

The Effect of COVID-19 on Food Consumption and Security

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Abstract

Agricultural and food markets were affected by the disruptions created by the restrictions on the mobility of people especially during the first lockdown in Zimbabwe from March 2020 to August 2020 and the subsequent localised lockdowns carried out in Zimbabwe. This resulted in loss of income among farmers and reduced food availability in towns. The purpose of the study was to assess the effect of Covid-19 on food security and consumption in Zimbabwe targeting Masvingo and Harare Provinces. Food consumption and security were measured using the rapid assessment method. The study used a questionnaire to obtain data on the food security and consumption from 489 respondents. The questionnaire was administered face to face. The results revealed that COVID-19 directly reduced access to food of the respondents in Harare and Masvingo province. Food insecurity in Harare and Masvingo province increased hence the need for policy makers and the donor community to assist the vulnerable people in Zimbabwe as a result of the pandemic to avoid food crisis. Results from Multinomial Logistic Regression Model established that households which are involved in informal trading and those that depend on labour income were more vulnerable resulting in reduced food consumption due to COVID-19 pandemic compared to other respondent categories. These results imply that government should prioritise households which depend on informal trading and those relying on labour income when providing safety nets during pandemics in Zimbabwe.

Keywords: COVID-19; food security; food consumption; Zimbabwe

Introduction

Globally, food provision has been established to be a stumbling block in fighting hunger resulting in almost 820 million people finding it difficult to obtain adequate food daily and more than two billion people have been observed to have challenges in obtaining vital micronutrients which have adversely affected their and life expectancy and health (Food and Agricultural Organisation (FAO) & World Health Organisation (WHO), 2019). According to Kansime et al. (2021), food insecurity is caused by a complex of factors such as poverty, low access to basic social services, and it is also multidimensional. The coronavirus disease of 2019 (COVID-19) pandemic affected the lives of the billions of people in many ways and was not

limited to the direct threat that the virus imposes on the health of households and communities (Bene, 2020). Food consumption and food security have also been disrupted as a result of restrictions on movements of people especially during the first lockdown in Zimbabwe from March 2020 to August 2020. Further, the localised lockdowns carried out throughout the country resulted in income losses and reduced food availability in towns.

According to Laborde et al. (2020a) the COVID-19 pandemic has resulted in serious adverse impact to food security. Furthermore, concern of increased poverty and food insecurity of vulnerable members of society failing to obtain adequate amount of food was also raised by Torero (2020). This was raised due to price increases of food products which emanated after the onset of the COVID-19 pandemic. Agricultural and food markets were mostly affected by the disruptions created by restrictions on movements of people especially during the first lockdown in Zimbabwe from March 2020 to August 2020. Bene (2020) noted that these restrictions in mobility of the general populace has adverse effect on food consumption and food security.

FAO (2022) notes that there are number of overlapping and supporting forces at work that have developed and impacting negatively on food security. FAO (2022) identified these to include disturbances to food supply chains; loss of income and livelihoods; a broadening of inequality; disturbances to social protection programmes; altered food environments; and uneven food prices in localized contexts. The organisation further identified that the high degree of uncertainty around the virus and its evolution could pose further damage in the future including the probable lower food productivity and production, depending on the harshness and length of the pandemic and measures to contain it. The World Bank (2020) highlighted that the pandemic prompted a global economic recession which caused a dramatic loss of livelihoods and income on a global scale. The resulting decrease in purchasing power among those who lost income has had a major impact on food security and nutrition.

Background to the study

The COVID-19 pandemic has reshaped society and disrupted the daily lives of people around the world Chazovachii (2020). Intervention mechanisms that government around the world instituted had a huge bearing on the livelihoods of societies. Zimbabwe was not spared by the pandemic and like in other jurisdictions, the government proactively announced measures to prevent the spread of the pandemic in the country. The various measures had both the positive and negative effect on the populace. On the positive side the regulations were meant to reduce the mortality rates as the medical facilities became stressed with the high number of people seeking medication. On the negative side, the interventions by the governments to curb COVID-19 resulted in significant losses to companies leading to loss of millions of jobs. Not only were the jobs lost but there was also loss of livelihoods by the societies as people were no longer able to go about their usual assignments.

