVID-19 symptoms?			Has anyone else in the village that you know had COVID-19 symptoms?			Have you heard of any confirmed cases of COVID-19 in other villages in your district?		
	R1	R2	R3	R1	R2	R3	R1	R2	R3
Ethiopia	10.3	5.7	12.7	8.4	10.4	11.8	15.9	10.4	2
Ghana	1.8	1.9	1	6.4	12.1	5.8	55.5	24.3	36.9
Kenya	3	1	2	0	3.1	4.9	9	17.7	37.3
Malawi	9.6	11.7	20.6	4.4	7.2	32.7	48.2	38.7	84.1
Nigeria	5.4	0.9	10.2	12.6	11	11.1	21.6	23.9	19.4
Tanzania	3.9	0	1	3.9	0	0	15.7	0	2.1
Zambia	0	4.3	21.4	0	12.2	42.7	0	48.7	82.5
Zimbabwe	1.9	2	5.8	0	2	4.9	2.8	18.6	53.4
All countries	**5.2**	**3.5**	**9.5**	**5.2**	**7.4**	**14.4**	**24.6**	**23.4**	**40.1**

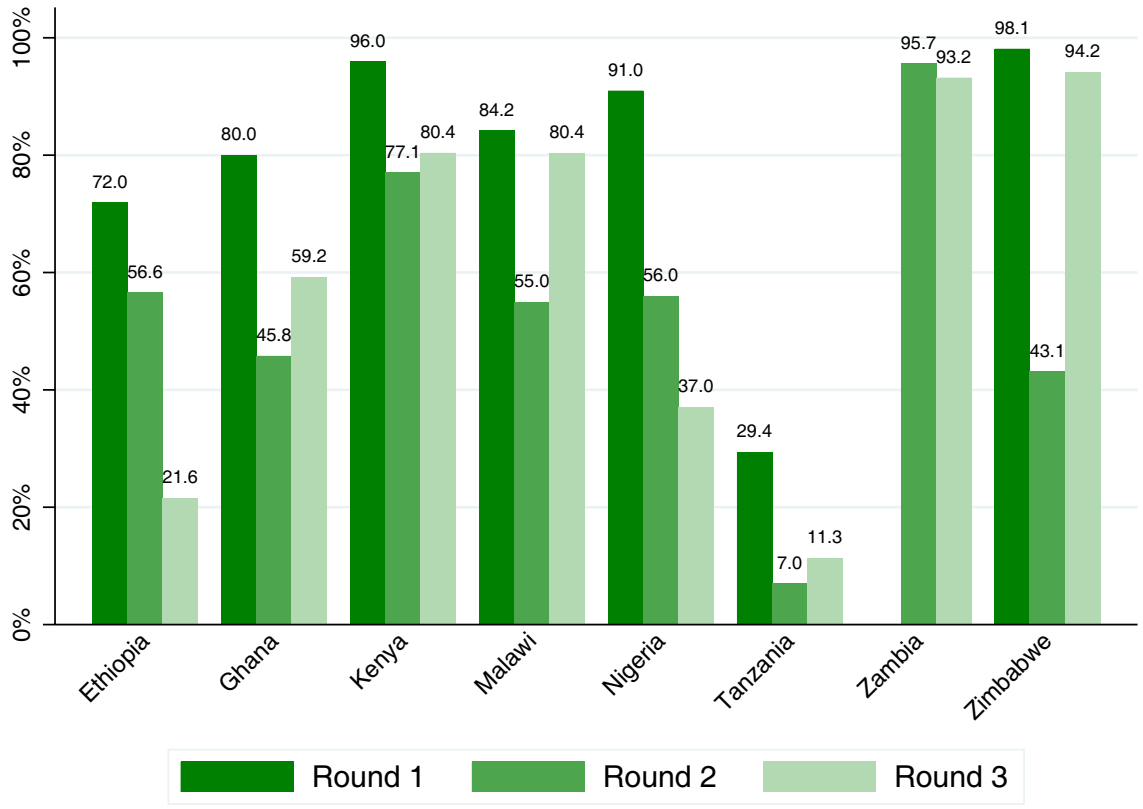
Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

consistently across Malawi, Nigeria and Zambia. Interestingly, in Ghana, Kenya and Zimbabwe, the increased symptoms were reported in villages other than the respondent's own. Ethiopia and Tanzania continued to be the exceptions in this case. We also asked respondents about access to healthcare, such as local health clinics. We found no evidence of significant disruptions in their ability to use their village health clinics or other district-level services.

Regarding changes in mobility, with COVID-19 related measures in place in several countries, many individuals initially reported reducing their movements (**Figure 2**). However, across the three rounds, we observed that the situation improved in some countries, as respondents reported fewer disruptions in movements within and across villages – and this was seen in Ethiopia, Ghana and Nigeria. However, in other cases, such as the study sites in Kenya, Malawi and Zambia, movement restrictions remained firmly in place by R3, reducing people's ability to trade and travel. In Zimbabwe, we noted an initial decline in disruptions between R1 and R2, but by R3, the trend reverted to the initial high restrictions in place. Tanzania was an exception, as it did not implement a harsh lockdown near the start of the pandemic, and mobility was therefore largely unaffected. Aside from those in Tanzania, most respondents in the study sites in the other seven countries reported that the family members, relatives and friends who live outside of their village were prevented from visiting them, especially during the period from R1 to R2.

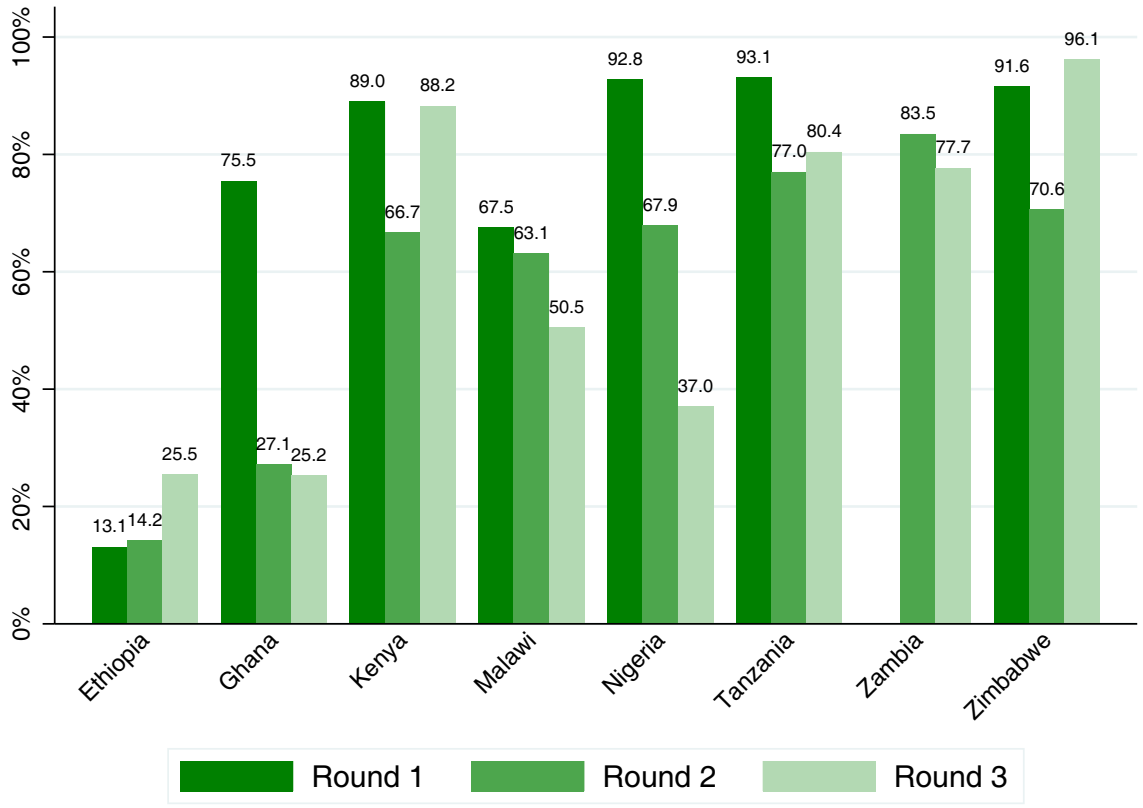
When we correlate reported symptoms and movement restrictions across the three rounds, we find different contexts. First, it appears that in some countries the initial shock of the pandemic created the most uncertainty, as some governments restricted

Figure 2: Reported reduction in movements – Rounds 1, 2 and 3, across countries



Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

Figure 3: Reported decrease in buyers or traders coming to the village, Rounds 1, 2 and 3, across countries



Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

"Local people started chasing tomato traders coming from urban markets from the Copperbelt, over fears that they would bring COVID-19 to the community. The village headman particularly has been very active in ensuring that the restrictions in movements are enforced. So, traders stopped coming in to purchase tomatoes due to these local restrictions on movements. This has really affected the local tomato farmers, with some stopping growing the crop altogether."

