

Assessing the Impacts of the COVID-19 pandemic on the livelihoods of rural people: A review of the evidence

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Introduction

Designing and targeting policies to combat the adverse economic and social impacts of COVID-19 is complicated by the high levels of heterogeneity in impacts. Just as the physical symptoms of the virus vary person to person, emerging data on the economic and social impacts of the pandemic highlight considerable variations in impacts between socio-economic groups, genders, occupations, regions, and countries (Bene et al, 2020; Egger et al., 2021; Bundervoet et al., 2021). An important, but underappreciated, facet of the pandemic is its impacts on rural people. During the early phase of the crisis, some predicted that rural areas would be spared from its negative impacts, because lockdown measures were focused primarily in urban areas and food and agriculture related activities were generally exempted (The Economist 2020; Reardon 2020). However, as the pandemic persists and new evidence emerges, it is becoming clear that rural spaces, including those in developing countries, are experiencing substantial economic hardship as a result of the pandemic (Liverpool Tasie 2021; Egger et al 2021; Bundervoet et al., 2021; Bene et al, 2021; Josephson et al. 2020;).

Rural economies and rural livelihoods do not operate in isolation from urban areas and national and global economies. Rather, rural spaces are interwoven into national and global markets through complex networks of production, trade, migration, and remittance flows. These linkages, combined with disproportionately higher levels of pre-pandemic poverty and food insecurity, make rural places and rural livelihood acutely vulnerable to adverse economic impacts of the pandemic. Moreover, informality is a key feature of rural life in many countries. As a result, rural people are less likely to have access to contributory social insurance (e.g. health insurance, unemployment benefits) and to other services, such as credit and insurance, which help to reduce the livelihood risks of the pandemic. Of course, the degree of integration of rural spaces into global/national markets, pre-pandemic poverty and food insecurity rates, and institutional capacity is highly variable. This variability is reflected by the maturation and complexity of a country's food system.

In order to inform COVID-19 recovery and mitigation policy responses, it is critical to understand the extent of the economic impacts of the pandemic on rural households and how these vary across countries. To this end, this paper consolidates the emerging evidence on COVID-19 impacts in rural areas and explores the heterogeneity of impacts through a food systems lens. In particular, the paper draws on nationally representative household survey data collected from 54 countries¹ since the start of the pandemic through the World Bank's COVID-19 High Frequency Monitoring Dashboard to generate descriptive data on COVID-19 impacts in rural areas across three dimensions: income, coping strategies, and food security. These descriptive data are contextualized and validated through a systematic review of rigorous, survey-based studies of COVID-19 impacts in rural areas. Together these sources of data provide insights on how COVID-19 is influencing rural livelihoods, how its impacts vary between countries

¹ Data from the World Bank COVID-19 High Frequency Monitoring Dashboard have been downloaded on April 22nd, 2021. The Dashboard is periodically updated.

and food systems, and, ultimately, how policy-makers and the international community needs to respond in order to foster an inclusive and sustainable recovery.

Understanding COVID-19 Impacts on Rural Spaces: Vulnerability and Food Systems

While individual and household-level characteristics are critical for explaining specific vulnerabilities to COVID-19 containment measures, these are shaped by national-level contextual features. For rural people, many of whom rely on primarily agricultural production and associated employment and enterprise activities for their livelihoods, the broader food system context within which they operate is likely to influence their vulnerabilities to the pandemic.

To account for heterogeneity in food systems, we disaggregate data on COVID-19 impacts using a country-level food system typology developed by Johns Hopkins University and The Global Alliance for Improved Nutrition. This typology is based on four criteria measuring different dimensions of food system transformation. The first is “Agriculture value added per worker”, measured in constant 2010 USD. This variable measures a key feature of food system modernization, which is that as labour prices increase, capital gradually replaces labour, which drives improvements in labour productivity in the agricultural sector. As a result, labour is released from the agricultural sector to be employed in industry and services. The second is the share of dietary energy from cereals, roots, and tubers. This variable measures dietary transformations, which are often both drivers and outcomes of food system transformations. In particular, as incomes grow and food systems modernize, diets shift away from being dominated by carbohydrates to being more diversified and rich in animal proteins, fruits and vegetables. The third is the number of supermarkets per 100,000 people. This variable measures the extent to which informal food retail shops, that dominate more traditional food systems, are replaced by large-scale and formalized food retail outlets and supply chains. Finally, the typology includes the share of urban population to total national population. This variable proxies for the dynamic process of urbanization that occurs as food systems transform, and labour is released from the agriculture sector and exits rural areas.

Based on these variables, each country is assigned a score, which is then sorted from lowest to highest. The food system typology is created by separating the distribution of scores into quintiles, with the lowest quintile representing the most modern food system type and the highest quintile representing the most traditional food system type. **Table 1** presents the five food system typologies, along with the median values and interquartile ranges (25th percentile to 75th percentile) for each of the variables used to create the typology.

Of course, it is important to recognize that country-level typologies can mask important differences that exists sub-nationally, across geography and different food commodities. This is because Food systems are dynamic, with multiple types often existing in parallel, and transforming over time. However, for the purposes of this paper, country food system typologies are a useful tool for understanding commonalities and differences in the impacts of the pandemic on rural spaces.

Table 1. Country Typologies with median and interquartile ranges

	Agricultural value added per worker, constant 2010 USD	Share of dietary energy from staples	Number of supermarkets per 100,000 population	Percent of total population living in urban areas
Mean (interquartile ranges)				
Rural and traditional	814 (522 – 1,218)	0.67 (0.58 – 0.71)	0.34 (0.24 – 0.45)	0.34 (0.24 – 0.37)
Informal and expanding	2,428 (1,559 – 3,344)	0.58 (0.51 – 0.62)	0.65 (0.51 – 1.83)	0.52 (0.43 – 0.59)
Emerging and diversifying	5,511 (3,907 – 6,955)	0.46 (0.41 – 0.51)	4.00 (2.02 – 5.85)	0.57 (0.50 – 0.68)
Modernizing and formalizing	14,382 (10,519 – 20,331)	0.39 (0.35 – 0.43)	7.15 (3.92 – 14.25)	0.76 (0.66 – 0.84)
Industrialized and consolidated	53,180 (27,842 – 80,456)	0.29 (0.27 – 0.31)	13.97 (10.73 – 22.70)	0.83 (0.77 – 0.91)

Results

This section summarizes evidence on the impacts of the COVID-19 pandemic in rural areas across three livelihoods domains: income, including agricultural production, coping strategies, and food security. For each domain, national-level descriptive evidence is compiled from the World Bank’s COVID-19 High Frequency Monitoring Dashboard and disaggregated by country food system typology. These data are validated and contextualized with data derived from a systematic mapping of quantitative literature on the impacts of COVID-19 in rural spaces.

