Impacts of the COVID-19 pandemic on livelihoods in southern Zimbabwe

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Executive Summary

The COVID-19 pandemic in Zimbabwe coincided with multiple threats and challenges which have intensified in the years before its outbreak, affecting Zimbabwe's stressed economy, health, education, livelihoods, agriculture and food security. The government declared the pandemic a national disaster on the 30th of March 2020, and introduced several severe containment measures, including national lockdown and curfews, closure of international borders, and seizure of informal markets. Both the pandemic and the measures designed to reduce its spread have the potential to damage livelihoods in multiple ways and in particular by undermining the functioning of food value chains with consequences for access to food as well as employment (Hambloch et al., 2020). The potential for harm is magnified in Zimbabwe by the crisis that has been unfolding over several years before the pandemic. Zimbabwe has experienced a protracted economic crisis, hyper-inflation with spikes in food prices, and consecutive drought years, with negative implications for food security and nutrition, health, and education. Poverty levels have worsened, with already more than 40% of the population living under extreme poverty at the onset of COVID-19. Urban poverty increased faster than rural (World Bank, 2020). According to the Humanitarian Response plan 2000, 7 million people in rural and urban areas needed humanitarian aid; 4.3 million people in rural areas (44%) and 2.2 million in urban areas (30%) were severely food insecure (OCHA, 2020).

This study analyzes the changes in food security and livelihoods that occurred during the first year of the COVID-19 pandemic and the associated containment measures in urban and rural areas in the semi-arid southern region of Zimbabwe. It investigates in particular how the changes vary with socioeconomic characteristics and across the urban to rural gradient. The mixed method approach integrates information from a household survey and interviews with key informants. We surveyed 600 randomly selected households in urban and rural sites to document livelihood outcomes and reliance on coping strategies in the low-income, pre-harvest month of February 2020, before the onset of the pandemic, and in February 2021, during the pandemic. Qualitative interviews conducted with 17 experts who represent national government and development organizations in agriculture and food security, district agricultural extension services, and food traders, provide contextual understanding of reasons for the observed changes and how resilience of the food system could be improved.

The results demonstrate wide-ranging changes in many dimensions of livelihoods, including income, food and nutrition, health care, education, and wellbeing, which have affected almost the entire population, compounding the crisis that already existed in Zimbabwe at the onset of the pandemic. The changes are likely due to a combination of factors that influenced livelihoods during the first year of the pandemic. The analysis illustrates a number of ways in which the measures designed to limit the spread of the pandemic are likely to have contributed to the observed changes. The impacts are not evenly distributed. Rural areas near towns and, to a lesser extent, urban areas far from town center have been most widely affected, but impacts that have the most severe consequences for livelihoods have affected smaller percentages of households in more remote rural areas far from towns. Female-headed households, which comprise 40% of our sample, are particularly vulnerable due to an increased burden to generate income and provide adequate nutrition. Some of the reported impacts are potentially long term as they tend to push more vulnerable people into destitution.

About 90% of the surveyed households report a decrease in income. For households that produce agricultural products and vendors this decrease appears to result mainly from travel restrictions and closure of formal and informal markets, which hinder people from selling food. Lower incomes reduce purchasing power, which has cascading effects on all dimensions of livelihoods, and demand by consumers.

The most widely experienced changes are declines in food consumption and nutrition, most likely due to a combination of reduced incomes, reduced access to food sellers because of mobility restrictions, and food shortages. Difficulties in transporting and selling food caused by restrictions imposed to contain the pandemic led to spoilage of food, reduced supply, and consequent sharp price increases, further eroding purchasing power. About 90% of the sampled households report consuming less food. The percent of households who reduce the number and size of meals as a coping strategy increases by 30 percentage points. There is a similar increase in the percent of households who switch to less preferred foods and less diverse, less nutritious diets. Households increase consumption of maize-based foods, which are cheap but low in nutrition, and reduce consumption of proteins, such as legumes, meat, eggs, and milk-based products. The impacts on food intake are most pronounced in rural areas located near urban centres, possibly because the near-urban rural households rely more on food markets than subsistence agriculture, which is more characteristic of the remote areas, and, to a lesser extent, in urban areas far from town center. The likelihood of experiencing full days without eating on a regular basis represents a particularly severe loss of access to food, which increased most in urban areas far from town center and in more remote rural areas and more so among female-headed households. This change may be symptomatic of a decline into a poverty trap, which can be difficult to reverse (for example Barnett et al 2008). Increases in reliance on a broad range of coping strategies such as selling assets, borrowing, reducing non-food expenditures, and delaying or foregoing health care provide further evidence of declines in income and stressed livelihoods.

Near-urban rural areas and, less generally, outlying urban areas appear to be more vulnerable with respect to many livelihood outcomes and coping strategies, which affect a large percentage of households. Ironically, the vulnerabilities experienced in near-urban rural areas may have been exacerbated by development, as the diversification of livelihoods has made households more reliant on markets, which were strongly impacted by the pandemic. At the same time, these areas have less access to government and private support mechanisms than do urban areas. Further, they rely on informal sources of livelihoods, which have been more affected by the containment measures than the relatively stable formal employment. More remote rural areas seem to have been somewhat protected potentially by self-sufficiency of subsistence farmers and weaker enforcement of containment measures. However, the lack of integration into broader networks in more remote rural areas seems to result in vulnerabilities that affect a smaller percentage of households but are more extreme, such as losing the capacity to secure at least one meal per day.

Impacts on education due to prevalent school closures are the third greatest concern related to the pandemic, after declines in income and access to food, expressed by 67% of survey respondents. The percentage of households with school-age children in which none of the children go to school rises from 4% before the pandemic to 86% during the pandemic.

The evidence on the change in crop production in the study suggests the importance of understanding how the pandemic crisis interacts with local conditions to produce different outcomes in different parts of the country. The percentage of households who report declines in production and harvest increases by about 10% from 47% in 2020 to 56% in 2021, and about the same percentage report reductions in farm income in 2020 as in 2021. The finding is somewhat surprising since the 2020/2021 growing season brought good rainfall and the government implemented a program to provide seeds to support crop production (FAO, 2021a; FAO, 2021b). The expectation was that the harvest would be a good one after several years of drought and some analyses do show increases in crop production (WFP, 2021). However, the climate conditions differed across the country during the season and southern Zimbabwe experienced erratic rains and significant pest problems. The government support program may not have been implemented consistently across the country. Our data suggest that local conditions combined with the obstacles imposed by containment measures negatively impact production at least for some farmers. At the same time, there is evidence that some farmers in the study had access to the input support program since the amount of land planted with maize and sorghum increased on average and farmers used more inputs.

The evidence regarding the severity of the widespread impacts of COVID-19 and its restrictions is mixed. While the prevalent decline in consumption of food and in nutrition is emblematic of a severe effect, the increase in the percentage of households who rely on each of a broad range of other coping strategies, such sales of assets, reduction in non-food expenditures, and borrowing is not large. Most respondents maintain holdings of assets such as livestock, with about a 20% decline in number of goats, sheep, and poultry, but no decline in number of cattle from an average of about 6 animals before the pandemic. The increase in percentage of households who sell productive assets is much smaller than it is for other assets, suggesting that most households are able to protect the assets that they need to continue to earn an income. Unemployment does not increase, and the number of salaried jobs remains stable.

One important caveat is that the changes, even if moderate, are happening in the context of a pre-existing low level of income and assets, which were depleted by several poor growing seasons and an ongoing economic crisis. Measures such as the widespread reduction in food intake and decreased food quality compromise the diets of vulnerable households further. Selling assets, depleting savings, and increasing debt pose a potentially long-term threat to the livelihoods of the households who rely on these strategies. Sale of productive assets can lead to lower capacity to earn income in future seasons, and increased financial stress can cause households, especially agricultural ones, to invest less in production, again reducing incomes. Such cascading effects can lead to poverty traps.

Second, the changes have taken place despite a good agricultural season and good harvests in most of the country. Furthermore, humanitarian assistance such as cash transfers and supply of agricultural inputs supported access to food and inputs. The percentage of households who rely on cash transfers to buy food increased for all food types. The observed decline in food consumption despite the improved climate conditions and interventions suggests a relatively deep crisis.

