



Special Series on COVID-19

The Special Series notes are produced by IMF experts to help members address the economic effects of COVID-19. The views expressed in these notes are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

November 10, 2021

Jobs in Lockdown: Insights from Sub-Saharan Africa

Prepared by Aqib Aslam, Habtamu Fuje, and Henry Rawlings. Data for this project were kindly provided by Ethiojobs.net and Fuzu Ltd.

Even before the COVID-19 pandemic, countries in sub-Saharan Africa (SSA) had been struggling to create job opportunities of a sufficient quality for their growing workforces. Since the onset of the pandemic, what limited opportunities were available have likely been severely impacted by repeated lockdowns. Using data for online employment vacancies from three frontier SSA economies, we find that formal job postings declined sharply just before the first local COVID-19 cases were detected and restrictions on movement were implemented. However, the impact on formal job opportunities advertised online appears to have been short-lived across all types of jobs regardless of their contact intensity and skills or educational requirements. This is likely linked to the limited teleworking capabilities across all job types in the region and the resumption in mobility despite restrictions. Losses of income and opportunity are likely to have been even more severe for low-skill, low-paid jobs in the urban informal economy, given their relatively weaker job security and even greater difficulty to perform remotely. With this in mind, governments must continue to find the policy space to expand social protection for the most vulnerable, notably in the informal sector.

SUB-SAHARAN AFRICAN LABOR MARKETS DURING LOCKDOWN

The pandemic negatively impacted labor demand in the region, with implications for employment, hours worked, and income.¹ Restrictions implemented in response to the COVID-19 pandemic caused large disruptions to economic activity (Figures 1 and 2)², driving job availability down as sales and profitability collapsed and businesses were forced to shed workers. A substantial share—93 percent—of the global workforce continued to live with some form of COVID-19-related workplace restrictions as of January 2021 (ILO 2021). At the onset of the pandemic, four-in-five African workers resided in countries that experienced

1/ COVID-19 has likely reinforced the continent's preexisting labor market challenges, which are summarized in Box 1.

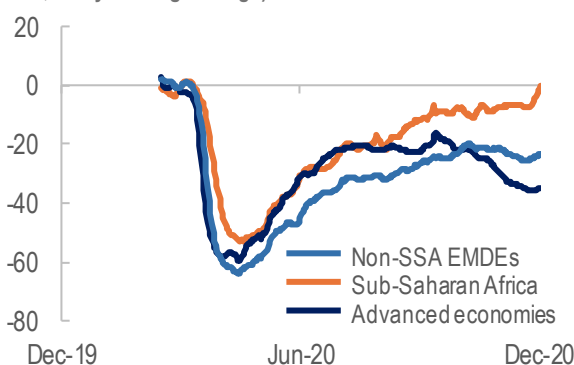
2/ Economic activity collapsed following the implementation of lockdowns, before partially recovering in subsequent months. Google mobility indicators show that SSA, like other regions, registered a large decline in activity, which bottomed out (–50 percent) by the end of April 2020. The stringency of non-pharmaceutical measures in SSA increased to almost 80 (near full lockdown).

workplace closures, decreasing to one-in-five workers by June 2020. Workers in lower-middle-income countries were among the hardest hit, with an estimated 23 percent decline in hours due to unemployment, inactivity, or reduced working hours. However, even though African workers experienced substantial losses in working hours, the magnitude was smaller compared to other regions. Overall, 8.9 percent of total valuable working hours—and, therefore, income—were lost across Africa in 2020.³

Figure 1. Transit Mobility, 2020

Mobility declined sharply in March/April 2020 before recovering quickly. . .

(Index, 7-day moving average)

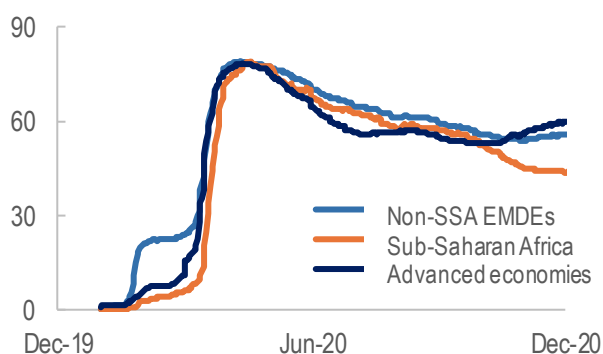


Sources: Google COVID-19 Community Mobility Reports; and IMF staff calculations.
Note: Non-SSA EMDEs = Non-sub-Saharan African emerging market and developing economies.

Figure 2. Stringency Index, 2020

. . . stemming largely from national lockdowns aimed at mitigating the pandemic

(Index, average)



Sources: The Oxford COVID-19 Government Response Tracker; and IMF staff calculations.
Note: Non-SSA EMDEs = Non-sub-Saharan African emerging market and developing economies.

Given the impact on formal employment, the relative scale and vulnerability of informal employment in the region suggest that it is likely to have suffered even more. With up to 90 percent of workers in SSA employed in the informal sector, many were already vulnerable to poverty and food insecurity before the pandemic (ILO 2020b). Therefore, movement restrictions in SSA likely had a much greater negative impact on the urban poor working in the informal sector, where activities typically rely more on face-to-face (FTF) interactions, for example, hospitality, personal services, street vendors, and transport providers. The ILO (2020a) estimated informal workers in SSA suffered an 81 percent loss in earnings during the first month of lockdowns and border closures. Women and low-skilled workers are also more likely to be employed in informal contact-intensive sectors, exacerbating the socioeconomic challenges they already face.⁴

High-frequency labor market data for SSA is limited, so the full impact of lockdowns on overall employment remains unclear. Telephone surveys conducted in a subset of SSA countries after the outbreak in March 2020 indicate that employment was hit hard initially in April/May, before it recovered quickly in the subsequent months (Figure 3a).⁵ These surveys, however, do not have comparable statistics in the months ahead of the initiation of lockdowns, making it difficult to gauge the full extent of the decline in employment.

3/ The global average of losses in working hours are estimated at 17 percent for 2020:Q2 and 12 percent for 2020:Q3 (relative to 2019:Q4), reflecting higher unemployment and strong exit from the labor force (ILO 2020a).

4/ Prior to the pandemic, 40 percent of SSA's female workers were employed in the services sector—including hotels, restaurants, and social and community services—compared to 34 percent for male workers. According to analysis conducted by McKinsey Global Institute, prior to the pandemic, retail, and hospitality sector along with manufacturing was forecasted to be a major source of stable employment outside agriculture in Africa by 2020 (Fine and others 2012). Lockdowns, however, have put a dent in employment potential of the subsector.

