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Debt, COVID-19 and Inclusive Growth for Sustainable Development in Sub-Saharan Africa

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Abstract:

The socio-economic crisis associated with COVID-19 is threatening progress towards attaining sustainable development goals. In this regard, global GDP is to contract in 2020 by 5.2% as against 2.8% in SSA. In addition, as the global recession is imminent, developing countries stand to accommodate about 60 million people into extreme poverty amid rising debt. However, as an indispensable requirement for sustainable development, United Nations and African Union resolve to eradicate extreme poverty through aspirations for inclusive growth by 2030 and 2063, respectively. It is on this background this paper examines the impact of debt and COVID-19, as well as the effectiveness of growth inclusiveness for sustainable development in SSA. Imperatively, using a panel of 43 countries over the period 2016-2019, it is established that the level of employment increases, just as life expectancy improves, in tandem with inclusive growth. Also, the timeline analysis of the COVID-19 period reveals that the unemployment rate, as well as public debt, is increasing substantially above the levels before the outbreak; thereby portending a setback on the gains so far achieved towards sustainable development in the region. As such, total debt cancellation is suggested along with more financial assistance to economies in the region.

Keywords: COVID-19, Debt, Employment, Inclusive Growth, Sustainable

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1. Introduction

The devastating impact of coronavirus disease 2019 (COVID-19) on the global economy is evident in the spate of job loss, trade restrictions, and deaths across countries. Imperatively, global gross domestic product (GDP) is envisioned to contract by 5.2% in 2020; and by 8% in the same year if businesses could not service debt; while sub-Saharan Africa (SSA) is to experience 2.8%[1] slow growth.[2] Thus, considering the likely long duration of the crisis, coupled with spill-over effects from tighter global financial restrictions and recession, vulnerable developing countries stand to confront years of economic hardship.[3] In effect, an estimated 60 million people in developing countries are expected to be pushed into extreme poverty, while years of progress towards development goals might be reversed (Mahler, Lakner, Aguilar & Wu, 2020; World Bank, 2020a). But then, African Union [AU] (2014) recognises eradication of extreme poverty as an indispensable requirement for sustainable development, and thus, aspires for a prosperous Africa based on inclusive growth by 2063. Moreover, AU (2014) foresees an Africa where development is people-driven, and youth potentials are unleashed. To this end, AU aspires that by 2063, African youth will be engaged and empowered; as youth will have the guarantee of full access to education, training, and economic opportunities; and will contribute significantly to innovation and entrepreneurship.

Meanwhile, the United Nations [UN] (2015) is on the verge of achieving its resolutions[4] following a modest improvement in growth as

[1] Also, by envisioning substantial growth downgrade of 0.5% in East Asia and the Pacific, 2.7% in South Asia, 4.2% in the Middle East and North Africa, 4.7% in Europe and Central Asia, and 7.2% in Latin America, the deepest recession in decades is imminent (World Bank, 2020a).
[2] See World Bank (2020a). Meanwhile, African Development Bank [AfDB] (2020) projects Africa's real GDP to accelerate from an estimated 3.4% in 2019, to 3.9% in 2020 and further to 4.1% in 2021 with Benin, Cote d'Ivoire, Ghana, Ethiopia, Rwanda, and Tanzania leading the way among the world's 10 fastest growers.
[3]See Goldberg and Reed (2020) and International Monetary Fund [IMF] (2020a) for shocks to activities.
[4] The resolutions include creating conditions for sustainable, inclusive and sustained economic growth, full and productive employment and decent work for all; to end poverty and hunger, combat inequalities, build peaceful, just and inclusive societies, protect human rights and promote gender equality by empowering women and girls, ensure the protection of the planet and its natural resources, and create conditions for shared prosperity and decent work for all.

necessitated by the mild rise in commodity prices,[5] external demand, and increased agricultural production across countries in SSA. Also, there is relatively improved stability in social and political activities with a commendable reduction in security threats across countries; thereby setting the ground for a promising business environment. But then, a high annual population growth rate of 3% appears threatening given the slow GDP growth of 2.37% in 2018 from 2.52% in 2017 (World Bank, 2019) as the average debt-to-GDP ratio set to rise to 64.8% of GDP in 2020 (IMF, 2020c). This, in effect, spells a negative per capita growth and a drag on the developmental efforts in the region. Moreover, growth has been less than inclusive in Africa[6] as World Economic Forum [WEF] (2018) frowns at the poor performance of SSA countries in the Inclusive Development Index (IDI) ranking where among emerging economies, Tanzania ranks 48 and coming top in the region with IDI score of 3.43. The next in SSA is Ghana with an overall rank of 52 while Nigeria ranks 63, South Africa, 69 and Mozambique, 74. Thus, given AU's aspirations and UN resolutions for inclusive growth, employment, and life expectancy, what then drives inclusive growth in SSA? And is growth inclusiveness effective for extending life expectancy, and productive employment, in the region? Nonetheless, is inclusive sustainable development feasible beyond COVID-19 as debt levels stand to increase across the board in SSA? It is on this premise this paper examines the impacts of debt and COVID-19 on, as well as the effectiveness of inclusive growth for, sustainable development in SSA.

Imperatively, there have been discussions on inclusive growth. Substantial aspects of the discussions, however, focus on attaining inclusiveness as an end in itself through certain theoretical determinants of growth. For example, while Whajah, Bokpin and Kuttu (2019) affirm that public debt exerts a negative effect on inclusive growth in Africa, Oyinlola, Adedeji, Bolarinwa and Olabisi (2020) assert that growth inclusiveness would be a reality in SSA provided there is a reliable tax reform alongside quality governance. But then, achieving growth inclusiveness is one thing, the other thing is whether such growth can lead to sustainable development. This follows from the fact that growth by itself is not necessarily sufficient

[5] The rise in commodity prices favours Angola, Nigeria and South Africa who contribute about 60% of SSA's economic output. However, economies such as Benin, Cote d'Ivoire, Kenya, Rwanda, and Uganda that are not dependent on commodities grow steadily and strongly (Toussaint, 2019).

[6] This, according to AfDB (2020), is despite solid growth performance in which only about a third of countries on the continent achieved inclusive growth.

for raising living standard (Collier, 2007; WEF, 2018). Thus, further research on the potential of inclusive growth leading to sustainable development is necessitated. Ideally, the furthering of research on the potential of inclusive growth in bringing about sustainable development will incidentally reveal the extent to which life expectancy can be lifted, and the level to which productive employment can be generated in SSA.