- Local School Chairman, Kabengeshi District, Zambia

"The COVID-19 crisis imposed many challenges for agricultural production. Smallholder farmers were unable to travel freely in search of inputs and credit to ensure the smooth running of their agricultural businesses. The greater challenges followed the Tier 4 lockdown, which was announced on 2 January 2021. This was the time when top-dressing fertiliser was in high demand and farmers were not able to travel to town to buy inputs. There was also an outbreak of blackleg in the ward and most farmers lost their cattle. Due to movement restrictions, we could not travel to Harare to buy the required drugs to cure the disease."

- Ward Chairman, Mzowe District, Mashonaland Central, Zimbabwe

the movement of their populations with lockdowns (such as in Ethiopia, Nigeria and Zimbabwe). In these contexts, movement picked up soon after, and by R3 few respondents reported constraints to moving within or outside their villages.

Yet, in other countries, after the initial shock and as people became more aware of COVID-19 and symptoms started appearing in their village or those nearby, households started restricting movements further by R3 (as in the case of Ghana, Malawi and Zimbabwe).

Finally, we also observed contexts, such as in Kenya and Zambia, where movement restrictions at study sites appear consistent across the rounds, causing significant disruptions to households in those areas.

The movement restrictions also affected the produce buyers and traders coming into the villages. We find that the trends across the three rounds in this case (**Figure 3**) mirrored what we see for the general reduction in movements. The one exception is our study location in the Fogera Plain of Ethiopia where, despite movement restrictions in the early phases, most respondents continued to report that they did not encounter any significant change in the number of buyers and traders coming to their villages. This may be attributable to government restrictions related to COVID-19 having disrupted movements for only a brief period at the start of the pandemic, and because the application of these measures was largely limited to Addis Ababa and other towns and cities, and not in rural areas. Overall, by the end of R3, we found improvements in buyers and traders coming to villages in most countries. However, the situation appeared to remain problematic in Kenya, Zambia and Zimbabwe, even by the second quarter of 2021.

Across the three rounds, schools were closed in the APRA study areas at some point in all countries, apart from Tanzania (**Appendix Figure A1**). However, by R3, schools had completely reopened in Ethiopia and Ghana. With the school closures, many parents faced additional burdens of childcare throughout the period. We find that, in the majority of cases, both boys and girls continued to do schoolwork at home (**Table 2**), especially in Ghana, Kenya, Zambia and Zimbabwe. We also noted that most girls and boys reported doing some housework and farm work in all countries.[7] However, stark differences were observed between boys and girls across the three rounds.

By R3, boys in Kenya, Malawi and Nigeria reported doing significantly less housework than girls, while boys in Kenya and Nigeria continued to report doing more farm work. Overall, we find a consistent pattern in how the COVID-19 related measures and school closures correlated with changes in daily responsibilities within the household, with reported increases in the burden of care work and housework over the period, especially in Kenya, Nigeria and Zambia.

During the COVID-19 pandemic, a combination of public and private social assistance measures played a critical role in aiding households absorb short-term

7 We also asked about paid work and doing nothing/sitting idle. These were reported as minor activities in most cases.

Table 2: Children's activities at home if schools closed – Rounds 1, 2 and 3, by girls and boys and across countries (%)

Country	School work at home						More housework						More farm work					
	Girls			Boys			Girls			Boys			Girls			Boys		
	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Ethiopia	39.3	45.3		39.3	46.2		60.7	58.5		9.3	24.5		46.7	50.9		62.6	56.6	
Ghana	60.6	67.6		54.1	62.7		70.6	72.5		56	63.7		51.4	53.9		45.9	44.1	
Kenya	59	73.4	85	65	75.5	80	67	74.5	80	62	71.3	10	55	61.7	5	62	66	80
Malawi	20.5	26.9	22.6	22.3	30.8	21.7	44.6	43.3	33	31.3	30.8	23.6	25	29.8	23.6	32.1	42.3	26.4
Nigeria	50.5	58.3	80	42.3	42.9	83.3	85.6	66.7	93.3	49.5	41.7	43.3	52.3	35.7	30	76.6	69	73.3
Tanzania																		
Zambia		60.9	100		63.5	100		75.7			67.8			40.9			63.5	
Zimbabwe	74.8	71.2	68	69.2	71.2	65	76.6	74.6	70.9	60.7	57.6	68	57.9	35.6	55.3	59.8	39	58.3
All countries	**50.5**	**56.5**	**52.3**	**48.3**	**55.3**	**50.8**	**67.5**	**66**	**58.7**	**44.6**	**50.8**	**42.5**	**47.8**	**44.6**	**35.5**	**56.3**	**55**	**48.6**

Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

Table 3: Reported access to assistance Rounds 1, 2 and 3 – by source and across countries

Country	Ethiopia			Ghana			Kenya			Malawi			Nigeria			Tanzania			Zambia			Zimbabwe		
	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Family members or friends	28	17	7.8	10.9	8.4	6.8	19	3.1	2	29.8	6.3	12.1	12.6	10.1	8.3	16.7	0	9.3	0	3.5	1.9	27.1	3.9	8.7
Government	40.2	38.7	19.6	56.4	21.5	24.3	56	38.5	6.9	46.5	26.1	28	18.9	12.8	7.4	20.6	2	0	0	33	45.6	15	5.9	3.9
Religious organisations	36.4	29.2	17.6	15.5	9.3	17.5	11	1	7.8	26.3	14.4	20.6	20.7	10.1	6.5	3.9	1	1	0	6.1	5.8	1.9	2	0
Local village organisations	0.9	0	0	13.6	8.4	8.7	5	0	1	w	3.6	15	5.4	1.8	0.9	12.7	0	7.2	0	12.2	5.8	3.7	1	0
Other external organisations	1.9	0.9	0	15.5	6.5	3.9	5	2.1	0	12.3	7.2	15	3.6	0.9	2.8	2	0	0	0	7	3.9	0.9	0	1.9
No assistance promised	30.8	45.3	67.6	21.8	58.9	52.4	42	57.3	88.2	30.7	62.2	66.4	62.2	75.2	80.6	69.6	97	89.7	0	56.5	49.5	64.5	89.2	86.4

Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

"We have local organisations that provide aid [in the form of encouraging compliance with safety protocols]. Some also raise money to help the less privileged, which is then distributed by our traditional leaders to poor households. These arrangements are not new, they build on existing practices. Religious groups have also organised to help the community and create awareness to COVID-19."

- Local Chief, Imeko-Afon Local Government Area, Ogun State, Nigeria

"We have not received any technical support or humanitarian relief from government. People in our area must seek their own personal protection. We buy our own masks and sanitisers… Since our last interview, we have not received anything from either traditional or religious leaders, except the public education and encouragement they offer to wear face masks and practice good hygiene."

- Local Opinion Leader, Western Region, Ghana

"Rotating savings and credit groups have helped our community members, especially women, to manage the hardships caused by the lockdowns. These local savings groups have been very helpful because women have been able to sustain their businesses during these periods."

- Local Councillor, Mvurwi District, Mashonaland Central District, Zimbabwe

shocks. However, looking at assistance received across the three rounds (**Table 3**), we find that a considerable proportion of our study households may have been coping without assistance from any sources, and assistance dropped over time between R1 and R3. Compared to R1, we observed a general decrease in the share of households receiving any type of assistance in R2, which further declined by R3.

When and where assistance was available, government sources and religious organisations proved to be important sources. Local village organisations and other external support was also available in Ghana and Malawi, and the latter type of support appears to have increased in Malawi by R3. In Ethiopia, Kenya, Ghana and Zambia, a good proportion of respondents reported receiving some assistance from the state in response to the COVID-19 crisis. Assistance from religious organisations was important in Ethiopia, Malawi and Nigeria. There were shifts over time – for example, in Ghana and Kenya, more than half of the respondents reported to have received some government assistance in June-July; but only 29% (Ghana) and 39% (Kenya) of the households reported to have received government assistance in R2, and this dropped further by R3. Similarly, during the first round in Tanzania, 30% of households reported to have received some form of assistance; yet, in R2, only 3% of respondents reported receiving any assistance, and this was negligible by R3. Further, when we compared promised and received assistance, we found that the shares did not differ significantly across countries, with the exception of Nigeria.