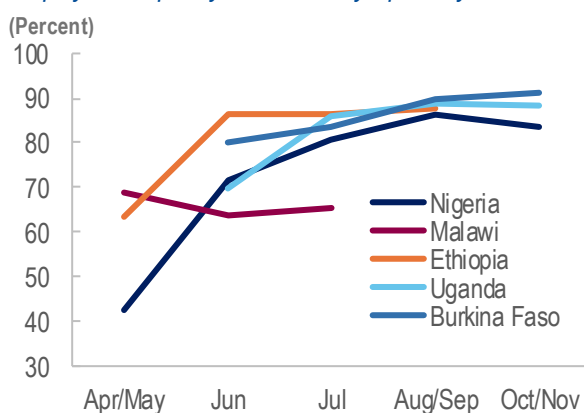
5/ The World Bank-supported High-Frequency Phone Surveys on COVID-19 are panel surveys that track the same households on a monthly basis. The surveys are conducted in Burkina Faso, Ethiopia, Malawi, Nigeria, and Uganda—countries we included in the analysis—as well as several other countries in the world. The surveys started in April/May 2020. So far, several countries have published multiple rounds of the survey data. We focus on the surveys conducted during the first major lockdown in the continent (April–Dec 2020).

Quarterly employment data for South Africa clearly illustrate the impact on employment: as containment measures were instigated, employment experienced a sharp decline of 690,000 jobs (6.8 percent) between March and June 2020, then recovered partially by 2020:Q4.⁶ Informal employment in trade, transportation, and services also registered a large decline.

However, the negative impact on income is clear. More than half of the households surveyed in selected SSA countries immediately after the onset of the pandemic and associated lockdowns reported losing some or all their incomes. In Malawi and Nigeria, for example, three out of four households reported losing their incomes partially or fully.⁷ In subsequent months, however, the share of households that did not experience further income losses increased significantly as countries moved to reopen (Figure 3b).

Figure 3a. Workforce Employment, 2020

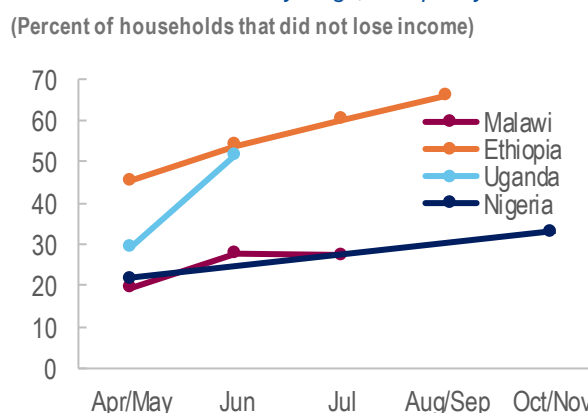
Employment quickly recovered by April/May 2020



Sources: World Bank High-Frequency Phone Surveys on COVID-19; and IMF staff calculations.

Figure 3b. Recovery of income Losses, 2020

Income losses were initially large, but quickly recovered



Sources: World Bank High-Frequency Phone Surveys on COVID-19; and IMF staff calculations.

Evidence from other regions indicate that jobs requiring intensive contact (FTF interactions) have been among the worst affected given the need for social distancing. In AEs, jobs that require fewer FTF interactions—and are, therefore, more conducive to teleworking—are found to have been far less affected compared to those with greater contact intensity—and hence less amenable for remote work—such as in tourism, travel, hospitality, and retail services (ILO-OECD 2020). Data from the US show that employment loss in non-essential contact-intensive industries were as high as 35 percent between February and May 2020, and workers in jobs with high-FTF interactions were 13 percent more likely to find themselves unemployed (Famiglietti, Leibovici, and Santacreu 2020, Montenegro and others 2020). In Latin America, employment fell sharply in contact-intensive sectors though it rebounded after May 2020 due to lower compliance with lockdowns and gradual reopening (IMF 2020). Furthermore, high-skilled, well-paying jobs tend to be more correlated with fewer FTF interactions and can, therefore, be performed with much less contact (Avdiu and Nayyar 2020).

Lockdowns particularly impacted the tourism sector—an important source of jobs for a number of SSA economies and entails high-FTF interactions. Tourism contributed to 8.5 percent of Africa’s GDP in 2018 and supported about 24 million jobs (AfDB 2021). In the SSA region, 13 countries had over 15 percent of their exports stem from tourist receipts, in five of which the figure exceeded 50 percent in 2018. International flights to SSA collapsed in 2020, down almost 91 percent from the previous year at its lowest point in April (Figure 4).

6/ The data are taken from the Quarterly Labor Force Survey, Statistics of South Africa.

7/ Some households have reported that they lost all their incomes. In Ethiopia and Uganda, for instance, about 4 percent and 9 percent of households lost all their incomes in April/May 2020, respectively.

Indeed, an estimated 98 percent fewer international tourists arrived in Africa between April and June 2020 (AfDB 2021). Lockdowns risked losing 100 million tourism jobs globally, in addition to other sectors closely associated such as food services. Small business (which comprise 80 percent of global tourism) and women (who comprise 54 percent of the tourism workforce) remain particularly exposed to job loss risks (UNWTO 2020). Though employment data for the region remains sparse, Cabo Verde and Mauritius—whose exports comprise 54 and 39 percent tourism receipts respectively—each saw increases of about 3 percent in their unemployment rates for 2020. Cabo Verde’s accommodation and restaurant sector saw a 26 percent decline in employment, its first decline since 2011.

Many SSA countries also have large subsistence

agriculture sectors, which are less likely to be affected by lockdowns with low FTF interactions. With the imposition of lockdowns from March/April 2020—when most farmers end their crop harvesting and start planting for the next season—an initial concern was agriculture would be adversely affected and the continent will see further elevation in food insecurity (Blanke 2020, Ayanlade and Radeny 2020). The emerging evidence, however, indicates that agriculture showed resiliency and, as employment opportunities in other sectors became scant, even started providing livelihoods for those who were not initially working in the sector (Amankwah, Gourlay, and Zezza 2021). The continent also leveraged the existing limited digital technologies to increase market efficiency along agricultural value chains and to create new jobs and business opportunities in the sector (Toe and Cheng 2021).

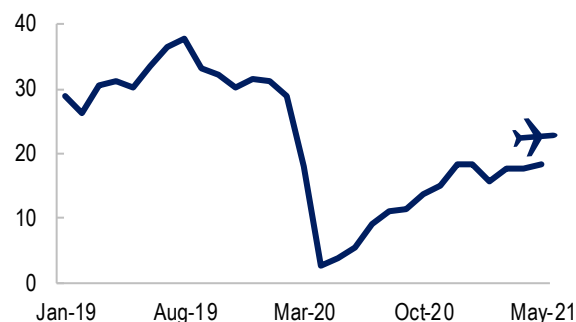
In general, the necessary preconditions for teleworking in SSA—which include reliable connectivity, electricity, and available working space—are far less likely to be satisfied.

The amenability of remote work tends to improve with the economic development of the country. Furthermore, SSA has an environment far less conducive for teleworking along multiple dimensions compared to other emerging market and developing economies (EMDEs) and advanced economies (AEs) (Figure 5). Studies have also found that only one out of every 26 jobs in low-income countries can be done from home after controlling for infrastructure constraints (Garrote Sanchez and others 2020) and that fewer than 10 percent of urban jobs in developing countries can be done from home due to the nature of the associated tasks (Gottlieb and others 2021). Internet access at home is identified as a key determinant of working from home (Hatayama, Viollaz, and Winkler 2020). However, only 19 percent of residents of SSA had access to the internet as of 2017. Faced with such constraints, it is likely that jobs that could normally be accomplished remotely in AEs cannot easily be shifted to remote work in SSA.