An important implication of this study, and one that is consistent with an extensive literature (WFP, 2020; Price, 2020; FAO, 2021b; Schoones et al., 2021), is that the informal sector plays a critical role in supporting the livelihoods of the more vulnerable parts of the population. People who rely on the informal sector for their livelihoods were most affected by the containment measures, losing access to food sold by vendors in rural areas near towns and outlying urban areas and losing access to remittances. At the same time, the informal sector provided critical support. More people resort to casual labor as a first or second most important source of livelihoods during the pandemic than before. People also buy food directly from suppliers and/or road-side traders rather than supermarkets or vendors. More households borrowed from family and friends than from formal sources. Supporting the roles that the informal sector plays in coping with shocks and in the economic life during normal times is an urgent policy challenge.

1. Introduction

The COVID-19 pandemic in Zimbabwe coincided with multiple threats and challenges which have intensified in the years before its outbreak, affecting Zimbabwe's stressed economy, health, education, livelihoods, agriculture and food security. The government declared the pandemic a national disaster on the 30th of March 2020, and introduced several severe containment measures, including national lockdown and curfews, closure of international borders, and seizure of informal markets (Price, 2020; FAO, 2021b;). Both the pandemic and the measures designed to reduce its spread have the potential to damage livelihoods in multiple ways and in particular by undermining the functioning of food value chains with consequences for access to food as well as employment (Hambloch et al., 2020). The potential for harm is magnified in Zimbabwe by the crisis that has been unfolding over several years before the pandemic. Zimbabwe has experienced a protracted economic crisis, hyper-inflation with spikes in food prices, and consecutive drought years, with negative implications for food security and nutrition, health, and education (WFP, 2020). Poverty levels have worsened, with already more than 40% of the population living under extreme poverty at the onset of COVID-19 (World Bank, 2021). Urban poverty increased faster than rural (World Bank, 2020). According to the Humanitarian Response Plan 2000, 7 million people in rural and urban areas needed humanitarian aid, and 4.3 million people in rural areas (44%) and 2.2 million in urban areas (30%) were severely food insecure (IPC, 2020; 2020).

This study analyzes the changes in food security and livelihoods that occurred during the first year of the COVID-19 pandemic and the associated containment measures in urban and rural areas in the semi-arid southern region of Zimbabwe in order to address the gap in evidence about the nature and the magnitude of the effects among the lower income urban and rural populations, and in food value chains in particular. The study documents changes in the southern part of Zimbabwe, which has a semi-arid climate and had been heavily affected by the prior years of low rainfall.

The response to the pandemic

The Government of Zimbabwe responded to the COVID-19 pandemic with policy and regulatory measures and stringent containment actions to contain the spread of the virus (FAO, 2021b). The first national lockdown, which included movement restrictions, curfew, and limitations on gatherings, was implemented from 30 March 2020 initially for 21 days. Only essential services, such as medical personnel, agricultural and food sector workers, fuel attendants, and security forces (FAO, 2021b), were allowed to remain open. The lockdown was extended indefinitely subject to fortnightly reviews. Some gradual relaxations allowed humanitarian food distribution and the functioning of businesses registered as formal entities in order to allow increased economic activity. However, restricted travel and inter-city transport, along with a police-enforced closure of informal market and trade activities had severe implications for the agri-food system, notably for perishable horticulture and also for other crop and livestock value chains (ZimVAC 2020a, ZimVAC 2020b). Most food in our study regions had been traded in informal markets; therefore buying and selling food became difficult (Mukeredzi, 2020; Mutyasira, 2020). Closure of land borders further impacted access to goods, including agricultural inputs like seeds, pesticides and veterinary drugs. Relaxation of restrictions accelerated the spread of the virus, bringing back curfews and control measures. The World Bank (2020) suggests that the

pandemic and associated confinement measures would lead to a surge in extreme poverty and malnutrition, with severe impacts in the agricultural sector.

State of the agri-food system in Zimbabwe

The COVID-19 pandemic has been compounding pre-existing vulnerabilities in Zimbabwe's agri-food system. The country was exposed to a food crisis in 2020, which resulted in a combination of economic, political and health crises for the majority of the population, such as increasing poverty and food and nutrition insecurity. A large part of the population is at risk, with more than 76% of employment in the informal sector, which is one of the largest informal economies in the world and growing over time (FAO, 2021b; Tatsvarei *et al.*, 2020).

Sharp food price increases from second half of 2019 to second half of 2020, due to national currency interference along with low domestic food supply, resulted in annual food inflation of 865%, which abated after the return to a multi-currency system (World Bank, 2020b). The high food prices affected vulnerable urban consumers in particular, eroding purchasing power and causing consumers to rely more on low-cost foods.

COVID-19 arrived at the end of the lean season in March 2020, after two consecutive years of poor harvest. Food and grain stocks were already depleted; the country had less than 50% of the amount of grain required for food security (FAO, 2021a). Poor harvests in previous years were due to a combination of climatic shocks, such as late and erratic rains, drought, cyclone (Ida, 2019), and pests and diseases, as well as reduced availability of inputs such as seed, fertilizer and veterinary drugs and feed for livestock, reduced access to agricultural services, and currency shortages. Prior year livestock sales prices declined up to 40% due to feed shortage and diseases, while grain prices increased by more than 36%.

The 2020/21 growing season was expected to improve the availability of food due to above-normal rainfall as well as expanded areas planted with crops and provision of seed inputs under the government Pfumvundza and Presidential Input Support Program. The national crop and livestock assessments anticipated an increase in maize production by 199% and small grains by 128% compared to the previous year (WFP, 2021). Total production, including both legumes and cereals, was estimated at 3.8 metric tons, which exceeded the projected required amount for Zimbabwe of 2.5 metric tons by 180%. Cereals included notable increases in the production of small grains in 2020/21, mainly due to the seed input support programs. However, various factors influenced variation in crop production in different parts of the country, including the erratic distribution of rainfall, pests and diseases, as well as uneven access to extension services and the agricultural input support programs.

Study objectives

This study analyzes how food security and livelihoods changed during the COVID-19 pandemic and the accompanying confinement measures in a) urban low income households in the major city of Bulawayo as well as two smaller towns, Chiredzi and Plumtree, and in b) rural households in Nkayi, Chiredzi and Bulilima districts. Distinguishing central and outlying urban districts, rural areas that are near and far from towns, large and small urban centers, and districts with different agro-climatic and socioeconomic conditions enables us to examine changes that occurred during the pandemic among populations that have varying access to formal versus

informal sources of food and livelihoods in different environmental and institutional contexts. The areas selected for the study enable the research team to investigate how lessons for managing shocks, including more effective management of the informal economy, differ across conditions.

The study examines primarily the impacts of the pandemic during the lean season, which occurs when food supplies from the previous harvests are low and the low-income agricultural households have spent the proceeds from the previous harvest, while the new harvest is pending. Impacts during this season may be most difficult to manage. We investigate the change in a range of livelihood outcomes between February 2020, immediately before the start of the pandemic, and February 2021, about 11 months after the pandemic began. We examine what coping strategies that households relied on reveal about the crisis. We identify how the crisis affected different types of households and how coping mechanisms differed in the population. Given diets dominated by maize and chronic malnutrition, the study also considers what implications arise from the current crisis for improving the nutritional content of diets and nutrition risk management during shocks.

Summary of the results

The results demonstrate wide-ranging changes during the first year of the pandemic in many dimensions of livelihoods, including income, food and nutrition, health care, education, and wellbeing, which have affected almost the entire population, compounding the crisis that already existed in Zimbabwe at the onset of the pandemic. Almost 90% of the sampled households report a decline in income, and almost 90% are concerned about lack of food. The most prevalent change is the decline in the consumption of food, and a smaller percentage of households change to less nutritious and less preferred foods. The decline in income and closures imposed to contain the pandemic affect access to health care and education. Impacts on education are the third greatest concern related to the pandemic, after declines in income and access to food, expressed by 67% of respondents. The population increases their reliance on a broad set of coping strategies such as reducing savings, selling assets, and borrowing.

The main reasons for the changes seem to be the restrictions and closures imposed to contain the pandemic, which affected all parts of the economy, including widespread impacts on food value chains. Prohibitions on movement and curfews interfered with residents' ability to get to places of employment and fields, health care centers, schools, and stores. For those who could travel, stores, markets, and schools were often closed, reducing employment and incomes for store and school employees, and formal and informal vendors. Difficulties in transporting harvest for processing and transporting and selling food led to spoilage of food, reduced supply, and consequent sharp price increases, further eroding purchasing power.

