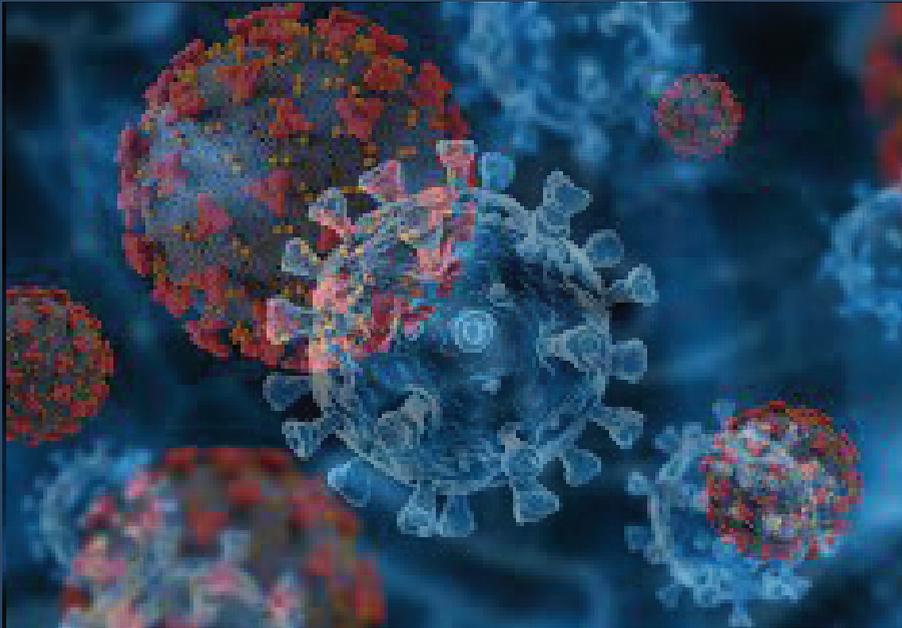


The Global COVID-19 Health Pandemic and its Implications for the African Economies



Senior Policy Seminar XXIII

Bringing Rigour and Evidence to Economic Policy Making in Africa

AFRICAN ECONOMIC RESEARCH CONSORTIUM
CONSORTIUM POUR LA RECHERCHE ÉCONOMIQUE EN AFRIQUE

The Global COVID-19 Health Pandemic and its Implications for the African Economies

AERC Senior Policy Seminar XXIII,

March 30, 2021

Seminar Papers

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About African Economic Research Consortium (AERC)

African Economic Research Consortium, established in 1988, is a premier capacity building institution in the advancement of research and training to inform economic policies in sub-Saharan Africa. It is one of the most active Research and Capacity Building Institutions (RCBIs) in the world, with a focus on Africa. AERC's mission rests on two premises: First, that development is more likely to occur where there is sustained sound management of the economy. Second, that such management is more likely to happen where there is an active, well-informed cadre of locally based professional economists to conduct policy-relevant research. AERC builds that cadre through a programme that has three primary components: research, training, and policy outreach. The organization has now emerged as a premier capacity building network institution integrating high quality economic policy research, postgraduate training, and policy outreach within a vast network of researchers, universities, and policy makers across Africa and beyond. AERC has increasingly received global acclaim for its quality products and services and is ranked highly among global development think tanks.



The Global COVID-19 Health Pandemic and its Implications for the African Economies – AERC Senior Policy Seminar XXIII, March 30, 2021: Seminar Papers

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Abbreviations

AERC	African Economic Research Consortium
AfDB	African Development Bank
AIDs	Acquired Immune Deficiency Syndrome
AU	African Union
BCEAO	Banque Centrale des États de l'Afrique de l'Ouest
CAPOD	Policy Analyst, Centre d'Analyse des Politiques de Développement'
CDC	Centre for Disease Control
COMESA	Common Market for Eastern and Southern Africa
COVID-19	Coronavirus disease 2019
CREA	Le Centre de Recherches Économiques Appliquées
CSO	Central Statistical Office
DHS	Demographic and Health Surveys
EGH	Elder of the Order of the Golden Heart of Kenya
FAO	Food and Agricultural Organization
FCDO	Foreign, Commonwealth & Development Office
GDP	Gross Domestic Product
GIC	Growth Incidence Curves
GIMPA	Ghana Institute of Management and Public Administration
GNI	Gross National Income
GoU	Government of Uganda
HIV	Human Immunodeficiency Virus
ICT	Information Communication Technology
IFC	International Finance Corporation
IHS	Integrated Household Survey
ILO	International Labour Organization
ILOSTAT	International Labour Organization Databases
IMF	International Monetary Fund
ISSER	Institute of Statistical, Social and Economic Research
KIPPRA	Kenya Institute for Public Policy Research and Analysis
LMICs	Low-Income and Middle-Income Countries
LSMS	Living Standard Measurement Surveys
MICS	Multiple Indicator Cluster Survey
NCDs	Non-Communicable Diseases
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
PAYE	Pay As You Earn
PPE	Personal Protective Equipment
PPP	Public Private Partnership
REO	Regional Economic Outlook
SDGs	Sustainable Development Goals
SMEs	Small and Medium Scale Enterprises
SPS	Senior Policy Seminar
SSA	Sub-Saharan Africa
UCAD	L'Université Cheikh Anta Diop de Daka

UCT	Universal Cash Transfer
UK	United Kingdom
UNDP	United Nations Development Programme
UNECA	United Nation Economic Commission for Africa
UNICEF	United Nations Children's Fund
USA	United States of America
VAT	Value Added Tax
WAEMU	West African Economic and Monetary Union
WDI	World Development Indicators
WHO	World Health Organization
WTO	World Trade Organization

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Preface

The current Covid-19 pandemic is damaging business ecosystems, affecting livelihoods, and threatening to reverse sub-Saharan Africa's development progress and growth projections. It has once again exposed the fragility of many of the institutions across the continent. The pandemic has compromised Africa's state of public finance significantly: Firstly, in most African economies it has wiped the fiscal space leading to unprecedented contraction of tax revenues. Secondly, it has placed extreme stress on public spending as governments struggle to respond to the health crisis, including increased funding for: the health sector, social and business relief, as well as measures to reduce and combat the spread of the disease. Yet, as the virus was late in arriving to the continent, governments across Africa took decisive actions to keep citizens safe and continue to implement global best practices and policies. While there are obvious capacity and execution shortfalls, there have also been several successful areas of practice.

Over the years, the African Economic Research Consortium (AERC) has generated a wealth of knowledge through its research activities. And to this end devoted time, and resources to share this knowledge, particularly research findings that have strong practical policy implications with policy makers in the continent. This was at the twenty-third AERC Senior Policy Seminar that was held virtually on the theme: ***The Global COVID-19 Health Pandemic and Its Implications for the African Economies***. The AERC convenes senior policy seminars to provide high level African policy makers the opportunity to come together to dialogue on the results of research conducted by AERC and its affiliates, exchange policy experiences and interact with the researchers in an atmosphere of peers. The themes of these seminars are selected based on topicality and contemporary interest to African policy making.

These seminars are forums where policy makers and researchers engage in uninterrupted deliberations on a set of important issues considered significant to policy making in Africa. The seminar format insulates the policy makers from pressures related to their responsibilities and thus, creates an environment for lively professional discourse on the selected issue. Aside from the specific aims of bringing researchers and policy makers together, the seminars are directly useful to AERC because they help identify research imperatives crucial to transforming Africa. They also improve prospects for policy involvement of the researchers and enhance AERC's visibility in the policy community. Consequently, serving to highlight the growing capacity in the region for policy research and, overall, provide important feedback to AERC for its research programme.

In addition, the exchange of country-specific experiences is particularly important in these seminars. The policy makers are normally identified for their interest in policy research issues and the level of seniority of the policy makers is generally right, leading to detailed discussions. Researchers are reasonably well balanced between Anglophone and Francophone. The policy makers usually evaluate the discussions, and usually report back that they have found their experiences in the seminars very valuable. The information exchanged helps them update their knowledge on current research and sieve

out issues that are relevant to their duties. Some have even been embarrassed to find that during negotiations with international financial institutions, they have agreed to certain policies without understanding the full implications of the policy package. Seminars of this kind, while not intended to make the policy maker an economist, nevertheless afford the opportunity of considering the wider ramifications of their policy decisions.

For the success of this conference, AERC is hugely indebted to Hon. Mutahi Kagwe, EGH, Cabinet Secretary, Ministry of Health, Kenya. Hon. Kagwe was the Chief Guest during the official opening of the seminar. Appreciations also go to Dr. Arqebe Oqubay, Senior Minister and Advisor to the Prime Minister of Ethiopia who delivered a Keynote Speech and Amb. Erastus J.O. Mwencha, Chairman, Equity Bank & former Deputy Chairperson for the African Union Commission (AUC) and former Secretary-General of the Common Market for Eastern Africa and Southern Africa (COMESA) who chaired the opening session. Other dignitaries that AERC is grateful to for participating in a special session include: Prof. Sir. Paul Collier, Oxford University, United Kingdom; Prof. Ernest Aryeetey, Secretary General, African Research Universities Alliance (ARUA) and former Vice Chancellor, University of Ghana. Prof. Aryeetey is also the current AERC Board Chairman; Dr. Frannie Léautier, Chief Executive Officer (CEO) SouthBridge Investments and former Senior Vice President, African Development Bank (AfDB), and Chief Operating Officer (COO) at the Eastern and Southern African Trade and Development Bank (TDB). Dr. Léautier is also a former Treasurer of the AERC Board; Moazzam Malik, Director General for Africa, Foreign, Commonwealth & Development Office (FCDO) who was a Lead panellist in a special session Honouring Prof. Benno Ndulu, where he discussed the *Potential Impact of Covid-19 on African Economies from a Global Lens*.

A total of 307 participants from 39 countries across Africa, including senior policy makers, governors of central banks, managing directors of research institutions among other dignitaries participated in this high-level meeting. The conference featured four presentations by thought leaders: Session One on “Consequences for Poverty and Fiscal Implications with Covid-19: Ethiopia, Ghana, Kenya, Senegal, and Uganda” was chaired by Adelaide Matlanyane, Governor, Central Bank of Lesotho. The paper presenter was Rose Ngugi, Kenya Institute for Public Policy research and Analysis, (KIPPRA). This paper was discussed by Albert Makochehanwa, University of Zimbabwe. Session Two was on “Trade-offs between Lockdown Measures to Control the Spread of the Covid-19 and the Economic and Social Consequences”. The session chair was Kealeboga Masalila, Deputy Governor, Bank of Botswana. The presenter was Abebe Shimeles, from the African Economic Research Consortium (AERC). This paper was discussed by Prosper Honagbodé, Ministère de l’Economie et des Finances, Benin.

The Third Session was on “COVID-19 and the Health Sector in Africa”. This session was chaired by Yamungu Kayandabila, Deputy Governor, Bank of Tanzania. The paper was presented by Augustine Asante, University of New South Wales, Australia. The discussant for this paper was Aly Mbaye, University Cheikh Anta Diop (CREA/UCAD), Senegal. The fourth paper was on “The Interrelationship between Growth, Inequality and Poverty: Some Implications for the Fight against the Covid-19 Pandemic”. This session was chaired by Wilson Banda, Governor, Central Bank of Malawi. The paper was presented

by Erik Thorbecke, Cornell University, USA and discussed by Adam Mugume, Executive Director, Research and Policy, Central Bank of Uganda. The presenters produced high-quality papers, which now comprises this volume, and the participants were also very active, thus enabling us to produce the seminar's policy recommendations that were shared with other African policy makers as a communiqué. We thus owe a profound debt of gratitude to all the chairs of sessions, paper presenters as well as the discussants.

We are also grateful to all those who made the seminar a great success. Prof. Abebe Shimeles, Director of Research (AERC), Dr. Theophile Azomahou, Director of Training (AERC), and Senvy Maistry, Chief Communications Officer, who made valuable inputs into the preparation and implementation of the seminar. In equal measure, AERC very much appreciates the hard work of Dr. Charles Owino, Publications Manager, Juffali Kenzi, ICT Manager, and Edith Mutui, Communications and Publications Assistant in organizing the event. AERC likewise acknowledges with thanks Dr. Tom Kimani, Manager Training and Dr. Mark Korir, Manager Training for their role as rapporteurs, as well as Pamela Kilwake and Joel Mathia, who assisted with logistics. To these, and the many others who were involved, AERC extends its heartfelt appreciation.

Prof. Njuguna Ndung'u

Executive Director
African Economic Research Consortium

Consequences for Poverty and Fiscal Implications with COVID-19: Ghana, Senegal, Ethiopia, Kenya, and Uganda

Rose Ngugi

Introduction

The COVID-19 pandemic has not spared Sub-Saharan Africa. By March 2021, the region shared 2.5% of the total confirmed cases in the world. As the pandemic struck, key among the issues of concern included adequacy of health facilities, testing capabilities, and generally availability of resources to respond to the crisis. Luckily, the spread was slow, giving the governments in the region time to prepare for the fight against the virus. That said, the pandemic is still unfolding, and it is therefore difficult to estimate its full impact now. An analysis of the experience provides an opportunity to draw lessons on how to prepare better and inform the appropriate strategies to attain a recovery path.

Both the pandemic and the measures instituted have affected the lives and livelihoods of all citizens. While the spread of the pandemic saw increased demands on the health systems, so did the households witness squeezed budget with increased spending in adhering to the protocols of the COVID-19, including purchase of masks and sanitizers. With social distancing demanding a reduced carrying capacity in the transport sector, fares increased to sustain the profit level. More importantly, the lockdowns and restrictions on movement slowed economic activity, resulting in unemployment and loss of income. As a result, this threatened to wipe out the gains made in poverty reduction.

The economic growth of Sub-Saharan Africa region is estimated to have contracted by 1.9% in 2020¹. This is the first time in a decade that the region's economy contracted. While this is attributed to slowed activities in the domestic market, the slow growth in developed countries is compounding the situation due to constrained export market. Thus, monitoring the impact of COVID-19 on poverty becomes necessary in taking necessary actions to achieve the Sustainable Development Goals (SDGs) and the African Union (AU) 2063 aspirations.

This paper therefore looks at the distributional consequences of the COVID-19-induced lockdowns and related measures for poverty and fiscal response in selected five countries. Using household level datasets, the paper summarizes the estimates in income losses caused by the pandemic; measures the poverty brought about due to income losses; and projects the necessary government expenditure in offsetting the increase in poverty.

The rest of the paper is organized as follows. Section 2 covers the status with COVID-19 while section 3 details the methodology and data used for analysis. Section 4 reports the results from the analysis while section 5 concludes the study.

1 International Monetary Fund (2021), World Economic Outlook, April 2021.

Situation with COVID-19

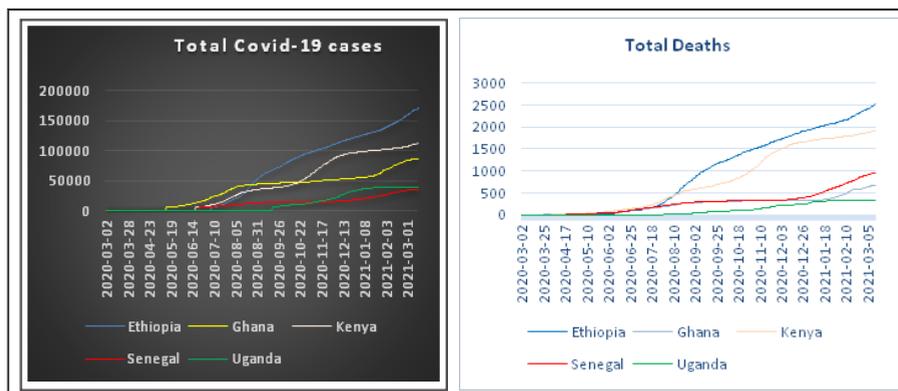
The COVID-19, which originated from Wuhan, China in December 2019, did not spare countries in Sub-Saharan Africa. The five countries covered in this study reported their first confirmed cases of COVID-19 almost at the same time in March 2020. Almost a year later, the countries have continued to report confirmed cases and fatalities as indicated in Table 1 and Figure 1.

Table 1: Status of confirmed and fatality cases across the selected countries

Country	Date First Case Reported	Total Cases (13 th March 2021)	Total Deaths to Date (13 th March 2021)
Ethiopia	13 th March 2020	174,054	2,540
Ghana	14 th March 2020	87,480	679
Kenya	13 th March 2020	112,805	1,908
Senegal	2 nd March 2020	36,726	955
Uganda	21 st March 2020	40,544	334

Source: World Health Organization - WHO

Figure 1: Trends in confirmed cases and fatalities of COVID-19



Source: World Health Organization - WHO

Several measures were instituted by all countries to control the spread of the pandemic. The measures included lockdowns, working from home, closure of learning institutions, ban on passenger flights, dusk to dawn curfews, mandatory wearing of face masks in public, closure of bars and restaurants, bans on public gatherings, among others. This affected economic activity in various sectors.

Fiscal measures were also implemented to cushion the vulnerable groups and ensure that the health sector is adequately resourced. Budgetary reallocations were made to cater for the COVID-19 related expenditures as summarized in Appendix 1. To cushion the vulnerable groups, social protection programmes were implemented, including cash transfers and tax reliefs. Further, stimulus packages were implemented, including labour-intensive public works programmes especially targeting the youth and urban areas. This increased fiscal pressure at a time when revenue collections were slow.

Monetary and financial policy measures were instituted to ensure there is adequate liquidity in the system, and that financial transactions were safe. This included easing monetary policy with a reduction in the policy rate and lowering the reserve requirement ratio. This also introduced flexibility in loan markets and facilitated mobile money transactions.

GDP growth projections were revised downward for 2020. This reflects the slowed economic activities especially with the lockdowns, movement restrictions and international travel bans. All the selected countries experienced a contraction in quarter 2 (Q2) of 2020 as indicated in Table 2. The impact of the pandemic started to be felt significantly in Q2.