Income

Rural people frequently adopt diversified livelihoods strategies in order to augment incomes and reduce consumption risks associated with primary agricultural production (Davis et al., 2016; Davis et al., 2010; Barrett et al., 2001). While diversified livelihood strategies are effective for mitigating many sources of covariant and idiosyncratic risks, such as weather shocks and price spikes, the COVID-19 pandemic is different. Efforts to contain the spread of the virus have led to business closures, restrictions on trade and domestic mobility, and disruptions in markets for agricultural outputs, inputs, and labour, which affect different facets of people’s livelihoods. The multi-dimensionality of risks and stressors created by the pandemic is unique.

In this section we summarize the evidence on the impacts of the pandemic on incomes across multiple domains (wages, remittances, non-farm family businesses, and farm income). **Table 7** summarizes data on the share of households that experienced income losses in these four domains from 45 countries for

the first wave of data collection². The data presented in **Table 7** are the median values and ranges and are disaggregated by urban and rural, as well as by food system typologies.

A key outcome from the data presented in **Table 7** is that across the four income domains, the median share of households reporting incomes losses for all countries is similar or even higher in rural areas compared to urban. This result challenges the conventional wisdom that the consequences of the pandemic are most acute in urban areas, where lockdown measures were likely to be more stringently enforced (Sanchez-Paramo 2020). It also highlights the strong economic interconnections that exist between urban and rural spaces as a result of trade and migration. Moreover, these results are indicative of the fact that rural livelihoods are in general more vulnerable to economic shocks, due to higher levels of poverty and more limited access to formal risk management tools, such as insurance, credit.

Wage income opportunities in rural spaces are typically tied to the broader food system and are often informal. Common wage-earning options in rural places include, for example, seasonal or permanent wage labour on farms, and employment in local small and medium-scale enterprises involved in agricultural sector services and trading, processing, and retailing of agricultural products. While many countries exempted agricultural and food related activities from lockdown measures, movement restrictions, market closures and health concerns led to reductions in hours worked and availability of wage employment in rural areas. Empirical evidence from the literature suggests that informal rural workers are bearing the brunt of this impact. For example, the implementation of nationwide curfews in Burkina Faso, Mali and Senegal reduced the number of hours businesses operate, contributing to job loss rates for informal rural workers of between 33% and 48% (Balde et al 2020). Similarly, Josephson et al (2020) find that non-farm income sources are the most likely to be most affected by lockdown policies. This is a worrying finding, because informal workers often lack access to contributory social protection schemes (e.g. health insurance, unemployment benefits) and thus have limited avenues for effectively coping with wage losses.

As shown in **Table 7**, across food system typologies, median results show that a smaller share of respondents reported wage income loss in modernizing and formalizing food system countries (49 percent) compared to the other food systems (57-58 percent). In more modernized food system countries, formal wage employment and associated wage insurance is more widespread, which can protect workers' wages during lockdown periods. Interestingly, the ranges of people reporting wage income losses are largest in the rural and traditional and modernizing and formalizing food systems, and smaller in the middle groups. High levels of variation may be due to variability between countries in terms of the stringency of lockdown measures, and the nature of wage employment available. In modernizing and formalizing food systems, teleworking options are more widespread in some countries than others, while in rural and traditional food systems lockdown measures may not have affected common sources of wage income, such as piecework farm labour.

Remittances from internal and external migrants are an important source of household income in many rural spaces, particularly in low and middle-income countries. National survey data indicates that income loss from remittances is a widespread issue for many rural households. As shown in **Table 7**, a median value of 72 percent of households reports a loss of remittance incomes in rural areas compared to 61

² Please note that waves do not refer to the same months across different countries. First waves of data collection were conducted between April and August 2020.

percent in urban areas. This is likely driven by the higher overall dependence on remittances in rural spaces compared to urban. Interestingly, the share of households reporting income losses from remittances increases at the median from 66.5 percent of households in rural and traditional food systems to 73.5 percent in modernizing and formalizing systems. This likely because labour migration is more common for rural people in modernized food systems than in other food systems, due to greater dynamism in local urban labour markets and higher overall levels of human capital. It is also worth noting that ranges of the proportion of households reporting income losses from remittances are small in the rural and traditional and the informal and expanding food systems and become progressively larger in the more advanced systems. This suggests that in more advanced food system countries there is greater heterogeneity in terms of reliance on remittances than in more traditional systems.

We found 31 papers reporting on income losses among rural households as consequence of COVID-19. Evidence from these papers highlights the implications of remittance losses on rural households. In Burkina Faso, Senegal and Mali, for example, Balde et al., (2020) find that roughly 55 percent of individuals who have difficulty in satisfying their basic needs indicate that they have experienced a drop in the amount of remittances received as a result of the COVID-19 pandemic. The loss of remittance income often also entails coping with a wave of migrants returning to rural areas. For example, in India millions of seasonal and migrant labourers across the country travelled back to their home states and harvest operations became directly dependent on the supply of local labour, equipment, and inputs (Ceballos et al., 2020). How long these migrants remain in rural areas and how they are integrated into the social and economic fabric is likely to have important implications for future development trajectories for these areas. For example, substantial return migration may affect local wage rates and reduce incentives to invest in labour saving technologies.

