COVID-19 IN NIGERIA:

FRONTLINE DATA AND PATHWAYS FOR POLICY

November 2021

NATIONAL BUREAU OF STATISTICS

WORLD BANK GROUP

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This report was prepared by a team from the Development Economics and Chief Economist, Data Production and Methods group (DECPM) – led by Gbemisola Oseni (Senior Economist) – and the Poverty and Equity Global Practice (PovGP) – led by Tara Vishwanath (Lead Economist). The report represents the culmination of 12 months of data collection and analysis. The team included: Jonathan Lain (Economist, PovGP), Akuffo Amankwah (Economist, DECPM), Ivette Contreras Gonzalez (Consultant, DECPM), Arthur Alik Lagrange (Senior Economist, PovGP), Kevin McGee (Senior Economist, DECPM), Amparo Palacios-Lopez (Senior Economist, DECPM), and Akiko Sagesaka (Statistician, DECPM). Christina Jenq (Consultant, PovGP) provided specific analytics on education.

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Foreword

COVID-19 has hit countries with a health and economic shock whose effects will be felt far into the future. In many settings that already faced complex development challenges, including Nigeria, the pandemic continues to affect health outcomes, human-capital accumulation, household poverty and coping strategies, and labor-market dynamics. Drawing on frontline data, this report shows both the severity of these impacts on Nigerian people's lives and promising policy options to accelerate the nation's recovery.

In Nigeria and globally, the future course of the pandemic remains difficult to predict. The epidemiology of new variants, the true magnitude of economic damage, and the degree to which wealthier countries will share vaccines and other vital resources with poorer ones: these and other questions remain open. These uncertainties make it even more imperative that countries harness the best available evidence—and continue to generate new evidence—as they act to control disease spread and reignite economic growth.

The analysis presented in this report draws on innovative sources of high-frequency data to inform the choices that Nigeria's leaders now face: in particular, the Nigeria COVID-19 National Longitudinal Phone Survey (NLPS) 2020. The NLPS was launched in April 2020, almost immediately after the COVID-19 crisis began, and since then has regularly collected information on key social and economic outcomes from households across Nigeria. It provides a unique source of insight into how the pandemic has impacted multiple dimensions of Nigerian people's lives. Few other developing countries with which the World Bank has worked on phone surveys currently have such extensive data available to guide policy action.

The findings presented here underscore the urgency of far-reaching reforms to strengthen Nigeria's economy and development outcomes. Rolling out vaccines quickly and equitably will provide the bedrock for recovery. Other policy priorities include recouping learning losses linked to school shutdowns and expanding social protection to ease households' welfare losses and protect human capital. If Nigeria's leaders act boldly, the COVID-19 crisis could provide the impetus to boost welfare and livelihoods in Nigeria in the medium and long run.

It will be vital to keep generating fresh data that track Nigeria's progress out of the COVID-19 crisis. Evidence from the NLPS and other sources already puts Nigeria's policymakers in a position of strength. Continued investment in measurement remains vital—so that the results of Nigeria's policy innovations can yield full benefit for the nation's citizens and inspire other countries around the region and the globe.

Shubham Chaudhuri
World Bank Country Director for Nigeria

List of abbreviations

BMGF Bill and Melinda Gates Foundation

COVAX COVID-19 Vaccines Global Access Initiative

GDP Gross Domestic Product

GHS General Household Survey

HCI Human Capital Index

IMF International Monetary Fund

LAYS Learning-Adjusted Years of Schooling

NASSP National Social Safety Net Project

NBS National Bureau of Statistics

NLPS Nigeria COVID-19 National Longitudinal Phone Survey

NLSS Nigeria Living Standards Survey

OECD Organisation for Economic Cooperation and Development

PPP Purchasing Power Parity

TaRL Teaching at the Right Level

USAID United States Agency for International Development

1. Introduction

Nigeria's COVID-19 crisis and the role of this report

KEY MESSAGES

In addition to health impacts, COVID-19 has hit Nigeria with a powerful economic shock, due in part to the drop in global oil prices. This double crisis threatens human capital, livelihoods, and welfare.

High-frequency data from the Nigeria COVID-19 National Longitudinal Phone Survey (NLPS) shed crucial light on how the COVID-19 crisis is affecting Nigerians.

This report harnesses NLPS and other data to analyze COVID-19's multiple impacts on Nigerian people's lives and propose evidence-based policy options.

COVID-19 has brought a dual crisis: health and economic

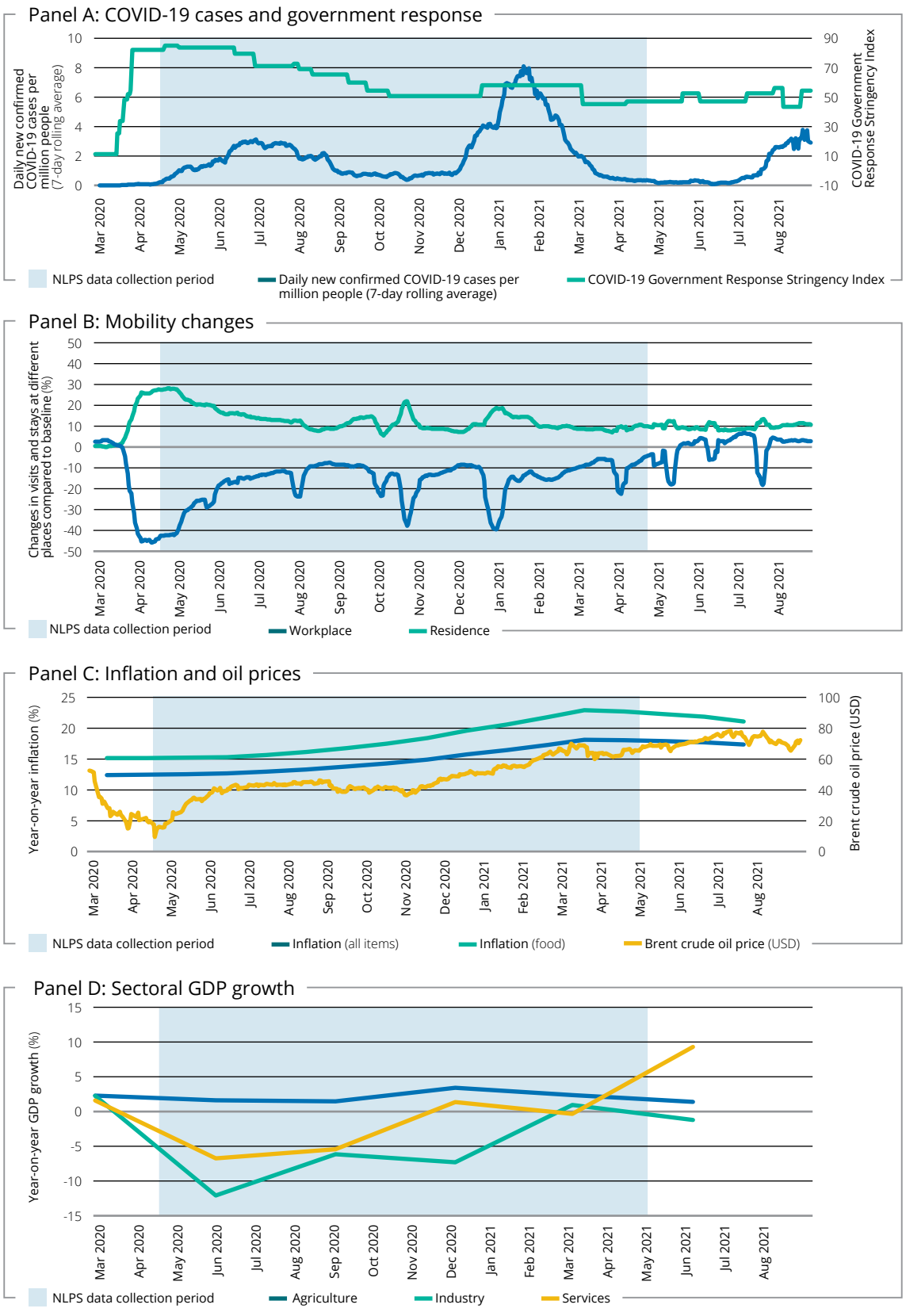
Nigeria has faced three main waves of COVID-19 in 2020 and 2021. Nigeria recorded its first case of COVID-19 on February 27, 2020. Subsequently, case numbers rose steadily through June 2020, before waning between July and November 2020 (Figure 1, Panel A). The country endured a second wave of COVID-19 starting in December 2020, with daily new cases doubling the peak of the first wave. By April 2021, the second wave appeared to have abated. However, as of September 2021, a third wave had emerged, fueled by the arrival of the delta variant in Nigeria.

Nigeria implemented a range of health and safety measures to contain the spread of the virus, which have waxed and waned in line with case numbers. When COVID-19 first hit Nigeria, widespread measures were introduced, including the closure of international airports, public and private schools, universities, and stores and markets, as well as the suspension of public gatherings (IMF, 2020). With case numbers stabilizing, Nigeria's economic reopening commenced on May 4, 2020, with a first phase focused on lifting certain lockdown measures. Phase 2 began on June 2, 2020, allowing most offices to reopen. However, a broad array of restrictions remained in place, including: a nighttime curfew; a ban on non-essential inter-state passenger travel; partial and controlled interstate movement of goods and services; and the mandatory use of face masks or coverings in public (IMF, 2020). Phase 3 started on September 4, 2020. This stage included the reopening of airports for local flights, "based on close monitoring," and allowed returning students to reenter secondary schools. The ban on interstate travel was also lifted. As the second wave of the pandemic hit Nigeria, however, restrictions on mass gatherings were reinstated, as reflected in the increase of the COVID-19 Government Response Stringency Index (Figure 1, Panel A)[1].

Despite these measures to control the spread of the pandemic, vaccination against COVID-19 remains limited in Nigeria. The country received 3.92 million doses of COVID-19 vaccines from the COVID-19 Vaccines Global Access initiative (COVAX) in March 2021. Likewise, in August 2021 Nigeria received more than four

[1] The Oxford COVID-19 Government Response Tracker provides information to understand how government responses have changed during the COVID-19 outbreak since mid-January 2020 (Thomas *et al.*, 2020). The COVID-19 Government Response Stringency Index is a composite measure based on nine response indicators, including school closures, workplace closures, and travel bans, rescaled to a value from 0 to 100 (100 = strictest).

Figure 1. **The changing nature of the COVID-19 crisis in Nigeria**



Source: Our World in Data (for case numbers), Oxford Covid-19 Government Response Tracker (for Stringency Index), Google Mobility Reports, Macrotrends (for oil prices), National Bureau of Statistics (NBS; for inflation and GDP data).

Note: Baseline for mobility data comes from median value over the five-week period from January 3 to February 6, 2020. Inflation data posted monthly. GDP data posted quarterly.

million doses of Moderna COVID-19 vaccine donated by the U.S. government, the second batch of COVID-19 vaccine under the COVAX mechanism (GAVI, 2021). Finally, Nigeria received 177,600 vaccines from Janssen (Johnson & Johnson) on August 12, 2021 (WHO, 2021). As of this writing (October 2021), Nigeria has vaccinated about 5.12 million people with at least one dose of the vaccine (2.4 percent of the population). Specifically, 1.1 percent of the population has been fully vaccinated against COVID-19 while 1.3 percent partially vaccinated (Our World in Data, 2021).

Mobility measures closely tracked the stringency of health and safety measures, especially at the start of the COVID-19 crisis. Data from Google COVID-19 Community Mobility Reports demonstrate that Nigerians were far more likely to be at their residence and far less likely to be at their place of work when the harshest restrictions were introduced in April and May 2020 (Figure 1, Panel B). The renewal of restrictions in December 2020 and January 2021 to cope with the second wave also appeared to reduce mobility.

Turning to economic effects, the first part of the COVID-19 crisis was marked by a global economic slowdown inducing a sharp decrease in oil prices and, in turn, a dramatic contraction in the Nigerian economy. Oil prices tumbled more than 60 percent between February and May 2020 (Figure 1, Panel C). Nigeria's economy and public finances depend heavily on crude oil exports, which have represented more than 80 percent of exports and 50 percent of general government revenues over the last five years. Thus, the drop in oil prices led to the worst recession in the country since the 1980s (Figure 1, Panel D).

The COVID-19-driven recession in Nigeria was not felt evenly across sectors. Industry and services suffered the most severe effects of the COVID-19 crisis. Year-on-year real gross domestic product (GDP) in these sectors dropped by 12.0 percent and 6.8 percent, respectively, in Q2 2020 (Figure 1, Panel D). Agriculture, by contrast, experienced year-on-year real GDP growth of 1.6 percent in Q2 2020. Understanding what these sector-level impacts mean for household welfare represents one key objective of this report.

The second part of the COVID-19 crisis in Nigeria was characterized by surging inflation, putting further pressure on households' purchasing power (Figure 1, Panel D). In April 2021, the year-on-year inflation rate was the highest in four years, and food prices accounted for over 60 percent of the total increase in inflation (World Bank, 2021d). Indeed, in 2020 and 2021, Nigeria witnessed its highest surge in food-price inflation in almost two decades. This inflationary pressure stems from both supply and demand factors, many of which are directly linked to the COVID-19

crisis. On the supply side, food production and market access may have been affected by the pandemic and by lockdown measures, compounding the effects of restrictive trade policies, including the closure of Nigeria's land border in August 2019. On the demand side, firms and households expect prices to rise during economic shocks and thus incorporate these expectations into their investment and consumption decisions.

While health indicators and macroeconomic data are crucial for addressing the fundamentals of the COVID-19 crisis, countervailing policies need detailed information on the mechanisms through which the pandemic is affecting human capital, livelihoods, and welfare. This motivated the collection and analysis of the high-frequency household survey data, on which this report focuses, to improve the design of mitigation policies and offer the right support to the right people in Nigeria.

High-frequency data to inform policy

The Nigeria COVID-19 National Longitudinal Phone Survey (NLPS) was initiated in April 2020 to collect information on key social and economic outcomes from households across Nigeria. The survey is the result of a partnership between the Nigeria National Bureau of Statistics (NBS), the Bill and Melinda Gates Foundation (BMGF), the United States Agency for International Development (USAID), and the World Bank. The Nigeria COVID-19 NLPS is a high-frequency phone survey of 1,950 households, sampled to represent the whole of Nigeria. Since the same households could be followed over time, the NLPS is a powerful tool for studying and understanding the socio-economic impact of the COVID-19 pandemic in Nigeria[2]. The phone survey in Nigeria is distinctive in having covered households for 12 consecutive rounds. It started in April 2020, almost immediately after the COVID-19 crisis began, and ran to April 2021, covering the entire agricultural cycle from pre-planting to post-harvest and the different phases of the COVID-19 crisis in Nigeria (Figure 1). Few other developing countries with which the World Bank has worked on phone surveys have such extensive data (World Bank, 2020a).

[2] The microdata and documentation for the COVID-19 NLPS can be accessed at https://microdata.worldbank.org/index.php/catalog/3712

The results of the NLPS are nationally representative[3]. The sample was drawn from a recent nationally representative face-to-face survey, the 2018/19 General Household Survey (GHS-Panel). The extensive information collected in the GHS-Panel just over a year prior to the onset of the pandemic provides background on the Nigeria COVID-19 NLPS households that can be leveraged to assess the differential impacts of the pandemic. This wealth of background information on sampled households also enabled robust sample selection and nonresponse bias correction methods to be implemented. The sample was selected using a balanced sampling approach which harnessed the background information available in the GHS-Panel to select a sample which maintains the profile of characteristics from the full GHS-Panel, further ensuring broad representativeness of the sample across multiple dimensions. Further, the extensive background information available in the GHS-Panel enabled implementation of nonresponse bias correction methods to counteract issues of representativity often associated with phone surveys (Ambel, McGee, & Tsegay, 2021)[4].

The NLPS collected a wide range of information from Nigerian households at monthly intervals. Some of the topics included are: knowledge of COVID-19 and mitigation measures; access to educational activities during school closures; employment dynamics; household income and livelihoods; income loss and coping strategies; and social assistance received. In addition, specific modules were added in certain rounds in response to evolving policy questions (Table 1). In some rounds, the specific individuals in the household to whom questions were addressed were altered – rather than just being directed to the main respondent in the household – to allow for more detailed information to be collected on certain sub-populations. For example, in Rounds 5 and 10 of the NLPS, up to six working-age individuals were surveyed to provide additional information on labor market dynamics, while Rounds 6 and 11 collected information on up to six children aged 5-18 years to better understand education. Tweaking the survey in this way makes it possible to examine the various channels through which COVID-19 affects household welfare.

After 12 months of NLPS data collection, it is now possible to fully examine how the COVID-19 crisis has impacted Nigerian households over this period and to distill recommendations for policymakers tasked to respond to the

[3] The NLPS sample was designed only to provide national estimates and thus further geographic disaggregation (such as at the geopolitical zone or state level) is not recommended. However, the sampling approach and nonresponse bias correction methods implemented help to maintain broad representativeness of the sample across many dimensions which allows for some high-level disaggregation of the sample for analytical purposes, like those undertaken in this report (including across consumption expenditure quintiles, urban and rural areas, and so on).

[4] The share of GHS-Panel households who own a phone in 2018 was about 76 percent, while about 95 percent of households reported having access to a phone.

crisis and build back better. To present this information succinctly and accessibly is the purpose of this report.

Table 1. **The NLPS was adapted to respond to evolving policy discussions**

#	Y	Survey dates	Special topics covered	Special samples	Response rate
1	2020	April 20-May 11	Knowledge regarding the spread of COVID-19		65.0
2		June 2-16	Food security		93.3
3		July 6-20	Housing		93.0
4		August 9-24	Credit		95.1
5		September 7-21	Labor market outcomes	Up to six working-age individuals in the household	95.5
6		October 9-24	Education; Perceptions of testing and vaccinations	Up to six 5-18-year-olds in the household	95.8
7		November 7-23	Rechecking household roster		95.3
8		December 5-21	Agriculture		95.2
9	2021	January 9-25	Early childhood development		95.4
10		February 6-22	Labor market outcomes	Up to six working-age individuals in the household	95.4
11		March 13-28	Education; Perceptions of testing and vaccinations	Up to six 5-18-year-olds in the household	94.5
12		April 10-27	Youth aspirations	One youth 15-25-year-olds in the household	78.1*

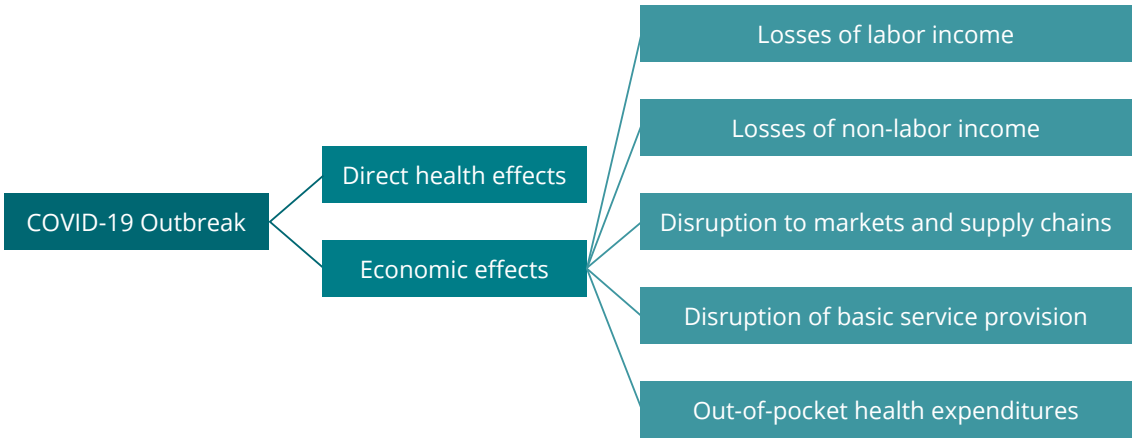
Source: NLPS.

Notes: "#" = round number. "Y" = year of survey. *Only fielded Youth Aspirations and Employment module, meaning only 1,238 households had an eligible person.

Welfare threats through multiple channels

The COVID-19 pandemic threatens Nigerian households' welfare through its direct health effects and at least five economic channels, all of which are considered in this report (Figure 2). *First*, households may lose labor income as certain jobs suffer due to demand contraction, and work is disrupted by social-distancing measures. *Second*, non-labor income sources may shrink: for example, remittances may decline if sending households suffer income losses, or the mechanisms for effecting transfers are interrupted. *Third*, COVID-19 could disrupt markets, driving up prices – as has already been seen in Nigeria – and reducing households' purchasing power. *Fourth*, key services such as health centers and schools could be disrupted by measures designed to halt the pandemic. *Fifth*, households may incur additional out-of-pocket health expenditures[5].

