

RESEARCH ARTICLE

An Analysis of the COVID-19 Consequences on the Uncertainty Socio-economic Indicators of Sub-Saharan Africa

Etienne Gatera 

Pedagogical University of Krakow, ul. Podchorążych 2, 30-084, Kraków, Poland

ABSTRACT

This study aims to investigate the main sectors of economic development before and the current situation of COVID-19 for Sub-Saharan African countries by demonstrating country experiences, the role of vaccines, and the SSA economy forecast. The study has four main sections, including an introduction, an overview of socioeconomic indicators before the pandemic, methods, results findings, and discussion. The study used mixed methods, including an approach based on secondary data. The quantitative results were analysed using both empirical methods and the researcher's prior expertise. The analysis of the effects of the COVID-19 pandemic on SSA countries was based on long-term data collected by several international financial institutions. The research findings demonstrated conclusively that COVID-19 is causing the collapse of the SSA economy, the first economic recession in 25 years, \$37-79 billion in lost GDP by 2020, and an export decrease of 10.6%. In education, for example, 64% of primary and 50% of secondary students lack ICT training, 89% (216 million) do not have access to a home computer, and 82% (199 million) do not have an Internet connection missed classes during the COVID-19 period. The agricultural sector in SSA is also impacted by over 239 million hungry people. COVID-19 mass vaccinations and public debt amount to over \$154 billion in obligations to get the SSA economy back on its feet with zero tolerance for embezzlement of public funds. These results can be used to make the economies of SSA countries resilient to the current crises and to address some thematic issues, such as the implementation of the African Continental Free Trade Area (AfCFTA) in all SSA countries, which will save time and money by getting rid of border taxes. Therefore, policymakers can use the findings to begin formulating plans to address issues like economic development, education, and food insecurity.

Keywords: COVID-19; Sub-Saharan Africa (SSA); Economic recession; Vaccines; Economic forecasts

***CORRESPONDING AUTHOR:**

Etienne Gatera, Pedagogical University of Krakow, ul. Podchorążych 2, 30-084, Kraków, Poland; Email: etienne.gatera@doktorant.up.krakow.pl

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1. Introduction and background

In the 21st century, the COVID-19 pandemic is the most talked about, both in developed and developing countries. The first official case of COVID-19 was recorded in the city of Wuhan, China in December 2019. In those difficult times, scientists around the world started research to find the COVID-19 vaccine. Many countries devised different strategies to cope with the effects of the COVID-19 pandemic, including economic, educational, agricultural, and general lifestyle sectors, especially in sub-Saharan Africa. This paper focused on the impact of the COVID-19 pandemic on SSA, country experiences, the role of vaccines, reasons for the delay in the rollout, and economic forecasts. The study was based on a review of various reports from international financial institutions (IFIs).

Originating in Wuhan City in China and later circulating to other continents, COVID-19 was officially declared a global pandemic by WHO on 11th March 2020^[1]. It is the fifth pandemic of the coronavirus declared globally after 1918. WHO named it a novel coronavirus (2019-Nov) on 12th January 2020. Later, the International Committee on Taxonomy of Virus named it SARS-CoV-2^[2]. The SARS-CoV-2 spread in different continents, including Asia, Europe, America, and later Africa.

Since its recognition as a global pandemic in March 2020 by WHO, no medicines for COVID-19 were available. Only a few vaccines are used at the moment. The WHO has recognised the Pfizer COVID-19 vaccine (BNT162b2); AstraZeneca/Oxford COVID-19 vaccine, Moderna and Janssen (Johnson & Johnson). WHO approved Sinopharm on 10 May 2021 and Sinovacon on 24 May 2021. Numerous articles have examined and evaluated the impact on the different domains.

The change in human lifestyles, such as the negative effect on the world uncertainty economy. It started with the US and UK before and after COVID-19; later, global economic fluctuations occurred^[3].