Table 2: Growth performance in selected countries

	2017	2018	2019	Q1-2020	Q2-2020	Estimated growth rate 2020
Ghana	8.1	6.3	6.5	4.9	-3.2	0.9
Senegal	7.4	6.4	5.3	-1.7	-2.5	0.8
Ethiopia	10.2	7.7	9.0			6.1
Kenya	4.8	6.3	5.4	5.2	-5.5	-0.1
Uganda	7.3	6.1	6.7	-6.3	-2.2	-2.1

Source: International Monetary Fund (2021), World Economic Outlook, April 2021

Methodology and data

Five countries were selected for the study: Ethiopia, Ghana, Kenya, Senegal and Uganda. To enable comparison across the countries, all the case studies used the same methodology for analysis. However, there were differences on the interventions, reflecting the measures taken by each country.

Data

Household level survey data was generally used for analysis across all the selected countries: Ghana Living Standards Survey (GLSS) seventh round-2017; ESPS–Poverty Survey Senegal–2011; Ethiopia Household Consumption and Expenditure (HCE) Survey 2015/16; Kenya Integrated Household Budget Survey; and Uganda National Household

Survey 2016/17. These datasets were collected at different periods before the COVID-19 but provided a rich information base in generating evidence on the impact of the pandemic.

Analytical framework

All the five case studies used the same analytical framework. However, there were some differences on the assumptions on income, reflecting the specific characteristics of each economy. In estimating the impact of the pandemic, several steps were used to estimate the income losses, poverty rate with the pandemic, and the fiscal intervention required to ensure the households are at least in their pre-crisis welfare level.

Urban centres were divided into major urban centres and other urban centres. The major urban centres experienced a significant effect of partial lockdowns and other restrictions compared to other urban areas. For example, in Ghana, the major urban areas included the Greater Accra Metropolitan Area (GAMA) and Greater Kumasi Metropolitan Area (KAMA). In Kenya, Mombasa and Nairobi were under cessation of movement. In the other countries, major urban centres included in Uganda, Kampala; and in Senegal, Dakar. Most of the other urban areas in these countries did not experience partial lockdowns, although there were some spillover effects from the major urban areas.

a) Determining the income levels

In determining the household income levels, several aspects were considered. This includes identifying the households/individuals and their work characteristics such as nature of employment, location of work, and the income type such as labour earnings, rents, remittances, transfers, and pensions.

Further reasonable assumptions (Appendix 2) were used to determine the at-risk income. This includes the implications of COVID-19 preventive measures announced, such as lockdown, which saw some businesses shut down totally. The assumptions were based on data from various sources, including quick surveys undertaken in understanding the impact of the COVID-19 (like it happened in Kenya), presidential and industry briefs, and interviews with key informants in the industries and government institutions. All these were used to obtain a reasonable guess of at-risk income.

Part of the income was safe. This includes all public sector wages and salaries as the government cannot renege on its responsibility and pension income for the retirees. In Senegal, top management in all industries were considered as safe from income losses, the hypothesis being that if business were to adjust to the crisis, they would more likely target workers at the lower end of the skills distribution. This category would be laid off or experience a pay cut. If the high skilled workers were to be affected, their relatively large savings and physical or financial assets would help them to successfully weather the potential adverse effects. Own-consumption agriculture was also considered to be safe.

Some sectors were also considered as safe. For example, real estate, public administration, defence, information and communication, health and social work

activities were considered safe in Ghana. The estimated rate of decline of a sector value-added is treated as a measure for income loss that households in a sector experience due to the pandemic. In Senegal, workers in textile and retail industries were considered safe, while air transport and recreation, culture and sport services were assumed to have lost 100%.

Non-labour income was also considered. This includes remittances that are assumed to have declined by 30% in Senegal and Uganda. Also, rent in Ghana and Senegal is assumed to be safe while in Uganda it is assumed to have 20% loss. Similarly, on financial assets, commissions and royalties were assumed to be very small proportions of the total income and, therefore, their loss would have negligible impact.

b) Changes in poverty and inequality levels

National poverty line was used to estimate the poverty rates before and after income losses. Adjustments were made using assumption on the private consumption growth rate to reproduce the official poverty headcount for 2019, which represents the pre-crisis poverty level. Income losses were estimated using various assumptions of “at-risk income”, and then these losses were deducted from the pre-crisis income level to arrive at the income levels with the pandemic. Income was used to proxy for household consumption and then distributional characteristics of poverty and inequality analyzed comparing the pre-crisis and during-crisis period. Also considered was the population to extrapolate the household size in 2019. In this case, the latest National Population Census data was used.

c) Fiscal policy simulations

Significant fiscal requirements are needed to reverse the rise in poverty with the pandemic. Micro-simulations were applied on data to estimate government expenditure that would be necessary to offset the increase in poverty due to COVID-19 crisis. Various government interventions were considered to analyze the implications when all those who deserve are considered. The interventions implemented by the government varied across the countries.

- *Universal cash transfer*

The simulation considered the required per adult equivalent uniform transfer to keep poverty unchanged to the pre-crisis period. In Uganda, this excluded public sector employees and pensioners. Also considered was transfer to those who were poor before the crisis. Universal transfers were made with the objective to fully off-set the adverse impact as captured by each measure of poverty.

- *Elderly cash transfer*

In Kenya, cash transfer of Ksh 2,000 (US\$ 20) was assumed to be distributed to households living with elderly persons aged 60-70 years. It was assumed that those aged 70 years and above were already benefiting from the usual cash transfer programme. The cash transfer was based on the current government social protection programme that targets

vulnerable households. In Uganda, the Social Assistance Grants for Empowerment (SAGE) for those over 80 years and to those who are 65 years and older was considered.

- *Tax relief*

In Kenya, this saw a reduction in personal Income Tax (Pay As You Earn - PAYE) rates by 100% for those earning below Ksh 24,000 (US\$ 226) and 5% for the rest of the income groups. Also, turnover tax rate for Small and Medium Enterprises (SMEs) was reduced from 3% to 1%.

- *Labour-intensive public works programmes*

Labour-intensive public works programmes targeted the extreme poor households living with youths and other vulnerable groups. In Uganda, temporary labour-intensive public works programmes mostly targeted urban areas. In Kenya, the programme was a national initiative designed to cushion the most vulnerable but able bodies living in informal settlements.

- *Rebates on utilities*

The Ghana government used electricity rebate where lifeline consumers enjoyed free electricity while non-lifeline customers received a 50% subsidy. Further, the government absorbed water bills for all customers for three months.

Impact of the pandemic and fiscal resource requirements

The selected countries used various mitigation measures to counter the spread of COVID-19. Besides the health impact, livelihoods were affected with people losing income, which saw the gains made with poverty reduction over the past decade being eroded. The countries under study recorded unprecedented losses of income in various sectors of their economies as they adjusted and adapted to the new way of life that the COVID-19 pandemic had brought forth.

Income losses

The extent of income losses varied across the industries. For example, in Senegal, almost 100% of the workers in housing; editing/printing; recreation, culture and sports; and transport on land were affected by the crisis. In Kenya, horticulture had over 70% losers especially due to the international movement restrictions. In Ghana, arts, entertainment, and recreation had more than 50% losers. In Uganda, transport and storage had more than 70% losers. The loss in income was mainly attributed to loss of jobs.

There were also variations in geographical locations. Although the income lost in rural areas was lower than that in urban areas, more people were affected in rural compared to those in urban areas. Nationally, 27 million people (65% of population) lost incomes in Uganda, of which a majority are in rural areas (19 million) as indicated in Table 3. Since a greater proportional of the population for the countries under study live in rural areas,

the number of people who lost income was higher in rural areas compared to urban centres. This holds true for Ghana (3.3 million rural against 2.5 million urban settlers lose incomes), Kenya (11.4 million rural dwellers lose income compared to 6.6 million in urban areas) and Senegal where 7.9 million people living in rural areas lose incomes compared to 4.9 million in urban areas.

A significantly higher level of income was lost in urban areas. For example, urban centres constitute a large proportion of the people working in the most affected sectors such as retail and wholesale trade, accommodation and food services, and transport, whereas in rural areas most people engage in agricultural-related activities. Across all the countries, the proportion of income lost to GDP is higher in urban areas compared to rural areas, except for Senegal where almost equal loss was experienced in rural and urban areas (Table 3). For Ghana, it is estimated that urban areas lost 3.2% compared to less than 1% in rural areas. In Kenya, urban areas lost 7.6% compared to rural areas at 4.1%.

Table 3: Income losses across the countries

	Ghana	Senegal	Ethiopia	Kenya	Uganda
Share of lost income to GDP (%) and in bracket (in US\$ millions)					
National	5.4 (330)	4.9 (1,239)		11.7 (462)	9.1 (184)
Urban	1.6 (190)	1.6 (401)		4.1 (162)	1.6 (31)
Other urban	1.6 (99)	0.8 (212)		3.5 (138.6)	3.9 (78)
Rural	0.7 (41)	2.5 (625)		4.1 (162)	3.7 (7.4)
Share of population losing income (%) and in bracket (US\$ Million)					
National	26 (8.0)	79 (12.7)		37.7 (18.0)	65 (27.0)
Urban	32 (2.5)	71 (2.7)		52.0 (3.1)	68 (1.1)
Other urban	24 (2.1)	67 (2.2)		46.1 (3.5)	72 (6.0)
Rural	11 (3.3)	86 (7.9)		33.3 (11.4)	63 (19.8)

Source: The five case studies

There were losses on non-labour income. For Kenya, average individual loss of rental income is higher in urban areas but majority of people with lost rental income is in rural areas (66%). In addition, loss of income through remittances and gifts in rural Kenya is 20% (Ksh 2 billion) while in urban Kenya it is 40% (Ksh 2.7 billion). In total, 13.5 million people in Kenya lost remittances, of which 81% are in rural areas. This can be explained by the fact that most remittances received in Nairobi and Mombasa are from international sources where majority suffered economic hardship caused by COVID-19, while for those living in rural areas, remittances majorly received from urban dwellers suffered a setback due to income losses from job cuts and salary reductions. As for Uganda, loss of rental income has marginal effect on poverty while loss of remittances and gifts income leads to substantial increase in poverty especially in rural areas.

Impact on poverty and inequality

A lot of gains made with poverty reduction in the pre-crisis period were almost wiped out when the COVID-19 struck in all the countries. All the countries in the study had made gains towards poverty reduction in pre-crisis period. A lot of those gains were eroded, with a significant population that was not poor before slipping into poverty as different sectors of the economy felt the impact of the COVID-19 epidemic (Table 4). Poverty rate increased in the period with COVID-19 by a higher margin in Senegal at 16.5 percentage points compared to Uganda at 7.9 percentage points. The estimated increase in absolute poverty for Kenya, Uganda and Ghana is higher in major urban cities compared to rural areas. Majority of those affected in urban areas are those in lower- and middle-income levels.

Reduced income, mainly due to loss of jobs and disruption of economic activity, was a major factor that plunged more people to poverty. For example, as noted above, urban centres saw a significantly large proportion of income lost given the larger proportion of people working in the most affected sectors. But, the number of persons losing income was higher in rural areas. Given that, on average, rural areas have higher poverty level compared to urban areas, even a slight decline in income level would push more people to poverty. As such, with the pandemic, it is estimated that rural areas have higher levels of poverty compared to urban areas. Poverty gap in Kenya is estimated to increase by 8.9 percentage points, which means it will cost the taxpayer more to eliminate COVID-19-related poverty.

Inequality worsened but in different magnitudes across the countries and between urban and rural areas. Among the five countries, Ghana saw inequality worsen with more than 5.4 percentage points while Uganda had less than 1 percentage point (Table 4). Across the countries, inequality worsened more in urban areas compared to rural areas especially due to loss of employment and income with lockdown/restrictions, and most urban poor work in sectors that were heavily affected. In Uganda, many people who earned income near the middle of the income distribution before the crisis were having zero earning with the pandemic.

Table 4: Impact of the pandemic on poverty and inequality

	Ghana	Senegal	Ethiopia	Kenya	Uganda
Poverty levels at the base period (percentage points)					
National				36.1	
Urban			14.8*	29.4	
Other urban				27.5	
Rural			25.6	40.1	
Estimated poverty levels before the pandemic (percentage points) - 2019					
National	20.5	39.0		28.9	18.9
Urban	2.3	17.9		14.0	2.2
Other urban	9.3	35.0		31.6	9.1
Rural	37.7	49.0	20.7	30.9	22.4
Poverty levels during the pandemic (percentage points)					
National	34.0	55.4		41.5	26.8
Urban	25.3	32.6		38.6	18.9
Other urban	27.1	46.5		49.9	22.0
Rural	43.3	68.0	24.6	40.7	28.5
The estimated number of people that fell into poverty (million)					
National	4.2	2.7		6.2	3.3
Urban	1.8	0.6		1.5	0.3
Other urban	1.5	0.4		1.4	1.1
Rural	0.8	1.7		3.3	1.9
Inequality measured by the GINI coefficient before crisis (percentage points) -2019					
National	0.421	0.378		0.391	0.419
Urban	0.340	0.309		0.329	0.409
Other Urban	0.348	0.307		0.352	0.410
Rural	0.406	0.290		0.327	0.376
Inequality measured by the GINI coefficient after crisis (percentage points)					
National	0.475	0.420		0.402	0.427
Urban	0.473	0.344		0.468	0.514
Other Urban	0.431	0.340		0.451	0.456
Rural	0.417	0.320		0.350	0.382

Source: The five case studies; * this includes all urban areas

Fiscal implications

This section analyses the fiscal resources required to offset the increase in poverty due to the pandemic. Across the countries, different fiscal measures were instituted, including the universal cash transfers, targeted transfers to youth and elderly, tax reliefs and rebates. Simulations were done based on keeping the absolute poverty headcount ratios constant; i.e. to restore back to the pre-COVID-19 poverty rates. Table 5 summarizes the implied fiscal costs with the various measures and impact on poverty.

i) Universal cash transfer

Universal cash transfer (UCT) forms a significant fiscal spending. Universal cash transfer was considered for all countries in the study given its potential to ensure all those who need help do benefit from the transfer as opposed to a targeted transfer where some eligible people may miss out. This makes it possible to restore poverty back to the pre-crisis levels. For example, in Ghana, it produces an excess transfer² share of 57% of total transfer, Senegal 25%, and Uganda 46%. The resources required for UCT as a ratio to monthly GDP range from 6.3% in Kenya to 1.9% in Ethiopia, with a significantly higher proportion to the rural areas.

Table 5: Fiscal transfers as shares to monthly GDP (%) and excess transfers in total (%)

	Ghana	Senegal	Ethiopia	Kenya	Uganda
Share of monthly fiscal spending in UCT to GDP (%) in bracket share of excess transfer in total (%)					
National	3.1 (57)	4.2 (25)	1.9	6.3	3.6 (46)
Urban		1.3 (40)		5.3	1.1 (47)
Other urban		0.6 (27)		2.5	1.9 (48)
Rural		2.2 (15)		2.5	1.9 (44)
Average UCT per adult equivalent (US\$)					
National	47	4687.7 (8.5)		773 (7.3)	9,831 (2.6)
Urban		6,050.1 (11.0)		4,850 (45.8)	67,723 (17.8)
Other urban		3,327.6 (6.1)		1,819 (17.2)	25,277 (6.7)
Rural		4,414.2 (8.0)		419 (4.0)	6,669 (1.8)

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² Excess transfer is any amount that moves those who were poor before the crisis beyond the poverty line or increases the income of those who were not poor before crisis beyond their income before crisis.

Table 5 Continued

	Ghana	Senegal	Ethiopia	Kenya	Uganda
Poverty changes with the UCT before and after (percentage points)					
National	14.5	7.2		13.0	7.9
Urban		3.3		24.6	16.7
Other urban		3.8		18.3	12.9
Rural		10.1		9.8	6.1
Share of monthly electricity rebates and absorbing the water bills to GDP (%) in bracket share of excess transfer in total (%)					
Electricity	0.4 (1)				
Water	0.5 (1)				
Water and electricity	0.9 (2)				
Share of labour-intensive public works programme to GDP (%) in bracket share of excess transfer in total (%)					
National				0.43	0.5 (34)
Urban				0.02	0.1 (28)
Other urban				0.01	0.4 (36)
Rural				0.39	0.0 (0)
Share of expansion of elderly transfers to GDP (%) in bracket share of excess transfer in total (%)					
National				0.91	0.8 (46)
Urban				0.07	0.0 (29)
Other urban				0.09	0.2 (37)
Rural				0.74	0.6 (49)
Share of tax relief - PAYE to GDP (%), in bracket the change in poverty rate, percentage points					
National				2.09 (2.3)	
Urban				0.56 (4.3)	
Other urban				0.53 (2.9)	
Rural				0.99 (1.8)	

continued next page

Table 5 Continued

	Ghana	Senegal	Ethiopia	Kenya	Uganda
Share of tax relief for SMEs-Turnover Tax to GDP (%), in bracket the change in poverty rate, percentage points					
National				1.30 (1.7)	
Urban				0.25 (2.4)	
Other Urban				0.31 (1.6)	
Rural				0.74 (1.7)	

Source: The five case studies

ii) Rebates on utilities monthly payments

In Ghana, some relief was provided in payment of utilities. Lifeline consumers enjoyed free electricity while non-lifeline customers received a 50% rebate. This policy covered three months, April-June 2020. The other one was a subsidy on water bills for all customers for the three months. These served to reduce poverty by 3.5 percentage points with an excess transfer of about 2%. These policies are susceptible to inclusion and exclusion errors, with some people receiving benefits who should not and some people not receiving benefits who should. These interventions are not capable of restoring poverty back to pre-lockdown levels and therefore the government requires other efforts to address the high poverty levels induced by the pandemic.

iii) Labour-intensive public works programmes

In Uganda, the labour-intensive public works programme targeted 500,000-800,000 beneficiaries in urban areas. Each participant was allowed to work for 12 days per month for up to 2 months per year at a daily rate of US\$ 1.75. Participation was limited to one person for every four people in a household. The programme had a monthly budget of 0.5% of GDP and was estimated to reduce poverty by 0.3% with an excess transfer of 31%.