Figure 4. International Arrivals to SSA, 2019–21

Flights to SSA collapsed and have yet to recover to pre-pandemic levels

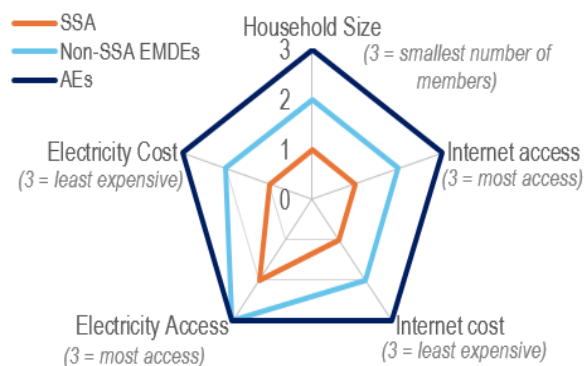
(Number of flights, thousands per month)



Sources: FlightRadar24; and IMF staff calculations.

Figure 5. Teleworking Indicators, 2017–19

Factors supporting teleworking are largely absent in SSA
(Ranking)



Sources: International Telecommunication Union; United Nations Department of Economic and Social Affairs; World Bank; and IMF staff calculations.

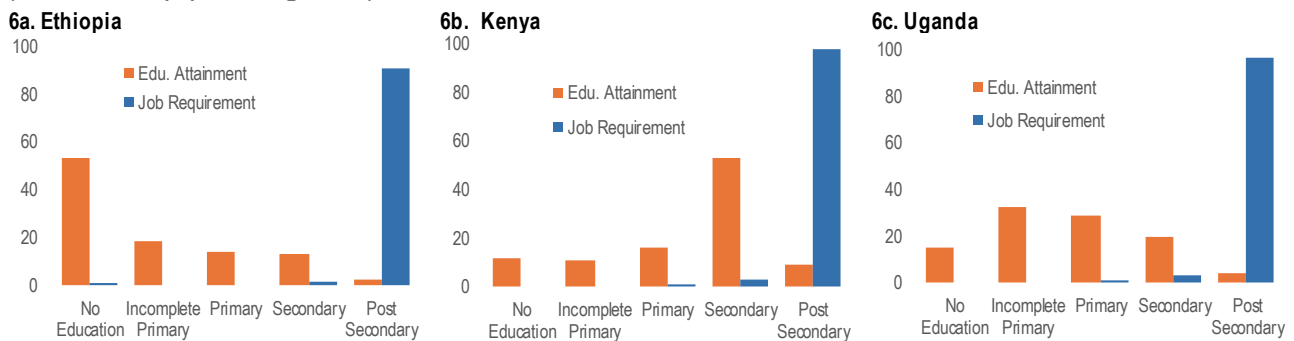
Note: Household size is the average number of members in 2019, internet access is percent of population above 5 years old in 2017, internet cost is for fixed broadband as a percent of GDP per capita 2019, electricity access is percent of the population 2018, and electricity cost is percent of income 2019. AEs = advanced economies; EMDEs = emerging market and developing economies; SSA = sub-Saharan Africa.

Changes in online job postings can provide valuable information on shifts in labor demand, with implications for the availability of employment opportunities. Data sets from online jobs postings platforms in Ethiopia, Kenya, and Uganda were used (Box 2). These platforms typically cater to large, private sector, nongovernmental formal-sector employers searching for individuals with high skills and strong educational backgrounds.⁸ However, the average qualifications of individuals in these countries—and more broadly across SSA—is low (Figure 6),⁹ and these types of jobs constitute only a very small fraction of the overall job market in these countries. Despite their low coverage, the websites can nonetheless provide important insights on the scale of opportunities available for professionals and the relatively higher-skilled segment of the labor force during lockdowns—jobs that might also be traditionally characterized by low FTF interactions. Furthermore, they can provide important indications of broader labor market trends, which could be amplified in the lower-skilled, higher-FTF interactions informal sector.

Figure 6. Education Attainment and Job Posting Requirements, 2020

Online job postings skew heavily toward higher-educational requirements relative to the distribution of education levels across the labor force

(Percent of total population age 15–64)



Sources: Fuzu; Ethiojobs.net; Wittgenstein Centre Human Capital Data Explorer; and IMF staff calculations.

Note: 2020 figures are based on projections from the 2018 assessment of “Demographic and Human Capital Scenarios for the 21st Century.”

Job postings data confirm labor demand plummeted following the imposition of containment measures but improved gradually as mobility resumed. Job vacancies advertised by firms using these sites in Ethiopia, Kenya, and Uganda declined by more than 60 percent over a period of two months between early March and April 2020—as local cases started rising significantly, but well ahead of the first wave’s peak in August (Figure 7). Job availability continued to improve through the third and fourth quarters of 2020 even as daily COVID-19 cases were reaching new peaks in the region. The recovery in job postings after the initial COVID-19-wave and associated lockdowns was faster in Ethiopia, where job vacancies started to increase by late May 2020, and surpassed pre-pandemic levels by November 2020. In Kenya, where a lockdown was announced in late April 2020, job availability started to recover later, around August. The job recovery was also slow in Uganda, but unlike Ethiopia and Kenya, the number of postings remained below pre-COVID-19 levels at the end of 2020 (Figure 7).¹⁰ The negative impact of the second wave is also noticeable at the tail end of the data for Kenya and Uganda.

8/ 70–80 percent of job vacancies advertised on these platforms typically require a minimum qualification of a bachelor’s degree education or above.

9/ In terms of educational attainment, Kenya performs slightly better than the other two countries (and the SSA average), with more than half of the workforce possessing secondary or post-secondary qualifications.

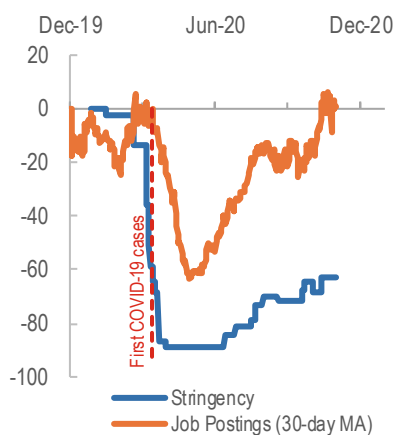
10/ The recovery in Uganda likely stalled between October and November 2020 due to political instability following the arrest of the opposition leader, and again in December 2020 just prior to the election.