Rural areas near towns, and to a lesser extent outlying urban areas, appear to be more vulnerable than central urban areas and more remote rural areas with respect to many livelihood outcomes and coping strategies, which affect a large percentage of households. The vulnerability may stem from development that has diversified livelihoods in these areas and made them more reliant on markets. Households in these areas rely primarily on the informal economy and informal markets, which were strongly impacted by the pandemic. At the same time the informal economy broadens the range of available coping strategies in comparison to more remote rural areas. More

remote rural areas seem to have been somewhat protected potentially by self-sufficiency of subsistence farmers and weaker enforcement of containment measures. However, the lack of integration into broader networks in more remote rural areas seems to result in vulnerabilities that affect a smaller percentage of households but are more extreme, such as experiencing a full day without eating on a weekly basis. Female-headed households are also more likely to experience these more severe changes. Central urban areas seem to be least vulnerable with better access to stable formal sector employment.

The evidence on the severity of the widespread changes that occurred during the pandemic is mixed. While the reductions in consumption of food and in nutrition suggest a serious deterioration of livelihoods, some of the other effects, including reliance on various coping strategies, increased for a relatively small percentage of the population, and employment overall has been stable. At the same time, the changes have occurred in the context of a pre-existing low level of income and assets, which were depleted by previous economic and climate crises. Some of the coping strategies as well as reductions in nutrition and use of health care can have long-term consequences for livelihoods as they reduce households' ability to earn an income and weather shocks in future years, potentially leading to poverty traps that can be difficult to exit (for example Barnett et al 2008). Furthermore, the changes are in stark contrast to anticipated improvements in food supply due to good rains and government programs to supply agricultural inputs as well as to support food purchases with cash transfers. The contrast suggests that the measures designed to contain the pandemic may have substantially impeded a potential recovery of livelihoods from the crises of the past several years.

2. Data and methodology

The study employs a mixed-methods approach, which integrates information from a household survey and interviews with 17 key informants in quantitative-dominant mixed methods research, and is informed by secondary data and literature. The survey identifies the magnitude and statistical significance of the changes in livelihood outcomes that took place over the first year of the COVID-19 pandemic, changes in coping strategies used by households, and differences in the changes that occurred across different types of households and locations. The key informant interviews provide a deeper understanding of the reasons for the pattern of observed changes and enable us to triangulate the findings from the survey.

2.1 Data

The research team surveyed 604 households in February 2021. The stratified sample consists of an equal number of randomly selected households from each of 12 locations. The 12 locations are in four categories: rural areas far from towns, rural areas near towns, urban areas far from town center, and urban areas near town center. The stratification by location enables us to examine differences in changes that occurred during the pandemic across a gradient of residential and commercial density that is somewhat more granular than a distinction between urban and rural. In urban areas, the survey targeted low-income neighborhoods, which represent the majority of the urban population. Respondents were sampled from administrative household lists provided by local authorities. Households needed a basic phone to conduct the interview, which the great majority of households have. The survey may have omitted the poorest segment of the population by relying on phone communication.

The survey asked about various livelihood outcomes, such as food consumed, education, health care, sources of livelihood, and incomes as well as coping strategies used in February 2020 and February 2021. The survey also asked about experience with the COVID-19 pandemic and household characteristics.

The research team conducted 17 key informant interviews with stakeholders from the government at both national and district levels, including Ministry of Health and Child Care; Ministry of Women Affairs, Community, Small and Medium Enterprises; Agricultural Research and Extension Services; and Department of Research and Support Services, international non-governmental organizations, including Welthungerhilfe, CARE International, and PELUM, farmer organization ZIMSOFF, the Zimbabwe Nutrition Association, traders, and vendors. The team created a list of national and district level government departments, extension services, development organizations in agriculture and nutrition, as well as private sector organizations and contacted representatives from each for interviews. Traders and vendors were identified through selected market visits at district level. The team conducted interviews by telephone.

2.2 Methods

We compare survey data on outcomes experienced by households in February 2020, the lean season before the pandemic, to outcomes experienced in February 2021, the lean season about 11 months after the pandemic began. The survey collected data during the lean season, in February, when food supply is lowest and rural households are most stressed, having consumed the previous season's harvest while waiting for the new harvest. We are comparing outcomes in February in both years in order to avoid confounding the effects of the pandemic with seasonal effects, such as differences in access to food between harvest and lean months. We use mean difference tests, using the t distribution, to determine which outcomes show statistically significant differences between February 2020 and February 2021 in the sample on average. We use Ordinary Least Squares (OLS) regressions to investigate how differences in outcomes differ across households with different characteristics and in different locations. Differences between outcomes in 2020 and in 2021 are the dependent variables. The independent variables include the age, gender, marital status, and education of household head, a binary indicator for whether a household is poor or not, and binary indicators for whether the households reside in an urban area near town center, urban area far from town center, rural area near own, or rural area far from town. We do not have a direct measure of household income since we did not have the time and resources to conduct the detailed surveys required to collect data on incomes. We denote a household as poor if the household received cash transfers or food aid from NGOs or the government before the pandemic.

We use the qualitative data analysis software MaxQDA to code interview transcripts, employing a combination of inductive and deductive approaches. The deductive approach involves using the potential impacts of COVID-19 on livelihood outcomes identified prior to the interviews to establish codes and sub-codes. The inductive approach incorporates common themes, which emerge during the transcription process, into the codes.

3. Impacts on livelihoods

Sections 3, 4, and 5 present the main results, and we discuss these results in Section 6. Throughout the report, we mention only those results from the survey data analysis that were statistically significant at a level of 10% or less. We list all variables that we analyzed in Appendix A.

3.1 Changes in income and assets

The two main effects of the pandemic according to the survey data are a widespread decline in income and effects on access to and quality of food. Almost 90% of respondents report declines in total weekly income, and they report lack of money as a concern related to the impact of COVID-19 on the household. Figure 1 shows the main concerns that survey respondents had as a result of the pandemic. Income declined in both urban and rural areas and the main reasons seem to be restrictions on mobility, which interfere with people's ability to get to their place of work or close the place of work. For example, fewer respondents report buying food from vendors, implying that vendors could not engage in their usual income earning activities. Many formal and informal urban markets as well as rural markets were reportedly closed during the two lockdowns (more during the first lockdown compared to the second one), leading to a loss of market access for vendors and traders as well as agricultural producers and hence a decrease in their incomes.

The key informant interviews demonstrate that the main mechanisms through which incomes declined for people dependent on agricultural activities are limited mobility due to COVID-19 transport restrictions during the two lockdown phases as well as market closures. People dependent on agricultural activities were prohibited or restricted from bringing their harvested crops or livestock to buyers (such as traders, vendors, or directly to consumers), resulting in a decline in income. Some key informants also indicated an increase in the price of transport, which either prevented some people from selling their goods on the market or decreased their income generated from these activities.

We are not able to assess the size of the decline in income but related evidence on the severity of the impact is mixed. Respondents use a number of coping strategies to manage the decline in incomes and the effects of closures and mobility restrictions on access to goods and services. The range of coping strategies suggests wide-ranging effects that affect many dimensions of livelihoods. Coping strategies related to food, which we discuss in the next section, may indicate relatively large effects. Other coping strategies are indicative of more moderate effects.

Increase in reliance on selling of assets is statistically significant but limited in size. Percentage of households who report selling an unusually large number of animals increases by 11 percentage points, of those who report selling female animals increases by 10 percentage points, of those who report selling household assets increases by 10 points, and of those who sell productive assets increases only by 4 percentage points, as we show in Table 1. Households in rural areas near towns are most likely to sell all types of assets during the pandemic, providing one example of a broader trend in the data that suggests that rural areas near towns are more vulnerable than are urban or remote rural areas.

Among households in rural areas, holdings of goats and sheep declined by about 2 animals, which is about 20% of the pre-COVID holdings, while poultry declined by about 5 birds, or

about 25% of pre-COVID holdings. The number of cattle did not change from the pre-COVID average of 6 animals in the rural areas. The crisis that had been unfolding for several years prior to COVID had already resulted in sales of cattle and further losses followed an outbreak of disease. Also, goats and sheep were easier to sell locally, while mobility restrictions posed a greater obstacle to sales of cattle. Therefore, rural households may have been reluctant to sell cattle and at the same time, the crisis may not have been deep enough to force them to do so.