The first lockdown in Zimbabwe was announced by the president on March 30, 2020 (GoZ, 2020). The initial closure period lasted 21 days until 19 April 2020. After 21 days, the lockdown was extended for another two weeks as the number of cases increased by 25, including both foreign and domestic. diseases. At that time, three deaths were recorded (Peralta, 2020). Fully adherence to COVID-19's best health practices was expected during the closure. During the lockdown movement was restricted except those people who were deemed to provide essential services such as banks, communications and potential farmers (WHO, 2020). This restricted those who were not in these categories to stay at home or faced prosecution as they were deemed in violation of the lockdown regulations.

Detailed details of the institutions that can continue to operate are provided below in the first table.

Table 1. Institutions authorised to operate during lockdown

Institutions	Explanation
Transport	All passenger public transportation connected to the area were prohibited to operate. Only the state-owned Zimbabwe United Passenger Company (ZUPCO) was authorised to operate. The buses would be disinfected throughout the day to ensure that passengers, bus drivers and drivers are safe. The buses will carry only 50% of their carrying capacity to reach the public. Strict time tables will be followed. Private vehicles should not be carrying more than 2 people for no apparent reason.
Assistance and distribution of aid	The distribution of food aid was to continue. However, distribution areas were expanded to reduce larger gatherings. Grain and cash payments were promised to 760,000 families across the country.
The national registrar’s office	The office of the National Registry was closed. Skeletal staff was available to issue burial orders only.
Manufacturing industries	Large, small and medium enterprises t were allowed to operate under surveillance.
Essential service providers	Manufacturers of essential services and their staff in the following areas had to remain active: electricity distribution, water supply, sanitation and sanitation, petrol and LP gas
Institutions of higher learning	Universities and colleges in the country, though closed to teaching and learning, were mandated to produce medical clothing, hand sanitizers, soap and hand masks.
Fuel stations	These were to continue to deliver fuel throughout the country
Security	Security guards, police, prison staff, security guards continued to work
Shops	Grocery stores, supermarkets and department stores open and close at 3 p.m.
Mining companies	Mining Companies Mining companies were supposed to operate but under strict adherence to set guidelines. Testing and evaluation had to be done before operations could resume. Workers remained at work during the closure.
Farming-crop and livestock	Farming-crops and livestock e.g. Department of Veterinary Services Because they are private institutions, private farms and facilities had to operate under strict adherence law. Dip tank attendance had to adhere to the Covid 19 rules and regulations
Service providers	Service providers in the agricultural sector will be active but adhering to measures to prevent the spread and spread of coronavirus.
Municipalities and councils	To continue to providing their services
Government ministries	Ministers of government departments were allowed to carry out their duties, and to hold cabinet meetings
Social services	Social services started work on food aid and the transfer of funds began
Electricity supply	Electricity companies were authorised to continue to provide electricity
Communication	Adjusted connections and mobile networks to keep working
Banks	Banks Opening under strict supervision
Tourism	Visitors visiting Zimbabwe were encouraged to postpone their trip and not to cancel it; The tourism sector was asked to come up with a plan to revitalize the tourism industry.
Social welfare	Social Welfare Interventions were prioritized to address vulnerable groups and targeted households.

Source: GoZ (2020)

Literature review

There are several studies which have analysed the effects of pandemics on government expenditures, employment, GDP growth and poverty etc (see for example Nicola et al., 2020; Sumner et al., 2020; UN-Habitat & WFP, 2020; World Bank, 2020) but there is limited information on how the pandemic such as COVID-19 has affected households in two different provinces in Zimbabwe.

Studies (Klassen & Murphy, 2020; Clapp & Moseley, 2020; Laborde et al., 2020) noted that the food system is being affected by a number of overlapping and reinforcing dynamics. These dynamics include disruptions to food supply chains; loss of income and livelihoods; a widening of inequality; disruptions to social protection programmes; altered food environments; and uneven food prices. The authors noted that the effects of the pandemic have unfolded in different ways as the pandemic has unfolded over its initial, medium, and potential longer-term impacts.

Disturbances to food supply chains were also experienced when workers involved in food system chains fell ill and could not afford to come to work causing work disruptions or total company shutdowns for food processing facilities such as meat packing (Stewart et al.,

2020). Labour-intensive food production was not spared as COVID-19 ravaged systems including food system workers, production systems that rely on farmworkers who could not travel to work due to movement barriers and those worked cramped conditions on farms and in processing facilities, some of which had to close temporarily to contain outbreaks (Haley et al., 2020).

