



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Urban and Rural Areas Have Seen Similar Impacts From COVID-19 in Kenya

Policy Research Note #2
July 2021

Authors: John Olwande, Timothy Njagi, Milton Ayieko, Mywish K. Maredia, and David Tschirley

Key Messages

- Rural and urban areas experienced similar, significant declines in reported incomes of households following the onset of the COVID-19 pandemic.
- A majority of households in both areas also experienced reduction in the amount of food they consumed and in the quality of their diet.
- There is need to expand social safety net programs to support affected households in both rural and urban areas.
- It is also important to prioritize mass vaccination of the population to facilitate faster return to normal participation in economic activities.



Food Security Policy Research, Capacity, and Influence (PRCI) Policy Research Notes

This Research Note series is designed to disseminate timely research and policy analytical outputs generated by the USAID-funded Feed the Future Innovation Lab for Food Security Policy Research, Capacity, and Influence (PRCI) and its Associate Awards and Buy-ins. The PRCI project is managed by the Food Security Group (FSG) of the Department of Agricultural, Food, and Resource Economics (AFRE) at Michigan State University (MSU), and implemented by a consortium of three major partners: the International Food Policy Research Institute (IFPRI), Cornell University, the Regional Network of African Policy Research Institutes (ReNAPRI), and the Institute for Statistical, Social, and Economic Research (ISSER) at the University of Ghana. The MSU consortium works with governments, researchers, and private sector stakeholders in Feed the Future focus countries in Africa and Asia to co-create a global program of research and institutional capacity development that will enhance the ability of local policy research organizations to conduct high-quality food security policy research and to influence food security policy more effectively while becoming increasingly self-reliant.

Research notes are aimed at researchers, policy makers, donor agencies, educators, and international development practitioners. Selected notes will be translated into other languages.

Copies of all PRCI Research Papers and Policy Briefs are freely downloadable in pdf format from [this link](#). Copies of all PRCI papers and briefs are also submitted to the USAID Development Experience Clearing House (DEC) and to AgEcon Search.

Statement of Support

This research is made possible by the generous support of the American people through the United States Agency for International Development (USAID) through funding to the Feed the Future Innovation Lab for Food Security Policy Research, Capacity, and Influence (PRCI) under grant 7200AA19LE00001. The contents are the responsibility of the study authors and do not necessarily reflect the views of USAID or the United States Government. Copyright © Michigan State University 2021. All rights reserved. This material may be reproduced for personal and not-for-profit use without permission from but with acknowledgment to MSU. Published by the Department of Agricultural, Food, and Resource Economics, Michigan State University, Justin S. Morrill Hall of Agriculture, 446 West Circle Dr., Room 202, East Lansing, Michigan 48824, USA.

I. Introduction

When WHO declared COVID-19 a public health emergency of international concern (PHEIC) on 30th January 2020 and a pandemic on 11th March 2020, Kenya and many other governments responded with a range of measures aimed at slowing the spread of local infection. Responses included containment and mitigation measures such as restrictions on population mobility (lock-down and curfew), social gatherings and economic activities, and health specific measures to manage infections and mitigate spread. The measures were expected to reduce local spread of the virus but also to negatively affect normal social and economic activities, and thus the livelihoods of population (e.g. Zeufack et al. 2020). Governments were thus confronted with the need to protect both lives and livelihoods. Many therefore instituted social protection interventions to cushion their populations from anticipated negative impacts of the pandemic and the associated policy responses on economic welfare. Yet in most cases, limited fiscal capacity meant that these responses were unable to cushion the economic blow for most people.

The objective of this research was to analyze the effect of the COVID-19 pandemic and associated containment and mitigation responses on rural and urban livelihoods in Kenya. Documenting the effects of the pandemic on livelihoods can help guide resource allocation and inform policy actions for future crises. Data was collected from a nationally representative sample of 800 households stratified equally between rural and urban areas. We used cell phone survey to collect data between 18th September and 26th October 2020. Data included changes in income, coping strategies used, food quantity and quality, and assistance received from the government between July and October 2020. Data collection was part of a multi-country study across African countries: Kenya, Senegal, Mali, Nigeria, and Zambia (Maredia et. al., 2021).

