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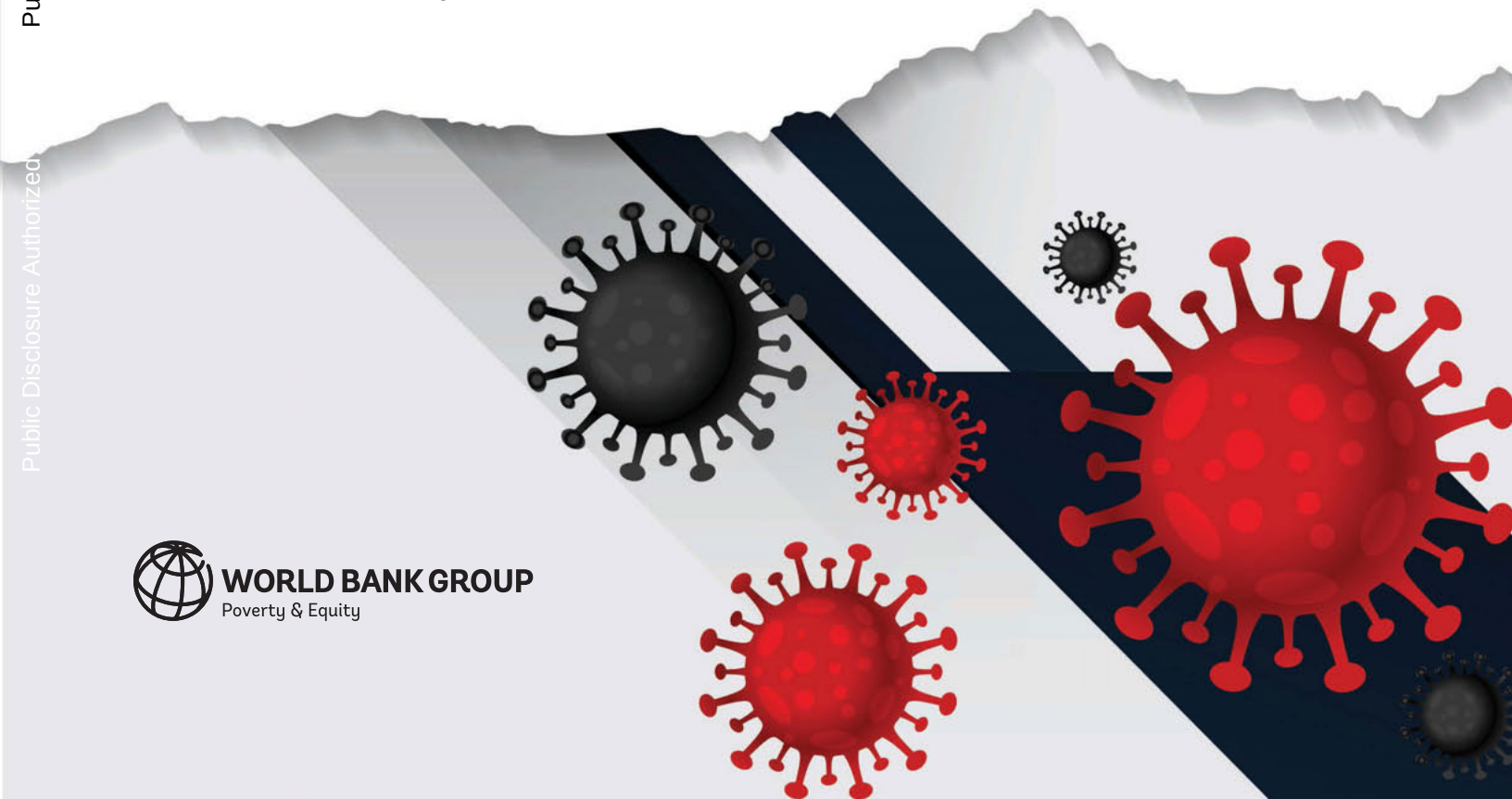
Socioeconomic Impacts of COVID-19 in Kenya

On Households

Rapid Response Phone Survey
Round 1, January 2021



WORLD BANK GROUP
Poverty & Equity

Socioeconomic Impacts of COVID-19 in Kenya

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Abbreviations

CAPI	Computer Assisted Personal Interview
KCHS	Kenya Continuous Household Survey
KIHBS	Kenya Integrated Household Budget Survey
KNBS	Kenya National Bureau of Statistics
KSh	Kenyan Shilling
NGO	Nongovernmental Organization
RDD	Random Digit Dialing
RRPS	Rapid Response Phone Survey
SES	Socioeconomic Survey
UNHCR	United Nations High Commissioner for Refugees

Executive Summary

The Kenya COVID-19 pandemic has translated into critical socioeconomic impacts on Kenya's population, which must be understood to inform timely policy responses. School closures, restrictions on movement, bans on social gatherings, and limitations on economic activities have hit Kenya's socioeconomic life, creating negative consequences, such as income losses and increased food insecurity, which has been exacerbated by a locust invasion. It is crucial to understand the socioeconomic effects of the COVID-19 pandemic and identify the most critically affected populations. Such an understanding can enable evidence-based policies and programmatic responses. However, lack of updated socioeconomic data hinders efforts to efficiently allocate resources, for example, to roll out social assistance programs. Thus, timely and frequent socioeconomic data are needed to develop evidence-based measures and help alleviate the impacts of the COVID-19 crisis.

The COVID-19 Rapid Response Phone Survey (RRPS) aims to fill socioeconomic data gaps while providing initial evidence to inform targeted policy and programmatic responses. In the context of the COVID-19 pandemic, face-to-face surveys are no longer feasible due to the risk of infection, as well as mobility restrictions. In contrast, phone surveys are highly suited for rapid and frequent data collection. To assess the impacts of COVID-19 and help inform policy responses in Kenya, the World Bank, in collaboration with the Kenya National Bureau of Statistics (KNBS), the United Nations High Commissioner for Refugees (UNHCR), and researchers from the University of California, Berkeley, are implementing RRPSs for (i) Kenyan and refugee households, (ii) microenterprises run by young entrepreneurs, and (iii) formal enterprises. This note presents the findings and makes policy recommendations for the first of three data collection *r*ounds of the RRPS for Kenyan households, while providing preliminary findings on the RRPS for refugee households and microenterprises.

To help mitigate adverse impacts from COVID-19 on households, the Kenya COVID-19 RRPS findings for the first data collection round proposes 9 policy response options divided into three areas:

Food security and livelihoods: Securing access to food and supporting livelihoods through social protection programs can help reduce the use of negative coping strategies that compromise assets or food consumption. Despite the urgency of making such support available on a larger scale, a well-targeted approach is essential given the fiscal resources required.

(i) **Access to food must be secured.** Reducing food consumption is the most widely used coping strategy to mitigate the COVID-19 shock. Food security needs to be ensured by providing assistance that is well targeted to the poor and rural households in which people otherwise face inadequate nutrition. Resources saved with the suspension of school feeding programs could be used to provide food for households with children.

(ii) **Targeted cash transfers to mitigate negative coping strategies.** Expanding cash transfer programs should be targeted to the poorest and most affected households in both rural and urban settings. Effective targeting will be essential to ensure that cash transfer programs reach the households most in need and have the strongest impact (see Box 3), while taking into account tight fiscal resources.

(iii) **Protecting agricultural and pastoralist workers.** Scaling up input support through the e-voucher program and leveraging existing programs will enhance agriculture production.

Human capital: The closure of schools has affected learning by children, especially for households without appropriate access to remote learning. COVID-19 has also created fear of infection at health facilities. Thus, specific interventions are needed to enhance access to health and education services to reduce human capital losses.

(iv) **Educational radio and television broadcasts, as well as digital technology should be continued during the phased reopening of schools.** The first school openings began on October 12, 2020, with strict COVID-19 containment protocols and guidelines imposed. In parallel, access to learning resources, and radio and television programs should be continued and made available through a larger variety of channels. Increasing internet coverage, access to EdTech, and communicating the availability of digital learning platforms accessible through smartphones can help increase the use of learning resources.

(v) **Ensuring access to safe health care for non-COVID-19 related health concerns can help reduce the long-term impact of the pandemic on health outcomes.** Health care facilities not used for treating COVID-19 should be made available to treat noncommunicable diseases, such as cancer, cardiovascular disease, and diabetes (while maintaining anti-coronavirus protocols), to help limit a rise in long-term health problems due to inadequate preventative care and treatment during the pandemic. Clear information regarding the health facilities that treat COVID-19 as opposed to those that do not can help the population select facilities and seek timely medical attention.

(vi) **Providing free of charge quarantine centers to isolate individuals who cannot be isolated at home can help lessen the risk of contagion.** Especially in urban areas with higher population densities, as well as more COVID-19 cases, access to quarantine centers can contribute to decreasing the spread of the virus. Importantly, such centers can incorporate awareness and sensitization programs to help reduce the stigma around people infected with COVID-19.

(vii) **Improve access to mental health services to lessen the psychological impacts of COVID-19.** Mental health services should be continued by phone and—where possible—on a face-to-face basis.

Awareness and communication: Improving communication strategies can help enhance adoption of preventive behaviors and build trust in the capacity of the government.

(viii) **National radio and television can be further exploited as key channels to provide updated information and foster preventive behaviors.** As the provision of updated information can help improve preparedness practices, ongoing radio and television communication campaigns should be maintained and strengthened. Similarly, such campaigns can be used to combat myths about the disease while reducing the stigmatization of those infected.

(ix) **Communicating about governmental actions to help the population cope with the socioeconomic impacts of the pandemic can strengthen citizens' trust in the capacity of the government.** Reinforcing communication campaigns on actions taken by the government and existing support programs could be helpful to build trust and ultimately boost the effectiveness of public health measures.

In addition to these direct responses, ready-to-use sampling frames for phone surveys need to be prepared and maintained by the Kenya National Bureau of Statistics. Phone surveys are generally highly suited for swift data collection, especially in the context of large shocks, as demonstrated by the current COVID-19 pandemic. To quickly implement timely and representative phone surveys to effectively inform responses, KNBS should maintain reliable and up-to-date national sampling frames, including phone numbers stratified by geographic area. Ideally, these sampling frames would also include vulnerable populations, such as refugees and stateless people.

Introduction

1. The COVID-19 pandemic started in Kenya in March 2020, with Nairobi and Mombasa being hit the hardest. Kenya reported its first case of COVID-19 on March 13, 2020. The number of reported cases reached almost 31,000 by August 18, 2020. Of these patients, 17,368 have recovered, while the total number of deaths from COVID-19 is 487. Although most counties have reported at least one case, almost three-quarters of the infections are in Nairobi and Mombasa. Mombasa has reported 162 cases per 100,000 inhabitants, while Nairobi has reported 240.[1]

2. In response to the outbreak, the Government of Kenya introduced a range of containment policies that have involved serious socioeconomic impacts. As of March 15, 2020, all schools were closed, both public and private sectors workers were directed to work from home, and social gatherings were banned. Entry into Kenya was limited to citizens and residents but required quarantine for 14 days. This was followed by the closing of all bars, restricting restaurants to takeaway services, banning international passenger flights (resumed on August 1, 2020), and introducing nationwide curfew—currently from 9:00 p.m. to 4:00 a.m. In April, the movement in and out of the Nairobi Metropolitan Area, Mombasa, Kilifi, Kwale, and Mandera was restricted; such restrictions were lifted on July 6. On July 27, restaurants were mandated to close by 7 p.m. and to not sell alcohol for 30 days, while bars remained closed. The COVID-19 pandemic and containment measures have brought socioeconomic effects on households, creating an urgent need for timely data to help monitor and mitigate the impacts of the crisis.

3. Data on the socioeconomic impacts of COVID-19 are essential to inform timely and adequate policy and programmatic responses. Past pandemics have shown that their health and economic consequences, as well as mitigation measures, have critical socioeconomic effects that unfold across populations and generations. Importantly, those populations that were already in vulnerable conditions are likely to be the most severely affected, as their capacity to cope with shock is limited. Therefore, it is crucial to understand the socioeconomic effects of the COVID-19 pandemic and identify the most critically affected populations. Such an understanding can enable an informed-based policy and programmatic response. However, without updated socioeconomic data, it is very challenging to efficiently allocate resources and assistance programs, to the most affected populations. Thus, timely and frequent socioeconomic data are needed to develop targeted measures to help alleviate the impacts of the crisis.

4. Phone surveys are highly suited for collecting data swiftly in emergencies. In the context of the COVID-19 pandemic, face-to-face surveys are no longer feasible due to the risk of infection, as well as mobility restrictions. Alternatives are the use of administrative data, which are not always available, social media monitoring, which may be highly biased, and phone surveys. The latter can be used to collect data without visiting households or firms, can be implemented rapidly, can serve as a baseline for follow-up surveys, and can be adapted swiftly to changing circumstances. Therefore, phone surveys are highly suited for rapid data collection, especially under very rapidly changing conditions, such as the COVID-19 pandemic. To holistically assess the impacts of COVID-19 and help inform policy response in Kenya, the World Bank, in collaboration with the Kenya National Bureau of Statistics (KNBS), the United

[1] Ministry of Health. 2020. "Press Statement on Covid-19. 18th August, 2020"; Ministry of Health. 2020. "COVID-19 Outbreak in Kenya. Daily Situation Report—131."

BOX 1: RRPS Methodology and Real-Time Dashboard

The Kenya COVID-19 RRPS for households is structured as a three-wave bimonthly panel survey that targets nationals, refugees, and stateless people. The sample is composed of three different groups of households. The first group is a randomly drawn subset of the 2015/16 Kenya Integrated Household Budget Survey (KIHBS). This sample covers urban and rural areas and is designed to be representative of the population of Kenya using cell phones. The second sample comprises households selected using the Random Digit Dialing method; a list of random mobile phone numbers was created using a random number generator from the 2020 Numbering Frame produced by the Kenya Communications Authority. The third group consists of camp and non-camp refugees (in urban areas), and stateless people registered by the UNHCR (proGres).[2] As phone surveys can only reach respondents who use a phone with an active subscription in an area with network coverage, statistics are only representative for this part of the population, potentially excluding, to some extent, the poorest households who do not own phones or live in areas with no network coverage. The Kenya COVID-19 Rapid Response Phone Survey uses re-weighting techniques to ensure that statistics are as representative as possible of the entire population of Kenya. The same households were interviewed every two months, between May and October 2020.

The questionnaire aims to monitor the economic and social impacts of COVID-19 in Kenya.[3] The questionnaire covers a range of topics, including employment, income, coping strategies, food security, access to education and health services, subjective well-being, knowledge of COVID-19, changes in behavior in response to the pandemic, and perceptions of the government's response. The questionnaire is translated into Swahili, Luo, Arabic, French, Kirundi, Luganda, Oromo, Somali, Kinyarwanda, Tigrinya, Nuer, and Dinka to ensure all respondents can be interviewed in a language they are comfortable with.

Since the first week of data collection, an online dashboard displays weekly results on the impacts of COVID-19 on households in Kenya.[4] The dashboard shows the impacts of COVID-19 on behavioral changes, access to services, livelihoods, food security, and perceptions, disaggregated by location, poverty, and refugee status of households. Maps are provided to further disaggregate the data spatially (Figure B1.1).