COVID-19 has been found to threaten access to food available for use in the loss of income and assets. According to Laborde et al., (2020b), poorest families spend about 70% of their income on food consumption and have difficulty accessing financial markets which puts them at risk of income shock and food insecurity. The International Monetary Fund (IMF) in 2020 predicted a 5% decline in the global economy due to the COVID-19 epidemic. The negative effects of the epidemic on countries that were initially invaded by China, the United States and Europe have had a devastating effect on middle-income countries like Zimbabwe due to trade stagnation and led to rising food prices.

Decreased food security and income increase poverty and have a significant impact on food consumption and food security. The poorest families do not have the resources and money to buy the food to avoid hunger and malnutrition leading households switching to cheaper and more nutritious foods (Laborde et al., 2020b). Although the slowdown in economic growth is short-lived as a result of the epidemic, the effects of malnutrition may be long-lasting, especially in the younger generation growing up and the mental development that is often affected by malnutrition. Abate et al. (2020) stressed that the major challenges to vulnerable households is the reduction in food availability as a result of declining incomes rather than food shortages.

The COVID-19 epidemic affected food security through revenue shocks that put food access at risk necessitating call for safety nets to prevent vulnerable groups. Laborde et al., (2020) noted that more than 195 countries planned or introduced additional public safety measures in response to COVID-19 by June 2020. Most of these measures were temporary and were complemented significantly by the development of transfer systems (Gentilini et al., 2020). Money transfers are selected and implemented as they are easy to grow and allow families to choose the best products that meet their nutritional needs. Directing home assistance is important as it ensures that benefits reach those most in need. In addition, identifying benefits for women helps to improve the effects of a healthy diet.

Many developing countries are facing financial difficulties which is why there is a need for developed countries to help them in view of the strong international outputs on the economic effects of COVID-19. This will lead to accelerating global economic stability and help prevent global food shortages. Given the important role that the agricultural sector plays in providing food and food security, it is important that agricultural resources, farms, food processing and distribution are considered essential resources and excluded from the steps to close the door, so that food products can reach the masses. There is a need for health regulations in the agricultural sector to protect workers in food chains and to help stop the spread of COVID-19. Seasonal and international workers should be allowed to relocate to support the production and distribution of agricultural goods to target markets.

Description of the study site

Zimbabwe is part of Sub-Saharan Africa, situated to the south of Africa. Zimbabwe is a land locked country, whose Gross Domestic Product (GDP) comes mainly from agriculture and mining (Lulwa et al., 2020). Agriculture is considered the back bone of Zimbabwe's economy providing more than 70% of employment, reflecting a 13% contribution of agriculture to the country's Gross Domestic Product (Karombo & Mataranyika, 2020).

The country's informal sector's employment level rose from 2014 to 2019 by 14% (LFCLS, 2020). The labour force survey of 2019 reports that the country's informal economy, populated mainly by the informal sector, contributes 84% labour force to the country. Furthermore, the 2019 LFCLS (2020) shows the informal economy's employment rate 76% of the total employment. This indicates high informality levels and implications regarding the overall impact and Covid-19 spread in the country. Urban centres such as Harare and Masvingo are overly congested by informal economy markets like street vendors and other informal sector workers. Shortages were experienced in 2020 as supermarkets could not cope with high demand at a time when informal sector was stopped from operating (Chigudu, 2021).

The COVID-19 pandemic has brought with it debilitating socio-economic effects on many households in Zimbabwe. Almost half the population in Zimbabwe was in extreme poverty in 2020 due to the combined effects of increase in the price of basic necessities, economic contraction caused by the COVID-19 pandemic, and poor harvests (Lukwa et al., 2020). The pandemic's socio-economic effects continue to cause suffering in communities.

Methodology

The data for the study was collected using a self-administered questionnaire. In total 256 questionnaires were randomly administered in Harare and 233 randomly administered in Masvingo province making a total of 489 respondents between February to March 2022. The choice of Masvingo was based on the fact that it is among the drought prone areas and is characterised by food challenges while Harare is a metropolitan city which is highly food sufficient though with some pockets of poverty. The study adopted the FAO improved Food Insecurity Experience Scale (FIES) to measure food security. Kansime et al., (2021) noted that FIES is authorized for use in cultural diversity which is evident in the study where there are many Karanga people in Masvingo and Zezuru in Harare.