1.1 Overview of SSA economy, education and agriculture domains before COVID-19 pandemic

Economy

According to the World Bank forecast, SSA was expected to witness a rise in growth rate from 3% in 2018 to 3.5% in 2019. Within 21 countries with per capita growth of 5% or more, 24 countries remain at the same level of growth, including the two largest economies, Nigeria and South Africa^[4]. The SSA countries' public debt was diverse. For some countries, it was sustainable, whereas for others, it came with high risks. Countries like Cameroon, Cabo Verde, Ethiopia, Ghana, and Zambia were in the high-risk zone^[5]. Before the COVID-19 pandemic, the SSA economy was experiencing a better growth rate. It was an average of 3.6% from 2017 to 2019. But that didn't stop some countries' rates of public debt from rising, which handicapped the SSA economy's autonomy.

Education

Education continues to be underfunded and unequal in 25 of the 49 SSA countries. Both affect development plans, create disputes over natural resources among countries, generate low investment in education, and result in poor education policy^[7].

According to the 2018 UNESCO statistical report, SSA countries have the highest primary out-of-school rate compared to the globe. It stands within the range of 20%-40%^[43]. Thus, SSA had the most dropouts in 2019. 32.2 million male and female primary school dropouts. The SSA education is the first for children globally who have dropped out due to mismanagement, civil wars, and poverty.

Agriculture

The GDP for SSA is expected to increase from less than 1% in 2005-2007 to 2.3% in 2050^[8]. The SSA and South Asia will need to double agricultural production to respond to the demand. Hunger and malnutrition remain a challenge. Eradication of hunger is not possible by 2030, not even by 2050; as projected, 8% of the global population will remain

undernourished^[9]. The SSA countries have a higher percentage of malnourished populations, especially in Ethiopia and Chad, due to violent conflict and political instability^[10]. Better technologies in the agriculture sector, its development, and improved governance are the fundamental needs of food security^[11]. To achieve the goal, they required increased food production and imports; food must be accessible in combination with water accessibility^[12].

1.2 Hypothesis

We hypothesise that there are destructive consequences in major domains (economy, education, agriculture, and health sectors) in SSA caused by the COVID-19 pandemic.

According to the WB, in 2019, the SSA economy was annually growing at 2.28%. The WB predicted that the SSA economy would fall to -3.3% in 2020 since it is the first recession in the past 25 years^[13]. COVID-19 caused instability in airspace transport as some countries closed borders, leading to uncertainty in industries engaged in international commerce.

Therefore, after the WHO declared COVID-19 a pandemic, many SSA countries implemented total lockdowns and self-isolation quarantines^[14]. More than 191 schools were closed, with 740 million girls estimated to be out of school until the end of March 2020. Along with a lack of internet, laptops, and electricity. As a result, schools closing the gender gap have played a role in increasing the risks of teenage girls' pregnancies^[15].

The more COVID-19 affected the SSA countries, the worse the situation became due to partial lockdowns. It prevented people from going about their daily lives, resulting in population hunger^[16]. Women suffer more from hunger compared to men; therefore, the vaccine is the only way to control the COVID-19 pandemic and ensure economic recovery.

2. Data description and methods

2.1 Data description

Data description is a method of documenting how

data is collected and processed. It provides information about the data's content so that others can use it in future projects and understand the data structure^[17]. Furthermore, data are being used to improve transparency throughout the research process^[18]. This study collected data from different official international organisations, such as IFIs, non-governmental organisations, and the WHO.

We collected and analysed different official reports about the effects of COVID-19 on SSA in various domains. Most of the data collected regards the impact of COVID-19 on education. (Dropout in primary, secondary, and university; early marriage; and teenage girls' pregnancies). Economically, SSA was in the process of growth. During the discussion, we mainly focus on the role of vaccines and the reasons behind rollout delays, countries' experiences, and economic forecasts.

2.2 Methodology

The methodology is a way of finding procedures for scientific exploration. It provides clarity for understanding many approaches that involve the research process and design^[19]. This study employed quantitative methods as well as secondary data. We use empirical methods and the researcher's experience during data analysis and presentation. Our findings are based on longitudinal data from various international organisations, like IFIs (WB, IMF, ADB), FAO, UNESCO, and UNCTAD report on the impact of the COVID-19 pandemic on SSA countries. We use these reports from the UN agencies and other official global institutions about how COVID-19 affected the SSA to figure out how horrible things were in the SSA.