Results show significant decline in reported incomes of households in both rural and urban areas as households lost sources of income. The share of households reporting per capita per day income below PPP\$1.90 increased significantly from 61% in March 2020 (which we consider the pre-pandemic period) to 73% in July 2020 (four months into the pandemic). A majority of rural and urban households also consumed less food and reduced the quality of their diets. These findings confirm that containment measures for Covid-19 pandemic have had significant negative economic impacts on households in both rural and urban areas. The broad findings are generally consistent with other studies in Kenya, which have found that households lost income sources and experienced food shortages. Yet none of these other studies are at a representative scale and compare the Covid-19 impacts by rural and urban populations, as this study does.

It is likely that the pandemic will be a lingering grave concern in Kenya for some time based on the fact that the country has been through three waves of the pandemic, there is continuing emergence of new variants, and the pace of vaccination is slow. There is need for expanded social safety net programs to support affected households in both rural and urban areas. It is critical to prioritize

mass vaccination of the population to facilitate faster return to normal participation in economic activities.

II. Brief overview of pandemic situation and government responses

The first case of COVID-19 in Kenya was confirmed on 12th March 2020. Confirmed new cases increased rapidly up to July, after which there was a brief decline until September before rapidly rising again in November. The number of confirmed cases is likely to be far below actual cases because confirmation relies on testing, and testing rates are low. Data reporting difficulties may also contribute to under-reporting. On 18th September 2020 when the survey began, cumulative confirmed cases had reached 36,724 compared to 384,025 estimated (or modeled) cases from a widely cited model by Imperial College London (ICL) (<https://ourworldindata.org/covid-models>). By 31st May 2021, confirmed cases had reached 169,985 compared to 1,983,071 from the ICL model. Estimated or modeled numbers thus are more than ten times confirmed numbers. While the pattern of movements in confirmed cases likely mirror those in actual cases, Kenya's covid burden is certainly far higher than confirmed cases data show.

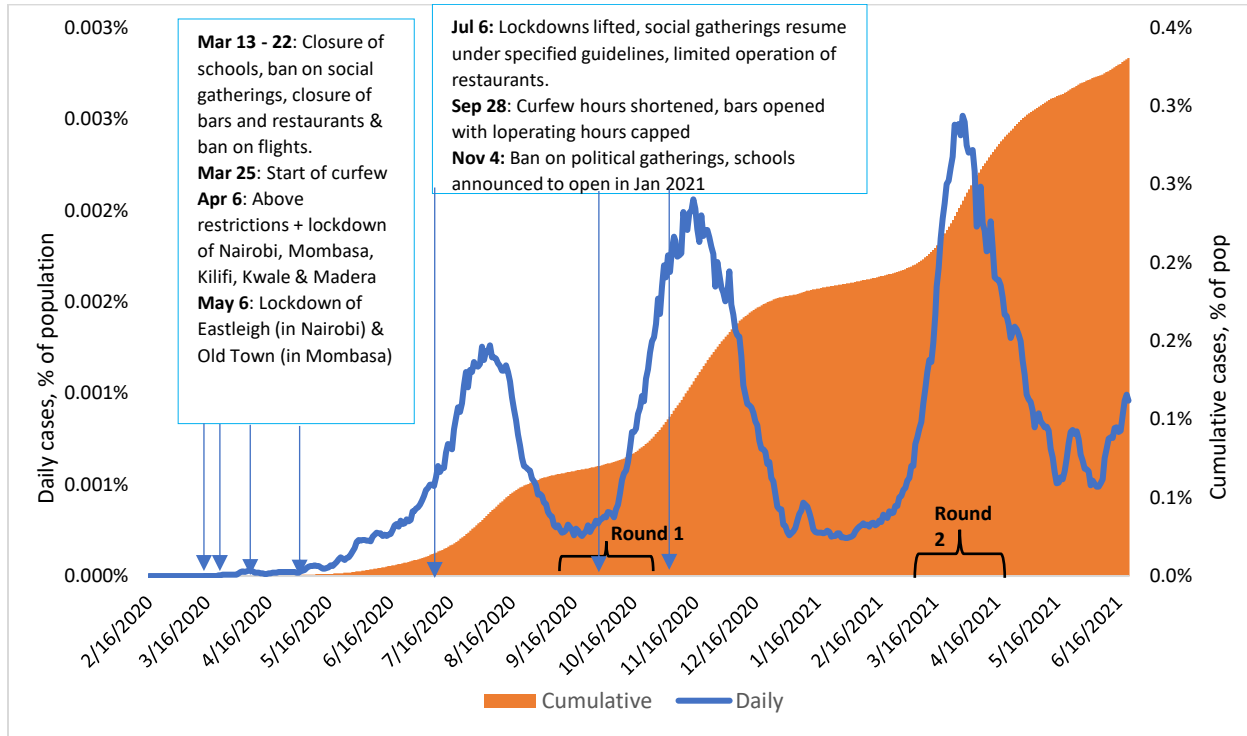
Just days after the first case was confirmed, Kenya began to implement a range of policy measures aimed at reducing the spread of the virus. School closures, curfew, lock downs, restrictions in social gatherings, and a ban on air travel and operations of bars, restaurants and entertainment places were instituted at various times beginning mid-March 2020 (Figure 1). Most of the restrictions were relaxed in July when new cases began to decline, but in November the cases rapidly rose again and a ban on political gatherings was imposed. This fluctuating stringency of measures is captured by the Oxford Covid-19 Government Response Tracker (OxCGRT; Oxford, 2021), whose stringency index shows that in 2020, covid restrictions were most stringent between March and June (Figure 2).