The FIES survey module contains eight short questions with dichotomous (yes / no) answers. The questions were based on respondents being asked about their health of various levels of malnutrition (FAO, 2016) before and during COVID-19. There are eight short questions related to uncertainty and anxiety about food security, variety of foods and quality, adequate nutrition, and hunger. The compromise on food quality due to COVID-19 deficit was assessed by asking respondents to indicate how often they ate five different food groups namely basic fruits, vegetables, meat and dairy products in the month prior to the COVID-19 epidemic and during COVID-19.

Descriptive statistics and regression methods were used to analyse quantitative data in the study. Means, standard deviations and t tests were used to reveal descriptive statistics to highlight the socio-economic aspects of the families being interviewed and how the COVID-19 virus affected respondent activities, as well as diet and food patterns. coping strategies, adopted. Factors determining the source of the family income discussed were affected by the epidemic and whether food use and food security effects were negative during the pandemic were analysed using the Multinomial Logistic Regression Model. This can be expressed by:

$$Y_i = \alpha_i + \vartheta A_i + \varphi I_i + \beta X_i + \varepsilon_i$$

where Y_i is a dynamic binary outcome variable for respondent i . Three distinct multinomial regressions were estimated. Y gets the value of 1 the source of the interviewed household's source of income has been affected by the pandemic and 0 otherwise. If the respondent encounters a reduction in food security y takes a value of 1 as a result of the difference between the FIES respondent score during the epidemic and the normal times becomes 1 and 0 otherwise. In addition, Y also gets a value of 1 if the frequency of food group consumption

decreases in the respondent due to COVID-19 and 0 respectively. The two main types of independent A and myself represent the main source of income and monthly income of the families in question respectively, while ϑ and φ are the parameters that must be measured respectively. This shows that the study focused on how respondents were affected by the epidemic in terms of income-generating activities. Other descriptive variables including age category, gender, and level of education, family size and their membership in savings are shown in vector x . The vector parameters to be measured are displayed in β and ε represent the error term.

Result presentation and analysis

Table 2 shows the status of respondents before and during the epidemic in terms of food consumption and food insecurity. Eight questions covering the Food Insecurity Experience Scale (FIES) were presented in the upper part of the table of the findings. The results found that respondents experienced severe food insecurity during the COVID-19 period compared to the pre-epidemic period (normal period). This is indicated by the fact that more than half of the households interviewed were unable to get enough food, ate less, could not even eat healthy and nutritious food and were able to eat a limited amount of food in Masvingo. Prior to the outbreak, about 30% of respondents in Masvingo were facing food shortages. Similarly, the number of respondents in Harare who are concerned about malnutrition, inability to eat healthy or nutritious food, eating a few types of food and eating small meals increased significantly by about 51, 40, 54, and forty-two percent. points, respectively, during COVID-19 compared to normal time. Food shortages have increased sharply in Harare compared to Masvingo, which is likely to be due to the fact that the city's labor intake is declining. The results presented in Table 2 show the deteriorating food security situation among respondents in Masvingo and Harare as a result of the COVID-19 epidemic on average.

Table 2: Food consumption and security situation before and during the COVID-19 period.

Food security indicator (N=256)	Masvingo (n = 133)		Harare (n = 167)	
	Covid-19 period	Normal Period	Covid-19 period	Normal period
1. Worried about not having enough food	0.78***	0.36	0.68***	0.17
2. Unable to eat healthy/nutritious food	0.63***	0.28	0.58***	0.18
3. Ate only few kinds of foods	0.82***	0.39	0.79***	0.25
4. Skipped a meal	0.48***	0.19	0.35***	0.19
5. Ate less amount of food	0.62***	0.31	0.62***	0.20
6. Ran out of food	0.33***	0.16	0.17***	0.10
7. Felt hungry but did not eat	0.18	0.17	0.35***	0.18
8. Went without eating for a whole day	0.20***	0.12	0.11	0.07
Food insecure	0.89***	0.53	0.88***	0.40
Moderately or severely food insecure	0.56***	0.19	0.45***	0.14
Severely food insecure	0.28***	0.07	0.07***	0.01

Notes: *** denotes that the mean difference between COVID-19 and normal periods is significant at the 1% level.