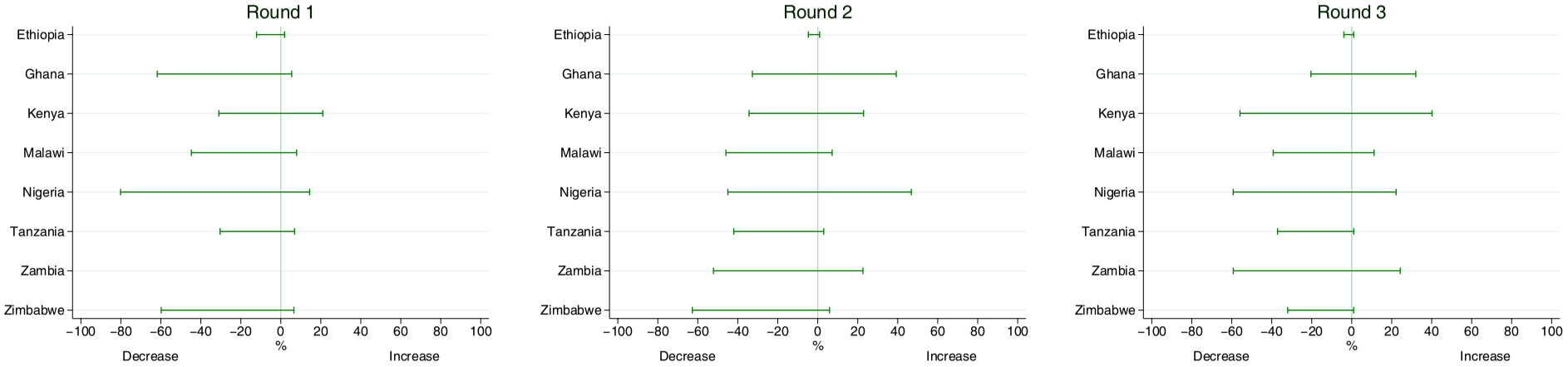
4.2 Farming, labour and marketing

We asked respondents about the effects of the COVID-19 pandemic on their participation in farming or business/household enterprise activities in our study sites across the three rounds (**Figure 4**). Trends were consistent, both for respondents and their spouses, and two broad patterns were visible across the countries. Respondents in Ethiopia, Kenya, and Tanzania reported minor decreases in participation in farming activities. The changes were more pronounced in other contexts, especially in Ghana, Nigeria, Zambia and Zimbabwe, where the majority of respondents reported a decrease in their participation in farming activities. Most respondents across all four countries reported some decrease in their involvement in business/household enterprises.

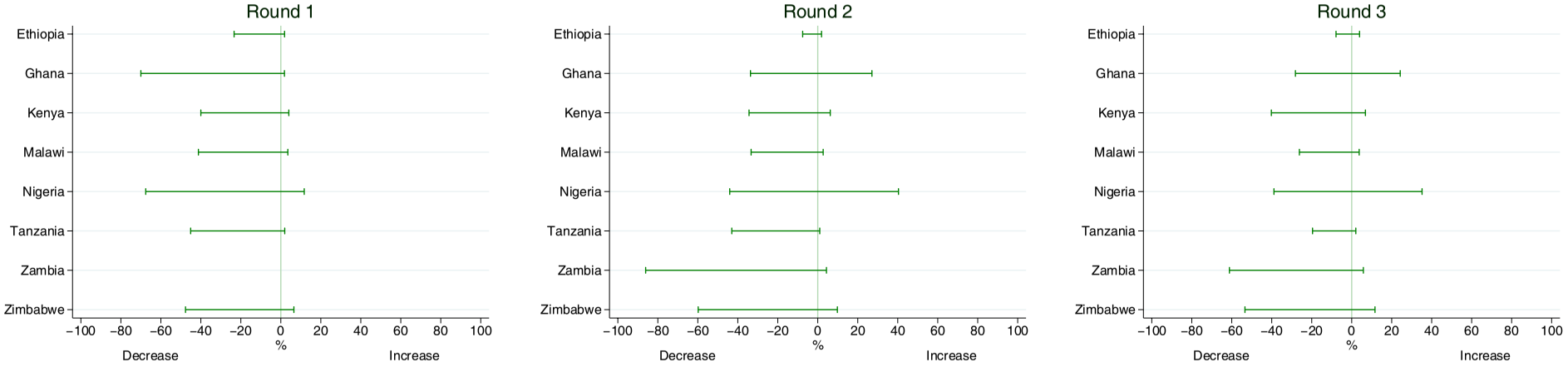
Overall, we find that many households managed to adapt their farming and production activities over time. However, some household enterprises appeared to be less resilient, as their purchasing power shrunk or they became more risk-averse after realising the extent and impact of the restrictions in place. These differential responses relate in part to the locations of our study communities – areas that were closer or more connected to urban markets (as in the Kenyan or Nigerian context) or were engaged in cross-border trade (as in Zambia) faced more severe effects than others.

Figure 4: Participation in farming and business at household level – across countries

a. Farming



b. Business/household enterprise



Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

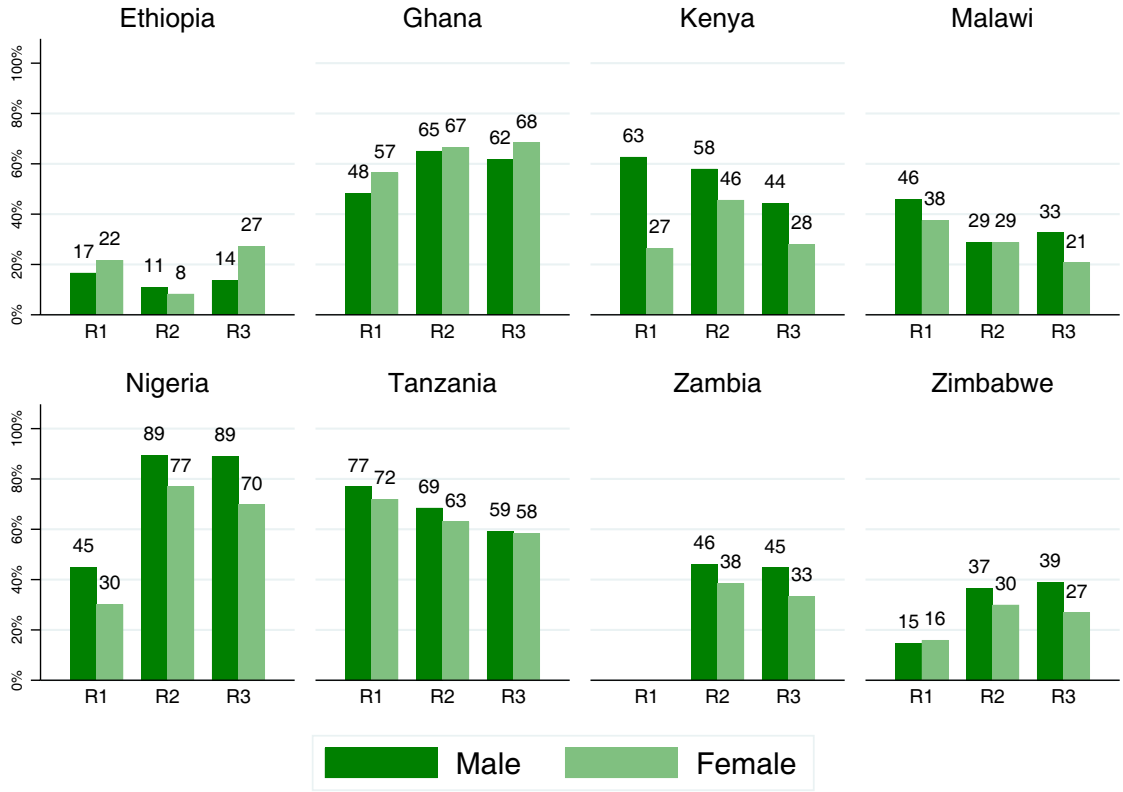
"Food supply in local markets has not changed much. With the relaxation of travel restrictions, transport services have normalised, and agricultural produce can be moved from farms to markets and across markets with few hitches. The challenge is that farmers and traders take more days to sell off their goods (an average of three to seven days as opposed to the usual one to two days). The reason for this is because most hotels and restaurants have descaled their operations because the tourism industry is rather slack."

- Senior Agricultural Officer, Kilifi County, Kenya

"The pandemic has undisputedly affected agricultural production, especially the availability of inputs and credit due to movement restrictions. The second wave came at a time when agricultural chemicals and fertilisers were in high demand, but people could not move easily from their farms to town to buy inputs. The availability of land and labour has not been affected, and the controls on movement have had no real effect on activities such as field preparations and herding animals."

- Extension Officer, Mvurwi District, Mashonaland Central District, Zimbabwe

Figure 5: Reported access to off-farm work – Rounds 1, 2 and 3, across countries



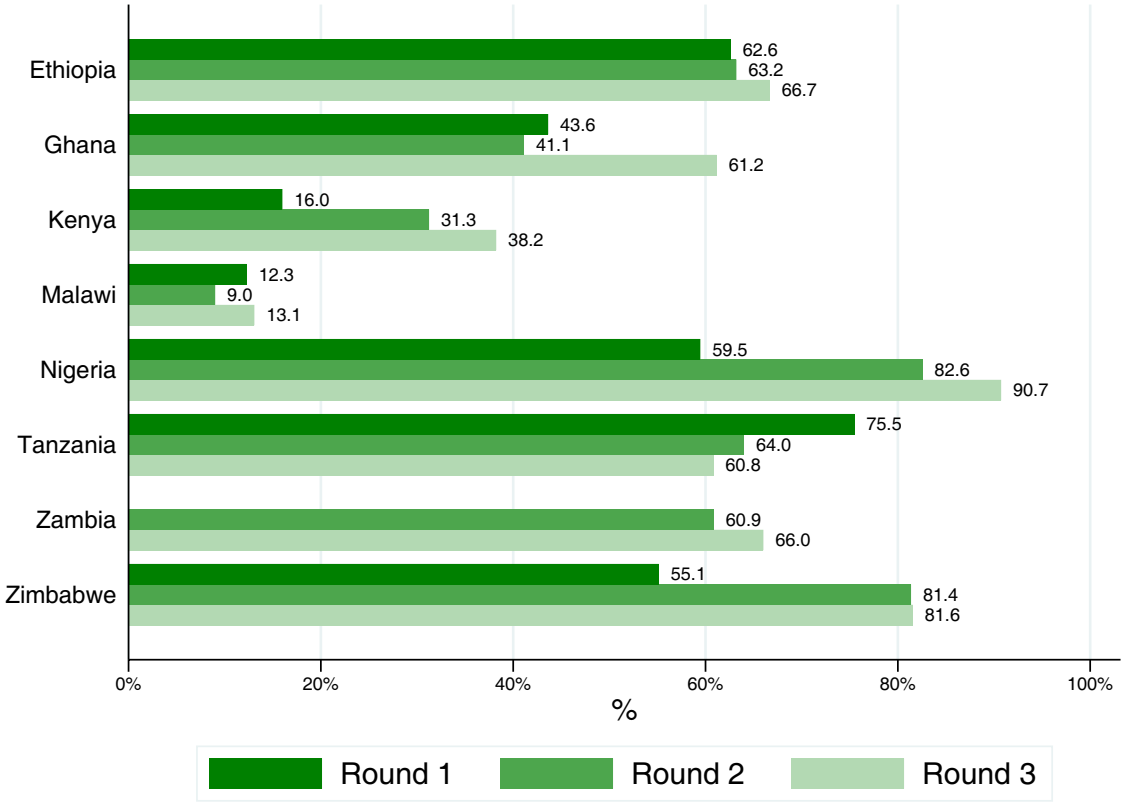
Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

a. Access to off-farm work[8]