The percentage of respondents who report that they have reduced non-food expenditures to cope with hardship increases by 14 percentage points from February 2020 to February 2021, from 12% to 26%. The increase was greatest in rural areas that are near towns. The increase was also bigger in urban areas far from town center than in remote rural areas. The increase reflects at least partly reduced use of health care and fewer expenditures on education due to school closures and a small increase in percentage of respondents who pull their children out of school as a coping strategy. These reductions are likely to have cascading effects on livelihoods, which we discuss in Sections 4.3 and 4.4.

Households maintain their expenditures by relying on savings and borrowing. The percentage of households who have spent down savings as a coping strategy increases by 25 percentage points, from 37% to 62%. The effect signals increasing vulnerability to future shocks. People who borrow from family and/or friends increase by 14 percentage points from an already high 40% to 54%. Relying on family and friends appears to be a widely used coping strategy, though more in the form of borrowing than in the form of gifts, since we do not see an increase in family and friends providing food despite prevalent reductions in access to food. One reason why the increase in borrowing from family and friends is relatively small may be that the majority of households are in the same situation, facing difficulties with accessing food and other goods and services because of the combination of the pre-pandemic crisis and the pandemic. The percentage of households who increase borrowing from formal lenders rises by 7 percentage points. All the effects are most pronounced in rural areas near towns. The increase in percentage of households who draw down savings is smaller in remote rural areas than in urban areas and is smaller for poor households who may not have savings. Interestingly, borrowing from formal lenders increases among more poor households, whose relatives may be too poor themselves to provide loans. Informal borrowing increases more among educated households. All results are in Table 1. Households report an increase in reliance on a large number of coping strategies that suggest that households are managing their needs with reduced resources.

Changes in sources of livelihoods are consistent with the pattern of households experiencing financial stress, but as in the case of coping strategies other than decline in consumption of food and reliance on savings, the increase in percentage of households affected is moderate. The percentage of unemployed or of salaried workers does not change, suggesting that there is no large-scale loss of jobs in the formal sector. The main changes take place in the informal sector, on which most people rely for livelihood. A somewhat greater percentage of households depend on casual labor as a main or second most important source of livelihood during the pandemic than before. The increase in casual labor as a main source of livelihood is smallest in rural areas near towns, while the increase as a second most important source is biggest in these areas and is also bigger in urban areas far from town center than in more remote rural areas. The percentage of households who rely on their own business as a second or third source of livelihood declines

slightly, possibly due to difficulties in doing business as a result of closures and mobility restrictions, and it declines most in urban areas near town center. Percentage who report farm work as a second most important source increases slightly. Reliance on remittances as a main source of livelihood declines somewhat, and more so in urban than in rural areas, which suggests that remittances from abroad decline rather than remittances from urban to rural areas. However, reliance on remittances as a third source of livelihood rises slightly, again mainly in urban areas. There is a very small increase in reports of resorting to illegal activities.

3.2 Consumption of food

The second major impact of the COVID-19 pandemic is the decline in quantity and quality of food consumed. The reasons for the effects on food consumption appear to be a combination of income decline, reduced access to shops and vendors, and possibly reduced supply of food. About 90% of respondents report that lack of food is a concern related to the impact of the pandemic. The decline in consumption appears in strategies that households use to cope with hardships during the year of the pandemic. The percentage of households who report reducing the number of meals eaten per day as a coping strategy increases from an already high 47% during February 2020 to 77% in February 2021, and percent who reduce the size of meals shows a very similar change from 45% to 78%. Both changes are most pronounced in urban areas that are far from town center and in rural areas near towns, and the poor tend to be less likely to report these effects. The percentage of households who eat breakfast and lunch every day declines by about 3 and 6 percentage points, respectively. The number of people who eat lunch every day declines for about 10% of households, and among those households that experienced this decline, the average decline was 5 people, from an average of about 6 to about 1 person eating lunch.

Perhaps the most severe change in food consumption is an increase from 13% to 29% of households who experience full days without eating. For those households who experience a full day with no food, how often they experience such days increases only slightly. About 80% of those who report full days with no food experience such days every week. The largest increase in households who experience whole days without food happens in urban areas far from town center and the second largest increase happens in rural areas far from town.

Households also report a change in type of food consumed toward less preferred and less nutritious foods. The percentage of households who consume less preferred and less expensive foods in order to cope with the hardships of the pandemic increases by almost 30 percentage points, from 57% to 86%, as we show in Table 1, and this effect is largest in rural areas near towns and second largest in urban areas far from town center. The data show a decline in the percentage of households who report consuming more expensive foods such as bread, rice, pasta, potatoes, and imported fruit.

The largest change in the nutrition content of the diet is in an increase in reliance on maize-based foods, especially at breakfast and lunch. The percentage of households who report more consumption of maize-based foods increases by about 10 percentage points from an already very high level, 72% to 82%. The key informant interviews suggest that the increase in maize consumption is due to consumers relying on cheaper staple foods, such as maize due to declines in income and increased risk aversion. Also, vendors preferred to sell dry foods due to their

longer shelf life. Dry foods are less likely to spoil and are therefore more attractive when demand for and ability to sell food are unpredictable due to market closures and mobility restrictions. The shift to more maize-based foods is largest in urban areas far from town center.

A decrease in the percentage of households who consume important sources of protein, such as legumes, red meat, chicken, eggs, milk and yogurt, show a decline in nutrition in the diets, although the percentage of households who report these changes is small. These changes happen among the largest numbers of households in urban areas far from town center and rural areas near towns but declines in eating legumes and meat at dinner also happen among households in town centers. Key informant interviews also consistently discuss declines in consumption of protein-rich foods. The interviews indicate that the decrease in incomes of consumers reduced their ability to buy meat and that the supply of meat declined for reasons that we discuss in Section 3.2.2.

An offsetting change is a slight increase in consumption of vegetables, which are a less expensive source of nutrition than meat, eggs, and milk. Interviews suggest less availability of fresh foods, such as vegetables, as we explain further in Section 3.2.2. However, interviews also report an increase in informal traders bringing fresh foods closer to consumers, selling them along streets and roads.

3.2.1 Ability to access food

One of the three main reasons for declines in consumption of food and diversity of diets is reduced access to stores and markets due to restrictions on economic activity imposed by the government to contain the pandemic. Consumers were unable to go out to buy food, and stores and markets were often closed. The percentage of respondents who report that going to the store or market to buy food was difficult or impossible increases by 32 percentage points, from 20% in February 2020 to 52% in February 2021. The effect is most prevalent among households in rural areas near towns, and it is smallest in urban areas. The great majority of respondents who report having difficulty with getting to food markets and stores because of restrictions report having this difficulty every week. For those households who report difficulty with buying food because the store or market was closed in both years, the frequency with which they encounter difficulties increases slightly from 2020 to 2021.

The sources of food changed somewhat from February 2020 to February 2021, reflecting adjustment to the closure of usual markets and stores and mobility restrictions. Consumers were less likely to buy all types of food from vendors in February of 2021 than in February 2020. The percentage who obtain maize-based foods from vendors declined by 13 percentage points, from 29% to 16%. The decline in buying from vendors is consistently most widely reported in rural areas close to town for all food groups. The results suggest that vendors experienced loss of business and therefore incomes, with the losses being more widespread in rural areas near towns. Interviews with key informants support these findings.

Respondents are less likely to obtain certain foods, in particular legumes, milk-based, and egg-based foods from supermarkets and grocery stores. The percentage of households who report that they buy these food types from supermarkets or stores declines by about 10%, and the decline is bigger in urban areas where these stores are concentrated.

The data show no change in obtaining food from relatives for most foods, most likely because the effects on access to food as well as income declines were widespread and relatives were no more likely to be able to obtain food. The percentage of households who obtain maize-based foods, legumes, tubers, and egg-based products from relatives declines, especially in rural areas near towns. Also, percent who obtain maize-based products in-kind from the church or a NGO declines by 4 percentage points (from 16.6% to 12.4%), and the decline is bigger for female-headed households and remote rural areas.