The results in Table 3 show the factors that determine the frequency of dietary intake as a result of this epidemic. The Multinomial Logistic Regression Model found that house size was one of the main factors affecting the decline in consumption of fruit and dairy products. This means that households with more family members have a greater chance of reducing their consumption of milk and fruit products as a result of the COVID-19 epidemic. This is understandable because intelligent households with large family members may opt for basic food preferences when faced with a modest income due to the challenge of the COVID-19

epidemic. This is in line with the results obtained by the study of Harris et al., (2020) which established that households tending to protect staple food consumption over the consumption of more expensive but more nutrient-dense foods.

Table 3: Results of the multinomial logistic regression model

Variable	Staples <i>P(Sig)</i>	Fruits <i>P(Sig)</i>	Vegetables <i>P(Sig)</i>	Meat <i>P(Sig)</i>	Dairy products <i>P(Sig)</i>
Household size	0.026	0.002**	0.256	0.192	0.001*
Education	-0.006	-0.061	0.019	-0.091	-0.032
Gender (1= Male)	0.456	0.578	0.015*	0.894	0.489
Informal traders	0.256	0.002***	0.026**	0.056*	0.001***
Members of a savings group	0.359	0.584	0.245	0.384	0.895
Salaried employment	0.352	0.086*	0.355	0.096*	0.012**

N= 300 (Masvingo n = 133, Harare n = 167)

Significance levels: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. The reference category is farming

(Source: Field Data)

The results also show that informal traders are more likely to reduce consumption of vegetables, meat, fruit and dairy products during COVID-19 by 1%, 5% and 1%, respectively. This is in line with findings of the study by Chigudu (2021) which established that COVID-19 negatively affected informal traders resulting in the sector gasping for life with no alternatives for livelihood. The results are also in agreement with Karombo and Mataranyika (2020) findings which found that the operations of the informal sector have been greatly affected by COVID-19. Furthermore, Makoni and Tichaawa (2021) concurred that COVID-19 brought greater threat to the socio-economic wellbeing of informal traders in Zimbabwe. The results also show that households that relied on labour income in the sample were severely affected by the epidemic which resulted in food insecurity as they significantly reduced consumption of fruit, meat, and dairy products.

Conclusions and recommendations

Results from the Food Insecurity Experience Scale found that food consumption and insecurity have worsened during the epidemic compared to normal. Findings from the Multinomial Logistic Regression Model revealed that household size, young traders and members relying on labour income were found to be contributing factors to the increase in food insecurity as a result of COVID-19. A major contribution of this paper is that it has been able to assess the impact of Covid-19 on food use and food security in two different provinces of Zimbabwe namely Harare and Masvingo. The study was limited to two provinces and pandemic resistance could be included for further studies.

In view of the findings of this study, the government is advised to warn its citizens at the time when it begins lockdowns so that family members have time to plan accordingly, rather than announce these steps in the short term. This can cause people to panic and shop and fail to get certain food products needed for a healthy lifestyle.

In times of such catastrophic events most people live on social media, such as WhatsApp and Facebook etc., to keep in touch with friends and relatives around the world. The government should negotiate with internet organizations such as Econet, Telecel or NetOne to reduce the data tariffs as people will earn less money, which will help people to get more regular and nutritious food that improves food security in Zimbabwe. The results also show that the government should prioritize informal traders and those who rely on labour money when providing safety nets during the epidemic in Zimbabwe.