Figure 2. **COVID-19 threatens household welfare through health and economic channels**



Note: Diagram adapted from World Bank Poverty and Equity Global Practice note on "Poverty and distributional impacts of COVID-19" (World Bank, 2020e).

[5] Macroeconomic and microeconomic data have also been combined to project the impacts of the COVID-19 crisis on monetary poverty. Simulations performed earlier in the crisis suggested that more than 10 million additional Nigerians may be pushed below the national poverty line – of 137,430 naira per person per year or around 1.93 USD 2011 PPP per person per day – by the COVID-19 crisis by 2022 (see World Bank, 2020f). Nevertheless, GDP-based predictions of this type could underestimate the true impacts of the crisis on poverty, as they do not capture all these welfare channels.

Organization of the report

The remainder of this report is organized as follows. The document's three core chapters draw on NLPS and other relevant data to analyze COVID-19 impacts in three dimensions. Chapter 2 considers short- and longer-term effects of the pandemic on Nigeria's human capital, including health and education. Chapter 3 explores how livelihoods have evolved for Nigerian households during the pandemic's first year. It shows that, despite a weak labor market, young Nigerians' aspirations for education and jobs post-COVID-19 remain high: a wake-up call for policy. Chapter 4 focuses on the pandemic's welfare impacts. The final section of each core chapter formulates policy options. The report's concluding chapter looks ahead to the broad challenges of building back better in Nigeria and summarizes priorities for policymaking and implementation.

2. A crisis for human capital: mobilizing to protect health and education

KEY MESSAGES

Along with its direct health impacts, COVID-19 constrained Nigerians' access to essential medical services and basic hygiene needs, negatively affecting public health through multiple pathways.

A high priority for policy is to accelerate vaccine deployment while continuing to leverage and reinforce the strong awareness of prevention measures among Nigeria's population.

Pandemic-related school shutdowns reduced attendance and may have exacerbated pre-existing educational inequalities, given uneven access to remote learning; around one-third of school-age children stopped attending school between January-February 2019 and October 2020.

The pandemic may have long-lasting consequences for educational attainment, a critical dimension of human capital; children may have suffered a loss of around 0.29 learning-adjusted school years.

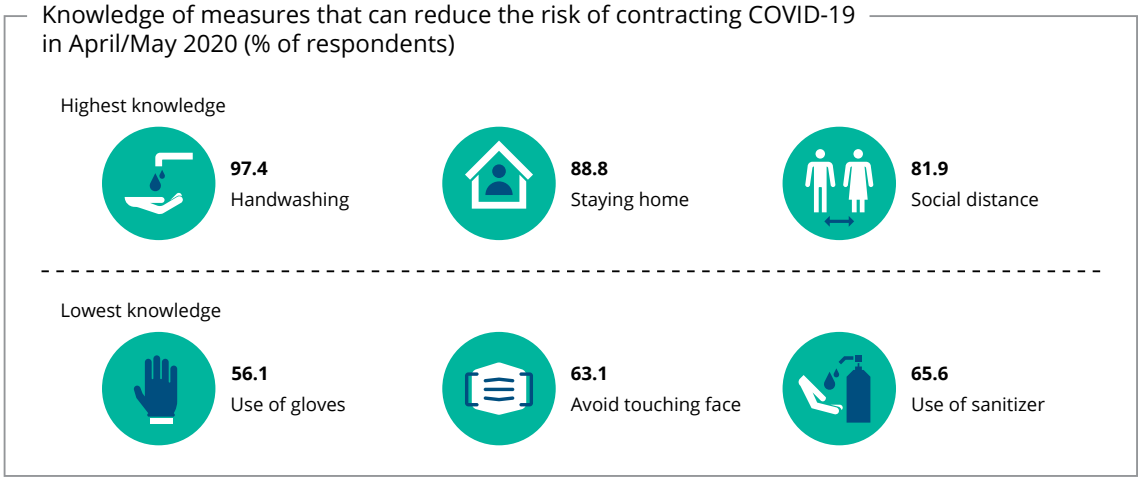
All other things equal, helping children back into the classroom will be essential for recouping learning losses, but remote learning options – especially "low-tech" solutions that work for the poor – will also be vital.

Nigerians are widely mobilized against COVID-19 and willing to get vaccinated

As of May 2020, NLPS respondents were generally aware of important preventative measures to curb the spread of COVID-19. Some 97 percent of respondents reported that they knew handwashing could help reduce the risk of contracting COVID-19, though only 63 percent knew that avoiding touching their face is also a preventative measure (Figure 3). Knowledge of appropriate social distancing measures was high among all respondents.

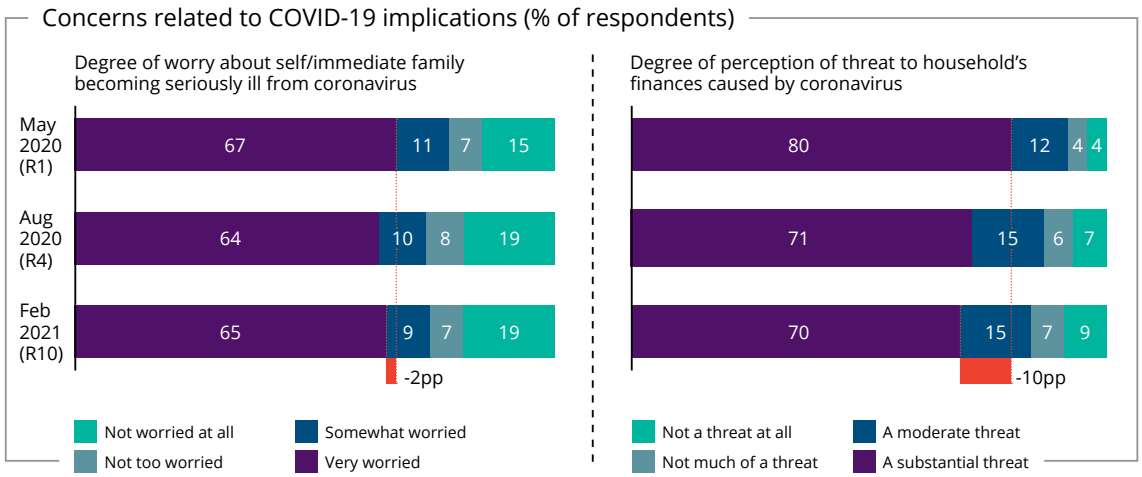
More than 10 months into the pandemic, the share of respondents "very worried" that they or their immediate family would fall seriously ill with coronavirus remained high. As of February 2021, 65 percent of respondents reported that they were "very worried," and a further 9 percent were "somewhat worried" (Figure 4). Concerns were more prevalent among poorer respondents, as 77 percent of those in the poorest consumption quintile reported being "very worried," compared to 54 percent of those in the richest consumption quintile. In addition, 70 percent of NLPS respondents considered COVID-19 to be a substantial threat to their household's finances as of February 2021.

Figure 3. **As early as April/May 2020 most Nigerians knew about measures to stop COVID-19 spreading**



Source: NLPS and World Bank estimates.

Figure 4. **Ongoing concern about the effects of COVID-19**



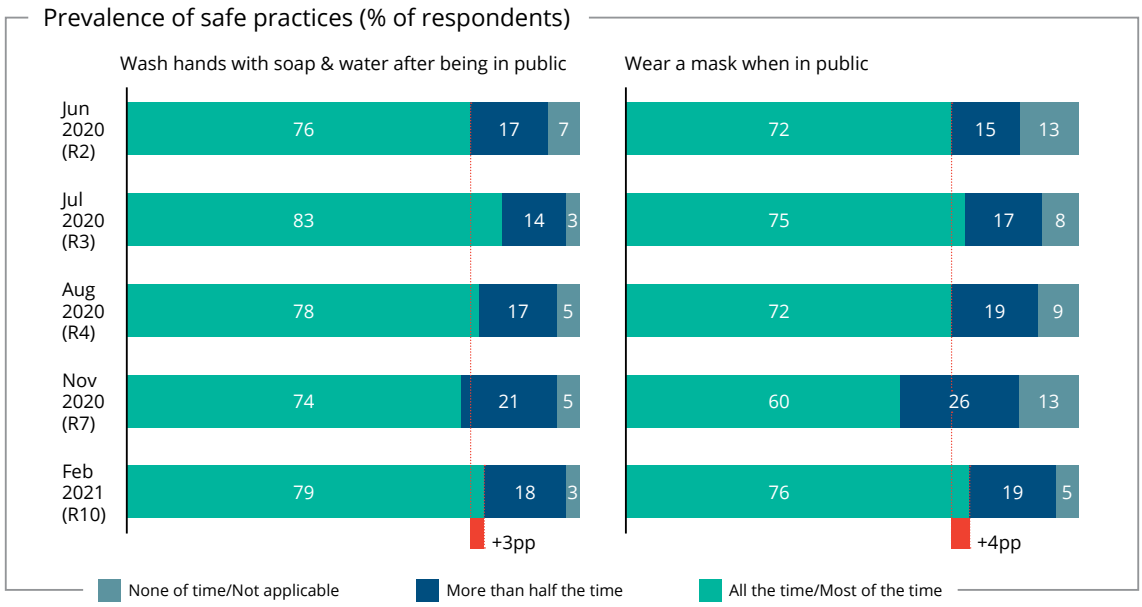
Source: NLPS and World Bank estimates.

Note: Due to rounding, numbers presented in this figure may not add up precisely to 100.

Many respondents reported practicing safety measures when they go out in public. Since June 2020, consistently more than 70 percent of respondents have reported washing their hands after being in public (Figure 5). More variation was observed on the use of masks. The share of respondents wearing masks in public all or most of the time fell from 75 percent in July 2020 to 60 percent in November 2020. However, around 76 percent of respondents reported wearing a mask in public in February 2021. This rebound in prevention practices may have come in response to the second wave of COVID-19 cases that hit Nigeria in December 2020 and January 2021.

In October 2020, about 86 percent of NLPS respondents said they would get vaccinated, although that share declined slightly to 83 percent in February 2021 (Figure 6). This underlines the importance of messaging around vaccines as well as the need to monitor their uptake, not just to address vaccine hesitancy, but also to assess further containment measures. Poorer Nigerians are more willing than richer Nigerians to be vaccinated. About 98 percent of respondents in the poorest consumption quintile reported that they would agree to be vaccinated, compared to 74 percent of those in the richest consumption quintile. As such, the differences between rich and poor respondents in their willingness to be vaccinated echo similar differences in their respective levels of concern about contracting COVID-19.

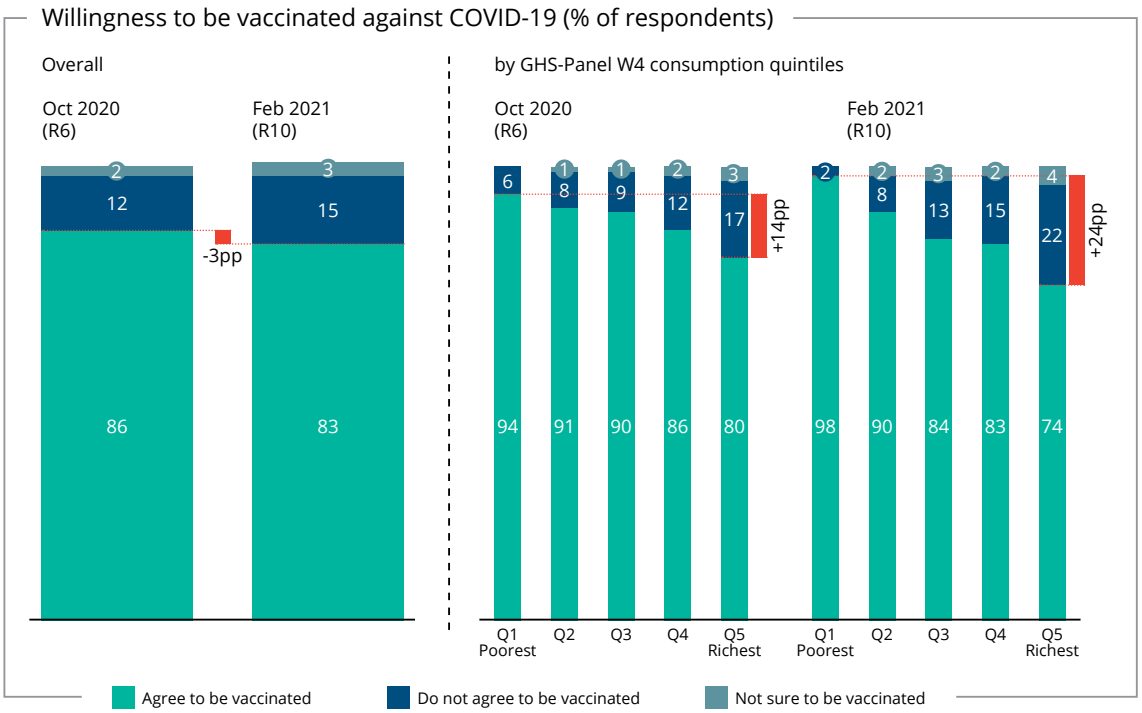
Figure 5. **Practices to prevent the spread of COVID-19 were widespread but not universal**



Source: NLPS and World Bank estimates.

Note: Due to rounding, numbers presented in this figure may not add up precisely to 100.

Figure 6. **Willingness to get vaccinated was high, especially among poor Nigerians, but has declined slightly during the crisis**



Source: NLPS and World Bank estimates.

Note: Due to rounding, numbers presented in this figure may not add up precisely to 100 and changes displayed may not be the same as differences in absolute values.

Evolving impacts on access to medical services

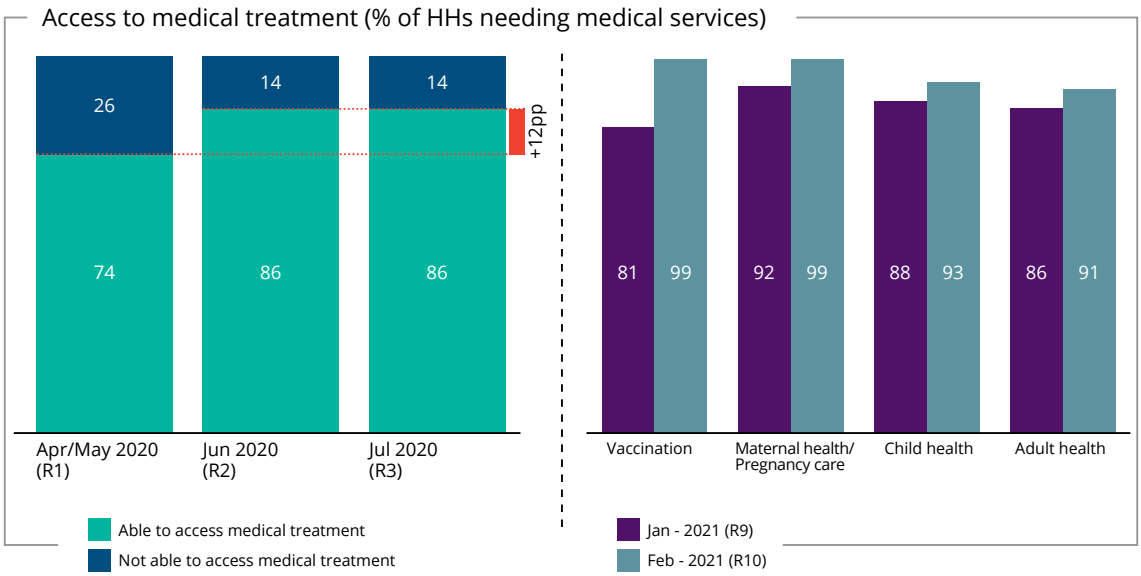
In May 2020, 26 percent of households that reported needing medical services were unable to access them, though this share had dropped to 14 percent by July 2020, showing initial progress in access to medical services (Figure 7). Despite this trend, in July 2020, 21 percent of households with children 0-5 years old who needed or were due for immunizations were not able to get their children vaccinated[6]. The main constraints these households faced in getting their children vaccinated were a lack of available medical personnel (44 percent of such households) and movement restrictions imposed by lockdown measures (24 percent of such households), indicating a direct link with the COVID-19 crisis. The underutilization of medical services in first phase of the COVID-19 crisis echoes direct evidence on outpatient consultations and child vaccinations from health facilities themselves (see Shapira *et al.*, 2021).

Nevertheless, the progress on access to medical services observed in July 2020 halted in January 2021, following the second wave of COVID-19 in Nigeria. About 14 percent of households that needed adult health services reported not being able to access treatment in January 2021, while 12 percent of households that needed child health services were not able to access them (Figure 7). Similarly, about 19 percent of households that had needed vaccinations in the preceding four weeks were not able to access them. In February 2021, access to medical services increased to more than 90 percent of households for all the services included in the survey.

The most easily accessible COVID-19 preventative measure is washing one's hands with soap and water; however, insufficient access to soap and water for washing was a barrier for some households. As of June 2020, 24 percent of households reported having insufficient soap, and 7 percent reported having insufficient water for washing hands (Figure 8). Yet access to hygiene-related basic needs increased between June 2020 and November 2020, with the share of households having insufficient soap to wash hands in the last seven days declining from 24 percent to 11 percent.

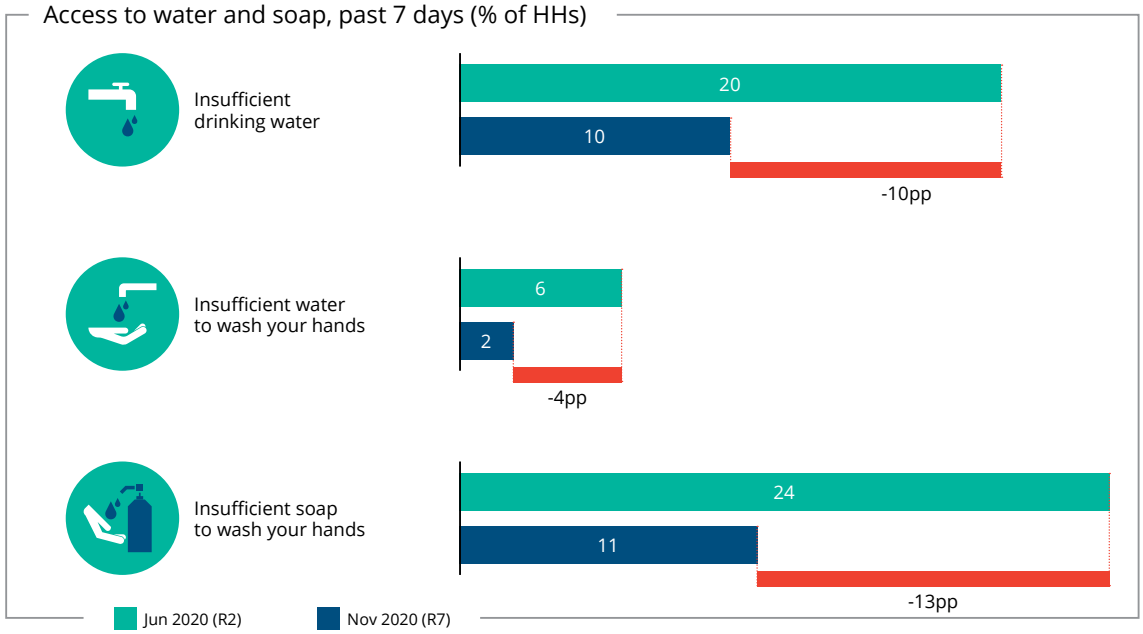
[6] The health questions in the 2018/19 GHS and in the 2018/19 Nigerian Living Standards Survey (NLSS) are not directly comparable to those in the NLPS, making it difficult to benchmark these results to pre-crisis data.

Figure 7. **The COVID-19 crisis interrupted medical services**



Source: NLPS and World Bank estimates.

Figure 8. **Limited access to soap and water for handwashing may have hindered preventative measures for some households**



Source: NLPS and World Bank estimates.