2.3 Empirical research and results

Empirical research is based on the observation and measurement of phenomena directly experienced by the researcher^[20]. Therefore, empirically, we analysed and interpreted the different reports concerned with the consequences of the COVID-19 pandemic, in which the SSA countries underwent the

most crucial phases of socio-economic development, especially in education, economy, and agriculture. Finally, the data analysis helped us confirm the study hypothesis.

3. Findings: Impact of the COVID-19 Pandemic for the SSA

3.1 Economy and services

The current crisis affects business and government balance sheets, and SSA development gains and growth expectations have been jeopardized for years. According to World Bank, SSA will enter a recession in 2020 for the first time in over 25 years, with the COVID-19 outbreak costing the country between \$37 billion and \$79 billion in lost production in 2020 alone^[21]. The IMF, WB, and OECD predicted a -1.25% fall in world GDP and a 30% fall in fuel prices. The average decline in global GDP predicted was 4%, and fuel prices were expected to fall by 60% in the extreme impact scenario. These predictions had significant consequences for key exports and trade costs.

African exports were expected to fall by 10.6% under the mild impact scenario, primarily due to a decline in fuel exports, followed by food exports. A significant drop in fuel prices was expected to cause substantial losses in government revenue, as observed in the mild and severe impact scenarios^[22].

Between the first and second quarters of 2020, South Africa's GDP, for example, dropped by 51%. Moreover, the pandemic could cause an additional 26 to 40 million people in SSA to fall into poverty^[23]. As a result, the £2.9 billion cut to foreign assistance to SSA countries' budgets, and the budget still has uncertainty about the COVID-19 response. The WB, remittances are expected to decline in all major regions, with SSA experiencing a 23.1% decline against a global decline of 20%^[24]. The travel and tourism industry employs one in 20 people in SSA. Tourism was down since COVID-19 and was a significant source of income for countries such as, Rwanda, Botswana, Seychelles, and Kenya, generating billions of dollars and jobs^[25].

SSA's economy has been and continues to be destabilized by COVID-19's effects in all domains, including agriculture and the exports of the natural resources industry. Following the decline in Nigeria's revenues in 2020, other major fuel exporters in the region, such as Algeria (-2.5%), Angola (-3.8%), and Congo (-2.4%), have also experienced smaller declines in their sales^[23]. Therefore, it led to a reduction in the capacity of imported products for the affected countries. In general, the GDP of SSA countries is declining. The trade balance is increasingly deteriorating, domestic supply problems and the growth of the informal sector are leading to recession and debt burdens on SSA countries.

3.2 Education and teenage pregnancies

Before the COVID-19 pandemic, SSA education ranked last in the global ranking on quality and quantity of education. Many students are at risk of not returning to school in most South Asian and SSA countries. All domains were affected by the COVID-19 pandemic and the education sector was not spared either^[27]. As the virus spread, this weakened the education system worldwide, with about 90% of the 24 million students risked not returning to school. Although the online distance education model has been established in a few SSA countries, only 64% of primary teachers and 50% of secondary teachers have received the necessary training and ICT skills. 89% of students (216 million) do not have computers at home for the online learning model; 82% (199 million) do not have access to the Internet; and 26 million students do not have mobile Internet. The COVID-19 pandemic led to the closing of 191 national borders, with 1.5 billion pupils estimated to be out of school, with 740 million young girls^[15]. The worse impacts were teenage girls' pregnancies and surviving rape or sexual assault. During the COVID-19 pandemic, Sierra Leone had to close schools for eight months, and 11,000 teens got pregnant^[28].

3.3 Hunger and poverty (agriculture)

Thus, according to WFP (2020), it is estimated

that COVID-19 could double the number of hungry people in the world to 820 million in 2018, of which 239 million will be in SSA countries. COVID-19 will mainly affect rural areas; it will have a significant direct and indirect economic impact on vulnerable rural communities, especially women, leading to increased hunger and poverty. Farmers, herders, and foresters are particularly affected. Informality is common in rural areas, especially among women, and is linked to poverty^[16]. The decline in remittances, compounded by other ongoing crises (such as locusts, droughts, and conflicts) can impact hunger and poverty^[29]. COVID-19 is still present in Africa and can be interpreted differently from country to country. However, the loss of small businesses due to the lockdown and social distancing measures leads to poverty, hunger, and even loss of life.