Evidence suggests that the likelihood of getting food from an individual, directly from a farmer or a local trader, increased. Such informal sales from stands by the side of the road or visits to homes were substituting for closed markets. Also, respondents were more likely to pay for all types of food with money obtained from cash transfer programs, reflecting income declines. Cash transfer programs are safety net programs that provide cash to qualifying, low-income households. Cash transfers may be conditional on behavior of the recipient households, for example sending the children to school or visiting a health clinic, or they may be unconditional. The percentage of households who report paying for food with cash transfers rises from none in February 2020 to 10% in 2021. The increase is consistently most prevalent in urban areas for all food groups, and it is more often reported by female-headed and poor households, suggesting that the cash transfers are effectively targeting the more vulnerable households, though it is also more often reported by more educated households.

3.2.2. Supply of food

Another of the three main reasons why food consumption and diet diversity decline is that the supply of food decreased. The percentage of households who report shortages of food at the market increases by 29 percentage points, from 20% in 2020 to 49% in 2021. The effect is smallest in urban areas near town centers and largest in rural areas near towns. The interviews with key informants and other survey data suggest that the main reason for reduced supply is the inability to get food to consumers both because of closure of formal and informal urban, peri-urban, and rural markets as well as transport restrictions and lack of storage, which resulted in transport delays and waste and spoilage of food. Interviews report large losses of fresh foods because mobility restrictions and market closures lead to delays and disruptions in delivering food to consumers and therefore extensive spoilage of food. Vendors began to avoid marketing fresh food in order to avoid losses. Also, the supply of meat declined, especially in urban areas, because farmers struggled to transport livestock to abattoirs and cities due to COVID-19 transport restrictions. This impact was compounded by the wet season, which increased the incidence of livestock diseases. Movement restrictions prevented farmers from buying veterinary drugs and treatment (e.g. dipping pools), leading to an increase in animal mortality and hence reducing the supply of meat. Furthermore, interviewees reported that farmers had difficulty in accessing animal feed for cattle, reducing animal weight and hence supply of meat.

The survey data offer limited evidence of reduced production. Recent harvest data suggest a bumper harvest due to favorable rains relative to previous years. However, the percentage of survey respondents who report reduced production and harvests increases from 2020 to 2021, as we discuss further in Section 4.

Food shortages led to price increases, which combined with lower incomes to reduce food purchases. The percentage of respondents who report that they were unable to buy food because of higher prices rises by 52 percentage points, from 35% in February 2020 to 87% in February 2021. The effect is largest in urban areas far from town center and second largest in rural areas far from towns.

3.3 Access to education

The effect that school closures are having on children's education is the third largest concern that respondents have about the impacts of the pandemic, expressed by 67% of survey respondents. Most schools closed as a result of the pandemic. The percent of households with school-age children in which none of the children go to school rises from 4% before the pandemic to 86% during the pandemic. Children were out of school for an average of 9 months by the time of the survey. The concern about school-age children reported by most respondents (81%) is that the children are falling behind in their education. The second most frequent concern (51%) is that children are loitering and not occupied. The third most frequent are that the children are not taking their exams (39%) and that they are going to get into trouble because they are not in school (32%). The decline in number of children who are attending school is smallest in rural areas closer to town.

Independently of school closures, some households report withdrawing children from school in order to cope with the hardships of the pandemic. The percentage of households who report this coping strategy rises by 7 percentage points, from 4.6% in 2020 to 11.4% in 2021. The increase is biggest in rural areas near towns relative to other areas and bigger among the poor.

3.4 Access to health care

The impacts of the epidemic on health reported by the survey respondents are moderate. About 34% of respondents report being concerned about physical health in their family because of the pandemic, while 18% express a concern about effects of the various stresses of the pandemic period on mental health. The percentage of households who report someone in the household was ill and unable to work increased from 9% in February 2020 to 16% in February 2021. The concerns and the increase in prevalence of illness may not be caused only by the COVID-19 virus but may also be due to disruptions to access to health care caused by the restrictions that the government imposed to contain the virus.

Reduced incomes as well as closures of health centers and mobility restrictions impacted access to health care. These disruptions may have longer-term effects on health as people forego preventive care and treatment of chronic conditions. The percentage of households who report delaying or not having health visits increased from 4% in February 2020 to 11% in February 2021, and this effect is largest in rural areas near towns. The percent who report not obtaining medication or treatment rose from 5% to 14%, and this effect is smallest in rural areas far from town and similar in all other areas.

Survey data suggest that health center closures and mobility restrictions may have affected access to health care more than did declines in income. Households who report that they did not obtain medication or treatment because they did not have enough money fell from 79% during

the year before COVID to 67% during COVID, while those who report that they could not get to the health center or the health center was closed rose from 21% to 32%.

4. Impacts on agricultural production

The evidence for impacts of the pandemic on crop production based on survey responses is not strong. The percentage of households who report declines in production and harvest increases by about 10% from 47% in 2020 to 56% in 2021, and about the same percentage report reductions in farm income in 2020 as in 2021. However, we are comparing the pandemic year, which had good rains, to the previous year, during which the farmers experienced a drought. If more households report reduced production in a good year, it could be that production was widely below potential.

Evidence on use of agricultural inputs is not entirely consistent with the evidence on production as amount of land planted increases substantially for some crops, and large majorities of farmers report using more fertilizer and seed. Farmers increase the amount of land planted with maize by 52%, and this increase is larger in rural areas near towns than in remote rural areas. Land planted with small grains increases by 37%. About half the farming households report that they increased fertilizer use on maize and amount of maize seeds. About 40% increased the amount of sorghum seed used. Reports about production suggest that these input increases may not have resulted in larger harvests as some key informants indicated that some farmers were prevented from harvesting their due to the transport and mobility restrictions.

Changes in prices are consistent with increased demand for inputs and reduced harvest. An overwhelming majority report higher input prices and higher crop prices than in previous years.

Farmers used different marketing channels during the pandemic, presumably because closures and mobility restrictions affected their access to formal channels more than to the informal ones. Fewer farmers sold their maize and sorghum to the Grain Marketing Board, and more sold directly to local consumers. Both effects are bigger in urban areas close to town center and in rural areas near towns than in remote rural areas.

30% express concern over increased labor burden. Key informant interviews indicate these concerns relate to both COVID-19 restrictions and the heavy rains experienced during the rainy season. Mobility and transport restrictions meant restricted movement of labor to assist in agricultural production and restricted access to source agricultural inputs, whilst the heavy rains resulted in an increased weed growth and hence an increased need for agricultural labor.

5. Impacts on women

Almost 80% of respondents to the survey say that women experienced disproportionate impacts of the pandemic and the measures imposed to contain the pandemic. About 21% of respondents also express concern about an increase in domestic violence as a result of the pandemic, and women are the primary targets of domestic violence. Figure 2 shows the effects that respondents mentioned that disproportionately affected women. Interviews with key informants mention that loss of income and the reduced ability to buy foods caused considerable stress in households, which may exacerbate domestic violence.

Among outcomes on which we have data, the main impact of the pandemic that affects women more is the likelihood of experiencing a full day without eating, which increases more from February 2020 to February 2021 for female-headed households than for male-headed households, and female-headed households are more likely to decrease the size of meals as a coping strategy. Furthermore, female-headed households are somewhat more likely to lose in-kind donations of maize-based foods from churches and NGOs during the pandemic as well as gifts of legumes from relatives. Thus, female-headed households may be more likely to lose some of their support networks during the pandemic. On the other hand, female-headed households are more likely to pay for food with money obtained from cash transfers. Forty-two percent of households in our data are female-headed.

The key informant interviews indicate that most of the non-registered vendors are women who were severely impacted by the closure of informal markets. This led both to a decrease in their income as well as a decrease in the amount and diversity of food that they could buy for their household.

Additionally, two key informants asserted that women's access to reproductive health services was restricted as hospitals were giving priority to COVID-19 treatment. This is in line with emerging evidence such as Plan International Zimbabwe (2021).

6. Discussion

This research demonstrates the significant role of the informal economy in Zimbabwe in providing both income and diverse diets. The informal economy is considered 'illegal' by the Zimbabwean government, which led the government to close (often forcefully) informal markets in both urban and rural areas. During stakeholder interviews, vendors lamented that they are not recognized as legal businesses and their contributions to the agricultural sector and food economy are not valued. The survey results demonstrate that the impacts in the informal economy were greater than in the formal one, that is both in terms of employment (an increase in casual labor whilst no change in formal employment) and sources of food (a decrease in food bought from vendors whilst a smaller decrease in food bought from supermarkets). Due to the closure of informal markets as well as transport restrictions, transporters, vendors (who in urban areas are predominantly women) and agricultural producers experienced significant income losses. The supply of diverse foods in rural and urban markets was disrupted. Both effects led to a reduction in dietary diversity and food intake.