Learning losses may be long-lasting

When the COVID-19 crisis first struck, Nigeria's schools shut down for around half of the academic year[7]**.** A normal academic year in Nigeria runs for 41 weeks, from early September through late July. Yet during the COVID-19 crisis, Nigeria shut schools at the end of March 2020 and then began a staggered re-opening of schools towards the end of September 2020. Schools were fully re-opened by the beginning of November 2020. After incorporating normal academic breaks in the school calendar, this means Nigerian schools were closed for between 17 and 22 weeks in the 2020/21 academic year.

While Nigeria attempted to mitigate the immediate learning losses from school shutdowns through remote learning, the effectiveness of these mitigation strategies seems limited. In April/May 2020, towards the start of the COVID-19 crisis but when schools had already shut down, there was limited evidence of effective remote learning. Only 62 percent of households that had children attending school before the national lockdown reported that their children had engaged in any learning/educational activities since schools were closed, and as many as 80 percent did not have *any* contact with teachers (Oseni *et al.*, 2020a).

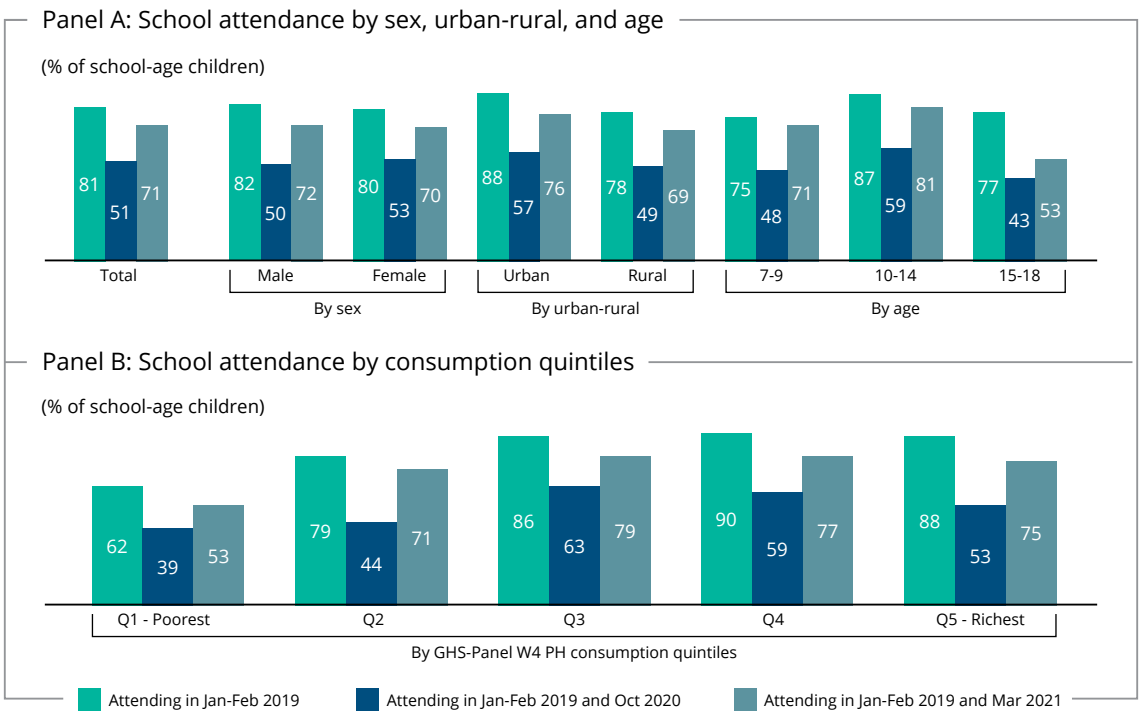
Continuing impacts on enrollment

In October 2020, the share of children attending school – either remotely or in person – was lower than before the pandemic, even among households whose schools had already opened. In October 2020, just 64 percent of school-age[8] children who had attended school in January-February 2019 (51 percent of all school-age children) were attending school either in person or remotely (Figure 9). In other words, around one-third of children who were attending school in January-February 2019 had dropped out by October 2020. This dropout rate was significantly higher for those aged 15-18 years in March 2021, although this may partly be because some older children passed compulsory school age between

[7] The timing of school closures is tracked using the UNESCO school closure monitoring database (UNESCO, 2021). The estimates of missed schooling account for breaks that are normally scheduled during the academic year.

[8] For this analysis, the sample is restricted to those aged 7-18 in March 2021. These children would have been at least 5 years old in January-February 2019.

Figure 9. **Many children dropped out of schooling between January-February 2019 and October 2020, but some returned by March 2021**



Source: GHS-Panel, NLPS Rounds 6 and 11, and World Bank estimates.

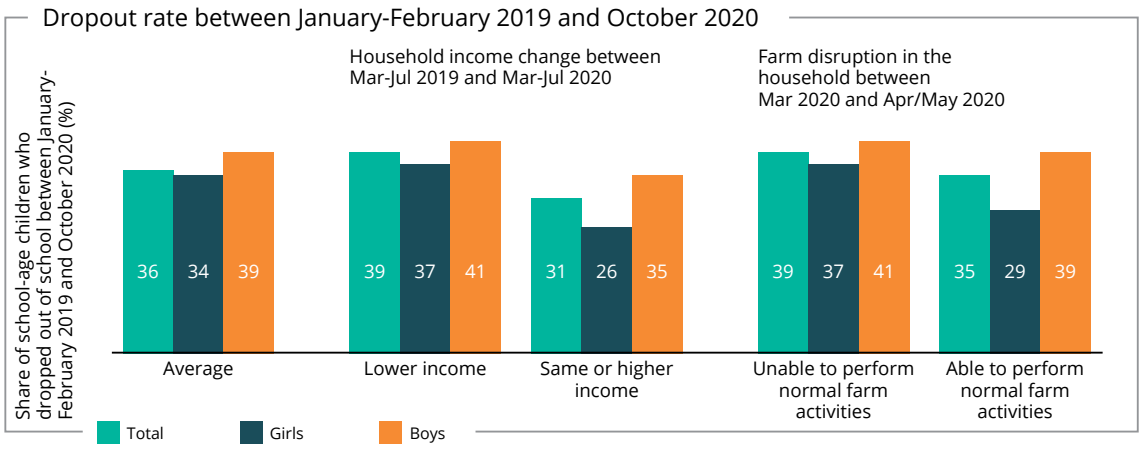
Notes: All bars include only those who were attending school in January-February 2019. Sample restricted to children who were aged 7-18 in March 2021, so they would have been of school age (5-18 years) throughout 2019-2021.

2019 and 2021. Yet many younger children – who should have remained in school between 2019 and 2021 – also dropped out. Those who were not attending schooling in October 2020 directly cited COVID-19 restrictions as the main reason why (Oseni *et al.,* 2020c). Echoing these results, Dessy *et al.* (2021) also demonstrate that many children – especially older children and girls in the North West region – were less likely to be attending school in October 2020, even if their schools were open and they were eligible for in-person schooling[9].

School dropout was higher in households suffering income shocks or disruption of farm activities. Around 39 percent of school-age children in households that had lower total income in March-July 2019 than in March-July 2020 dropped out of school between January-February 2019 and October 2020, compared with 31 percent

[9] Specifically, these researchers construct a sample that focuses on children who reported attending school during the 2019/20 academic year but excludes students who reported not being in school due to coronavirus shutdowns or other factors unrelated to student or family decisions to continue schooling.

Figure 10. **School dropout was higher in households that experienced income shocks or disruptions to farm activities**



Source: GHS-Panel, NLPS Rounds 1, 4, and 6, and World Bank estimates.

Notes: Dropout rate is the share of children aged 5-16 and attending school in January-February 2019 who were no longer attending school in October 2020. Sample for statistics on farm disruption restricted to households with farming activities in the NLPS baseline.

in households that had the same or higher income (Figure 10)[10]. This difference emerged for both girls and boys and in both urban and rural areas. There was also somewhat higher dropout in farming households that experienced disruption to their normal activities between mid-March 2020 and April/May 2020 – measured in the NLPS baseline – compared to those that did not. Farm disruption earlier in the year could have persistent effects on farm production, household income, and demand for household labor – including children – as crop planting decisions earlier in the agriculture cycle determine farm outcomes later in the agricultural cycle[11]. While the evidence presented here is not causal, it may be that households removed children from school in order to support income-generating activities and help cope with the economic shock brought about by COVID-19[12].

By March 2021, however, many children had returned to schooling, although this may partly be because broader remote learning options – whose effectiveness is uncertain – were suddenly available. In March 2021, around 88 percent of school-age children who had attended school in January-February 2019 (71 percent of all school-age children) were attending school either in person

[10] Employment and incomes are discussed in more detail below.

[11] It is harder to assess the association between disruptions to *non-farm* enterprises at baseline and subsequent school dropouts because entry and exit of non-farm enterprises is far more fluid than for farm activities that persist throughout the agricultural cycle.

[12] As discussed below, educational quality – captured by learning outcomes and test scores –is low in Nigeria, which decreases the opportunity cost households face in taking their children out of school.

or remotely, a large improvement on October 2020. This seems to be at least partially a result of more schools re-opening during this time period. In October 2020, school closure was the most commonly reported reason for not attending school. By March 2021, COVID-19 shutdowns were no longer the most common reason for not attending school; instead, the most common reasons were "awaiting admission" and "lack of money." Nevertheless, remote schooling options also become more widespread, which may further explain the apparent uptick in attendance[13].

[13] Plotting the *raw* school attendance rates – rather than focusing only on those attending school in January-February 2019 – in fact suggests that overall attendance was slightly higher in March 2021 than in January-February 2019. Three factors may explain this. First, the Round 11 questionnaire of the NLPS allows for both in-person and remote school attendance, whereas the 2018/19 GHS questionnaire allows only for in-person attendance. Second, children often start school late in Nigeria, so even after restricting the sample to those aged 7-18 years in March 2021 (or 5-16 years in January-February 2019), new school entrants could bias the results. Third, there are typically more disruptions to the school year – for example, through scheduled holidays – in the months of January and February than in the month of March.

A small share of children – especially older children – dropped out of school between October 2020 and March 2021, suggesting that flux in school attendance continues. Of the children aged 5-18 who were attending school in October 2020, about 13 percent – or 8 percent of the full sample – were no longer attending school in March 2021. Running a linear probability model to assess the likelihood of attending school in March 2021, and focusing on the sample of children who were attending in October 2020, reveals the characteristics of those who dropped out during the 2020/21 school year (Table 2 in Annex 2)[14]. It emerges that older children – those aged 15-18 – were significantly less likely to be attending school by March 2021, even if they had been attending in October 2020. In other words, their chances of dropping out as the school year progressed were higher[15]. Thus the higher dropout of 5-18-year-olds shown in Figure 9 is not *purely* a product of older children growing up and passing the upper bound of Nigeria's compulsory school age (15 years).

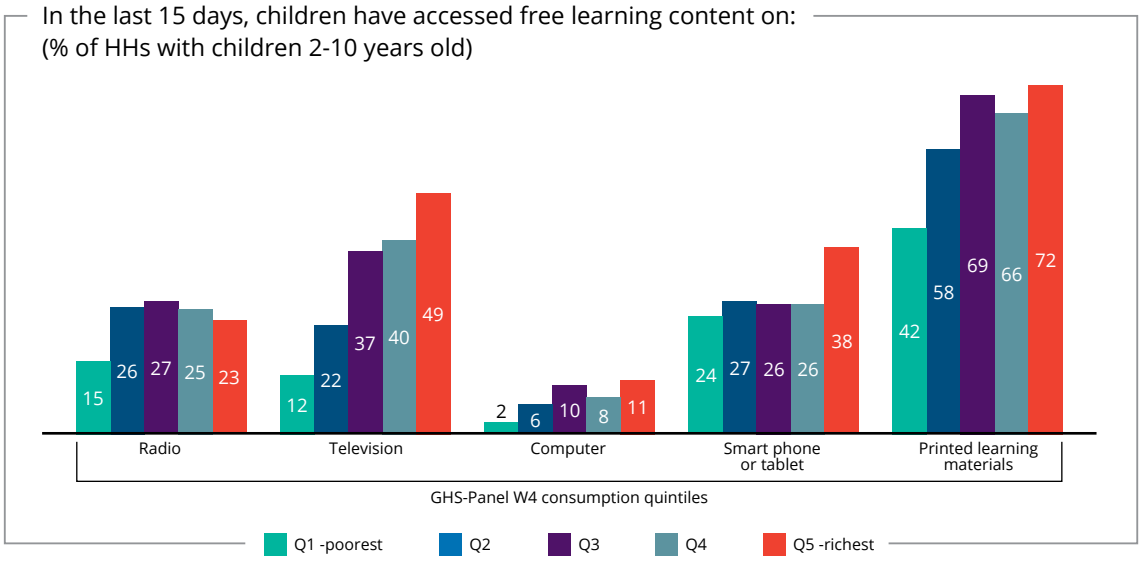
School shutdowns may have widened inequalities

School shutdowns may have exacerbated pre-existing inequalities, as access to remote learning was uneven across households. Prior to the pandemic, school attendance was significantly lower among children from households with lower consumption levels: around 62 percent of school-age children from the bottom quintile were attending school in January-February 2019 compared with 88 percent of those from the top quintile (Figure 9). During the COVID-19 crisis, it emerged that young children from non-poor households had better access to remote learning options than those from poor households. Even though printed learning materials were the most common source, in January 2021, the share of 2-10-year-olds who had access to free learning content through television, computer, and smart phones or tablets was far higher for those from households with higher consumption levels (Figure 11).

[14] Those attending school in October 2020 represent a non-random sample of children, as Table 3 in Annex 2 demonstrates; this sample selection issue could affect these results.

[15] Drop out between October 2020 and March 2021 also appears to be more likely for those in the North East.

Figure 11. **As of January 2021, young children in poorer households had less access to educational content than those in richer households**



Source: NLPS Round 9 and World Bank estimates.

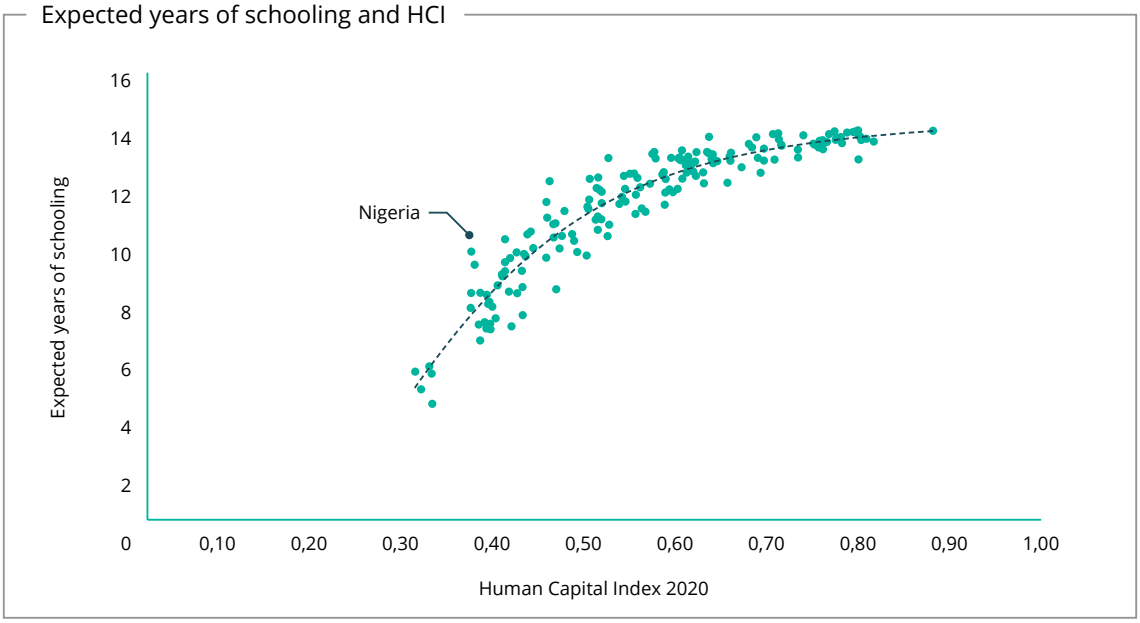
Learning losses may compound pre-pandemic human-capital gaps

Even before the onset of the COVID-19 crisis, Nigeria's human capital stock was low. According to the 2020 Human Capital Index (HCI), a child born in Nigeria that year will grow up to achieve just 36 percent of the productivity she could have attained, if she had enjoyed full health and education (World Bank, 2020c)[16]. This is lower than the average for the Sub-Saharan Africa region (40 percent) and among the lowest in the world, with only six countries having lower values.

Despite high average expected years of schooling, the HCI was low in Nigeria partly due to low-quality education. Nigeria had higher average expected years of schooling than many other similar countries, and particularly those with similar HCI values (Figure 12). One major factor for the low HCI score is Nigeria's low

[16] This means the value of Nigeria's HCI is 0.36. The overall HCI combines information on: (1) probability of survival to age 5; (2) expected years of school; (3) harmonized test score; (4) learning-adjusted school years; (5) adult survival rate; and (6) healthy growth (not stunted rate). See World Bank (2020d) details of Nigeria's HCI calculations.

Figure 12. **Even though Nigeria has relatively high average expected years of schooling, the very low quality of education contributes to a very low value of the Human Capital Index (HCI)**



Source: World Bank Human Capital Project Database and World Bank estimates.

Notes: The dashed line represents a third degree polynomial which is fit to illustrate the predicted relationship between expected years of schooling and the Human Capital Index value in 2020 across the country sample. The R^2 of this regression is 0,90.

quality of education[17]. This is demonstrated by Nigeria's having among the lowest Harmonized Test Scores in the sample of countries for which internationally-comparable test score data are available (World Bank, 2020c)[18].

In the wake of COVID-19, Nigeria could suffer considerable losses in schooling and learning through two main channels. First, more children dropping out of school entirely would lead to lower accumulated years of schooling. Second, even for those engaged in some form of schooling, learning losses may arise from remote or adapted learning being an imperfect substitute for on-site learning.

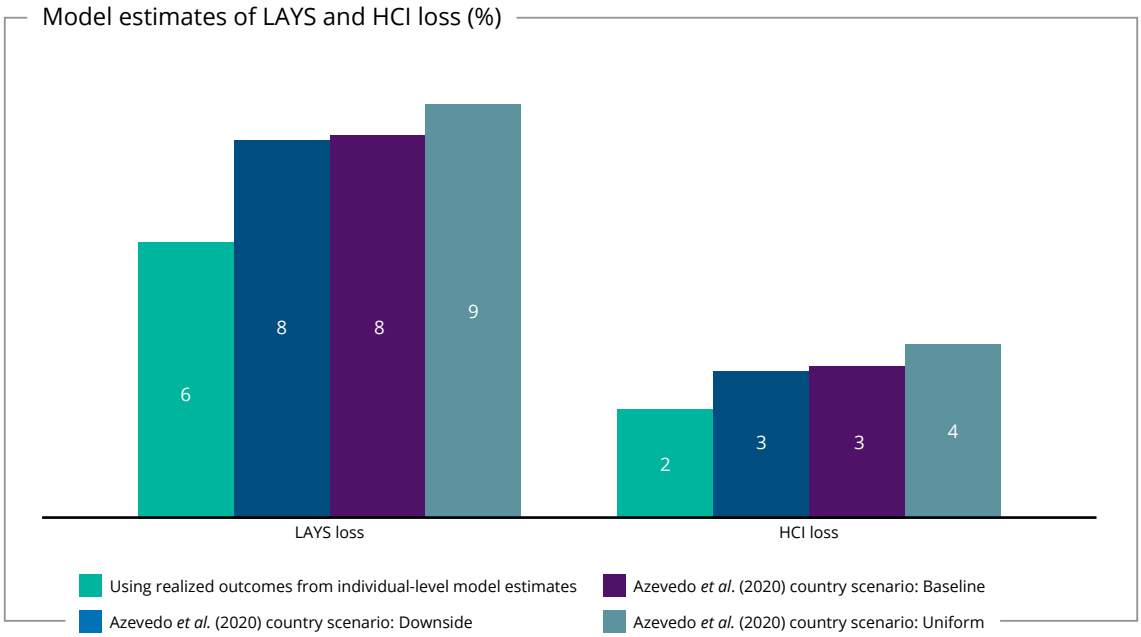
Using detailed individual-level data collected on children's schooling outcomes, it is possible to estimate the losses in learning and human capital arising from the COVID-19 crisis. Specifically, since actual returns to schooling and dropout rates can be observed for each school-age child in the NLPS,

[17] Another key contributing factor for the low HCI score is the very low probability of survival to age five.