Non-farm businesses in rural areas include a wide range of local services, small and medium-scale retail shops, and processing firms, among other things. These industries are sensitive to pandemic lockdown measures through both reductions in demand, spurred by declining purchasing power, as well as supply chain disruptions due to mobility restrictions. The data presented in **Table 7** show that non-farm businesses are the most frequently cited source of income loss due to COVID-19 in both urban and rural areas, with 83-84 percent of household indicating a loss of income from this source and no differences between food system typologies. The ranges around these median values are also fairly small, particularly in the rural traditional and informal and expanding food system countries, where between 69 and 93 percent of rural households report income losses in non-farm businesses. Conversely, in emerging and diversifying and modernizing and formalizing food systems, the ranges of adverse impacts on non-farm businesses are considerably larger, suggesting more heterogeneous impacts in these countries. Greater heterogeneity in more advanced food system countries may be driven by more flexible and diversified non-farm businesses, which are able to “pivot” to new operating modalities in response to lockdown restrictions.

Table 7. Share of Households Reporting Income Loss by Income Source and Total

	Wage Income		Remittances		Non-farm family business		Family Farm		Total Income	
	(% of Households)									
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
All countries	27-76	32 -74	42 - 86	40 -86	32 - 94	33 -93	41 - 84	0 - 89	26 - 90	30 - 85
Median	(58)	(58)	(72)	(61)	(83)	(84)	(74)	(71)	(66.5)	(67)
Rural&Traditional	32 -76	39 - 72	66 - 67	54 - 64	79 - 93	40 - 87	62 - 84	70 - 83	62 -83	62 - 81
Median	(57)	(60)	(66.50)	(69)	(85)	(80)	(78)	(76.5)	(77)	(68)
Informal&Expanding	57 -71	52 - 66	56 - 68	40 - 61	69 - 91	80 - 90	74-84	0 -82	26 - 71	30 - 72
Median	(57)	(53)	(62)	(50.5)	(84)	(88)	(79)	(41)	(55)	(57)
Emerging&Diversifying	57 -75	45 - 62	58 - 77	54 - 72	32 - 94	33 - 93	71 - 81	65 - 81	59 - 90	51 - 81
Median	(58)	(56.5)	(72.5)	(59.5)	(83)	(84)	(76)	(72)	(74.5)	(66.5)
Modernizing&Formalizing	27 -76	32 - 74	42 - 86	45 - 86	45 - 94	76 - 93	41 - 74	40 - 89	46 - 83	51 - 85
Median	(49)	(49)	(73.5)	(65.5)	(83)	(85)	(59)	(61)	(62)	(72)

Source: World Bank COVID-19 High Frequency Monitoring Dashboard

The indicator on farm incomes measures decreases due to reduced production, prices, and sales of crop, livestock, forestry, and fishery products. The COVID-19 pandemic affects farm incomes through disruptions in output and input markets, price volatility, and labour supply constraints. Labour intensive production systems, such as fruits and vegetables, as well as products with a high-income elasticity of demand are likely to be particularly sensitive to the adverse incomes effects and mobility restrictions stemming from efforts to contain the virus. For example, Salazar et al., (2020) find that 40 percent of Argentinian, Bolivian, Paraguayan, Peruvian and Dominican farmers report that a drop in demand for farm products contributed to reduced overall sales, while 67 percent of these farmers reported a lower sale price than expected for their products. (Salazar et al., 2020). Even in fragile country contexts, the pandemic has affected prices and demand for agricultural products. In Somalia, for example, 69 percent of households reported they faced difficulties in selling their crops because of reductions in demand and prices (FAO, 2021c). Similarly, in Afghanistan 43 percent of the producers that reported unusual difficulties in selling their production due to a sharp drop in prices (FAO, 2021d).

The World Bank High-Frequency Dashboard data show that at the median 74 percent of rural of households in all food system typologies indicating a loss of farm income due to COVID-19, while 71 percent of urban households that are engaged in agriculture report a decline (**Table 7**). The median values are highest in rural and traditional food systems, with 77 percent of households reporting a reduction of farm income. This is a worrying finding, given the high rates of pre-COVID-19 poverty and food security in

rural spaces in these countries, where even a small drop in income can have deleterious impacts on households' abilities to access nutritious diets.

While the World Bank Dashboard data do not provide details on farm level impacts on production, empirical papers identified through the systematic literature review provide some insights. In total 16 survey-based studies examined the ways in which COVID-19 has affected farm production, focused mostly in Rural and Traditional and Informal and Expanding food system countries (n=12). We categorized evidence from these studies in four main channels through which COVID-19 impacted production: Access to hired labour, sales, productive inputs, and productive capacity³. The reported ranges of households adversely affected through these channels is presented in **Table 8**. The results show a high degree of heterogeneity within channels and between country typologies.

In terms of hired labour, the share of farm households that were not able to access hired labour ranged between 21 and 84% in the identified papers. Both the high and low ends of this distribution are found in Rural and Traditional food systems. On the one hand, 84 percent of respondent in Malawi report challenges hiring farm labour, while in Tanzania 21 percent of households report a similar challenge (Carreras et al., 2020). A possible explanation for this is a difference in the governments' approach towards lockdown. The Stringency Index⁴ by the Oxford COVID-19 Government Response Tracker (University of Oxford), which measures the severity of national lockdowns on a scale from 0 to 100 based on nine indicators including workplace closures, shows that at the time of the survey (June-July 2020) lockdown measures in Malawi were 30 points more stringent than in Tanzania (60 for Malawi and 30 for Tanzania).

The share of households reporting adverse effects of COVID-19 on farm sales is extremely heterogeneous across countries, and range from just 5 percent in Zimbabwe (Rural and Traditional) and 100 percent in Paraguay (emerging and diversifying). In Rural and Traditional and Informal and Expanding food system countries, the highest share of households reporting disruptions in sales was 56%, well below the 88 to 100 percent range reported for Emerging and Diversifying food systems. This may be due differences in the length and complexity of the supply chains farmers in these food systems are selling to. In less advanced food systems, many farmers produce staple food crops destined for local markets. These relatively shorter supply chains are exposed to less potential risks of disruptions than longer and more complex supply chains found in Emerging and Diversifying systems.