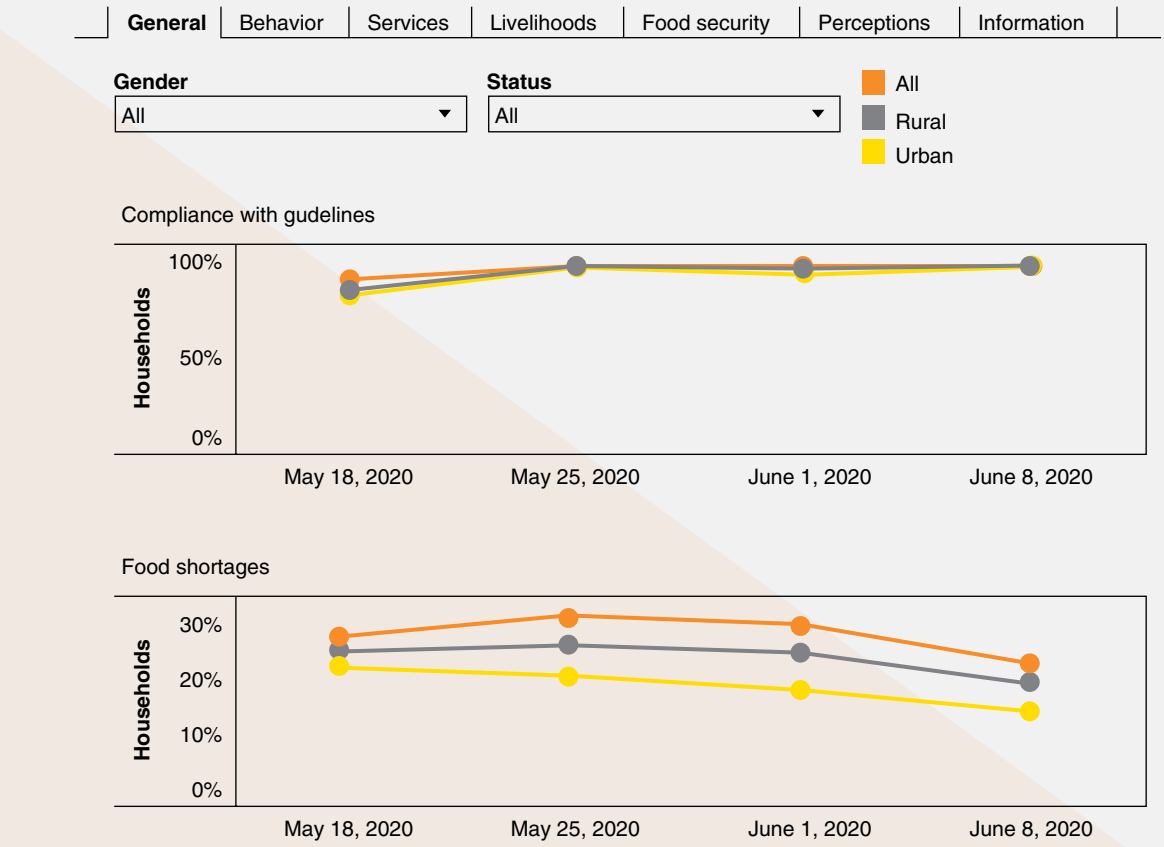
Nations High Commissioner for Refugees (UNHCR), and researchers from the University of California, Berkeley, are implementing Rapid Response Phone Surveys (RRPSs) for (i) Kenyan and refugee households, (ii) microenterprises run by young entrepreneurs, and (iii) formal enterprises. This note presents the findings and policy response options for the first data collection round of the RRPS for Kenyan households while providing preliminary findings on the RRPS for refugee households and microenterprises.

[2] The UNHCR in coordination with the Kenya Refugee Affairs Secretariat (RAS) registers camp and non-camp refugees as well as stateless people.

[3] Kenya COVID-19 RRPS questionnaire: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/585981590070926292/wb-kenya-covid-19-rapid-response-phone-survey

[4] For access to real-time data, and further details, visit: https://www.kenyacovidtracker.org/rrps

FIGURE B1.1: Dashboard.



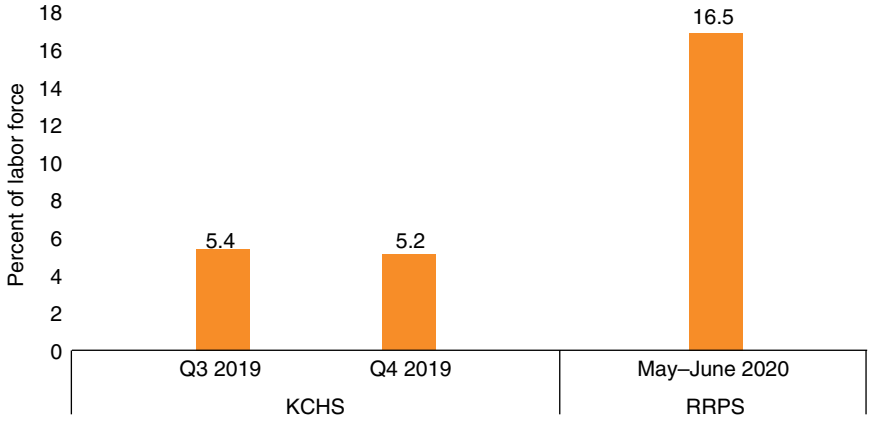
Source: Kenya COVID-19 RRPS.

Livelihood Impacts, Coping Strategies, and Food Insecurity

1. Employment

5. Unemployment has almost tripled compared to its pre-COVID level. The negative impact of COVID on the private sector has trickled down to household's welfare via reduced job opportunities and lower earnings. The unemployment rate increased from 5 percent in the last quarter of 2019 to 16.5 percent in May–June 2020 (Figure 1).[5] The COVID-19 pandemic has also moved many adult Kenyans outside the labor force, with labor force participation decreasing from 75 percent in the last quarter of 2019 to 61 percent from mid-May to early July 2020 (Figure 2). This decline is likely due to a subset of workers being discouraged by a lack of available jobs or being unable to actively search for work due to the socioeconomic conditions created by the pandemic. The rise of unemployment and the decrease in labor force participation can have severe and long-term consequences on households' welfare.

● **FIGURE 1:** Unemployment rate (18–64 years).



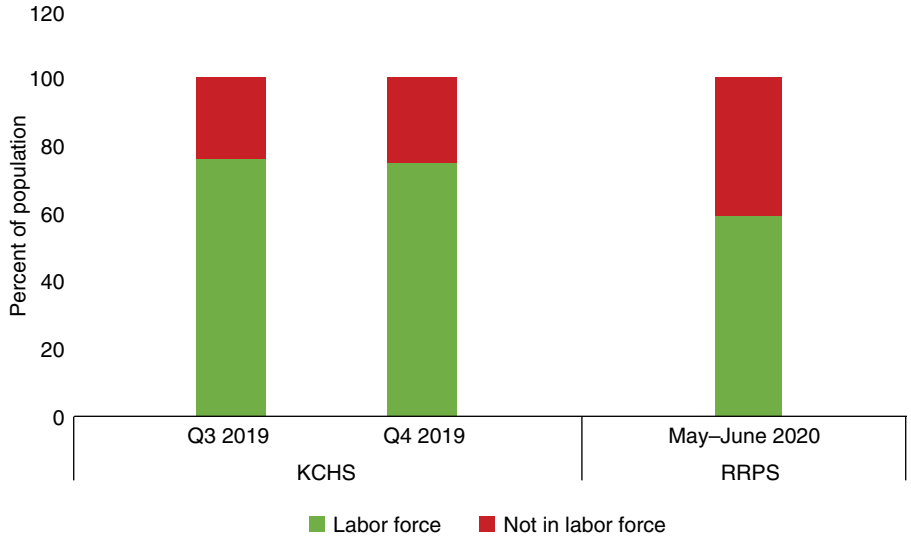
Source: Kenya COVID-19 RRPS and 2019 Kenya Continuous Household Survey.

6. Wage workers in the services sector have been severely affected; many of them were laid off at the beginning of the COVID-19 crisis. About 30 percent of Kenyans who had wage employment in January 2020 were laid off in March when the restrictions to mitigate the spread of COVID-19 were first put into place (Figure 3). In April and May, less than 5 percent and 2 percent, respectively, of wage workers who had wage employment in January were laid off. Since January, the largest share of wage workers who lost their jobs worked in the services sector, followed by the industry and agricultural sectors.

7. Wage workers—and especially women—who are still employed face a reduction in working hours and earnings. Between February and June, wage workers' average hours were reduced by 23 percent, decreasing from 50 to 38 hours per week. Hours worked by wage workers in the agricultural sector were more affected than those in the

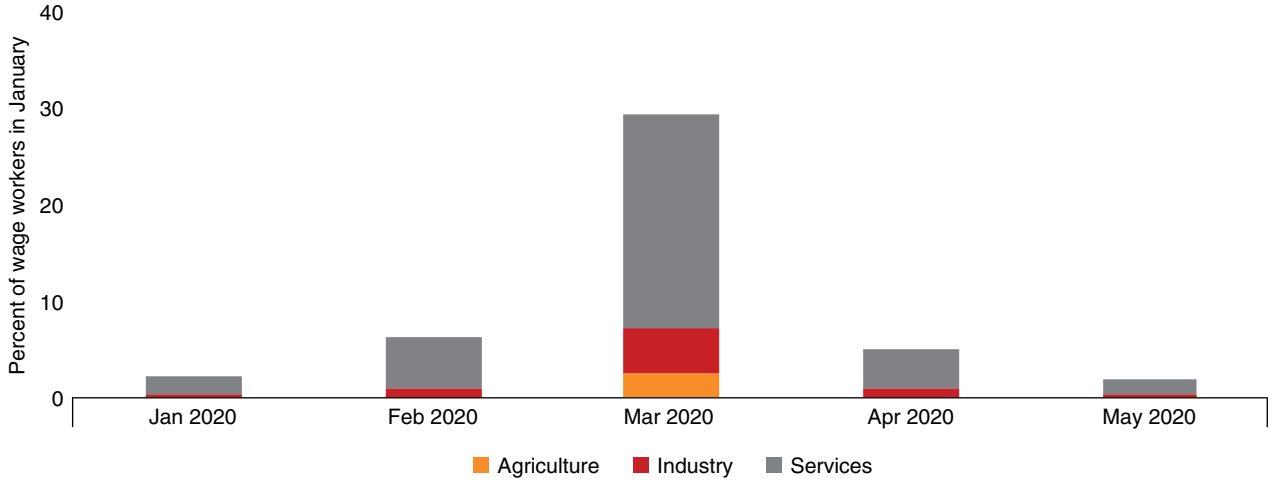
[5] While the labor indicators in the phone survey were designed to be comparable with the quarterly labor indicators released by the KNBS, the mode of data collection (phones instead of face-to-face interviews), as well as the selection of the respondents, can limit comparability. The presented statistics based on the KCHS data also differ from the official labor force statistics published by the KNBS, as the latter uses a different age group (15–64).

FIGURE 2: Labor force participation (18–64 years).



Source: Kenya COVID-19 RRPS and 2019 Kenya Continuous Household Survey.
Note: Labor force included those who are employed and unemployed.

FIGURE 3: Month in which wage employees were laid off.

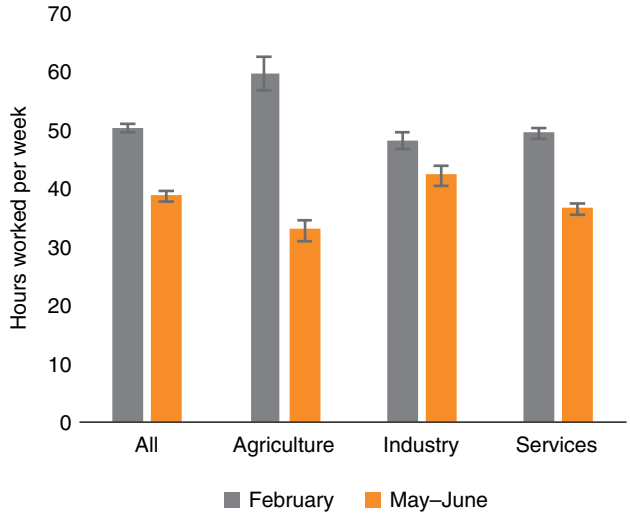


Source: Kenya COVID-19 RRPS.

services and industry sectors (Figure 4). Women saw a greater decline, with hours worked reduced by 30 percent for women compared to 18 percent for men (Figure 5). The average decline in hours worked is to a large extent driven by 13 percent of workers temporarily reducing their hours to zero, for instance education workers. However, average wages fell significantly in the services sectors, by 26 percent (Figure 6). Wages also decreased in the agricultural sector, which may be partly due to seasonal changes (Figure 6), an interpretation that future RRPS rounds will be able to affirm. Wage reductions were less significant for workers who are formally employed[6] compared to those informally employed (3 percent versus 32 percent respectively, Figure 6). The reduction in earnings was much greater for women, who saw a 46 percent decline from KSh 11,688 in February to KSh 6,369 in May–June (Figure 7).

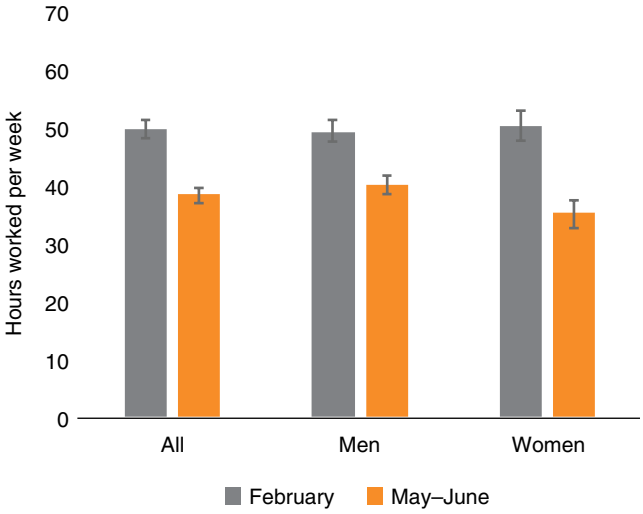
[6] For wage workers, a formality indicator was generated, assuming someone is formally employed if they have a fixed-term or permanent contract and get sick leave and social security contributions.

● **FIGURE 4:** Hours worked by wage workers per week, by industry.



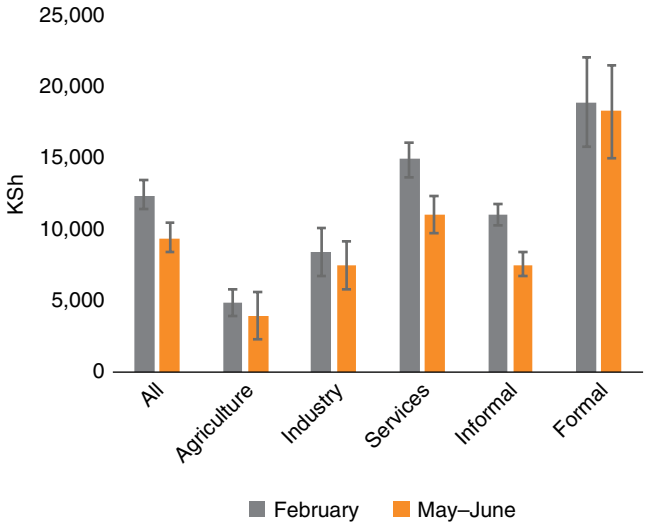
Source: Kenya COVID-19 RRPS.