[18] Students in Nigeria score 309 on a scale where 625 represents advanced attainment and 300 represents minimum attainment.

learning losses – in terms of Learning-Adjusted Years of Schooling (LAYS) – can be estimated for each individual[19]. Using the NLPS data in conjunction with data on the timing of school closures yields an estimated loss of 0.29 LAYS in Nigeria – due to both increased dropouts and imperfect mitigation of school shutdowns – which corresponds to a drop of about 6 percent (Figure 13)[20]. While sizeable, these estimates are slightly lower than the simulations for Nigeria – but using global data – conducted by Azevedo *et al*. (2020). Those researchers' calculations suggested a drop in LAYS of between 8 and 9 percent and a drop in the overall HCI of between 3 and 4 percent[21,22].

Figure 13. **Learning-Adjusted Years of Schooling (LAYS) and the Human Capital Index (HCI) are set to tumble due to the COVID-19 crisis**



Source: NLPS, Azevedo *et al.* (2020), and World Bank calculations.

Notes: See Annex 1 for a description of modelling approach.

[19] The LAYS measure has been developed in previous World Bank reports and is an input in calculating the HCI (World Bank, 2021c).

[20] The approaches used to estimate losses in the LAYS and HCI using individual-level data are described in Annex 1.

[21] The difference between the two sets of estimates may arise because those who are most likely to drop out also had lower predicted years of schooling, which is only captured in an individual-level exercise.

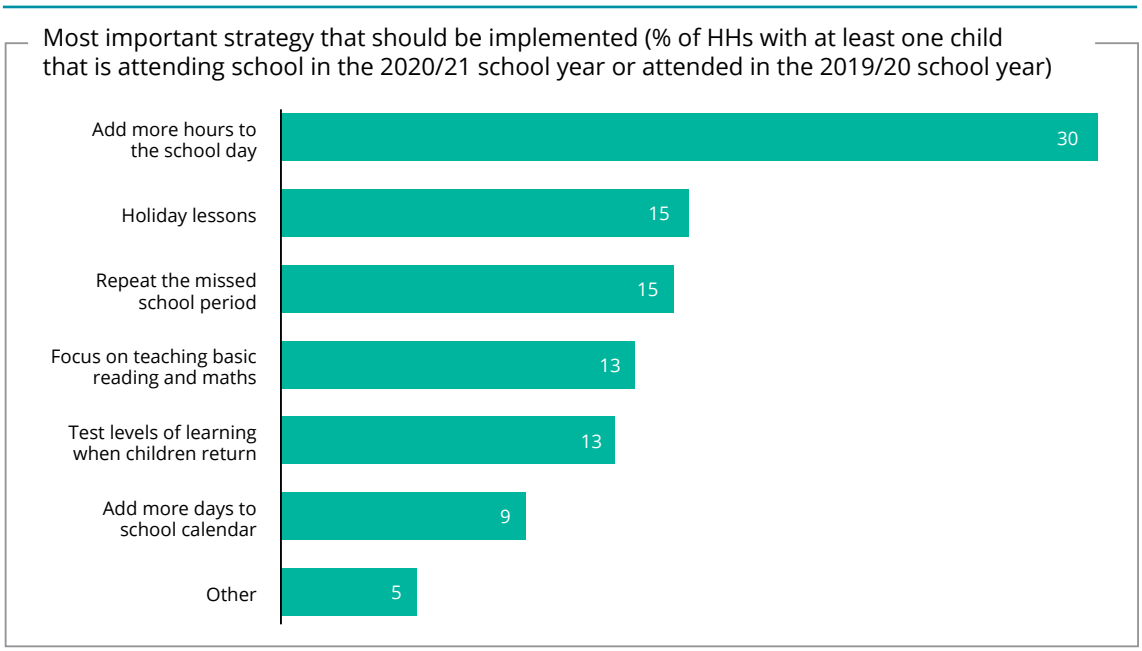
[22] These estimates may understate the learning losses Nigeria faces for several reasons. First, the LAYS losses for dropouts and those who return assume no human capital depreciation from being out of school. Second, poorer households could be more affected, as children from poorer households had less access to remote learning (Figure 14 and Figure 15). Third, the expected years of education prediction does not account for any positive linear time trend in educational attainment that might have occurred without the COVID-19 shock.

Learning losses will negatively affect future earnings potential through two key channels. First, education helps people find productive jobs with high, stable earnings: gaining tertiary education in Nigeria significantly increases the likelihood that an individual holds a wage job (Jenq, Lain, & Vishwanath, 2021). Second, higher drop-out rates expand the supply of labor in the market in the short term, meaning there is even more competition for jobs among young people. At the macro level, this could stall Nigeria's path towards structural transformation.

Households' preferred ways to recoup lost learning

Nigerians favor a range of methods for recouping learning lost during the COVID-19 crisis: especially building in additional hours or days for schooling. About 30 percent of Nigerian households indicated that adding more hours to the school day was the most important strategy to recover from the learning lost to school closures in 2020 (Figure 14). This strategy was favored by households across consumption quintiles and in both rural

Figure 14. **Households' most important strategy to remediate learning is adding more hours to the school day**



Source: NLPS and World Bank estimates.

Note: Due to rounding, numbers presented in this figure may not precisely reflect the absolute values.

and urban areas. There was also moderate support for holiday lessons and repeating the missed school period, each of which were cited as the most important strategy by about 15 percent of households.

Policies for preserving and rebuilding human capital

- The share of Nigerians who are already vaccinated against COVID-19 remains extremely low. The ongoing vaccination campaign must take advantage of the high levels of vaccine acceptance (before they decline); monitoring progress on vaccinations will be extremely important in the coming months.
- While vaccination is progressing, other preventive measures related to social distancing and hygiene will be vital to slow the spread of new COVID-19 variants; information campaigns and support from community health workers could help maintain the high level of awareness of preventive measures observed during the first year of the pandemic.
- Access to good quality health services and education was low *and* unequal – by consumption level, by gender, and by zone – even before the pandemic. This situation has been exacerbated by the COVID-19 crisis. Targeted investments, especially those prioritizing youth education and vocational training, are more important now than ever[23]. Such investments can place a special focus on women's and girls' empowerment.
- Specific policies – such as creating more time for learning, altering the curriculum to support catch-up, and blending learning inside and outside the classroom – may help educators recoup the learning losses incurred during the COVID-19 crisis (see World Bank, 2020g).
- These policies can be complemented by "low-tech" solutions that seek to engage parents and teachers – through mobile phones, where appropriate – or broadcast lessons via the radio, especially as it remains uncertain whether schools will be able to stay open (see Carvalho *et al*., 2020).

[23] See Nigeria's World Bank Country Partnership Framework for more details (World Bank, 2020b).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3. A crisis for livelihoods: labor-market impacts

KEY MESSAGES

The share of Nigerians who were working plunged during the initial COVID-19 lockdown but recovered by August 2020, exceeding pre-pandemic levels. The heightened share of people working was concentrated among women and the poor.

To cope with the crisis, many Nigerians have resorted to retail and trade jobs in non-farm household enterprises. Few of these jobs yield secure earnings.

Agriculture has fared better than other sectors during the crisis, thanks partly to favorable rains, and agricultural incomes have recovered relatively well.

Despite a weak labor market, most young Nigerians aspire to high-quality jobs post-crisis: a wake-up call for policy.

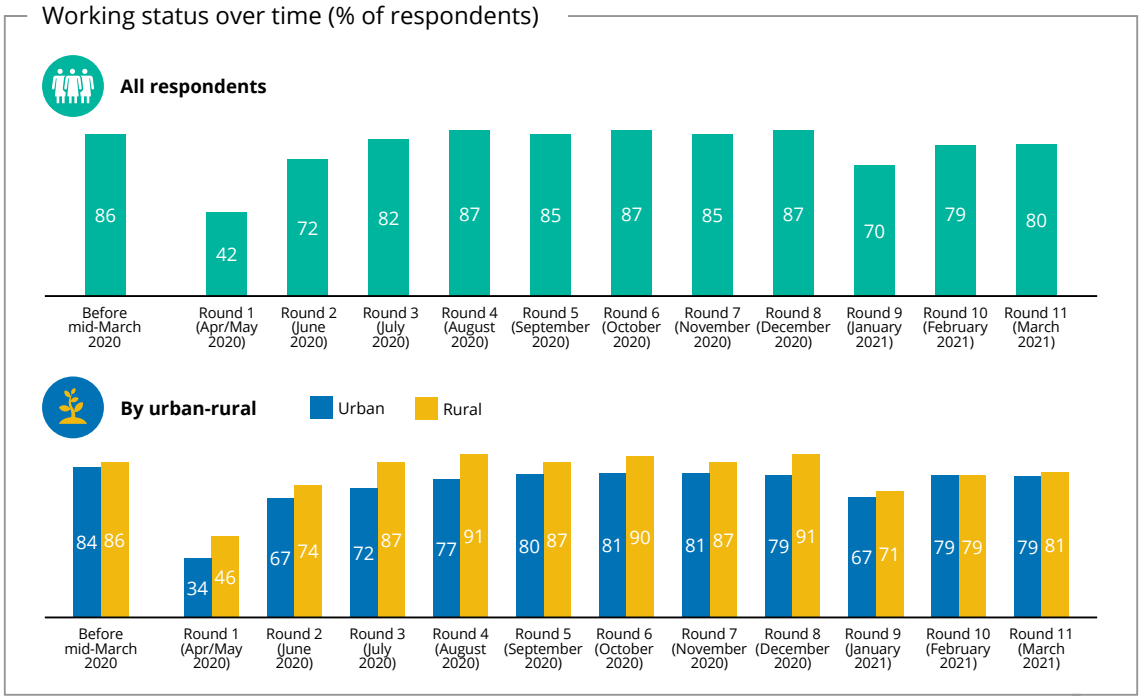
Early days: a sharp but short-lived drop in the share of people working

As in many other countries, the share of respondents who were working dropped dramatically, as Nigeria implemented strict lockdown measures in April and May 2020. All rounds of the NLPS captured the employment status of the main respondent in each household, typically the household head, but the employment status of the full set of working-age members in the household was only captured in Rounds 5 and 10 (in September 2020 and February 2021). This means that the initial dynamics of the crisis' impact on employment are only observed for the main respondent in each household. Between mid-March 2020 and April/May 2020, the share of these main respondents in each household who were working fell by more than half, dropping from 86 percent to 42 percent (see Figure 15).[24] This echoes the dynamics of the COVID-19 crisis shown above: this is when the most stringent lockdown measures were introduced and Google mobility data showed a significant increase in the share of Nigerians staying at their residence and a significant decrease in the share going to their place of work (see Figure 1). This also chimes strongly with global evidence: combining data from all 39 countries in which the World Bank worked on high-frequency phone surveys in 2020, around 34 percent of respondents stopped working after the COVID-19 crisis hit (Khamis *et al.*, 2021).

The share of respondents who were working largely recovered by August 2020. In August 2020, around 87 percent of respondents were working, roughly similar to the share before March 2020 (see Figure 15). In part, this figure may be influenced by seasonality: planting certain crops typically happens *after* March, which could increase demand for agricultural labor (see further details below). Yet the share of respondents working has generally remained above 80 percent since August 2020, dipping slightly below this around the holiday season in January 2021, but not as sharply as when the COVID-19 crisis first struck.

[24] The drop in the share of respondents working was particularly profound among those engaged in retail and trade activities (commerce) and services prior to the outbreak of COVID-19 (Oseni *et al.*, 2020b). These sector-specific effects may arise because services and retail and trade activities rely more on face-to-face interaction and could therefore have suffered more during the lockdown period. This also resonates with the GDP estimates for 2020, which suggest the shock to economic activity was larger for services and industry (see Figure 1, Panel D).

Figure 15. **Share of main respondents in each household who were working, March 2020 to March 2021**



Source: NLPS and World Bank estimates.

Note: Sample focuses on main respondents in each household who were available in each round of the survey.

Recent trends: high shares of people working, especially among women and the poor

Using the expanded sample of all working-age persons available in two rounds of the NLPS, the share working recovered following the initial lockdown and was slightly higher in February 2021 than before the pandemic, even accounting for seasonality. Unlike the other rounds of the NLPS, Rounds 5 and 10 – conducted in September 2020 and February 2021 – contain information on employment for all working-age household members. These can therefore be stitched into a balanced panel of individuals, whose employment outcomes were measured at four points in time: (1) July-September 2018, in the post-planting visit of the GHS; (2) January-February 2019, in the post-harvest visit of the GHS; (3) September 2020, in Round 5 of the NLPS; and (4) February 2021, in Round 10 of the NLPS. Notwithstanding the challenges associated with comparing the NLPS

and GHS[25], analyzing this balanced panel of working-age individuals suggests that the share of people working in February 2021 was around 6 percentage points *higher* than in January-February 2019 (see Figure 16)[26]. This contrasts with a drop in the share of people working of around 6 percentage points between July-September 2018 and September 2020. Thus, in keeping with the results for the main respondent in each household, it appears that there was an initial drop in the (seasonally-adjusted) share of people working, which subsequently reversed.

The heightened share of people working in February 2021 is concentrated among women and those in poor households. Unlike the sample of main respondents, using a balanced panel of working-age individuals makes it possible to examine how employment outcomes among different sub-groups, including women and those from poor households, fared during the crisis. The share of women working increased by 8 percentage points between January-February 2019 and February 2021, while the share of men working rose by 4 percentage points over the same period (see Figure 16). The larger share of women shifting from not working to working confirms this pattern: of those women who were working in February 2021, 37 percent were not working in January-February 2019, whereas of those men who were working in February 2021, 23 percent were not working in January-February 2019 (Figure 17). Similarly, the share of working-age individuals in the poorest quintile who were working increased by 11 percentage points between January-February 2019 and February 2021 compared to virtually no change in the share of people working in the richest quintile[27]. Both the gender and cross-quintile patterns could be consistent with an "added worker effect" whereby households increase their overall labor-market participation in order to cope with economic shocks[28]. This raises questions around the type and quality of jobs to which people turned in the COVID-19 crisis. The following sub-section considers these issues.

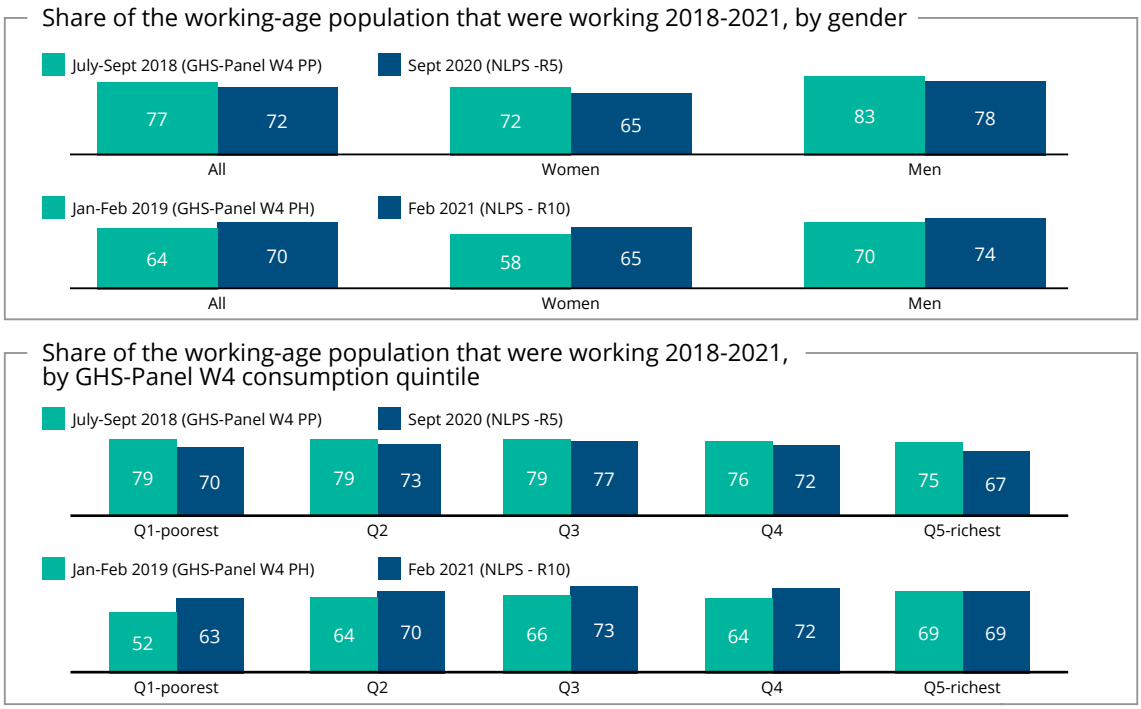
[25] Directly comparing labor market outcomes from the GHS and the NLPS is challenging for three key reasons. First, the GHS was carried out face-to-face, while the NLPS was conducted over the phone. Second, the GHS surveyed all working-age individuals in the household, while the NLPS surveyed up to six working-age individuals. Third, the dates of data collection for the post-planting visit of the 2018/19 GHS – July 18, 2018, to October 5, 2018 – do not perfectly match the dates of data collection for Round 5 of the NLPS – September 7, 2020, to September 21, 2020. There is a similar but smaller disparity for the post-harvest visit of the 2018/19 GHS and Round 10 of the NLPS.

[26] Comparing how the typical seasonal drop in the share of people working differed between 2018/19 and 2020/21 also suggests that the share of people working was heightened in February 2021. This approach, which makes a less direct comparison between the NLPS and the GHS-Panel, was applied in World Bank (2021d) and Jenq *et al.* (2021).

[27] Workers from poorer households may be more exposed to seasonality, as they are more likely to work in agriculture, but these comparisons use data collected at approximately the same point in the agricultural cycle, which should reduce the impact of seasonality on the results.

[28] This also has links to the trade-off between work and schooling, described above in the section on education.

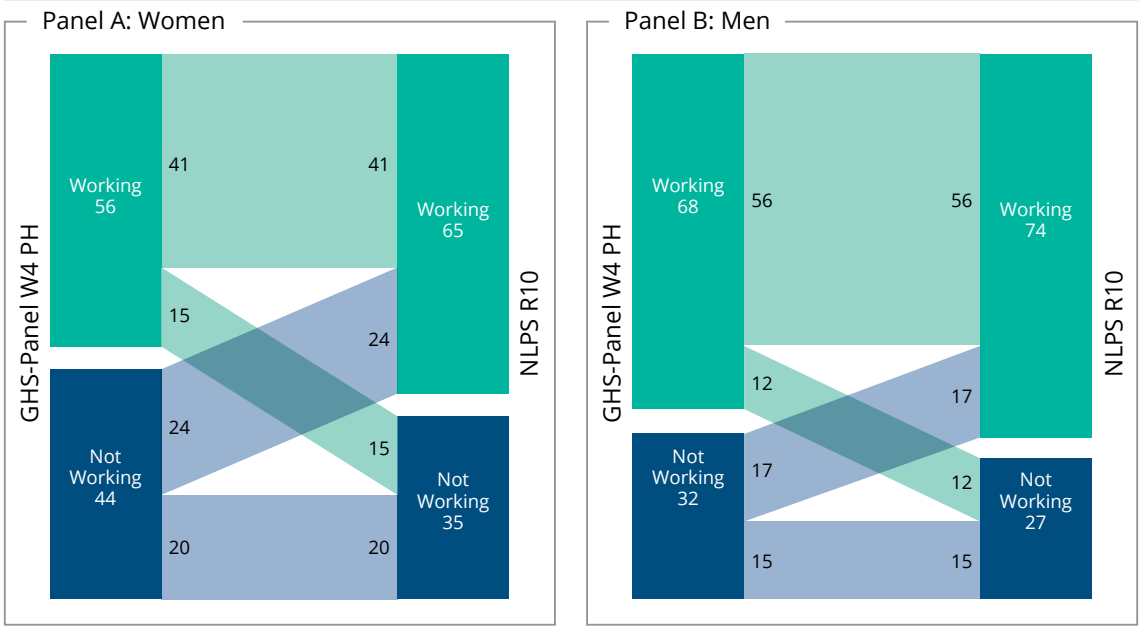
Figure 16. **Share of the working-age population that were working 2018-2021, by gender and consumption quintile**



Source: GHS-Panel, NLPS, and World Bank estimates.

Note: Sample comprises a balanced panel of all working-age individuals in each household that were surveyed at all four points in time: post-planting visit of the 2018/19 GHS-Panel, post-harvest visit of the 2018/19 GHS-Panel, NLPS Round 5, and NLPS Round 10.