Across the three rounds, we find that COVID-19 affected access to work activities outside respondents' own households, as many individuals continued to report being cut-off from off-farm opportunities (**Figure 5**). Overall, in R1, constrained access appeared most pronounced in Ethiopia and Zimbabwe – a trend that remained consistent across later rounds. In Kenya, Malawi and Tanzania, the COVID-19 shock seems to have affected access more gradually, with a noticeable decreasing trend in access to off-farm

8 Regarding "off-farm work in your village", the percentages of respondents replying "Not Applicable" are: Ethiopia (19%), Kenya (14%), Malawi (17%), Nigeria (3%), Tanzania (13%), Zambia (11%) Zimbabwe (24%); regarding "off-farm work outside the village", the percentages are as follows: Ethiopia (19%), Kenya (18%%), Malawi (20%), Nigeria (13%), Tanzania (14%), Zambia (11%), Zimbabwe (25%).

Figure 6: Access to hired labour – Rounds 1, 2 and 3, across countries



Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

work overtime. In Nigeria and Ghana, respondents reported improved access after the initial shock in R1; and, in Tanzania, access remained relatively high but with a decreasing trend by R3. Across all countries, differences by gender of household head were fairly pronounced in Kenya and Nigeria, and especially in earlier rounds when female-headed households reported significantly lower access to off-farm work.

b. Hired labour

The COVID-19 pandemic challenged the availability of hired labour, both for continuing farming or business activities and in terms of the increased cost of labour. We asked respondents if they had been able to hire workers for their farming or business activities across the three rounds (Figure 6). Most respondents in Ethiopia, Nigeria, Tanzania, Zambia and Zimbabwe reported hiring workers in study areas without any constraints. However, access to hired labour faced disruptions in Ghana, Kenya and Malawi, as close to 80% of respondents in the latter two countries reported being unable to hire workers in R1. The situation appeared to improve in Kenya over time, but remained consistent in Malawi with continued challenges in hiring workers.

We also asked respondents about the cost of labour for day/casual labour and for seasonal/permanent labour. Initially in R1, most respondents reported no changes in Ghana, Kenya and Tanzania, but the majority reported increases in the cost of labour in R2, especially in Ethiopia, Ghana, Nigeria, Zambia and Zimbabwe. However, interestingly, among those hiring labour, especially in Kenya, Malawi and Tanzania, a sizeable number of respondents reported lower costs for day labour (and also seasonal labour in Malawi and Tanzania), perhaps reflecting an increase

> *"Many farmers are working on their fields themselves by using family labour because of financial problems caused by the COVID-19 disruptions. The use of hired labour has decreased, although its availability has increased and its price decreased. For example, a piece of land which we used to pay a labourer TSh2,500 for weeding, we now pay only TSh2,000. The price of tillage services has also decreased from TSh40,000 per acre to TSh35,000-30,000 in this agricultural season, mainly due to a decrease in rice marketing opportunities."*
>
> - Local Entrepreneur and Women's Group Leader, Kilombero District, Morogoro Region, Tanzania

"The lockdown hindered the smooth marketing of agricultural produce and acquiring of inputs. For a farmer to get into town they must have a letter authorising them to move; and the process of getting the letter is not easy. Generally, due to movement restrictions, the prices of goods and services in our community have gone up and sellers demand payment in U.S. dollars. If you have electronic money or local currency, they charge exorbitant premiums as the exchange rate is highly inflated."

- Local Councillor, Mazowe District, Mashonaland Central, Zimbabwe

"The private sector has again been negatively hit by the second wave of COVID-19. Most of the catchment areas for businesses in the district are dominated by households whose main source of livelihood is farming. The first wave of COVID-19 reduced the number of produce vendors and traders who come to buy from the farmers. As a result, farmers sold their produce at low prices, in turn reducing their purchasing power. Only businesses engaged in selling farm inputs were able to sell more in this recent planting season as it is the peak period for farming activities."

- Senior Agricultural Extension Officer, Ntchisi District, Central Region, Malawi

in the supply of farm workers over time. While this suggested that the lower prices may correlate with the improved access to hired labour in Kenya, the lower prices had no clear association with continued constraints in Malawi.

c. Sales

We asked respondents about their ability to sell their produce at the farm gate, in local markets, and in district or regional markets, as well as in national markets and across the border, in each round of the survey. In R1, following the initial shock arising from COVID-19 control measures, many producers encountered problems accessing these markets. This early observation was linked to the fact that a sizeable proportion of households in our study sites are commercially oriented growers, and hence linked with larger markets or supply chains.

In R2, among those selling their products, most respondents in all countries (except Ethiopia) reported significant constraints in their ability to sell their produce (**Appendix Table B1)**. Most stated that they sell primarily at the farm gate or in local, district or regional markets.

However, the ability to sell farm produce appeared to have had already started slowly improving by R2, as we observed in Nigeria and Zimbabwe, especially at the farm gate level and in local markets. While this trend persisted for Nigeria in R3, for Zimbabwe we noted further constraints reflected in increased reported disruptions. However, district and regional markets continued to be affected, with greater constraints reported in Zambia and Zimbabwe. Further, we also noted reported challenges for selling across the border in Kenya, Malawi and Zambia.

d. Transport

Movement restrictions affected both the availability and the cost of transportation from the beginning of the pandemic. We asked respondents about their ability to hire transport, and the costs and possible consequences for buyers coming to the village across the three rounds. The ability to hire transport to take produce to the point of sale was particularly constrained in Ghana, Nigeria and Zimbabwe.

We found different scenarios in the study areas in terms of costs. Apart from those in Tanzania and Zimbabwe, most respondents continued to report an increase in transport costs due to COVID-19. Despite these rising costs, most respondents (except for those in Kenya) reported still being able to hire some transport services (**Appendix Table B2**). Furthermore, aside from farming households in Ethiopia, most respondents reported a decrease in the number of buyers coming to their area to buy produce directly. In some cases, farmers continued to sell locally rather than to the buyers who previously came from other areas.

However, we noted some improvements between R1 and R2, in Ethiopia, Kenya, Malawi, Tanzania and Zimbabwe, where we observed a lower number of respondents reporting an increase in the cost of transportation. The opposite is valid for Ghana and Nigeria.

e. Availability of agricultural services

We asked respondents if the COVID-19 pandemic had affected the availability and prices of services for agricultural production since June-July. Respondents were questioned about the availability of six types of

"There has been a hike in prices in both the local and regional markets due to high transportation costs. However, almost all things are available now… as harvesting has taken place and most produce is being taken to market without problems."

- Chairman, Farmers' Association, Obafemi Owode Local Government Area, Ogun State, Nigeria

"The government's order to reduce the seating capacity of public and private vehicles because of COVID-19 restrictions compelled transport service providers to raise their transport fares. This reduces farmers' ability to take their produce to markets far away from their communities."

- Markets and Trade Officer, Nthondo District, Central Region, Malawi

common services for agriculture, namely: i) agricultural land to rent; ii) farm inputs; iii) tillage services; iv) agricultural extension services; v) loans or credit; and vi) concessionary loans or loan payment holidays. In Tanzania and Zimbabwe, most respondents using services for agricultural production stated that they observed no change in availability since R2 (**Table 4**), but this changed for Zimbabwe by R3. It is also interesting to note that, in the same countries, most of the respondents observed a decrease in the availability of concessionary loans or loan payment holidays – and this persisted, perhaps reflecting the credit constraints in these areas. Further, this is also related to the increased prices of some of these most commonly used services, such as agricultural land rental and farm inputs, in most countries.

4.3 Food and nutrition security and livelihoods

Lack of food and lack of financial resources to purchase food are the two most common causes of increased food and nutrition insecurity, even during 'normal' periods, and a crisis is expected to exacerbate these problems. To understand how the COVID-19 pandemic affected household food and nutrition security in our study households, we asked respondents about the availability of food items and their prices in local markets. Overall, we find that increases in food prices were more pronounced than disruptions in the availability of food (**Appendix Table B3**). We also note changes in the composition of what foods were more readily available and what became more expensive as the pandemic unfolded.