● **FIGURE 5:** Hours worked by wage workers per week, by gender.



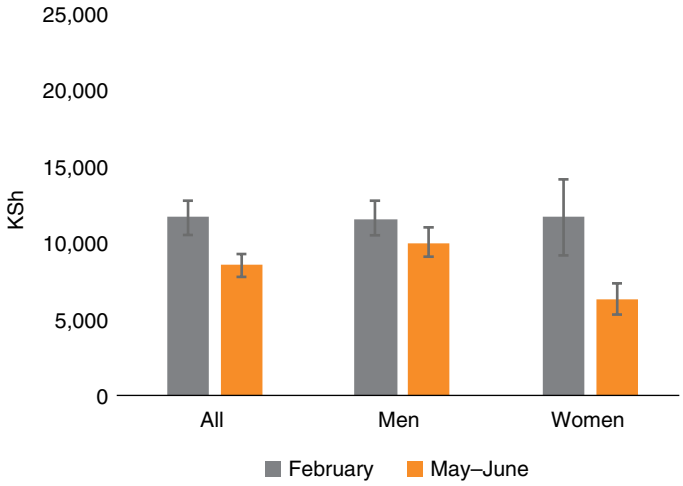
Source: Kenya COVID-19 RRPS.

● **FIGURE 6:** Two-week wage earnings, by sector.



Source: Kenya COVID-19 RRPS.

● **FIGURE 7:** Two-week wage earnings, by gender.

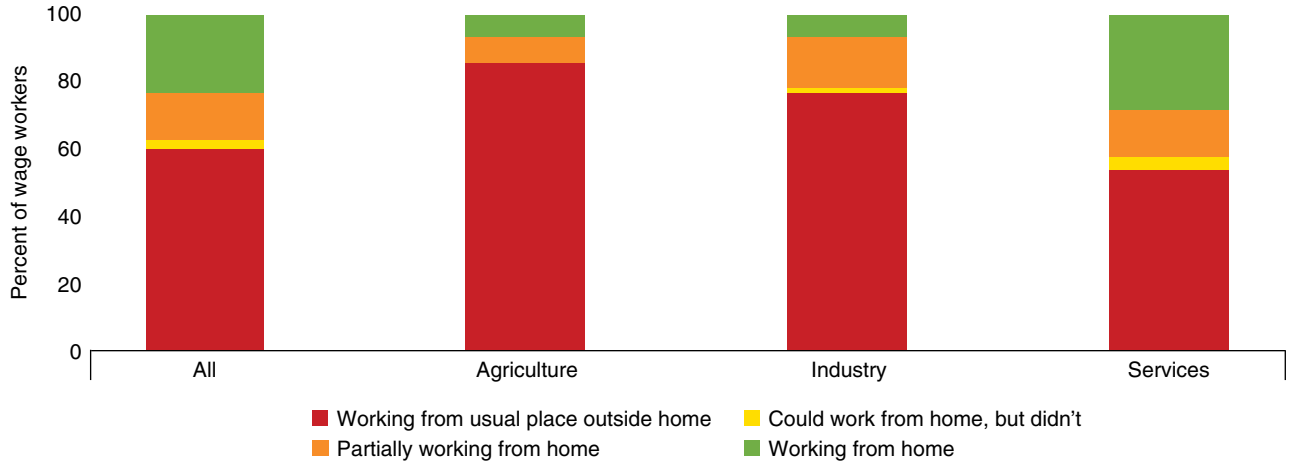


Source: Kenya COVID-19 RRPS.

8. More than 1 in 10 wage employees work from home, with the majority in the services sector. Thirteen percent of wage employees worked from home in May and June, while 12 percent of them partially did so. Formally employed workers are more likely to work from home than those informally employed. In the agriculture and industry sectors, most wage employees worked from their usual workplace outside the home (92 and 82 percent, respectively). However, in the services sector, almost a third of wage employees worked at least partially from home (31 percent; Figure 8). Not all jobs can be done from home. In lower-income economies like Kenya, only a small share of jobs can be done at home.[7] Thus, the proportion of wage employees that have worked from home may partly reflect the distribution of jobs that can be done from home in Kenya.

[7] Dingel and Neiman. 2020. "How Many Jobs Can Be Done at Home?"

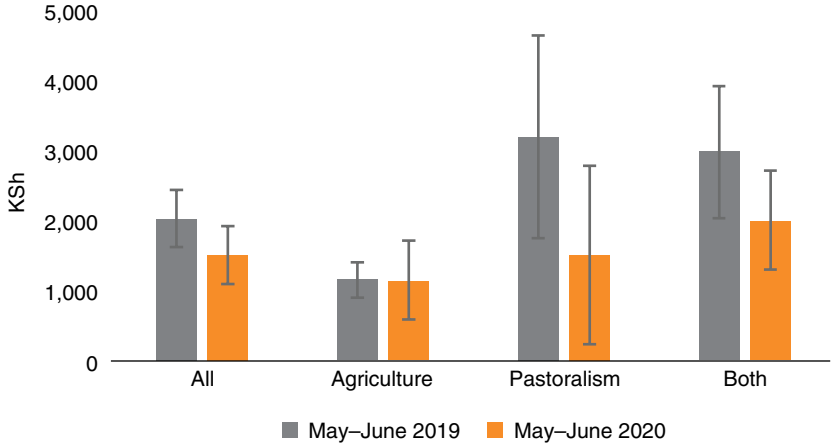
● **FIGURE 8:** Working from home among wage workers.



Source: Kenya COVID-19 RRPS.

9. COVID-19 has had a strong impact on pastoral activities, with agricultural revenues showing smaller differences. Revenues from agricultural activities declined by 23 percent between May 2019 and May 2020. However, revenues from pastoral activities declined by more than 50 percent, decreasing from Kenyan shillings (KSh) 2,391 in May 2019 to KSh 1,072 in May 2020 (Figure 9). The main reasons provided for such a drop include lower demand, market closures, and travel restrictions for workers and customers.[8]

● **FIGURE 9:** Two-week revenue from agricultural and pastoral activities.



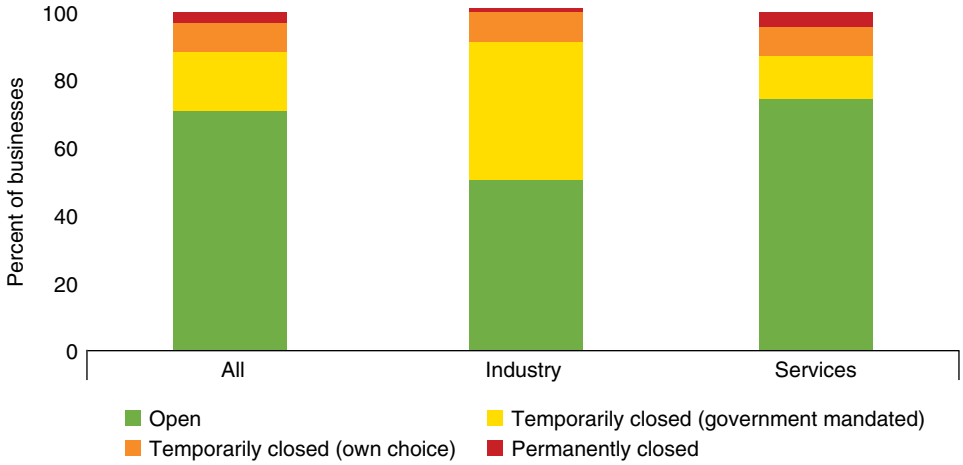
Source: Kenya COVID-19 RRPS.

10. Almost one in three household-run businesses are not currently operating, with revenues decreasing across all sectors.[9] Thirty percent of household-run businesses closed, with most expecting to reopen again (26 percent) and a few having permanently closed (4 percent). Most businesses that permanently closed are in the wholesale and retail trade sector (38 percent), education (36 percent), and other services (15 percent). In both the industry and service sectors, the majority of closures were due to government mandates (41 percent and 13 percent, respectively; Figure 10). Between February and June, revenue from household-run businesses decreased by over 40 percent,

[8] The proportion of households with members who engaged in agriculture, pastoralism, or both was 46 percent in 2015 (KIHBS) compared to 49 percent for the RRPS in 2019.

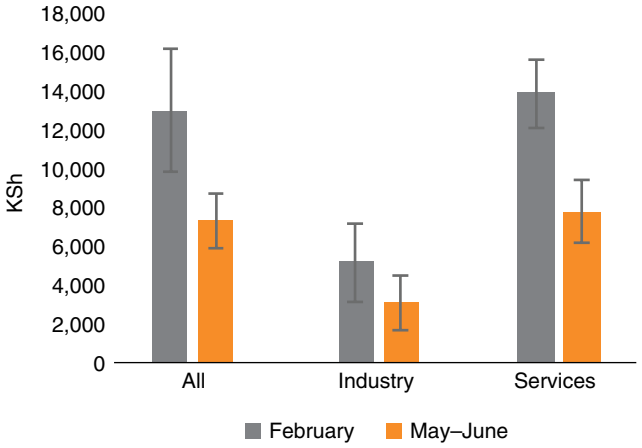
[9] This includes all nonagricultural household-run enterprises that have been operating since January 2020.

● **FIGURE 10:** Operating status of businesses.



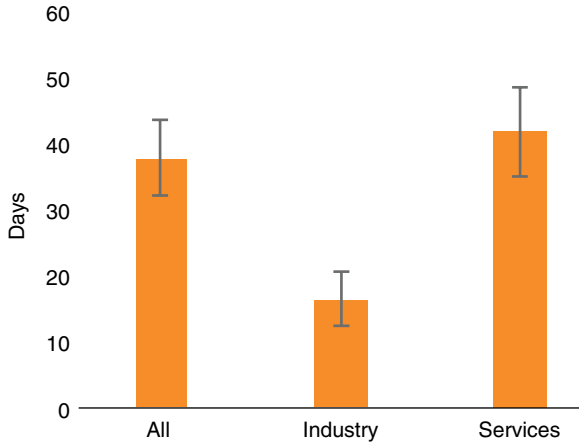
Source: Kenya COVID-19 RRPS.

● **FIGURE 11:** Two-week revenue of household-run businesses.



Source: Kenya COVID-19 RRPS.

● **FIGURE 12:** Business survival at current scale of operations.



Source: Kenya COVID-19 RRPS.

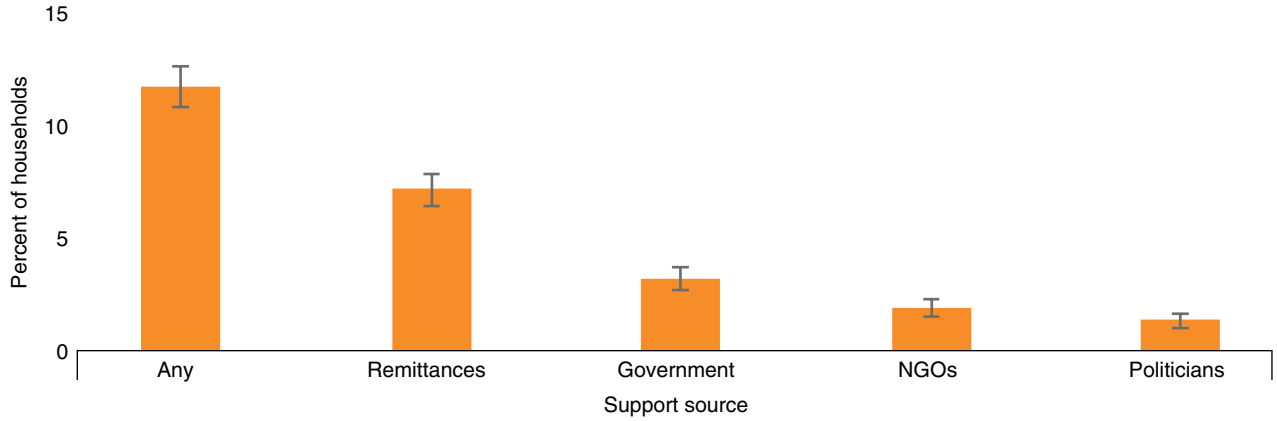
declining from KSh 12,892 to KSh 7,246 (Figure 11). At the current scale of operations and without any additional assistance or loans, on average, businesses report that they will be able to survive for just over a month (Figure 12). Longer term restrictions to economic activities could therefore have severe consequences for household-run businesses and take away an important income source for many.

2. Nonlabor Income

11. Only a small fraction of households received remittances or assistance from nonlabor sources. From May to June, 11 percent of households received remittances or assistance from the government, Nongovernmental Organizations (NGOs), or politicians.[10] The most common sources of nonlabor income were remittances (7 percent), followed by government and NGO assistance that reached very few households (3 percent and 2 percent respectively; Figure 13). Only 1 percent of households received support from more than one of these sources.

[10] In some areas, politicians deliver gifts such as masks, food stuffs (flour, cooking oil, rice), cash money, and branded t-shirts.

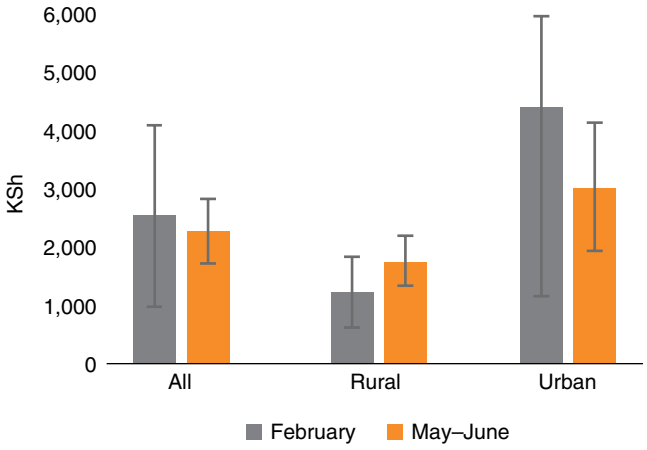
● **FIGURE 13:** Income from nonlabor sources.



Source: Kenya COVID-19 RRPS.

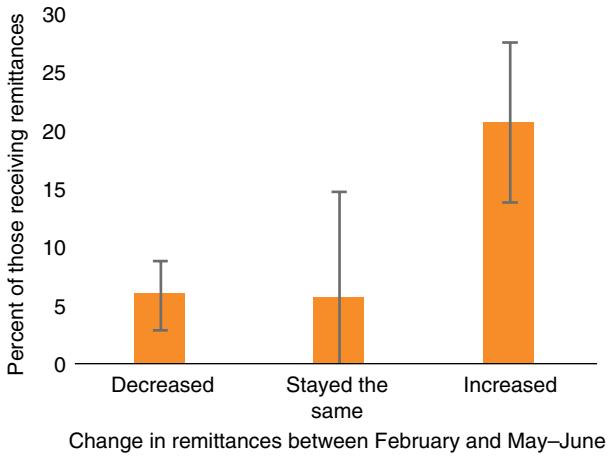
12. Remittances have fallen, and few households have benefitted from direct cash assistance. Between February and June, the amount of domestic and international remittances received by households decreased by 10 percent on average (about KSh 260) although rural households actually experienced an increase (Figure 14). From May to June, only 11 percent of households received remittances or assistance from the government, NGOs, or politicians.[11] Remittances from abroad plunged in April and May but have subsequently rebounded. Only 10 percent of households suffering from a reduction in remittances received assistance from the government, NGOs, or politicians (Figure 15). Households usually relying on remittances have thus faced an important income loss.[12]

● **FIGURE 14:** Remittance value in two-week period for February and May/June.