3.4 Countries' experiences

Due to the different methods adopted by countries, the impact of COVID-19 in all SSA countries is not similar and not at the same level. Since the first case in Africa, some countries have implemented three waves of total or semi-lockdown, South Africa, Rwanda, and others. Other countries, particularly Burundi and Tanzania, have not implemented any form of containment strategy. Therefore, the real difference in the impact of this phenomenon is explained. In this section, we explain in detail the experiences of South Africa and Nigeria.

South Africa

South Africa's real GDP growth was 0.2% in 2019. The pandemic and the lockdown measures have spread further and damaged the national economy. The real GDP contracted by 8.2% in 2020. Therefore, a decline in the mining, manufacturing, and communication sectors constituted a significant loss. On the demand side, all components faced a colossal contraction, with 30.4% in investment. The reserve bank cumulative 300 basis points in 2020 from 6.5% to 3.5% to support businesses and households affected by the pandemic. The inflation rate declined to 3.4% in 2020, with the bank's reserve at 3% to 6%.

The budget deficit was 14% of the GDP. It mainly consisted of government spending for the economy impacted by the pandemic. External debt in South Africa decreased in 2021 compared to 2020. Thus, due to the lockdown measures and the third wave, South Africa is still the most impacted country in the SSA^[30].

Nigeria

Nigeria is economically stronger than SSA. However, its growth slowed down as a result of the COVID-19 effect. Since the 2020 recession entered the Nigerian economy due to the fall of oil prices, failed global demand due to containment measures against the spread of the pandemic. The lockdown measures seriously affected aviation, tourism, manufacturing, and trade. The esteemed GDP shrunk by 3% in 2020. Inflation rose to 12.8% in 2020, pushing the prices of food items higher. The Central Bank of Nigeria cut the policy rate by 100 basis points to 11.5% to contain soaring food prices. The fiscal deficit stepped up to 5.2% in 2020 from 4.3% in 2019. The public debt increased to \$85.9 billion (25% of GDP) in June 2020^[31].

3.5 Role of COVID-19 vaccines, reasons behind rollout delay, and economic forecasts

Role of COVID-19 vaccines and reason behind rollout delay

Despite considerable uncertainty about the pandemic's trajectory, a way out of this health and economic crisis is becoming more apparent. The scientific community worked day and night to find a COVID-19 solution (either a vaccine or medicine). We now have several vaccines that can reduce the severity and frequency of infections. The international community believes that increasing immunisation coverage in SSA is imperative for reasons other than local livelihoods and growth. A global public good also has extensive regional treatment. The most long-term recovery for any country, anywhere, necessitates a worldwide effort involving everyone^[30].

Despite these promises of global equity, three-quar-

ters of the one billion doses of COVID-19 vaccine administered globally had been administered in only ten countries by the end of April 2021^[33]. However, in low-income countries, only 1.1% of people have received one dose^[34]. Indeed, 2.7 billion doses have been administered globally; only about 1.5% of this total was administered on the African continent.

Role of the COVID-19 vaccines in SSA

Indeed, due to the different forms of COVID-19 remarked so far, fewer percent of people vaccinated can be infected with COVID-19. Scientists confirm that vaccination against COVID-19 is a way to resume normal life, business, schools, tourism, travel, and other human activities. SSA has one of the highest rates of HIV, AIDS, and other diseases. The role of the COVID-19 vaccine is to protect people living with HIV and AIDS from serious health problems or hospitalisation if they have contracted COVID-19^[44]. In the optimistic scenario, we explore the possibility of a much stronger recovery than in the baseline scenario, as activity in the contact-intensive sector recovers rapidly and improves self-confidence through vaccine rollout. This is because activity in the high-contact sector recovers rapidly through vaccine deployment, which lifts the level of confidence^[30]. So far, the rollout of vaccines in advanced economies has led to a faster recovery, with factories, restaurants, and tourism recovering, while a slightly less pronounced impact is observed in SSA due to vaccine shortages.