Figure 17. **Women shifted into work more than men between January-February 2019 and February 2021**



Source: GHS-Panel, NLPS, and World Bank estimates.

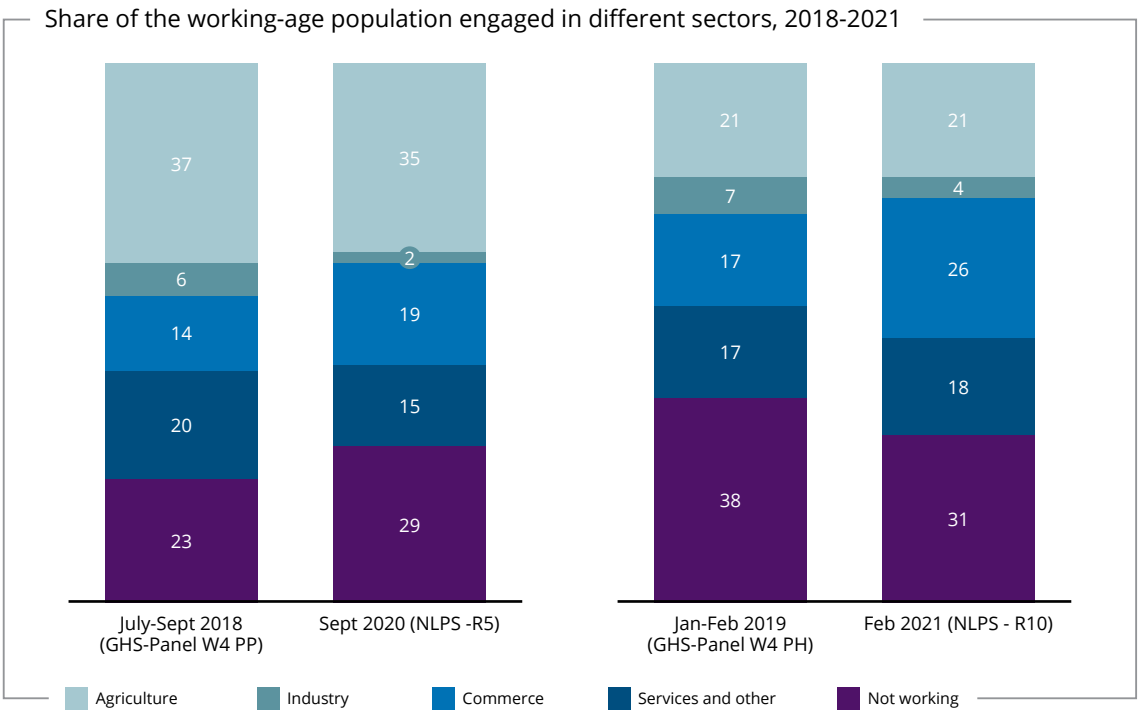
Notes: Sample comprises a balanced panel of all working-age individuals in each household that were surveyed at all four points in time: post-planting visit of the 2018/19 GHS-Panel, post-harvest visit of the 2018/19 GHS-Panel, NLPS Round 5, and NLPS Round 10. Respondents who did not work in the last seven days assigned to "not working" category.

Due to rounding, numbers presented in this figure may not add up precisely to 100.

New jobs in retail and trade, but with substantial churn between sectors

There was a broad increase in the share of Nigerians engaged in retail and trade as the COVID-19 crisis continued, but these jobs may not have been especially productive. In February 2021, around 26 percent of the working-age population were engaged in retail and trade activities (also known as commerce), an apparent increase of 9 percentage points compared with January-February 2019 (Figure 18). This shift marks a key difference with previous crises in Nigeria, such as the 2016 recession that followed collapsing global oil prices, where agriculture was the sector that expanded as households tried to cope (see Jenq *et al.*, 2021)[29]. However, this general shift towards retail and trade is unlikely to represent an acceleration of structural transformation or a true shift towards more productive work outside of

Figure 18. **Share of the working-age population engaged in different sectors, 2018-2021**



Source: GHS-Panel, NLPS, and World Bank estimates.

Note: Sample comprises a balanced panel of all working-age individuals in each household that were surveyed at all four points in time: post-planting visit of the 2018/19 GHS-Panel, post-harvest visit of the 2018/19 GHS-Panel, NLPS Round 5, and NLPS Round 10. Respondents who did not work in the last seven days assigned to "not working" category. "Industry" comprises the following sub-sectors: mining and manufacturing; utilities; and construction. "Services and other" comprises the following sub-sectors: transport; professional activities; public administration; and services.

[29] Indeed, the share of working-age people engaged in agriculture was almost the same in January-February 2019 and February 2021.

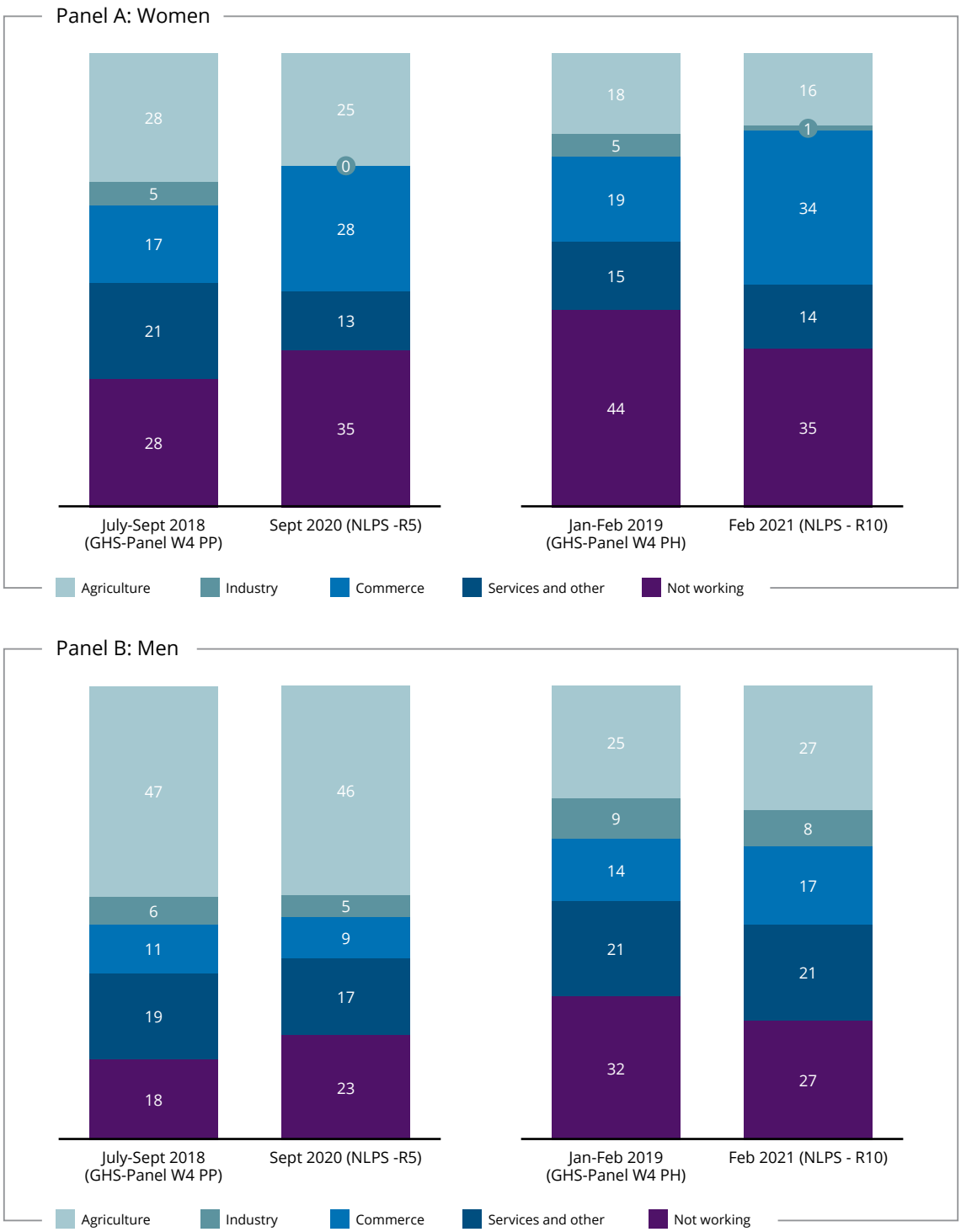
agriculture. Instead, many of these activities are concentrated in small-scale non-farm enterprises – according to the 2018/19 GHS-Panel, 87 percent of non-farm enterprises did not employ anyone outside the household – the revenues of which have not fared well during the pandemic (see below).

The shift towards retail and trade activities was particularly stark amongst women. Between January-February 2019 and February 2021, the share of women engaged in retail and trade (commerce) activities almost doubled, rising from 19 percent to 34 percent (Figure 19). Over the same period, the share of men engaged in retail and trade activities rose far more modestly, from 14 percent to 17 percent. This reinforces the idea that the added worker effect could explain the rise in women's work: despite not being lucrative, small-scale retail and trade activities could be easier to start quickly in order to try and supplement household income and cope with the economic shock[30].

Tracing individuals' labor market pathways through the COVID-19 crisis suggests that there has been significant churn between different activities, further indicating that the new jobs in retail and trade – and other sectors – are not yielding secure earnings. Using the panel dataset constructed from the 2018/19 GHS-Panel and NLPS, it is possible to track how the *same* individuals transitioned between different labor market activities over time. Looking only at the

[30] Additional breakdowns of the data reveal that the shift to commerce was present across both urban and rural areas and youth (15-29 years) and non-youth (30-64 years) individuals.

Figure 19. **Share of the working-age women and men engaged in different sectors, 2018-2021**



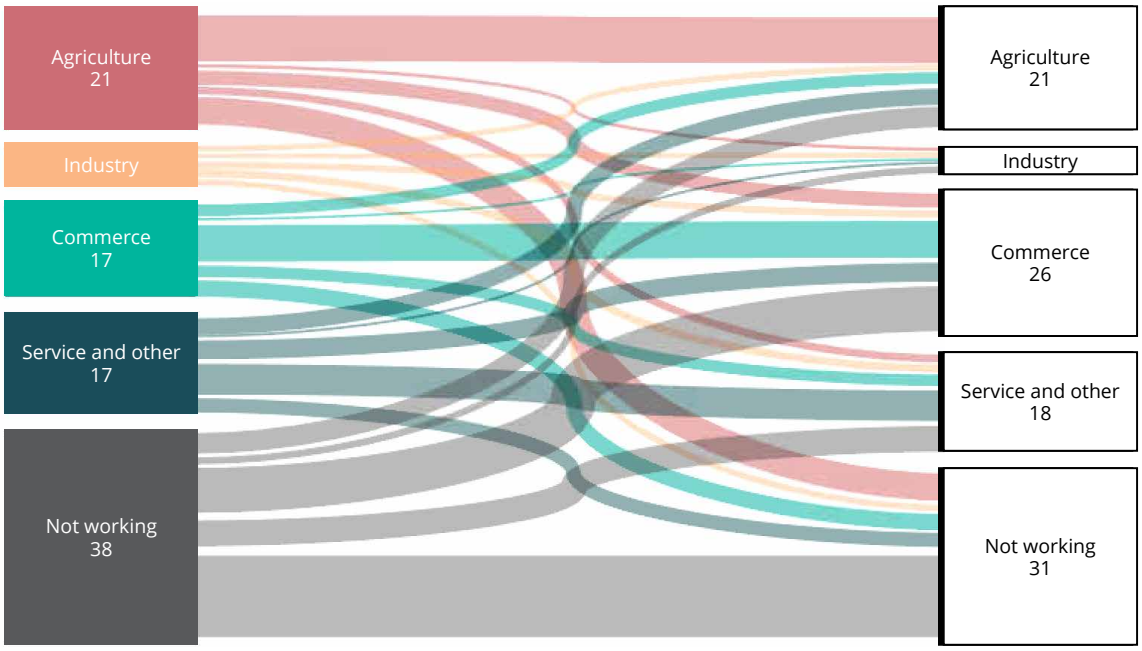
Source: GHS-Panel, NLPS, and World Bank estimates.

Note: Sample comprises a balanced panel of all working-age individuals in each household that were surveyed at all four points in time: post-planting visit of the 2018/19 GHS-Panel, post-harvest visit of the 2018/19 GHS-Panel, NLPS Round 5, and NLPS Round 10. Respondents who did not work in the last seven days assigned to "not working" category. "Industry" comprises the following sub-sectors: mining and manufacturing; utilities; and construction. "Services and other" comprises the following sub-sectors: transport; professional activities; public administration; and services.

Due to rounding, numbers presented in this figure may not add up precisely to 100.

overall shift towards retail and trade masks substantial churn between different sectors[31]. Of those working in retail and trade (also known as commerce) in February 2021, just 30 percent had been working in that sector in January-February 2019: around 37 percent had not been working, and 33 percent had flowed in from agriculture, industry, and services (see Figure 20). Even agriculture was far from stable, despite focusing on similar points in the year to minimize the effects of seasonality: of those working in agriculture in February 2021, 34 percent had come from other sectors, and 21 percent were not previously working. The extent of churning suggests that workers lack stability and security in their employment: instead, they are seeking to take on whatever activities will help them cope with the COVID-19 crisis, even if those are not the activities to which they are best suited.

Figure 20. **Transition matrix for the working-age population, January-February 2019 to February 2021**



Source: GHS-Panel, NLPS, and World Bank estimates.

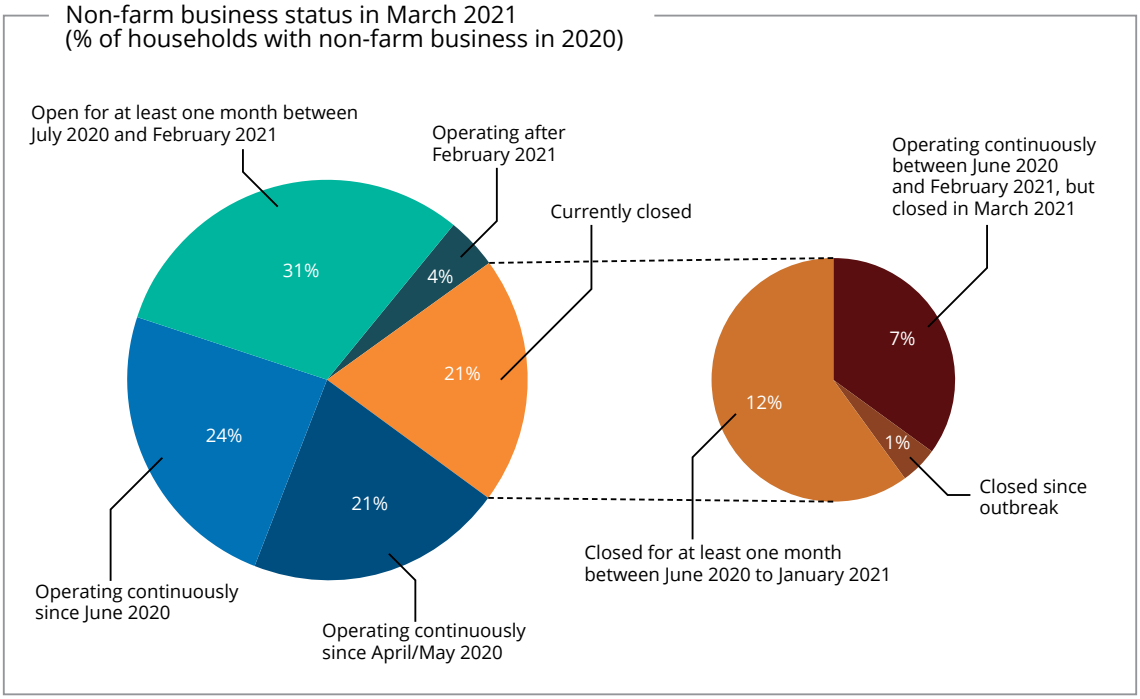
Note: Sample comprises a balanced panel of all working-age individuals in each household that were surveyed at all four points in time: post-planting visit of the 2018/19 GHS-Panel, post-harvest visit of the 2018/19 GHS-Panel, NLPS Round 5, and NLPS Round 10. Those that did not work in the last seven days assigned to "not working" category. "Industry" comprises the following sub-sectors: mining and manufacturing; utilities; and construction. "Services and other" comprises the following sub-sectors: transport; professional activities; public administration; and services.

[31] The transition matrices focus on the post-harvest visit of the 2018/19 GHS-Panel – collected January-February 2019 – and Round 10 of the NLPS – collected February 2021. The precise timings for these two surveys are more similar in the calendar year, minimizing the effects of seasonality on the estimates.

Non-farm enterprises have been hard hit

Non-farm enterprises, the majority of which were in retail and trade, were highly unstable during the COVID-19 crisis. At the NLPS baseline in April/May 2020, around 53 percent of households had a non-farm business, of which some 64 percent were primarily engaged in retail and trade activities (Lain *et al*., 2020). Thus, the fates of non-farm enterprises and the retail and trade sector – to which so many individuals turned during the COVID-19 crisis – are inextricably linked. By March 2021, around 1 in 5 non-farm enterprises that had operated in 2020 were closed, among which about one-third had operated continuously between June 2020 and February 2021, but closed in March 2021 (see Figure 21). This indicates that changes in non-farm enterprise activity can be sharp and sudden and do not necessarily stem from seasonality. Moreover, only around 1 in 5 non-farm enterprises have operated continuously since April/May 2020.

Figure 21. **Activities of non-farm businesses in March 2021**



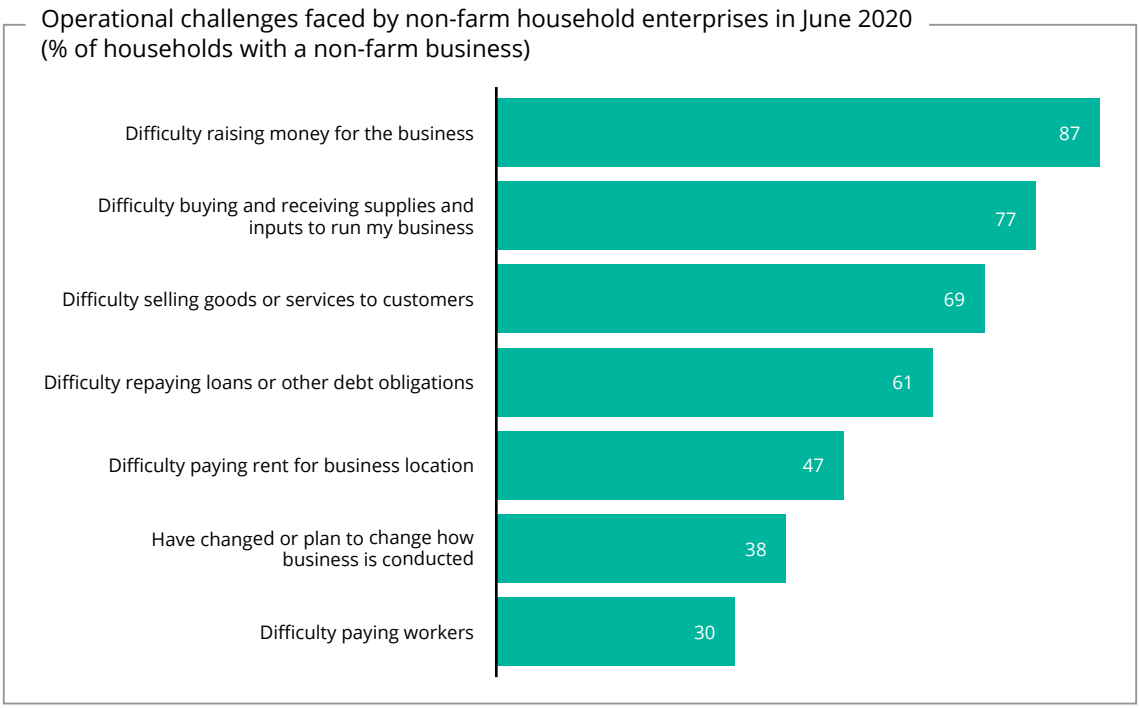
Source: NLPS and World Bank estimates.

Note: Sample of households with non-farm businesses in 2020.

Due to rounding, numbers presented in this figure may not add up precisely to 100.