In Kenya, the public works programme was dubbed “Kazi Mtaani”. This was a national initiative designed to cushion the most vulnerable but able-bodied living in informal settlements. It targeted the youth aged 18-34 years to engage in more urban development projects. It started in April 2020 as a pilot programme in 8 counties and by August 2020 had over 26,000 workers from the informal settlements. The second phase was to cover 34 counties and employ about 200,000 workers. The simulation was done using only the first phase. The programme reduced poverty by a small margin in all regions given the number of workers benefiting, but with the roll out this is expected to increase. The first phase intervention costed 0.43% of GDP (Ksh 16 million – US\$ 150,000), thus reducing poverty by 1.0 percentage points.

iv) Expansion of transfers to the elderly

In Uganda, the Social Assistance Grants for Empowerment (SAGE) was expanded to cover those 65 years old and older. This did not include those already receiving a social insurance pension. The programme has a monthly budget of 0.7% of GDP (UGS 62.4 billion – US\$ 16 million) and reduces poverty by 1.3% with an excess of 34%.

In Kenya, there was the elderly persons' cash transfers programme. While Ksh 5 billion–US\$ 47 million was allocated, with 30% of this used in administration, then only Ksh 3.5 billion–US\$ 33 million was expected to benefit the poor households with the elderly persons. While there were significant resources re-distributed to households (0.91%), the effect on poverty was minimal given that the transfer targeted only a selected group of the vulnerable in the population. The decline is more felt in the rural areas at 2.4% compared to 0.9% and 0.2% in the two major cities and other urban areas, respectively.

v) Tax relief

Tax relief in Kenya was provided for different categories. One was for those earning up to Ksh 24,000 (US\$ 226) who saw 100% tax relief and all others a reduction of Pay as You Earn from 30% to 25%. The cost of implementing the PAYE was estimated at 2.09% of GDP. The programme had effective impact on poverty reduction by 2.3 percentage points. The programme was highly effective in urban areas at 4.3 percentage points in Mombasa and Nairobi and 2.9 percent points in other urban areas. In rural areas it was only 0.8 percentage points.

There was also a tax relief for SMEs where turnover tax was reduced from 3% to 1%. The share to monthly GDP was 1.3% and the decline in poverty was more effective in urban areas, averaging 2.0 percentage points, compared to rural areas at 1.7 percentage points.

Conclusions and policy implications

This paper is a synthesis of reports of five countries looking at the effects of COVID-19 on poverty and the fiscal measures required to keep to the poverty levels before the COVID-19. The key findings are as follows:

- a) Across all the countries, the poverty levels increased with COVID-19 wiping out the gains made in poverty reduction in pre-crisis period. This is mainly attributed to reduced income especially with loss of jobs amounting to US\$ 184 million in Uganda; US\$ 330 million in Ghana; US\$ 462.8 million in Kenya; and US\$1239 million in Senegal.
- b) Inequality worsened especially in urban areas. Majority of the restrictions were felt, affecting sectors with at-risk income, and employing a significant proportion of the workers.

- c) Although income loss in rural areas was lower than in urban areas, more people were affected in rural areas. With most people already facing lower incomes, the loss of income saw higher poverty levels in rural areas.
- d) Various fiscal interventions have different effects in cushioning the vulnerable groups. To realize significant impact, a combination of policies is preferred in reducing poverty and inequality.
- Universal cash transfer has a significant effect in cushioning the vulnerable from falling into deeper poverty. The fiscal spending varies at national level across the countries, ranging from about 2.0% of monthly GDP in Ethiopia to 6.3% of monthly GDP in Kenya. This means that significant fiscal resources are required to protect the vulnerable groups.
 - Rebates on payment of utility bills while able to reduce poverty was not capable of restoring poverty back to pre-lockdown levels. Such rebates are susceptible to inclusion and exclusion errors.
 - The labour-intensive public works programmes targeted to youth employment among the poor in rural and urban areas has a potentially significant impact when fully rolled out.
 - A boost in the scope of the elderly cash transfer in Kenya and Uganda had a significant impact in rural areas where the elderly mainly reside.
 - The tax relief has a significant impact on the key urban centres in Kenya, Mombasa and Nairobi where majority of the SMEs are located.

Appendix 1: Measures undertaken by the various countries

	KENYA	ETHIOPIA	SENEGAL	UGANDA	GHANA
FISCAL MEASURES					
Budgetary allocation	<p>The 2019/20 budget allocated 0.4% of GDP for COVID-related expenditure</p> <p>The 2020/21 budget includes US\$ 56.6 million economic stimulus package</p>	<p>The Prime Minister's Office announced a COVID-19 Multi-Sectoral Preparedness and Response Plan, with prospective costing of interventions of US\$ 1.64 billion</p>	<p>Government implemented an economic and resilience package of up to 7% of GDP anchored in a revised budget</p>	<p>The 2019/2020 supplementary budgets increased spending envelope by about US\$ 270 million</p> <p>The 2020/2021 supplementary budgets of US\$ 600 million were allocated for additional COVID-19-related outlays</p>	<p>The Government has so far committed a total of GHc 11.2 billion to face the pandemic and its social and economic consequences</p>

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Appendix 1 Continued

	KENYA	ETHIOPIA	SENEGAL	UGANDA	GHANA
FISCAL MEASURES					
Health sector spending	Part of the budget was spent on enhanced surveillance, laboratory services, isolation units, equipment, supplies, and communication	US\$ 430 million for health sector response under a worst-case scenario of community spread For 2020/21, the authorities plan to allocate about US\$ 0.8 billion for COVID-19-related spending, including buying medical equipment; additional payment for health workers; food assistance for quarantines and isolation areas; procurement of hygiene facilities, disinfectants, and personal protection equipment	FCFA 78.7 billion (0.5% of GDP) was allocated to improve testing, treatment, and prevention	Additional funding for medical equipment, masks, test kits, and vaccines	Some funds were allocated to the pharmaceutical sector supplying COVID-19 drugs and equipment, building or upgrading 100 district and regional hospitals, and addressing availability of test kits, pharmaceuticals, equipment, and bed capacity

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Appendix 1 Continued

	KENYA	ETHIOPIA	SENEGAL	UGANDA	GHANA
FISCAL MEASURES					
Tax-related measures	<p>Full income tax relief for those earning below Ksh 24,000</p> <p>Reduced PAYE from 30% to 25%</p> <p>Reduced the base corporate income tax rate from 30% to 25%</p> <p>Reduced the turnover tax rate on small businesses from 3% to 1%</p> <p>Reduced the standard VAT rate from 16% to 14%</p>	<p>Forgiveness of all tax debt prior to 2014/2015</p> <p>Tax amnesty on interest and penalties for tax debt pertaining to 2015/2016-2018/2019</p> <p>Exemption from personal income tax withholding for 4 months for firms who keep paying employee salaries despite not being able to operate due to COVID-19</p>	<p>Suspended tax obligations were extended from 12 to 24 months to improve the liquidity of firms</p>	<p>Support to firms in the form of waived interest on tax arrears</p> <p>Deferred payments of PAYE and corporate income tax</p> <p>Expedited repayment of VAT refunds</p>	

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Appendix 1 Continued

	KENYA	ETHIOPIA	SENEGAL	UGANDA	GHANA
FISCAL MEASURES					
Social protection	Cash transfers and food relief Youth employment scheme	US\$ 635 million for emergency food distribution US\$ 282 million for provision of emergency shelter and non-food items US\$ 293 million to be allocated to agricultural sector support, nutrition, protection of vulnerable groups	One million households received food aid (FCFA 69 billion) and utility payments for water and electricity for poorer customers were suspended for a 2-month period (FCFA 18.5 billion) Employment support	Support to households, including food to the vulnerable, and funding for agriculture inputs	

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Appendix 1 Continued

	KENYA	ETHIOPIA	SENEGAL	UGANDA	GHANA
FISCAL MEASURES					
Others	Payment of existing obligations such as pending bills to maintain cash flow		<p>Hard-hit sectors such as tourism and transport received direct support of about FCFA 100 billion</p> <p>Partial credit guarantee scheme for companies affected by the crisis for a total amount of CFAF 200 billion</p> <p>Expedited payment of unmet obligations aimed at strengthening firms balance sheets</p>	<p>The expansion of labour-intensive public works programmes</p> <p>Acceleration of development of industrial parks</p> <p>Import substitution and export promotion by providing funding to Uganda's Development Bank and recapitalizing the Uganda Development Cooperation</p>	<p>Government to cut spending in goods and services, transfers, and capital investment to compensate for large spending related to COVID-19</p> <p>Postponement of interest payment on non-marketable domestic bonds held by public institutions to fund the financial sector</p>

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Appendix 1 Continued

	KENYA	ETHIOPIA	SENEGAL	UGANDA	GHANA
MONETARY MEASURES					
Policy rate	The central bank lowered its policy rate by 125 basis points and maintained it at 7.0%		In April 2020, the BCEAO adopted a full allotment strategy at a fixed rate of 2.5% (the minimum monetary policy rate) In June 2020, the Monetary Policy Committee cut by 50 basis points the ceiling and the floor of the monetary policy corridor, to 4% and 2%, respectively	The Bank of Uganda maintained its policy rate at 7% in February 2021, following two consecutive 100 basis points reduction	The Monetary Policy Committee cut the policy rate by 150 basis points to 14.5%

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Appendix 1 Continued

	KENYA	ETHIOPIA	SENEGAL	UGANDA	GHANA
MONETARY MEASURES					
Mobile money transactions	Waiving or reducing of charges on mobile money transactions to disincentivize the use of cash		Introduced measures to promote the use of electronic payments	Worked with mobile money providers and commercial banks to ensure reduction in charges on mobile money transactions and other digital payment charges	Lowered the cost of mobile payments
Reserve requirement	Banks' cash reserve ratio was lowered by 100 basis points to 4.25%				Lowered the primary reserve requirement from 10% to 8%
Loans	Flexibility to banks regarding loan classification and provisioning	The Central Bank provided 15 billion birr (0.45% of GDP) of additional liquidity to private banks to facilitate debt restructuring and prevent bankruptcies	Extended the collateral framework to access central bank refinancing to include bank loans to prequalified 1,700 private companies		Revised provisioning and classification rules for specific loan categories

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Appendix 1 Continued

	KENYA	ETHIOPIA	SENEGAL	UGANDA	GHANA
MONETARY MEASURES					
Others	<p>Maximum tenor of repurchase agreements was increased from 28 to 91 days</p> <p>Suspension of listing of negative credit information for borrowers</p>	<p>The Central Bank also provided the Commercial Bank of Ethiopia with an ETB 16 billion 3-year liquidity line and injected liquidity into hotel and tourism sectors through commercial banks</p>	<p>Launched a special 3-month refinancing window at a fixed rate of 2.5% for limited amounts of 3-month "COVID-19 T-Bills"</p> <p>Launched in February 2021 a special 6-month refinancing window at the floor of the interest rate corridor to help WAEMU governments meet COVID-19 recovery funding needs</p>	<p>Waived limitations on restructuring of credit facilities at financial institutions facing distress</p> <p>Purchase of Treasury Bonds held by microfinance deposit</p> <p>Deferred dividend payments and bonuses for at least 90 days effective March 2020 to ensure capital adequacy</p>	<p>Lowered the capital conservation buffer from 3.0% to 1.5%</p>

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Appendix 1 Continued

	KENYA	ETHIOPIA	SENEGAL	UGANDA	GHANA
MONETARY MEASURES			<p>WAEMU authorities extended by one year the five-year period initiated in 2018 for the transition to Basel II/III bank prudential requirements. BCEAO instructed WAEMU banks to refrain from distributing dividends to strengthen their capital buffers</p>		

Source: International Monetary Fund

Appendix 2: Assumptions made on income

SENEGAL	
Income types/Industries	Share of income losses (%)
Safe Income	
Public sector	0
Pensions	0
Top management	0
Own consumption	0
Other Income (Interest/rent/commissions)	0
At risk income	
Air transport	100
Recreation/culture/sports	100
Remittances	23.1/30
UGANDA	
Income types/Industries	Share of income losses (%)
Safe income	
Royalties	0
Interest	0
Dividend	0
Pensions	0
Social insurance benefits	0
Own-consumption from subsistence farming	0
At risk income	
Rents	20
Remittances	30
Gambling	70
GHANA	
Income types/Industries	Share of income losses (%) / assumption
Safe income	
Real estate (rents payment are made 6 months in advance)	0
Public administration and defense	0

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Appendix 2 Continued

GHANA	
Income types/Industries	Share of income losses (%)/assumption
Information and communication	0
Health and social work activities	0
Activities of extraterritorial organization	0
At risk Income	
Accommodation and food services	Hotel occupancy declined from 70% to below 30%
Agriculture, forestry and fishing	Agriculture sector GDP dropped by 16%
Mining and quarry	Minor impact
Electricity, gas, steam and air conditioning	Electricity grew by 4% in the first quarter of 2020 but declines expected in steam and condition supply
Construction	Industry GDP declined by 29% and construction grew by 7%
Wholesale and retail, repair of motor vehicles and motorcycles	Retailers reported 50% decline in sale, 66% of Ghanaians and cash trapped, shock to the sector projected around 39%
Transport and storage	Service sector GDP declined by 33%; vehicle registration declined by 26%; passenger capacity reduced by 25-33%
Information and communication	First quarter growth was 77%
Financial and insurance activities	Pensions contributions declined by 38%; listed banks saw a decline in stock prices by 20%
Professional, scientific and technical activities	Professional, administrative and support services declined by 6.7% in first quarter
Administrative and support services activities	Professional, administrative and support services declined by 6.7% in first quarter
Education	44.1% of employees in the sector are employed by private schools. Some laid off workers and pledged paying 50% of salaries
Arts, entertainment and recreation	Almost all grounded
Other services	A negative shock of 39%

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Appendix 2 Continued

KENYA		
Industry/sector	Description	Estimate of proportion of income loss
Safe income		
Manufacturing	Food products, beverages, pharmaceutical, medicine and botanic products	0
Utilities	Electricity, gas, steam and air conditioning	0
	Water supply, sewerage, waste management	0
ICT	Publishing, motion pictures, programming and broadcasting, telecommunication, computer programming and information services	0
Public administration and defense and compulsory social security	Public administration and defense and compulsory social security	0
Health	Human health and social work activities	0
Other services	Repair activities	0
Other services	Extraterritorial organization	0
At risk income		
Agriculture, forestry and fishing	Agriculture, forestry and fishing	Less than 10%
	Horticulture/flowers	About 70%
Mining and quarrying	Extraction of crude oil and natural gas, metal ores, quarrying	Less than 5%
	Other manufacturing	About 30%
Construction	Building, civil engineering and specialized construction activities	About 55%
Whole and retail trade	Agriculture and food related items, pharmaceutical and toiletries	About 20%
	Others	About 70%

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Appendix 2 Continued

KENYA		
Industry/sector	Description	Estimate of proportion of income loss
At risk income		
Accommodation and food services	Accommodation, hotels and food services	About 75%
Financial and insurance activities	Financial services, insurance and auxiliary services	Less than 5%
Real estate	Owned/leased property, and real estate activities on a fee or contracted basis	About 60%
Professional, scientific and technical activities	Legal, accounting, architectural, scientific research, advertising and technical activities	Less than 5%
Administrative and support services	Security, office administrative and support services, services to buildings and landscape	Less than 5%
	Dental and leasing, employment placement agencies, travel agencies	About 30%
Education	Public sector education	Less than 5%
	Private education sector	About 55%
Arts, entertainment and recreation	Gambling and betting activities	About 80%
	Creative, arts and entertainment activities	About 45%
	Cultural activities	About 20%
	Sports activities	About 45%
Other services	Membership to organization – business, employee, professional	About 10%
	Religious, political organizations	About 25%
	Washing, dry cleaning, hairdressing, funeral and related activities	About 45%
	Household activities as employer of domestic personnel, casual laborers	About 50%

Source: The five case studies

Trade-offs Between Preserving Lives and Livelihoods: Examining the COVID-19 Pandemic Policy Responses in Africa

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and

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Introduction

Prior to the COVID-19 pandemic, Africa had been struggling to recover from the impacts of slump in prices of major export commodities, slowdown in foreign direct investment flows, and weather shocks in some parts of the continent. Real GDP growth started to decline from a peak of 7.1% in 2010, reaching the bottom at 1.4% in 2013 and begun the long road to recovery achieving a modest growth of 3.3% in 2019³. As a result, other macroeconomic indicators such as inflation, current account balance, and budget deficit also worsened during this period. The debt burden worsened, with external debt-service crossing conventional limits of 20% of export earnings in most countries. The reversal of fortunes in an otherwise hopeful economic performance of the past two decades exposed the structural fragility of growth in Africa and its vulnerabilities to transient shocks. The advent of the COVID-19 sent shockwaves into the emerging new sectors such as tourism, manufacturing, and financial intermediation, thus compromising the recovery. Several indicators from diverse studies seem to indicate that African economies may suffer significant economic contractions due to the COVID-19 pandemic⁴. In addition, the initial conditions by the time the pandemic struck were not quite favourable. However, the full impact on livelihoods is yet to be ascertained as the uncertainty surrounding the behaviour and the intensity of the pandemic is still unfolding. So far, the pandemic has forced many businesses to temporarily shut down, supply chains have been disrupted, unemployment has soared, and the cost of living has risen in some countries. Particularly, prices of necessities have increased against the backdrop of low economic activity, lockdown, and loss of employment.