Supply chains for inputs, including seeds and fertilizers, also experienced significant disruptions due to the pandemic. These disruptions include delays in the distribution of inputs within countries due to mobility restrictions as well as breakdowns in cross border trade due to delays at border crossings and shipping ports. The ranges of farm households reporting challenges with accessing inputs are lowest in Rural and Traditional food systems, where the use of commercial inputs is relatively less widespread. On the upper end of the distribution, 85 percent of households in Peru (Emerging and diversifying typology) report input access challenges, specifically an increase in prices. Input policies may play a role in household level differences in input access. In Peru a rural voucher grant policy was in place before COVID-19, however there was no established input distribution program. This is not the case in other countries within the region. For example, in Paraguay seed kits, inputs and technical assistance are being granted to vulnerable

³ For the complete list of indicators found in the literature for impacts on income please refer to Table 6.

⁴ More detailed information is available at: [COVID-19: Stringency Index, Jun 1, 2021 \(ourworldindata.org\)](https://ourworldindata.org/covid-19-stringency-index)

families while in the Dominican Republic, some farmers received inputs and the government carried out a program for plough mechanization. The existence of these programmes helped to moderate the share of households exposed to increasing input costs due to the pandemic (Salazar et al., 2020).

Finally, similar to other outcomes, the empirical evidence on the impacts of the pandemic on productive capacity, including reductions in area planted, delays in planting, reductions in livestock holdings, and higher production costs, exhibits substantial heterogeneity between countries and food system typologies. These range from just 3 percent of households in Zambia to 82 percent in Somalia. In Zambia, impacts on productive capacity were diverse. While only 3 of farmers reported a delay in planting due to the COVID-19 pandemic, many more (49 percent) experienced difficulties in transporting the harvest to the point of sale (Nchanji et al, 2020). For Somalia the exceedingly high number of affected households is likely explained by the confluence of low rainfall conditions, an outbreak of desert locust, and the COVID-19 pandemic, which caused the majority of respondents to report “unusual difficulties” with production (FAO, 2021c). These contextual factors highlight the diverse ways in which COVID-19 affects agricultural production within and between countries, and the ways in which COVID-19 can intensify the adverse impacts of traditional risks to production.

Table 8. Evidence on COVID-19 impacts on production from systematized literature review

	Hired Labour	Sales	Productive Inputs	Productive capacity
	(% of Households)			
	Rural	Rural	Rural	Rural
All countries	21 - 84	5 - 100	11 - 85	3 - 82
Rural & Traditional (n=7)	21 -84	5 - 56	11 - 33	3 - 82
Informal & Expanding (n=5)	34 - 54	6 - 52	20 - 62	9 - 20
Emerging & Diversifying (n=1)	27 - 60	88 - 100	40 - 85	N/A
Modernizing & Formalizing (n=2)	N/A	N/A	20 - 62	N/A
Industrialized & Consolidated (n=1)	N/A	N/A	N/A	N/A

Coping Strategies

How households cope with the income shocks created by the COVID-19 pandemic will shape its long-term impacts on household welfare. Poorer households with limited resources, savings, or access to insurance, credit, and social protection may cope with income shocks by reducing consumption, including of essential goods such as food and health care, and liquidating productive assets (Nikoloski et al, 2018, World Bank, 2013). Coping strategies such as these can help households meet their immediate needs but have lasting effects on household welfare and push households in low equilibrium poverty traps that are hard to escape (Dasgupta, 1997; Carter and Barrett). Conversely, relatively better-off households may rely on

borrowing or drawing down savings to cope with shocks. In places where institutions are strong, insurance and social protection may offset the necessity of adopting coping strategies. It is expected, therefore, that the types of coping strategies adopted and the share of households that relied on coping strategies will vary between urban and rural spaces, as well as between countries in different food system typologies.

Table 9 shows descriptive data on three coping strategies collected through the World Bank Dashboard in 40 countries, disaggregated by urban/rural and food system typologies. The data show that across all countries, reduced consumption of goods is the most commonly adopted coping strategy, with a median value of 42 percent of households in all countries relying on this strategy. Interestingly, the data show no significant differences between urban and rural places or across food system typologies for this variable. However, the ranges between countries for this variable are large. In Malawi, a Rural and Traditional food system country, only 2 percent of households indicated that they reduced consumption to cope with COVID-19. Conversely, in Indonesia, an Informal and Expanding food system country, 82 percent of households answered yes to the same question. These large differences are likely driven by variation in pre-pandemic consumption patterns and the stringency of lockdown measures. At the time that surveys were administered, Indonesia had a stringency index 20 points higher than Malawi (Hale et al, 2021).

General indicators of reduced consumption masks important substantive and contextual differences that are important to consider. In total, 17 survey-based papers were identified reporting on rural households engaging in coping strategies in response to the pandemic. Drawing on this literature, we find a wide range of impacts on consumption, particularly food consumption. On the low end of the distribution, evidence shows that 32% of households in rural Bangladesh reduced food consumption to cope with COVID-19 income losses. In Bangladesh, where the use of savings is the most common coping strategies. Conversely, in Liberia at 94% of rural households reduced food consumption to cope with COVID-19 income losses. Of this total, 46 percent of respondents reported reducing cereal consumption, while for fruits, vegetables, milk-based products, and roots and tubers the percent of respondents was 28, 23, 24, and 22 percent respectively. This shows a strong decrease in the consumption of staple and non-staple foods, which partly can be explained by price increases during this reference period (as is the case for cereals) but also due to insufficient household income (FAO, 2021b). Evidence also shows a significant reduction in consumption of non-food goods, such as in Yemen where 67% of interviewed households reported reduction in essential non-food expenditure and 54% in productive inputs (FAO, 2021e).