Moreover, extant discussions are raging on the devastating impact of COVID-19 on global economies. A considerable part of the discussions, however, concentrate on SSA among which Mahler, Lakner, Aguilar and Wu (2020) suggest that the region might be hit hardest as the Economic Commission for Africa [ECA] (2020) holds that the economic damage is unavoidable even if the spread of the pandemic is suppressed in Africa. This submission incidentally follows from the fact that the COVID-19 effect has caused a drop in Africa's exports as, apart from major products which include textiles, the international price of oil has crashed by half while tourism and the airline sector have suspended operations. As such, considering the desire for African countries to be among the best performers in the global best quality of life measures, as well as end all preventable deaths, it is pertinent to contribute to the discussions on the threat COVID-19 poses to achieving sustainable development in SSA. Essentially, the contribution of this paper will to a large extent proffer policy response to mitigating the impact of COVID-19 on sustainable development in the region.

The remaining aspect of the paper is structured as follows. Section two presents efforts toward sustainable development and a pre-COVID-19 environment in SSA. Section three reviews relevant literature and section four provides the methodology. While empirical results are presented and discussed in section five, section six rather wraps the paper with conclusion and policy implications.

2. Efforts towards sustainable development and pre-COVID-19 environment in SSA

In the attempt to build upon the achievements, and address unfinished business, of the Millennium Development Goals (MDGs), the heads of state and government and high representatives at its 70th-anniversary meeting in September 2015 decided on the new global

Sustainable Development Goals (SDGs).[7] Amongst the resolutions of the meeting is to create, between the day of the meeting and 2030, conditions for sustainable, inclusive and sustained economic growth, full and productive employment and decent work for all. In effect, per capita economic growth is to be sustained with at least 7% GDP growth per annum and promoting entrepreneurship, among others.

Table 1. Pre-COVID-19 macroeconomic environment in selected SSA countries.

Country	GDP growth (%)	Population growth (%)	Employment to population ratio (%)	Life Expectancy	Export (%)	Import (%)
Angola	-1.4	3.3	72	60.2	34.5	24.8
Benin	5.7	2.7	69	61	28	33.6
Burkina Faso	6.2	2.9	62.4	61	27	32.3
Cape Verde	4.7	1.2	53	72.4	47.6	65.2
Chad	-0.9	3.1	69.5	53.5	33.3	38.1
Comoros	3.3	2.3	41.2	64	12.2	28.4
Congo Rep	-0.9	2.6	63	64	83.1	60.2
Equatorial Guinea	-6.6	3.7	58	58	56.1	45.7
Eswatini	1.9	0.9	40.4	58.4	41.8	43.3
Gambia	4.8	3	54	61.3	20.5	39.1
Guinea Bissau	5.2	2.5	70.1	57.8	25.8	32.6
Lesotho	1.2	0.8	51.6	53	46	90.7
Liberia	-0.1	2.5	74.2	63.2	25.1	98
Mali	5.2	3	65.7	58.3	23.3	36.4
Mozambique	3.3	3	75.8	59.4	39.5	73
Namibia	-0.2	1.9	47	63	35.3	50.5
Niger	5.9	3.8	72	61.7	12	26.3
Rwanda	7	2.6	82.8	68.2	18.2	30.4
Sao Tome & Principe	3.3	1.9	50.5	70	78.5	60.3
Sierra Leone	4.8	2.1	55.4	54	21.5	45.2
Tanzania	6.2	3	82	64.6	15.4	17.5
Togo	5	2.5	76.2	60.5	32.3	45.3
Uganda	5.3	3.7	69.2	62.4	15.9	21.9
Zimbabwe	0.6	1.5	78.9	60.8	19.4	40

Source: Author's collation from World Bank (2020b)

Also, in an earlier resolution, the AU, through Agenda 2063, aspires for a prosperous Africa based on inclusive growth and sustainable development.[8] The resolution seeks that, by 2063, through strategies for

[7] According to the UN (2015), the integrated and indivisible SDGs are 17 with 169 associated targets.
[8] According to AU (2014), this is the first of the seven aspirations of Agenda 2063. Other aspirations are: an integrated continent, politically united and based on the ideals of Pan Africanism and the vision of Africa Renaissance; an Africa of good governance, democracy, respect for human rights, justice and

inclusive growth, job creation, youth empowerment and education, African countries will be amongst the best performers in global quality of life measures.

Furthermore, in order to achieve universal health coverage and access to quality health care, the UN (2015) agenda is to promote physical and mental health and well-being, as well as extend life expectancy for all and end all preventable deaths by 2030. In so doing, it looks at accelerating the pace of progress made in fighting malaria, Ebola and other communicable diseases and epidemics affecting developing countries. In effect, the efforts impressed several economies in the region such that GDP growth averaged 7% in Rwanda while life expectancy reached around 72% in Sao Tome & Principe as presented in Table 1. However, in a sudden twist to the progress made so far in the course of achieving the development goals, the novel COVID-19 crisis surfaced as a huge threat to the global economy.

Meanwhile, through its strategy on inclusive and sustainable growth, United Nations Development Programme [UNDP] (2017) recognizes the ambitious and collective efforts put into the idea of sustainable development. Otherwise referred to as an expanded vision of development, the idea is a vision and, according to UNDP, it captivates both the citizens and politicians. Essentially, the vision is balanced with regard to economic, social, and environmental dimensions. Accordingly, it requires fundamental changes in the pattern of economic growth in many economies where growth has never been social and environmentally inclusive. As such, in the attempt to make the unprecedented vision a reality, UNDP identifies and offers three critical priorities to countries. The priorities include integrated planning for inclusive and sustainable growth; supporting employment creation, decent work and distributive programmes to address poverty, inequality and exclusion; and mobilizing and scaling up financing for enabling the transition to sustainable inclusive growth. The agency, however, notes that given countries' different capacities and national priorities, the strategy might not provide a one-size-fits-all solution. Nonetheless, through its policy action on inclusive growth, Organization for Economic Co-operation and Development [OECD] (2018) also shows concern by recommending three principles to governments on how to sustain and ensure equitable distribution of the benefits from economic

the rule of law; a peaceful and secure Africa; an Africa with a strong cultural identity, common heritage, values and ethics; an Africa where development is people-driven, unleashing the potential of its women and youth; and Africa as strong, united and influential global player and partner.

growth. The broad area of recommendations includes investing in people and places, support business dynamism and inclusive labour markets, and building efficient and responsive governments.

3. Literature review

3.1 Theoretical framework and conceptual underpinning

The theoretical framework stems from the fact that economic growth, and its sustainability, is a precursor to inclusive growth; as growth inclusiveness is fundamental to development. But then, an essential factor required in the development process is the stock of capital which comprises facilities like schools, hospitals, and other public works that are necessary for societies to function (Srinivasu & Rao, 2013). Imperatively, the stock of these facilities helps improve economic growth, per capita productivity, individual well-being, and are important drivers of sustainable development (Ncube, Lufumpa & Kararach, 2017). Thus, as sustainable development implies meeting the needs of the present generation without compromising the needs of the future generation, the stock of overall capital assets must remain constant or rise over time. Therefore, besides increased growth and provision of basic needs, lifting the standard of living also involves better health and education opportunities for the people, participation in public life in a clean environment, as well as advocating intergenerational parity. More so, where economic growth is achieved, it should be followed by productive employment. As such, in a basic Cobb-Douglas production function of the form $Y = f(K, L)$, in which Y is output or economic growth, K is physical capital stock, and L is human capital/labour or employment, the framework toes the line of Thorbecke (2014) and Vellala, Madala and Chhattopadhyay (2014), such that, if Y is sustained then its benefits can be distributed to the people. However, in order to increase Y, other drivers of growth can be included altogether or in a one-after-the-other fashion.