Most of these economic disruptions were caused by policy and administrative responses made to slow down the spread of the virus causing the COVID-19 disease. These include restrictions on mobility of people, closing border crossing points and air travel both within and between countries, and many other measures of lockdown that limited travel. In this paper, we try to provide an update on the degree of compliance, particularly on guidelines to restrict mobility across countries and examine if these measures tended to mitigate the infection rates. Most importantly, we reflect on the hard choices confronting governments as soon as the dynamics of the pandemic unfold, and when most of the restrictions imposed on mobility and disruptions in some sectors of the economy have eased. Some of the lessons that emerge from the experiences of fighting the spread of the virus may be summarized as follows. First, mobility compliance following government decisions to restrict movements seems to be highly correlated with number of confirmed cases. Countries that experienced significant reduction in mobility of people from their normal daily routine had their infection levels also lowered. Second, lockdowns

3 African Economic Outlook, 2020, African Development Bank Group.

4 See the following links to the various regional reports: World Bank (2020), <https://www.worldbank.org/en/news/video/2020/04/13/africas-pulse-the-economic-impact-of-covid-19-coronavirus-in-africa>, IMF (2020) “<https://www.imf.org/en/Publications/REO/SSA/Issues/2020/04/01/sreo0420>”, AU (2020), <https://www.imf.org/en/Publications/REO/SSA/Issues/2020/04/01/sreo0420>”, UNECA (2020), <https://www.uneca.org/publications/covid-19-africa-protecting-lives-and-economies>

accounted for 25% of the variation in infection rates (number of confirmed cases as a ratio of total people tested). Third, lockdowns and other measures of stringency tend to reduce infection rates by about 3 percentage points for a one standard deviation increase in stringency (about 30%). Other protective measures also contributed to the management of the pandemic. For example, community understanding of the virus led to strong reductions in infection rates but requires minimum threshold of close to 40% of the population aware of the pandemic to be effective. In countries where community understanding reached 50% of the population at risk, infection rates could decline by about 21 percentage points. Finally, as the uncertainty on the epidemiological pattern continues to unfold, the task confronting policy makers in Africa is to ensure economic recovery while at the same time fighting the pandemic, where some difficult choices will have to be made. The indications are that focus should shift towards scaling up testing, close follow up of confirmed cases, and strengthening the capacity of the health system to care for the sick to effectively manage the pandemic. The role of community compliance to the basic guidelines issued by health authorities could take countries a long way to manage the pandemic, while keeping the engine of the economy running. The optimal policy, however, requires implementation of reforms in a wide range of areas that have been overlooked for far too long.

The rest of the paper is organized as follows. Section 2 sketches the conceptual framework highlighting the trade-off between stringency measures to contain the pandemic and the social and economic consequences. Section 3 describes the data, Section 4 presents the results, and Section 5 concludes.

Trade-off between policy responses to contain the pandemic and economic and social consequences

Many African governments are confronted with the challenge of searching for the “optimal” or “smart” response that can contain the spread of the corona virus at the shortest time possible, without inflicting potentially ‘irreversible’ damage to the economy. For example, complete lockdown can significantly reduce infection rates and can bring human cost under control. However, it can also lead to significant slowdown and contraction in economic activities. Striking the right balance is dependent on the epidemiological characteristics of the virus, socio-economic factors, and resilience of institutions. Acemoglu (2020)⁵ motivated this dilemma using the typical model used by epidemiologists to capture the spread of infectious diseases (such as COVID-19) popularly known as the SIR (Susceptibility, Infection and Recovery) model. In a fixed population, an infectious disease has three groups of people. Those infected at time zero ($I(t)$),

5 Daron Acemoglu’s presentation in April 2020 at the webinar organized by IEA-RES is found here. <https://www.youtube.com/watch?v=X7MRoXtaIJ0&t=638s>

Susceptible to the disease ($S(t)$) and those that recover after being infected ($R(t)$). The path followed over time is captured in three non-linear differential equations of the form

$$\frac{dS(t)}{dt} = -\beta S(t)I(t) \quad [1]$$

$$\frac{dI(t)}{dt} = \beta S(t)I(t) - \gamma I(t) \quad [2]$$

$$\frac{dR(t)}{dt} = \gamma I(t) \quad [3]$$

Where β is a constant capturing “contact rates”, and γ is the recovery rate, which under certain assumptions determines the cusp of the epidemic. Epidemiologists define a crucial parameter R_e “which is the threshold value or tipping point that determines whether an infectious disease will quickly die out or whether it will invade the population and cause an epidemic.”⁶ It is given by the ratio of the contact rates and recovery rates as below.

$$R_e = \frac{\beta}{\gamma} \quad [4]$$

Since contact rates (β) is determined by the degree of interpersonal physical interactions, the policies governments put in place to maintain social distancing (θ) will have important influence in curbing the epidemic and bring normalcy to society. Most researchers describe the impact of social distancing on spread of the disease as follows:

$$R_e = \frac{\beta\theta^2}{\gamma} \quad [5]$$

In this set up, the actions of government authorities to enforce lockdowns and other preventive measures to reduce the spread of the pandemic depend ultimately on “social lifestyle”, pattern of inequality in accessing health services, including protective resources such as clean water, soaps, sanitizers, masks, etc; people’s culture; trust on government institutions; availability of resources to protect people vulnerable to starvation; and

6 Weiss (2013)

fatalities and other related hazards caused by the pandemic. Therefore, β and θ become in effect socio-economic variables of great interest in these times, and can determine the path of the pandemic and its consequent impact on the economy both in the short, medium, and long-term. Unpacking this relationship, therefore, becomes relevant for understanding the macroeconomic impacts. For example, Acemoglu et al. (2020) outline an optimal policy response that combines ‘targeted’ lockdowns for high-risk groups in the population while allowing the “low-risk” groups to function safely without disrupting economic activities. This requires an elaborate information base that is beyond the reach of many countries in Africa.

A more elaborate model was developed by Hausmann and Schetter (2020). It fits the features of a developing country economy where trade-offs between lockdown measures and their impact are jointly tracked. The model assumes monotonic negative relationships between lockdowns (saving lives) and economic activity, such that the objective confronting policy makers is minimizing the loss of lives and maintaining economic activity at the same time. Their result suggests that the trade-off between lockdowns and economic activity could be painful and severe the poorer a country is. Evidently, income loss in developing countries depends on how the lockdown affects livelihood sources, hence not everyone is affected equally. It is feasible to expect inequality and poverty to rise following lockdowns as it affects mostly workers who cannot perform tasks remotely and those that live on minimum wages, exposing them to death by starvation.

Some examples can show how African economies could be vulnerable to the pandemic once it starts spreading in the community. As vital health statistics confirm, Africa’s health burden is the highest in the world and among the slowest to improve among the Sustainable Development Goals (SDGs), despite comparable public spending. Inefficiencies in the use of public resources abound, with little progress on health status of Africans. Besides, microstudies show clearly that health outcomes are driven by inequality rather than per capita income differences, amplifying the fragility and vulnerability of the health situation in Africa (Shimeles and Nabasga, 2018). Therefore, the three parameters determining the path of the COVID-19 pandemic suggest that in Africa, the spread, though slow, could accelerate over time, affecting large populations, and disrupting economic activities at a larger scale. This is what is also evidenced in some countries such as India. With the pace of vaccination at significantly low rate, many African countries are in the uncharted territory concerning the COVID-19 pandemic, and the unknowns are unfolding.

Data sources

The paper used various data sources to address the research issues. Data on lockdown and other measures of containment was obtained from Oxford University, which constructed a single index with a range of 1 to 100 that aggregated about 20 indicators of government policy responses that span containment and closure policies, economic policies, and health system policies⁷. The data is available for 50 African countries. Data on mobility of people is used from Google,⁸ that reported percentage change in the daily movement of people in each country to specific locations such workplace, retail stores, and parks. Epidemiological data on COVID-19 was obtained from Worldometer⁹. In order to capture impact on economic activity, the paper used monthly nightly data using the methodology by Elvidge et al. (2013) to map anthropogenic lighting present on the earth's surface, which has recently been used extensively to proxy economic activity and measure real GDP growth (see for example Henderson et al. 2021).

Policy responses to contain the spread of COVID-19 pandemic in Africa

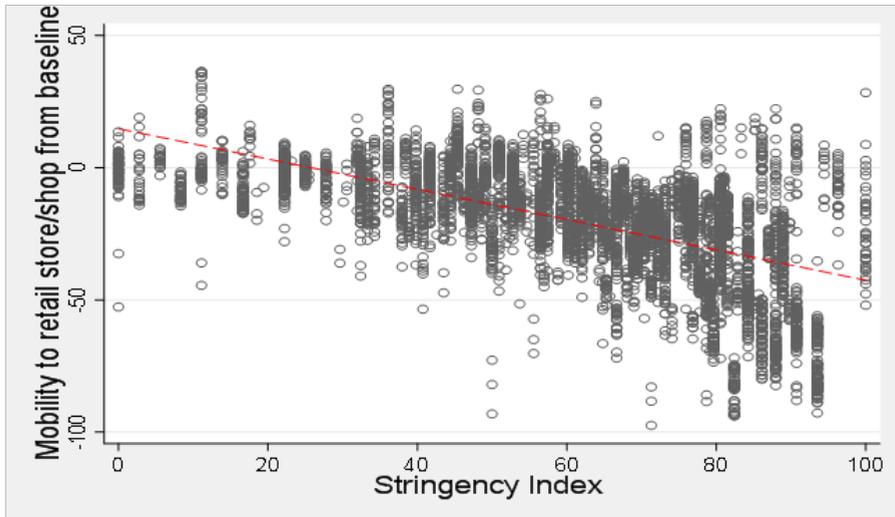
Most African countries have taken heed to the advisory notices released by the World Health Organization (WHO) in the early stages of the COVID-19 pandemic, certainly concerned by the poor health system and health infrastructure to cope with massive infections. Early in March 2020, most countries begun taking serious measures to contain the movement of people. They also introduced various measures to prepare the health sector, including assistance programmes to people who could potentially be affected by the lockdown measures. To capture these measures, Oxford University developed a Stringency Index that essentially measures “intensions” and “policy directives”. Not all countries enforce restrictions to the same degree of intensity and comprehensiveness, and certainly the compliance has not been uniformly applied. Figure 2 suggests that compliance generally has been correlated with containment directives issued by governments as captured by the Stringency Index, but the correlation is not that strong. The variance is more pronounced in countries with the highest Stringency Index where compliance on mobility tends to be weak. The data also shows that both Stringency Index and mobility changes followed the same trend, rising steadily around March 2020, reaching optimum around May 2020 after which governments started to ease containment measures, including lockdowns.

7 See the link to the Stringency Index <https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker>.

8 The source of data is given here. <https://www.google.com/covid19/mobility/>.

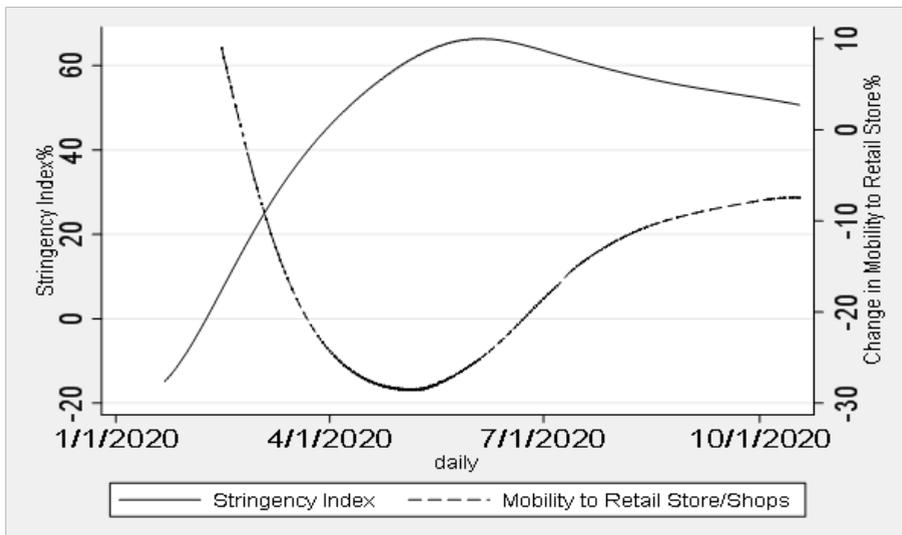
9 The data is provided in the link <https://www.worldometers.info/coronavirus/>.

Figure 2: Containment policies and compliance in Africa



Source: Authors' computations based on data provided by Google (<https://www.google.com/covid19/mobility/>) and Stringency Index by Oxford University <https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker>

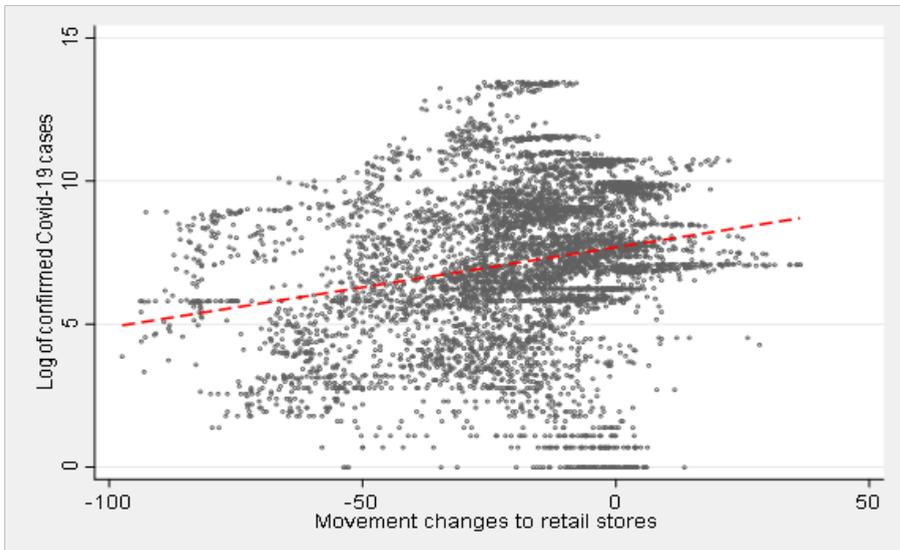
Figure 3: Lowess estimates of trends in Stringency Index and actual mobility change in Africa



Source: Authors' computations based on data provided by Google (<https://www.google.com/covid19/mobility/>) and Stringency Index by Oxford University <https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker>

The degree of compliance to mobility restrictions seems to be correlated significantly with the spread of the virus as shown in Figure 2. In countries where the number of infected cases was high, reductions in people’s movements, say to retail stores, declined significantly¹⁰. This variation in mobility across countries could be attributed partly to differences in the degree of lockdown introduced by governments, and compliance rates by the public to the restrictions. Both seem to be relevant. This pattern is very useful in understanding the effectiveness of policy and administrative responses to contain the spread of the virus and bring normalcy. We notice from Figure 4 that the total number of individuals with confirmed cases of COVID-19 was very high in countries where mobility of people stayed normal or even increased from the baseline. We also notice that, generally across all countries in Africa, there has been an overall decline in mobility of people during the COVID-19 period, suggesting that there was a common tendency of limiting movement in reaction to the news of the spread. This would perhaps be attributed to the first line of defense; self-preservation and this is a good objective towards the policy direction to limit infections and to save lives in general.

Figure 4: Total confirmed cases and changes in people mobility to retail stores from baseline



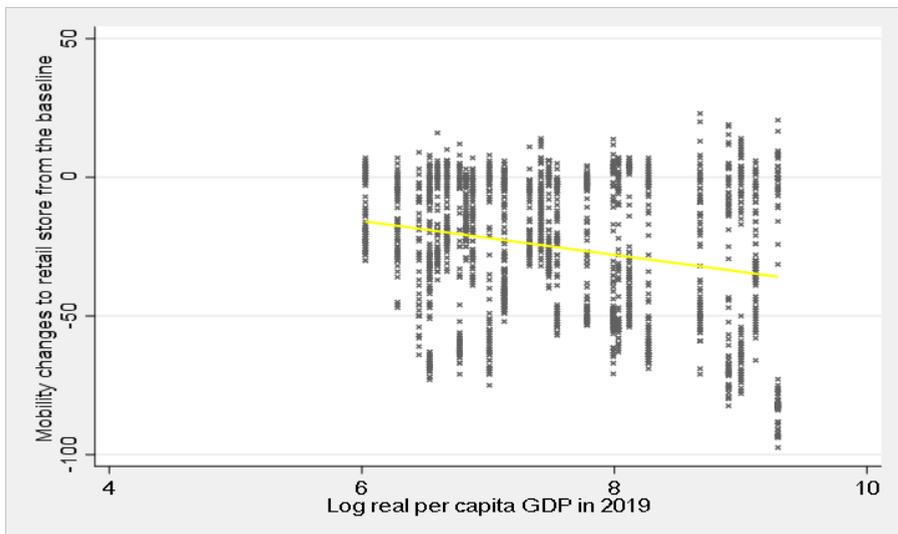
Source: Authors’ computations based on data provided by Google (<https://www.google.com/covid19/mobility/>.) and Worldometer (<https://www.worldometers.info/coronavirus/>)

One other source of variation in the mobility trends across countries in Africa is differences in per capita incomes. As shown in Figure 3, relatively middle-income countries tended to introduce and enforce stringent rules limiting mobility, and a high degree of compliance

¹⁰ The data on mobility changes is obtained from Google: <https://www.google.com/covid19/mobility/>. Confirmed infection rates and related data on COVID-19 were taken from <https://www.worldometers.info/coronavirus/>.

by the public. This pattern is very important to note. First, it is possible that middle income countries tended to experience higher cases of confirmed infections due to their high degree of connectivity to the origins of the virus in Asia and later Europe, hence the desire of the governments to take prompt precautionary measures. Second, stricter restrictions could also be applied with relative ease given the capacity of governments to provide basic provisions to the needy and vulnerable social groups, and relatively higher incomes across society to weather the restrictions. Here, there may be lessons to be learnt on the institutions of social protection programmes, the degree of inequality in the sufferings experienced, and the potential impact on some social groups, which could be permanent. Third, it could also be possible that poverty and inequality get relatively worse in middle income countries than in low-income countries if mobility restrictions and economic disruptions had strong relationships. So far, the studies conducted on poverty suggest that already poor and fragile countries could be hurt most due to the COVID-19 pandemic¹¹. This is possible and the global response to alleviate the economic hardships may have to consider these variations in impacts without also neglecting the sufferings of the poor in relatively richer African countries.