Table 9. Share of households adopting coping strategies during the pandemic

	Reduced consumption of goods during the pandemic		Sold assets to pay for basic living expenses during the pandemic		Used emergency savings to cover basic living expenses during the pandemic	
	Rural	Urban	Rural	Urban	Rural	Urban
All countries	2 - 82	5 - 79	0 - 21	0 - 28	3 - 59	4 - 57
median	(42)	(42)	(4)	(2)	(15)	(16)
Rural and Traditional	2 - 78	5 - 71	0 - 16	0 - 28	3 - 40	5 - 37
median	(42)	(42)	(4)	(2)	(15)	(16)
Informal and Expanding	40 - 82	42 - 79	1 - 21	0 - 13	11 - 59	11 - 57

median	(45)	(44)	(4)	(2)	(15)	(16)
Emerging and Diversifying	14 - 64	19 - 63	1 - 12	0 - 5	4 - 26	5 - 32
median	(41)	(42)	(7)	(3)	(20)	(16)
Modernizing and Formalizing	14 - 54	11 - 57	1 - 5	0 - 3	5 - 23	4 - 27
median	(46)	(42)	(2)	(2)	(9)	(10)

Source: World Bank COVID-19 High Frequency Monitoring Dashboard

Use of emergency savings to cover basic living expense is the second most common coping strategy captured in the World Bank COVID-19 High Frequency Monitoring Dashboard data, with a median value of 15 and 16 percent for all countries in rural and urban areas respectively. As with the reduced consumption outcome, the ranges for this outcome are large (3 to 59 percent), suggesting substantial country heterogeneity, but with minimal observed variation between urban and rural spaces at the median. Between food system typologies, the data show that this coping strategy is most common in rural areas in Emerging and Diversifying food system countries (20 percent median value) and less common in Modernizing and Formalizing food system countries (9 percent). This may be explained by differences in the severity of the income shocks in these country groups and differences in coverage by social protection. In our systematic analysis we only have evidence for the use of savings as a coping for Rural and Traditional countries. Within this typology we see a large variation with a highest value of 83 percent for Bangladesh and a lowest of 30 percent in Kenya. This particular sample for Kenya refers to subsistence farmers of which less than half have savings at a formal institution (Shell Foundation, 2020). In Bangladesh, as mentioned, according to Rahman et al. (2020) savings were the most prevalent coping mechanism among rural households. In Yemen as well 39 percent of households reported using savings as coping mechanism (FAO, 2021b).

The final and least common outcome variable related to coping strategies in the World Bank COVID-19 High Frequency Monitoring Dashboard is sale of assets. While the median values for this coping strategy are low, households in rural areas and households in less advanced food system countries are more likely to rely on asset sales as a coping strategy. These data are consistent with findings from Josephson et al., (2020), who find that in Ethiopia, Nigeria, Malawi, and Uganda rural households are more likely to liquidate assets as a COVID-19 coping strategy than urban ones. In rural areas, many of the assets available to a household are productive in nature, such as farming equipment and livestock. Reliance on this coping strategy, therefore, raises concerns about the longer-term consequences of the pandemic on the productive capacity of households. Indeed, Christensen et al, (2018) demonstrate that asset sales curtail households' ability to generate adequate income for a long time after a shock and lead to lower human capital accumulation. Evidence from the systematic review shows variation in sales of assets as a coping mechanism related to difference in the availability of alternative coping mechanism and resource endowments. For example, in Bangladesh only 4 percent of households liquidated assets, while many more relied on savings (83 percent). Conversely among livestock owning households in Afghanistan, 49 percent reported distress livestock sales as a coping mechanism (FAO, 2021d). Also in Yemen 19 percent of surveyed household reported selling household goods as a coping mechanism, while in Sudan 286 out of 448 key respondents that were interviewed reported selling productive assets (FAO, 2021b; FAO, 2021f).

Of course, there are many more coping strategies that households can adopt that are not included in these three outcome variables. The systematic literature review shows that in addition to these three

outcomes, rural households also rely on reducing investments in farm and non-farm enterprises and relying on borrowing and social networks. In Bangladesh 35% of rural households relied on borrowing while 10% relied on family and neighbours (Rahman et al., 2020). In Liberia 51 percent of surveyed households reported incurring debt, while a very high 86% of households report borrowing money or buying food on credit in Yemen (FAO, 2021b; FAO, 2021e).

Food Security

Food security is comprised of four dimensions: access, availability, utilization, and stability. Through its effects on household incomes and food markets, including markets for nutrient-rich fruits, vegetables, and proteins, the COVID-19 crisis adversely affects food security along its multiple dimensions. Modelling exercises carried out at the beginning of the crisis using projected changes in income in 63 low- and middle-income countries, and cost of diets estimates in 2017 pointed to a potential food affordability gap in 2020 due to the COVID-19 pandemic, which would make access to healthy diets even more challenging for many (Laborde et al., 2021). Moreover, they project that the number of people unable to afford even *half* the cost of a healthy diet will rise from 43 percent to 50 percent in the countries covered by the study.

Yet, questions remain about the extent to which the pandemic will affect food insecurity in rural places. On the one hand, high levels of poverty and pre-COVID-19 food insecurity makes rural populations, particularly in Rural and Traditional food system countries, highly vulnerable to adverse changes in food prices and incomes. On the other hand, in these countries many food consumers are also food producers, and local food supply chains tend to be fairly short. These factors may mitigate some of the adverse effects of the pandemic on rural food insecurity.

Table 10 presents country-level medians and ranges for 18 countries, disaggregated by rural and urban areas and by food system typology. The first indicator refers to food access, particularly access to staple food items for a 7-day recall period. It shows that staple food access at the median is high for all countries, with limited differences between urban and rural. These median results, however, mask considerable heterogeneity. The ranges for the share of households reporting challenges with accessing staple foods are wide. In some Rural and Traditional and Modernizing food system countries, for example, the share of households that are able to access staple foods reach 64 and 79 percent, respectively.

The second dimension of Food Security presented in **Table 10** combines indicators that refer to reported reductions in the quantity of food consumed. The first more severe indicator is the percentage of households reporting not eating for a whole day, while the second computes the percentage of households that are hungry but not able to eat. At the median, reported reductions in food quantity for both indicators are marginally higher in rural (27 percent reporting being hungry but not eating, 12.5 percent going a whole day without eating) than urban places (25 percent for the first indicator and 9 for the second respectively), with median values lowest in Emerging and diversifying food system countries. Reductions in quantities of food consumed are likely linked to both a contraction in household income and increases in food prices. It is important to note that these two indicators are based on 30-day recall period, and therefore cannot be attributed directly to the COVID-19 pandemic. However, as shown by Bundervoet et al., (2021) using the same datasets, changes in income due to COVID-19 are significantly associated with an increased probably of reporting food insecurity.