It is evident that the COVID-19 mitigation measures implemented by the Zimbabwean government did not sufficiently recognize the role of the informal economy in income generation and provision of diverse diets of low-income households. Instead, the government pursued its formalization agenda amidst the pandemic. One key informant indicated that after the closure of the informal markets, district councils set up formal markets in Chiredzi and Mwenezi.

At the same time, the informal sector provided the flexibility needed for informal traders and/or farmers to continue to sell food along streets and roads, for consumers to obtain food from these informal traders, and for people to find employment as casual laborers despite the restrictions. These findings point toward the critical role of the informal economy in providing a source of

livelihood, which is in line with recent findings in different contexts in the Global South (see e.g. Vorley, Guarín & Nicolini, 2020). Our findings are in line with the findings of FAO (2021b), pointing towards the need to develop support measures for those relying on informal markets and employment to maintain adequate access to food. Other evaluations by Scoones (2021) and Scoones et al. (2020) illustrate the resilience of the informal economy as informal trade, including barter trade, in small towns are recovering, and new livelihood strategies are emerging such as piece work, gardening, chicken and pig production, brick making, and bread baking. Consequently, assumptions about the inefficiency and health and safety issues of the informal food economy need to be urgently rethought by policy makers, donors and civil society.

This study shows that households' reliance on maize-based foods increased during the pandemic, leading to less diverse diets. Decreases in incomes meant that many households increased their consumption of maize-based foods, particularly mealie meal due to its relatively low prices, whilst reducing the consumption of plant- and animal-based protein such as legumes, meat, dairy, and eggs. Other potential reasons for the increase in maize-based consumption are the government's removal of import duty on maize to maintain relative affordability of staples, and maize meal subsidies by the government as part of their social protection programs to enhance food security. The results suggest that maize subsidies exacerbate the decline in nutrition that accompanies a food crisis. Income declines and price increases lead people to switch to less expensive foods. Many of the foods that are rich in protein, such as legumes, meat, and dairy are relatively expensive. Households, especially low-income ones, need inexpensive nutritious alternatives such as small grains.

Key informant interviews indicate consistently the potential role of digital solutions to mediate the impacts of the COVID-19 restrictions. Stakeholders suggest digital platforms on which agricultural produce can be sold and bought replacing physical marketplaces whilst ensuring COVID-19 physical distancing restrictions. According to the interviews, such platforms could safeguard the incomes of rural producers by providing market access and competitive prices, as well as serve as a means to access diverse foods for consumers. However, attempts by the Zimbabwean Government to implement such a platform, eMKambo, have largely remained below expectations as many agricultural producers, particularly small-scale producers, have limited or no access to smartphones/cell phones and prices for internet bundles are relatively high. In addition, capacity issues relating to the operationalization of the platform as well as the marketing of the produce ensued. New efforts on ICT and digital technologies have expanded recently, such as Kurima Mari ("farming for money) (ZAGP EU program) and Agrishare, which aim to develop an information management system to provide stakeholders with current information on disease outbreaks, market regulations, prices, supply and demand, weather, and finance. Additionally, stakeholders indicate the emerging use of bulk SMS to distribute extension messages by government extension services to uphold physical distancing measures and adhere to travel restrictions. However, some stakeholders raised the concern that digital technologies (both the platforms and the SMS services) would exacerbate pre-existing inequalities between those who have access to digital tools and those that do not, particularly between poor and better-off, men and women, and young and old in both rural and urban areas. Instead, stakeholders suggest the need to develop low-cost alternatives which do not require the ownership of a (smart) phone and the need to buy data bundles.

The study results suggest that the pandemic and the confinement measures impact livelihoods differently in urban and rural areas, despite their interlinkages. The implementation of the lockdown, restrictions on transport and operations, along with curfews that limit activity time, were likely more strict in urban areas and rural areas near towns, with greater enforcement and communication through mass media**.** The urban areas, while more directly exposed to the restrictions, may have been cushioned by cash transfer programs, government maize meal subsidy programs, remittances, as well as stable employment in the formal sector. Urban areas far from town, however, may have been exposed to greater vulnerability under the lockdown and price increases, due to higher transport costs, more difficulties in accessing food and other commodities and work options, raising their income spent on food.

Rural areas near towns, on the other hand, seemed to be more vulnerable, greater reductions in food consumption and nutrition, and in non-food expenditures, shortages of food in the market and reductions in purchases from vendors, which would reduce vendors' livelihoods. The greater increases in reliance on a range of coping strategies in rural areas near towns may partly reflect access to more services near towns than in remote rural areas. More households near towns may have access to lenders, health care, and education, and are therefore able to increase borrowing and reduce health and education expenditures, while these strategies may be less available in remote rural areas. However, rural households near towns may also rely more on food from markets than on own production, potentially due to fewer agricultural assets, such as land, livestock, and labor, and partly due to more diversified livelihood sources. These households may also be more dependent on non-farm employment in the informal sector, which was affected by enforcement of restrictions.

More of the farmers in remote rural areas may practice subsistence agriculture, and own more livestock, and may thereby be relatively protected from food shortages in the market. Also, good rains would have helped subsistence farmers during the 2020/2021 growing season. However, farmers in more remote rural areas would also be more stressed by poor harvests in past years and more affected by any shortfall in harvests during the 2020/2021 season. Despite high rainfall in the 2020/21 season, some areas in southern Zimbabwe continued to face challenges, such as erratic distribution of rainfall, with below average rains in some areas, and incessant rain and flooding in other areas, pest and disease outbreaks, and limited access to farm inputs and extension services because of the pandemic. Farmers in more remote areas had less access to cash transfers and government maize meal subsidy programs, and food price increases were greater in more remote areas than closer to town. Therefore, farmers who experienced poor harvests may have suffered more extreme food shortfalls than households closer to town, falling into the category of those who experienced entire days without eating.

7. Conclusion

This study finds that the most widespread changes that took place during the first year of the COVID-19 pandemic in southern Zimbabwe are declines in income, in the consumption of food, and in access to nutritious foods, as well as loss of primary and secondary schooling for most of the year. The areas in which changes in livelihoods were most widespread are outlying urban areas and rural areas near towns. The areas where the more severe impacts on access to food

were concentrated are outlying urban areas and more remote rural areas, far from town. Central urban areas appear to be least vulnerable.

The changes appear to result mainly from restrictions on movement and closures of stores and markets imposed during the pandemic. While the measures may have limited the spread of disease, their design did not recognize the essential role of the informal economy as a source of livelihoods and a safety net for the majority of the population and the food value chain as an essential service. A more nuanced approach that maintained precautions for example by moving markets outdoors and maintaining distance between stalls may have contained the pandemic without some of the adverse effects, including effects on health through lack of food, nutrition, and access to health care.

Changes in reliance on coping strategies occur among a relatively small percentage of the population, suggesting that the decline in income may not have been large and much of the decline in consumption of food may have been due to lack of access, supply shortages, and consequent price increases rather than the decline in income. At the same time, much of Zimbabwe experienced good rains during the 2020/2021 growing season and the government implemented an agricultural input support program, both of which should have resulted in an ample harvest and food supplies. Also, the government implemented a cash transfer program to support capacity to buy food.

The negative outcomes in southern Zimbabwe have two important implications. First, the pandemic may have impeded an opportunity to improve livelihoods after the previous several years of poor harvests and an ongoing economic crisis. Second, the response to the pandemic and development efforts more generally may be more effective if they recognize that differences in conditions across contexts require appropriately differentiated approaches.

7.1 Recommendations

- The Government of Zimbabwe should recognize the role of the informal economy as a safety net for providing income, food security, and employment for the large majority of the population. The informal economy is essential to livelihoods during regular times and provides flexible coping strategies during recovery from shocks. Policies that address recovery needs in ways that protect and facilitate transactions in the informal economy are likely to accelerate recoveries and improve their outcomes. For example, during a pandemic, policies that move any indoor informal markets outdoors, increase distances between stalls in outdoor markets, and limit density of customers at any given time together with masking requirements, instead of closing the markets, will reduce the number of vendors, traders, and consumers who are pushed into poverty traps by lack of income, price increases due to limited supply of goods, and/or insufficient nutrition. Attempts to formalize transactions during a crisis impose costs on people who cannot afford them, deepen and prolong the crisis, and result in lower economic output after recovery. Supporting the informal economy could be especially effective in improving outcomes in rural areas near towns and outlying urban areas, which were particularly vulnerable during the pandemic.