Figure 5: Mobility reductions during COVID-19 and per capita income in Africa



Source: Authors' computations based on data provided by Google (<https://www.google.com/covid19/mobility/>) and African Development Bank Information Highway

11 See for example <https://www.theigc.org/wp-content/uploads/2020/05/Teachout-and-Zipfel-2020-policy-brief-.pdf>.

How effective has been the policy responses in containing the spread of the virus?

It is not easy to accurately capture the impact of lockdown measures on the spread of the virus for several reasons. First, epidemiological models that simulate the impacts of containment measures such as frequent handwashing, social distancing, and the use of other protective measures such as facemasks have varied impacts on reducing the risk of infection, and such data flows are hard to find in Africa. Added to this are important dimensions of the preparedness of the healthcare system in testing, isolating, and contacting exposed people and treating infected people. In situations where effectiveness of policy responses is difficult to measure and quantify, governments are hard-pressed to evaluate the trade-off between economic disruptions and containment of the spread of the virus. The received wisdom is that lockdowns help a lot in slowing down the virus, but there is no clarity how stringent it should be and for how long. As a result, African governments have taken different approaches to the lockdown, from moderate to stringent approaches depending on their perception of severity of the spread and the practicability and costliness of the lockdown, while others facing political elections have been conscious of the cost of lockdowns. The preliminary indication is that lockdowns truly could help in reducing infection rates. Figure 4 illustrates this point for selected African countries. The correlation between infection rates (ratio of total confirmed cases to number of individuals tested) and changes in mobility of people to retail stores show significant and positive relationships. In countries where movements declined significantly, infection rates also tended to be low. This correlation is confounded by many factors. For instance, the number of individuals tested every day varies across countries based on the availability of the number of test kits, facilities to undertake the test safely, the guidelines for undertaking the tests and the turnaround in sharing the results. Therefore, the correlation may not reflect precise relations between lockdown and infection rates. Table 6 demonstrates that when country-fixed effects are controlled, stringency measures (largely representing policy intensions rather than actual compliance) tend to be ineffective and even campaigns to raise awareness do not seem to help in containing the spread of the virus. This result could be driven by endogeneity issues arising out of the possibility that infection rates and stringency policies reinforce each other.

Table 6: Pooled OLS estimation of correlates of infection rates (Robust Standard Errors)

Explanatory variables	Coefficient	Z-ratio
Stringency Index	0.014	(1.1)
Community understanding of the pandemic	-0.001	(-0.06)
Squared community understanding of pandemic	0.0019**	(3.74)
Constant	11.442***	(12.51)
R ²	0.55	
N	3262	
Country fixed effect	Yes	

Source: Authors' computations based on data provided by Google (<https://www.google.com/covid19/mobility/>.) and African Development Bank Information Highway

The possibility of simultaneity bias is indicated in Table 7 where actual mobility changes by the public was correlated with the spread of the virus. Countries that enforced significant mobility restrictions tended to witness higher infection rates (see also Figure 7). Such lack of identification might mistakenly be interpreted that stringency measures did not help in containing the pandemic.

Table 7: Pooled OLS estimation of correlates of infection rates

Explanatory variables	Coefficient	Z-ratio
Movement change to retail store/shops	-0.0237**	(-2.58)
Community understanding of the pandemic	-0.0817*	(-2.33)
Squared community understanding of pandemic	0.00524***	(7.29)
Constant		
R ²	0.56	
N	2607	
Country fixed effect	Yes	

Source: Authors computations' based on data provided by Google and Worldometer websites

A solution to the identification problem is to use instrumental variables where (in this case because of the high frequency nature of the data) it is easy to use lags of the stringency index variable, which is also intuitive. Stringency measures take time to yield observable shift in infection rates due to delays in detecting positive cases, and compliance rates to the stringency policies. Table 8 presents a robust causal relationship between stringency measures and infection rates, including campaigns to raise awareness about the pandemic. The Instrumental Variable regression meets the overidentification criterion as indicated by Sargan's test, with the null hypothesis that all instruments are identified. The first-stage regression of the instruments also suggests that the lagged values are relevant instruments as indicated by a high F-test. Results show that a 10% increase in the Stringency Index could lead to a 1 percentage point decline in infection rates, which is significant.

During the period March 2020 to November 2020, median infection rates hovered around 6% for Africa, with some countries facing more than one peak moment while median Stringency Index was 50%, which could result in a potential reduction of about 5 percentage points decline from the baseline. Similarly, community understanding of how the pandemic spreads is also an important preventive strategy. As shown in Table 8, community understanding could be correlated positively with infection rate up to a certain critical point (until awareness of the pandemic in affected areas reaches 33%) but would begin to be effective in reducing infection rates. For instance, a 10% increase

in community awareness of the pandemic after the baseline of 33% could lead to a reduction in infection rates of around 1.6 percentage points, which is substantial. The potential is even much larger than lockdown and other stringency measures because the median community level awareness reached a peak of just 20% around August 2020. The highest recorded community understanding during the entire period (March 2020 to November 2020) was just 50%. One could easily expect this number to reach 100% with some effort on the part of the government, hence manage to keep infection rates down to a significantly lower point.

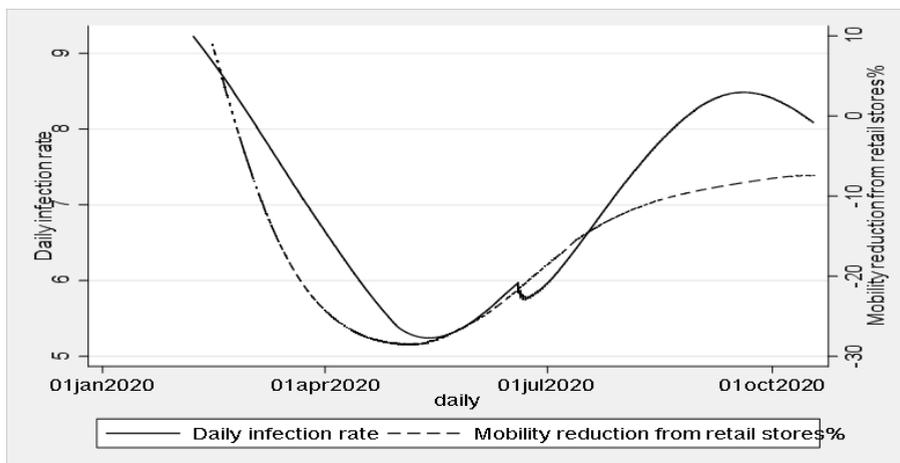
Table 8: Impacts of lockdown measures and community understanding of COVID-19 on daily infection rates: Instrumental approach

Stringency Index	-0.108***
Stringency Index	-0.108***
Z-ratio	(-3.85)
Community understanding of the pandemic	0.794***
Z-ratio	(5.76)
Squared community understanding of pandemic	-0.0121***
Z-ratio	(-5.23)
Constant	5.752*
Z-ratio	(2.01)
N	2818
Country and time-fixed effects	YES
Sargan Overidentification test	0.234
First-stage regression F-test	28.07

Note: The table reports Instrumental Variable regressions using Generalized Methods of Moments (GMM) where two-week and ten days' lags of stringency and community understanding variables were used as instruments.

This result tends to be consistent with the median path of infection rates in the 54 African countries, as shown in Figure 6 where it started declining during the period from March-May 2020 after which it again began rising, which is consistent with the trend exhibited in the daily mobility of people from and to retail stores in the same period.

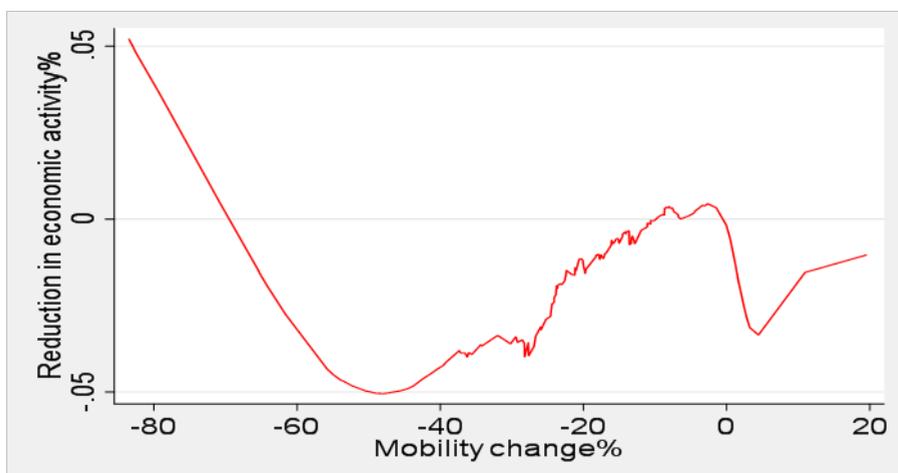
Figure 6: Lowess estimates of daily infection rates of SARS-Cov-2 virus in Africa



The impact of lockdowns on economic activity and welfare in Africa

It is expected that the policy responses in the wake of the COVID-19 pandemic could cause disruptions in economic activities, including loss of jobs, income, and potentially significant human suffering, including starvation, violence, and lack of or disruption in learning for children. So far, the exact impact has not yet been ascertained for lack of data across Africa; what is available are simulations using macroeconomic models. We report in this paper actual changes in economic activity proxied by nightlight data, which recently has been used as a reliable source to estimate GDP growth (see Henderson et al., 2010). As shown in Figure 7, the rate of change in nightlight data was negative in countries where mobility change from the normal routine declined or remained unchanged. This suggests negative correlation between changes in economic activities and decline in mobility of people. Recent studies have shown that the correlation between GDP per capita and nightlight data is non-linear, reaching an elasticity of zero for industrialized countries. This is quite intuitive. As countries develop, the source of growth in GDP per capita tends to be technology-intensive rather than light-intensive. Hu and Yao (2020) estimate an elasticity of around 2.5 of nightlight data growth with respect to GDP per capita growth for low-income countries, which translates roughly to growth rates at par with each other. It can then be inferred that during the height of the lockdown (decline in mobility between 40%-60%), real GDP of a typical African country may have declined by 5%, which is very significant.

Figure 7: Correlation between intensity of nightlight emitted¹² in Africa and reductions in mobility of people to retail stores



Source: Authors' computations

Furthermore, Table 9 establishes a robust relationship between lockdowns and growth in nightlight illuminations. The results from the Fixed-Effects Regression model show the impact of change in monthly mobility of people on nightlight illumination. Controlling for unobserved time-invariant factors and time fixed-effects, a 1% decrease in mobility of people could lead to a 0.01% reduction in nightlight illumination, or equivalent real GDP growth. A one-standard deviation decline in mobility (about 20%) could lead to 2% decline in real GDP growth.

The consequent impact on employment and household welfare is self-evident. Results from a simulation based on household surveys in five African countries show dramatic increase in poverty ranging from 4% in Ethiopia to 33% in Senegal (Figure 7). Josephson et al (2021) reported (based on high frequency phone survey) that nearly “256 million individuals in Ethiopia, Malawi, Nigeria and Uganda lived in households that have lost income during the pandemic”.

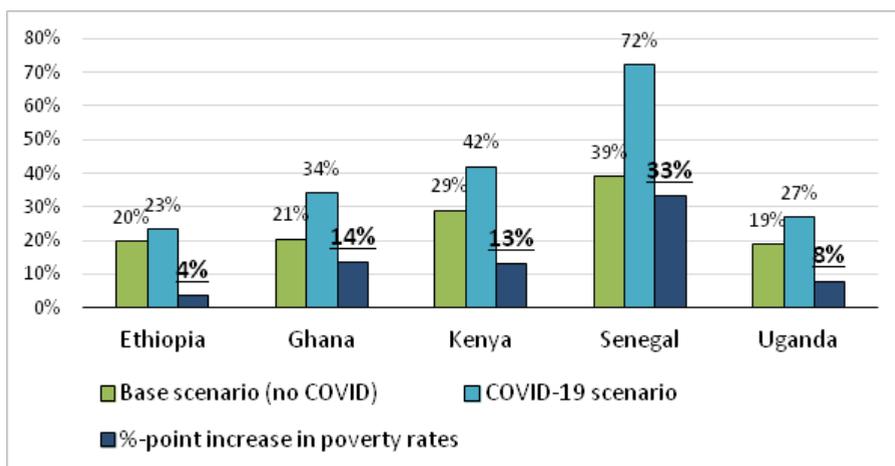
12 Nightlight data have been used to proxy economic activity in the empirical literature (see Henderson et al., 2010).

Table 9: Fixed effects regression of monthly rate of growth in nightlight intensity and lockdowns in Africa

Change in mobility from baseline	0.0147***	0.00778*
	0.001	-0.033
March		-1.038***
April		-0.929***
May		-1.265***
June		-1.265***
July		-1.265***
August		-1.094***
September		-1.200***
Constant	0.422***	1.301***
N	220	220
R-sq	0.157	0.571

Source: Authors' computations

Figure 8: Change in poverty due to COVID-19 pandemic



Finally, the lockdowns caused significant social disruptions in Africa, leading to elevated incidence of violence (Figure 9). The more stringent the policy measures that restricted mobility and compliance were, the higher the incidence in conflict that could be partly a reflection of institutional weakness to enforce such large-scale responses. Law and order have not taken deep root in some countries in Africa, suggesting the fragility of sustaining lockdowns for an extended period.

Figure 9: COVID-19 pandemic-related violence and lockdowns in Africa

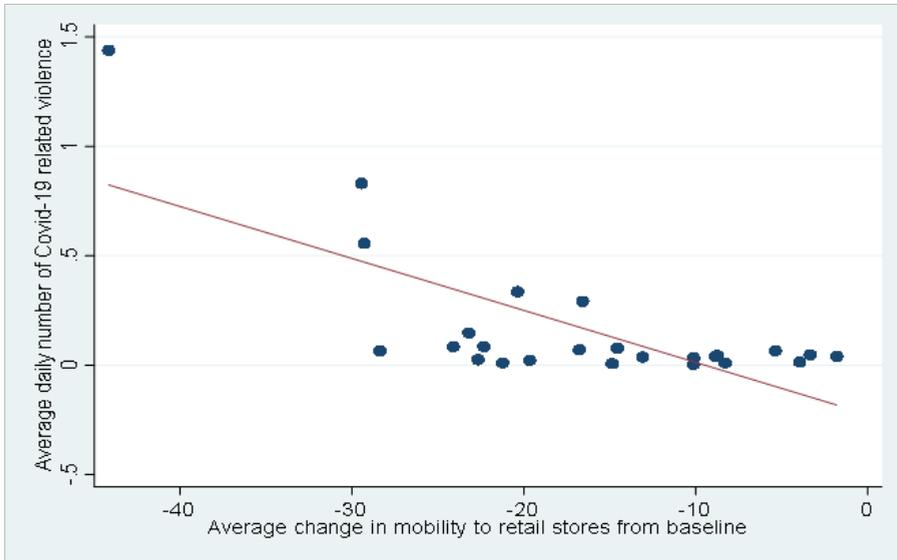
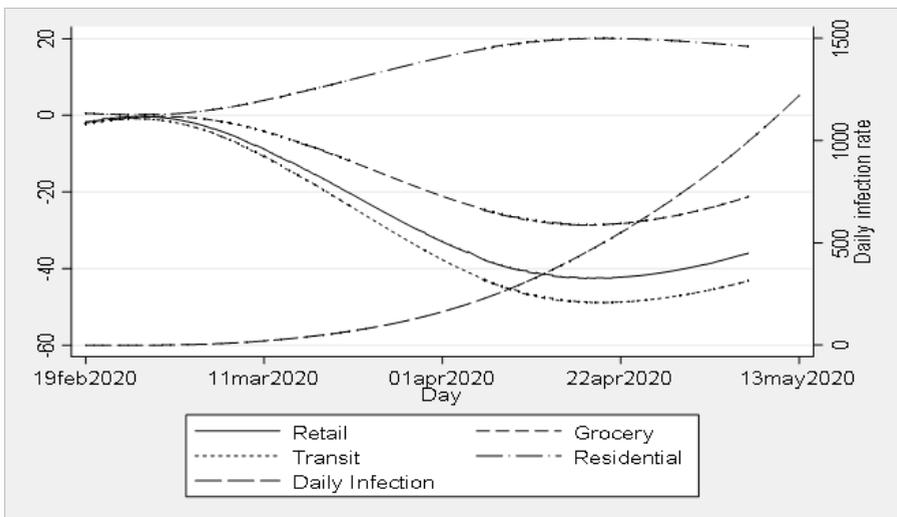


Figure 10: Monthly lockdown and infection rates in selected African countries



Source: Authors' computations based on data provided by Google and Worldometer websites

Conclusion

As Africa braces for the third wave of COVID-19, many countries are grappling with the best approach to navigate through the pandemic. So far, the indicators on infection rates are growing slowly and they do not show the S-curve often reported for the rest of the world. As shown in Figure 9, the trend in daily cases of new infections is growing rapidly. There seems to be fatigue in complying with the movement restrictions across the continent where lockdowns eased across the continent after May 2020. As economic activity decline continues, the common approaches of containment may become difficult to enforce for extended periods. Therefore, stepping up community level testing, as in Senegal, Uganda, Kenya, Ethiopia, and other countries offers hope in identifying and quickly isolating confirmed cases. But the spread could be faster than the actions of authorities, hence there may be some tragedy awaiting down the road that could force governments to take even more stringent measures than had been anticipated. One critical area is the urban slums. Lockdown in such settlements, and social distancing, are not efficiently or even effectively applicable. Therefore, it will be necessary to generate applicable restrictions consistent with location, economic activity and living conditions. In countries such as Kenya where targeted social protection has been designed and implemented, this has effectively worked for limited lockdown and slowed infection rates in slums. In addition, for such locations, it is the food supply chain protection, preventive measures such as masks, targeted restrictions on large gatherings (funerals, weddings, political rallies, etc), restriction of movement, and sanitization that may matter most to contain the spread of the virus than blanket lockdowns.