To moderate the effect of the pandemic and the associated containment measures on economic welfare of the population, the government implemented social protection interventions and fiscal, monetary and financial policies. These included enhancement of the existing conditional cash transfer programme, reduction and/or postponement of taxes, expansion of the youth employment programme, reduction in the cost of private borrowing through lowering of the Central Bank Rate, waiver of financial transaction fees, and suspension of the listing of loan defaulters, among other measures. Our survey indicates that 8% of respondents reported receiving any cash assistance, 11% reported receiving food assistance, and 32% reported receiving loans, tax cuts¹ or other types of

¹ The most widely felt tax cut was 100% tax relief for low-income earners – those earning gross monthly income of up to KES 24,000 (about USD226). Other measures included small reductions in the VAT, the top pay-as-you-earn rate, and the corporate income tax rate. All these measures affected only formal sector firms and workers. All have been eliminated at the time of this writing.

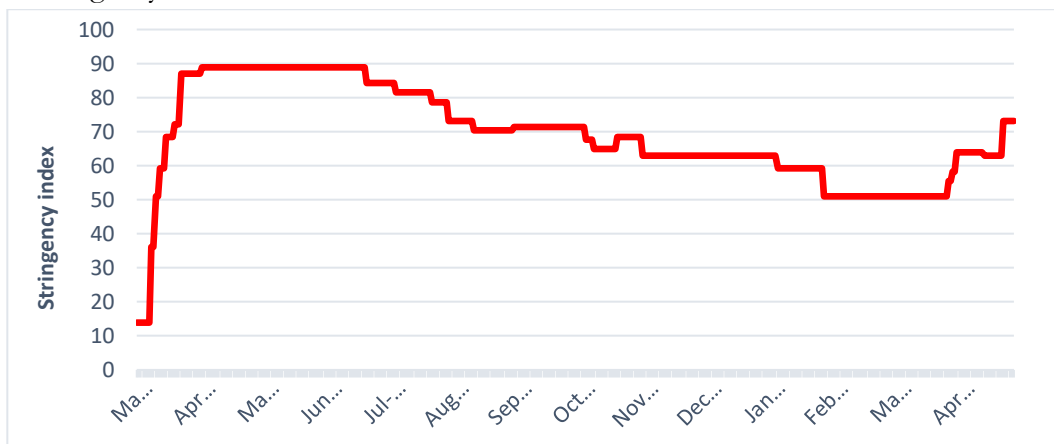
assistance from the government. Overall, 39% received some kind of assistance that they believe was meant as COVID relief. Thus, a substantial share of households in Kenya do seem to have been helped by social assistance during the pandemic, but we do not know the size of this assistance.

Figure 1: Confirmed COVID-19 daily and cumulative cases, government policy responses, and timing of survey data collection



Source: <https://ourworldindata.org/covid-models>; Tegemeo Institute's COVID-19 government policy response tracking.

Figure 2: Stringency index



Source: [Oxford Covid-19 Government Response Tracker](https://ourworldindata.org/covid-models), accessed May 13, 2021

Note: Description of the index calculation is available at: <https://github.com/OxCGRT/covid-policy-tracker/blob/master/documentation/codebook.md#containment-and-closure-policies>.