Echoing the sizeable churn in their activities, households with non-farm enterprises also directly reported facing operational challenges associated with COVID-19 during 2020. In June 2020 – relatively early in the pandemic – COVID-19-related difficulties were widespread across non-farm enterprises in both urban and rural areas. Some 87 percent of non-farm enterprises reported facing difficulty raising money for the business, 77 percent reported difficulty buying and receiving supplies and inputs to run the business, and 69 percent reported difficulty selling goods or services to customers (see Figure 22). While these challenges may have abated since June 2020, the effects of these interruptions to input and output markets (and potentially credit markets) could be long lasting.

Figure 22. **Operational challenges faced by non-farm household enterprises in June 2020**



Source: NLPS and World Bank estimates.

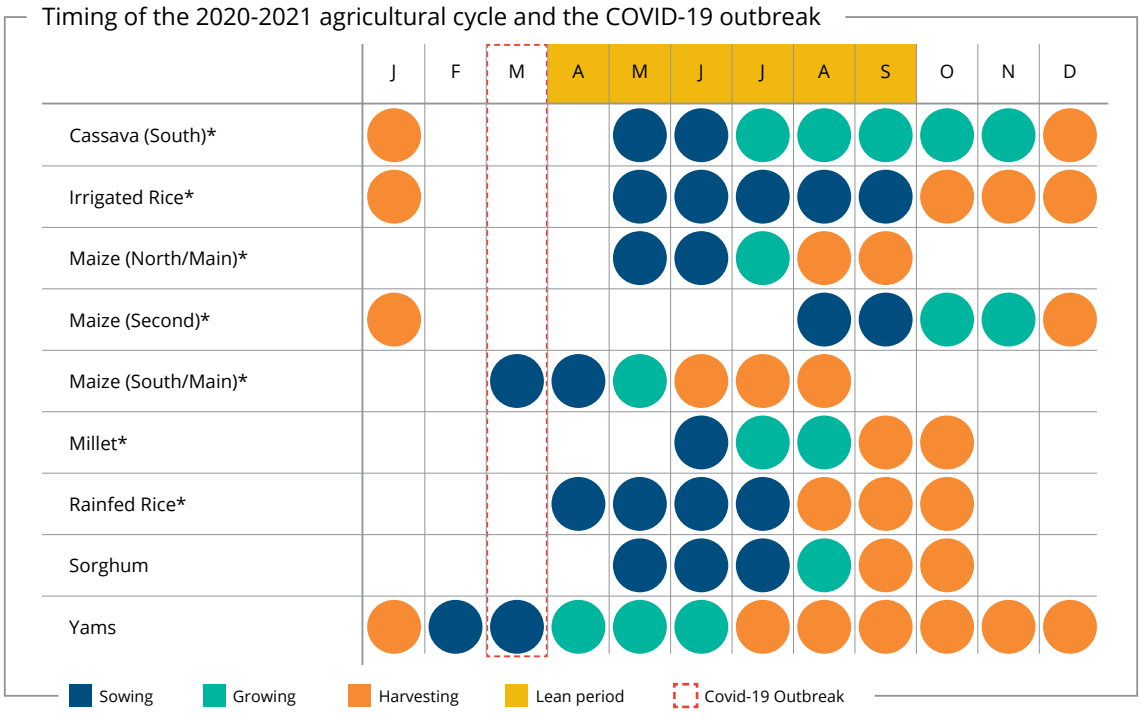
Note: Sample of households with non-farm businesses operating in June 2020. Bars represent the share of households with non-farm enterprises experiencing each operational challenge in June 2020.

Agriculture has fared better than other sectors, thanks partly to favorable rains

Since agriculture comprises such a sizeable share of Nigeria's economy, understanding how the 2020-2021 crop production cycle was affected by the pandemic is crucial. At the NLPS baseline in April/May 2020, around two-thirds of households had family farms. The value added by the agriculture, forestry, and fishing sector corresponded to 24.1 percent of Nigeria's GDP in 2020 (World Bank, 2021a). The agricultural sector's growth is mostly driven by crop production (NBS, 2021). While the crop production cycle in Nigeria differs by region, crop, and climatic conditions[32], the COVID-19 outbreak in Nigeria happened right before and during planting of all major crops in the country (Figure 23). Farming households

[32] Climatic conditions include the timing of the rainy seasons (FAO, 2021).

Figure 23. **Timing of the 2020-2021 agricultural cycle and the COVID-19 outbreak**



*Major food crop

Source: FAO (2021).

could thus adjust planting choices to address new constraints brought about by the pandemic. With 12 rounds of survey data from April 2020 to April 2021, the NLPS provides key insights into the impact of these additional constraints at each stage of the cycle, from *planting* and *growing* – including the varieties of crop cultivated, the timing of cultivation, the area planted, and the use of labor and fertilizer inputs – to *harvesting* – including output and revenue.

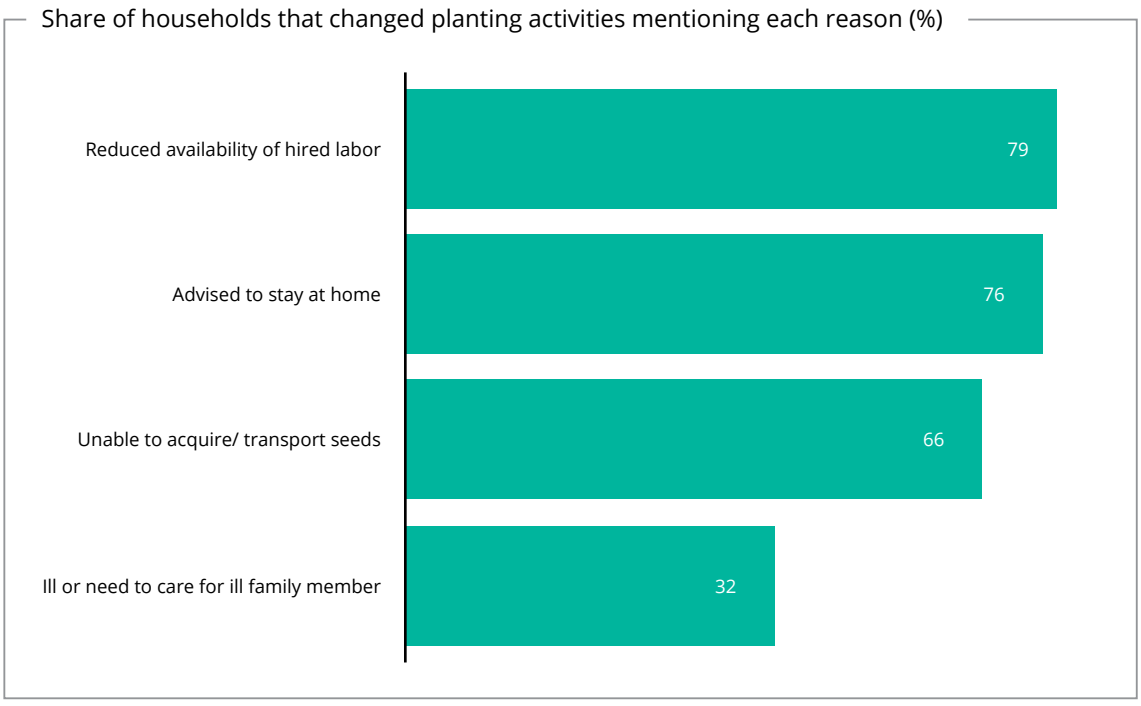
Agriculture in the time of COVID-19: challenges and adaptive strategies

A significant share of farming households reported that they changed *planting* decisions due to COVID-19. In June 2020, at the end of the planting season, around 38 percent of households reported changes in planting activities. Out of these, 52 percent reported reducing the area planted, 30 percent planted crops that take less time to mature, and another 25 percent delayed planting time. Less than 1 percent decided to abandon crop farming as a result of

COVID-19. These changes reflect a certain level of resilience, insofar as farming households were able to adjust their planting choices to realized or expected COVID-19-related shocks. When asked how the pandemic actually led to these changes in planting activities, respondents mentioned mechanisms related to constrained movements affecting their presence in the fields (being advised to stay at home) and access to inputs (such as lack or reduced availability of hired labor or inability to acquire/access seeds; Figure 24). To a lesser extent, respondents also mentioned illness.

Market disruption, reduced transportation, and increased prices have further affected crop production during the *growing* phase of the 2020-2021 agricultural cycle, when farming households were trying to access key inputs. In July 2020, around 72 percent of households that needed inorganic fertilizer and 47 percent of those that needed pesticides/herbicides were unable to access them. However, for other inputs, such as hired labor, animal traction, and organic fertilizer, around two-thirds of farming households that needed each of these inputs were able to access them. When asked about the specific constraints affecting access to these inputs, farming households mainly referred to budget constraints and prices – which can be attributed both to reduced income and

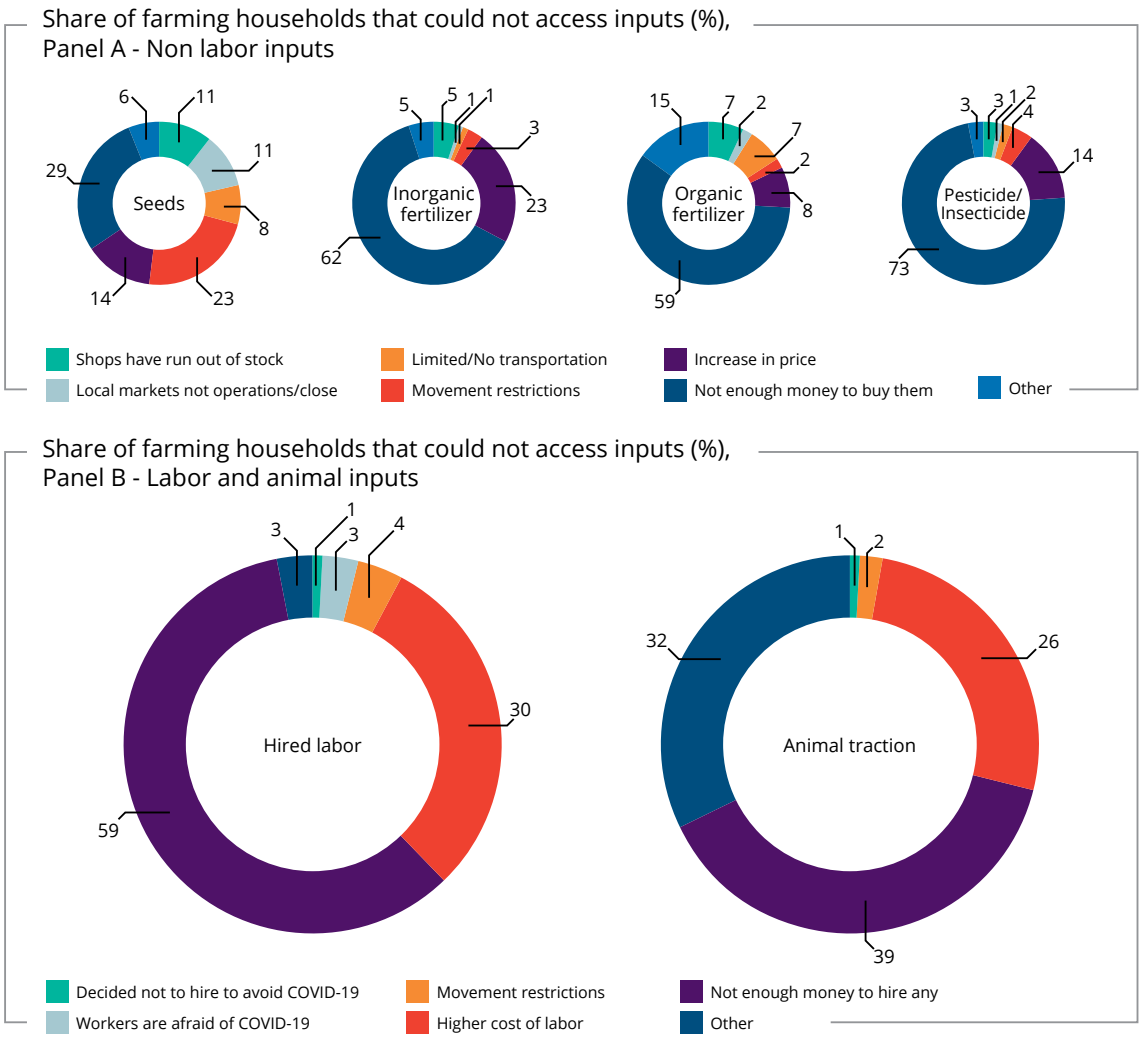
Figure 24. **Reasons for changing planting activities reported in June 2020**



Source: NLPS and World Bank estimates.

inflation – rather than constrained mobility or fear of contracting the virus – which were affecting access to seeds earlier in the cycle (Figure 25).

Figure 25. **Constraints on accessing key inputs among farming households during the crop growing phase, July 2020**



Source: NLPS and World Bank estimates.

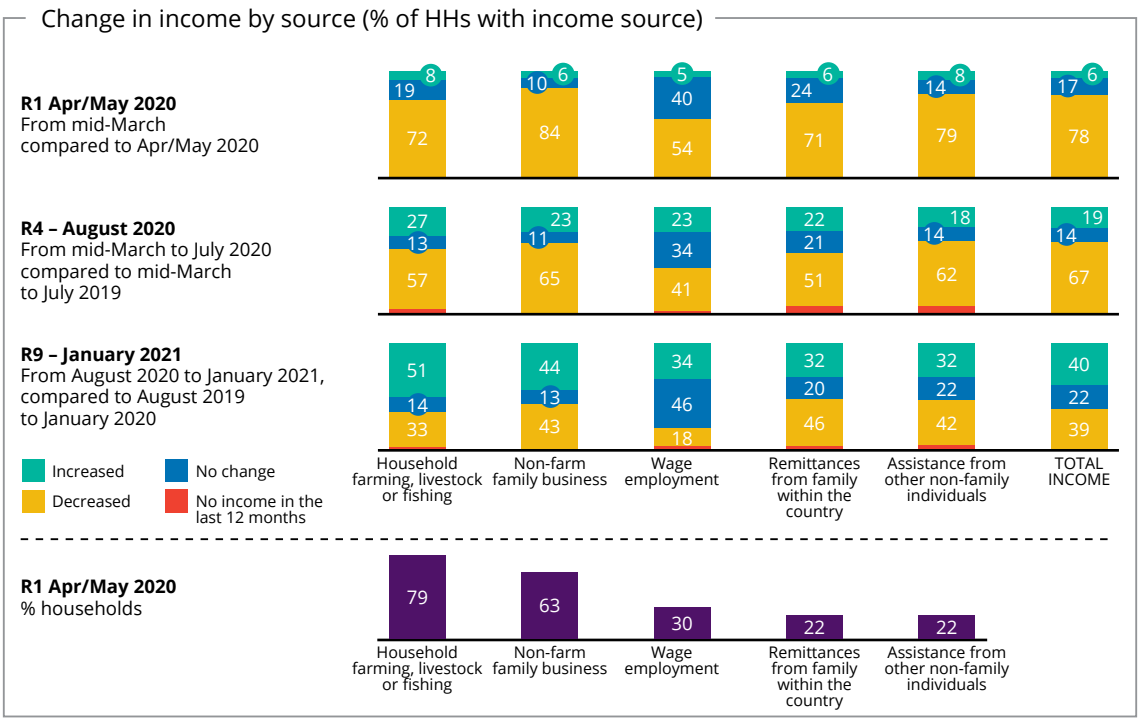
Despite the constraints on planting and growing, the 2020-2021 cycle ended up being more productive than previous years, come the harvest season. In August and September 2020, at the beginning of the harvest season, respectively 55 percent and 61 percent of farming households expected higher revenues from crops sales at the end of the 2020-2021 cycle than in previous years. This number went up to 77 percent near the end of the harvest, in December 2020. Noticeably, expectations reported in September 2020 were less optimistic when focusing on output quantity rather than revenues: 52 percent of farming households

expecting higher output, compared to 61 percent expecting higher revenues. This may reflect expectations of inflation and, in turn, output prices. These positive expectations reported in the NLPS are supported by recent agricultural data and macroeconomic aggregates. According to the Global Information and Early Warning System Country Brief for Nigeria (see FAO, 2021), favorable rains in 2020 benefitted crop development in most parts of the country, and the country's aggregate cereal output in 2020 is estimated at 28 million tons, slightly above the last five-year average. In real terms, the agricultural sector in the first quarter of 2021 grew by 2.28 percent year-on-year (see Figure 1, Panel D), an increase of 0.07 percentage points compared to the corresponding period in 2020 (NBS, 2021).

Recovery in incomes: agriculture's relatively strong performance

Virtually all sources of household income decreased at the start of the COVID-19 crisis. Some 78 percent of all households reported that their total income

Figure 26. **Changing incomes during the COVID-19 crisis**



Source: NLPS and World Bank estimates.

Note: Percentages calculated only for households that had each income source.

declined between mid-March 2020 and April/May 2020 (see Figure 26). These drops were witnessed across different income sources: around 84 percent of households deriving income from non-farm household enterprises experienced a drop in enterprise income; 71 percent of households receiving domestic remittances saw domestic remittance income fall; and, among agricultural households, 72 percent saw their farm or livestock income decline. Even among the small share (just under 30 percent) of households with wage-employed members, 54 percent saw a drop in their wage income between mid-March 2020 and April/May 2020.

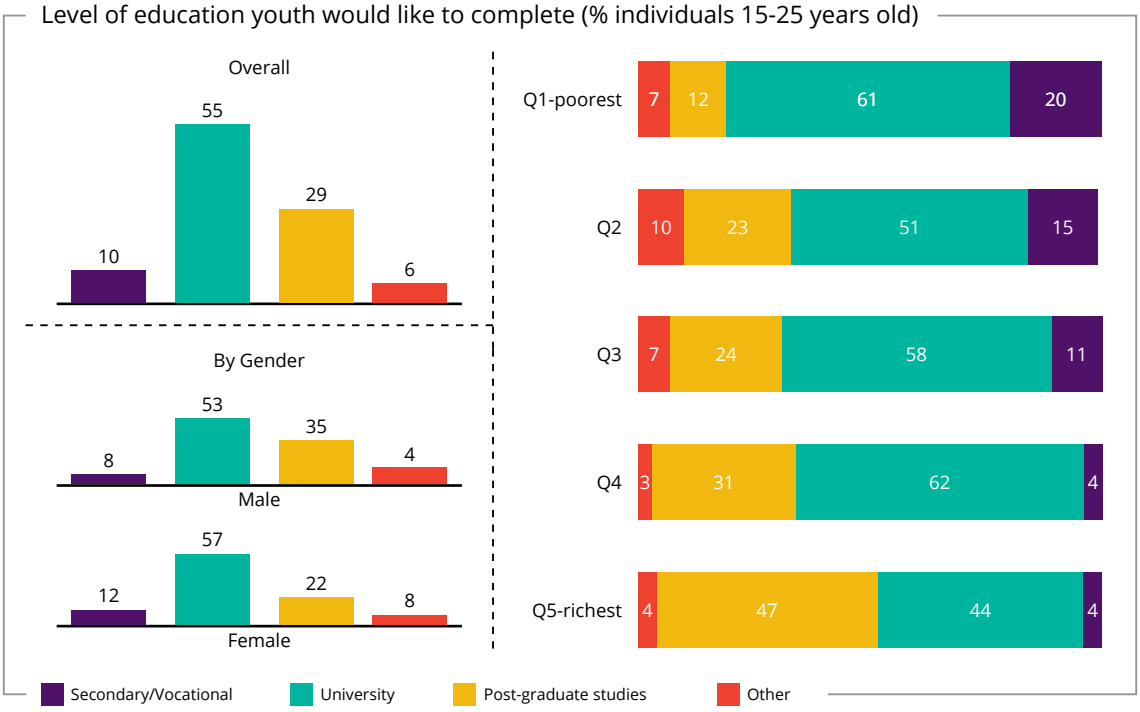
By January 2021, there was some evidence that incomes were recovering, but more so for agriculture than for non-farm enterprises. Between August 2019-January 2020 (just before the COVID-19 crisis) and August 2020-January 2021 (as the crisis continued), total incomes declined in 39 percent of households; this is a substantially smaller share than between mid-March 2020 and April/May 2020, when the crisis first hit (see Figure 26). In line with the evidence presented above, this recovery in incomes appears to have been most widespread in agriculture. Between August 2019-January 2020 and August 2020-January 2021, around 51 percent of agricultural households[33] experienced an *increase* in the incomes they derived from agriculture. There was also striking stability in wage income: among households with wage-employed members, 44 percent reported that wage incomes had remained the same between August 2019-January 2020 and August 2020-January 2021, while 34 percent reported that wage incomes had increased. Nevertheless, the picture was less positive for non-farm household enterprises. Among households with non-farm enterprises, 43 percent still reported that their enterprise income had declined between August 2019-January 2020 and August 2020-January 2021. This echoes the instability and churn in enterprise activities described above and – given the shift towards retail and trade and services – reflects continued precariousness in people's labor market activities and households' incomes.