Imperatively, the future growth and overall quality of life are critically dependent on the quality of the environment. Therefore, as an agenda that focuses on the strong institution, the strategy of robust inclusive growth is pro-labour, as well as pro-business, and is meant to boost economic efficiency and social inclusion (WEF, 2017). Accordingly, as a concept, UNDP (2017) asserts that inclusive growth has broadened discussion beyond only extreme poverty. Thus, AfDB (2013) refers to inclusive growth as economic growth that results in wider access to sustainable socio-economic opportunities for a broader number of people, regions or countries with protection for the vulnerable in an environment of

fairness, equal justice, and political plurality. Also, it connotes improvement in production, income generation and distribution (Suryanarayana, 2013). That is, the process leading to inclusive growth involves getting employed, receiving income and engaging in consumption expenditure. However, being different from the standard and approaches to economic growth, the Catholic Agency for Overseas Development [CAFOD] (2014)sees inclusive growth to be more than outcome and income, but participation in economic activities with a beneficial reduction in poverty and inequality. In effect, it requires strong institutions, human capital development and employment generation, enhanced productivity through modern technology, welfare-improving redistributive policies, indiscriminative participation and social protection (Kolawole, 2016). Similarly, Duraiappah (2015) affirms that inclusive growth is a growth that leads to reductions in income inequality.

3.2 Empirics on inclusive growth

The literature is vast on growth empirics, however, the relevant ones are scanty. Thus, in a country-based study, Kolawole (2016) investigates the relationship between inclusive growth and government spending in Nigeria over the period 1995-2014. While growth inclusiveness is measured by GDP per capita, the Autoregressive Distributed Lag (ARDL) technique reveals that as real GDP growth propels inclusion in both the short- and long-run, government spending rather causes inclusion only in the long run. The study thus concludes that government redistributive spending on health has a significant positive relationship with inclusive growth in the country. However, Oostuizen and Cassim (2016) explore the relationship between informality and inclusive growth in SSA. On the assumption that South Africa has relatively high levels of unemployment with low informal employment, the study hypothesises that whether, or not, informal labour market promotes or constrains inclusive growth. Findings reveal that where unemployed people are self-employed and not in a precarious situation of ill-health and insecurity, the informal sector promotes inclusive growth, though at the expense of the agricultural sector. As such, for being a significant employer of labour, as well as a contributor to economies in SSA, firms in the informal sector should be provided with access to credit, energy and space in order to grow and prosper.

Moreover, in a study that examines the relationship linking government size, public debt and inclusive growth in Africa, Whajah, Bokpin and Kuttu (2019) employ a fixed-effect method to estimate a panel of 54 countries for the period 2000-2016. While finding a positive relationship between government size and inclusive growth, the result

further establishes that public debt impacts negatively on inclusive growth. Thus, the study suggests necessary steps to making growth more inclusive, as well as the need for government to maintain the optimal level of public debt. More so, in another study that explores the difference Generalized Method of Moments (GMM), Oyinlola, et al (2020) investigates the role of governance in the resource mobilization-inclusive growth relationship in 27 SSA countries over the period from 1995 to 2015. Using both aggregate and disaggregated taxes as indicators of domestic resource mobilization, the result shows that growth inclusiveness is determined largely by the persistence level of inclusive growth. However, as both taxes have no significant effect, all dimensions of governance rather impact positively on inclusive growth. It is therefore suggested that for growth inclusiveness to be a reality in SSA, reliable tax reform should be developed along with quality governance.

3.3 Empirics on COVID-19

As the U.S. economy sets for reopening following the confirmation of decline in COVID-19 cases and death in the North-eastern states of the country, Baqaee, Farhi, Mina and Stock (2020) examine the policies to avert death-related economic consequences in the second wave. Thus, using the five-age epidemiological model and 66-sector economic accounting, the study finds that shutdown is not potent enough to stop a second wave. Rather, while hoping for economic recovery, a second wave can be averted if social restrictions are reintroduced along with personal distancing, wearing of masks, protect old people as well as other vulnerable, and increase testing and quarantine.

Furthermore, as some firms expand in response to pandemic-induced demand shifts amid the shrinking U.S. economy, Barrero, Bloom and Davis (2020) draw on firm-level forecasts at a one-year horizon in the Survey of Business Uncertainty (SBU) to confirm that COVID-19 is also a reallocation shock. As such, by constructing new reallocation measures for jobs and sales, the study finds the measures rising sharply by 3.9 times between February and April 2020 more than the pre-COVID-19 average for jobs (sales). Also, the study draws on special SBU questions to test the hypotheses that given the shock from the pandemic, for 10 layoffs, three new hires will occur. Also, while some layoffs will be permanent, one out of 10 workdays will be used for residential premises after the pandemic. Incidentally, across firms, the study confirms an increased vacancy, overall employment and formation of new firms, as well as an improved varying degree of stock performances. Afterwards, the implications for the

economic outlook and policy responses to the pandemic are considered. Consequently, the study submits that unemployment benefit levels that exceed worker earnings, policies that subsidize employee retention, land-use restrictions, occupational licensing restrictions, and regulatory barriers to business formation will impede reallocation responses to the COVID-19 shock.

Moreover, following the impact of the COVID-19 crisis on low-income families in the U.S., Bitler, Hoynes and Schanzenbach (2020) examine the social safety net in place in the wake of the pandemic. While the study recognizes the fact that the Supplemental Nutrition Assistance Program (SNAP) payments could respond quickly to the increasing need, yet the benefits are modest. However, the study notes that the counter-cyclical impact of SNAP could be dampened if the policy that makes it cumbersome for immigrants to participate is not waived. In effect, the study recommends that many of the social nets be extended and adapted to the ongoing crisis. Also, it is suggested that the unemployed insurance (UI) system should be redesigned to reach a larger percentage of the disadvantaged unemployed workers. In addition, more automatic stabilizers should be put in place to ameliorate the impact of the rising unemployment rate. Moreover, while providing a preliminary account on the effects of the Coronavirus pandemic in emerging markets and developing economies, Goldberg and Reed (2020) find that so far, developing countries are faring relatively well in terms of public health consequences. On the economic side, however, despite affirming encouraging signs regarding the short-term economic recovery of several countries, the study yet sounds cautious that it is premature to predict the medium- and long-term effects of the crisis. In conclusion, thus, the study holds the view that considering the heterogeneous effects of the crisis on specific countries in both the short- and long-run, there is optimism that non-energy reliant and non-metal export-dependent countries could recover quickly. Nonetheless, as the pattern of the result is attributed to the younger population, the study claims that most low- and middle-income countries experience significantly lower death than high-income countries.