- The Government of Zimbabwe should recognize the food value chain as an essential resource during a crisis. Limited access to food is likely to deepen any crisis, with cascading impacts on health, schooling, and productivity. While the government did recognize food as an essential resource early in the pandemic, most food markets were closed, and transportation of food became difficult, disrupting processing and delivery to consumers.

- Policies during normal times as well as responses to crises should be tailored to local conditions. Climatic, environmental, and socio-economic conditions differ across the country, and these factors interact differently in response to different types of crises. Tailored responses require localities to have the information about what the local conditions are and the authority and flexibility to respond appropriately. Local responses would benefit from supportive national policies that are aware of local conditions and responsive to them. Flexible policies and administration can be achieved in different ways but could include some of the following features:
    - Widely shared information about climatic conditions could facilitate the government response to potential shortfalls of food, guiding the distribution of cash transfers and in-kind support. An approach that would offer more support to the local economy and markets is if the information about climatic conditions and potential food shortages was shared widely with farmers, processors, and food distributors so that producers and distributors could move food from areas of surplus to areas of deficit, benefiting all parties to the transaction as producers and distributors would obtain higher prices and consumers would obtain access to food. Such an approach may have been helpful during the COVID-19 pandemic as some areas in Zimbabwe had very good rainfall and large harvests, while parts of southern Zimbabwe continued to have deficits due to poor conditions.
    - Widely shared information about food supplies and prices could facilitate access to food. Such information could be shared via phones. However, the approach would need to consider how to address inequalities that may arise if poorer households do not have access to phones that can receive the information or cannot afford necessary data plans.
    - Shorter, more decentralized food value chains with a broader distribution of processing facilities could facilitate access to food when transportation networks are disrupted and could forestall sharp increases in food prices such as occurred during the COVID-19 pandemic.
    - More decentralized support distribution networks, for example for allocating cash transfers, that take advantage of local information in communities to identify most vulnerable households could reduce the percentage of households who fall into poverty traps as a result of shocks. Cash transfers were most available in outlying urban areas, where people were most likely to experience full days without food on a regular basis, but they were also more available in least vulnerable central urban areas than in more remote rural areas where instances of severe food deprivation were more common.
    - Women in particular and especially female-headed households require more targeted support and social protection linked to livelihood and income options. Attention to the needs of female-headed households should be integrated into

policy and program design in all agencies rather than being situated in a separate department.

- Policies that promote nutritious diets and investment in value chains that facilitate access to nutritious foods could reduce the effect of shocks on nutrition. Consumers in Zimbabwe rely heavily on maize, which is inexpensive but low in nutrition, and the government expanded the shift to consuming maize by distributing subsidized maize-based products during the pandemic. Developing value chains for locally produced small grains, which are more climate resilient and nutrition-dense cereals than maize, complemented by legumes and other drought tolerant crops, may reduce the exposure to multiple food shocks. Expanding access requires investments in mechanization of post-harvest and processing technologies and linking urban dietary diversification with nearby rural supply chains. These value chains should also be connected to any programs that distribute subsidized food to vulnerable households.

- Developing markets in rural areas far from urban centers could integrate farmers and rural consumers better into the economy, expanding their access to a range of coping strategies during shocks. Diversifying coping strategies could help to avoid the more severe vulnerabilities, such as not having access to food for entire days on a weekly basis. This outcome was more common in more remote rural areas than in rural areas closer to towns, but the fact that it was most common in outlying urban areas suggests that expanding markets is not sufficient and needs to be combined with decentralized support networks that supply and respond to local information about deprivation.

- Potential short-term strategies to improve recovery from shocks:
    - Maintaining informal markets and employment opportunities as safety nets for urban and rural poor.
    - Identifying food value chains as essential services.
    - Targeted cash transfer, income generation and nutrition interventions to the poor, and especially female-headed households, in outlying urban areas and remote rural areas.

- Potential medium-term strategies to improve recovery from shocks:
    - National integrated policy frameworks that address agricultural productivity, livelihoods, access to food and nutrition, and climate resilience building through flexible and tailored approaches that are responsive to differences in conditions in different areas of the country.
    - Promotion of small grains and legumes through localized food value chains and decentralized processing that improve access and expand employment.
    - Decentralized cash transfer programs that support expansion of livelihoods and buffer against destitution and are based on local information about needs.
    - Outdoor business hubs and markets for agricultural commodities, inputs, and food products.

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Tables and Figures

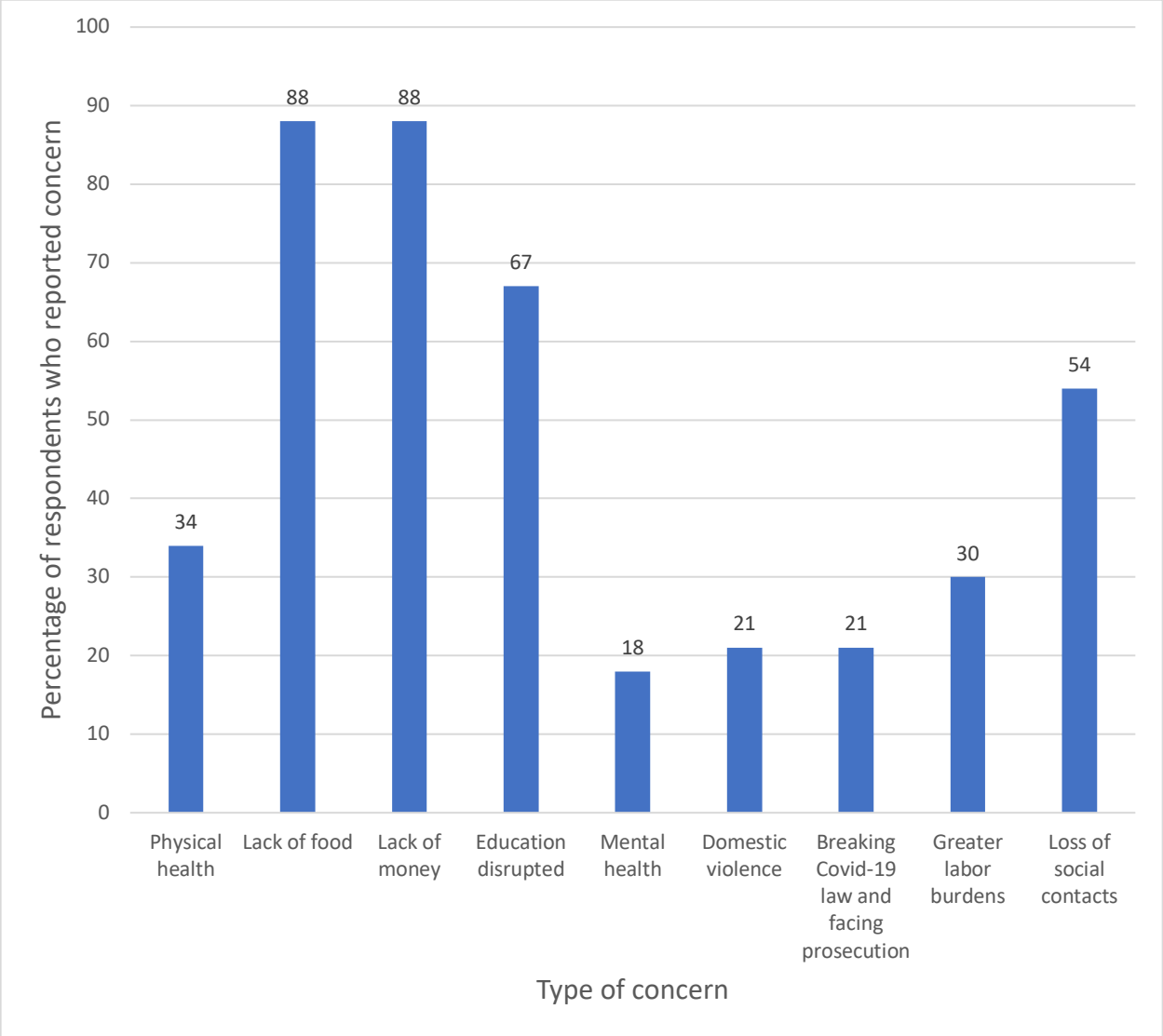

Figure 1 Main sources of concern about the effects of the COVID-19 pandemic

Data are from household survey.