Source: Kenya COVID-19 RRPS.
Note: Households that received remittances.

● **FIGURE 15:** Households that received assistance by change in remittances.



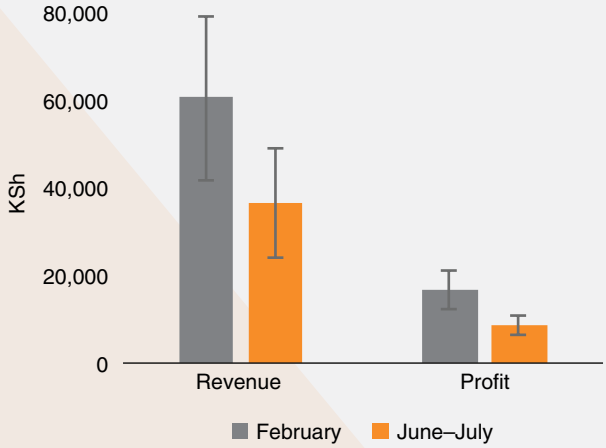
Source: Kenya COVID-19 RRPS.
Note: Assistance from government, NGOs, or politicians.

[11] In some areas, politicians deliver gifts, such as masks, food stuffs (flour, cooking oil, rice), cash money, and branded t-shirts.
[12] World Bank. 2020. "Kenya Economic Update April 2020. Turbulent Times for Growth in Kenya. Policy Options during the COVID-19 Pandemic." A slowdown in international remittance inflows has been documented. As economic activities resume remittance inflows are likely to recover.

BOX 2: Youth-Led Microenterprise Rapid Response Phone Survey

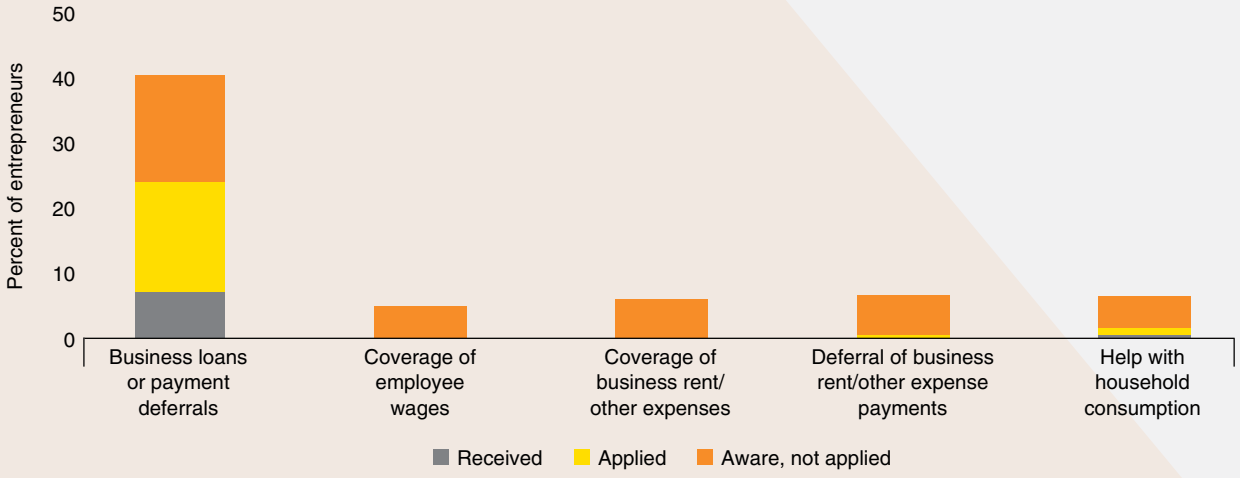
Revenues and profits strongly decreased for microenterprises run by young entrepreneurs, with only a few of them making use of government and NGO support programs. Between February and July, many microenterprises run by young entrepreneurs had to temporarily close, with revenues decreasing from KSh 63,410 to KSh 38,170, and profits reducing by almost 50 percent (Figure B2.1). Between May and July, 40 percent of microentrepreneurs were aware of programs for business loans or payment deferral, but only 30 percent of those who applied received the assistance. In addition, less than 10 percent of entrepreneurs were aware of other assistance programs from the government and NGOs, and almost no entrepreneur made use of them (Figure B2.2).

FIGURE B2.1: Revenue and profit of microenterprises.



Source: Microenterprises Kenya COVID-19 RRPS.

FIGURE B2.2: Awareness of government or NGO assistance programs.

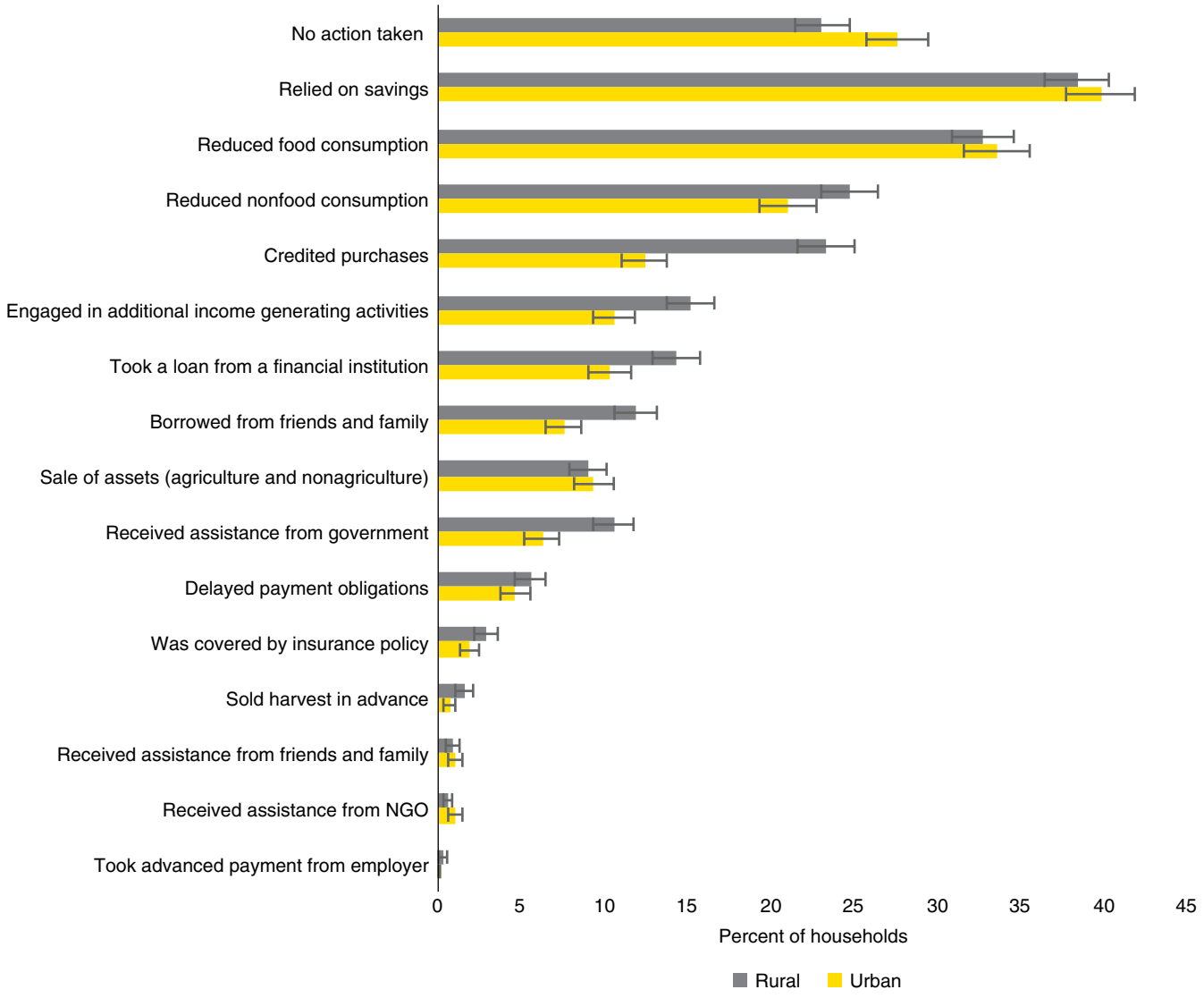


Source: Microenterprises Kenya COVID-19 RRPS.

3. Coping Strategies

13. Households employed various coping strategies during the crisis, often reducing food consumption. Since the COVID-19 outbreak, a large share of urban and rural households had to reduce their food consumption (41 and 36 percent, respectively; Figure 16). Additionally, many households had to rely on savings or reduce nonfood consumption (40 percent rural vs. 38 percent urban, and 23 percent rural vs. 24 percent urban correspondingly). More than half of households used more than one coping strategy. Rural households used credit purchases more intensively (20 percent) compared to urban ones (12 percent), and some sold assets (12 and 10 percent, respectively; Figure 16). The latter observation is particularly worrying, as the sale of potentially productive assets can impact a household's welfare in the long term.

● **FIGURE 16:** Strategies employed to cope with the impact of the crisis (multiple answers possible).



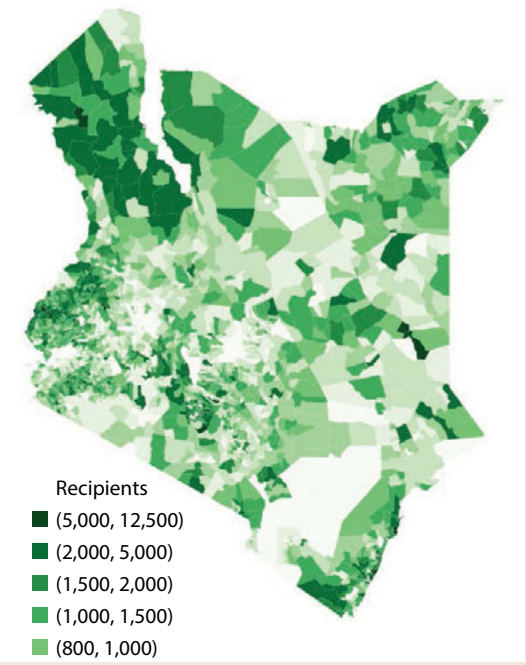
Source: Kenya COVID-19 RRPS.

BOX 3: Well-Targeted Cash Transfers Can Be a Powerful Tool to Mitigate Shocks

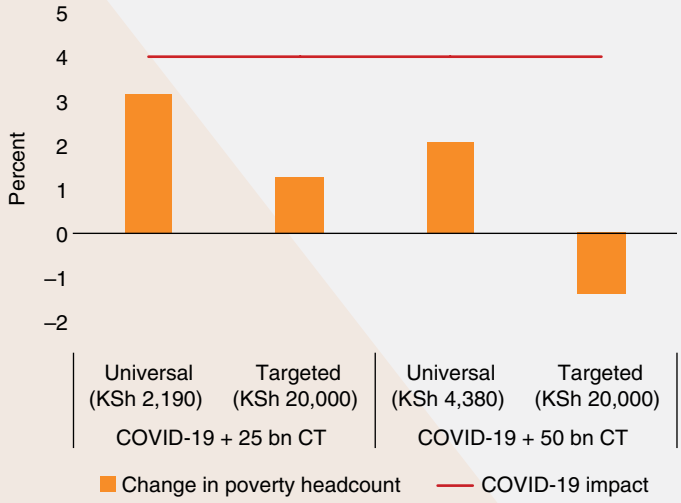
COVID-19 is estimated to increase poverty in Kenya by about 4 percentage points or 2 million 'newly' poor Kenyans. Kenya's poor population was predominantly rural and less well educated pre-COVID-19. However, the shock of COVID-19 created a new group of 'newly' poor Kenyans with different demographic characteristics. They tend to be urban with household heads who are younger and more educated. Newly poor households also tend be smaller and have a larger share of working-aged individuals. Properly differentiating between these populations and understanding their characteristics can help improve the effectiveness of a given intervention in lessening the impacts of a specific shock.

Targeted cash transfers are more efficient at offsetting the poverty increases caused by COVID-19, while also saving fiscal space. Cash transfers can provide relief to households, thereby reducing the use of detrimental coping strategies, such as having to reduce food intake or sell productive assets. Such cash transfers can be more effective in reducing poverty compared to relief measures as implemented for VAT (Value Added Tax). With a budget of KSh 50 billion, equal to the cost of the VAT relief implemented by the government, targeted cash transfers of KSh 20,000 could reach 2.5 million poor households, more than offsetting the increase of poverty by COVID-19 and leading to an overall reduction of poverty by more than 1 percentage point compared to pre-COVID-19 levels. In contrast, a universal transfer of KSh 4,380, requiring the same budget of KSh 50 billion, would only partially offset the increase in poverty, leaving poverty levels about 2 percentage points higher than pre-COVID-19 levels (Figure B3.1, Figure B3.2).

● **FIGURE B3.1:** Area-based geographic targeting.



● **FIGURE B3.2:** COVID-19 and cash-transfer impacts on poverty headcount rate.



Source: Author's calculation based on KIHBS 15/16.

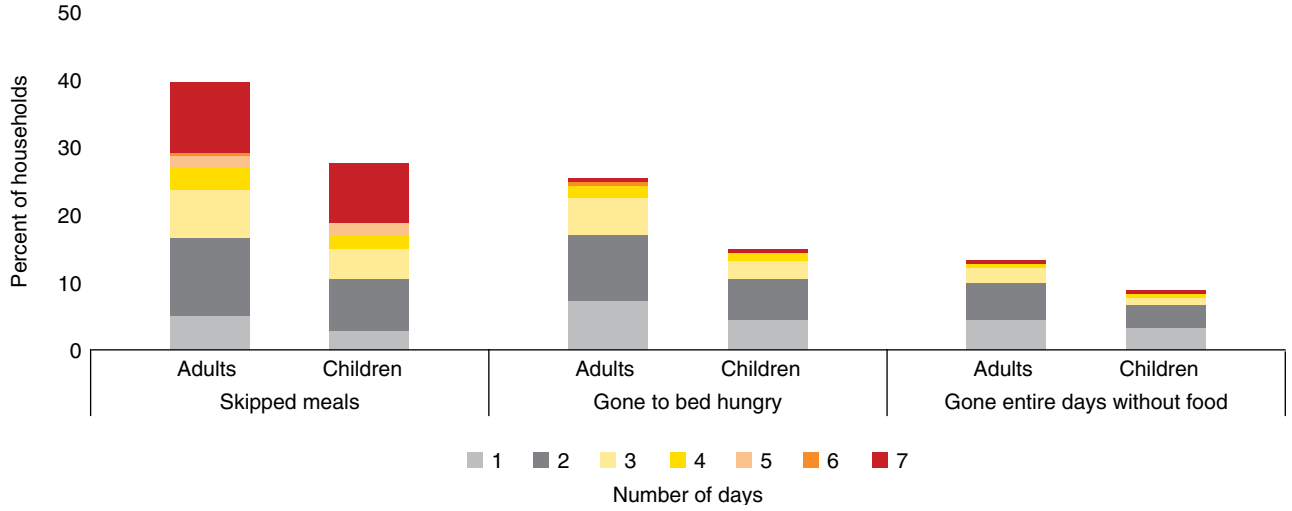
Additional cash transfers should use existing programs and delivery systems, focusing on expanding coverage, given the difference in the 'existing' and 'newly' poor. Any additional cash transfers should use the existing social protection infrastructure, including registries, administrative structures, and implementation mechanisms, which will in turn help increase preparedness for future crises. Due to the differences in the 'existing' and 'newly' poor, cash transfers should be expanded beyond existing beneficiaries to also cover the 'newly' poor. Finally, adequate budget support is required to ensure current National Safety Net Program (NSNP) beneficiaries continue to be supported with timely cash transfer payments.