At the start of the pandemic, grains; white roots, tubers and plantains; meat and poultry; and fish and seafood, were cited as the food groups where availability declined in R1, with a stark situation in Kenya. This was likely in part a result of the limited trading and movement during the early period, and variations in how this happened across countries. Interestingly, overall, for several food items, including key staples, respondents reported that availability in local markets improved by R2, apart from Zambia. However, the situation was quite variable across countries by R3. For example, there were signs of improving availability even in Zambia, but the situation in Kenya had worsened considerably – as the availability of several food groups, such as grains; pulses, nuts and seeds; meat and poultry; fish and seafood; eggs; and dark green leafy vegetables, decreased.

In terms of changes in food prices over time (**Appendix Table B3**), most respondents in Nigeria, Zambia, Zimbabwe and Ethiopia[9] reported increases across several food groups between R1 and R2. Meanwhile, in some countries, further increases were observed by R3 – including most food groups in Ghana, Nigeria and Zambia. However, study sites in Zimbabwe and Malawi witnessed fewer price increases by R3. Furthermore, we find lot of heterogeneity across food groups, perhaps linked with disruptions to specific supply chains at the national level and linkages with international trade and value chains. Across countries, we find significant increases in prices reported for grains; white roots, tubers, plantains; pulses, nuts and seeds; milk and milk products; meat and poultry; fish and seafood; and eggs. An overwhelming majority of respondents continued reporting a price increase for most food items in Zambia and Nigeria: grains; white roots, tubers, plantains; milk and milk products; meat and poultry; fish and seafood; and eggs.

We also asked respondents about their access to food over time. **Table 5** lists the eight questions drawn from the *Food Insecurity Experience Scale* (FIES) of the Food and Agricultural Organization of the United

9 In contrast with findings in De Brauw *et al*. (2020), Hirvonen *et al*. (2020) and Hirvonen *et al*. (2021) that find few effects on food availability or costs in Addis Ababa.

Table 4: Decreased availability of services for agricultural production – Rounds 1, 2 and 3, across countries

Country	Ethiopia			Ghana			Kenya			Malawi			Nigeria			Tanzania			Zambia			Zimbabwe		
	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Agricultural land to rent	30.8	57.5	56.9	21.8	21.5	40.8	10	22.9	46.1	28.9	29.7	32.7	31.5	17.4	13	4.9	10	3.1	0	47	31.1	21.5	17.6	20.4
Farm inputs	22.4	50.9	72.5	22.7	0.9	2.9	32	27.1	34.3	30.7	26.1	20.6	59.5	17.4	23.1	14.7	9	4.1	0	50.4	41.7	19.6	7.8	6.8
Tillage services	5.6	7.5	9.8	0	0	0	1	22.9	26.5	2.6	1.8	0	29.7	11.9	9.3	4.9	10	4.1	0	33.9	35.9	13.1	8.8	9.7
Agricultural extension services	33.6	21.7	29.4	37.3	14	7.8	58	55.2	79.4	49.1	48.6	32.7	60.4	13.8	16.7	3.9	3	6.2	0	54.8	37.9	70.1	2.9	50.5
Loans or credit	28	29.2	21.6	51.8	63.6	45.6	52	56.3	52.9	33.3	23.4	17.8	34.2	25.7	19.4	23.5	22	9.3	0	41.7	45.6	18.7	5.9	17.5
Concessionary loans or loan payment holidays	4.7	0	1	10.9	0.9	0	43	32.3	64.7	0	0.9	0	19.8	12.8	4.6	8.8	5	14.4	0	20	26.2	2.8	4.9	0

Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

Table 5: Food Insecurity Experience Scale (FIES) (%) – Rounds 1, 2 and 3, across countries

Country	Ethiopia			Ghana			Kenya			Malawi			Nigeria			Tanzania			Zambia			Zimbabwe			All		
	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Worried about not having enough food to eat because of a lack of money or other resources	64.5	39.6	30.4	55.5	52.3	59.2	94.0	83.3	71.6	76.3	87.4	83.2	81.1	69.7	53.7	76.5	66	68	-	85.2	79.6	79.4	70.6	68	75.1	69.4	64.2
Unable to eat healthy and nutritious food because of a lack of money or other resources	42.1	34.9	60.8	40.0	36.4	41.7	92.0	80.2	77.5	78.1	89.2	87.9	82.0	73.4	63	50.0	71	73.2	-	70.4	51.5	73.8	80.4	67	65.4	66.9	65.3
Ate only a few kinds of foods because of a lack of money or other resources	30.8	33	23.5	58.2	55.1	55.3	90.0	83.3	80.4	78.1	87.4	87.9	81.1	77.1	67.6	51.0	71	75.3	-	76.5	70.9	82.2	81.4	68.9	67.4	70.6	66.3
Had to skip a meal because there was not enough money or other resources to get food	9.3	19.8	14.7	48.2	45.8	28.2	54.0	69.8	58.8	57.0	76.6	75.7	79.3	61.5	43.5	35.3	28	37.1	-	68.7	66	41.1	38.2	28.2	46.6	51.4	44.2
Ate less than you thought you should because of a lack of money or other resources	24.3	21.7	16.7	52.7	49.5	50.5	66.0	78.1	73.5	70.2	82	82.2	79.3	74.3	52.8	33.3	35	48.5	-	70.4	68	62.6	60.8	47.6	55.8	59.2	55.2

Country	Ethiopia			Ghana			Kenya			Malawi			Nigeria			Tanzania			Zambia			Zimbabwe			All		
	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Ran out of food because of a lack of money or other resources	5.6	3.8	4.9	24.5	22.4	17.5	52.0	56.3	45.1	53.5	66.7	68.2	64.9	52.3	33.3	18.6	15	25.8	-	53	39.8	32.7	32.4	33	36.2	38.1	33.7
Were hungry but did not eat because there was not enough money or other resources for food	4.7	4.7	4.9	24.5	14	17.5	47.0	55.2	50	48.2	64.9	58.9	63.1	46.8	31.5	18.6	17	33	-	54.8	38.8	21.5	22.5	30.1	32.8	35.3	33.2
Went without eating for a whole day because of a lack of money or other resources	5.6	2.8	4.9	0.9	3.7	0	16.0	39.6	29.4	30.7	34.2	30.8	18.0	15.6	2.8	5.9	1	4.1	-	40.9	19.4	7.5	10.8	6.8	12.3	18.8	12.4
Food Insecurity Experience Scale (FIES) min=0; max=8	1.87	1.60	1.61	3.05	2.79	2.70	5.11	5.46	4.86	4.92	5.88	5.75	5.49	4.71	3.48	2.89	3.04	3.65	-	5.20	4.34	4.01	3.97	3.50	3.92	4.10	3.75

Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

"All food products that we need are available on the market. However, cassava is one of our main foods and it has seen a big price increase. What we used to buy for two Ghana Cedis before COVID-19 is now sold at four Ghana cedis… I am very worried about that."

- Local Women's Leader, Mpohor District, Western Region, Ghana

"At first, when COVID-19 began, it was difficult to access food, particularly in peri-urban areas of Masansa where people must buy almost everything. For the rural areas, it was better because people grow much of their own food. But COVID-19 disrupted people's businesses and they could not get enough income to buy the food they need. When people have no food? Aah, they normally go to government officers, civic leaders and church officials for help. Sometimes they get food relief, others get food-for-work. But it is not easy…"

- Area Councillor, Mkushi District, Central Province, Zambia

"There was an increase in the number of food insecure households during the current food lean period, indicating that COVID-19 has made some households fall into a food poverty trap. In Mchinji, more households than before have sold their crops to vendors at very low prices while they are still green in the fields, due to desperation for food. This means that it is the vendors who will harvest the crop produce and not the farmers themselves."

- Business Manager, Farmers' Association, Mchinji District, Central Region, Malawi

"After COVID-19, everything is available in the market these days, but it is expensive. There's been a hike of about 20% in prices of our key staple foods, especially rice and garri (cassava flour). People's ability to buy food and other things is low. You get what you can afford…"

- Supervisor for Agriculture, Ijebu-East Local Government Area, Ogun State, Nigeria

Nations (FAO)[10] and the percentage of households responding positively to each.[11] To understand how overall food security status varies, we used the set of eight questions to create an indicator on a scale 0-8, with households scoring 0 being the most food secure and those scoring 8 the most food insecure. Responses by a sizeable number of households in Kenya and Malawi indicated that they experienced severe food insecurity across the three rounds, confirming that they "*went without eating for a whole day because of a lack of money or other resources*". In particular, Malawi, Nigeria and Zambia stand out in terms of respondents' actual actions to reduce or stop eating. Over time, Ethiopia, Ghana, Nigeria and Zimbabwe reported reduced average FIES scores, while Kenya, Malawi and Tanzania continued reporting relatively higher average scores.