III. Methods

Phone survey was used to collect data between September 18 and October 26, 2020 by GeoPoll, a survey platform that specializes in survey research using mobile phones. GeoPoll conducted the same survey in Senegal, Mali, Nigeria, and Zambia as part of a broader research study to assess the impact of COVID-19 on incomes and food security in urban and rural areas of Africa (Maredia et al. 2021).

Respondents were selected through simple random sampling (SRS) from GeoPoll’s verified list of mobile subscribers in Kenya, which was generated from the most recent publicly available information produced by the Communications Authority of Kenya (CAK). The survey was targeted to the adult (i.e., 18 years old and above) main shopper of the household. Eight hundred (800) respondents, stratified 50/50 by rural and urban location, participated in the survey. The sample size implies an ability to estimate national effects with 3.5% (or 4.6%) margin of error and a 95% (or 99%) confidence level. For rural and urban strata, margin of error is 4.9% (6.5%) for a 95% (or 99%) confidence level.

Cell phone survey data are representative only of people with access to a mobile phone. However, according to the DATAREPORTAL (www.datareportal.com), 96% of adult population in Kenya had access to mobile phones in 2018-2019, suggesting relatively unbiased coverage by this survey. To reduce remaining bias that might arise from not all calls leading to a completed survey, two measures were taken². First, within each rural and urban stratum, respondents were geographically distributed across all the country’s 47 counties, with sample size for each county based on probability proportional to population size. This method of sample selection ensured that the respondents represented the spatial density and distribution of the country’s population geographically. Second, we applied sample weights to adjust the rural/urban split, and gender and education of the household head in total population.³ All reported results use these three adjustment factors.

IV. Results

Characteristics of the respondents and households are presented in Table 1. On average, respondents were 39 years in age and had nine years of formal education. Those in rural areas were five years older and had nearly two years less formal education. Rural households were larger than urban households.

Table 1: Respondent and household characteristics

² Such cases may arise because of network connectivity issues, inconvenient time of the call, a respondent declining to pick the call, or a respondent declining to take part in the survey.

³ Even though the survey was administered to the main shopper to capture the food shopping/consumption practices, the unit of analysis is a household, and thus we use household (and not respondent) characteristics to adjust the sample weight.

	Rural (N=400)		Urban (N=400)		All (N=800)	
	mean	sd	mean	sd	mean	sd
Minutes to travel to town in wet season	70.45	149.32	0.00	0.00	48.61	128.18
Respondent age	40.66	15.14	35.41	11.98	39.03	14.44
Gender of Respondent (1=male)	0.53	0.50	0.58	0.49	0.54	0.50
Respondent education (# of years)	8.99	5.01	10.58	4.59	9.48	4.94
Household size	6.09	2.87	4.75	2.54	5.67	2.84
1=Respondent is the household head	0.76	0.43	0.83	0.37	0.78	0.41
Age of household head	45.51	15.40	38.43	12.50	43.32	14.92
Gender of household head (1=male)	0.62	0.48	0.68	0.47	0.64	0.48
Education of household head (# of years)	8.24	5.15	10.08	4.86	8.81	5.13

Source: Phone surveys (September-October 2020)

Virtually all respondents had heard about coronavirus and over 90% reported that at least one member of their household had done stay-at-home (Table 2). Approximately 57% of the households reported experiencing total or partial lockdown, with the share in urban areas (60%) slightly higher than in rural areas (56%). The high incidence of stay-at-home compared to the reported total or partial lockdowns suggests that individuals may have been modifying their behavior voluntarily and were staying home due to health concerns. It also suggests that other measures, such as restrictions in public transport, curfew, and government advisory that encouraged working from home, were causing people to restrict mobility.