Reason behind vaccines rollout delay

Many advanced economies are focusing on mass vaccinations to rebuild their economies and return to real life. However, in SSA, most countries have found themselves at the back of the queue, with limited purchasing power and few options, and will struggle to meet the basic needs of health workers^[30]. Although considerable progress has been made in developing the COVID-19 vaccine, there are many potential barriers to the large-scale rollout of the vaccine in SSA. These include inadequate transport infrastructure and distribution systems, the vulnerability of medical systems to implementing large-scale immunisation programmes, and old or inade-

quate refrigeration systems for vaccine storage^[35]. Even though SSA is struggling with the doses of the vaccines, the willingness to accept is higher in general in SSA.

3.6 Economic forecasts

According to the IMF, the forecast is contingent not only on the success of the virus-vaccine war but also on how well economic measures implemented amid significant uncertainty can limit the long-term consequences of this unprecedented catastrophe. The IMF also anticipates that growth in SSA will increase to 3.4% in 2022, which is 0.2% higher than its prior prediction. In addition, the IMF expects the global economy to rise by 6% in 2021, up from 5.5% in January. Furthermore, the economic recovery in 2021 will be bolstered by the introduction of the COVID-9 vaccine^[30].

Countries' experiences economic projection

a. South Africa: South Africa's GDP plummeted by a stunning 7% last year. Due to a better-than-expected fourth quarter in 2021, there was an upward revision. However, this is likely to be offset by the second wave of COVID-19, which peaked in January 2021.

It resulted in the reintroduction of some containment measures in the first quarter. In 2021, the net effect will be a growth rate of 3.1%. The authorities have initiated a large-scale vaccination campaign, hoping that the vaccine might reduce the likelihood of new outbreaks^[30].

b. Nigeria: Despite substantial obstacles, the Nigerian economy is predicted to recover to 1.1% growth in 2021, significantly lower than previous estimates, and will grow to 1.8% in 2022. However, low oil prices are predicted to stifle activity, as are dropping public investment due to insufficient government income, limited private investment due to corporate failures, and a lack of confidence among investors. Furthermore, the loss of income and increased precautionary savings of non-poor households, as well as the drop in remittances and the depletion of savings of poor and unemployed house-

holds in the setting of insufficient social safety nets, would reduce the prospects for private spending ^[36].

The recovery of SSA countries will depend on how political leaders manage the rollout of COVID-19 vaccines to allow for population movements and commodities. SSA needs to strengthen the fight against corruption, reduce inequality and provide countries with security.

4. Data discussion

The most visible consequences on the international scene are concerned with the economic sector. However, COVID-19 has weakened the SSA economy and has the highest education rates and teenage pregnancy. In addition, the school dropout rate globally is 97.5%. A larger and more devastating impact existed during and after the school's lockdown and closure, followed by other unemployment effects caused by job loss. The first and most significant consequence is that teenage pregnancy leads to complete school dropout and the loss of all hope for the future. In Sierra Leone alone, estimates show that there are approximately 11,000 cases of teenage pregnancy in eight months. Economically, the consequences of COVID-19 have severely harmed the economies of SSA countries today, with billions of dollars lost, mainly to large companies. However, small businesses are now closed, and it is unlikely that their owners will reopen.

Nonetheless, COVID-19 has had an economic effect on SSA, but it has also harmed many other industries. Whether it is tourism, manufacturing, mining, or natural resources, it is clear that these industries have been harmed, leading to increased unemployment. Therefore, the SSA countries have suffered significant economic losses, and economic recovery will take longer to be redressed.

4.1 Responses and recovering strategy

Africa could lose between US\$157 and US\$212 billion, requiring up to US\$154 billion in recovery support ^[26]. The COVID-19 response facility can make up to \$10 billion available to African govern-

ments and the private sector to provide immediate liquidity to countries, allowing the ADB to raise approximately \$3 billion as a social bond to combat COVID-19, which is quickly becoming the largest bond on the international market ^[37]. As a result, the EU has set aside 60 million euros to assist the African continent, and \$57 billion in loans have been arranged for Africa in 2022, including up to \$18 billion from the IMF and WB ^[38]. And Africa's additional financial needs for an acceptable response to COVID-19 until 2025 are estimated to be \$285 billion during the Paris summit on May 18, 2021 ^[39]. SSA responded to the COVID-19 pandemic by mobilising funds from major financial institutions, issuing bonds, and requesting debt suspension.