Meanwhile, in the attempt to address the economic impact of the COVID-19 pandemic, Han, Meyer and Sullivan (2020) provide timely information on the impact of the pandemic on income and poverty to inform the targeting of resources to those most affected and assess the success of current efforts. By using high-frequency data on the income of a large representative sample of U.S. families, the study constructs measures of income distribution and poverty with a lag of only a few weeks. The results

show that at the start of the pandemic, government policy effectively mitigates its effects on incomes, leading poverty to fall and low percentiles of income to rise across a range of demographic groups and geographies. Thus, it is concluded that the entire decline in poverty could be ascribed to the rise in government assistance which includes unemployment insurance benefits and the economic impact payments.

3.4 COVID-19 experience in SSA

Following the report of its spread from person to person in the latter part of November 2019, the disease was declared a pandemic in March 2020 (Secon, 2020). In effect, the tabular presentations in Appendices A, B, C and D, show that by March 31, the virus had spread across SSA with 1,380 cases and five deaths in South Africa; Burkina Faso with 261 cases and 14 deaths; Cameroon with 233 cases and six deaths; Ghana with 195 cases and five deaths; Mauritius recorded 158 cases and five deaths; and Nigeria had 151 cases with two deaths, among others. Moreover, as Malawi announced a 21-day lockdown, Uganda rather extended lockdown and ban on public transportation till May 5. Also, Guinea, Kenya, South Africa and Zimbabwe, among other countries, announced mandatory wearing of masks in public coupled with widespread mass testing. Incidentally, on April 16, the African Union's Africa Centre for Disease Control and Prevention (Africa CDC) planned to distribute one million testing kits across the continent. As a complementary measure, Botswana and Cameroon announced a commendable number of prisoners released in the form of sentence reduction and/or outright pardon. Also, IMF provided debt relief to 19 countries in the region thereby making it convenient for the countries to divert financial resources to fighting the pandemic. In addition, aside from financial assistance provided to address unanticipated financing needs resulting from the pandemic,[9] yet poorest countries in the region were considered to benefit from the one-year debt repayments suspension agreed to by the G20 forum.[10] Imperatively, the COVID-19 crisis awakened reality to the importance of telecommunications such that mobile money, in addition to other digital payment systems, was used and encouraged as means of the transaction while keeping social distance. In effect, governments were able to make a cash transfer to the supposedly poorest of

[9] See Golubski, Kanos, and Treacy (2020) as some rural Somalis doubt the existence of the virus.
[10] The Private sector may also give debt relief; see Gandhi and Golubski (2020), and Okonjo-Iweala, et al (2020a,b).

the poor, as well as provide information on the pandemic.

Nonetheless, by the end of April, even while countries which included Cameroon, Mauritius, Niger, Rwanda, and South Africa gradually eased restrictions (IMF, 2020c), yet, as presented in Appendix B, the number of COVID-19 deaths in South Africa increased to 103 with 5,647 cases. Also, in April, Cameroon recorded 1,832 cases with 61 deaths as against 1,932 cases and 58 deaths in Nigeria; 719 cases with 32 deaths in Niger as Burkina Faso showed 641 cases and 43 deaths; Democratic Republic of Congo (DRC) recorded 31 deaths with 572 cases; Kenya with 411 cases and 21 deaths; with Sudan having 31 deaths and 442 cases. Thus, it became difficult in combatting the pandemic as access to health care were limited, most people could not access clean water to wash hands regularly, and workers kept losing their jobs while households could not obey stay-at-home orders for lack of food and basic income.

Unfortunately, the pandemic soared significantly by May 31 as 705 deaths were recorded with 34,357 cases in South Africa. In addition, the number of deaths reached 287 with 10,162 cases in Nigeria; Ghana had 36 deaths and 8,070 cases; Cameroon recorded 6,143 cases with 197 deaths; Sudan reported 286 deaths and 5,026 cases, and 69 deaths were experienced in Kenya with 2,021 cases. Meanwhile, as the pandemic raged, by the 30th of June, zero death was, however, recorded in Namibia and Uganda, among several other countries. However, death increased in certain countries which included South Africa with 2,657 deaths and 151,209 cases, followed by Nigeria with 590 deaths and 25,694 cases; Cameroon with 12,592 cases and 313 deaths; and Sudan with 572 deaths and 9,257 cases. Moreover, while countries set to reopen economies, the fear of 'second wave' became obvious as response measures were reviewed. In this regard, following an additional one week to the second phase of the gradual easing of the lockdown in Nigeria, Kenya announced a month extension, with effect from July 27. However, at the lapse of the week-long extension, Nigeria further extended the second phase ease of lockdown by four weeks. Also, while Zimbabwe extended by one month, Gambia declared a national emergency on COVID-19 and announced the night curfew for 21 days. Thus, by the end of July, the number of confirmed cases rose to 493,183 in South Africa with 8,005 deaths as against 879 and 107 deaths in Nigeria and Madagascar, respectively. Nonetheless, despite increasing cases of the pandemic amid shrinking economies across the region, the first week of September saw countries opening for international flights. Incidentally, by December, South Africa recorded over one million cases with more than 28,000 deaths.

4. Methodology

In the attempt to examine the impact of COVID-19, and the effectiveness of inclusive growth for sustainable development in the SSA, two periods are considered. The first period, 2016-2019, is the era before COVID-19 in which the starting year coincides with the commencement of the SDGs. The period is important in order to appraise economic performance that results from the introduction and implementation of the SDGs, as well as evaluate the economic situation before the advent of COVID-19. The second period is the pandemic era in which the economic crisis resulting from the virus emerges. Thus, the second period is necessary for the appraisal and analysis of the impact of debt and COVID-19 on per capita economic growth and the need to fashion ways to revamping economies towards achieving the SDGs after the pandemic. As such, in the attempt to address the objectives of the first period, the panel data econometric technique is adopted to estimate three different equations; the first equation expresses the relationship linking inclusive growth and its determinants prior to COVID-19, the second equation specifies the effect of inclusive growth on life expectancy, while the third equation assesses the effect of inclusive growth on productive employment. On the other hand, the timeline or situation analysis method is used to analyse the macroeconomic environment in the second period.