Table 2: Awareness of coronavirus and self-reported meso- and micro-level shocks experienced by respondents

	Rural (N=400)		Urban (N=400)		All (N=800)	
	mean	sd	mean	sd	mean	sd
Have you heard of coronavirus? (1=Yes)	1.00	0.03	0.98	0.15	0.99	0.09
1=feels that respondent or someone in family is at risk of contracting COVID	0.42	0.49	0.36	0.48	0.40	0.49
1=knows someone infected by or died from COVID	0.14	0.35	0.16	0.37	0.15	0.35
1=at least one person in the household has done stay-at-home	0.94	0.24	0.90	0.31	0.92	0.26
Has your neighborhood ever been under lockdown orders?						
1=Yes, total lockdown	0.22	0.41	0.20	0.40	0.21	0.41
1=Yes, partial lockdown	0.34	0.47	0.40	0.49	0.36	0.48
1=No	0.44	0.50	0.40	0.49	0.43	0.50

Source: Phone surveys (September-October 2020)

Table 3 shows reported number of income sources and level of income for March (pre-COVID) and July. There was a statistically significant drop in the average reported number of income sources in July compared to March, driven by a drop in urban areas. Urban areas also had a significant drop in the share of households that reported income sources apart from self-employment and paid employment.

Table 3: Changes in sources and level of income reported for March (pre-COVID) and July

	Rural		Urban		All	
	March	July	March	July	March	July
Number of observations	400	400	400	400	800	800
Number of income sources	2.09	1.90	1.84 ^b	1.61 ^b	2.01 ^b	1.81 ^b
1=HH had income source from self employment	0.52	0.50	0.44	0.40	0.49	0.47
1=HH had income source from paid-employment	0.54	0.50	0.51	0.48	0.53	0.49
1=HH had income from other sources	0.23	0.21	0.32 ^b	0.26 ^b	0.26	0.23
Number of observations for following variables \a	355	355	369	369	724	724
Per capita per day income in KSH	80.97 ^c	65.86 ^c	151.83 ^a	114.35 ^a	103.77 ^a	81.46 ^a
Per capita per day income in PPP\$	2.01 ^c	1.64 ^c	3.78 ^a	2.84 ^a	2.58 ^a	2.03 ^a
1=Per day per capita income is < PPP\$1.90	0.67 ^a	0.77 ^a	0.51 ^a	0.63 ^a	0.61 ^a	0.73 ^a

Source: Phone surveys (September-October 2020).

Values for March and July with no superscripts denote no statistically significant difference between the two means. Otherwise, letters denote a significant difference between the means of two groups at $p < 0.01$ (a), $p < 0.05$ (b), and $p < 0.10$ (c).

\a Less than 800 observations for the per capita income variables reflect missing data due to 'refused/don't know' responses to the income question.

Reported average per capita per day income in March 2020 was KSH 104. This was more than one and a quarter times and significantly higher than in July (KSH 81)⁴. Similarly, within each area, income in March was significantly higher than in July. Compared across the areas and for corresponding months, average incomes in urban areas were higher than in rural areas.