Figure 7. Job Postings and Pandemic Response, 2020

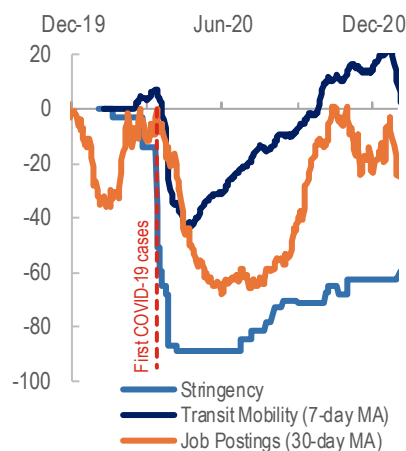
Stringency and mobility impacted job postings differently in each country

(Index)

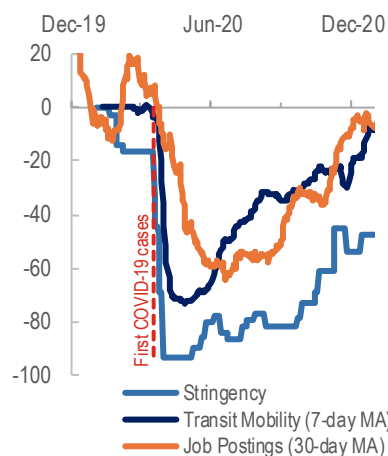
7a. Ethiopia



7b. Kenya



7c. Uganda



Sources: Fuzu; EthioJobs; The Oxford Government Response Tracker; Google COVID-19 Community Mobility Report; and IMF staff calculations.

Note: The values in each panel are indexed, where zero represents the 30-day moving average on the day of the first COVID-19 case for each country. The sign of the stringency index has been reversed: a more negative number means greater stringency of policies on movement and activity.

Vacancy postings declined uniformly for all job categories regardless of the differences in the intensity of FTF interactions (Figure 8). On average, across the jobs posted online in the three countries during the sample period, only 22 percent were highly contact-intensive.¹¹ Without adequate infrastructure, a teleworkable job—typically with lower FTF interactions—does not imply that employees nor businesses can switch easily to remote work during lockdowns, as connectivity conditions in these countries do not permit it. Therefore, we see that the demand for jobs declined across the board, regardless of differences in the level of contact-intensity, once containment measures were put in place in Ethiopia, Kenya, and Uganda. The drop in postings at their lowest were more than 60 percent in all three countries, the lowest being in Kenya at 68 percent, and were similar irrespective of degree of contract intensity.

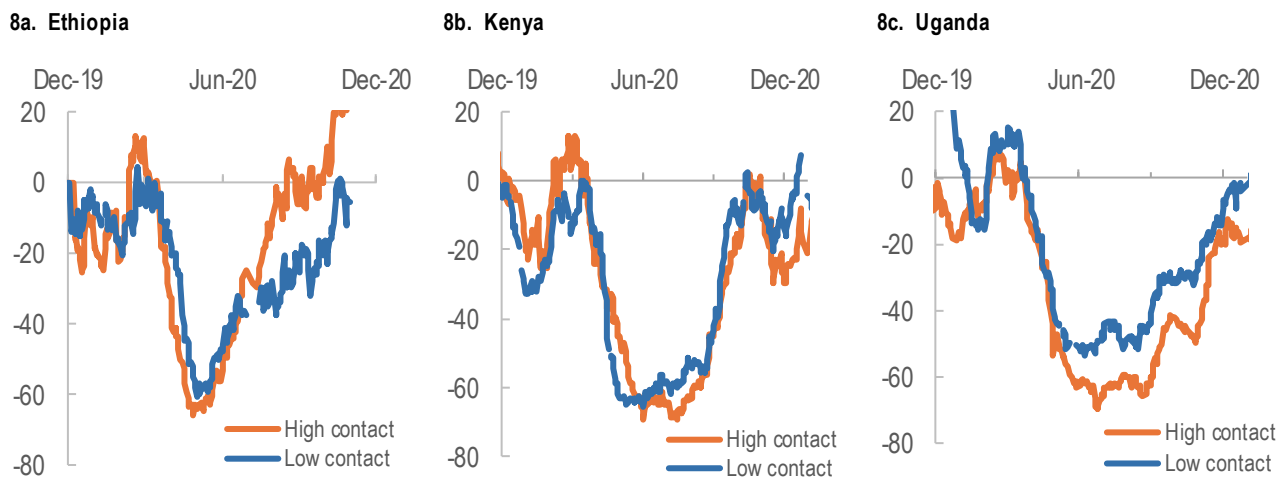
While the drop in postings for jobs with different levels of contact intensity has been broadly similar, the shape of the uptick differs across countries (Figure 8).¹² In Ethiopia, high-contact jobs picked up the fastest of the three countries, while low-contact jobs lagged behind and remained slightly below pre-pandemic levels. In Kenya, jobs followed a similar pattern of recovery pattern irrespective of the share of contact-intensive jobs: they declined sharply before recovering to pre-pandemic levels at the start of 2020:Q4, then dipping slightly before improving again. The online job-market in Uganda recovered the slowest of the sample. Though the pandemic negatively impacted high-contact jobs slightly more than low-contact, both failed to reach pre-pandemic levels by the end of 2020:Q4.

11/ Professional science and technology jobs—which include accounting and engineering—require low FTF interactions and accounted for a large portion of the overall job postings, while food, retail, and health/social work jobs require more FTF interactions. See Box 2 for a summary of the data, including the distinction between “high” or “low” contact intensity.

12/ A further analysis on the drivers of job postings shows that low and high FTF contact job postings were affected similarly by stringency of non-pharmaceutical measures and mobility indicators. The results are excluded for conciseness.

Figure 8. Job Postings by Contact Intensity, 2020

The pandemic affected high- and low-contact jobs similarly, though high-contact jobs rebounded slightly quicker in Ethiopia
(Index, 30-day moving average)



Sources: Fuzu; Ethiojobs.net; The Johns Hopkins University Center for Health Security; and IMF staff calculations

Note: The values in each panel are indexed, where zero represents the 30-day moving average on the day of the first COVID-19 case for each country.

Given the limits to remote working and low compliance with movement restrictions, changes in mobility exerted a larger impact on job postings and labor demand than the stringency of non-pharmaceutical interventions (Figures 9 and 10).¹³ Despite the spike in COVID-19 cases over the sample period, improved job availability was associated with improvements in mobility indicators.¹⁴ While data are available for Kenya and Uganda only, a 10 percentage points (ppts) increase in mobility around transit hubs was associated with a 6.4 ppts increase in job postings. This association is stronger in Kenya (10.3 ppts) than Uganda (5.7 ppts). Similarly, increased mobility in retail and recreation centers, and groceries and pharmacies are associated with more job postings.¹⁵ In contrast, a 10 ppts increase in the stringency of restrictions was associated with only a 2.3 ppts decrease on average in job availability, with the increase strongest in Uganda (Figure 10).¹⁶

As mobility and economic activity continued to improve despite the increasing new COVID-19 cases, the negative association between COVID-19 cases and job postings/availability was found to be very weak. In Uganda, a 10 percent increase in new COVID-19 cases was associated with only a 1.2 percent drop in the number of vacancies—smaller than the estimates for both mobility and stringency indicators—while COVID-19 cases were not found to have any significant impact on postings in the other two countries. In the case of SSA, lockdowns were largely uncorrelated with COVID-19, as countries locked down much sooner in response to broader global infection trends rather than local developments. Subsequently, lockdowns were also lifted to

13/ This ordinal comparison used standardized regressors. Transit mobility indicator continued to show a stronger association with job postings than the degree of stringency.