Meanwhile, because SSA countries are the least ranked on the inclusion index among emerging economies, coupled with data constraints, 43 countries[11] are considered in the region. Very imperative is the fact that policymakers appraise economic success by GDP growth, however, reality has it that most households do not evaluate economic progress by the rate of growth of GDP but by changes in their standard of living (WEF, 2018). As such, as an alternative to GDP for evaluating countries' economic progress, the IDI suffices as a measure. But then, due to the non-availability of IDI data for the sampled countries over the period considered, and following the exposition of Thorbecke (2014), as well as empirical work of Oyinlola, et al (2020), GDP per person employed is used as a measure of inclusive growth. Nonetheless, for the reason to obtain a uniform scale of measurement, as

[11] The countries are Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central Africa Republic, Chad, Comoros, Congo DC, Congo Republic, Cote d'Ivoire, Equatorial Guinea, Ethiopia, Eswatini, Gabon, Gambia, Ghana, Guinea, Guinea Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome & Principe, Senegal, Sierra Leone, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia, and Zimbabwe.

well as to ease the interpretation of estimation coefficients, data for GDP per person employed, per capita income, life expectancy, the business extent of disclosure index, external debt, foreign direct investment, and official development assistance are transformed from nominal to natural logarithms.

4.1 The models

Imperatively, the key drivers of inclusive growth include productive employment, human development factors, socio-economic amenities, and economic growth (Vellala, et al, 2014). Therefore, following Barro (1991), Thorbecke (2014), and Vellala, et al (2014), the functional specification of the relationship linking inclusive growth with per capita income, *Pci,* population growth rate, *Popg,* employment, *Emp,* life expectancy, *Lfx,* economic growth, *Grt,* capital formation, *Gfcf,* entrepreneurship, *Ent,* and other macroeconomic determinants, *X,* is stated as,

$$inG_{it} = f(Pci_{it}, Popg_{it}, Emp_{it}, Lfx_{it}, Grt_{it}, Gfcf_{it}, Ent_{it}, X_{it}) \quad (1)$$

And follows Baltagi (2008) in a general form as,

$$inG_{it} = \beta_0 + \beta_1 X'_{it} + u_i + v_{it} i = 1, \ldots, 43; t = 2016, \ldots, 2019. \quad (2)$$

Where, for country *i* at time *t*, *inG* is inclusive growth proxy by the natural logarithm of GDP per person employed and measured in constant 2017 purchasing power parity (PPP) dollar,$\beta_0$is the constant intercept,β_1 is *K*x 1 as X' is 1 x*K,* a vector of time-variant independent variables, *u* is a time-invariant unobservable country-specific fixed effect, and *v* represents other time-variant disturbances that are independently and identically distributed.

Moreover, as the principal goal of development policy, sustainable development aims at the creation of sustainable improvements in the quality of life for all people. Therefore, growth inclusiveness should improve life expectancy and productive employment respectively as follows,

$$Lfx_{it} = \beta_0 + \beta_1 inG_{it} + \beta_2 X'_{it} + u_i + v_{it} \quad (3)$$

$$Emp_{it} = \beta_0 + \beta_1 inG_{it} + \beta_2 X'_{it} + u_i + v_{it} \quad (4)$$

Where *Lfx*is life expectancy at birth and *Emp*is employment to population ratio measured as the proportion (%) of a country's population

that is employed.

4.2 Estimation technique

The estimation of each of the static models in (2), (3) and (4), is possible by applying Ordinary Least Squares (OLS), Fixed Effects (FE), Random Effects (RE), and GMM estimators (Olubusoye, Salisu & Olofin, 2016). However, where the time dimension of the panel is small and fixed, OLSregression may result in heterogeneity bias and lead to biased and inconsistent estimates (Nickell, 1981; Judson & Owen, 1999). Consequently, the coefficients of the explanatory variables would likely be subject to a downward bias towards zero in absolute terms. Also, given the potential to solve the endogeneity problem that might occur in this situation where *T* is small and *N* is large, Green (2011) suggests the use of Arellano and Bover (1995) GMM, as well as Blundell and Bond (1998) system-GMM estimators. However, given the requirement of many instruments, the system-GMM is not applicable in this case. But then, the results from the Hausman fixed and the Breusch and Pagan LM diagnostic tests can tell whether, or not, the Generalised Least Squares (GLS) technique is suitable. Essentially, the GLS allows for the country-specific intercept (that is, FE).

5. Results and discussion

5.1 Descriptive statistics

The descriptive statistics of all variables employed for estimation are presented in Table 2. In the table, the average per capita income, *Pci*, of US2286.9 dollars is encouraging given a minimum value of US208.1 dollars in the region. This portends the fact that the majority of countries across the continent are doing fairly well.

Table 2. Descriptive statistics

Variable	Obs	Mean	Std. Dev	Min	Max
Pci	172	2286.9	2755.5	208.1	12358.3
InG	172	14313.5	15159.5	1764.5	68487.3
Grt	172	3.4	3.32	-8.82	10.2
Popg	172	2.5	0.8	0.03	3.9
Emp	172	62.2	13.1	39.9	84.4
Lfx	172	62.1	4.9	51.6	74.5
Gfcf	172	23.6	8.9	7.8	52.6
Ent	172	1.6	0.5	0	2.3
Xpt	172	30.2	16.5	6.7	97.8
Imp	172	39.8	19	11.5	100.3
Mchtrd	172	49.8	23.8	17	144.8
Xdbt	172	1.29×10^{10}	2.69×10^{10}	1.69×10^{8}	1.80×10^{11}
Tdbtsv	172	2.6	3.1	0.2	20.6
Fdi	172	6.82×10^{8}	1.44×10^{9}	-7.40×10^{9}	5.57×10^{9}
Oda	172	61.7	43.6	4	231.5
Agrva	172	20.9	13.5	1.9	60.3
Indva	172	24	11.2	5.2	58.3
Servva	172	47.5	9.70	26.9	71.8

Source: Author's computation

Although the average GDP per person employed, as a proxy for inclusive growth, *inG*, at about US14313 PPP dollars is mild, yet it is promising given the level of development across economies. The two interesting factors that deserve special consideration are the annual GDP growth rate and population growth rate in SSA. As shown in the table, while the maximum GDP growth reached 10.2%, population growth settles at an exploding level of 3.9%. Nonetheless, the threat to sustainable development becomes obvious when the average values of the factors are considered given that both are close at 3.4 and 2.5% for GDP growth and population growth, respectively.

Another threat for worry is the value for export and import in the region; while export averaged 30.2%, import rather shows a higher value at 39.8%. This shows that the majority of countries in SSA import more than they export. Yet, another concern is the value addition, in terms of average, minimum and maximum, wherein, the service sector has the highest figures, followed by industry. The fact that agriculture value-added is relatively the least may be explained by the performance in merchandise trade as compared to export and import in the region.

More so, the average of 62.1% for life expectancy can be improved upon if development efforts are further geared towards sustainability across economies in SSA. Imperatively, the ratio of employment to the population

gives a maximum of 84.4% as against roughly 40% for minimum, with an average of 62.2%. The average value shows that the majority of the population across SSA are employed.

5.2 Correlation matrix

The pattern of the relationships subsisting among the variables is presented in the correlation matrix in Table 3. The table, imperatively, shows a general case of a fairly strong correlation among the exogenous variables.