The COVID-19, unfortunate as it may be, also offers opportunities for undertaking the long overdue reforms in health systems, social protection schemes, resilient food security strategies, health infrastructure upgrade and devolving to the rural set up and community participation in public affairs. In addition, the pandemic offers an opportunity for the fragmented continent to forge ahead genuine regional integration, which could be an important source of risk sharing and protection of investment, jobs and movement of goods and services and development of markets that will be critical for economic recovery. There is currently a lot of discussion on taking advantage of this pandemic to reshape African economies, reform institutions and even economic management. Usually, pandemics like this generate more dynamic changes and we should use the opportunity to move towards a sustainable economic environment on agreed policy reforms (protect and develop markets that provide an inclusive economic participation, protect private investments, etc) and a strict code of accountability for these results. There is need to fix the institutional malfunction problems together with coordination failure and with it eradicate the political class aims at self-preservation thriving on weak institutions.

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COVID-19 and the Health Sector in Africa

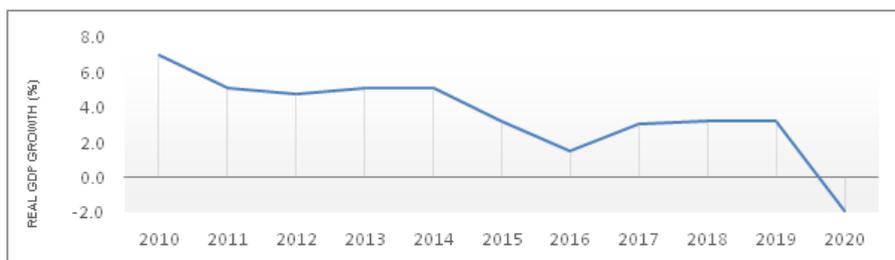
Augustine Asante

Introduction

The novel coronavirus disease 2019 (COVID-19) has fulfilled the longstanding fear of the global health community about a looming pandemic and the lack of preparedness to respond expeditiously. The disease, which was first identified in Wuhan, China, in December 2019, has spread to all corners of the globe and causing significant damage to livelihood, health care systems and the global economy. As of 1 May 2021, more than 150 million cases have been recorded worldwide, with over 3.1 million deaths (Dong et al.). In worst-affected countries like the United States, India and Brazil, between 200,000 and 570,000 COVID-related deaths have been recorded. The pandemic has placed enormous strain on global health systems and economies, exposing their vulnerabilities. The International Monetary Fund (IMF) estimated a contraction of 3.5% in the global economy in 2020 due to COVID. Projected growth for 2021 and 2022 has since been revised to 5.5% and 4.2%, respectively, following the development and rolling out of vaccines (IMF 2021). Emerging data shows that the COVID-19 disproportionately affects the poor and racial minorities, exacerbating prevailing inequities in health and other socio-economic conditions in many countries (Getachew et al. 2020).

Africa recorded its first COVID-19 case in mid-February 2020. The continent has since confirmed over 4.5 million cases and more than 120,000 deaths (i.e., as of 1 May 2021) (Dong et al.). This is relatively low compared to cases and deaths in other parts of the world, especially in Europe, Asia and the Americas. However, given Africa's vulnerable economies, weak health care systems, and a large immunocompromised population from the high prevalence of malnutrition, anemia, malaria, HIV/AIDs, and tuberculosis, there are apprehensions about the full impact of the pandemic on the continent if containment efforts fail (Lone and Ahmad 2020). The World Bank estimates a 3.3% decline in economic activity due to COVID-19 in 2020, which could trigger Africa's first-ever recession in a quarter of a century (Zeufack et al. 2020). According to the World Bank, this could push up to 40 million Africans into extreme poverty and set back efforts to build human capital on the continent, especially with COVID-related school closures affecting nearly 253 million students (Zeufack et al. 2020). A more recent data from the IMF Regional Economic Outlook - April 2021 indicate that real GDP growth in sub-Saharan Africa declined by -1.9% in 2020, the worst outcome on record (IMF 2021) (Figure 11).

Figure 11: Real GDP growth in sub-Saharan Africa, 2010-2020



Source: Data extracted from the IMF World Economic and Financial Surveys; sub-Saharan Africa navigating a long pandemic. Background paper- Statistical Appendix

This unprecedented economic downturn was partly the result of the lockdown and social distancing measures instituted at the outset of the COVID-19 pandemic by governments across Africa to control the spread of the disease. These measures significantly impacted the informal sector, where more than 80% of workers in sub-Saharan find their livelihoods (Nguimkeu and Okou 2020). Informal sector workers are among the most vulnerable to COVID-19 health and economic shocks (ILO 2020). The vast majority of them, particularly market women, street hawkers, and commercial transport operators, work in crowded conditions with very little room for social distancing and no access to hand-washing facilities, making them especially vulnerable to COVID-19 infection (Resnick et al. 2020). There is anecdotal evidence that many workers in the informal sector lost their primary source of income as a result of the initial COVID-19 lockdowns and social distancing measures (Megersa 2020).

As in other regions, the economic impact of COVID-19 in sub-Saharan Africa has been uneven, with countries such as Botswana, Namibia and South Africa experiencing substantial contraction of their economies, while others like Ghana, Kenya and Ethiopia maintained a reduced but positive GDP growth. Figure 12 shows the real GDP growth in ten selected sub-Saharan African countries. These countries are also among the most affected countries in terms of the total number of COVID-19 cases. For example, the decline in growth in Botswana, Namibia and South Africa exceeded 7% of GDP in 2020. Ethiopia's economy, however, maintained an impressive 6% growth despite having the second-highest number of COVID-19 cases in sub-Saharan Africa (see next section).

Figure 12. Real GDP growth in selected sub-Saharan African countries, 2016-2020



Source: Data extracted from the IMF World Economic and Financial Surveys; sub-Saharan Africa navigating a long pandemic. Background paper- Statistical Appendix

As the global economy recovers following the rollout of COVID-19 vaccination in many countries, sub-Saharan African economies are also expected to recover. However, the recovery is projected to be much slower than in other regions, with average real GDP growth of 3.4% and 4.0%, respectively, in 2021 and 2022 (IMF 2021). The two largest economies in sub-Saharan Africa - Nigeria and South Africa - are projected to expand modestly between 2.0% and 3.1% in 2021 and 2022, relatively lower than the projected regional averages. By contrast, the economic expansion in Kenya and Botswana, based on current projections, will exceed 7% in 2021 and 5% in 2022 (IMF 2021). In general, the post-COVID economic recovery in sub-Saharan Africa will depend significantly on the velocity with which countries in the region can roll out the COVID-19 vaccination in tandem with strengthening their weak health systems.

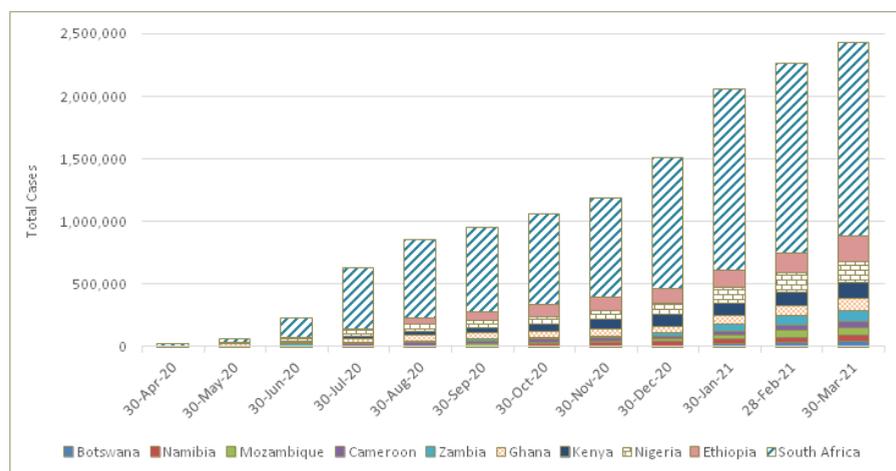
The health impact of the COVID-19 pandemic in Africa so far has been less severe than predicted. This presents an opportunity for countries in the region to get their act together and strengthen their health emergency responses in preparation for potential second and third waves, which have turned to be more devastating than the first wave elsewhere in Europe, Asia and America (Xu and Li 2020). In particular, the ongoing second wave in India has surpassed the expectations of many public health experts and provided strong impetus for Africa to strengthen its health systems and public health emergency preparedness. Another critical reason for Africa to improve its emergency response with urgency is the growing mutation of the COVID virus; new and more infectious variants of the virus continue to emerge in different settings, including South Africa, raising concerns about vaccine prevention and control of the pandemic (Skegg et al. 2021). Finally, reports of a new Ebola outbreak in Guinea and the Democratic Republic of Congo (WHO 2021) amid COVID-19 paint a disturbing picture of an impending public health catastrophe driven by two deadly infections; COVID-19 and Ebola.

Africa needs a strategic approach rooted in a clear understanding of the implications of COVID-19 for health systems on the continent to prepare for an effective response, including concrete strategies for vaccine roll out as more doses of the COVID-19 jab become available. To date, no systematic analysis of the vulnerabilities in the health systems in Africa about the COVID-19 pandemic has been undertaken to inform policy decisions. This discussion paper aims to analyse the COVID-19 pandemic in Africa to enhance understanding of the vulnerabilities in the health systems in the region and determine the operational challenges of disease control that are likely to undermine effective response. The paper discusses policy options and strategies for targeted strengthening of Africa's health systems and draws lessons for low- and middle-income countries elsewhere. It is worth noting that while the health and economic impact of COVID-19 are inextricably linked, the analysis in this paper is focused on the vulnerabilities inherent in the health systems and does not include an analysis of the economic implications of the pandemic. The paper is structured in four sections. The first section provides a brief overview of the COVID-19 pandemic and government actions in Africa. The second section offers a general introduction to health systems in Africa. Section three presents an analysis of African health systems and key areas of vulnerability for COVID-19, using the WHO building blocks framework. Section four presents concluding remarks and highlights some policy recommendations.

Overview of COVID-19 and government actions in Africa

Africa was the last continent to be hit by COVID-19, having recorded its first case in Egypt in mid-February 2020. Less than a month later, several countries, including Algeria, Nigeria and Senegal, recorded cases, putting the continent on a high alert (WHO 2020). By mid-August (six months after the first case), Africa had surpassed 1 million cases with 20,787 deaths. All but one of the 55 countries on the continent had confirmed COVID cases (WHO 2020, Ntoumi and Velavan 2021), making COVID-19 one of the most transmissible diseases the continent had witnessed. The ten worst-affected countries at the time - South Africa, Nigeria, Ghana, Ethiopia, Algeria, Kenya, Cameroon, Côte d'Ivoire, Madagascar, and Senegal - accounted for around 88% of the total cases. South Africa alone represented nearly 60% of all cases. Today (as of 30 March 2021, one year and one month after the first case), COVID-19 had affected more than 4.5 million Africans and taken over 120,000 lives (WHO 2021). Figure 13 shows the number of COVID-19 cases in the ten worst-affected sub-Saharan African countries on 30 March 2021.

Figure 13: Number of COVID-19 cases in the ten worst-affected sub-Saharan African countries as of 30 March 2021



Source: Our World in Data

Compared to other regions, the number of COVID cases and deaths in Africa is significantly low - a paltry 2% of total global cases. Women appear to be less affected than men; a recent gender-specific COVID-19 epidemiological data analysis by WHO found that women account for 41% of cases in Africa (WHO 2021). Nearly 90% of people affected by COVID-19 in Africa have recovered, indicating a much lower case-fatality ratio than observed in other regions (WHO 2021). No scientific explanation has been adduced for the low number of COVID-19 cases and deaths in Africa. Speculations include low population density and age distribution (youthful population), rapid government response to the disease, and limited COVID testing and data collection capacity (PERC 2020).

The swift response to the COVID-19 pandemic by African governments is often credited as a significant contributor to the small number of cases. With memories of the 2014 Ebola outbreak still fresh on the continent, the COVID-19 threat was taken a little seriously than usual by African leaders. African Union member countries started deliberating on how to prevent possible importation of the pandemic from China, given the close trade ties between the two settings, as far back as December 2019. In early January 2020, before the first continental case was reported, countries such as the Ivory Coast had started implementing enhanced surveillance at airports, screening all passengers with a recent history of travel to China (Massinga Loembé et al. 2020). Almost all African airlines suspended direct flights to and from China by early February (Nkengasong and Mankoula 2020). While the flight suspension was reasonable, it did not stop the importation of COVID-19 to Africa as flights from Europe, where the epicentre of the disease has shifted, continued.

As the number of COVID-19 cases rose in many African countries from March 2020, governments began to institute more stringent measures to slow down the pandemic. These included national lockdowns, restricted travels, social distancing, testing, contact tracing, isolation of positive cases and quarantine of people exposed to confirmed cases (Makoni 2020). These are non-pharmaceutical interventions necessary for containing the spread of epidemics (Moore 2007). At least 11 countries, including South Africa, Nigeria, Ghana, Uganda, Rwanda, Zimbabwe, Kenya, Mauritius, Namibia, Lesotho and Congo DRC, had put their populations under full or partial lockdown as of 31 March 2020. With limited testing capacity and laboratories, many African countries channelled resources from other sectors to bolster national testing efforts. In Nigeria, for example, a private sector-led group, Coalition Against COVID-19, ordered 250,000 tests and 150,000 extraction kits to fast-track molecular testing for COVID-19. In addition, they set up isolation centres and renovated hospitals in support of the government's COVID response efforts (Makoni 2020). In effect, African governments, acting within the constraints of limited resources, responded boldly and timely to the COVID-19 pandemic, which may have contributed to the overall low number of cases.

African health systems: A brief overview

Health systems in Africa, especially those in sub-Saharan Africa, are among the most fragile and fragmented in the world. Fragile health systems get easily overwhelmed during public health emergencies as they are unable to maintain core functions needed to respond effectively to crises (Nuzzo et al. 2019). Since the outbreak of the COVID-19 pandemic, many have wondered how the weak African health systems will cope if the virus becomes widespread on the continent. The deficiencies in health systems in Africa are well-known; they range from chronic under-funding to inadequate skilled health workforce and poor leveraging of the private sector to improve access and financing of quality services (WHO 2000, IFC 2007). While Africa accounts for a disproportionate share of the global disease burden (Gouda et al. 2019), it allocates the least amount of resources to health care (Wagstaff et al. 2018). Per capita health spending in sub-Saharan Africa averaged USD83 in 2018 compared to the low and middle-income countries average of USD262 or the USD 4,900 in the OECD (OECD 2017, Chang et al. 2019).

The health financing systems in sub-Saharan Africa countries are generally characterized by low government expenditure, under-developed insurance schemes, high OOP payments, and substantial dependence on donor funding (WHO 2013, McIntyre et al. 2018). Governments in sub-Saharan Africa acknowledged the centrality of health care to development and declared in Abuja (Nigeria) in 2001 to increase health expenditure to a target of at least 15% of the annual national budget (WHO 2017, Asante et al. 2020). Twenty years on, only a handful of countries in the region have reached this target. In 2017, the domestic general government health expenditure as a proportion of general government expenditure averaged around 7.2%, less than half of the target set in Abuja (WHO 2020). Table 10 provides health care financing indicators for selected n countries. These countries are among the worst COVID-19 affected countries in the region.

Table 10. Health care financing indicators for selected sub-Saharan African countries, 2018

Country	Population (in millions)	Gov Health Exp % Total Gov Exp	Gov Health Exp % Total Health Exp	Out-of-pocket Health Exp % Current Health Exp	Current Health Exp Per Capita (US\$)
Cameroon	25.2	1.1	5.9	75.6	54.13
Ethiopia	109.2	4.9	23.4	35.5	24.23
Ghana	29.7	6.4	38.9	37.7	77.91
Kenya	51.4	8.5	42.1	23.6	88.38
Mozambique	29.5	5.6	21.2	9.7	40.26
Namibia	2.4	10.6	46.1	8.4	471.48
Nigeria	195.9	4.4	14.9	76.6	83.75
Uganda	42.7	5.1	15.8	38.4	43.13
South Africa	57.8	13.3	54.0	7.7	535.95
Zambia	17.4	7.0	39.1	10.0	75.99

Source: Data from the World Bank's world development indicators database. Gov = Government; Exp = Expenditure. <https://data.worldbank.org/indicator/SH.XPD.PVTD.CH.ZS>

Another longstanding challenge facing health systems in Africa is human resources for health (HRH) or health workforce. In 2013 there were an estimated 17.4 million health worker shortages globally, of which Africa accounted for 4.2 million, making it the region with the most severe needs relative to its population size (WHO 2016). African countries, on average, had 0.21 doctors per 1,000 population in 2018 compared to the 4.7 per 1,000 in European countries (WHO 2021). The distribution of the nursing and midwifery workforce shows similar shortages, with less than one nurse/midwife per 1,000 population in Africa in 2018 compared to 9.6 per 1,000 in the OECD (World Bank 2021). Put together, Africa has an average of 1.3 health workers (doctors, nurses and midwives) per 1,000 population, which is far short of the international benchmarks of 2.5 per 1,000 population and 4.45 per 1,000 for universal health coverage (McPake et al. 2019).