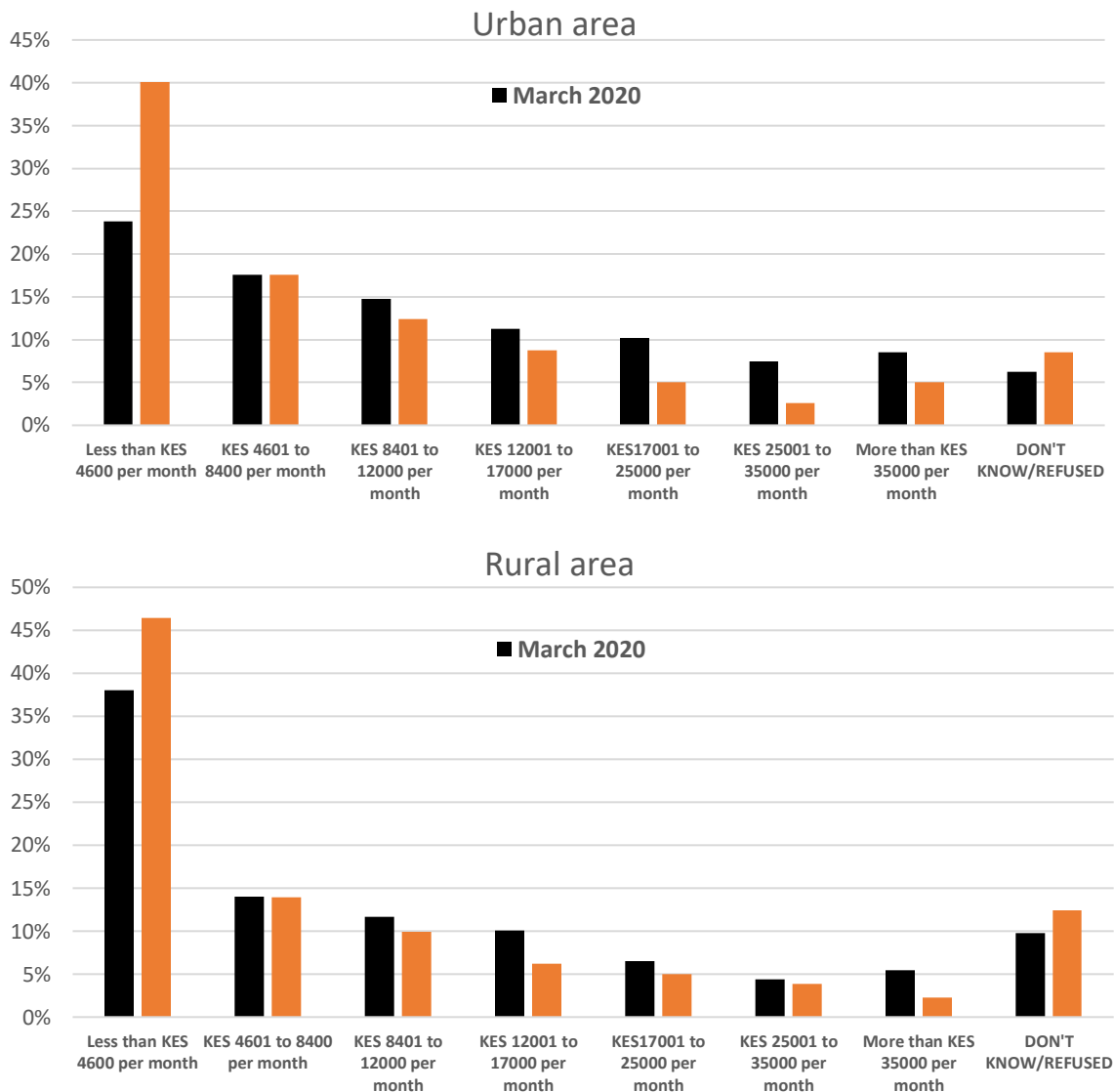
We converted the per capita per day income using the purchasing power parity dollar (PPP\$) exchange rate of 40.2 for 2018 and applied the international poverty line of \$1.90 per capita per day to measure changes in the percent of households that reported income levels below this poverty line. The share of households reporting per capita per day income below PPP\$1.90 increased significantly from 61% in March to 73% in July. The changes were similar in rural and urban areas.

Consistent with the changes in Table 3, Figure 3 shows a substantial increase in the percentage of urban and rural households that earned monthly income of less than KES 4,600. The share that had monthly incomes above KES 8,400 fell in both areas. Changes in household sources of income are

⁴ We acknowledge the well-known limitations of our income measure (Deaton, 2003), which is different from the expenditure-based measure typically used in the development literature.