14/ Mobility is measured using Google COVID-19 Community Mobility Reports available for 26 countries in SSA, not including Ethiopia. It is important to note that the measurement is biased toward SSA mobile internet users (272 million as of 2019) (GSMA 2020). Nonetheless, the data provide an important way to assess the impact of non-pharmaceutical interventions on activity and movement across the region.

15/ With the exception of mobility around public parks, all indicators are of the expected sign. As a robustness check, a full set regression of job postings on all individual Google mobility indicators has been implemented. The use of quantile regressions, instead of the generalized least square/GLS regressions results that are presented above, also does not change the main findings. All these results are not shown for conciseness.

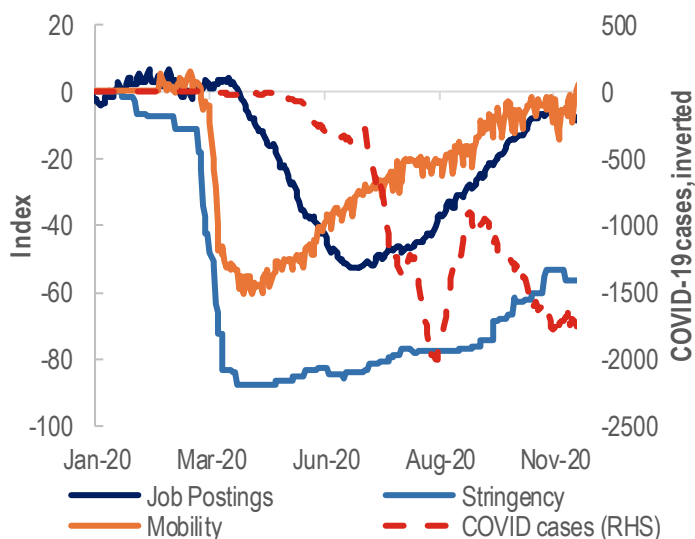
16/ The stringency index is the average of nine sub-indices pertaining to the individual policy indicators, from school closures to the banning of international travel. As a robustness check, the aggregate stringency index was replaced by each of the individual sub-indices. The results were consistent with those using the aggregate stringency index, with the exception of a handful of sub-indices that displayed less variation less over time.

some extent independently of COVID-19 cases, but rather out of economic necessity. It is likely that other (possibly economic) factors beyond the prevalence of the virus have been driving labor demand in addition to the overall lower stock of cases across the region compared to the rest of the world.

Jobs of all skill levels were negatively impacted by the COVID-19 shock. As noted, the educational and skills requirements for the online job postings in the sample are typically high relative to typical educational attainment in each country. A comparison of job vacancies with the minimum requirement of a bachelor's degree ("high-skill") and those that require only high school and/or vocational or technical school qualification ("low-skill") produced little variation in the extent to which they were affected by COVID-19. The availability of both high- and low-skill jobs declined as the first wave of the pandemic hit and subsequently recovered (Figure 11). This is consistent with the finding that jobs with both low FTF interaction, typically done by high-skilled workers, and high FTF interaction, typically associated with low-skill workers, are almost equally affected by the pandemic in the sampled countries.

Figure 9. Job Postings, Pandemic Response, and COVID-19 cases, 2020

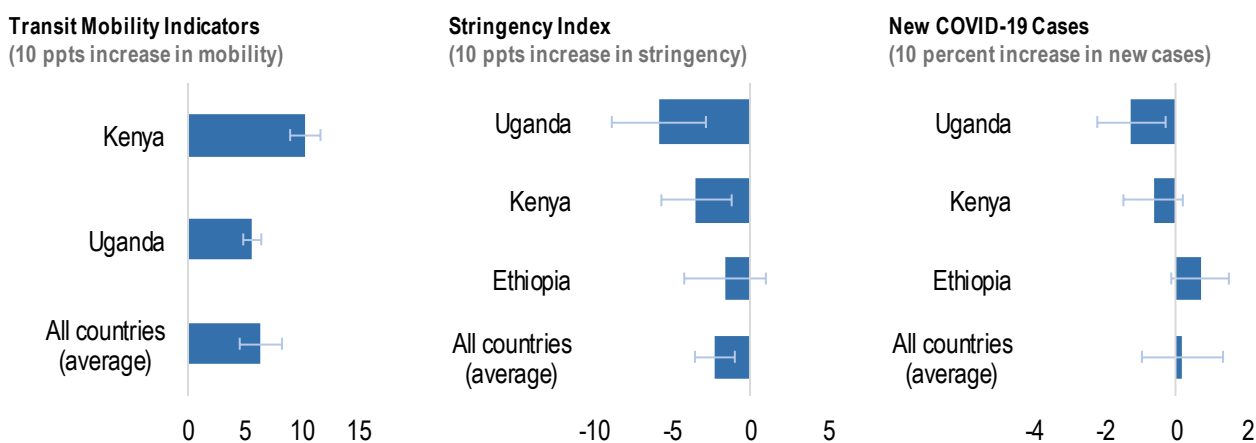
Job postings tended to rebound as transit mobility increased



Sources: Fuzu; Ethiojobs.net; The Oxford Government Response Tracker; Google COVID-19 Community Mobility Reports; and IMF staff calculations. Note: The figure presents the average values for Kenya, Uganda, and Ethiopia. No data on transit mobility are available for Ethiopia, and hence the mobility index is the average for Kenya and Uganda. COVID-19 cases are the 7-day moving average for cumulative new cases in the three sample countries, multiplied by -1 for the visualization.

Figure 10. Mobility, Stringency, and COVID-19 Cases, Association with Job Postings