Within Africa, there are wide variations in health workforce numbers; Ghana, for example, has around 4.2 nurses and midwives per 1,000 population compared with Ethiopia, which has just 0.71 nurses and midwives per 1,000 population (WHO 2021). Finally, within individual countries, geographical maldistribution exists, with urban areas in almost all African countries hosting the bulk of the health workforce despite the majority of the population living in rural areas (Soucat et al. 2013). Among the range of factors underpinning the low number of health workers in Africa are the under-investment in health professional training institutions, emigration of skilled health workers and health labour market restrictions. In 2011, there were 24 countries with only one medical school and 11 countries with no medical school (Mullan et al. 2011). The capacity of the available health training institutions to produce sufficient number of health workers is weak across Africa, leading to low number of health workers graduated annually (McPake et al. 2019). In 2011, the total output from all four medical schools in Ghana was 357 graduates (Amuakwa-Mensah and Ayesua 2014). Ethiopia, a country with over 110 million people, until recently (after the 2010 “flooding” health workforce development strategy) was producing less than 500 medical graduates annually. Today, it produces about 3,000 doctors a year, which is still below international standards (Assefa et al. 2017).

The emigration of African health professionals is another reason for the low number of health workers on the continent. There were 10,377 physicians practising in the US who were either born or trained in sub-Saharan Africa in 2011 (Tankwanchi et al. 2013). Health professionals migrate for a variety of reasons, including further studies and in search of better working conditions. In countries like Nigeria and Ghana, the migration of doctors is part of a culture of migration that expects these professionals to go abroad to further develop their skills and training (Bludau 2021). In recent years, the rate of emigration of health workers in Africa appears to have slowed, with few migrated health workers returning to their home countries (Motlathledi and Nkomazana 2018).

Conditions in the health labour market in Africa also contribute to the workforce challenges. The bulk of the health workforce is employed by the public sector and subject to civil service regulations around staff recruitment, which in itself is subject to governments’ fiscal capacity to recruit additional personnel. In some countries, the shortage of health workers is not because there are no qualified personnel to recruit but because of the limited capacity of the public sector to employ them. In places like Kenya, Nigeria and Ghana, substantial numbers of health workers, especially nurses, remain unemployed due to labour market restrictions and the health systems’ inability to fund all positions (Soucat et al. 2013).

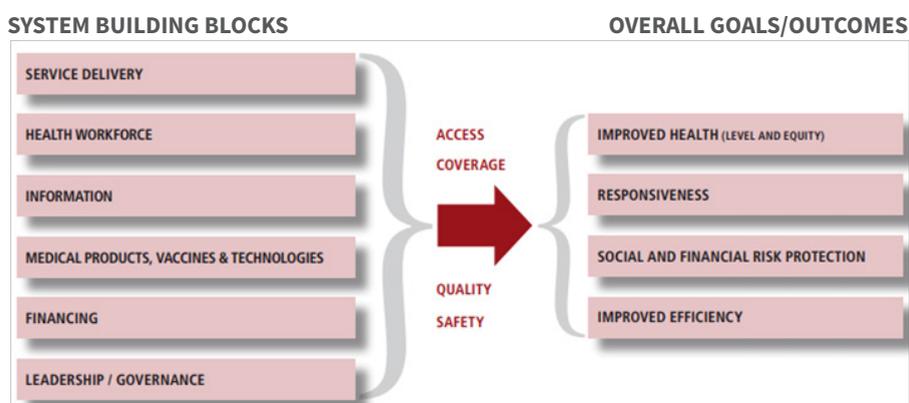
Poor leveraging of the private sector is a noticeable challenge facing health systems in Africa. The private sector (both for-profit and not-for-profit) has long been identified as an important partner in health care provision in LMICs, including those in Africa (WHO 2018). It is estimated that at least half of health care services and products in Africa are provided by the private sector (IFC 2007). The range of goods and services provided by the private sector include direct provision of health services, medicines and medical products, financial products, training for the health workforce, information technology, infrastructure and support services (WHO 2018). Although the distribution of private

sector health care benefits in many settings is typically pro-rich (Chuma et al. 2012, Mills et al. 2012), in many African countries, the private sector is at times the only option for health care in rural areas and urban slums (IFC 2007). However, despite its importance, Africa has not been able to engage the private sector in a meaningful way to harness and optimise its contributions to improving health care and the sustainability of the sector. A genuine partnership with the private sectors, including the provision of better regulatory oversight, will improve access to health services, enhance quality, and strengthen the performance of the sector, especially if the regulations that inadvertently hamper the development of the private health sector are reformed.

COVID-19 and health systems in Africa

As COVID-19 continues to test the resilience of health systems worldwide, pressure is mounting on African governments to strengthen the capacity of their health systems to withstand the onslaught of the virus. Health systems strengthening involves initiatives that permanently make the systems function better, not just filling gaps or supporting the system to produce better short-term outcomes (Chee et al. 2013). However, given the severity of the COVID-19 threat, any actions that may improve one or more of the functions of Africa’s health systems in the short to medium term are worth pursuing. This section analyses health systems in Africa in the light of the COVID-19 pandemic to identify areas of vulnerabilities where action is needed and to determine the operational challenges of disease control that may undermine effective management of the pandemic. One of the most widely used frameworks for analysing health systems is the WHO building blocks framework which describes health systems in terms of six core components: service delivery, health workforce, information, medical products, vaccines and technologies, financing, and leadership/governance (WHO 2007). Each of these components (except leadership and governance) is considered in turn to identify specific COVID-related vulnerabilities in the health system.

Figure 14. The WHO health systems building blocks framework



Source: WHO (2007) Everybody's business - strengthening health systems to improve health outcomes

Service delivery vulnerabilities

The service delivery component deals with the organisation and management of inputs and services to guarantee and facilitate the continuity of access to quality and safe services across different health conditions and different locations over time. It emphasises the delivery of effective, safe, and quality services to those who need them with minimum waste of resources (WHO 2007). The delivery of health services to COVID-19 patients happens in both hospital and non-hospital settings. The WHO recommends that all laboratory-confirmed cases be isolated and treated in health care facilities (WHO 2021). Hospital-based services include oxygen therapy and supportive care, such as treatment of co-infections (Waya et al. 2021). Patients with severe and critical cases admitted to intensive care units (ICU) may receive invasive or noninvasive mechanical ventilation, depending on their circumstances. In the US and Europe, there are several novel therapeutics, including monoclonal antibodies, that are available under emergency use authorisation (EUA) for early outpatient treatment (US CDC 2020). Non-hospital based COVID-19 care includes testing in the community, isolation of suspected and confirmed cases from the community to special isolation centres and supporting preventive measures such as hand-washing and provision of masks (Güner et al. 2020).

African countries are vulnerable in two key areas in terms of delivering health service during the ongoing COVID-19 crisis: provision of appropriate, safe, and quality services to COVID-19 patients and maintaining core health services that are non-COVID related. With the provision of services to COVID patients, evidence from other parts of the world demonstrates that ICU capacity is key to the effective management of acute respiratory failure and haemodynamics associated with COVID-19 (Fox et al. 2020, Phua et al. 2020). This is not just in terms of access to critical care bed but also the sustainable supply of oxygen. Most African countries have less than one hospital bed per 1000 population: Nigeria has about 0.5 beds per 1,000 population, while Ghana has 0.9 per 1,000 (World Bank 2018). Recent data on ICU bed and ventilators indicate an average of 3.10 ICU beds and 0.97 ventilators per 100,000 population across all the 54 African countries (Craig et al. 2020). The need for medical oxygen in Africa has outstripped supply as the number of COVID-19 cases increases. The Africa CDC recently called for “huge supplies of oxygen to support the management of cases of COVID-19 across the continent”. While almost all African countries have oxygen manufacturing plants or can source it from private sector providers, delays in supply and poor storage capabilities (mostly stored in cylinders) restricts supply (Nakkazi 2021). The health systems on the continent will be overwhelmed, as currently being witnessed in India, if the supply of oxygen is not significantly improved.

Another reason to strengthen ICU capacity is the possibility of COVID-19 related complications in immunocompromised patients. Available evidence suggests that people with compromised immunity are at a higher risk of developing complications and needing critical care when affected by COVID-19 (Lescure et al.). Africa has the largest number of HIV/AIDS patients globally, which puts the region at risk of seeing more COVID-19 related complications if the second and third waves hit the continent harder. Countries must factor this into their plans to scale up critical care for COVID-19 patients.

Maintaining the delivery of essential health services amid rising COVID-19 cases in Africa is another cause for concern. Evidence from a preliminary analysis conducted by the WHO of five key essential health service indicators: outpatient consultation, inpatient admission, skilled birth attendance, treatment of confirmed malaria cases, and provision of the combination pentavalent vaccine in 14 countries indicates a sharp decline in these services between January and September 2020 compared with the two previous years. Across the five areas monitored, services dropped on average by more than 50% in the 14 countries compared with the same period in 2019 (WHO 2020). The fear of getting infected at the health facility and restrictions on movement from the national lockdowns instituted in several countries may have contributed to the decline in the delivery of routine services. However, one cannot also rule out the possibility of resources for other services been shifted into managing COVID cases, especially as countries were forced to establish isolation centres to care for mild and suspected cases. The re-purposing of hotels, churches and school dormitories for COVID treatment centres came at a cost to governments.

African countries, even before COVID-19, had some of the worst health indicators in the world. For example, the continent's maternal mortality ratio of 525 per 100,000 live births in 2017 represented nearly 66% of the total maternal deaths worldwide (WHO 2020). If the provision of antenatal care is disrupted because of COVID-19, more women will die in childbirth. In Nigeria, the WHO confirmed in their preliminary analysis that 362,700 pregnant women missed antenatal care between March and August 2020, while 310 maternal deaths occurred in health facilities in August 2020, nearly twice the number of deaths in August 2019 (WHO 2020). All these happened when COVID-19 cases across the continent were significantly low and give a strong indication that if the situation deteriorates, as being witnessed in the second and third waves in India and elsewhere in the world, the impact on the health systems and health status in Africa could be catastrophic.

Health workforce vulnerabilities

Health workforce is central to the performance of all health systems; without an adequate, well trained and motivated workforce, no health system can function efficiently (WHO 2006). As discussed earlier, Africa faces a range of longstanding health workforce issues, including inadequate numbers, emigration of health workers, and health labour market challenges. Health workforce, therefore, remains one key area of vulnerability as the continent seeks to calibrate its COVID-19 preparedness and response.

While the inadequate health workforce numbers is the prime challenge, having a sufficient number of health workers per se is not enough; a well-performing health workforce works in responsive, fair and efficient ways to achieve the best health outcomes possible, given available resources and circumstances (WHO 2007). Deploying the workforce to areas where their services are most needed and providing them with the tools and resources, they need to do their work are equally critical. A surge in COVID-19 cases in the African region would require additional hands but not just any hand, hands that are well-equipped to manage the patient flow. Also important is ensuring the safety of health workers themselves; COVID-19 has proved to be a highly infectious disease,

especially the new UK variants (Duong 2021, Mahase 2021). This has made personal protective equipment (PPE) a critical tool in the COVID-19 preventive package. To reduce the risk of exposing frontline health workers to the virus, policy-makers should ensure the availability of PPEs and train personnel on how to use them properly.

The health workforce vulnerabilities cannot be fully addressed amid the unfolding COVID-19 crisis as it takes a long time to train a health worker. However, mitigation measures can provide short-term relief in some countries. One of such short-term mitigation measures is the removal of the current health labour market conditions that impose restrictions on the hiring of new staff. As observed earlier, in some countries, the shortage of a certain cadre of health workforce is not because there is nobody to hire but because of the cumbersome and restrictive public service policies. Such countries can implement short-term strategies, including hiring unemployed health personnel to bolster the workforce. Other short-term strategies such as task-shifting may be necessary to re-purpose the workforce to scale up surveillance, contact tracing, medical care, and public awareness campaigns. Community health workers are already playing a pivotal role in response to the COVID-19 pandemic in some countries (Alam et al. 2021). These workers are trusted members of their communities and can be the bridge between clinical and community-based services necessary for effective response to the pandemic (Alam et al. 2021).

Health information vulnerabilities

Health information is the backbone of any sustainable disease surveillance system and a vital component of all health systems (English et al. 2011). Senior policy-makers, health managers and planners need actionable data to improve the performance of their health systems and monitor progress towards set objectives. Governments rely on country health information systems for data to prioritise health challenges and allocate resources accordingly (Mbondji et al. 2014). A robust health information system would ensure the production, analysis, dissemination and use of reliable and timely information on health determinants, health systems performance, and health status (WHO 2007). Evidence from the US, Europe and the Asia-Pacific region (particularly Australia and South Korea) suggests that early detection and isolation of COVID-19 cases are critical for effective control of the pandemic (Hellewell et al. 2020, Macartney et al. 2020). However, early detection cannot occur without a well-functioning disease surveillance system predicated on a robust health information management system.

The health information systems in Africa are among the weakest and most fragmented in the world. They provide unreliable and incomplete data at best (Bagcchi 2021). A recent WHO SCORE report reveals that while four in ten deaths remain unregistered worldwide, in Africa, nine in ten deaths are not registered (only one in ten deaths are registered) (WHO 2021). The report further notes that globally, over 70% of births each year are registered, but in Africa only 44% of children born are registered – 56% go unregistered. Lastly, it observes that only 1 out of 47 countries in the WHO African region has a sustainable public health surveillance capacity (WHO 2021). This is broadly consistent with what has been found in earlier studies: in Ghana, for example, Dadzie and colleagues found that death certificates were not reliably completed for institutional neonatal deaths in a sample of health facilities

they investigated from 2014 through 2017. The accuracy of cause-specific mortality data recorded in admission and discharge registers was also below the desired target (Dadzie et al. 2021). In Nigeria, Makinde and associates found that only 13.5% of deaths were registered in 2007 (Makinde et al. 2020). These deficiencies in health information systems are shared across Africa and can potentially undermine any effective response to the surging COVID-19 pandemic, especially in areas of disease prevention and control. Efforts to strengthen health systems on the continent to respond effectively to the COVID-19 pandemic should prioritise building the region's deficient health information systems to ensure they provide valuable data to decision-makers in a timely fashion.

There is no need to reinvent the wheels in seeking to strengthen the health information systems - several innovative strategies for enhancing the capacity of such systems have been suggested and applied elsewhere, some of which can be adapted in Africa. For example, electronic health records' automation and interoperability are areas that several countries have invested in before COVID-19 (Bhartiya et al. 2016, McCall 2018). Investment in this area in Africa would enable existing systems to communicate with each other in terms of accurately, effectively, and systematically exchanging data (PAHO 2020). This is something many countries in African can start building as part of their COVID-19 response strategy. The stigma around COVID-19 in Africa appears to be rising (Peprah and Gyasi 2020), and this has significant implications for data privacy, confidentiality, and security. If people do not trust their health information will be kept confidential, it could affect how they respond to any COVID-19 strategies put in place by health authorities.

Health financing vulnerabilities

Financing underlies most of the challenges plaguing the health systems in sub-Saharan Africa. Health financing deals with how financial resources are generated, allocated and used in health systems (Schieber et al. 2006). All health care systems seek to maintain a robust financing system that generates adequate funds for health and ensure people can use needed services while protecting them from the catastrophic health expenditures and impoverishment often associated with health care use (Kutzin 2013, Wagstaff et al. 2018). The need to improve health financing systems on the African continent dates back decades but has become more pressing in recent years following the endorsement of the SDGs and its universal coverage target (Asante et al. 2020).

Sub-Saharan Africa accounts for a disproportionate share of the global disease burden but allocates the least amount of resources to health care (Wagstaff et al. 2018, Gouda et al. 2019). Per capita health spending in Africa averaged \$80 in 2016 compared to \$4,003 in the Organization for Economic Co-operation and Development (OECD) or \$5,252 in high-income countries (OECD 2017, Chang et al. 2019). Domestic government health spending as a proportion of GDP in the WHO Africa region averaged 1.9% in 2017 compared to the global average of 3.3% (WHO 2019). Direct spending by households is a prominent source of finance for health systems in the region. In countries like Cameroon, Equatorial Guinea, Nigeria and Sudan, out-of-pocket health spending exceeded 70% of current health expenditure in 2017 (Asante et al. 2020, World Bank 2020). Few countries in the region, including Malawi and Mozambique, still relies heavily on donor funding to finance their health sector (Chang et al. 2019).

COVID-19 has significant implications for health financing systems worldwide, including those in Africa. In many African countries, the COVID-related lockdowns, social distancing measures, and costs of dealing with the pandemic have reduced national outputs, worsened the already high unemployment situation in many countries, increased poverty, and depressed trade transactions (Adam et al. 2020, World Bank 2021). In Rwanda, for example, the World Bank estimates that the country's GDP declined by 0.2% in 2020 instead of the projected expansion of 8% before the COVID-19 outbreak (World Bank 2021). As with other low- and middle-income countries with a large informal sector, the social distancing measures due to COVID-19 made it impossible for households to engage in their usual economic activities, leading to significant income losses for households (Sparrow et al. 2013).

The financing vulnerability for the African health sector can be seen across the major sources of finance for the health system: taxation, out-of-pocket payments, insurance (if any) and donor funding. A drop in tax revenue would impair governments' ability to fund the health system without resorting to borrowing or shifting funds from other sectors of the economy. Households' ability to pay for health care out-of-pocket and cover insurance premiums will also be constrained due to the income losses from economic inactivity because of COVID. This can affect the use of health services and indirectly undermine any COVID-19 prevention and control programmes. For countries that depend heavily on donor support, there is the expectation that given the economic impact of COVID-19 in Europe and America, the flow of such support will be impacted.

One way African countries can boost the level of financing for the health system is to engage effectively with the private sector and bring them on board the COVID-19 prevention and control agenda. Many countries on the continent are yet to fully engage the private sector for health care; the COVID crisis provides such engagement opportunity. A Private Sector Fund for COVID-19 prevention and control could be a worthy initiative. For countries that have not seriously explored alternative domestic sources for health care financing, it will be useful to do so as external funding for health is likely to remain under pressure.