Table 3. Abridgedcorrelation matrix

	Pci	InG	Grt	Popg	Emp	Lfx	Gfcf	Xpt	Imp	Mchtrd	Xdbt
Pci	1										
InG	0.976	1									
Grt	0.414	0.398	1								
Popg	0.521	0.284	0.048	1							
Emp	0.463	0.573	0.204	0.321	1						
Lfx	0.324	0.292	0.183	0.191	0.076	1					
Gfcf	0.127	0.109	0.304	0.125	0.012	0.207	1				
Xpt	0.413	0.381	0.309	0.223	0.289	-0.214	0.186	1			
Imp	0.028	0.026	0.184	0.326	0.074	-0.005	0.299	0.539	1		
Mchtrd	0.306	0.267	0.319	0.304	0.274	-0.069	0.143	0.651	0.641	1	
Xdbt	0.284	0.306	0.111	0.173	0.229	-0.049	0.053	0.101	0.224	0.051	1

Source: Author's computation.

However, the matrix presents a situation where the majority of the variables are positively correlated with each other; that is, they move in the same direction and are appropriate when brought together in the respective models. Specifically, however, a negative correlation is represented between life expectancy and each of entrepreneurship, exports, imports, merchandise trade, and external debt in the region. The situation notwithstanding, there appears to be no threat to the analysis as the affected variables are not employed together in the life expectancy model.

5.3 Estimation results

Following the probability values of 0.002 and 0.000 from the Hausman fixed and the Breusch and Pagan LM diagnostic tests result respectively, the GLS technique is adopted for estimation. Thus, the results of the estimations of models (2), (3), and (4) are presented together in Table 4. As such, in model (2), the inclusive growth model, per capita income drives inclusive growth such that a 10% point rise in per capita income leads

to 9.6% inclusiveness in growth. However, population growth is a drag as growth inclusiveness slows by 0.07% from 10% point increase in population. This essentially corroborates the World Bank's 2019 forecast that economic growth will lag population growth and remain below the 2015 rate of 3% (Toussaint, 2019). But the higher the level of employment, the higher the inclusiveness of growth as 0.2% growth appears inclusive given 10% point additional employment in the region. Also, as life expectancy from birth improves by 10%, growth becomes inclusive substantially by 2.2%. More so, as expected, additional stock of capital by 10% point generates inclusive growth mildly by 0.6% and buttresses the view of Balogun (2016) that an improved capital formation spurs socioeconomic growth and enhances the development process. Further, in conformity to expectation, growth becomes more inclusive by 1.9% point as entrepreneurial activities increase by 10%. Imperatively, the role of entrepreneurship as the driving force of economic growth is rooted in Schumpeter's theory of long waves (UNCTAD, 2005). Moreover, there are suggestions that countries with high levels of entrepreneurship do not suffer low levels of economic growth, and although the association is significant, yet a unidirectional causal relationship runs from entrepreneurship to economic growth (Reynolds, William, Bygrave, Larry & Michael, 2000, 2002; Harbi, Grolleau & Bekir, 2011). Nonetheless, from empirical studies, Stam (2008) affirms mixed findings on the role entrepreneurship plays in economic growth. Unfortunately, import of goods and services drags growth inclusiveness backward by a mild 0.1% despite a 10% point increase in import. However, growth inclusiveness is propelled by 0.3% as a result of a 10% point improvement in merchandise trade. Not surprisingly, external debt drags inclusive growth backward by 0.2% due to a 10% point rise in foreign debt liability. Accordingly, the negative effect of debt corroborates Cecchetti, Mohanty and Zampolli (2010) and Kumar and Woo (2010) that in the period of declining revenue and rising expenditure, debt increases by setting back growth. The situation buttresses World Bank's position that by the end of 2018, almost 50% of SSA countries covered by the low-income country debt sustainability framework are as debt-distressed as more than twice the figure in 2013 (Toussaint, 2019). This corroborates IMF (2020b) that the high debt reflects borrowing by countries like Ethiopia and Kenya to finance investment in infrastructure, as the average debt ratio in low-income developing countries reached 43% of GDP over the period 2017-2019. Meanwhile, a 10% point increase in agriculture value-added causes inclusiveness in growth by 1.1%. Incidentally, a convincing case is made that agriculture is the only engine of growth in most countries in SSA

(World Bank, 2007; OECD/FAO, 2016).

Furthermore, in THE model (3), the life expectancy model, per capita income is positively impactful on life expectancy as a 10% point rise in income causes a 2.8% improvement in life expectancy. Also, as growth becomes more inclusive by a 10% point, life expectancy improves by 3.2%. However, life expectancy is threatened by an increase in the rate at which the population grows given that a mild 0.2% drop in life expectancy from birth results from a 10% point addition to the population. This invariably supports Todaro and Smith (2003) that the problem of population growth is not simply of numbers, but human welfare and development. Notwithstanding, as more percentage of the population gets employed, a further boost occurs to life expectancy. This situation follows from the fact that a 10% point increase in employment adds a 0.2% improvement to life expectancy. Moreover, as the stock of capital increases by 10% point, life expectancy rises by 0.6%. This probably reflects the mild contribution of medical facilities like hospitals, health centres, and the rest that provide basic health services to pregnant women and newly born children in SSA. The availability of basic health facilities, as well as the provision of services, goes a long way in helping cub both infant and maternal mortality in the region.

Meanwhile, in the model (4), the employment model, employment level rises by 3.9% from a 10% point in addition to per capita income. A rise in population growth brings about a reduction in the ratio of employed persons to the population. The situation is described by a 10% point increase in population growth leading to a 0.4% fall in employment. This, no doubt, shows the effect of high and increasing population growth in the region where most economies are not expanding in tandem with the population explosion. By and large, going by the figures released by the National Bureau of Statistics (2020) and Trading Economics (2020), the impact of the bulging youth population, as well as youth unemployment, cannot be overlooked in this finding. Meanwhile, the finding buttresses the claim by Yalnizyan and Johal (2018) that the ageing population and demographic uncertainty cause economies to slow such that in the future, economic growth is expected to be half the rate of what it used to be 50 years back.

Table 4. Pre-COVID-19 inclusive growth, life expectancy, and employment in SSA.