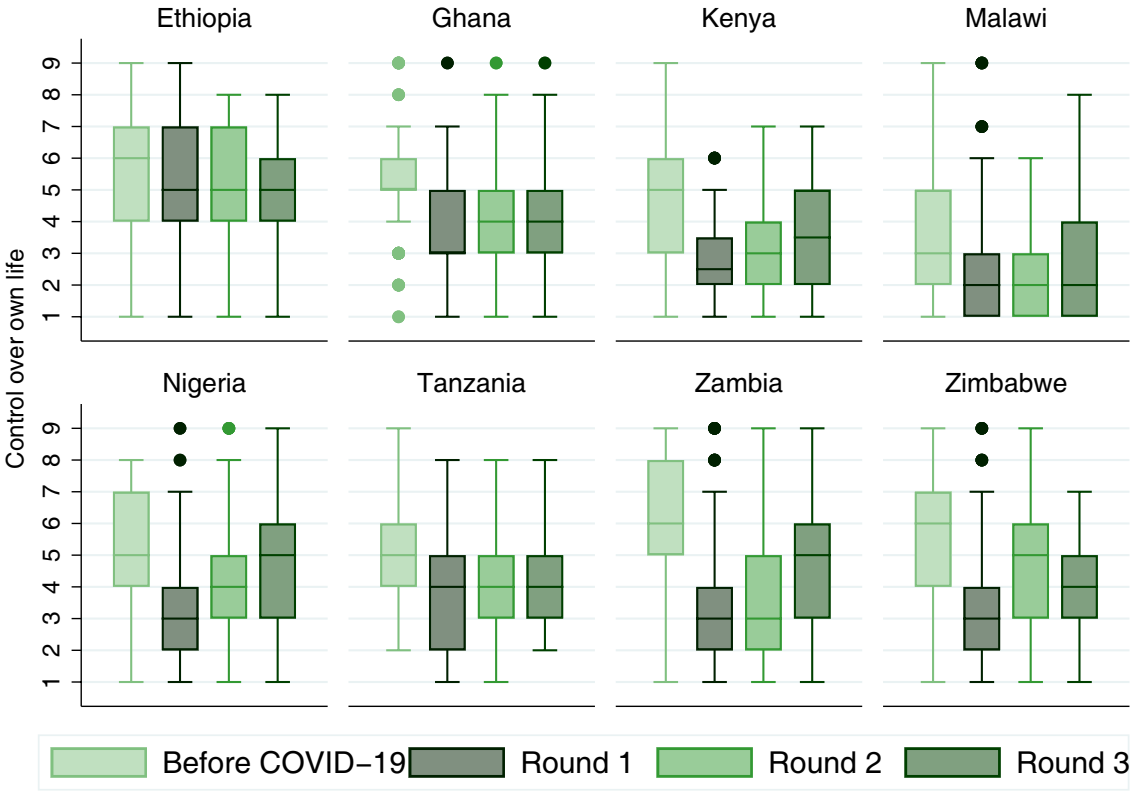
We asked study respondents if, over time, COVID-19 had caused any change in the overall cost of living (COL) of the household. Overall, our earlier results (Carreras et al., 2020a; 2020b), suggest that more than half of all respondents in all countries experienced some rise in COL at some point across the two rounds, with the exception of Ethiopia. To investigate these subjective perceptions further, using the nine-step ladder (Ravallion, 2012),[12] we asked respondents their perceptions about the control over their own life in relation to the COVID-19 pandemic across the three rounds. The results over time (**Figure 7**), suggest that respondents reported an initial decline in control over their life across all countries in R1. In R2, we noticed either similar perceptions of control over their life (Ethiopia, Ghana and Kenya), or higher average scores in R2 relative to R1 (Nigeria and Zimbabwe). By R3, respondents were more positive, but had not

10 See *The Food Insecurity Experience Scale* of FAO - http://www.fao.org/3/a-bl354e.pdf.

11 The degree of food insecurity implied by a question increases as one moves down the list of questions. This explains why the percent of households responding positively to a question decreases as one moves down the list.

12 Where those on Step 1, the lowest step, feel totally unable to change their life, while those on Step 9, the highest step, believe they have full control over their own life.

Figure 7: Reported perceived control over own life over time – across countries



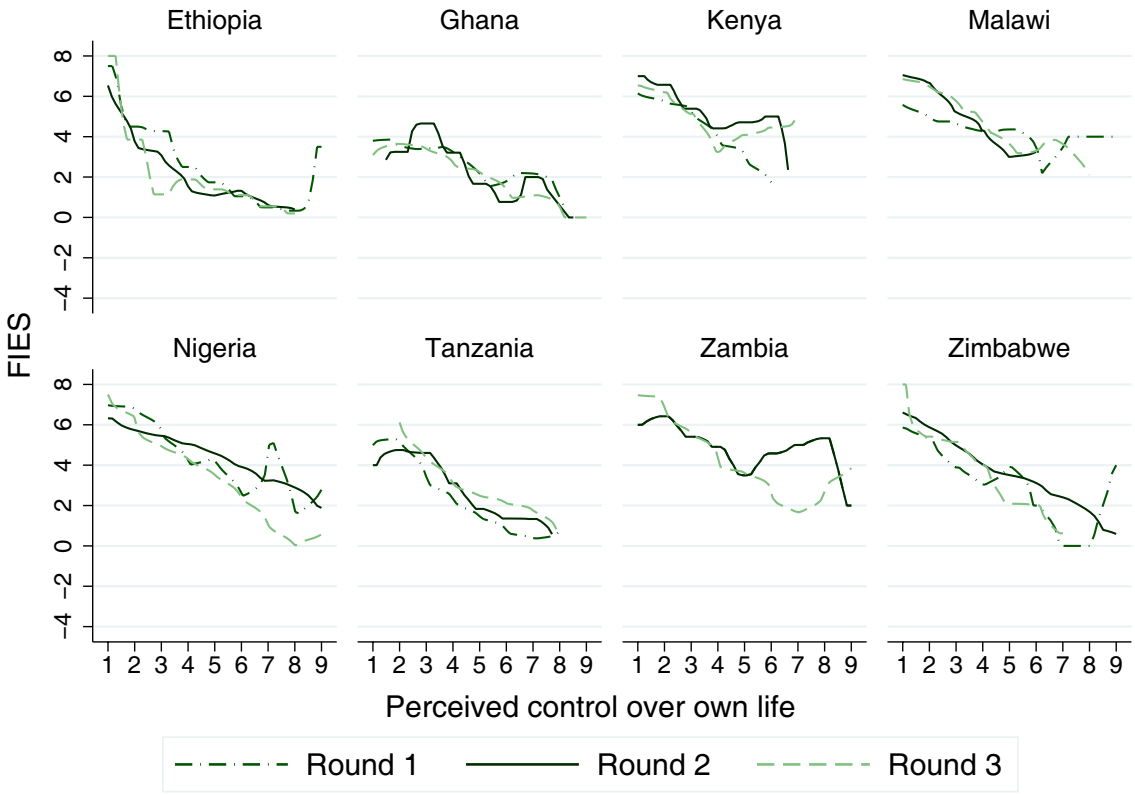
Note: Boxplot where the middle line inside the box is the median value and the box represents the interquartile range.
Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

necessarily reverted to the pre-pandemic perspective of control. This result suggests that individuals started to perceive more control over their own life as lockdown restrictions eased and economic activities began; however, concerns remained and would take time to revert to pre-pandemic levels.

To understand changes in the relationship between overall food security status and individuals' perceptions of the control over their own lives for our study sites, we regressed perceived position on the ladder (1-9) against the household's reported FIES score. We find a strong and negative correlation between the FIES score and household's perceived control over one's own life for all three rounds (**Figure 8**). Comparing the relationships over time, we note some interesting trends (looking at the slope, i.e., change in y-value per unit change in x-value). In Ethiopia, Nigeria and Zimbabwe, there is evidence of the FIES score improving with greater perceived control at an increasing rate by R3 compared to earlier periods. In some cases, such as in Kenya and Ghana, not much changed in terms of the negative relationship between FIES and perceived control (the slope and shape remained similar). The picture was more nuanced in other contexts – for example, in Zambia, compared to R2, study households with greater perceived control over life also reported lower food insecurity by R3, while not much had changed for those who reported less control. In Tanzania, the slope shifted upwards such that, by R3, households reported greater food insecurity – although this declinined with greater perceived control, but at a decreasing rate relative to R2. Finally, in Malawi, where we observed a steeper slope – and hence a stronger negative relationship for FIES and control – by R2, this persisted in R3. Overall, as our study sites involve households that depend on agricultural sales, we expected them to be directly or indirectly affected by disruptions in food value chains, though the degree to which they were affected and over what time span varied considerably.

A related review of the key informant interview material gathered as part of APRA's multi-phase assessments echoed the results from the analysis of the food and nutrition data from the household surveys. In sum, over the three rounds, government-led COVID-19 control measures negatively affected people's ability to access food resources and make adequate nutritional choices, with both immediate and potential long-term effects. While improvements were observed in some of the study sites by R3, it is apparent that these interventions created higher risks for people who were already exposed to drivers

Figure 8: Household perceived control over life and Food Insecurity Experience Scale over time – across countries



Note: Local polynomial regression with confidence intervals.
Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

of inequity and insecurity, thereby deepening pre-existing vulnerabilities (Salm *et al*., 2022).