The third dimension considered in **Table 10** measures reported reductions in diversity of diets. This dimension combines the indicators “ate only a few kinds of foods due to lack of money” and the indicator

“unable to eat healthy/nutritious or preferred food due to lack of resources”. Therefore, when we are talking about reductions in food quality we mean reductions in nutrient-rich food productions, such as fruits, vegetables, and animal proteins. Results suggest that reductions in food quality are widespread, with median country values of 57 percent in rural areas for the households reporting eating only few kinds of foods compared to 53 percent in urban areas across all countries. Median values are relatively stable across the three food system typologies present in our sample with all typologies showing great variability. For the second indicator in the Food Quality dimension, which computes the percentage of households unable to eat healthy/nutritious food, we see a more pronounced difference between the rural and urban spaces across all countries (55.5 percent - 46.5 percent). This divide is particularly acute in Rural and Traditional country typology (59 percent rural, 47 percent urban) and Informal and expanding countries (46% rural - 38% urban).

Reductions in food quality reflect both declines in purchasing power, where income losses push households to forgo expenditure on higher cost and higher quality foods. In addition, access to higher quality foods is also affected by disruptions in markets for these products, which tend to be perishable and labour intensive, and thus exposed to supply chain disruptions due to the pandemic. Our systematic review confirms that impacts in food quality range widely for all country typologies (between 13 percent and 82 percent of respondents affected). At the lower end we have Myanmar (Informal and expanding) in which the share of mothers reporting not eating enough healthy food in rural areas rose from 13 percent in September to 20 percent in October while in Zimbabwe (rural and traditional) we find that 82 percent of households resorted to eating only few kinds of foods, due to a lack of money and other resources (Headey et al. 2020, Mutyasira, 2020). In Venezuela in September 2020, more than 70 percent of respondents reported “not having enough food or limiting the diversity of their diet”, and more than 50 percent reported “consuming less healthy and nutritious food”. The report also points out how the pandemic has likely affected farmers’ income (limiting the marketing of products) and consumers’ access to food due to the rise in prices, implying a contraction in demand (in fact 17 percent of respondents reported a price increase). For the rural population these effects may translate into income losses in the primary sector thus suggesting an issue in the availability of disposable income necessary to buy quality food rather than an issue related to access. (FAO, 2021c).

The situation in terms of reduction of food quality is particularly worrying in rural Sub-Saharan Africa where reports of limited access to high quality and diversified diets. Carreras et al., (2020) find that 92 percent of respondents in Kenya, 82 percent in Nigeria, 73 percent in Zimbabwe, and 78 percent in Malawi report “not being able to eat healthy food.” Similarly, 90 percent of respondents in Kenya report “eating only few kinds of food,” compared to 81 percent in Nigeria, 82 percent in Zimbabwe, and 78 percent in Malawi (Carreras et al., 2020).

Confirming that the issue seems to be mainly driven by high prices and reduced income from the consumer side Carreras et al (2020) find that only a small number of respondents (for a sample of farmers from Nigeria, Tanzania, Zimbabwe, Ethiopia, Ghana, Kenya, Malawi) report a reduction in the availability of foods, while a larger number of respondents encountered increases in food prices. In fact, 65 percent of respondents report an increase in prices in grains while only 30 percent report that the physical availability of grains had been negatively affected in local markets in all the above-mentioned countries. Percentages are similar for white roots, tubers and plantains, but for other more nutrient-rich food such as fruits, vegetables and animal proteins we see lower numbers: 26 percent reporting a decrease in availability for meat and poultry, 16 percent for dark leafy vegetables, 19.6 for other vegetables, 26.4

percent for other fruits, 20 percent for eggs, 26.6 percent for milk and dairy products. Going back to prices 52.2 percent of respondents report increases for white roots and tubers and plantains, 47.5 percent and 54.1 percent for milk and milk products and meat and poultry respectively. This numbers suggest that in Sub-Saharan Africa while physical availability of nutritious food is an issue, issues of price rises and income loss underpins many of the challenges associated with reduced diet quality.

Table 10. Share of households experiencing Food Insecurity

	ACCESS		QUANTITY				QUALITY			
	<i>Access to any staple food</i>		<i>Without eating for a whole day</i>		<i>Hungry but did not eat</i>		<i>Ate only a few kinds of foods</i>		<i>Unable to eat healthy/nutritious food</i>	
	(% of Households)		(% of Households)				(% of Households)			
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
All countries	64 - 99	76 - 99	1 - 37	2 - 29	3 - 65	3 - 60	19 - 83	17 - 78	30 - 94	27 - 79
Median	92.5	92.5	12.5	9	27	25	57	53	55.5	46.5
Rural and traditional	64 - 97	76 - 99	2 - 37	2 - 23	3 - 65	3 - 53	37 - 83	33 - 71	40 - 94	36 - 79
Median	86.50	86	13	9	26	26	57	54	59	47
Informal & expanding	94 - 99	96 - 99	1 - 37	2 - 29	5 - 59	4 - 60	19 - 75	17 - 78	30 - 79	27 - 77
Median	94	96	10	8	28	25	49	43	46	38
Emerging & diversifying	93 - 97	96 - 98	7 - 15	8 - 11	24 - 32	19 - 27				
Median	95	97	8	9	25	22				
Modernizing & formalizing	79 - 92	79 - 93								
Median	85.50	86	16	13	43	34				

Source: World Bank COVID-19 High Frequency Monitoring Dashboard ⁵

In **Table 11** we explore the evolution of food security between June and November for a sub-set of countries. At the time of writing, only a few countries have data available later than August 2020 and they all belong to the Rural and Traditional category, therefore evidence is limited. Although we see some improvements – probably thanks to loosening of restrictions - in different dimensions of food security compared to June, the prevalence of households facing difficulties in accessing food is still high, particularly in rural areas.

Table 11. Food security evolution between June and November 2020

⁵ All indicators refer to June 2020.