Vulnerabilities relating to medicines and vaccines

Medicines and vaccines play a crucial role in health systems. Without good quality medicines and vaccines, many curative and preventive health care cannot be delivered effectively (WHO 2007). A core responsibility of all health systems is to ensure that essential medicines and vaccines of good quality are available at an affordable price and used in a therapeutically sound and cost-effective manner (Bigdeli et al. 2014, Ozawa et al. 2019). The SDG target 3.8 specifically mentions "access to safe, effective, quality and affordable essential medicines and vaccines for all" as a core component of UHC. It stresses the need to develop medicines to address persistent gaps in disease treatment (UN 2020).

Worldwide an estimated 2 billion people do not have access to essential medicines to alleviate pain and suffering, resulting in prolonged illness, needless disabilities and preventable deaths (WHO 2017). Sub-Saharan Africa is over-represented in the

global medicines' inaccessibility statistics. Many life-saving drugs cannot be accessed or are unaffordable to a significant proportion of Africa's population, contributing to the continent's poor health outcomes, high out-of-pocket health spending, and the persistent inequities in health and socio-economic conditions (Barton et al. 2019). African countries largely lack the necessary pharmaceutical manufacturing capacity for producing medicines and vaccines, perhaps except for South Africa, which has a limited primary manufacturing capacity (Owoeye 2014). Often, local African pharmaceutical companies face high production costs that push up their prices above those of pharmaceutical powerhouses of India and China, thereby rendering them uncompetitive (Anderson 2010). As a result, Africa produces only 1% of the vaccines it needs, and it is heavily dependent on India, which alone supplies around 70% of Africa's vaccines (Irwin 2021).

The limited domestic manufacturing capacity makes health systems in Africa extremely vulnerable in terms of timely access to appropriate and affordable medicines and vaccines, and COVID-19, more than any other disease, has exposed this challenge. With India struggling to vaccinate its population to contain a catastrophic second, it is unclear when Africa will have access to the needed COVID vaccines from the Serum Institute of India. Europe is not in good shape either; several European countries (except for the UK) are also struggling to vaccinate their populations. The Pfizer and Moderna vaccines cannot be easily administered in the hot climate of Africa, leaving Africa with minimal options in terms of vaccination. As of 8th April 2021, Africa accounted for less than 2% of the 690 million COVID-19 vaccine doses administered worldwide. Under the COVAX Facility, Africa has received 16.6 million vaccines doses (mainly AstraZeneca) (WHO Africa 2021).

There is an ongoing debate at the World Trade Organization (WTO) regarding a temporal waiver of patent protection for coronavirus vaccines, which the US government is said to be supporting. The question, however, is whether Africa can take advantage of a patent-free COVID-19 vaccine gesture and produce the needed vaccines, given the limited manufacturing infrastructure. The Africa CDC has an ambitious plan to establish five new vaccine-manufacturing centres across the continent to manufacture 60% of the required vaccines within 20 years (Irwin 2021). This is a laudable goal, but it means, for now, Africa might have to wait for the world to finish vaccination before it gets a turn. While waiting, masking, hand-washing, social distancing, and other non-pharmaceutical measures may offer plausible ways out of this crisis. They need, however, to be carefully balanced with the needs of the economy.

Concluding remarks

Africa has fared well in this global COVID-19 pandemic so far. The number of cases and deaths have been relatively low compared to other regions. Africa is, however, not out of danger; the low number of cases may be explained by the limited amount of testing carried out on the continent. According to the WHO, several countries in the region, including Ethiopia, Kenya, and South Africa, are experiencing a resurgent second wave, with a rising number of cases (WHO Africa 2021). That should be a cause for concern, especially considering the ongoing experience of India. Africa must not become

complacent about the current low cases and deaths and work hard to strengthen its pandemic preparedness to avoid catastrophic second and third waves. African governments showed tremendous leadership during the first wave, something that has escaped international attention. But they will be defined by how they handle subsequent waves of the pandemic. Strengthening the health systems should be paramount given the experiences from other countries. Although health systems strengthening is a long-term endeavour, there are several steps that Africa can take in the interim to reduce its vulnerability to COVID-19. These include:

- Increasing the number of hospital beds and ensuring the supply of oxygen. One major lesson for Africa from the Indian experience is to ensure that medical oxygen is available in all health facilities. As highlighted earlier, most African countries have oxygen manufacturing plants, but there are problems with storage and transportation, which can and must be addressed.
- Maintaining, amid COVID-19, the delivery of essential health services such as routine antenatal care (including skilled birth attendance) and HIV, TB, and malaria services.
- Removing health labour market restrictions, where possible, to allow the recruitment of unemployed health workers to bolster the workforce.
- Ensuring frontline health workers have the resources and tools they need to respond to the pandemic, especially PPEs.
- Strengthening the disease surveillance system to facilitate early detection and isolation of cases to reduce potential community spread. This will include strengthening laboratory capacity and practices.
- Waging an information and education campaign to counter the emerging COVID-related stigma and misinformation in Africa.

The coronavirus is mutating very fast, and nobody knows when a more deadly variant will emerge and cause more fatalities in Africa. Therefore, it is crucial that nothing is left to chance and that African governments maintain the same level of seriousness with which they tackled the first wave. Additional financial investment in the health systems would be required, and with the economies of western donor countries also struggling, Africa cannot count on the “usual benevolence” of the west. It must ensure that available funds are used as efficiently as possible and seek to expand the fiscal space for health to raise additional funding domestically. One way Africa can do this, as indicated earlier, is to effectively bring the private sector on board the COVID-19 prevention and control train.

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Some Implications and Findings of the AERC Growth-Inequality-Poverty Project for the Fight against Covid-19 in sub-Saharan Africa

Erik Thorbecke

Introduction

As Thorbecke (2021) pointed out there is strong evidence that economic growth in Sub Saharan Africa (SSA) in the last two decades has not been sufficiently inclusive. A large share of the population has only received a disproportionately small share of the benefits of growth in contrast to other parts of the developing world where shared growth prevailed and led to a substantial reduction in poverty. Also, growth SSA remained largely driven by commodities, with minimal production diversification of African economies. This raises questions regarding the appropriateness of pro-poor growth strategies in Africa. Further this also calls for new thinking regarding inclusive growth. Can pro-growth poverty reduction strategies deliver broad-based and thus more sustainable and inclusive economic growth in Africa? Indeed, recent research seems to support the notion that high poverty and inequality detract from economic growth, makes growth more fragile, and thus advocates for policies and strategies that reduce the magnitude of poverty and inequality directly. A better understanding of the anatomy of this nexus is crucial to the design of an African growth model that could potentially both speed up growth and make it more inclusive.

Against this backdrop, AERC embarked, towards the end of 2018, on a new major program of research on Re-Examining the Growth, Poverty, Inequality and Redistribution Relationships in Africa (from now on referred to as the GIP project). The main objective of this program was to generate new evidence on the growth-inequality-poverty nexus in sub-Saharan Africa and how this trinity is affected by policies and strategies. About a dozen individual research projects were completed under the umbrella of this program.

Even though the GIP project was started long before the Covid-19 pandemic had started its devastating course and therefore did not address the pandemic directly, some of the research findings generated by the project appears to provide some relevant and useful lessons to policymakers in SSA about how to fight the pandemic. Next, in Section 2, we start with a preliminary assessment of how Covid-19 has, so far, impacted health and the economy in SSA before drawing some policy suggestions and recommendations from the GIP project based on Thorbecke (2021) synthesis.

Impact of the pandemic on sub-Saharan Africa and preliminary lessons from policy response

Before attempting to derive some possible policy implications from the rich GIP project mentioned above, it is important to start with some preliminary remarks about the state of the pandemic in Africa and how it has affected health and the socio-economic environment. The first observation is that the outbreak has not been as bad as was feared initially. As of the end of 2020, the African Center for Disease Control and Preventions reported only one case of Covid-19 for every 500 people in Africa compared to one in 20 in the U.S. While this is almost certainly an underestimate of the true incidence, there are sound reasons to believe that Africa has been hit more mildly than most of the rest of the world. Among the reasons for this outcome according to Time; are: (i) the prior experience with serious

outbreaks of other infectious diseases such as Ebola; (ii) masks were not politicized (85 % of respondents in 18 African countries said they had worn a face mask in the previous week); (iii) early shutdowns; (iv) Africa's mild winters mean that more time is spent outdoors; (v) more hypothetically, constant exposure to other coronaviruses might have provided Africans with greater immunity (Time Magazine, February 25, 2021).

An even more important reason for the relatively low incidence of Covid-19, is that Africa has some major demographic advantages compared to more developed regions in coping with the pandemic. In SSA, only 3% of the population are 65 years or older and 43% are less than 15 years old. In contrast, the corresponding figures are 20% for the former and 17% for the latter in Europe. This is a significant health advantage as the death rate from Covid-19 among the old is at least ten times higher than among the young and the symptoms among the latter much less serious.

Even if one agrees that SSA has not been as severely affected as most other world regions, the evidence suggests that both the health and socio-economic consequences have been serious and even in some cases devastating. Given the heterogeneity in initial conditions and degrees of development among SSA countries - combined with the different national policy responses to the pandemic, one must be careful in drawing generalizations. Yet, valuable lessons can be learned from the comparative experiences of different countries world-wide in their battle against the global pandemic. The crucial issue faced by affected countries at the outset of the crisis was how to design and implement a sustainable initial policy response that maximizes pandemic containment and minimizes the negative socio-economic effects. The dynamics between protecting health through a whole set of measures reducing the transmission of the virus (such as lockdowns, testing, and mandating the wearing of masks) and the socio-economic consequences (e. g. unemployment, loss of income, higher poverty, potential for greater tensions and abuse within families locked down in their homes) are highly complex and not fully understood.

In the short run the trade-off between (i) prioritizing protecting health and reducing transmission, and (ii) the consequent loss of socio-economic welfare is real and can be very hard on a poor country. But, in the medium to long run, successful containment has positive effects on health and on the economy and the trade-off vanishes. Perhaps, the most important lesson the development community learned from the divergent experiences of countries in coping with the pandemic is that appropriate measures protecting health and reducing the spread of the virus taken at the outset and followed consistently have been successful in both their health benefits (containing and even, in some instances eliminating the disease) and socio-economic impact¹³. In contrast, countries that followed a kind of stop and go approach - lacking any overall strategy - have paid a very high price in terms of high death rates, hospitalizations as well, as well as high unemployment and growth deceleration.¹⁴

13 Examples of successful countries are: Taiwan, South Korea, Australia, Canada and Japan.

14 The U.S. is a prime example of a country that lacked a clear and consistent strategy with devastating results.

The above discussion is largely based on evidence from developed countries. We have much less comparative information on adopted policies to combat the pandemic and their effects on health and economic welfare among SSA countries. Yet, it appears that the African countries that prioritized health concerns and minimized the spread of the virus fared best. Senegal is “one of the model countries in terms of implementing COVID-19 prevention measures and it has reaped the benefits,” according to the World Health Organization. The very low incidence of confirmed cases – even after the government re-opened the economy suggests that a large share of the population might have also enjoyed immunity and benefited from a very young population. While, the restrictions had enormous health benefits, the country paid a price in terms of reduced growth which appears sustainable. Other countries like Kenya, Nigeria and South Africa also shut down early and by so doing might have reduced the negative socio-economic consequences. The preliminary conclusion I would draw from the preceding discussion is that the African countries that prioritized the health of the population and the containment of the virus at the outset of the pandemic crisis and accepted a necessary short term negative economic trade-off fared best in terms of health and medium-term socio-economic sufferings.

Unfortunately, countries that failed to respond effectively (got it wrong) at the beginning of the outbreak suffer from the consequences of path dependency. They are suffering on both the health and the economic fronts and many of these negative trends are difficult to reverse. Facing these unfavorable present initial conditions, the range of policies available to these countries is more limited than countries that, initially, followed an effective strategy.

Some possible policy suggestions from the growth-inequality-Poverty project in the fight against the pandemic

What have we learned from the dozen papers of the GIP research project synthesized in Thorbecke (2021) that could be useful at this time to SSA countries in their fight against the pandemic? Although the project started long before the onset of Covid-19 and none of the papers addressed the pandemic directly, I would submit that some valuable and relevant policy recommendations can be distilled from these studies. I shall limit myself to what are the most important ones in my judgment in dealing more immediately with the present conditions.

The most essential question that needs to be asked, as a prelude to policy recommendations, is “which households have been most negatively affected by Covid-19 in SSA?”. I believe that the answer is straightforward. The unskilled, less educated, poorer segments of the population with very few assets except their labor were disproportionately hurt by the crisis both health-wise and economically. These households live in crowded, unsanitary conditions that made them more vulnerable to contract the disease and spread it. To make matters worse, this is also the group that is most likely to also lose their jobs and become unemployed as the economies went into a recession mode. Lockdowns, however necessary and desirable, created an enormous burden for this class of households since, as essentially manual workers, their jobs required them to work outdoors.

What are the main lessons that can be drawn from the findings of the GIP project that might be helpful to policymakers in helping this vulnerable group and by extension other segments of the population and, in an even more general sense, the health and socio-economic conditions in SSA today?

The first general and most salient finding is that the combined contributions make a strong case of bi-directional causal relation between poverty and growth. Faster poverty reduction is linked to faster subsequent growth in SSA, and the growth-strengthening impact of poverty reduction is much larger in SSA than in the developing world, suggesting that policy interventions aimed at alleviating poverty directly would have a greater growth impact in SSA. While still a conjecture to be confirmed by future research, a case is made in favor of a virtuous dynamic spiral from lower poverty to growth to further poverty alleviation and so on. The present evidence would appear strong enough for many countries to adopt a pro-growth poverty reduction strategy to complement the more conventional pro-poor growth strategy. It was also shown that in countries characterized by relatively high inequality (i) the transmission of growth into reduced poverty was significantly less effective than in less unequal countries; and (ii) that these countries will need to combine income growth and lower income inequality to reach the SDG poverty reduction targets. The meaning of these findings for policymakers is that it provides a rationale for designing and implementing measures benefitting the poor directly and removing the old fashion belief in an inevitable trade-off between efficiency (growth) and equity (poverty reduction). It could strengthen the policymakers' confidence that appropriate public actions and institutions alleviating poverty, could also contribute to growth rather than detract it.

Secondly, as most unskilled workers are employed in the informal sector, GIP studies on informality can provide useful policy suggestions. The informal sector performs a useful role in the growth process. It should be nurtured and gradually transformed by providing workers with additional skills that would make them more productive and better suited to move into other formal sectors and thereby facilitate the structural transformation. Inclusive business models can play an important role in helping the transition from informal to formal employment. By teaching informal enterprises better productive business practices (such as simple bookkeeping methods, using the internet to record transactions and obtain information), it could contribute to integrate them within the value chain while, simultaneously reducing poverty.

Thirdly, a compelling case was made that Africa has an employment more so than an unemployment problem. Given strong demographic pressures it is of the utmost importance that new jobs be created for the unemployed, partially employed, and new entrants in the labor force. New or extended national and regional programs of infrastructure construction, under the auspices of the public sector, could in many countries fulfill this function. It would provide immediate work and income to the unskilled workers who have been especially hurt by the pandemic. On a larger scale, the Covid-19 crisis could provide the impetus and the opportunity for a much more ambitious pan-African program of massive infrastructure construction. It has long been observed that transportation costs within SSA are a multiple of that in many other developing

regions in Asia and other parts of the developing world and that, furthermore, the relative magnitude of intra-African trade to total African trade is minuscule compared to other regions. The pressure to create new jobs to alleviate socio-economic sufferings resulting from the ongoing pandemic offers an almost unique opportunity to design and start implementing a massive program of road construction within and across SSA countries. To repeat, construction projects, first, require a lot of unskilled labor and appear to be well suited to provide alternative employment opportunities for the negatively affected poor workers; and, secondly, would boost the volume of trade across SSA by reducing transportation costs. The pandemic shock could trigger greater solidarity among SSA governments and make them more receptive to considering becoming involved in transnational projects that could advance the process of economic integration.

Fourthly, a number of GIP studies provide valuable insights into (i) which fiscal policies lead to “fiscal impoverishment” and should, therefore, be avoided such as the fairly typical setting in which the poor pay consumption taxes but receive very little in the form of cash transfers and only a small share of subsidies; and, alternatively, (ii) fiscal measures that might be appropriate in reducing present poverty and generating a more inclusive growth pattern such as better health facilities benefiting the poorer segments of society. Each SSA country faces somewhat different contemporaneous initial conditions and, therefore, requires somewhat different stimulus packages to fight the pandemic. For some of the poorest countries, temporary food subsidies might be indicated. If so, they should be targeted to the principal foodstuffs consumed by the poor. It is relevant to recall that the rice subsidy initiated by the Indonesian government following the Asian Financial crisis in 1997 that devastated the economy, contributed significantly in alleviating hunger and poverty. Likewise, temporary fertilizer subsidies might be an option in those countries where small subsistence farmers have been affected by the crisis.

Still, other potential instruments, consist of direct cash transfer schemes to needy households. These schemes can be very effective in reducing hunger (particularly among children) and stimulating the economy. Yet, it is difficult to target them so that they reach only the most-needy households. Also, lack of fiscal revenues and administrative capacity are obstacles to their implementation. There exist additional sources of government revenues that could help fund these transfers such as by adequately taxing wealthy people through progressive taxation.

One of the silver linings of the Covid-19 crisis is that it elicited or sped up in some African countries the use of digital retail electronic payment platforms to develop targeted social protection programs.¹⁵

In this section I concentrated on policy inferences and recommendations emanating from the GIP project more directly relevant to fighting the pandemic in the more immediate to short run. Many more valuable lessons can be drawn from the GIP studies applicable to the medium and long run- particularly as they relate to the desirability of equalizing

15 I am grateful to Njuguna Ndung’u for making me aware of these schemes

opportunities and leveling the playing field to facilitate upward social mobility. I plan to address those issues subsequently.

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Mission

To strengthen local capacity for conducting independent, rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

The mission rests on two basic premises: that development is more likely to occur where there is sustained sound management of the economy, and that such management is more likely to happen where there is an active, well-informed group of locally based professional economists to conduct policy-relevant research.

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