[33] At baseline, 79 percent derived income from agricultural activities, that is, household farming, livestock, or fishing. Around 63 percent of households derived income from non-farm-enterprise activities.

A wake-up call for policy: young Nigerians anticipate good jobs post-crisis

The COVID-19 crisis does not appear to have dampened young people's educational aspirations, with the vast majority still hoping to pursue university studies. In April 2021, around one year after the pandemic first struck, about 84 percent of 15-25-year-olds reported that they hoped to complete either university or post-graduate studies (see Figure 27). This indicates that young people still want to invest in their education. This aspiration persists, despite the labor-market uncertainty described above and the fact that most jobs in Nigeria were in small-scale farm or non-farm enterprises even before the pandemic (see Jenq *et al.*, 2021).

Figure 27. **Young people aspired to high levels of education, even after a year of the COVID-19 crisis**

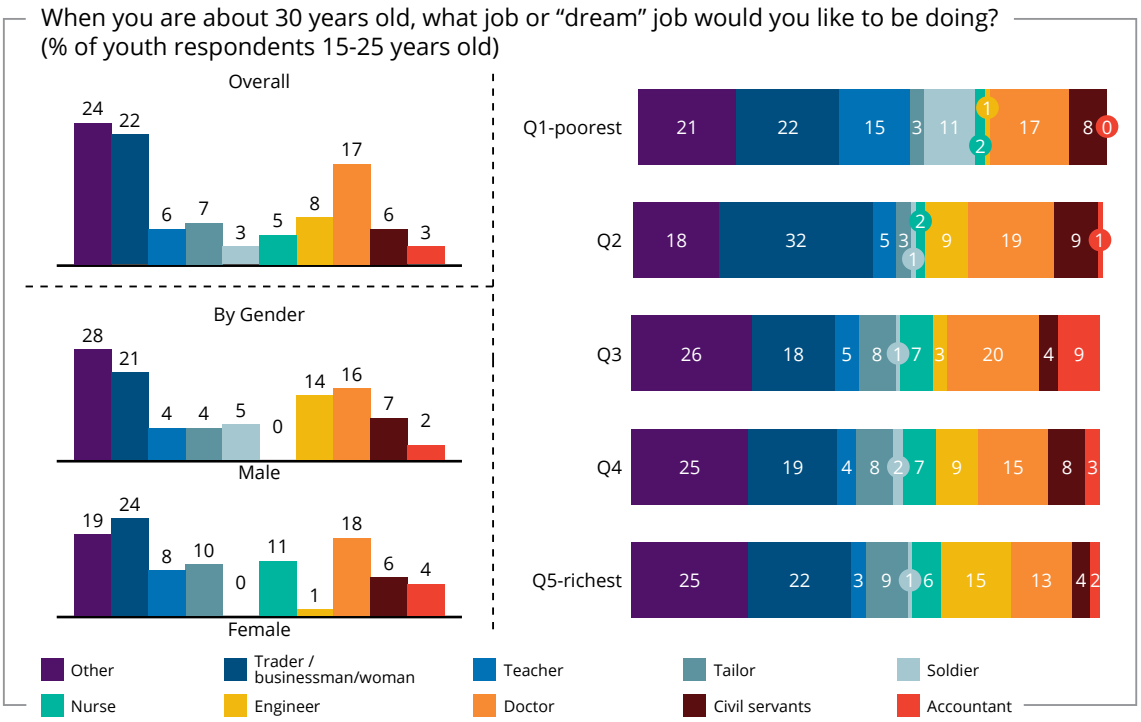


Source: NLPS and World Bank estimates.

Note: Chart focuses on a sample of 15-25-year-olds interviewed in April 2021.

Young people also continue to aspire to good professional jobs; these aspirations are misaligned with the state of the Nigerian labor market, which could result in widespread disappointment and frustration, without appropriate policies. In April 2021, most young Nigerians aspired to work in professions such as accountancy, the civil service, medicine, engineering, and teaching (see Figure 28). This was the case for young women and young men, and across the consumption distribution. Moreover, young people are very optimistic about their labor-market prospects: around 81 percent of 15-25-year-olds believe that it is likely or very likely that they will attain the "dream" job to which they aspire. These aspirations are at odds with the country's labor market, which is dominated by work in small-scale enterprises; indeed, the COVID-19 crisis has led many individuals to enter work in non-farm enterprises in retail and trade and services, in which incomes remain uncertain, while people have also churned rapidly between different activities. Failing to meet young people's labor market aspirations will have direct impacts on poverty reduction as Nigeria recuperates after the crisis. There may also be implications for social cohesion and civil unrest, if unmet aspirations turn into disappointment and frustration (see, for example, Filmer and Fox (2014) and World Bank (2015)). These data on youth aspirations therefore mark a serious call to policy action.

Figure 28. **Young people aspired to secure jobs in recognized professions**



Source: NLPS and World Bank estimates.

Note: Chart focuses on a sample of 15-25-year-olds interviewed in April 2021.

Policies for boosting livelihoods

- While the resilience of the agricultural sector has proven essential during the COVID-19 crisis, the lack of opportunities in other sectors of the economy has forced households to engage in low-productivity and unstable activities; these jobs are misaligned with young people's labor market aspirations.
- Macroeconomic reforms that spur job creation and structural transformation – through exchange rate policies, trade policies, and fiscal policies – will be essential; among the key priorities to support job creation will be promoting diversification of the economy away from oil, which has represented more than 80 percent of Nigeria's total exports every year since the 1970s.
- Structural transformation will take decades, so alleviating constraints on small enterprises will be crucial in the short and medium run: for farms, this means developing more resilient crop and livestock varieties and public investment in storage, transport, and market access (Beegle & Christiaensen, 2019); for non-farm enterprises, alleviating credit constraints could support firm survival, profitability, and growth (McKenzie, 2017), complementing investment in infrastructure and markets (Filmer & Fox, 2014).
- Collecting data regularly from firms and workers will be essential for boosting firm growth and invigorating the demand side of the labor market; the new business census and follow-up sample survey as well as the labor force survey present a golden opportunity to gather and analyze such information.

4. A crisis for welfare: multiple shocks and risky coping strategies

KEY MESSAGES

Social protection coverage was limited in Nigeria before COVID-19 and has not expanded, leaving households exposed to large welfare losses.

Concomitant shocks accompanying the pandemic, including the recent surge in prices in 2021, threaten to push many households (deeper) into poverty.

Lacking social protection, households have adopted negative coping strategies, such as reducing food consumption. Through their impacts on human capital, these strategies could worsen poverty and welfare for generations.

A robust social protection system is a key policy goal for Nigeria, not just for COVID-19 but also for future crises. To build it, the country will need to create fiscal space and strengthen coordination across federal, state, and local levels.

Harsher impacts on the poor and vulnerable?

Many of the human capital and livelihoods indicators presented above suggest that poor and vulnerable households have been affected more by the COVID-19 crisis; but direct welfare measures are also needed. For example, children from poorer households engaged less in learning activities, not just due to school closures, but also because they had worse access to remote learning. Moreover, the evidence on the "added worker" effect suggests that individuals from poorer households were induced to seek out additional work, despite the resilience of agriculture, in order to try and cope with the economic effects of the crisis. The fact that poorer households faced these additional impacts of the COVID-19 crisis chimes with poverty forecasts, which indicate that poverty is likely to widen and deepen. Yet, going beyond the simulations, it is important to have more direct indicators of welfare collected *during* the COVID-19 crisis, in order to guide policy.

Weak social protection before and after the crisis

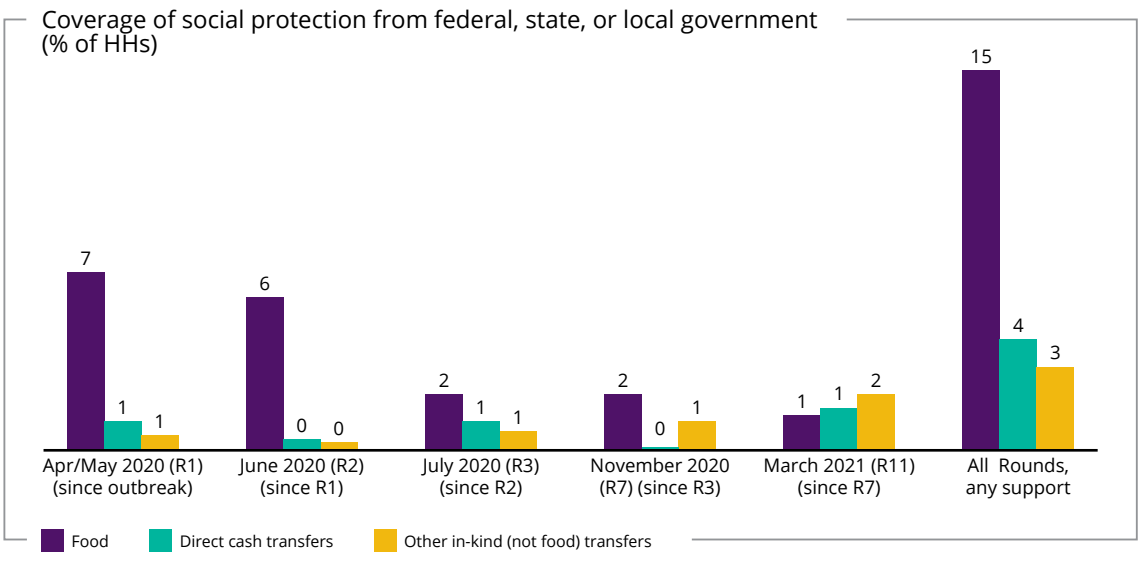
The COVID-19 crisis and the shocks associated with it struck in a context of low social protection program coverage. Data from the NLSS show that less than 2 percent of Nigerians lived in a household enrolled in the National Social Safety Net Project[34] (NASSP) – the country's flagship social protection program – in 2018/19. Coverage of most other social protection programs was even lower (World Bank, 2020d)[35]. This echoes evidence from the World Bank ASPIRE database, showing that only around 1 percent of Nigerians were covered by cash transfers in 2018 (World Bank, 2021b). The lack of a pre-existing, responsive social protection system implies that poor and vulnerable households are particularly susceptible to those shocks generated by the COVID-19 crisis: this further underscores the importance of looking at direct measures of welfare.

[34] Despite the program's low coverage, the expenditure patterns and non-monetary characteristics of those covered by the NASSP resembled the bottom 60 percent of the consumption distribution, indicating that it was relatively well targeted.

[35] The only exception is the National School Feeding Program: around 20 percent of school-age children lived in a household covered by this program, according to the 2018/19 NLSS.

Coverage of social protection programs has remained low throughout the COVID-19 crisis in Nigeria. Between March 2020 and March 2021, just 4 percent of households had received support from social safety net programs in the form of direct cash transfers from either federal, state, or local government (Figure 29). This is far less than the share of households that were poor or vulnerable before the pandemic hit and far less than the share experiencing shocks associated with the COVID-19 crisis (see below).[36]

Figure 29. **Coverage of social protection remained low throughout the COVID-19 crisis**



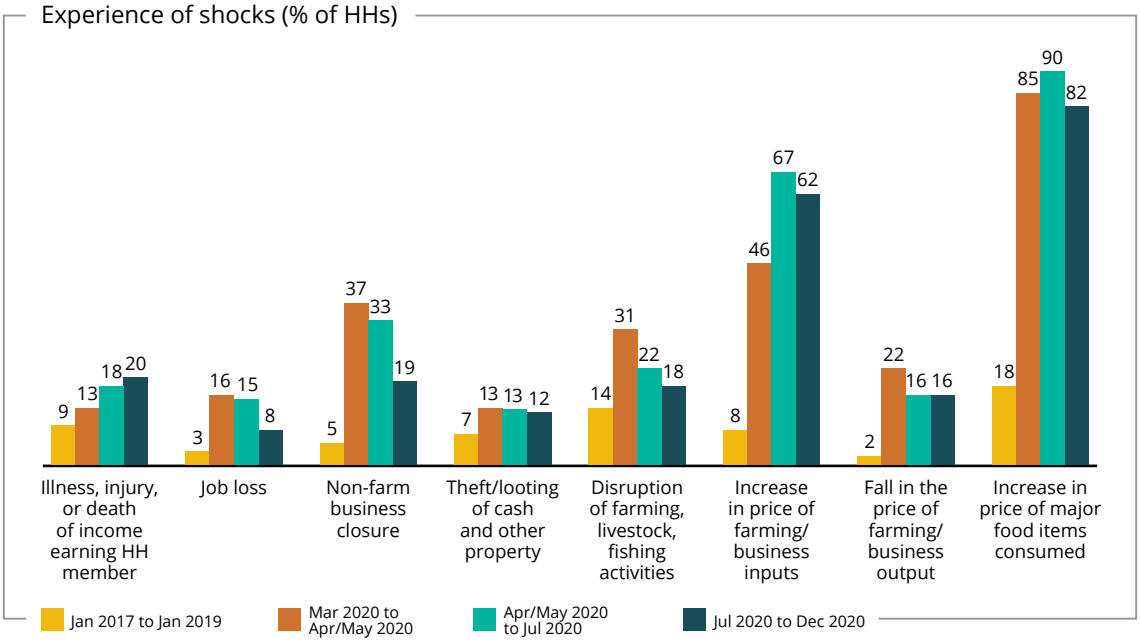
Source: NLPS and World Bank estimates.

[36] There were some additional receipts, especially of food assistance, from non-government sources, including international organizations and religious bodies. However, this does not change the picture that social assistance has been extremely scarce in Nigeria throughout the COVID-19 crisis.

Multiple COVID-19-related shocks may exacerbate poverty

Economic shocks associated with the COVID-19 crisis – especially price shocks – were far more widespread and could have large impacts on welfare and poverty. Around 82 percent of households reported that the price of major food items had increased between July 2020 and December 2020, compared to 18 percent between January 2017 and January 2019 (Figure 30). Similar patterns were observed for the price of farming and business inputs. This could mean that households were already directly feeling the acceleration in inflation, even before the big upswing in 2021 observed in the macroeconomic price data.

Figure 30. **Widespread shocks, especially to prices, during the COVID-19 crisis**

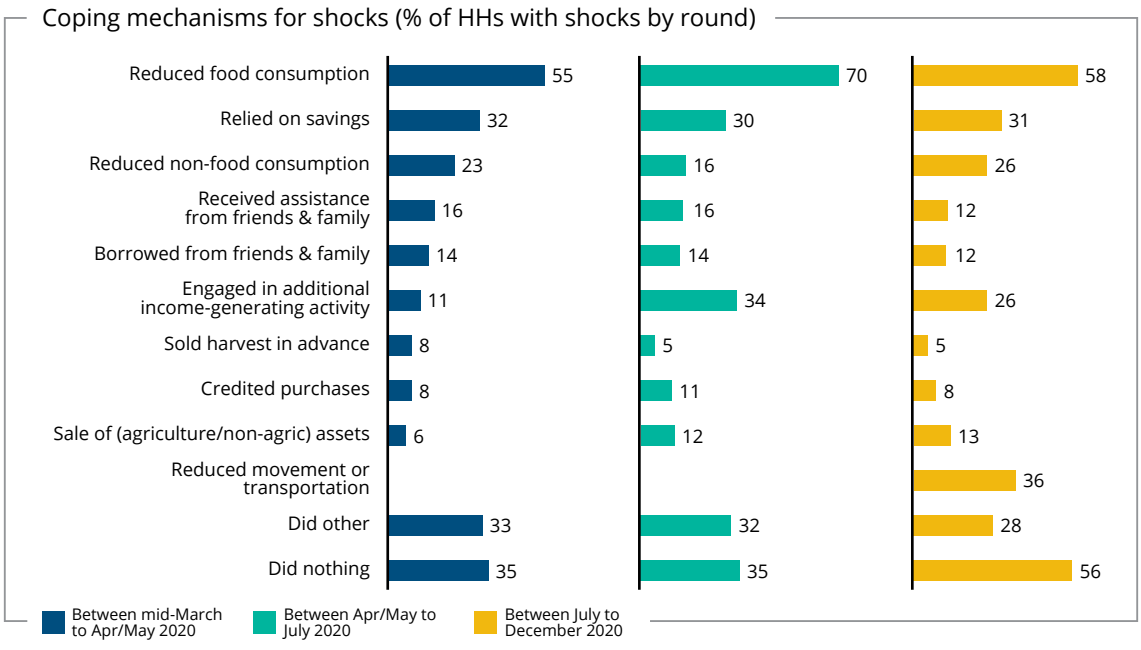


Source: GHS-Panel, NLPS and World Bank estimates.

Negative household coping strategies could have lasting effects on welfare

Many households reduced their food consumption in order to cope with shocks that hit during the COVID-19 crisis. Between April/May 2020 and July 2020, some 70 percent of households that were hit by a health or economic shock reduced their food consumption. This problem persisted, as even between July 2020 and December 2020, around 58 percent of shock-hit households reduced their food consumption (Figure 31). Reducing food consumption not only directly reduces welfare in the short run, but may also have long-run consequences for human capital: around 37 percent of children under age five were stunted in Nigeria even before the COVID-19 crisis struck (World Bank, 2020c), and malnutrition weakens children's capacity for learning (World Bank, 2018). Thus, the COVID-19 crisis could have intergenerational effects on poverty and welfare.

Figure 31. **Households adopted negative coping strategies in response to COVID-19-related shocks**



Source: NLPS and World Bank estimates.

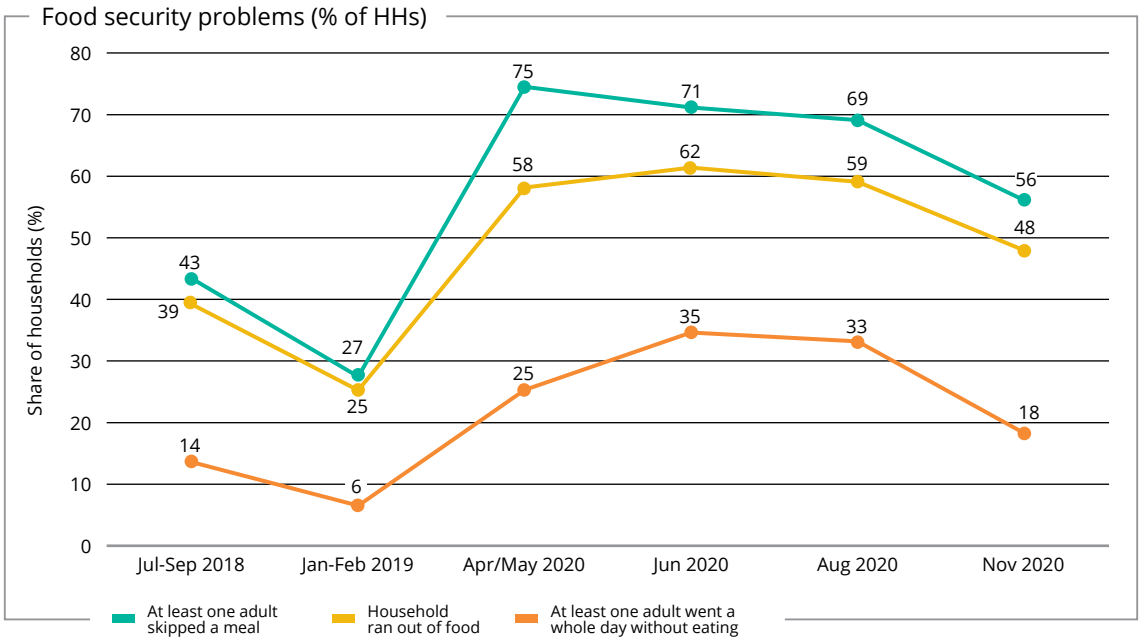
Note: The option "Reduced movement or transportation" was only an option for the data collected in Round 8, which captured information between July and December 2020.