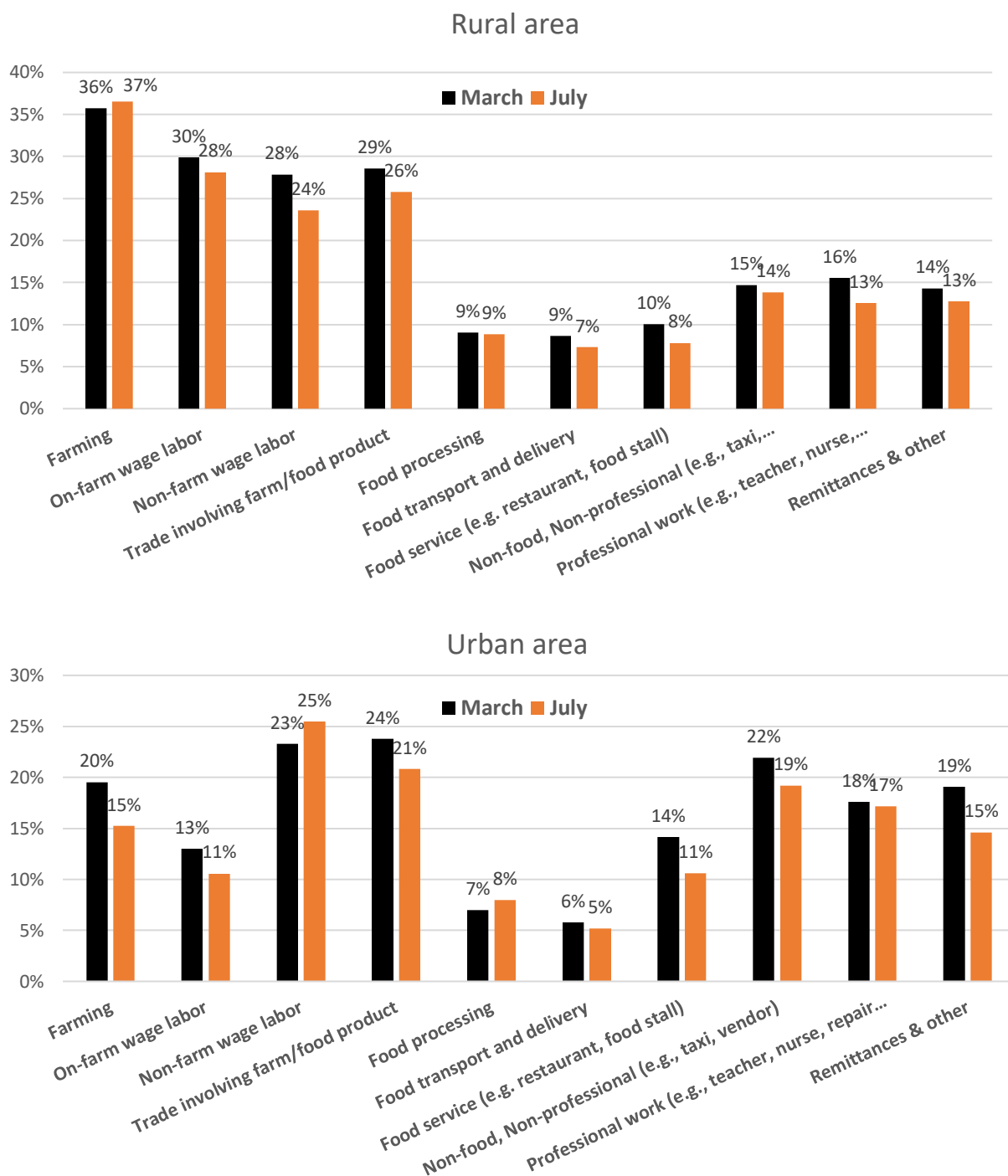
reported in Figure 4. In rural areas, farming, on-farm wage labour, non-farm wage labour and trade involving farm or food products in that order were the most common sources of income. Comparing March and July, we observe a drop in the percentages for most sources, with non-farm wage labour registering the largest drop of four percentage points, followed by trade involving farm/food product, professional work, and on-farm wage labour. On the other hand, the share of households that received income from farming increased by one percentage point.

Figure 3: Average monthly income reported by rural and urban households in March 2020 (before COVID) and July 2020



Source: Phone surveys (September-October 2020).

Figure 4: Percent of households receiving income in March (pre-COVID) and July, by source of income and rural or urban residence



Source: Phone surveys (September-October 2020)

The mix of the most important income sources was different for urban households, where non-farm wage labour, trade involving farm or food products, non-food non-professional activities and professional work in that order were most common. Similar to rural areas, the percentage of households earning income from most income sources declined between March and July, except non-farm wage labour and food processing. Sources suffering the largest drop were farming, remittance and other sources, food service, trade involving farm/food products, and non-food non-professional trade.

We asked respondents about changes in their households' food consumption, comparing the past month prior to the survey to same month the previous year. A majority of households consumed less food in the past month compared to the same time the previous year, with a higher percentage in urban areas (50%) than rural areas (44%) (Table 4). A similar observation is made regarding diet quality, where 57% of households in urban areas and 54% in rural areas reported that their family's diet quality worsened in the past month compared to same time the previous year. Approximately 57% of households (53% urban and 59% rural) reported that they skipped more meals in the past month compared to same time last year.