The degree of mobility has the strongest association with job postings

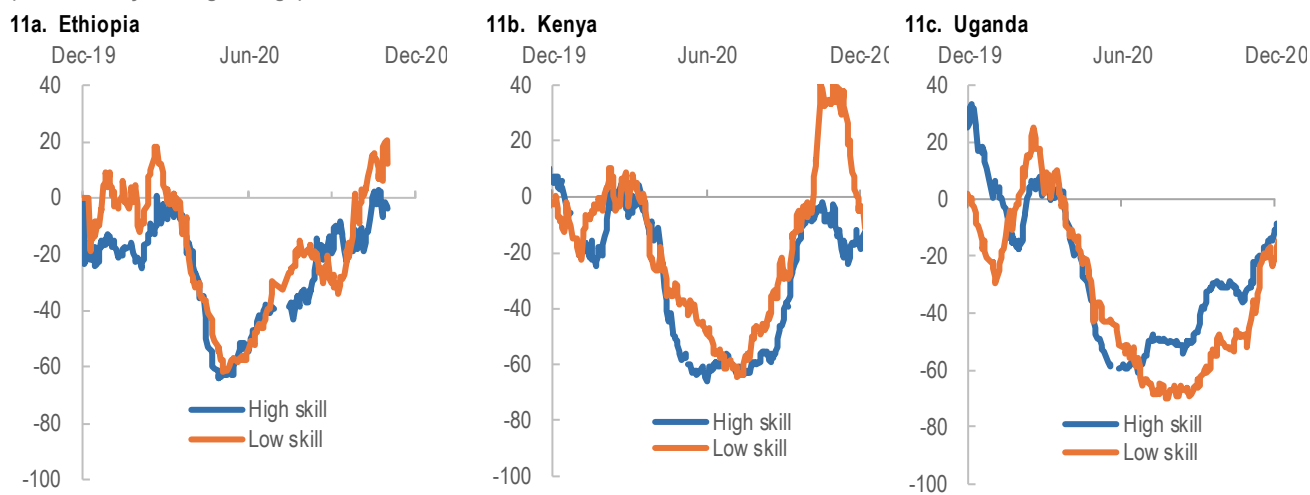


Sources: Fuzu; EthioJobs; The Johns Hopkins University Center for Health Security; The Oxford Government Response Tracker; Google COVID-19 Community Mobility Reports; and IMF staff calculations. Note: The figures present estimates from generalized least square regressions of the number of job postings per day on new cases of COVID-19, mobility and stringency indices, as well as country and month fixed effects. The 95 confidence intervals are shown by the horizontal lines. ppts = percentage points.

Figure 11. Job Postings by Skill Level, 2020

COVID-19 impacted job postings with different skill requirement equally

(Index, 30-day moving average)



Sources: Fuzu; EthioJobs; The Oxford Government Response Tracker; Google COVID-19 Community Mobility Reports; and IMF staff calculations.
Note: Any job requiring an educational attainment higher than secondary education was considered “high-skilled,” and all else was considered “low-skilled.” The values in each panel are indexed, where zero represents the 30-day moving average on the day of the first COVID-19 case for each individual country.

MOVING TOWARD A JOB-RICH FUTURE FOR SUB-SAHARAN AFRICA

In the face of a severely delayed vaccine efforts, many countries in SSA have experienced multiple pandemic and lockdown shocks. The repeated waves of COVID-19 since March 2020 have in some—but not all—cases been accompanied by lockdowns in movement and activity, leading to a stop-start cycle for jobs and the labor market. This has increased income uncertainty and triggered greater instability within the private sector, with businesses struggling more than ever to create much-needed jobs. The shock to livelihoods has also meant that countries across the region have been either unsuccessful or less willing to enforce stringent lockdowns in movement and activity.

While the data show a sharp drop in online job opportunities in Ethiopia, Kenya, and Uganda, the impact is likely to be felt more acutely for urban informal workers. Virtual job postings—which typically cover only a fraction of the job market and typically higher-skilled and better-paying jobs with greater returns and potential for teleworkability—saw a sharp decline and only a gradual recovery. Changes in mobility were more closely associated with the recovery in the job market, with the number of COVID-19 cases and stringency of lockdown measures exerting a much weaker influence.

Income losses are likely to have been even more severe for low-skilled, low-wage workers in the informal services economy. The relatively weaker job security and even greater limitations to working remotely suggest that the informal sector would have been hit even harder than the formal sector. Furthermore, the absence of adequate social protection measures means that job losses during frequent lockdowns translate into the loss of essential lifelines for the unemployed and informal workers alike. Improving access to vaccination for a safe return to usual economic activity is critical to avert further loss of livelihoods.

As the pandemic recedes, lockdown policies will have to be smarter and provide scope for activity to continue, even if under certain restrictions, to prevent economic hardship. While numerous hurdles to private sector development remain entrenched in many SSA economies—for example, weak business environments, limited access to finance, infrastructure gaps, and low sectoral diversification that constrains

opportunities for spillovers—governments must continue to find ways to support livelihoods, either through expanding social safety nets or better targeted policies that assist (self-employed) businesses and employees to continue working throughout all phases of the pandemic, while also boosting women’s economic empowerment. For example, targeted workplace subsidies to support greater teleworking capabilities or the provision of vital PPE (personal protective equipment) for more contact-intensive activities could limit job losses and enlarge the scope for the continued and safe conduct of business.

BOX 1. PREEXISTING LABOR MARKET CHALLENGES IN SUB-SAHARAN AFRICA

Sub-Saharan African countries have an urgent need to create jobs to help absorb their growing labor force s. Even before the pandemic, the region struggled to create sufficient jobs for its growing working-age population, which is expected to quadruple to 2.3 billion—from 11 percent to 35 percent of the global working age population—by the end of the century (UN 2019). This challenge is aggravated further by the specter of automation and the corresponding decline in the labor share of income (IMF 2017). In the absence of sufficient employment opportunities, inequality, informality, migration, and social unrest could intensify.

On the demand side, a number of factors constrain private sector development—as well as capital formation—and, therefore, job creation. Unstable macroeconomic conditions, deficient infrastructure, a poor business environment, weak governance, and political instability hinder the ability of local firms to create a stable stream of jobs (Fine and others 2012). Limited access to finance also prevents resources from being allocated toward better-performing, job-rich activities. Analysis of the World Bank Enterprise Surveys of formal service and manufacturing sector firms in 119 countries shows that firms in SSA also tend to be 20–24 percent smaller than firms in other regions of the world (Iacovone, Ramachandran, and Schmidt 2014). The public sector also tends to dominate formal employment in SSA, in some cases acting as the employer of first resort.

On the supply side, schooling and training programs often fail to provide skills that employers seek, despite important strides in educational attainment. Limited space in tertiary education, the quality of education, and “brain drain” remain major challenges for SSA economies to adapt to a changing demand for skills in the job market. With growing demand for advanced STEM and ICT skills across a wide range of industries, almost 90 percent of African business leaders identifies skills shortages as a major constraint to their operations (PwC 2019).

Across manufacturing and construction as well as agriculture sectors, high-skill workers are in short supply, while oversupply of low-skill labor is observed. For example, in the manufacturing sector of Ethiopia, medium- to high-skill positions such as machine and process operators, mechanists, quality control and technicians are in high demand but undersupplied. On the contrary, low-skill positions are in far less demand but higher supply (ILO 2020c). According to the World Economic Forum’s Human Capital Index (2016), only 6 percent of SSA labor force is highly skilled, compared to 24 percent in the rest of the world.¹⁷ The low share of high-skill labor reflects, in part, low educational attainment,¹⁸ an inability to sufficiently remunerate certain skillsets and prevent their departure abroad,¹⁹ and lags in human capital development. In addition, low-skill workers are at far greater risk from job losses from automation.

^{17/} Botswana, Mauritius, and South Africa have the largest share of highly skilled labor in the continent, while Burkina Faso, Burundi, and Guinea have the smallest (WEF 2017).