Full Indicator names:

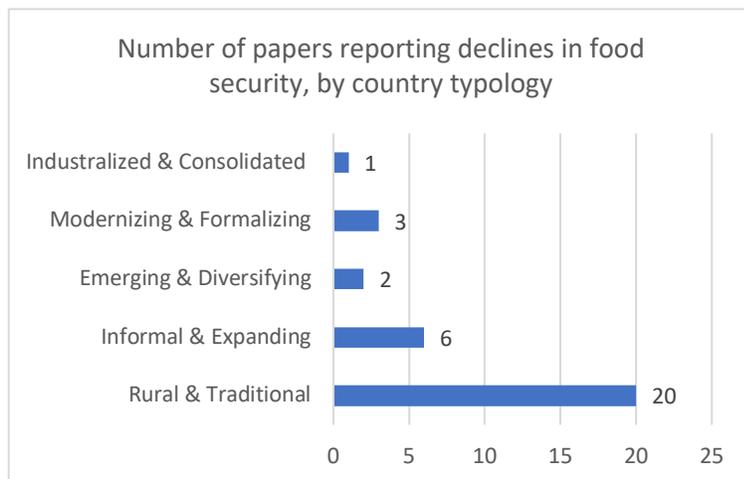
- Able to access any staple food in the past 7 days -all staple food items (% of HHs)
- In the last 30 days, went without eating for a whole day due to lack of money (% of HHs)
- In the last 30 days, were hungry but did not eat due to lack of money (% of HHs)
- In the last 30 days, ate only a few kinds of foods due to lack of money (% of HHs)
- In the last 30 days, was anyone unable to eat healthy/nutritious or preferred food due to lack of resources (% of HHs)

Country Typology	Country	Rural	Urban	Indicator
		Percentage of households		
Rural and traditional	Burkina Faso (W1-W4)	97 - 95	96 - 98	Able to access any staple food in the past 7 days -all staple food items (% of HHs)
	Malawi (W1-W5)	69 - 79	81 - 85	
	Malawi (W1-W5)	37 - 20	23 - 12	In the last 30 days, went without eating for a whole day due to lack of money (% of HHs)
	Tajikistan (W3-W8)	2 - 2	2 - 5	
	Malawi (W1-W5)	65 - 49	44 - 34	In the last 30 days, were hungry but did not eat due to lack of money (% of HHs)
	Tajikistan (W3-W8)	3 - 4	3 - 6	
	Uganda (W1-W4)	25 - 11	25 - 6	In the last 30 days, ate only a few kinds of foods due to lack of money (% of HHs)
	Malawi (W1-W5)	81 - 72	67 - 56	
	Tajikistan (W3-W8)	41 - 35	38 - 39	
	Uganda (W1-W4)	57 - 43	60 - 29	
	Malawi (W1-W5)	79 - 72	68 - 58	In the last 30 days, was anyone unable to eat healthy/nutritious or preferred food due to lack of resources (% of HHs)
	Tajikistan (W3-W8)	40 - 35	36 - 35	
	Uganda (W1-W4)	59 - 44	57 - 26	

The results found through World Bank COVID-19 High Frequency Monitoring Dashboard data are largely confirmed by existing literature from other survey-based studies. In total 32 survey-based studies of COVID-19 impacts reported that rural households experienced negative impacts on the diversity and quantity of food consumed (**Figure 2**), with considerable heterogeneity between countries.

Adverse effects in terms of the quantity of food consumed are not limited to Rural and Traditional food systems typologies or to Sub-Saharan Africa. In Latin America Salazar et al. (2021) find that 39 percent of surveyed farmers between August and November 2020 report household income as insufficient to buy food and meals for the household. When the responses are disaggregated by country we can see that Paraguay (Emerging and Diversifying) is the country with the highest rate of negative responses (66 percent), followed by the Dominican Republic (Modernizing and formalizing) (47 percent) and Peru (Emerging and diversifying) (35 percent). Additionally, for these countries in the last month 56 percent of respondents were worried that their household will run out of food and 8 percent of households had an adult who only ate once or did not eat at all for a whole day in the last month. Relating to our previous point on food quality, Salazar et al. (2021) also report that almost half of the respondents (48 percent) mentioned that they stopped having a healthy and nutritious diet and started to have a diet based on a limited variety of foods.

Figure 2. Number of papers reporting declines in food security in rural areas, by country typology



Source: Systemic literature mapping

In Rural and traditional food system countries, 55.8 percent of respondents across all countries ate less than desired, with the highest rate found in Nigeria (informal & expanding) at 79 percent, followed by Malawi (rural & traditional) at 70 percent, while 66 percent of respondents in Kenya (rural & traditional) and 62 percent for Zimbabwe (rural & traditional) reported similar challenges. Also, many respondents declared they had to skip meals, such as 79 percent in Nigeria (informal & expanding), 57 percent in Malawi (rural & traditional), and 54 percent in Kenya (rural & traditional) (Carreras et al, 2020).

The indicator skipping or reducing meals is fairly prevalent in the literature and we see it reported in various countries by a high number of respondents, with percentages ranging from 45 to 87 percent for Malawi, Kenya and Sierra Leone. For this same indicator in the informal & expanding typology there is a larger range of values, with the lowest being Myanmar with only the 4 percent of rural mothers reporting having skipped a meal in October 2020 and highest in Nigeria with 73 percent of households reporting skipping or reducing meals. Taking a closer look at the Informal and expanding typology the literature shows that the Sub-Saharan African countries within it (73 percent for Nigeria and 41 percent of Senegal) are in line with results from other African countries and are not consistent with results from other informal and expanding food system countries (Egger et al, 2021; Amare et al, 2020; Headey et al, 2020; Ambler et al, 2020, IPAR, 2020). This suggests a regional pattern rather than one determined by country typology.

Again, the evidence provided by Egger et al (2021) shows that 48 percent of rural Kenyan households, 69 percent of landless agricultural households in Bangladesh, and 87 percent of rural households in Sierra Leone were forced to miss meals or reduce portion sizes to cope with the crisis. Apart from Kenya where the indicator missed meals was also coupled with a high percentage of households reporting reduced market access (67 percent) the evidence from the other samples (4 percent for Bangladesh, 3 percent for Bangladesh Landless rural agricultural laborers and 16 percent for Sierra Leone) suggests that the main issue is the lack of resources to buy food in adequate quantity and not access in itself.