References

- Abate, G. & Brauw de A, H. K. (2021). Ethiopia Strategy Support Program Paper 145, June. *International Food Policy Research Institute* Available at <https://ebrary.ifpri.org/digital/collection/p15738coll2/id/133766/rec/25>. [Retrieved November 25 2021].
- Bene, C. (2020). Resilience of Local Food Systems and Links to Food Security – A Review of Some Important Concepts in the Context of COVID-19 and Other Shocks. *Food Security*, 12, 805–822.
- Chazovachii, B. (2020). Understanding Strategies for Resilient Livelihoods by Masvingo Urban’s Vulnerable Groups During the Covid-19 Pandemic in Zimbabwe. *African Journal of Governance & Development*, 9(1), 139-159.
- Chigudu, D. (2021). Street Entrepreneurship in the Wake of Covid-19: The Dilemma of Street Vending and Strategies for Endurance. *International Journal of Economics and Business Administration*, 9(1),257-273.
- Food and Agricultural Organisation (2016). Global Food Insecurity Experience Scale Survey Modules. Available at <http://www.fao.org/3/a-bl404e.pdf> [Retrieved November 25 2021].
- Gentilini, U., Almenfi, M. & Orton, I. (2020). Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures. World Bank living paper version 11 [Retrieved November 30 2021].
- International Labour Organisation (2020). COVID-19 and the World of Work: Impact and Policy Responses. ILO Monitor (1st Ed.). Geneva: International Labour Organization.
- Harris, J., Depenbusch, L., Pal, A. A., Nair, R. M. & Ramasamy, S. (2020). Food System Disruption: Initial Livelihood and Dietary Effects of COVID-19 on Vegetable Producers in India. *Food Security*, 12(4), 841–851. <https://doi.org/10.1007/s12571-020-01064-5>[Retrieved November 20 2021].
- International Monetary Fund (2020). *World Economic Outlook Update: A Crisis Like No Other, An Uncertain Recovery* (IMF, June 2020). [https:// tinyurl.com/yazv7k7d](https://tinyurl.com/yazv7k7d). [Retrieved November 30 2021].
- Kansiime, M. K., Tambo, J. A., Mugambi, I., Bundi, M., Kara, A. & Owuor, C. (2021). COVID-19 Implications on Household Income and Food Security in Kenya and Uganda: Findings from a rapid assessment. *World development*, 137, 105199.
- Karombo, T. & Mataranyika, M. (2020). Zimbabwe Counts Economic Impact of Covid 19. Available at <https://www.news24.com/citypress/business/zimbabwe-counts-economic-impact-of-covid-19-20200508/> [Retrieved November 30 2021].
- Laborde D, Martin ,W. & Vos R (2020). Estimating the Poverty Impact of COVID-19: The MIRAGRODEP and POVANA frameworks, IFPRI *Technical Note* (IFPRI, 2020); Available at [https:// tinyurl.com/y9fazbzf](https://tinyurl.com/y9fazbzf) [Retrieved November 30 2021].
- Laborde, D., Will, M. & Swinnen, J. (2020b). COVID-19 Risks to Global Food Security. *Science* 369 (6503), 500-502.
- Lukwa, A. T., Siya, A., Zablouk, K. N., Azam, J. M. & Alaba, O. A. (2020). Socioeconomic Inequalities in Food Insecurity and Malnutrition among Under-Five Children: within and between-group inequalities in Zimbabwe. *BMC Public Health*, 20(1), 1-11.
- Government of Zimbabwe (GoZ) (2020). Public Health (COVID-19 Prevention, Containment and Treatment) (National Lockdown) Order, 2020. Available at <https://africanlii.org/akn/zw/act/si/2020/83>[Retrieved November 30 2021].
- Makoni, L & Tichaawa, T. M. (2021). Impact Analysis of the COVID-19 Pandemic on the Informal Sector Business Tourism Economy in Zimbabwe. *African Journal of Hospitality, Tourism and Leisure*, 10(1),165-178.



- Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Iosifidis, C. & Agha, R.(2020). The Socio-Economic Implications of the Coronavirus Pandemic (COVID-19): *International Journal of Surgery*, 78, 185–193.
- Sumner, A., Hoy, C. & Ortiz-Juarez, E. (2020). Estimates of the Impact of COVID-19 on Global Poverty (No. 2020/43). WIDER working paper.
- Torero, M. (2020). Without Food, There Can Be No Exit from the Pandemic. *Nature*, 580, 588–9.
- UN-Habitat & World Food Programme. (2020). Impact of COVID-19 on Livelihoods, Food Security & Nutrition in East Africa: Urban Focus. Available at <https://unhabitat.org/sites/default/files/2020/08/wfp-0000118161_1.pdf>.[Retrieved July 1 2021]
- World Bank. (2020). Assessing the Economic Impact of COVID-19 and Policy Responses in Sub-Saharan Africa. Africa’s Pulse. Washington, DC: World Bank Group.