Note: In this simulation, administrative costs are not considered, although they would be larger for a targeted transfer than a universal transfer.

4. Food Security

14. Food insecurity in Kenya has been a long-lasting problem that is likely to be exacerbated by the COVID-19 pandemic, especially for female-headed households. In February 2020, before being impacted by the COVID-19 pandemic, more than a million Kenyans were assessed as being in crises with respect to food security (IPC phase 3) and nearly 300,000 as being in an emergency situation (IPC phase 4).[13] Nine percent of those living in Arid and Semi-Arid Lands (ASAL) counties were considered to be facing a situation of crisis (IPC phase 3) or worse. The RRPS findings suggest that COVID-19 has aggravated this situation. During May and June, in 40 percent of households, adults skipped meals at least once a week, and in 25 percent of households, children had to do so. Adults went entire days without food in more than 1 in 10 households, and children did so in almost 1 in 10 households (Figure 17). Female-headed households were more affected. They were more likely to be worried about not having enough food to eat

FIGURE 17: Food shortages in the past seven days.

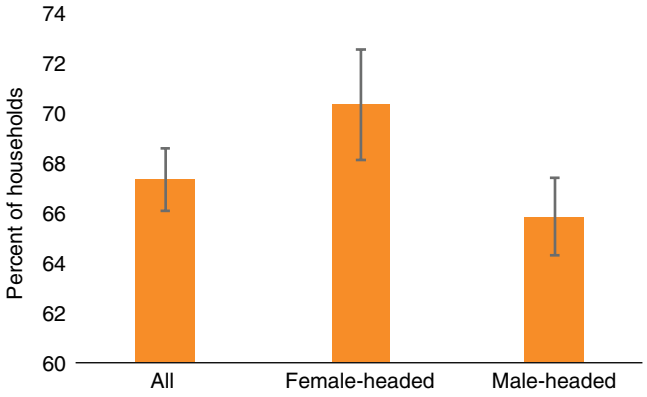


Source: Kenya COVID-19 RRPS.

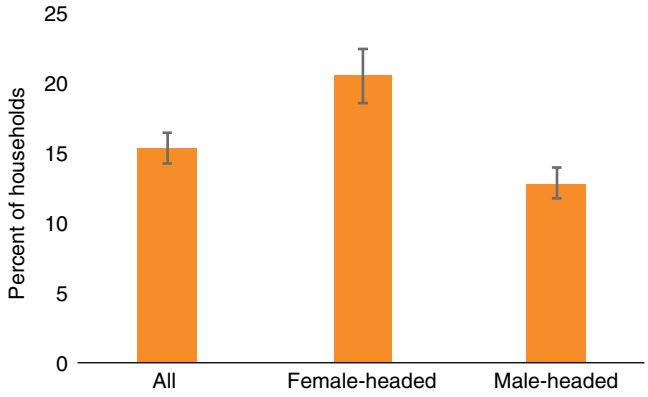
[13] Government of Kenya, "IPC Acute Food Insecurity and Acute Malnutrition Analysis, February 2020–July 2020." https://reliefweb.int/sites/reliefweb.int/files/resources/IPC_Kenya_AcuteFoodInsec_Malnutrition_2020FebJuly.pdf

during the pandemic (70 percent) compared to male-headed households (66 percent; Figure 18) and more likely to have children going to be bed hungry (20 percent compared to 13 percent; Figure 19). School closures have affected households whose children relied on school feeding programs, such as from the World Food Programme (WFP) and the Government of Kenya (GoK).[14] The lack of food can directly impact the ability of adults and children to live a normal, healthy, and productive life, thus leading to malnutrition, stunting, and human capital losses.

● **FIGURE 18:** Worried about not having enough food to eat in the past 30 days.

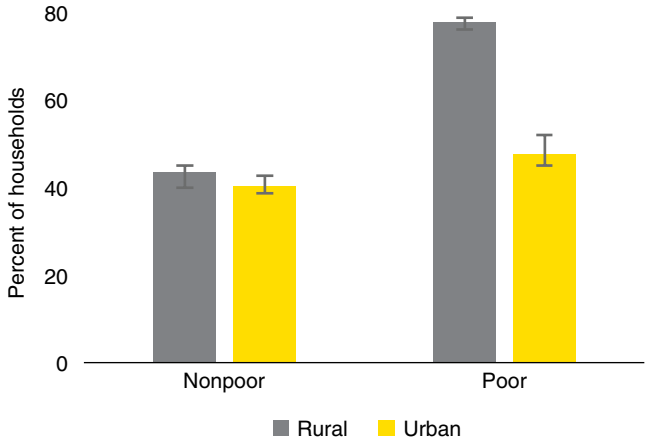


● **FIGURE 19:** Children have gone to bed hungry in the past seven days.



15. Adults in poor rural households are the most affected by food shortages, although nonpoor households are also at risk.[15] In 82 percent of poor rural households, adults went hungry due to lack of money or other resources to access food, compared to 50 percent in poor urban areas (Figure 20). In addition, nonpoor households were affected by food shortages; in 45 percent of nonpoor rural households, adults had to go hungry due to lack of resources, compared to 42 percent in urban households.

● **FIGURE 20:** Adults going hungry due to lack of food or other resources.



Source: Kenya COVID-19 RRPS.

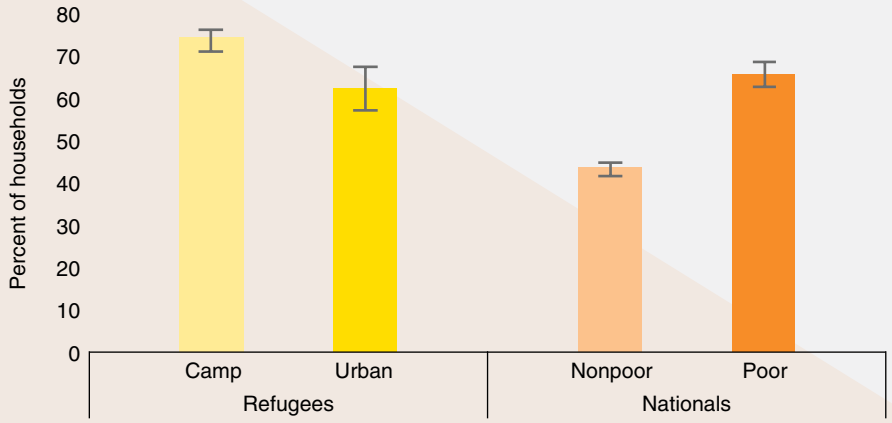
[14] WFP. 2020. "Supporting National School Meals Programme in Kenya." https://www.wfp.org/publications/supporting-national-school-meals-programme-kenya#:~:text=Since%201980%2C%20WFP%20and%20the,Kenya%20and%20in%20the%20informal

[15] The poverty status was estimated with the SWIFT methodology, based on household characteristics that are strong predictors of poverty.

BOX 4: Rapid Response Phone Survey Insights on Refugees

Refugees are facing alarming food shortages. In May and June, adults went hungry due to lack of food in more than 70 percent of camp-based refugee households, compared to about 60 percent of urban refugee households. In contrast, among the poor national population, adults had to go hungry in 66 percent of households (Figure B4.1).

FIGURE B4.1: Refugees and nationals adults going hungry due to lack of food.



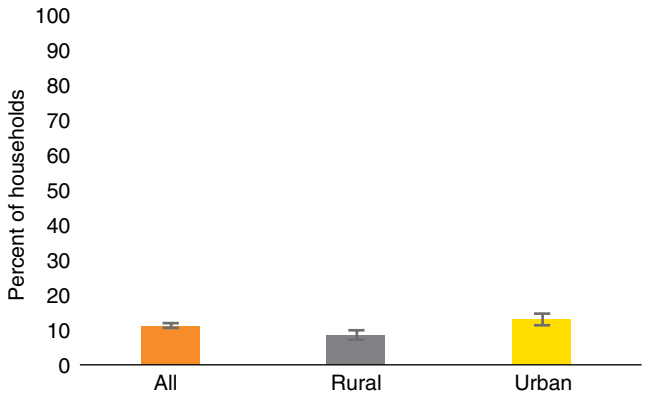
Source: Kenya COVID-19 RRPS.

Human Capital: Education, Health, and Well-Being

1. Education

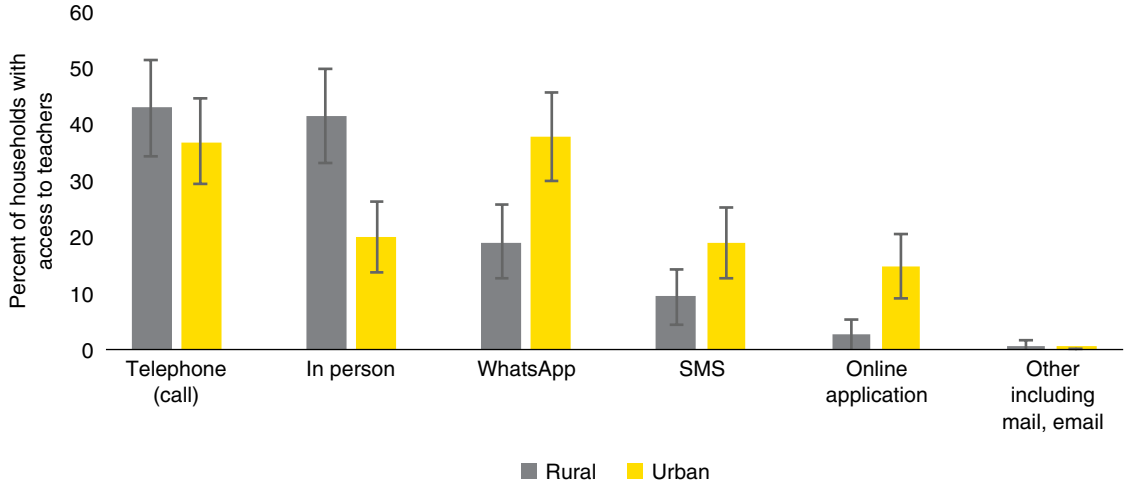
16. Very few children have had access to their teachers during school closures. Children have had access to their teachers during school closures in only in 1 in 10 households, with a higher share in urban households than in rural ones (21 percent versus 7 percent; Figure 21). The most common ways to reach teachers in rural households were telephone calls (44 percent) and in-person contact (42 percent). Urban households mainly used telephone calls (42 percent) the messaging application WhatsApp (31 percent), and less often in-person contact (24 percent; Figure 22). Having limited access to teachers restricts children's ability to continue their education, thus hindering efforts to build and maintain the country's human capital.

● **FIGURE 21:** Children with access to teachers.



Source: Kenya COVID-19 RRPS.

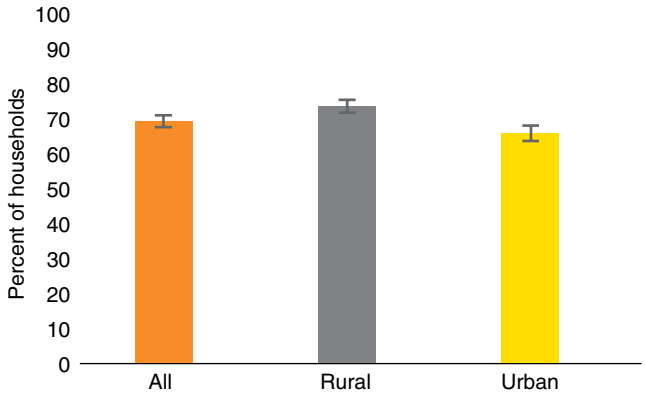
● **FIGURE 22:** Channels for reaching teachers (multiple answers possible).



Source: Kenya COVID-19 RRPS.

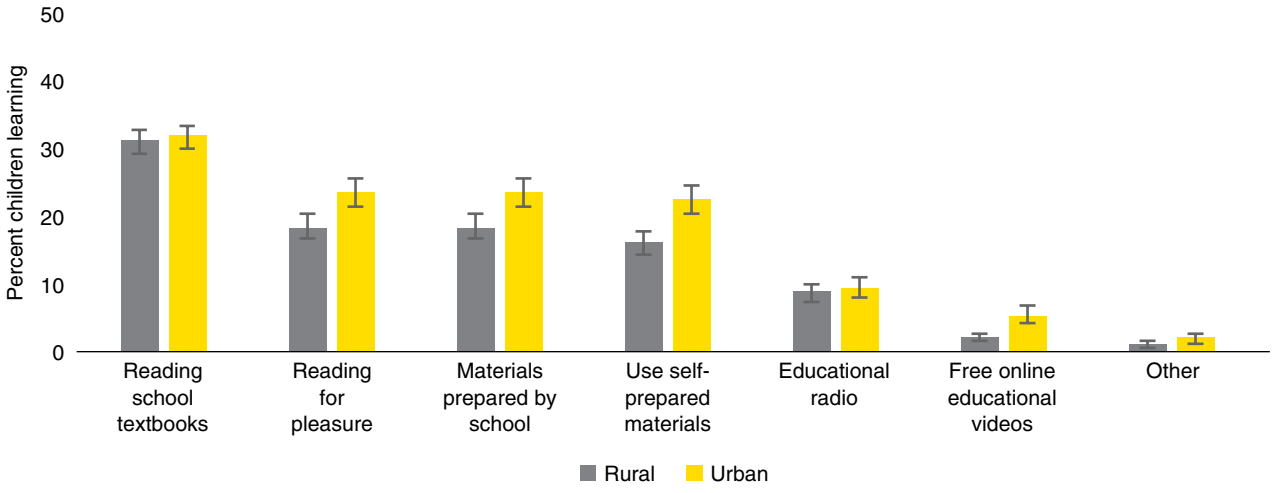
17. Children continue to be involved in educational activities in most households, but a substantial share of households report their children were not. Among the multiple learning platforms provided by the Ministry of Education, only radio is being used by a significant number of students (9 percent in rural areas and 10 percent in urban areas). This can be partly explained by a lack of televisions, computers, or smartphones that are needed to access certain learning resources. Almost 70 percent of households claim their children have been engaged in educational activities, with both rural and urban households engaging in learning activities (Figure 23). The leading educational activity was reading school textbooks (33 percent), reading for pleasure (17 and 23 percent, respectively) and using self-prepared materials (15 percent and 32 percent, respectively; Figure 24). Even though the majority of children are reportedly engaged in at least some learning activities, questions remain about how rigorously these methods are being applied and their effectiveness as compared to formal schooling. The difference between urban and rural children's engagement in learning activities may be partly explained by a larger availability of private teaching groups in rural areas compared to urban sites. Furthermore, tutors and parents in urban areas may have less time available for study supervision, although the coming RRPS rounds will provide further insights to help explain this trend.