5. Conclusions

The APRA Programme of FAC has drawn on its extensive research network and strategic partnerships to undertake these rapid assessments, in order to understand changes in how the COVID-19 crisis disrupted food systems and livelihoods in study locations in eight countries in Africa – Ethiopia, Ghana, Kenya, Malawi, Nigeria, Tanzania, Zambia and Zimbabwe. This paper presents the results from the analysis of a three-round, multi-country, comparative analysis. While the evidence in this paper is descriptive, and the subjective nature of the questions are subject to limitations (Jolliffe *et al*., 2018; Hirvonen *et al*., 2020; Hirvonen *et al*., 2021), the results aim to draw attention to local-level trends and developments over the study period in specific rural areas.

Describing changes over time and across a range of rural contexts, we point to specific variations that were likely linked to state-led responses to the COVID-19 pandemic, including mobility restrictions and closures of markets, businesses and schools. These actions, however well intended, created adversities for certain aspects of some rural people's ability to continue to manage their farming and marketing operations and maintain their well-being in our study communities. However, the effects are mixed, with some respondents in our sample households experiencing more negative influences than others. Indeed, some households were remarkably resilient in their ability to respond to the shock of COVID-19, coping extremely well under the circumstances, both with and more often without external assistance.

Nevertheless, the majority of households in most of the APRA sample communities experienced some form of hardship, from restrictions on movement to greater childcare and housework responsibilities, and from reduced participation in farming and business activities to declining availability and rising cost of transportation. Many respondents noted COVID-19's negative effects on their perceived control over their own lives. Food availability and consumption patterns were also affected, with some respondents in several countries reporting worrying levels of food and nutrition insecurity in earlier periods. However, while the situation appeared to have been improving slowly from the early shock, concerns remained – and further action and assistance would be required to revert to pre-pandemic levels of food security and livelihoods.

These results indicate that a prolonged COVID-19 crisis could undermine the coping strategies that households have adopted over the longer term. Therefore, it will be important to continue to track these households and communities in the coming months to assess the aftermath of the COVID-19 pandemic in different parts of sub-Saharan Africa and to analyse how local people, governments and food systems respond and adapt further.

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Appendices

Appendix A: Sampling

The sampling frames for the phone surveys in study locations in the seven countries were based on prior surveys with the same households. We followed a multi-stage sampling approach. First, a purposive selection was done for five communities in each country out of the areas in the earlier survey round, based on the COVID-19 situation to enable targeting of sites that were more or less likely to be affected, using secondary real-time information. Second, stratification of households in each community was done based on the existing proportion of male- and female-headed households. Finally, 20 households were randomly selected for interviewing from each community. About five to 10 replacement households were randomly drawn to minimise the risk of attrition in further rounds.

In Round 1 of this study, 751 households were interviewed in June-July 2020. In Round 2, 846 households were interviewed in October 2020. Finally, in Round 3, 825 households were interviewed. Hence, attrition rates were very low across the rounds of the survey, and additional households were sampled to replace the ones that dropped out in most cases. **Table A1**, below reports the number of interviewed households across the three rounds. **Table A2** outlines the main characteristics of the respondents. Overall, we interviewed a minimum of 96 respondents (Kenya) up to a maximum of 115 respondents (Zambia); and respondents are, on average, 48 years old, with the highest average age of the respondents in Ghana (53) and the lowest in Zambia and Malawi. In almost all cases we interviewed the head of the household, including, on average, 24% women-headed households across all rounds.

Table A1 Samples, Round 1-Round 3, across countries

Country	Communities	Reason for selection	Round 1	Round 2	Round 3
Ethiopia	Kohar Abo; Kohar Michael; Kidest Hana; Bura; Jigena	Importance of rice production, accessibility to mobile network and all-weather roads	107	106	102
Ghana	Hotopo; Akatanchie; Ahountemo; Trebuom; Adum-Dominase	Oil palm processing activities, reliable network connectivity and representation of female household heads	110	107	103
Kenya	Kiambu; Kilifi; Kwale; Muranga; Nakuru	Proximity to Nairobi and Mombasa metropolis where the restrictions are likely to affect residents	100	96	102
Malawi	Mavwere; Zulu; Chikho; Chilooko; Nthondo	Proximity to trading centres	114	111	107
Nigeria	Owode Ward; Imeko Ward; Owu Ward; Rido Ward; Gami Gira Ward	Cases of COVID-19 as of May 2020	111	109	108
Tanzania	Mkusi; Chita; Njage; Makutano; Mchombe	Rice production and processing activities, accessibility by mobile phone and reported COVID-19 cases	102	100	97
Zambia	Lilanda; Luanga; Masansa; Nshinso	High intensity of agricultural commercialisation activities both within and outside the Mkushi Farm Block area	0	115	103
Zimbabwe	Stockbury; Lucknow Estate; Chipanza; Falling Waters; Glengrey	Proximity to markets, number of smallholder farmers and extension officers	107	102	103
All			**751**	**846**	**825**

Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

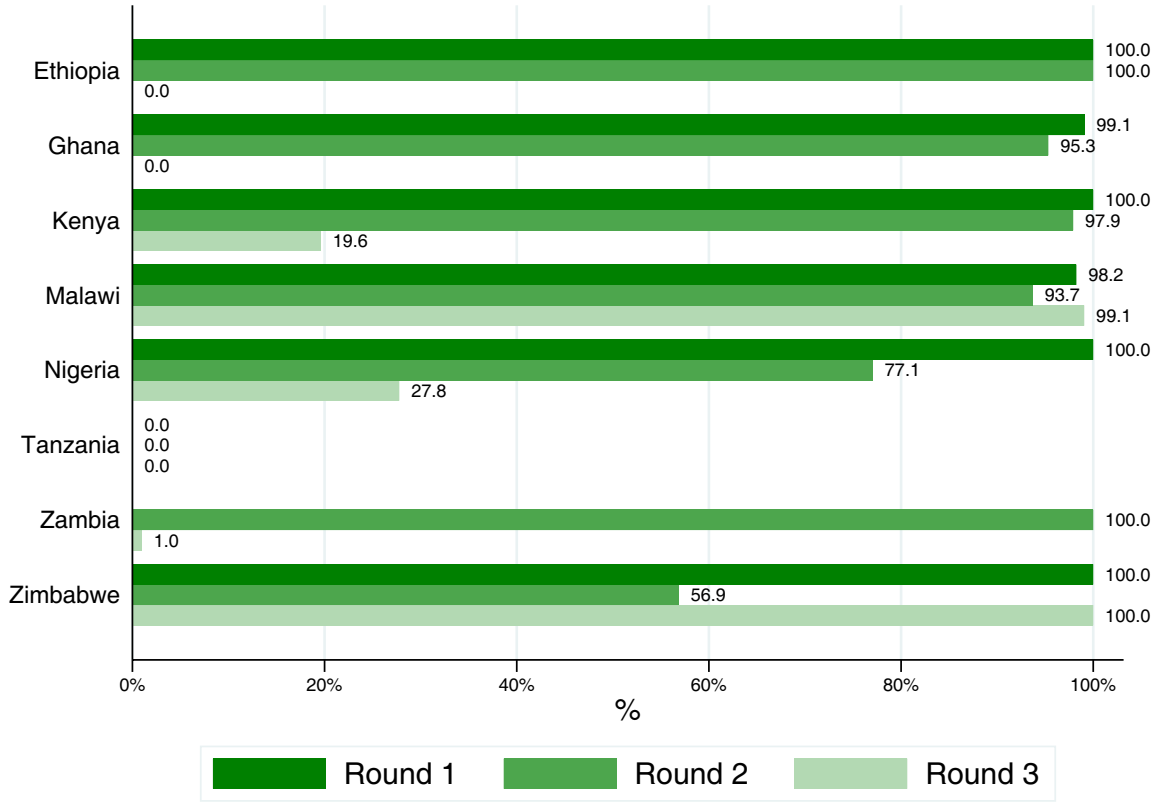
Table A2 Basic characteristics, Round 1-Round 3, across countries

Country	Round 1			Round 2			Round 3		
	N	Age	% female headed	N	Age	% female headed	N	Age	% female headed
Ethiopia	107	48.2	21.5%	106	48.9	21.7%	102	48.2	20.6%
Ghana	110	53.2	19.1%	107	53.0	16.8%	103	53.6	16.5%
Kenya	100	50.7	29.0%	96	52.5	33.3%	102	50.4	21.6%
Malawi	114	41.5	28.1%	111	41.4	23.4%	107	41.4	27.1%
Nigeria	111	47.0	34.2%	109	48.6	33.9%	108	48.8	34.3%
Tanzania	102	46.6	43.1%	100	47.2	42.0%	97	47.7	43.3%
Zambia				115	41.1	11.3%	103	42.3	9.7%
Zimbabwe	107	52.9	16.8%	102	53.5	18.6%	103	52.8	22.3%
All countries	**751**	**48.5**	**27.3%**	**846**	**48.1**	**24.8%**	**825**	**48.1**	**24.4%**

Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

Appendix B: Detailed tables

Figure A1: Schools closed, Round 1-Round 3 – across countries



Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

Table B1 Reported decrease in selling habits, Round 1-Round 3 – by sales modalities and across countries