Variable	Inclusive growth Model (2)	Life expectancy Model (3)	Employment Model (4)
Per capita income	(0.96)***	(0.29)**	(0.39)***
Inclusive growth	-	(0.32)***	0.11
Growth rate	(0.02)	(-0.01)	(0.02)
Population growth rate	(-0.07)**	(-0.02)**	(-0.04)**
Employment	(0.02)***	(0.04)**	-
Life expectancy	(0.22)***	-	0.05
Capital formation	(0.06)**	(0.06)**	-
Entrepreneurship	(0.19)***	-	(0.41)**
Export	(0.08)*	-	(0.22)
Import	(-0.01)**	-	(-0.02)***
Merchandise trade	(0.03)**	-	(0.06)***
External debt	(-0.02)***	-	(0.01)**
Total debt service	(-0.03)	-	(-0.31)
Fdi inflow (net)	(-0.01)	(0.28)	(0.02)
Oda (net)	(0.01)	(0.03)	(0.33)
Agric value-added	(0.11)**	(0.44)	(0.12)**
Industry value-added	(-0.02)	(0.15)	(-0.03)*
Service value-added	(0.01)	(0.02)	(0.01)
Adj. R^2	0.86	0.71	0.77
F-Statistic	460.2	374.4	0.401

Note: Values in parentheses are coefficients, while ***, **, and * imply 1%, 5%, and 10% level of significance, respectively. Statistical decisions are, however, based on a 5% level.
Source: Author's computation.

Meanwhile, the import of goods and services reduces employment given a 0.2% drop in employment due to a 10% point increase in import. On the contrary, however, merchandise trade helps lift the level of employment as 0.6% additional employment is created from a 10% point expansion in merchandise trade. Furthermore, agriculture value-added propels employment by 1.2% from a 10% point rise. The result to a large extent supports previous findings which affirm that productivity in agriculture reflects a rise in the agricultural share of employment leading to higher GDP per capita as experienced in Ghana, Botswana, and Liberia (Thorbecke, 2014). Also, the efficacy of agriculture for employment is emphasised by Filmer and Fox (2014) who suggest agriculture targeting as a policy priority for addressing youth unemployment in SSA. In addition, OECD/FAO

(2016) have noted that the contributory role of agriculture to food security reflects in its prioritisation in the development agenda. More importantly, entrepreneurship generates more employment as a 10% point increase in entrepreneurial activities creates a further 4.1% addition to employment. This affirms the notion that entrepreneurship is a sustainable tool for job creation in Africa such that without adequate entrepreneurship development, the continent faces an uncertain future (Obonyo, 2016; Adegboye, 2018).

Very instructive, though mild, is the positive impact of external debt on employment in the region given that 0.1% employment is generated from a 10% point increase in foreign debt obligation. Essentially, the positive impact of debt largely supports the view of DeLong and Summers (2012) that a debt-driven expansionary policy propels growth, and eventually employment, in the short run. As such, debt-driven employment in SSA could be ascribed probably to activities in economies that do not depend on commodities in the region.

6. Conclusion and policy implications

This paper examines the impacts of debt and COVID-19, and the effectiveness of inclusive growth for sustainable development in SSA using the GLS technique. The pre-COVID-19 analyses reveal that the road to sustainable development is not rough, but not very smooth either. This follows from the fact that although per capita income, entrepreneurship and agriculture, among others, can bring about inclusive growth, yet, debt appears to be a formidable threat to sustainable development in the region. More so, sustainable development is feasible considering the roles of per capita income, employment, and growth inclusiveness in necessitating higher life expectancy. Furthermore, additional employment can be created effectively through entrepreneurship, agriculture, and merchandise trade. Meanwhile, as confirmed cases of COVID-19 climb, revenue loss grows substantially amid rising public spending while the tax-to-GDP ratio increases across countries by an average of 3.7% of GDP. In this regard, interest on expenditure increases thereby resulting in high debt, currency depreciation, and a growing percentage of non-concessional borrowing. More so, the unemployment rate increased across SSA countries. For example, the rate increased in Angola and South Africa from 31.8 and 29.1% in the fourth quarter of 2019 to 32 and 30.1% in the first quarter of 2020, respectively. Also, in Nigeria, reports show that the unemployment rate increased from 23.1% in the third quarter of 2018 to 27.1%, as against 34.9% among youth in the age bracket 15-34, in the second quarter of 2020. Nonetheless, the average headline deficit has been projected to expand by

1.6% points of GDP in oil-exporting countries. Therefore, in conclusion, while debt is increasing and COVID-19 is threatening, sustainable development is feasible through inclusive growth, improved life expectancy and more jobs (employment) in SSA.

The findings, however, bear some policy implications. One, given that capital formation propels growth inclusiveness and life expectancy, it follows that governments across countries in SSA should strive more to build the sock of basic facilities like hospitals, schools, bridges, rails, airports, and roads. If these facilities are made available, economic activities will be facilitated while enhanced output expansion will result in the gains accruing to everyone, including the poor, in the society. Two, as entrepreneurship causes inclusive growth, it implies that the more entrepreneurs that are raised in SSA, the more inclusive will the growth. As such, SSA countries should prioritise the fostering of new entrepreneurship, as well as support the existing ones through business-enhancing policies in order to make growth more inclusive in the region. Three, regarding merchandise trade boosting growth inclusiveness and employment, it implies that export of merchandise overwhelms import. Therefore, efforts should be geared towards facilitating the export of goods and services to generate more employment and make growth to be inclusive in the region. Four, as agriculture value added is found to drive growth inclusiveness and employment, it points to the fact that agriculture is still the major employer of labour in SSA. Thus, relevant authorities should promote agricultural activities by supporting farmers and as well encourage unemployed people, especially youths, to embrace setting up households' farms and small and medium scale enterprises for self-employment and food production across countries in the region. Five, given that import setbacks growth inclusiveness and employment, it, therefore, follows that governments in the region should formulate policies that will encourage domestic production of certain goods that constitute part of countries imports. For example, in the form of import substitution strategy, countries can start the production of light manufactures like shoes, furniture, wire cables, and food such as rice that take a large share of import bills. If countries do these, more jobs will be created with growth inclusiveness.

Six, external debt is reported to impact negatively on growth inclusiveness. This implies that the more the foreign debt liabilities, the less inclusive is growth in SSA. As such, to achieve growth inclusion, economies in the region should reduce the stock of their external debts by calling for outright debt cancellation or forgiveness. If debts are cancelled, it will afford SSA countries the leverage to commit financial resources to

growth-enhancing activities rather than on debt repayments. Seven, and lastly, as population growth affects growth inclusiveness, life expectancy, and employment negatively, it reflects the challenge confronting SSA countries in improving the living standard of people in the region. Although some schools of thought assert that population growth is desirable in many developing countries and regions, however, the issue of low per capita income, food insecurity and poverty make a rethink worthwhile. Accordingly, policies that can help control and empower population growth are in daring need across SSA countries. For example, the rising population can be made productive through skills training and acquisition, apprenticeship, and farming. When a significant percentage of the SSA population is empowered through skill acquisition and financial support, the region will be better off with more employed people, increased output, and improved welfare.

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Appendix A:

COVID-19 confirmed cases and deaths in selected countries in SSA, March-August, 2020.