● **FIGURE 23:** Children engaged in educational or learning activities.



Source: Kenya COVID-19 RRPS.

● **FIGURE 24:** Learning activities (multiple answers possible).

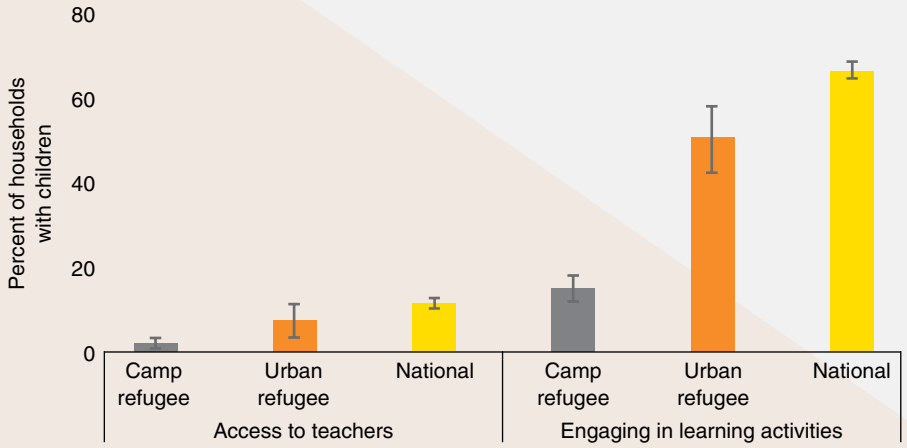


Source: Kenya COVID-19 RRPS.

BOX 5: Rapid Response Phone Survey Insights on Refugees

During school closures, refugee children had less access to teachers than nationals, and in few refugee households were children involved in learning activities. Only in 2 percent of camp-based refugee households did children have access to teachers during the crisis, with a slightly higher share in urban refugee households (7 percent). In addition, only in 2 in 10 camp-based refugee households, and in 5 in 10 urban refugee households, were children involved in learning activities during the pandemic, compared to children in 7 in 10 national households (Figure B5.1).

FIGURE B5.1: Refugee children's education.

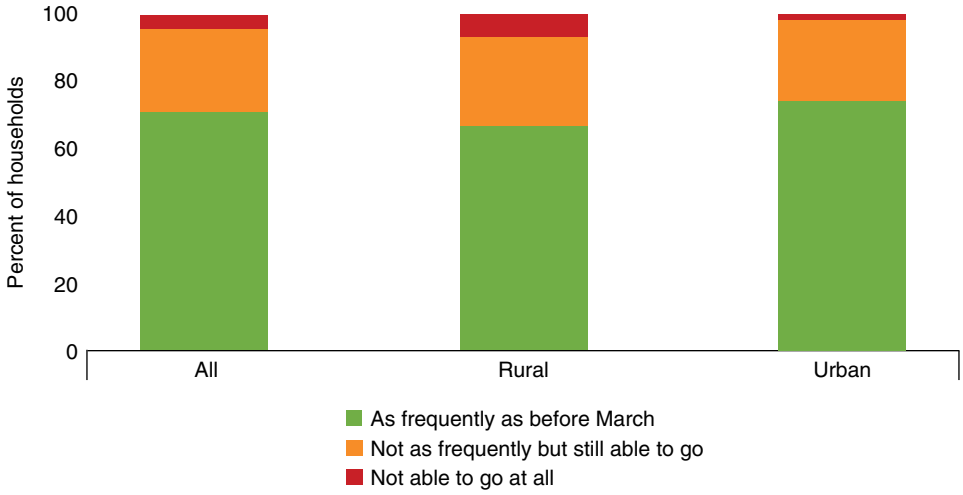


Source: Kenya COVID-19 RRPS.

2. Health

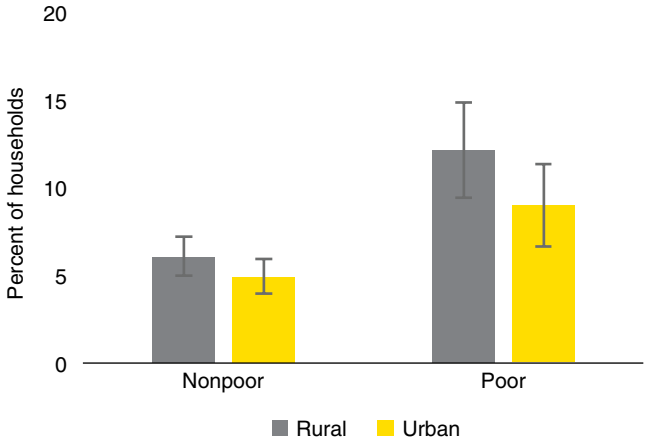
18. Access to health care has been significantly impeded. Three in 10 households presently reported less access to health care than before March 2020. In 27 percent of households, members were not able to go to health facilities for routine and prenatal check-ups as frequently as before March, across both rural and urban households. Two percent of households were not able to go at all, mainly in rural areas (3 percent; Figure 25). The main reason given for not being able to go to medical check-ups as frequently as before the outbreak was the fear of getting infected due to COVID-19. In addition, about 10 percent of households were unable to buy medicine when needed, with poor households in urban areas being the most affected (12 percent; Figure 26). The lack of access to health care, can have severe consequences on the overall health of the population—beyond COVID-19—and its ability to cope with the crisis.

● **FIGURE 25:** Ability to go to routine health check-ups as frequently as before March.



Source: Kenya COVID-19 RRPS.

● **FIGURE 26:** Inability to buy medicine when needed in the last week.

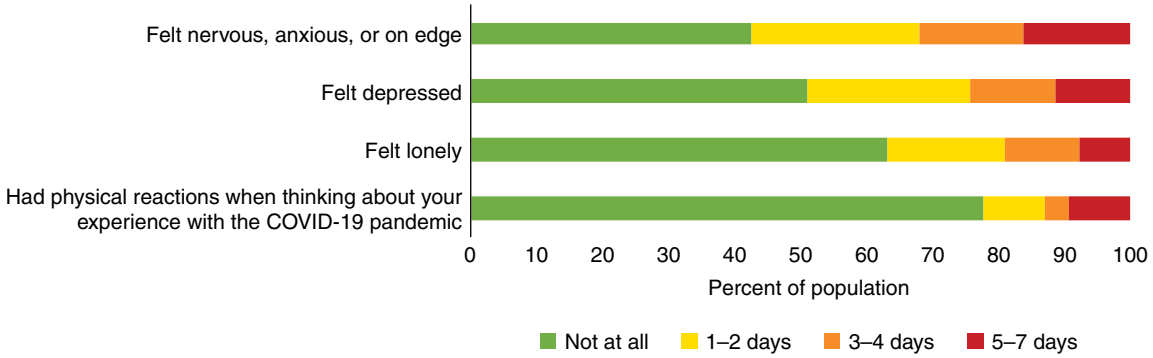


Source: Kenya COVID-19 RRPS.

3 Subjective Well-Being

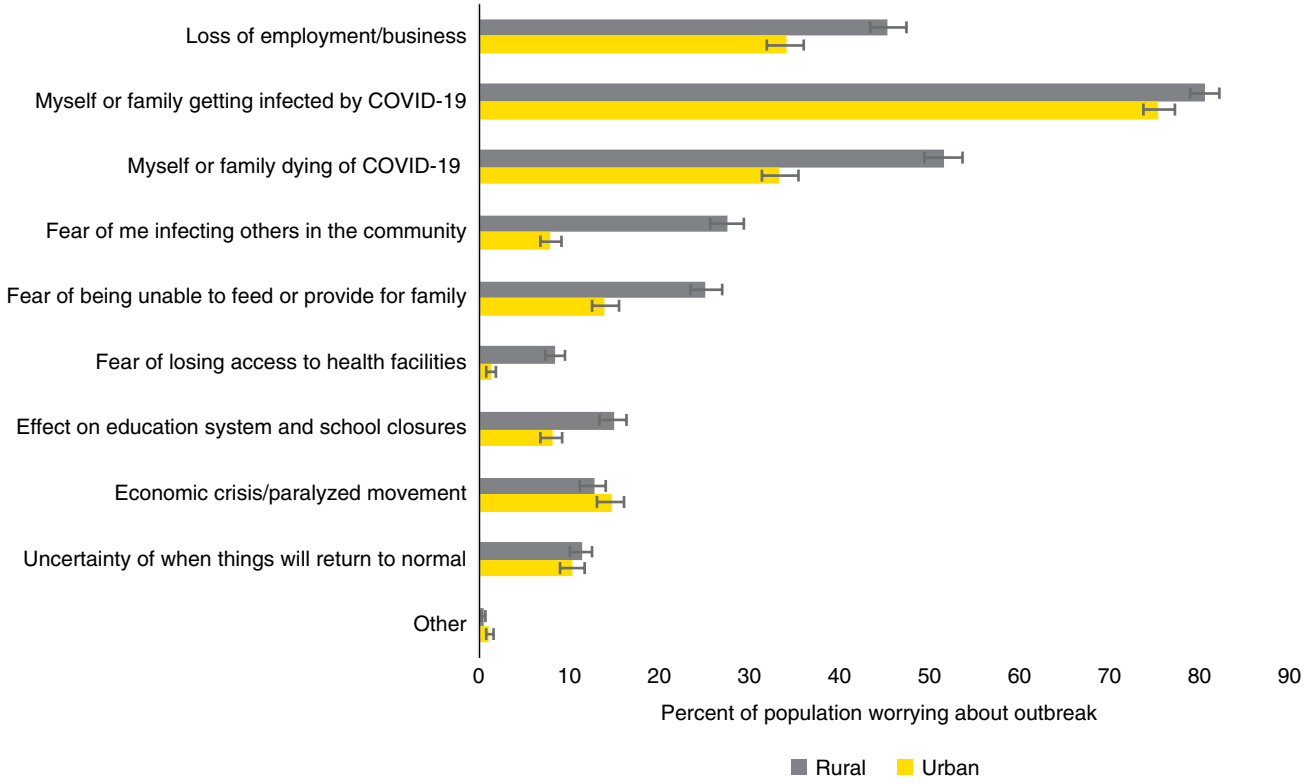
19. The majority of Kenyans feel worried about the COVID-19 outbreak, mostly out of fear of getting infected or losing their employment. In May and June 2020, 61 percent of Kenyans felt generally nervous or anxious, compared to 80 percent of Kenyans that felt nervous or anxious due to the COVID-19 outbreak, specifically. More than 1 in 5 Kenyans even had physical reactions such as sweating, trouble breathing, nausea, or a pounding heart, when thinking about their experience with the COVID-19 pandemic, with almost 1 in 10 experiencing these physical reactions several days a week (Figure 27). In urban and rural areas, Kenyans were anxious mainly due to the fear of themselves or their family members getting infected (77 and 82 percent, respectively) and fear of losing their employment or business (35 and 46 percent, respectively). Additionally, more in rural than in urban areas, Kenyans were afraid of them or their

● **FIGURE 27:** Subjective well-being in the past seven days.



Source: Kenya COVID-19 RRPS.

● **FIGURE 28:** Main reasons for worrying about the COVID-19 outbreak (multiple answers possible).



Source: Kenya COVID-19 RRPS.

family members dying due to COVID-19 (53 percent vs. 34 percent), and of infecting others in the community (28 percent vs. 8 percent; Figure 28). COVID-19 not only has affected physical health, but mental health as well, resulting in psychosis, anxiety, trauma, suicidal thoughts, and panic attacks.[16] Moreover, anxiety and fear can lead to aggression and violence and thereby increase levels of domestic violence.[17]

[16] Salari et al. 2020. "Prevalence of Stress, Anxiety, Depression among the General Population during the COVID-19 Pandemic: A Systematic Review and Meta-Analysis"; WHO. 2020. "Mental Health and Psychosocial Considerations during the COVID-19 Outbreak."

[17] National Council on the Administration of Justice. 2020. "Statement on Justice Sector Operations in the Wake of the COVID-19 Pandemic." https://ncaj.go.ke/statement-on-justice-sector-operations-in-the-wake-of-the-covid-19-pandemic/. Domestic violence has sharply increased after the COVID-19 outbreak, and most offenses are committed against women and girls.

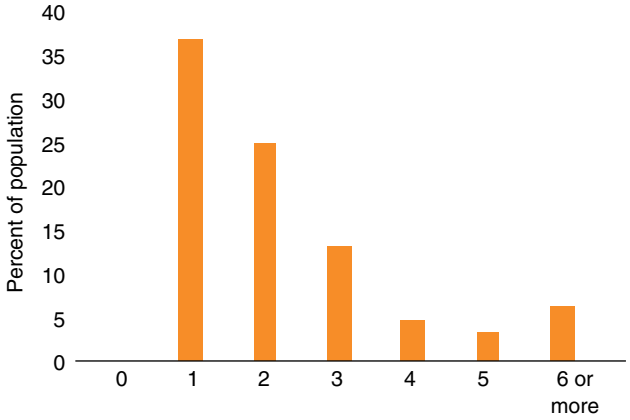
Knowledge, Behavior, and Government Perceptions

20. Knowledge has a significant influence on attitudes and behavior. Lessons learned from past pandemics have shown that well-informed individuals are more likely to adopt precautionary practices to avoid contagion.[18] Furthermore, educating the public about specific actions to reduce risks and communicating about the government's plans and resources helped to improve compliance to good practices.[19] Thus, knowledge is likely to have a key role in controlling the spread of COVID-19.

21. Kenyans know about COVID-19 and its symptoms, with the main sources of information being radio and television. Almost the entire population has heard about COVID-19 (99 percent), which is similar to other countries in the continent.[20] Most Kenyans know at least two typical symptoms of COVID-19 (94 percent), with most having been informed about the virus through multiple sources (63 percent, Figure 29). The most common sources are national radio (77 percent) and television (51 percent), but social networks, online and offline, are also common information channels (Figure 30).

22. A large share of Kenyans intend to follow the government directives, but fewer believe that others are following them. Almost everybody reports applying preventive measures, with 99 percent reporting washing their hands with soap more often than they used to, along with avoiding gatherings of more than 10 people and handshakes or physical greetings (Figure 31).[21] While reported compliance with government guidelines seems high, 19 percent of

● **FIGURE 29:** Number of information sources on COVID-19.



Source: Kenya COVID-19 RRPS.