Table 4: Qualitative assessment of food consumption and food security measures: Comparison of last month (August-September 2020) compared to same time in 2019

	Rural (N=400)		Urban (N=400)		All (N=800)	
	mean	sd	mean	sd	mean	sd
How does the amount of food consumed by your HH this past month compare with the same time last year?						
<i>Higher</i>	0.37	0.48	0.27	0.45	0.34	0.47
<i>Lower</i>	0.44	0.50	0.50	0.50	0.46	0.50
<i>Same</i>	0.20	0.40	0.23	0.42	0.21	0.41
How does your family's diet quality this past month compare with the same time last year?						
<i>Better</i>	0.13	0.34	0.12	0.32	0.13	0.33
<i>Worse</i>	0.54	0.50	0.57	0.50	0.55	0.50
<i>Same</i>	0.33	0.47	0.32	0.47	0.33	0.47
Did you skip meals because of lack of food...						
<i>Past month, compared to same time last year? (1=Yes)</i>	0.59	0.49	0.53	0.50	0.57	0.49
As of today, HH can meet food consumption needs for...						
<i>Less than a week</i>	0.39	0.49	0.44	0.50	0.40	0.49
<i>7-14 days</i>	0.27	0.45	0.24	0.43	0.26	0.44
<i>15-30 days</i>	0.19	0.39	0.19	0.40	0.19	0.39
<i>More than a month</i>	0.15	0.36	0.13	0.33	0.14	0.35

Source: Phone surveys (September-November 2020)

V. Conclusion

Government's containment policies against COVID-19 have contributed to widespread public awareness about the pandemic. However, these measures have had large and widespread negative impacts on rural and urban households' livelihoods. Although lockdowns were imposed in only a few towns, including Nairobi and Mombasa which are the largest cities and markets, their social and economic integration with other parts of the country, including rural areas, meant that effects were felt far and wide. Rural areas depend on urban areas for markets of especially agricultural produce, remittances, and non-farm wage labour. In addition to the lockdowns, some county governments closed open air markets that households depend on to sell and buy food and non-food items, thus denying the households access to trading opportunities in those markets.

The lesser reduction in food consumed and dietary quality among rural households is as expected because most rural households produce part of their own food. However, the evidence that around half of households in rural areas experienced reduced diet quality and quantity implies that such households depend on markets for a significant share of their food needs. So, measures that restrict rural households' participation in wage and business activities can be expected to have a direct effect on their food and nutrition security just as they would for urban households.

This is the only nationally representative study of COVID impacts in Kenya that we are aware of that distinguishes between rural and urban impacts. Nationally, our findings are consistent with other studies in Kenya, which found that unemployment increased and access to off-farm work declined, wages dipped for workers in both formal and informal sectors and food and nutrition security deteriorated for majority of the households (World Bank, 2021; Olwande et al., 2021).

Our findings suggest that there is need to consider widening support to both rural and urban households through expanded social safety net programs. Though we found that a meaningful share of the population received some kind of assistance related to the pandemic, Kenya certainly lacks fiscal resources to offer adequate economic support to all households and businesses. Partnering with multi-lateral organizations to finance well-designed social protection programs would be an important approach to consider. Such programs should ensure appropriate supervision and accountability to reduce misuse of funds. Other measures that can be helpful include lowering bills on utilities such as electricity, water and cooking fuel.

Finally, the repeated waves of infection that Kenya has seen, with each peak worse than the previous one, shows clearly that mass vaccination of the population must be urgently prioritized to facilitate faster resumption of people's normal participation in economic activities.

VI. References

Imperial College London (ICL) model's estimates. <https://ourworldindata.org/covid-models>.

Maredia, M.K., A. Adenikinju, B. Belton, A. Chapoto, N. F. Faye, S. Liverpool-Tasie, J. Olwande, T. Reardon, V. Theriault, & D. Tschirley (2021). COVID-19's impacts on incomes in urban and rural areas are surprisingly similar: Evidence from five African countries. *Under review*.

Olwande, J., Ayieko, M., Mukundi, J., & Odhiambo, N. (2021). Impact of COVID-19 on Food Systems and Rural Livelihoods in Kenya. APRA Working Paper – Kenya – June 2021, Brighton: *Future Agricultures Consortium*. [Oxford Covid-19 Government Response Tracker](#).

World Bank (2021). Socioeconomic Impacts of COVID-19 in Kenya on Households. Rapid Response Phone Survey Round 1 (January 2021). *World Bank*.

Zeufack, A. G., Calderon, C., Kambou, G., Djiofack, C. Z., Kubota, M., Korman, V., & Cantu Canales, C. (2020). An Analysis of Issues Shaping Africa's Economic Future. *Africa's Pulse*, No. 21, Spring 2020. *World Bank*.