Conclusion and Looking Forward

The global vaccination effort is currently underway, but remains marred by supply constraints in many, mostly developing, countries, and high levels of vaccine hesitancy. Moreover, new variants are emerging that appear to be more contagious than the original. As a consequence of these factors, the virus is likely to continue to circulate globally for the foreseeable future. Policy-makers must, therefore, anticipate the possibility of future lockdowns and take appropriate steps to mitigate their adverse effects, while at the same time putting in place measures to support the recover process. The aim of this paper is to guide policy debates related to supporting COVID-19 mitigation and recovery efforts for rural areas.

The paper highlights the profound impact that the COVID-19 pandemic and its containment measures is having on rural spaces and associated agri-food systems. Based on this, a few emerging trends are evident. First, the impacts of COVID-19 on rural economies and livelihoods have been as bad, or worse than in urban areas. Despite the fact that containment measures appeared mostly concentrated in urban settings, the majority of rural people across the globe reports that their income has been adversely affected by the pandemic. Acknowledging this fact and building policies to address impacts in rural areas is a critical first step to an effective and equitable recovery.

The adverse impacts of the pandemic on rural livelihoods come through multiple channels, including through reductions in farm and non-farm enterprise income, wages and remittances. The implications of this multi-dimensional income loss for rural households and the future of rural development are substantial. For example, the development of rural non-farm enterprises is a critical element of rural transformation processes. These enterprises create incomes for their owners, as well as generating employment multipliers in the rural economy. The large share of rural non-farm businesses globally reporting income losses is worrying and is likely associated with a substantial share of these enterprises going out of business. The challenge for policy makers, particularly in less developed food system countries, is that many of these businesses are informal and do not rely on formal sources of credit to smooth expenditures. Thus, creative approaches to providing grants or low interest loans, using local micro-credit systems and other mechanisms, is required to support these businesses through the crisis.

The loss of farm income is also an area of particular concern for rural areas. Disruptions in food, inputs, and labour markets and prices are undermining the incentives for farmers to invest in farm improvements, and their capacity to do so. This is likely to have implications in the short-term for labour productivity in agriculture, which is particularly worrying for countries in less developed food systems where productivity growth is necessary to drive broader structural transformation processes. Without sufficient incentives and functional supply chains, farmers will be unable to invest in the technologies needed to support productivity growth. In this respect, effective public support for maintaining and strengthening input and output markets is critical. At the same time, the uncertainty created by the pandemic may also influence farmers' inter-temporal discount rates, making them less likely to maw risky, longer-term, and potentially more profitable investments. This is particular a concern for longer-term investments in land improvements and conservation measures, which often take time to generate benefits, but which are important for improving ecosystems and adapting to climate change.

Second, due to the widespread informality of employment in rural areas, access to contributory social protection and other formal risk management tools are highly constrained in rural areas, while more common forms of social assistance often exclude the working poor. As a result of limited social protection coverage, rural households are relying to a large extent on adverse coping strategies in order to manage

the impacts of the crisis on their consumption. This includes liquidation of productive assets and foregoing investments in human capital formation and other essential investments. If not addressed through appropriate policy instruments, widespread reliance on these strategies may have long lasting implications for rural poverty and future agri-food system development pathways. Investments that prevent people from falling into poverty are less costly and more effective than policies designed to pull people out of poverty. Investments in strengthening social protection systems to enable rapid changes in targeting criteria and benefit levels in response to shocks can help to mitigate this risk.

Third, the report highlights the challenges rural households face in terms of food security during the crisis. While food insecurity levels in rural places have long been a concern, particularly in rural and traditional food system countries, the crisis is exacerbating this challenge. As shown in this report, while supply chain disruptions are a concern, the physical availability of food items in rural places has not been substantially disrupted. Instead, the loss of income due to the crisis, combined with upward pressure on prices has made access to food, particularly nutritious, non-staple foods, a major challenge for rural households in many countries.

Finally, a hallmark of the pandemic's impacts is that they have been highly heterogeneous within and between rural spaces. Variations between sub-groups within countries and between countries are evident in the data. This heterogeneity is not necessarily explained by the level of development of the food system; for many of the outcomes analysed in this report the ranges of median impacts are wide for all the food system typologies. The relative vulnerability of a population to the economic and social impacts of the pandemic, combined variations in the stringency of lockdown measures and the capacity of public institutions to address the crisis underpin the variability of impacts. Acknowledging and addressing the structural inequalities that make people more vulnerable to this and other crises must be at the top of any recovery and mitigation policy agenda.

Based on these findings, the following recommendations should be considered for addressing the impacts of the crisis and supporting an effective recovery. First, public assistance programmes must be modified and augmented in order to better reach rural populations, many of whom do not have access to formal, contributory social insurance systems. This will require both financial resources and investments in systems for identifying and targeting those in need. Indeed, the countries that responded the quickest and most effectively to the pandemic were those that already had in place well-developed social safety net programmes and systems that allowed them to quick scale up and scale out assistance. In the context of farm households, a combination of flexible cash plus interventions to support and strengthen food and input markets can help reduce reliance of short-term, adverse coping strategies, while also enabling productive investments in farm activities that have been hindered by the pandemic.

Second, innovative policy tools for supporting rural non-farm enterprises is critical. For informal businesses this may involve cash grants provided through public safety net systems. For more formal enterprises, financial tools such as low interest loans or tax credits may be more appropriate and feasible.

Finally, food security is a persistent challenge that has been made worse by the crisis. The pandemic creates a new opportunity to develop policies and programmes aimed at addressing multiple dimensions of food security in rural spaces. Nutrition sensitive interventions that enable rural households to access more nutritious and diversified diets, and stimulate local production and markets for these products, should be considered an essential element of building back better in rural areas.

Ultimately, in order to support and sustain rural transformation processes in an inclusive and environmentally friendly manner, well targeted and adequately funded support for rural spaces is necessary. The COVID-19 crisis is undoubtedly an unprecedented challenge, but it also a unique opportunity to invest in recovery efforts that can foster a more equitable and inclusive development pathways. For this to happen, rural spaces must play a central part of efforts to build back better.

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