	March		April		May		June		July		August	
Country	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death
Angola	7	2	27	2	86	4	284	13	1148	52	2654	108
Benin	9	0	64	1	232	3	1199	21	1805	36	2145	40
Botswana	4	1	23	1	38	1	227	1	804	2	1724	6
Burkina Faso	261	14	645	43	847	53	962	53	1106	53	1370	55
Burundi	2	0	11	1	63	1	170	1	395	1	445	1
Cameroon	233	6	1832	61	6143	197	12592	313	17255	391	14409	414
Cape Verde	6	1	122	1	458	4	1267	15	2451	23	3884	40
CAR	3	0	64	0	1011	2	3745	47	4608	59	4711	62
Chad	7	0	73	5	778	65	866	74	936	75	1013	77
Comoros	-	-	1	0	106	2	303	7	378	7	423	7
DR Congo	109	9	572	31	3195	72	7122	175	9084	215	10104	259
Congo Rep	19	0	220	9	611	20	1087	37	3200	54	3979	78
Cote D'Ivoire	179	1	1275	14	2833	33	9499	68	16047	102	18067	117
Eq. Guinea	15	0	315	1	1306	12	2001	32	4821	83	4941	83
Ethiopia	29	0	133	3	1257	12	5846	103	17999	284	52131	809
Eswatini	9	0	106	1	285	2	812	11	2648	41	4577	91
Gabon	18	1	276	3	2655	17	5394	42	7352	49	8533	53
Gambia	4	1	12	1	25	1	49	2	498	9	3029	96
Ghana	195	5	2074	17	8070	36	17741	112	35501	182	44298	276
Guinea	30	0	1405	7	3706	23	5391	33	7308	46	9409	59
Guinea Bissau	8	0	205	1	1256	8	1654	24	1981	26	2205	34
Kenya	81	1	411	21	2021	69	6673	149	21363	364	34201	577
Lisotho	-	-	-	-	2	0	27	0	702	14	1085	31
Liberia	6	0	152	18	296	27	804	37	1189	75	1304	82

Source: Author's compilation from www.worldometers.info/coronavirus/

Appendix B:

COVID-19 confirmed cases and deaths in selected countries in SSA, March-August, 2020.

	March		April		May		June		July		August	
Country	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death
Madagascar	57	0	132	0	826	6	2303	22	11273	107	14957	195
Malawi	-	-	37	3	284	4	1265	16	4078	114	5566	175
Mali	31	3	508	26	1315	78	2181	116	2535	124	2776	126
Mauritius	158	5	332	10	335	10	341	10	344	10	356	10
Mozambique	10	0	76	0	254	2	903	6	1864	12	4039	23
Namibia	14	0	16	0	25	0	257	0	2129	10	7692	81
Niger	34	3	719	32	958	64	1075	67	1134	69	1176	69
Nigeria	151	2	1932	58	10162	287	25694	590	43151	879	54008	1013
Rwanda	75	0	243	0	370	1	1025	2	2022	5	4063	16
Sao Tome	-	-	16	1	483	12	714	13	871	15	896	15
Senegal	190	1	1024	9	3739	42	6925	116	10284	209	13655	284
Sierra Leone	1	0	136	7	865	46	1462	60	1823	67	2022	70
South Africa	1380	5	5647	103	34357	705	15120	265	49318	800	62704	1414
Sudan	7	2	442	31	5026	286	9257	572	11644	746	13189	823
Tanzania	20	1	480	16	509	21	509	21	509	21	509	21
Togo	36	2	123	9	442	13	650	14	941	19	1400	28
Uganda	7	2	83	0	457	0	893	0	1176	4	3037	32
Zambia	36	0	109	3	1089	7	1632	30	6228	165	12097	288
Zimbabwe	8	1	40	4	178	4	591	7	3169	67	6497	202

Source: Author's compilation from www.worldometers.info/coronavirus

Appendix C:
COVID-19 confirmed cases and deaths in selected countries in SSA, September-December, 2020.

	September		October		November		December	
Country	Cases	Death	Cases	Death	Cases	Death	Cases	Death
Angola	4972	183	10805	284	15139	348	17553	405
Benin	2357	41	2683	41	3015	43	3251	44
Botswana	3172	16	6642	24	10742	34	14805	42
Burkina Faso	2056	58	2500	67	2886	68	6707	85
Burundi	508	1	589	1	689	1	818	10
Cameroon	20838	418	21793	426	24445	437	26277	448
Cape Verde	6024	60	8793	95	10761	105	11840	113
CAR	4829	62	4866	62	4913	63	4963	63
Chad	1200	85	1498	98	1688	101	2113	104
Comoros	479	7	545	7	613	7	823	10
DR Congo	10685	272	11306	307	12772	333	17658	591
Congo Rep	5089	89	5290	92	5774	94	7107	108
Cote D'Ivoire	19724	120	20716	126	21331	132	22490	137
Eq. Guinea	5030	83	5088	83	5153	85	5277	86
Ethiopia	75368	1198	96169	1469	110074	1706	124269	1923
Eswatini	5482	109	5917	117	6419	122	9358	205
Gabon	8766	54	9868	55	9214	60	9571	64
Gambia	3584	113	3672	119	3742	123	3797	124
Ghana	46656	301	48124	320	51667	323	54771	335
Guinea	10652	66	12150	73	13199	76	13738	81
Guinea Bissau	2324	39	2413	41	2441	44	2452	45
Kenya	38713	711	55877	1013	84169	1474	96614	1681
Lisotho	1639	38	1953	44	2137	44	3206	51
Liberia	1343	82	1426	82	1595	83	1779	83

Source: Author's compilation from www.worldometers.info/coronavirus

Appendix D: COVID-19 confirmed cases and deaths in selected countries in SSA, September-December, 2020.

	September		October		November		December	
Country	Cases	Death	Cases	Death	Cases	Death	Cases	Death
Madagascar	16454	232	17111	244	17341	251	17714	261
Malawi	5773	179	5932	184	6028	185	6583	189
Mali	3118	131	3565	136	4710	156	7090	269
Mauritius	381	10	441	10	504	10	527	10
Mozambique	8728	61	12988	93	15770	131	18794	167
Namibia	11373	123	12988	133	14380	151	23941	205
Niger	1197	69	1220	69	1548	72	3323	104
Nigeria	58848	1112	62853	1144	67557	1173	87607	1289
Rwanda	4840	29	5137	35	5934	49	8383	92
Sao Tome	911	15	945	16	996	17	1022	17
Senegal	15019	311	15630	325	16107	333	19364	410
Sierra Leone	2231	72	2366	74	2412	74	2635	76
South Africa	674339	16734	725452	19276	790004	21535	1057161	28469
Sudan	13640	836	13804	837	17810	1249	23316	1468
Tanzania	509	21	509	21	509	21	509	21
Togo	1784	48	2331	57	2974	64	3633	68
Uganda	8287	75	12743	112	20459	205	35511	265
Zambia	14802	333	16480	349	17665	357	20997	390
Zimbabwe	7838	228	8367	243	10034	277	13867	363

Source: Author's compilation from www.worldometers.info/coronavirus

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