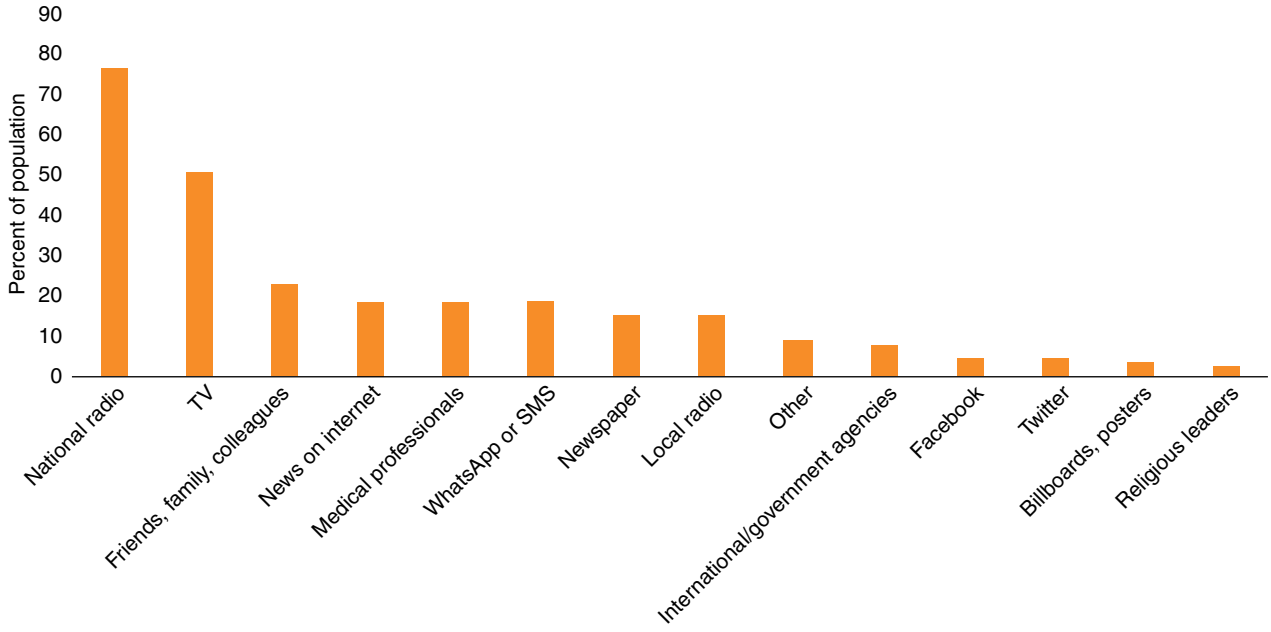
[18] Yap et al. 2020. "Knowledge, Attitudes and Practices towards Pandemic Influenza among Cases, Close Contacts, and Healthcare Workers in Tropical Singapore: A Cross-Sectional Survey"; Tang and Wong. 2003. "An Outbreak of the Severe Acute Respiratory Syndrome: Predictors of Health Behaviours and Effect of Community Prevention Measures in Hong Kong, China."

[19] Rubin et al. 2009. "Public Perceptions, Anxiety, and Behaviour Change in Relation to the Swine Flu Outbreak: Cross Sectional Telephone Survey."

[20] GeoPoll. 2020. "Coronavirus In Sub-Saharan Africa."

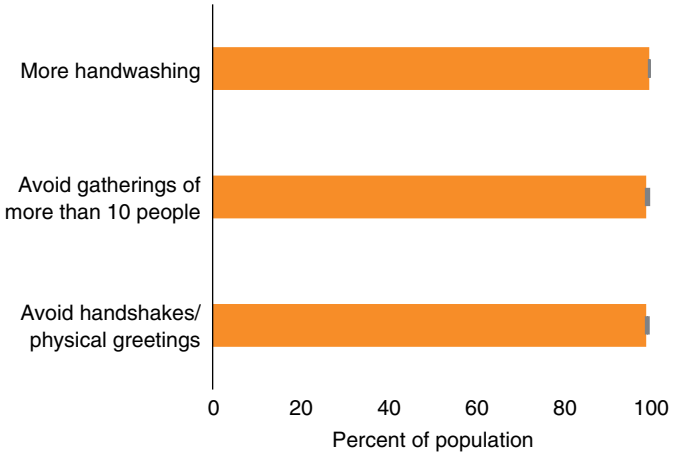
[21] It is important to interpret these results with some caution, as there is a tendency to overreport positive behavior changes in surveys. However, this highly reported compliance shows that the population is at least aware of the importance of applying COVID-19 mitigation measures.

● **FIGURE 30:** Sources of information on COVID-19 (multiple answers possible).



Source: Kenya COVID-19 RRPS.

● **FIGURE 31:** Reported behavioral changes.

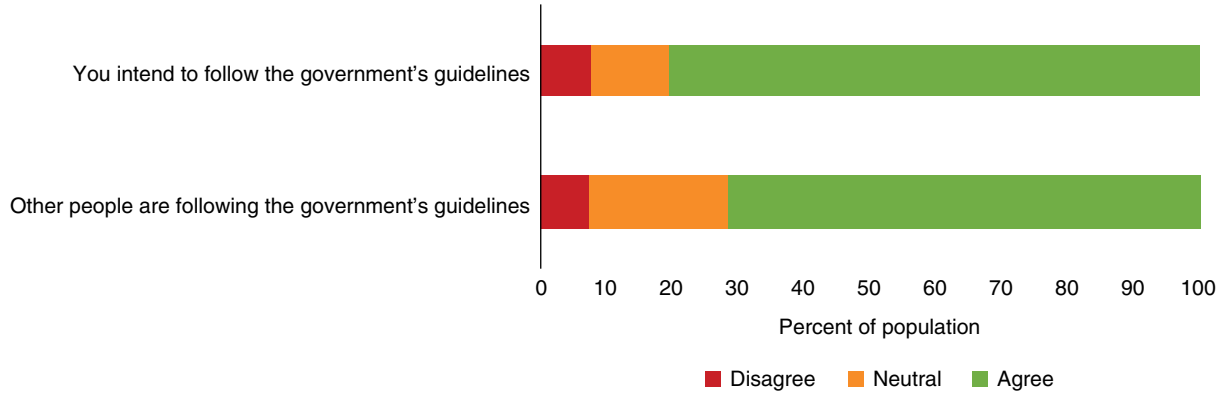


Source: Kenya COVID-19 RRPS.

the population do not follow such guidelines entirely, which can hinder measures to control the spread of the virus. Importantly, only 7 in 10 Kenyans believe that others are following the guidelines (Figure 32) which may impede the adoption of healthy behaviors going forward. As discussed, knowledge about pandemics can shape the types of behavioral response, while perceived effectiveness of specific behaviors can result in the corresponding recommended behavior changes.[22] Communication regarding the health impacts on the pandemic and provision of updated information about safe behaviors can have a positive impact on adherence to health responses.

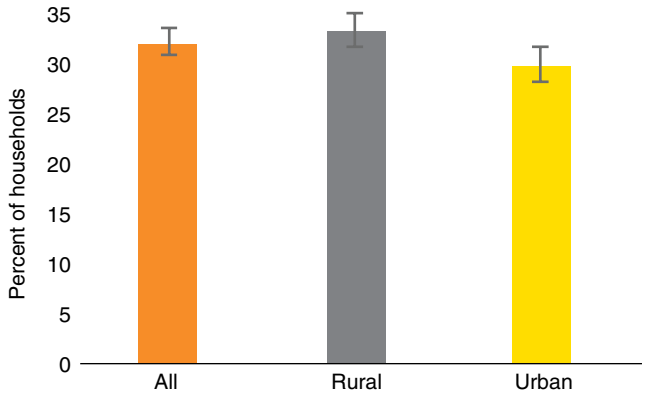
[22] Lau et al. 2009. "Widespread Public Misconception in the Early Phase of the H1N1 Influenza Epidemic."

● **FIGURE 32:** Intention to follow the government guidelines.



Source: Kenya COVID-19 RRPS.

● **FIGURE 33:** Place to isolate an infected member.



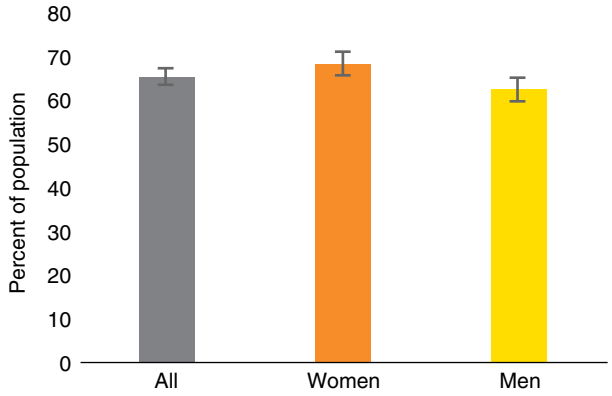
Source: Kenya COVID-19 RRPS.

23. Only a few households would have a place to isolate a household member in case of COVID-19 contagion. Only 3 in 10 households would have a place to isolate a household member in case of COVID-19 contagion, with households in urban areas less likely to have a place than rural ones (30 percent vs. 33 percent; Figure 33). Not properly isolating COVID-19 cases can increase the risk of contagion.

24. A high share of the population is satisfied with the government's response to the COVID-19 crisis, but less than half are convinced that the government is able to provide sufficient cash and in-kind assistance. Most Kenyans are satisfied with the government's response (65 percent), with women more satisfied than men (66 percent vs. 63 percent; Figure 34). Sixty-five percent of Kenyans believe that the government is trustworthy in the way it manages the crisis, and 71 percent also believe that it can provide health care to address the crisis. However, less than half of the population thinks the government is able to provide sufficient cash and in-kind assistance in response to the COVID-19 crisis (45 percent; Figure 35). Maintaining and increasing the public's trust in the government's capacity can support confidence about the health information provided, thereby helping to reduce risky behavior and decrease contagion.

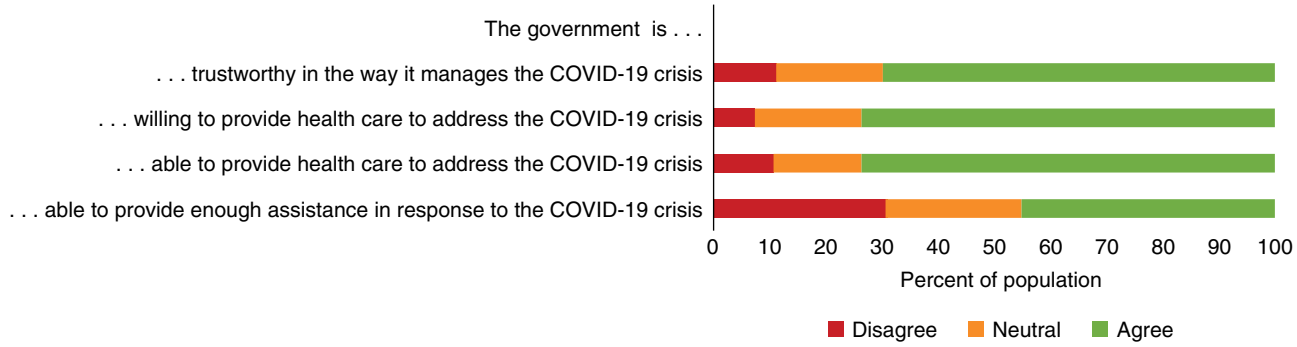
The RRPS findings for rounds 2 and 3 will enrich these initial findings and ensuing policy response options (see Executive Summary) to help alleviate the impacts of COVID-19 on Kenyan households.

● **FIGURE 34:** Satisfaction with the government's response to the COVID-19 crisis.



Source: Kenya COVID-19 RRPS.

● **FIGURE 35:** Trust in the government.



Source: Kenya COVID-19 RRPS.

Annex A: Detailed Methodology

1. Design and Survey Instrument

25. The Kenya COVID-19 RRPS for households is structured as a three-wave bimonthly panel survey that monitors the socioeconomic impacts of the pandemic on nationals, refugees, and stateless people. The same households were interviewed every two months, between May and October 2020. Respondents can be interviewed in a language they are comfortable with, as the questionnaire is translated to Swahili, Luo, Arabic, French, Kirundi, Luganda, Oromo, Somali, Kinyarwanda, Tigrinya, Nuer, and Dinka.

26. The survey questionnaire for households was designed to allow for international comparability. To ensure that findings are comparable across countries, the Kenya COVID-19 RRPS was designed to both allow comparison across countries that have implemented surveys on the impact of COVID-19 and measure the impacts of the pandemic in Kenya specifically. Therefore, the questionnaire maintained most core questions from the global template of the World Bank and added country specific questions for a better understanding of the effects of COVID-19 on Kenyan households.[23] The Kenya COVID-19 RRPS for households questionnaire covers a range of topics, including employment, income, coping strategies, food security, access to education and health services, subjective well-being, knowledge of COVID-19, changes in behavior in response to the pandemic, and perceptions of the government's response.

27. The RRPS household definition is aligned with the one used by the Kenya National Bureau of Statistics (KNBS). In the 2015/16 Kenya Integrated Household Budget Survey (KIHBS), conducted by the KNBS, households were defined as "a person or a group of people living in the same compound (fenced or unfenced); answerable to the same head; and sharing a common source of food and/or income as a single unit in the sense that they have common housekeeping arrangements."[24] To ease the phone survey implementation, the KNBS's household definition was simplified. Such simplification was done based on the field testing carried out before the data collection. The RRPS household definition is "a person, or group of people, that eat from the same pot and spend four nights or more in an average week sleeping in the same home."

2. Sampling and Re-Weighting

28. A nationally representative sample was randomly drawn from the 2015/16 Kenya Integrated Household Budget Survey (KIHBS). The 2015/16 KIHBS is representative at the national level, stratified by county and place of residence (urban and rural areas). The KIHBS included a national sample of 21,773 households interviewed in a paper-based survey and 12,851 households interviewed via Computer Assisted Personal Interviews (KIHBS CAPI). To select the sample, the Kenya COVID-19 RRPS first identified all households that were part of the KIHBS CAPI and provided

[23] For access to the global questionnaire template, visit: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/567571588697439581/questionnaire-template

[24] Kenya National Bureau of Statistics. 2018.

a phone number, and used the resulting list of 9,009 households as a sampling frame. Of those, 3,295 were reached and completed the interview in the first wave of the Kenya COVID-19 RRPS for Kenyan households. The target respondent was the primary male or female from the 2015/16 KIHBS.[25]

29. The second sample comprises households selected using the Random Digit Dialing (RDD) method. A list of random mobile phone numbers was created using a random number generator from the 2020 Numbering Frame produced by the Kenya Communications Authority. The initial sampling frame consisted of 92,999,970 randomly ordered phone numbers assigned to three networks: Safaricom, Airtel, and Telkom. An introductory text message was sent to 5,000 randomly selected numbers to determine if numbers were in operation. Out of these, 4,075 were found to be active and formed the final sampling frame. There was no stratification, and individuals that were reached through the selected phone numbers were asked about the households they live in. The target sample size was 750. There were 763 completed interviews for this sample in the first wave of the RRPS on COVID-19 RRPS. RDD gives us a representative sample of households that existed in 2015/16 but had changed their phone numbers, as well as households that did not exist in 2015/16. Both groups of households could not be covered with the 2015/16 KIHBS CAPI sample alone.