^{18/} Despite growing investment in education in the past decade (4.3 percent of GDP as of 2018), educational attainment remains low in SSA, particularly in tertiary education. Countries with low per capita income, mostly in SSA, tend to have lower educational attainment, and the continent’s average learning-adjusted years of schooling is just over half that of other EMDEs and less than half that of AEs. Despite relatively high enrollment in primary school (79 percent), post-primary education is limited—with enrollment in secondary and tertiary school standing just at 50 percent and 7 percent, respectively (WEF 2017). In addition, there is no direct relation between a country’s average years of education and the share of firms identifying low skills as a constraint, suggesting that this is a systemic issue for the region.

^{19/} The rate of high-skilled emigration from SSA has also steadily increased since the mid-1990s (from 11 percent in 1995 to 16 percent in 2010), the highest among all developing regions (Bredtmann, Flores, and Otten 2019). Migration of skilled workers compounds the skill shortages, with, for example, one-in-five African physicians working outside the continent (Duvivier, Burch, and Boulet 2017). This cross-border transfer of scarce human capital continues to undermine the skillsets needed for economic transformation and poverty reduction.

SSA labor markets continue to be characterized by a low level of formal employment and a large informal sector (IMF 2017). Formal jobs accounting for only 10 percent of total employment (Stampini and others 2011). Therefore, a large share of the labor force—particularly new entrants—takes up work in the informal sector to provide a living, either in subsistence agriculture or self-employment in the urban services sectors, such as retail trade, construction, domestic work, and transportation. According to the International Labour Organization, 89 percent of employment in SSA is informal. Furthermore, informal jobs are much more vulnerable—typically dominated by women—and require limited skills and a higher degree of face-to-face contact and are less teleworkable.

BOX 2. DATA ON JOB POSTINGS

Data on online job postings can provide a useful alternative high-frequency labor market indicator for countries in SSA. Labor force surveys are conducted infrequently in most SSA economies. As a proxy for labor demand, daily job postings from prominent, local, job advertisement companies were obtained for Kenya, Ethiopia, and Uganda. Data for Kenya and Uganda were provided by Fuzu (<https://www.fuzu.com/>), which registered 26,566 job posts in Kenya and 15,023 jobs in Uganda between June 3, 2019, and December 9, 2020. Job postings data for Ethiopia were provided by (<https://www.ethiojobs.net/>), which posted 9,711 jobs between November 1, 2019, and October 31, 2020.

An average of 100 jobs were posted online daily across these platforms during the sample period. Jobs stayed open on the websites for 11–14 days. In the case of postings on Fuzu’s platform, jobs received an average of 251 views and 45 applicants. The average age of applicants in Uganda and Kenya was 32 years. In Uganda, males applied to jobs twice as often as female candidates, while in Kenya, female applicants made up just over 40 percent of applicants.

Table 2.1. Summary Statistics from Job Postings Database

Country	Website	Number of Observations	Date of Sample
Ethiopia	Ethiojobs.net	9,711	Nov. 2019 – Oct. 2020
Kenya	Fuzu	80,382	Jun. 2019 – Dec. 2020
Uganda	Fuzu	35,612	Jun. 2019 – Dec. 2020

Using sectoral classifications, job postings are categorized by the intensity of face-to-face (FTF) interactions and amenability for telework following Avdiu and Nayyar (2020) and Dingel and Neiman (2020). The extent of FTF interaction with clients captures the changes in labor demand due to social distancing and lockdown measures, while teleworkability reflects labor supply as it captures (in) ability of workers to supply their labor remotely (Avdiu and Nayyar 2020). There is a negative—albeit weak—correlation (–0.49) between intensity of FTF interactions and the feasibility of conducting work from home (Figure 2.1). Jobs in retail, food services, and accommodation, for example, involve intensive FTF interactions and are less likely to be performed at home. Professional, scientific, and technical functions—indicated as ‘professional’ in Figure 2.1—can be accomplished with limited FTF interactions and should be more amenable to telework, assuming appropriate infrastructure is in place. These professional jobs account for a large majority of the vacancies advertised, with accounting and finance, engineering, and social sciences dominating the professional jobs. The analysis presented in this policy note uses an index of FTF interaction, but the results are similar when we use teleworkability (home-based) indexing.

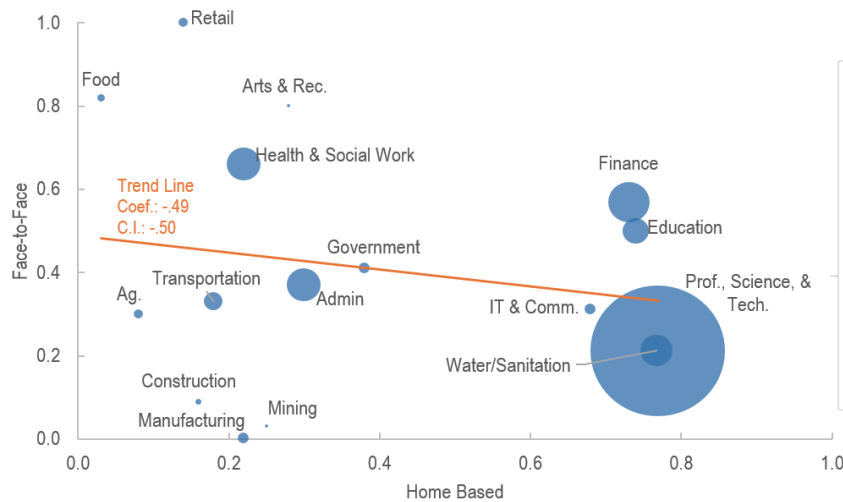
The classification between “high” or “low” contact intensity is country specific. For each country, a job whose sectoral classification exceeded a .5 FTF score, according to Avdiu and Nayyar (2020), was considered high contact intensive. This means Education (with a score of .496) classified as relatively “low,” while Financial and Insurance (with a score of .570) is considered “high.” Manufacturing represented the lowest FTF score at zero, while retail represented the highest at one. For all three countries, the average FTF score hovered around .38 on a scale of 0–1. The distribution of jobs—that is, 78 percent classified as low-contact intensive for the sample—remained largely unchanged before and after the lockdowns.

An alternative method was used to distinguish high- and low-skilled jobs by country. Both Ethiojobs and Fuzu collected information on the educational requirements for jobs advertised. In this study, jobs requiring postsecondary education were considered high-skilled, while all others were considered low. For the total sample, 76 percent of jobs were considered “high,” while 24 percent were considered “low.” This was consistent with the distribution of required level of education for each country, with Kenya having the highest share of its advertised jobs requiring postsecondary education at 76 percent and Ethiopia having the lowest share at 74 percent. In Uganda, 75 percent of jobs advertised were considered high-skilled based on their educational requirements.

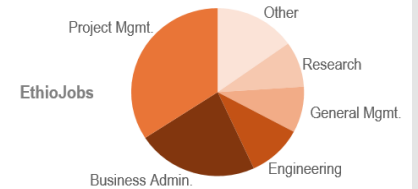
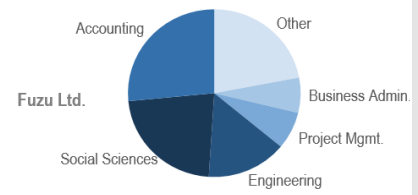
Figure 2.1. Job Sectors by Contact Intensity and Teleworkability, 2020

Online job postings draw heavily from low-contact sectors

(Score, 0–1)



Professional, Science & Technology Includes:



Sources: IMF staff calculations using Ethiojobs.net and Fuzu database, based on methodology proposed in Avdiu and Nayyar (2020) and Dingel and Neiman (2020).