Some coping strategies – such as reducing savings and additional borrowing – could place households on weaker financial footing in the medium and long run. The second most widespread coping strategy, after reducing food consumption, was drawing on household savings: almost one-third of shock-hit households relied on their savings between July 2020 and December 2020. Around 12 percent of households also borrowed income from their friends and family over the same period. Relatedly, debtor households expressed concern about repaying loans, including both those contracted before the pandemic and those taken out after the crisis hit. Around 74 percent of debtor households reported being "very worried" or "somewhat worried" about repaying their loans in August 2020. Taken together, this evidence suggests that households may be less able to use financial instruments to smooth their consumption and weather shocks in subsequent years, as well as being less able to invest in their human and physical capital.

Food insecurity is more widespread than it was before the COVID-19 crisis

Food insecurity peaked at the start of the COVID-19 crisis; while it has abated somewhat since then, it is still more widespread than before the pandemic. In April/May 2020, at least one adult had skipped a meal (in the previous 30 days) in almost three-quarters of Nigerian households (Figure 32). This share had dropped to about 56 percent by November 2020 but was still significantly higher than what was observed in July-September 2018 (43 percent) and January-February 2019 (27 percent). These patterns of heightened food insecurity are unsurprising, given the sharp rise in food prices, especially as many income sources remain uncertain. This is reflected by direct evidence on access to basic staple food products: in April/May 2020, around 41 percent of households that needed rice were unable to buy it, and 59 percent of households that needed yams were unable to buy them. The vast majority of these households reported that they could not buy these products because they lacked the money to do so.

Figure 32. **Food insecurity became more prevalent throughout the COVID-19 crisis**



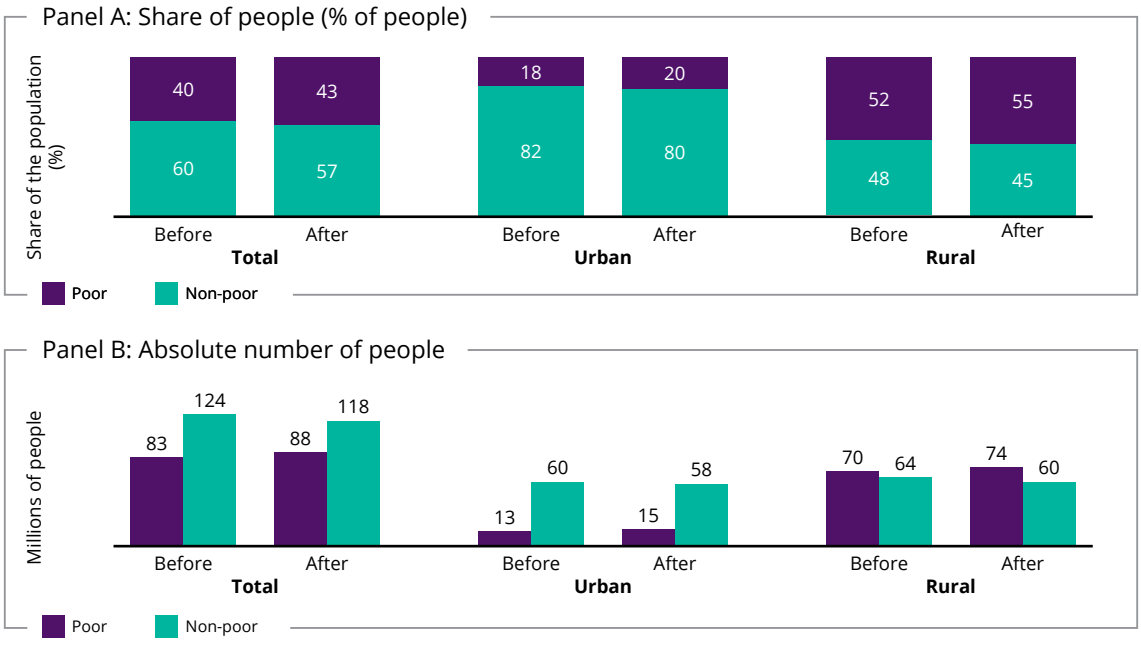
Source: GHS-Panel, NLPS and World Bank estimates.

With high inflation, poverty still looms

While no direct measures of food security are available for 2021 in the NLPS, simple simulations can be used to assess inflation's ongoing impacts on poverty. Rising prices are likely to reduce households' purchasing power. Critically, households across the consumption distribution may suffer when price shocks hit: even though a larger share of the food that poor households consume comes from own production, they still rely on buying some of their food and other non-food items from the market (World Bank, 2021d). The last direct measure of food security in the NLPS comes in November 2020, so it is more difficult to use these high-frequency data to examine how welfare evolved when inflation accelerated in the later phases of the COVID-19 crisis in 2021 (see Figure 1, Panel C). However, using information on households' consumption patterns to measure their exposure to rising prices, it is possible to calculate the resulting welfare losses and, in turn, the number of Nigerians that would be pushed into poverty. Details of this approach are outlined in Annex 3.

The rise in prices witnessed between June 2020 and June 2021 alone could push another 6 million Nigerians into poverty, with urban areas being disproportionately affected; this underscores the need for short-term policies to support welfare. The simple simulations suggest that the share of Nigerians living below the national poverty line could have increased from 40.1 percent to 42.8 percent, due to the food price inflation witnessed between June 2020 and June 2021 (Figure 33). This means about 5.6 million additional Nigerians would be living in poverty. While food price inflation would decrease purchasing power and raise poverty across Nigeria, it appears that urban areas could be disproportionately affected. In 2018/19, about 16 percent of poor Nigerians were urban dwellers. Yet among those who would be newly impoverished by the increase in food prices between June 2020 and June 2021, around 27 percent would be from urban areas. Nevertheless, poverty in Nigeria is set to remain a primarily rural phenomenon, with or without rising food prices.

Figure 33. **High inflation could push millions more Nigerians into poverty**



Source: 2018/19 NLSS, NBS, and World Bank estimates.

Note: Estimates exclude Borno. Poverty calculated using Nigeria's national poverty line of 137,430 naira per person per year.

Policies to support household welfare

- Social protection coverage was extremely low before the pandemic, with a majority of poor and vulnerable households not covered by any government safety net programs; this absence of pre-existing social protection systems has reduced the speed and scale at which poor and vulnerable households have been supported in the crisis, leading many to adopt negative coping strategies.
- In the short term, all efforts must be made to deliver Nigeria's planned emergency social safety net programs, geared towards households affected by ongoing inflation.
- Expanding social protection can be achieved through the adoption of pragmatic solutions, such as full coverage in geographically targeted areas, using Nigeria's new ward-level poverty map, and the use of simplified payment methods.
- The current situation highlights the dramatic need for investments in social assistance programs in Nigeria, prioritizing social safety nets delivered through a well-financed and fiscally sustainable social protection system; such a system will allow for a faster response in future crises and will mitigate their impact on welfare and human capital.
- Building such a system will depend on creating fiscal space by both raising revenue and redirecting spending; strengthening coordination and alignment across the federal, state, and local levels will also be essential.

5.The way forward

Nigeria has long faced a series of development challenges, which the COVID-19 crisis has laid bare. In the area of human capital, Nigeria's harmonized educational test scores were already among the lowest in the world in 2018, around 12 percent of Nigerian children did not survive until age five, and more than one-third of children were stunted (World Bank, 2020c). The COVID-19 crisis has further impeded learning – especially among children from poor households – and interrupted a wide range of maternal and child health services (Shapira *et al*., 2021). With respect to livelihoods and welfare, very few workers held productive jobs offering pathways out of poverty in 2018/19, while social protection covered just a tiny fraction of the population, despite 4 in 10 Nigerians living in extreme poverty. The COVID-19 crisis has caused significant disruption to the labor market, and pre-existing weaknesses in the social protection system have prevented coverage and benefits from expanding rapidly enough to adequately support households' welfare.

The path of the pandemic remains highly uncertain in Nigeria. In some ways, life in Nigeria has returned to "normal," or at least to a "new normal": after long closures, schools have reopened; despite churn in the labor market, many people have returned to work; and moving around the country is now possible. However, with the arrival of the delta variant, COVID-19 case numbers have started to rise again. Since vaccination rates in Nigeria remain low, this intensifies pandemic-related health threats. If renewed movement restrictions and other disease-control measures further disturb service provision, reduce demand for labor, and interrupt markets, the nation's human capital, livelihoods, and welfare may also suffer.

To provide the bedrock for recovery, the first priority will be curbing the spread of COVID-19 by rolling out vaccines quickly and equitably. The crises for human capital, livelihoods, and welfare can only be addressed if the health threat is under control, and preventative hygiene methods – such as handwashing and masking – can only go so far. The inequities in COVID-19 vaccine coverage between countries remain vast: many Organisation for Economic Cooperation and Development (OECD) countries are already planning vaccine boosters for persons

who have received two doses, but in Nigeria just 2.4 percent (as of October 18, 2021) of the population has received at least one dose (Our World in Data, 2021). Procuring COVID-19 vaccines and expanding access to them in Nigeria will therefore be essential. It is also important to swiftly address questions around vaccine equity, namely, how best to cover people at higher risk of exposure to infection, people with higher risk of severe disease, and people from disadvantaged groups – including the poor. Meanwhile, reticence about getting vaccinated appears to be spreading among Nigerians: this is demonstrated by the NLPS data (see Chapter 2) but also by independent data from GeoPoll from April 2021 (GeoPoll, 2021). As such, Nigeria's vaccination campaign is in a race against vaccine hesitancy.

A second key priority will be recouping learning losses experienced during the first year of the pandemic. Nigerians favor expanding in-person learning – especially by adding more hours to the school day – to help children catch up on the schooling they missed in 2020/21. All other things equal, encouraging children back to school is vital, especially as closures appear to have reduced children's chances of attending, even after schools reopened (Dessy *et al*. 2021). Yet resuming in-person learning requires that preventative measures be in place to prevent the spread of COVID-19 in schools. With ongoing uncertainty about the path of the pandemic, remote options are needed that can work for poor households if schools must close again. High-tech options cannot reach the poor, so low-tech solutions – including involving parents and teachers through text messages or broadcasting lessons via radio – could be more appropriate. The "Edo-BEST@Home"[37] program provides an example (Munoz Najar Luque & Oviawe, 2020). Moreover, some initiatives could support the recovery in learning, be it in person or remote: for example, there is growing evidence that Teaching at the Right Level (TaRL) can support foundational learning by carefully assessing children's needs and then tailoring teaching accordingly (Banerjee *et al*., 2017).

A third key priority will be expanding social protection to ease households' welfare losses, curtail longer-term consequences for human capital and livelihoods, and enable fiscal reforms. With coverage of social protection being so low, the crisis has directly contributed to rising food insecurity in Nigeria, especially as food price inflation began accelerating in late 2020 and 2021. Households' exposure to shocks has also led to negative coping strategies that could affect people's wellbeing and economic prospects long after the crisis.

[37] The Edo-BEST@Home program uses mobile phones to facilitate remote learning through interactive audio lessons, digital self-study activity packets, interactive quizzes, learning guides for parents, and virtual classrooms that enable interaction between teachers and students. In Edo state, where the program operates, mobile phones are more widespread than televisions and other media.

As households needed older children to contribute to income generation, many children dropped out of school, while the surfeit of new retail and trade activities are unlikely to provide steppingstones to productive jobs later in life. Expanding social protection could alleviate these delicate trade-offs. Moreover, far from being a strain on government budgets, social protection could even *increase* fiscal space, if it allows policymakers to implement difficult reforms – for example, to fuel subsidies.

The COVID-19 crisis could provide the impetus to boost welfare and livelihoods in the medium and long run. First, expanding social protection now could provide the bedrock for a more developed social protection system in the future. Since Nigeria has faced many other economic, conflict, and climate shocks in the past, COVID-19 is not the last crisis the country will see. Helping households thrive in spite of this uncertainty will be essential for reducing poverty and vulnerability. Second, macroeconomic reforms that energize job creation and structural transformation – notably, reforms to the exchange rate, trade, and fiscal policy – will be crucial for increasing the resilience of Nigeria's labor market. Third, given that farm and non-farm enterprises will dominate employment in

Nigeria for many years to come, policies to boost their productivity – through developing crop varieties, investing in infrastructure, improving market access, and easing credit constraints – should be carefully considered.

Building on the evidence in this report, it will be vital to keep generating data that track Nigeria's progress out of the COVID-19 crisis. The 12 rounds of NLPS data used in this report have provided guidance for COVID-19 response policies in Nigeria. Nevertheless, to ensure that future policy remains evidence based, data collection must continue and adapt. The planned new NLSS in 2022/23 will deliver fresh evidence on trends in poverty, welfare, and other key socio-economic indicators during the COVID-19 crisis. Yet 2022/23 is a long way away. In the meantime, additional data collection will be needed to monitor vaccine rollout, assess how low-tech solutions are supporting learning, and help evaluate pilot programs to strengthen human capital, livelihoods, and welfare. Good policies will rely on new data over the coming year and beyond to help Nigeria build back better.

ANNEXES

Annex 1

Using individual data to estimate losses in Learning-Adjusted Years of Schooling (LAYS) and the Human Capital Index (HCI)

The calculations of losses of LAYS and HCI included in this report build on the simulation framework outlined by Azevedo *et al.* (2020) by incorporating information on the actual timing of school shutdowns and individual-level data on school attendance and returns to schooling. The total loss in LAYS is estimated for two groups of young people: (1) those who eventually returned to school but experienced imperfect mitigation strategies and (2) those who never returned to school or dropped out. The average LAYS loss is then calculated by taking the weighted mean of these two groups, using the NLPS Round 6 weights.

For those students *who returned to school*, school closures during the COVID-19 crisis resulted in a loss of 0.19-0.20 LAYS, under different assumptions of mitigation effectiveness. These estimates account for the fact that: (1) mitigation measures for school closures (such as remote learning) are imperfect, particularly in developing countries, which increases the loss in LAYS relative to perfect mitigation measures; and (2) the actual productivity of schooling in Nigeria is lower than in the most developed countries (with or without the pandemic), which decreases the magnitude of the loss. In particular, it is assumed that mitigation strategies have an effectiveness of 0.05, 0.10, and 0.14, where 1 represents a completely effective replacement of on-site learning and 0 represents no effectiveness in replacing on-site learning. These parameters come from the "Intermediate Scenario" of COVID-simulations underlying Azevedo *et al.* (2020).

Meanwhile, the loss in LAYS for the subset of those students *who dropped out* is 2.00, significantly higher than the 0.19 LAYS lost among those who returned to in-person schooling after remote learning. This estimate incorporates a simple prediction model for each individual's expected years of schooling that is estimated using the 2018/19 GHS. Specifically, a simple regression with years of education as the dependent variable and a gender dummy, state dummies, and an urban dummy (all interacted) are included as the regressors, focusing on the sample of those who were aged 20-25 – and would thus have completed secondary education – at the time of the survey.

Annex 2
Supplementary tables

Table 2. **March 2021 school attendance, smaller sample (conditional on school attendance in October 2020)**

VARIABLES	(1) Age	(2) Age and sex	(3) Zone	(4) Zone and sex	(5) Zone and age
Age 15-18	-0.138*** (0.0336)				
Age 5-11	0.0496** (0.0232)				
Zone = North East			-0.128*** (0.0432)		
Zone = North West			-0.0661 (0.0570)		
Zone = South East			0.0239 (0.0331)		
Zone = South South			0.0309 (0.0310)		
Zone = South West			0.0583** (0.0252)		
Zone = North East				-0.138*** (0.0337)	-0.145** (0.0563)
Zone = North West				-0.104 (0.0649)	-0.0797 (0.0876)
Zone = South East				0.00328 (0.0200)	0.0718* (0.0414)
Zone = South South				-0.0616 (0.0365)	0.104** (0.0404)
Zone = South West				0.0213 (0.0153)	0.0627 (0.0479)
Age 15-18		-0.171*** (0.0376)			-0.144*** (0.0516)
Age 5-11		0.0434 (0.0325)			0.0699* (0.0411)
Zone = North East, Age 15-18					0.0482 (0.118)
Zone = North East, Age 5-11					-0.00638 (0.0786)
Zone = North West, Age 15-18					-0.0405 (0.0820)

Zone = North West, Age 5-11					0.0186 (0.0790)
Zone = South East, Age 15-18					-0.0168 (0.0695)
Zone = South East, Age 5-11					-0.0835* (0.0449)
Zone = South South, Age 15-18					-0.0699 (0.108)
Zone = South South, Age 5-11					-0.0959** (0.0457)
Zone = South West, Age 15-18					0.0622 (0.0591)
Zone = South West, Age 5-11					-0.0327 (0.0498)
Female		-0.0398 (0.0441)		-0.0822 (0.0563)	
Zone = North East, Female				0.0267 (0.0638)	
Zone = North West, Female				0.0786 (0.0704)	
Zone = South East, Female				0.0394 (0.0605)	
Zone = South South, Female				0.194*** (0.0670)	
Zone = South West, Female				0.0775 (0.0614)	
Age 15-18, Female		0.0695 (0.0676)			
5-11, Female		0.0119 (0.0448)			
Female	-0.0193 (0.0219)				
Constant	0.881*** (0.0284)	0.892*** (0.0331)	0.903*** (0.0237)	0.942*** (0.0127)	0.896*** (0.0404)
Observations	2,268	2,268	2,268	2,268	2,268
R-squared	0.047	0.049	0.035	0.044	0.093

Robust standard errors clustered by Round 6 state in parentheses. Estimates weighted by Round 6 sample weights.
*** p<0.01, ** p<0.05, * p<0.1

Table 3. **Sample selection differences: likelihood of school attendance in October 2020**

VARIABLES	(1) Whether attending school in Oct. 2020
Zone = North East	-0.0767** (0.0390)
Zone = North West	-0.159*** (0.0369)
Zone = South East	0.0526 (0.0387)
Zone = South South	-0.0741* (0.0443)
Zone = South West	0.0646 (0.0441)
Age 15-18	-0.117*** (0.0357)
Age 5-11	-0.0562* (0.0291)
Female	0.0244 (0.0235)
Wealth Quintile 2	0.0413 (0.0389)
Wealth Quintile 3	0.0749* (0.0396)
Wealth Quintile 4	0.0914** (0.0390)
Wealth Quintile 5	0.0190 (0.0420)
Constant	0.678*** (0.0485)
Observations	3,403
R-squared	0.041

Robust standard errors in parentheses. Estimates weighted by Round 6 sample weights.

*** p<0.01, ** p<0.05, * p<0.1

Annex 3
Calculating welfare lost due to rising prices

As prices rise, the cost of buying the key goods that Nigerians consume increases, reducing purchasing power and, in turn, welfare. One way to understand the extent of these welfare losses is to calculate the money needed to maintain households' per capita consumption at the same level even as prices rise, known as the "compensating variation." Households' exposure to price shocks depends on the share of overall expenditures they devote to each purchased good, which is captured by the 2018/19 NLSS.

Calculating the compensating variation then hinges on mapping the item-level price data published by the NBS into the consumption basket from the 2018/19 NLSS. The analysis here focuses only on consumption of *purchased* items when calculating the compensating variation, as these are the items that would be directly affected by increasing prices. The price shocks are not applied to non-purchased items. This differs from the approach used in the June 2021 Nigeria Development Update (see World Bank, 2021d), where the price shocks were applied to non-purchased items too.

The resulting increase in the share of people living below the national poverty line due to food price inflation is estimated in three main steps. First, welfare losses are calculated for each decile of the consumption distribution. Second, these decile-level welfare losses are applied to the existing consumption distribution to generate a new post-inflation consumption distribution. Third, this post-inflation consumption distribution, is compared to the national poverty line to estimate the poverty headcount rate for the population as a whole, and for rural and urban dwellers.

While these calculations make clear the severe welfare effects of inflation, they carry three key caveats. First, the NBS data on which the analysis is based comprise just 43 selected food items for which prices are made public, covering less than a quarter of the average Nigerian consumption expenditures basket. Prices were likely increasing for other items in the basket, which would deepen the effects on purchasing power, welfare, and poverty. Second, households may purchase less expensive items to cope with the rising prices which could reduce some of the

measured impacts: this type of substitution between goods is not captured by the analysis. Third, the analysis focuses only on consumption and does not consider the effects of price rises on the earnings of households that are net producers. For example, households selling the goods for which prices are rising may enjoy increased profits. The first caveat would likely lead the approach applied here to underestimate the true effects of inflation on poverty, while the second and third caveats would suggest the approach applied here would be an overestimate. This makes it difficult to assess whether the results are biased upwards or downwards.

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Human capital
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