30. The third RRPS sample consisted of urban and camp-based refugees, as well as stateless people registered by the UNHCR. The sample aims to be representative of the refugee and stateless population in Kenya. It comprises five strata: the Kakuma refugee camp, Kalobeyei settlement, Dadaab refugee camp, urban refugees, and Shona stateless, where sampling approaches differ across strata. For refugees in Kakuma and Kalobeyei,[26] as well as for stateless people, recently conducted household surveys[27] were used as sampling frames. For the refugee population living in urban areas and the Dadaab camp, no such household survey data existed, and sampling frames were based on UNHCR's registration records (proGres), which included phone numbers.[28] For Kakuma, Kalobeyei, Dadaab, and urban refugees, a two-step sampling process was used. First, 1,000 individuals from each stratum were selected from the corresponding sampling frames. Each of these individuals received a text message to confirm that the registered phone was still active. In the second stage, implicitly stratifying by sex and age, the verified phone number lists were used to select a sample of 500 individuals per stratum. For the stateless population, all the participants of the Shona socioeconomic survey[29] (n = 400) were included in the RRPS.[30]

31. The COVID-19 RRPS household survey was not able to include households without valid phone numbers. As phone surveys can only reach respondents who use a phone with an active subscription in an area with network coverage, statistics are only representative for that part of the population. Nationally, 80 percent of Kenyan households report owning a mobile phone (Figure 36). Although cell phone penetration and coverage are high, the sample

[25] In the 2015/16 KIHBS there was no target respondent, therefore we defined target respondent for the Kenya COVID-19 RRPS as the primary male or female from 2015/16 KIHBS, and randomly chosen where both existed. If the target respondent was not available for a call, the field team spoke to any adult currently living in the household of the target respondent. If the target respondent was deceased, the field team spoke to any adults that lived with the target respondent in 2015/16. Finally, if the household from 2015/16 split up, we targeted anyone in the household of the target respondent but did not survey a household member that no longer lived with the target respondent.

[26] UNHCR and World Bank. 2020. "Understanding the Socioeconomic Conditions of Refugees in Kalobeyei, Kenya: Results from the 2018 Kalobeyei Socioeconomic Profiling Survey."

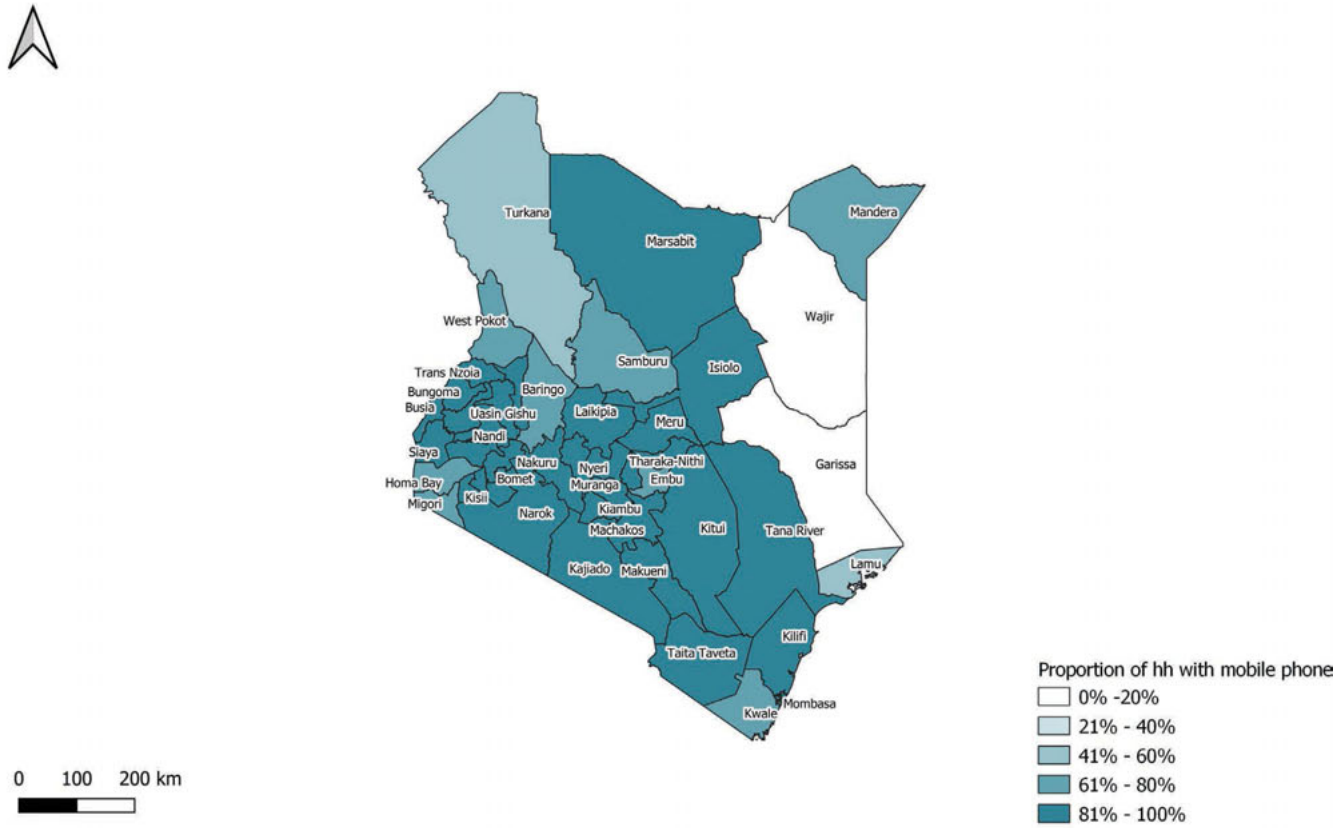
[27] The Kakuma and Kalobeyei household surveys are representative of the refugee populations in each settlement, while the stateless survey is representative of the Shona community in Kenya.

[28] The UNHCR, in coordination with the Kenya Refugee Affairs Secretariat (RAS), registers persons of concern, including camp and non-camp refugees—most of whom reside in urban areas—as well as stateless persons.

[29] To be released in January 2021.

[30] For the first round of the RRPS, 413 refugee households were interviewed in Kakuma camp, 264 in Kalobeyei settlement, 154 in Dadaab camp, and 333 in urban areas, while 168 stateless population households were interviewed.

● **FIGURE 36:** Mobile phone coverage in Kenya.



Source: 2019 Kenya Continuous Household Survey (KCHS).

excludes those households without a registered number, potentially excluding to some extent the poorest households who do not own phones, or who live in areas with no network coverage. The areas in the North-East of Kenya (shaded in white, Figure 36) have the lowest mobile phone penetration and are among the most vulnerable counties in Kenya. Conversely, most of the central and southern regions (shaded in darker blue) display a much higher mobile phone penetration. The Kenya COVID-19 Rapid Response Phone Survey uses re-weighting techniques to enhance representativeness of the overall sample.

32. Households that were included in the sample have better socioeconomic conditions than those that were excluded. Using the 2015/16 KIHBS CAPI and the 2019 KCHS, it is possible to identify differences between households that provided a phone number and were reached by the RRPS as opposed to those that did not (Table 1). Households providing a phone number have better living conditions. They are more likely to have better housing materials, have more rooms available, and are more likely to own assets, such as a refrigerator, radio, or mattress. Additionally, the households that were reached by the Kenya COVID-19 RRPS were compared to the ones who could not be reached (regardless of whether they provided a phone number). Comparing the socioeconomic characteristics of the interviewed households to the ones of the nationally representative 2019 Kenya Continuous Household Survey (KCHS) shows similar, statistically significant differences (Table 2 and Table 3).

● **TABLE 1:** Socioeconomic characteristics of KIHBS CAPI households by registration of phones and participation in the RRPS

Variable	(i) All	(ii) Provided phone number	(iii) Provided no phone number	(iv) Reached in RRPS	(v) Not reached in RRPS	(vi) P-value comparing (ii) and (iii)	(vii) P-value comparing (iv) and (v)
Floor material rudimentary or absent	44%	38%	60%	37%	46%	<0.001	<0.001
Floor material improved (cement, asphalt)	48%	54%	33%	54%	46%	<0.001	<0.001
Floor material refined (tiles, parquet)	8%	8%	7%	9%	7%	0.20	0.18
Wall material rudimentary or absent	3%	1%	7%	1%	3%	<0.001	<0.001
Wall material improved (mud, stone, iron)	37%	33%	47%	32%	38%	<0.001	<0.001
Wall material refined (bricks, stone, cement)	60%	66%	46%	67%	58%	<0.001	<0.001
Number of habitable rooms	2.8	2.8	2.5	2.9	2.7	<0.001	0.01
Main source of lighting is electric power	56%	61%	43%	63%	54%	<0.001	<0.001
Owns: refrigerator	7%	8%	5%	9%	6%	<0.001	0.03
Owns: mattress	91%	95%	79%	95%	89%	<0.001	<0.001
Owns: radio	64%	70%	47%	71%	61%	<0.001	<0.001
Household size	4.1	4.2	4.0	4.2	4.1	<0.001	0.14

Source: 2015/16 KIHBS CAPI pilot.

● **TABLE 2:** Socioeconomic indicators by phone registry in the 2019 KCHS

Indicator	(i) Provided phone number	(ii) Provided no phone number	(iii) P-value of comparison (i) vs. (ii)
Floor material rudimentary or absent	44%	71%	<0. 001
Floor material improved (cement, asphalt)	46%	27%	<0. 001
Floor material refined (tiles, parquet)	10%	2%	<0. 001
Wall material rudimentary or absent	2%	18%	<0. 001
Wall material improved (mud, stone, iron)	56%	59%	<0. 001
Wall material refined (bricks, stone, cement)	42%	24%	<0. 001
Has electricity	47%	21%	<0. 001
Owns: charcoal stove	41%	18%	<0. 001
Owns: refrigerator	8%	1%	<0. 001
Owns: mattress	96%	78%	<0. 001
Owns: radio	45%	19%	<0. 001
Household size	5.2	5.6	<0. 001
Household head age	46	48	<0. 001
Women-headed households	27%	36%	<0. 001

Source: 2019 Kenya Continuous Household Survey.

33. Sampling weights were constructed for each stratum to consider different probabilities of selection at a baseline. A two-step approach was used to create the weights for the national sample provided by the KIHBS CAPI and RDD method (Table 4). As a first step, raw weights were constructed for three groups of households: (I) households that existed in 2015/16 and did not change phone numbers, (II) households that existed in 2015/16, but changed phone numbers, and (III) households that did not exist in 2015/16. The baseline weights from the 2015/16 KIHBS CAPI pilot make the KIHBS sample representative of type (I) households. For RDD households, we asked whether they existed in 2015/16, when they had acquired their phone number, and where they lived in 2015/16, allowing us to classify them into type (I), (II), or (III) households and assign them to a KIHBS CAPI strata. We adjust weights of each RDD household to be inversely proportional to the number of mobile phone numbers used by adult members of the household, and scale them relative to the average number of mobile phone numbers used in the KIHBS within each stratum. RDD therefore gives us a representative sample of type (II) and (III) households. We then combine RDD and KIHBS type (I) households by ex-post adding RDD households into the 2015/16 sampling frame and adjusting weights accordingly. Lastly, we combine our representative samples of type (I), type (II), and type (III), using the share of each type within each stratum from RDD.

34. Sampling weights for the national samples were adjusted to reflect geographic differences. We used post stratification to adjust for differential attrition and response rates across counties and rural/urban strata, which ensured all geographic areas in Kenya were appropriately accounted for. We scaled the raw weights from step 1 above to reflect the population size in each county and rural/urban stratum as recorded in the 2019 Kenya Population and Housing Census conducted by the KNBS.[31]

[31] Kenya National Bureau of Statistics. 2019. "2019 Kenya Population and Housing Census, Volume II: Distribution of Population by Administrative Units."

● **TABLE 3:** Socioeconomic comparison between the Kenya COVID-19 RRPS and 2019 KCHS samples

Variable	(i) Average in KCHS 2019	(ii) Average in RRPS 2020 (no post-stratification adjustment)	(iii) Average in RRPS 2020 (post-stratification adjustment)	(iv) P-value comparing (i) and (ii)	(v) P-value comparing (i) and (iii)
Floor material rudimentary or absent	39%	42%	41%	0.39	0.45
Floor material improved (cement, asphalt)	51%	52%	52%	0.61	0.53
Floor material refined (tiles, parquet)	10%	5%	7%	<0.001	0.008
Wall material rudimentary or absent	3%	3%	2%	0.83	0.22
Wall material improved (mud, stone, iron)	52%	40%	40%	<0.001	<0.001
Wall material refined (bricks, stone, cement)	45%	57%	58%	<0.001	<0.001
Household size	3.8	4.5	4.1	<0.001	<0.001
Household head age	44.7	40	39.5	<0.001	<0.001
Women-headed households	32%	31%	33%	<0.69	<0.68
Household has electricity	52%	52%	55%	0.81	0.17
Owns: charcoal stove	35%	69%	65%	<0.001	<0.001
Owns: refrigerator	7%	6%	8%	0.24	0.87
Owns: mattress	94%	89%	89%	0.02	<0.001
Owns: radio	39%	78%	74%	<0.001	<0.001

Source: Kenya COVID-19 RRPS and 2019 Kenya Continuous Household Survey.

33. Sampling weights for the refugee and stateless samples were tailored to the respective sampling strategies. For the Kakuma and Kalobeyei subsamples, the baseline weights from the respective socioeconomic assessments underlying the sampling frame were used to adjust for any differences in the sampling probabilities. Then, propensity score weighting, based on the full population covered in the household Kalobeyei SES,[32] were used to account for differences in the probability of having a registered phone number.[33] The estimated propensity score reflects the probability of a household to have a phone number registered by UNHCR. To mitigate the effect of outlier estimates, the mean propensity score was calculated for each decile. The baseline weights were then multiplied with the inverse of the propensity score deciles. For the refugees living in the Dadaab camp and urban areas, a cell weighting approach was used. Thereby, the sample was split into subgroups (cells) based on the sex and age group of the household head. The weights were then scaled such that they reflected the proportion of each cell in the

[32] UNHCR and World Bank. 2020. "Understanding the Socioeconomic Conditions of Refugees in Kalobeyei, Kenya: Results from the 2018 Kalobeyei Socioeconomic Profiling Survey."

[33] To construct the propensity score weights, a logit regression model is estimated for each stratum, where the dependent variable is an indicator for whether a household was in the COVID-19 RRPS sample. The set of explanatory variables included dummies for the country of origin, number of children, and dependency ratio, as well as the gender, literacy, and employment status of the household head.

UNHCR registration data of all refugees living in the respective location. In the group of stateless people registered by UNHCR, each household was assigned the same weight, as their full population was called in this survey. Lastly, to ensure sampling weights had the correct proportions across strata, they were scaled to match population totals as provided by the up-to-date UNHCR registration data.

TABLE 4: Socioeconomic comparison between the KNBS and RDD sample in the COVID-19 RRPS

Variable	(i) Average in KNBS sample	(ii) Average in RDD sample	(iii) P-value comparing (i) and (ii)
Floor material rudimentary or absent	41%	41%	0.93
Floor material improved (cement, asphalt)	53%	52%	0.79
Floor material refined (tiles, parquet)	6%	7%	0.48
Wall material rudimentary or absent	3%	2%	0.36
Wall material improved (mud, stone, iron)	40%	40%	0.94
Wall material refined (bricks, stone, cement)	57%	58%	0.73
Household size	4.5	3.9	<0.001
Household head age	44.9	36.8	<0.001
Women-headed households	30%	34%	0.26
Household has electricity	51%	57%	0.08
Owns: charcoal stove	58%	69%	0.001
Owns: refrigerator	7%	8%	0.58
Owns: mattress	86%	91%	0.02
Owns: radio	70%	76%	0.04

Source: Kenya COVID-19 RRPS.

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