REFERENCES

- Amankwah, Akuffo, Sydney Gourlay and Alberto Zezza. 2021. "Impact of COVID-19 Crisis on Agriculture: Evidence from Five Sub-Saharan African Countries." Brief No. 156042. World Bank, Washington, DC.
- Avdiu, Besart, and Gaurav Nayyar. 2020. "When Face-to-Face Interactions Become an Occupational Hazard: Jobs in the Time of COVID-19." Policy Research Working Paper No. 9240, World Bank, Washington, DC.
- Ayanlade, Ayansina, and Maren Radeny. 2020. "COVID-19 and Food Security in Sub-Saharan Africa: Implications of Lockdown during Agricultural Planting Seasons." *npj Science of Food* 4 (13).
- Azevedo, João Pedro. 2020. "Learning Poverty: Measures and Simulations." Policy Research Working Paper No. 9446, World Bank, Washington, DC.
- Blanke, Jennifer. 2020. "Economic Impact of COVID-19: Protecting Africa's Food Systems from Farm to Fork." *Brookings*, June 19.
- Bloom, David E., David Canning, and Jaypee Sevilla. 2003. "Demographic Dividend A New Perspective on the Economic Consequences of Population Change." *Population Matters*, A RAND Program of Policy-Relevant Research Communication.
- Bloom, David E., Michael Kuhn, and Klaus Prettnner. 2017. "Africa's Prospects for Enjoying a Demographic Dividend." *Journal of Demographic Economics* 83 (1): 63–76.
- Bloom, David. E., Mathew McKenna, and Klaus Prettnner. 2020. "Demography, Unemployment, Automation, and Digitalization: Implications for the Creation of (Decent) Jobs, 2010–2030." NBER Working Paper No. 24835, National Bureau of Economic Research, Cambridge, MA.
- Bredtmann, Julia, Fernanda Martínez Flores, and Sebastian Otten. 2019. "Remittances and the Brain Drain: Evidence from Microdata for Sub-Saharan Africa." *The Journal of Development Studies* 55 (7): 1455–76.
- Carranza, Eliana, Thomas Farole, Ugo Gentilini, Matteo Morgandi, Truman Packard, Indhira Santos, and Michael Weber. 2020. "Managing the Employment Impacts of the COVID-19 Crisis: Policy Options for Relief and Restructuring." Jobs Working Paper No. 49. World Bank, Washington, DC.
- Chetty, Raj, John N. Friedman, Nathaniel Hendren, Michael Stepner, and the Opportunity Insights Team. 2020. "The Economic Impacts of COVID-19: Evidence from a New Public Database Built Using Private Sector Data." NBER Working Paper 27431, National Bureau of Economic Research, Cambridge, MA.
- Duvivier, Robbert J., Vanessa C. Burch, and John R. Boulet. 2017. "Correction to: a Comparison of Physician Emigration from Africa to the United States of America between 2005 and 2015." *Human Resources Health* 15 (1).
- Elletson, Harold, Rosa Garcia Calero, Gordon Slaven, and Rebecca Stromeyer. 2020. "The Effect of COVID-19 on Education in Africa and its Implications for the Use of Technology." eLearning Africa.
- Famiglietti, Matthew, Fernando Leibovici, and Ana Maria Santacreu. 2020. "The Decline of Employment During COVID-19: The Role of Contact-Intensive Industries." Economic Synopses No. 40, Federal Reserve Bank of St. Louis, St. Louis.
- Fine, Dave, and others. 2012. "Africa at Work: Job Creation and Inclusive Growth." McKinsey Global Institute. New York.

- Fuchs-Schündeln, Nicola, Dirk Krueger, Alexander Ludwig, and Irina Popova. 2020. "The Long-Term Distributional and Welfare Effects of COVID-19 School Closures." CEPR Discussion Paper No. 15227, Centre for Economic and Policy Research, London.
- Garrote Sanchez, Daniel, Nicolas Gomez Parra, Caglar Ozden, Bob Rijkers, Mariana Viollaz, and Hernan Winkler. 2020. "Who on Earth Can Work from Home?" Policy Research Working Paper No. 9347, World Bank, Washington, DC.
- Gottlieb, Charles, Jan Grobovšek, Markus Poschke, and Fernando Saltiel. 2021. "Working from Home in Developing Countries." *European Economic Review* 133 (C): 103679.
- Hatayama, Maho, Mariana Viollaz, and Hernan Winkler. 2020. "Jobs' Amenability to Working from Home." Policy Research Working Paper No. 9241, World Bank, Washington, DC.
- Iacovone, Leonardo, Vijaya Ramachandran, and Martin Schmidt. 2013. "Stunted Growth: Why Don't African Firms Create More Jobs?" Policy Research Working Paper No. 6727, World Bank, Washington, DC.
- International Labour Organization (ILO). 2020a. *ILO Monitor: COVID-19 and the World of Work, 6th Edition*. Geneva.
- International Labour Organization (ILO). 2020b. *The Impact of the COVID-19 on the Informal Economy in Africa and the Related Policy Responses*. Geneva.
- International Labour Organization (ILO). 2020c. *Labor Market Assessment: Market Trends and Opportunities in Ethiopia and the Gulf*. Geneva.
- International Labour Organization (ILO). 2021. *ILO Monitor: COVID-19 and the World of Work, 7th Edition*. Geneva.
- International Monetary Fund (IMF). 2017. *Regional Economic Outlook: Western Hemisphere*. Washington, DC, October.
- International Monetary Fund (IMF). 2020. *Regional Economic Outlook: Sub-Saharan Africa*. Washington, DC.
- Montenovo, Laura, Xuan Jiang, Felipe Lozano Rojas, Ian M. Schmutte, Kosali I. Simon, Bruce A. Weinberg, and Coady Wing. 2020. "Determinants of Disparities in COVID-19 Job Losses." NBER Working Paper No. 27132, National Bureau of Economic Research, Cambridge, MA.
- Stampini, Marco, Ron Leung, Setou M. Diarra, and Lauréline Pla. 2011. "How Large Is the Private Sector in Africa? Evidence from National Accounts and Labor Markets." *South African Journal of Economics* 81 (1): 140–65.
- Toe, Chris, and Wallace Shuaihua Cheng. 2021. "For Farmers in Africa to Recover from COVID-19, Bridge the Last Mile." *World Bank Blogs*, May 6.
- United Nations (UN). 2019. "World Population Prospects." United Nations Department of Economic and Social Affairs, New York.
- United Nations World Tourism Organization (UNWTO). 2020. "COVID-19 and Transforming Tourism." Policy Brief. United Nations, Madrid.