The SSA economy still faces borders (taxes). This issue is most difficult to overcome as it blocks free trade for imports and exports between the countries' zones. Each year, millions of US dollars are lost in border taxes for each country. The implementation of the Africa Continental Free Trade Area (AfCFTA) is the best strategy, but only South Africa, Rwanda, and Botswana are the most prepared for its implementation ^[40].

The AfCFTA combines 54 African countries into a 1.3 billion-person market. This resource might build a \$3.4 trillion economic bloc by boosting sustainable markets. Intra-African commerce is predicted to expand by 33%, and Africa's trade deficit will be eliminated. AfCFTA could create \$6.7 trillion in consumer and business expenditure by 2030 according to the Mo Ibrahim Foundation ^[41].

4.2 Government strategy

The first case of COVID-19 in Africa was reported on February 14, 2020. SSA countries began to behave differently, with some implementing total lockdowns and others semi-lockdowns. Thus, the strategies differ from country to country. Therefore, the common element in SSA countries is to resort to foreign debt and find vaccines for the citizens.

The reorganization of some SSA countries remains a problem, as small businesses are almost

dead. Therefore, most of the strategies concern big companies.

Nigeria

The new legislation seeks to provide businesses registered under the companies and related matters act with a 50% tax break, allowing them to keep their existing employees. The Central Bank of Nigeria's (CBN) stimulus package provides low-income families impacted by COVID-19 a loan of 3 million Naira. The loan, however, needs collateral and does not come with no interest. Exceptionally, the IMF approved \$3.4 billion to tackle and support Nigeria's economy^[31].

South Africa

With the massive infrastructure rollout, the South African government hopes to unlock over R1 trillion in new infrastructure investments by enabling the private sector and building infrastructure capability. The strategy is planned to be implemented in the following three steps: Recovery strategies differ by country by balancing the total loss for the country's economy, secondly the common goal for the SSA countries is to find the COVID-19 vaccine doses for all their citizens and Multinational collaboration such as the COVID-19 Vaccine Access Facility (COVAX) outlines the key strategic issues to be addressed in building the national rollout and immunisation plan for COVID-19 vaccines (African Union, CDC, 2020), apart from the joint COVID-19 vaccination programme^[45]. Thus, it is necessary to refer to the context of the different economic recovery strategies of SSA countries, as the consequences have not been the same. The uncertainty of the economy in the future, COVID-19 vaccines, which are a solution to revive the tourism industry, foreign trade, including seriously affected airline businesses, public debt, and problems with the import and export of goods and services, are all common problems for SSA countries.

5. Conclusions

The African continent has not been spared from the COVID-19 pandemic. While each country ex-

periences it uniquely, there are some common challenges that this article outlines for addressing the issue. Lessons from other regions where the virus is more advanced have been successfully extended to this stage. The SSA needs to maintain collaboration to overcome these challenges. Therefore, there are many questions about how SSA countries will recover from this economic downturn. Can we expect another plan to rebuild the economy of SSA without trading natural resources? Will SSA countries need a special plan to rebuild their economies? For the most corrupt SSA countries, will the debt granted by the WB, IMF, EU, and ADB be used effectively to reconstruct economic activity? As a researcher, one can ask many questions on this subject, but SSA needs a Marshall Plan-styled economic stimulus that rejuvenated Europe after World War II. Instead of demanding more debt from the IMF or the WB, which will encumbrance future generations with 65% of the GDP per year^[42], plus 3% for the recent IMF debt in the May 2021 Paris summit, SSA needs strong leadership. However, SSA countries need to work together more, take advantage of AfCFTA to save billions and billions of dollars on taxes and eliminate time-consuming procedures.

Conflict of Interest

There is no conflict of interest.

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