Country	Ethiopia			Ghana			Kenya			Malawi			Nigeria			Tanzania			Zambia			Zimbabwe		
	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
At the farm gate (from your own farm)	10.3	9.4	10.8	66.4	46.7	35	47	43.8	58.8	50	25.2	21.5	71.2	54.1	28.7	81.4	70	67	0	75.7	63.1	86.9	36.3	74.8
In local markets	32.7	5.7	5.9	54.5	39.3	13.6	31	43.8	53.9	46.5	26.1	21.5	64	59.6	23.1	56.9	60	61.9	0	77.4	71.8	86.9	34.3	83.5
In district or regional markets	31.8	4.7	7.8	38.2	30.8	1.9	12	42.7	37.3	23.7	8.1	9.3	43.2	34.9	14.8	33.3	28	25.8	0	77.4	72.8	81.3	25.5	87.4
In national markets	0	0	1	19.1	5.6	6.8	3	32.3	25.5	3.5	2.7	6.5	21.6	7.3	4.6	3.9	24	20.6	0	59.1	28.2	33.6	7.8	45.6
Across the border	0	0	0	0.9	1.9	0	0	25	17.6	1.8	0.9	6.5	17.1	2.8	0	0	12	7.2	0	27	18.4	0.9	0	0

Note: Percentages refer to the entire sample, also including observations that do not sell in a specific market

Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

Table B2 Reported changes in transportation, Round 1-Round 3 – across countries

Country	Ethiopia			Ghana			Kenya			Malawi			Nigeria			Tanzania			Zambia			Zimbabwe		
	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Still able to hire transport to take your produce to the point of sale	91.6	91.5	90.2	82.7	79.4	78.6	22	28.1	26.5	20.2	15.3	11.2	64.9	90.8	94.4	85.3	60	47.4	0	55.7	72.8	72.9	96.1	82.5
Decreased cost of transportation of people and goods changed as an effect of COVID-19	0	29.2	1	0	0.9	0	5	13.5	7.8	5.3	9.9	1.9	4.5	1.8	3.7	6.9	3	2.1	0	0.9	1	2.8	8.8	2.9
Decreased buyers or brokers coming to the area to purchase produce directly from you and other farmers due to COVID-19	12.1	12.3	17.6	72.7	48.6	32	88	62.5	63.7	54.4	55	44.9	82	60.6	55.6	94.1	82	81.4	0	86.1	75.7	94.4	74.5	80.6

Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

Table B3 Reported decrease in availability and increase in prices of food items in local markets over time – across countries

	Ethiopia			Ghana			Kenya			Malawi			Nigeria			Tanzania			Zambia			Zimbabwe		
	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Availability																								
Grains	11.2	42.5	5.9	29.1	20.6	28.2	38	24	49	45.6	47.7	24.3	49.5	25.7	12	44.1	11	9.3	0	42.6	35	36.4	8.8	15.5
White roots,tubers and plantains	12.1	22.6	37.3	40.9	32.7	26.2	45	47.9	44.1	31.6	32.4	29.9	64	29.4	20.4	12.7	16	13.4	0	47.8	34	39.3	60.8	53.4
Pulses, nuts and seeds	19.6	46.2	14.7	10.9	2.8	19.4	49	54.2	80.4	39.5	44.1	38.3	45	22	17.6	19.6	8	1	0	51.3	44.7	23.4	25.5	46.6
Milk and milk products	10.3	39.6	94.1	10.9	0	1	20	28.1	39.2	37.7	24.3	14	37.8	20.2	11.1	19.6	5	2.1	0	58.3	42.7	48.6	23.5	22.3
Meat and poultry	3.7	7.5	27.5	28.2	3.7	1.9	26	18.8	35.3	29.8	18.9	15	40.5	19.3	12	1	7	1	0	51.3	40.8	56.1	17.6	23.3
Fish and seafood	15.9	24.5	63.7	44.5	13.1	24.3	30	27.1	49	35.1	20.7	20.6	43.2	20.2	16.7	2	2	43.3	0	59.1	55.3	50.5	10.8	15.5
Eggs	6.5	2.8	2.9	3.6	1.9	12.6	26	24	47.1	13.2	7.2	7.5	36	20.2	10.2	4.9	3	2.1	0	54.8	39.8	49.5	8.8	29.1
Dark green leafy vegetables	6.5	50.9	56.9	13.6	17.8	6.8	50	25	56.9	21.1	12.6	7.5	15.3	11.9	13	3.9	5	0	0	34.8	22.3	3.7	11.8	32
Other vegetables	5.6	49.1	26.5	25.5	23.4	6.8	49	27.1	55.9	16.7	10.8	5.6	35.1	16.5	12	2	8	1	0	43.5	25.2	3.7	38.2	32
Other fruits	1.9	51.9	28.4	27.3	26.2	21.4	48	55.2	65.7	43	38.7	20.6	39.6	17.4	15.7	8.8	7	0	0	58.3	45.6	15	34.3	13.6
Processed foods	17.8	17.9	3.9	7.3	0.9	0	29	17.7	22.5	25.4	9.9	4.7	44.1	13.8	13.9	2.9	0	0	0	42.6	23.3	32.7	0	4.9

	Ethiopia			Ghana			Kenya			Malawi			Nigeria			Tanzania			Zambia			Zimbabwe		
	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Prices																								
Grains	73.8	66	65.7	63.6	72	91.3	72	49	75.5	35.1	58.6	30.8	91.9	90.8	95.4	43.1	8	12.4	0	82.6	97.1	76.6	35.3	36.9
White roots,tubers and plantains	69.2	35.8	61.8	65.5	77.6	72.8	66	61.5	47.1	34.2	38.7	34.6	88.3	83.5	86.1	6.9	7	7.2	0	77.4	91.3	33.6	63.7	40.8
Pulses, nuts and seeds	70.1	67.9	79.4	30.9	28	52.4	71	62.5	79.4	46.5	50.5	45.8	65.8	64.2	81.5	18.6	10	2.1	0	82.6	91.3	29	42.2	29.1
Milk and milk products	70.1	59.4	88.2	43.6	58.9	55.3	33	36.5	38.2	28.9	25.2	26.2	70.3	83.5	95.4	7.8	4	2.1	0	88.7	92.2	76.6	37.3	24.3
Meat and poultry	62.6	48.1	54.9	58.2	72	71.8	44	30.2	49	42.1	41.4	28	83.8	84.4	94.4	2.9	2	0	0	90.4	89.3	81.3	40.2	35
Fish and seafood	28	23.6	56.9	70.9	64.5	87.4	42	40.6	32.4	34.2	38.7	29.9	73.9	79.8	85.2	0	2	41.2	0	96.5	94.2	82.2	21.6	19.4
Eggs	71	73.6	53.9	15.5	20.6	93.2	41	35.4	45.1	26.3	22.5	21.5	60.4	84.4	92.6	0	1	2.1	0	90.4	94.2	76.6	28.4	42.7
Dark green leafy vegetables	60.7	41.5	52	20.9	21.5	28.2	59	30.2	58.8	14.9	19.8	8.4	32.4	37.6	60.2	1	2	0	0	75.7	74.8	26.2	23.5	20.4
Other vegetables	62.6	50.9	53.9	40.9	45.8	36.9	62	35.4	59.8	11.4	23.4	4.7	36.9	37.6	63.9	0	3	0	0	71.3	74.8	26.2	50	17.5
Other fruits	65.4	65.1	73.5	46.4	51.4	54.4	58	62.5	67.6	31.6	38.7	15.9	45	45	67.6	2	1	0	0	88.7	80.6	32.7	50	7.8
Processed foods	79.4	67.9	76.5	28.2	35.5	49.5	35	22.9	31.4	30.7	27.9	30.8	58.6	60.6	72.2	0	0	0	0	88.7	95.1	71	34.3	35

Source: Own calculations from APRA COVID-19 Rapid Assessment – R1, R2 and R3.

Saha, A., Carreras, M. and Thompson, J. (2022) *A Multi-Phase Assessment of the Effects of COVID-19 on Food Systems and Rural Livelihoods in Sub-Saharan Africa*. APRA COVID-19 Synthesis Report 3, Brighton: Future Agricultures Consortium

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ISBN: 978-1-78118-956-6 DOI: 10.19088/APRA.2022.011

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Agricultural Policy Research in Africa (APRA) is a programme of the Future Agricultures Consortium (FAC) which is generating new evidence and policy-relevant insights on more inclusive pathways to agricultural commercialisation in Sub-Saharan Africa. APRA is funded with UK aid from the UK Foreign, Commonwealth & Development Office (FCDO) and will run from 2016-2022.

The APRA Directorate is based at the Institute of Development Studies (IDS), UK (www.ids.ac.uk), with regional hubs at the Centre for African Bio-Entrepreneurship (CABE), Kenya, the Institute for Poverty, Land and Agrarian Studies (PLAAS), South Africa, and the University of Ghana, Legon. It builds on more than a decade of research and policy engagement work by the Future Agricultures Consortium (www.future-agricultures.org) and involves more than 100 researchers and communications professionals in Africa, UK, Sweden and USA

Funded by the UK Foreign, Commonwealth & Development Office

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This report is funded with UK aid from the UK government (Foreign, Commonwealth & Development Office – FCDO, formerly DFID). The opinions are the authors and do not necessarily reflect the views or policies of IDS or the UK government