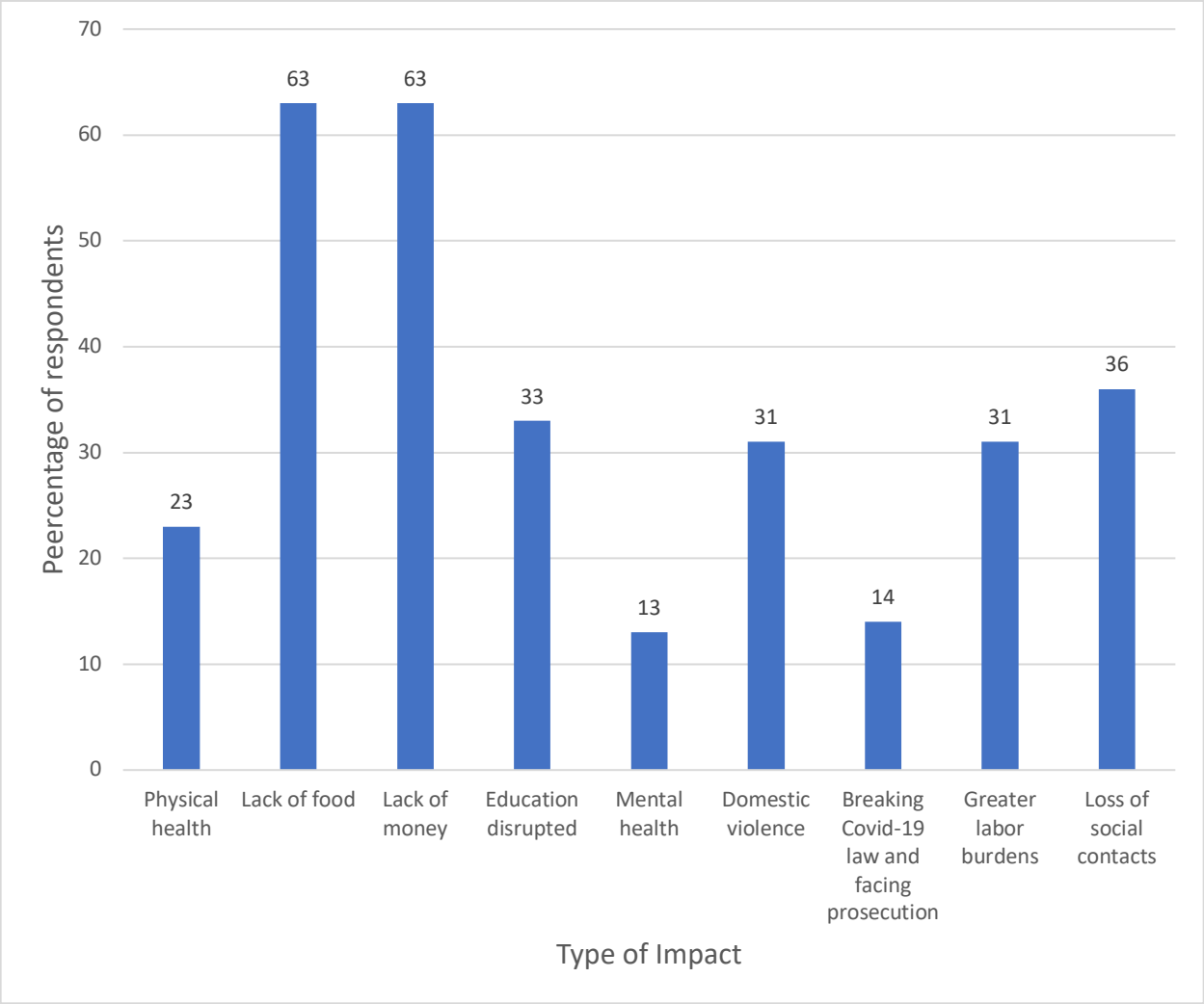

Figure 2 Ways in which respondents believed that women experienced disproportionate impacts of the COVID-19 pandemic

Data are from household survey.

Coping strategy	Percentage using strategy		Percentage using strategy in urban areas near town center		Percentage using strategy in urban areas far from town center		Percentage using strategy in rural areas near town		Percentage using strategy in rural areas far from town	
	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021
Asset sales, expenditures, and debt										
Sell household assets	**7**	**17**	5	19	3	12	5	20	15	16
Difference			rural far				rural far		rural near urban near	
Sell productive assets	**5**	**9**	1	3	1	1	3	20	14	12
Difference			rural far rural near		rural near		rural far urban far urban near		rural near urban near	
Sell female animals	**11**	**22**	0	1	5	9	7	32	34	47
Difference			rural near		rural near		rural far urban far urban near		rural near	
Sell unusually high number of livestock	**10**	**19**	0	0	2	6	5	32	33	37
Difference			rural near		rural near		rural far urban far urban near		rural near	
Sell immovable assets	1.3	.7	1	0	0	0	2	1	3	1
Spend savings	**37**	**62**	9	35	33	56	16	61	91	97
Difference			rural far rural near		rural far rural near		rural far urban far urban near		rural near urban far urban near	
Borrow from formal lender	**11**	**18**	3	5	1	1	5	28	35	37
Difference			rural near urban far		rural near urban near		rural far urban far urban near		rural near	
Borrow from informal lender	**40**	**54**	39	49	35	48	8	34	80	85
Difference			rural near		rural near		rural far urban far urban near		rural near	
Reduce non-food expenditure	**12**	**26**	7	13	9	23	7	34	26	32
Difference			rural near		rural far rural near		rural far urban far urban near		rural near urban far	
Food consumption										
Reduce number of meals	**47**	**77**	58	86	28	71	16	59	87	95

Difference			rural near urban far		rural far urban near		rural far urban near		rural near urban far	
Reduce size of meals	**45**	**78**	44	67	33	81	16	65	89	98
Difference			rural near urban far		rural far urban near		rural far urban near		rural near urban far	
Rely on less preferred food	**57**	**86**	71	96	50	87	16	64	91	98
Difference			rural near urban far		rural far rural near urban near		rural far urban far urban near		rural near urban far	
Other										
Resort to casual labor	**22**	**30**	13	23	33	44	12	29	29	25
Difference			rural far rural near		rural far		rural far urban near		rural near urban far urban near	
Withdraw child from school	**5**	**11**	1	1	1	1	7	33	10	11
Difference			rural near		rural near		rural far urban far urban near		rural near	
Migration	11	13	7	3	6	13	2	1	31	33
Difference			rural far urban far		rural near urban near		urban far		urban near	
Resort to begging	10	11	9	7	1	3	1	3	31	31
Difference			rural near urban far		urban near		urban near			
Resort to illegal activities	**1**	**3**	1	1	1	8	1	1	3	2
Difference			urban far		rural far rural near urban near		urban far		urban far	

Table 1 Coping Strategies

Data are from household survey.
Numbers in bold denote that the change in use of coping strategy from 2020 to 2021 is different from zero at a level of statistical significance less than 10%. Locations in the "Difference" rows (e.g. urban near) of the table denote that the difference between the change in the reliance on this strategy from 2020 to 2021 in those locations and the change from 2020 to 2021 in the location indicated in the column is different from 0 at a level of statistical significance less than 10%.

Type of livestock	Average number of livestock per household in rural areas		Average number of livestock per household in rural areas near town		Average number of livestock per household in rural areas far from town	
	2020	2021	2020	2021	2020	2021
Cattle	6	6	5	5	8	7
Goats and sheep	**9**	**7**	9	8	9	7
Poultry	**19**	**14**	19	14	20	14

Table 2 Holdings of livestock

Data are from household survey.
Numbers in bold denote that the change in average number of livestock from 2020 to 2021 is different from zero at a level of statistical significance less than 10%. None of the differences between changes from 2020 to 2021 in rural areas near town and rural areas far from town are different from zero at a level of statistical significance less than 10%.