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Impact of Ebola and Covid-19 on the Sierra Leone Economy: A Macroeconomic Assessment

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Abstract

This paper assesses the impact of Ebola and Covid-19 outbreaks on macroeconomic stability in Sierra Leone. The paper adopts a mix of both qualitative and quantitative approach of analysis using secondary information and data. Specifically, it looks at projections of key economic indicators for Sierra Leone before the start of the outbreaks and after the outbreaks (counterfactual analysis) and the policies employed to cushion the economy against the adverse effects of the outbreaks. The study concludes that the impact of the Covid-19 pandemic in 2020 on macroeconomic outcomes in the country was less severe than that of the impact of the Ebola outbreak of 2014-2015. This was partly due to the pertinent lessons learned from the Ebola outbreak, which helped policy makers to take quick and prudent actions that greatly attenuated the negative impact of the Covid-19 outbreak on the economy in 2020. Both policy practitioners and academicians will find this paper very useful in trying to understand macroeconomic dynamics in Sierra Leone during the last decade.

Keywords

Ebola and Covid-19, Sierra Leone Economy, Macroeconomic Assessment

1. Introduction

The key macroeconomic objectives in any economy are to ensure positive economic growth (increase in GDP), low unemployment, as well as maintaining low and stable inflation. The achievement of these goals is a significant challenge in fragile states, but remains necessary in trying to achieve and maintain macroeconomic stability. Macroeconomic progress and stability are key elements for the advancement and development of societies. Economic performance is usual-

ly gauged by real GDP growth, which in turn depends on the level of productive activities in an economy. When an economy is producing at optimum, unemployment becomes low and inflationary pressures are subdued. Also, external trade could improve with minimal exchange rate pressures. Government tax revenue is enhanced which, if combined with prudent spending could reduce budget deficit and public debt. Additionally, improved economic output could enhance financial sector development as investors would be able to pay back their loans on time, which can be accessed by other investors. However, it is most times difficult to maintain macroeconomic stability due to shocks including contagious disease outbreaks like Ebola and Covid-19 (see Montiel (2011)).

Sierra Leone's economic performance has been hindered by a number of factors over the past four decades, but the Ebola outbreak in 2014-2015 and Covid-19 pandemic in 2020 represents two of the worst economic periods since the end of the civil war in 2001. Similar measures were adopted to curb the spread of these highly contagious diseases during their outbreaks in the country, including restriction of movement of people; limited business time; suspension of periodic market operations; prohibition of large public and private gatherings; and the closure of both local and international borders. In addition, flights were also suspended. Such measures eventually resulted to significant adverse effect with interrelated ripple effects on all sectors of the economy. GDP growth declined significantly in 2014 and the economy eventually contracted by 20.5 percent in 2015 (Stats SL, 2018). Agriculture and services were the main sectors that bear the brunt of the Ebola epidemic, while safety measures prevented workers to fully participating in production activities in the industry sector (including mining). The tourism sector was also significantly affected during both outbreaks, with tourist arrivals dropping from 81,250 in 2013 to 43,731 and 25,104 in 2014 and 2015 respectively, due to the 2014-2015 Ebola epidemic in the country (Bank of Sierra Leone, 2015). Similarly, when the Covid-19 stroke, tourist arrival plunged from 63,089 in 2019 to 24,456 in 2020 (Bank of Sierra Leone, 2022). The current account of the BOP was also adversely affected, with the IMF having to step in to provide BOP assistance to fill the gap. The economy took a path to recovery in 2016 reaching a GDP growth of 5.3 percent in 2019, but contracted again by 2.0 percent in 2020 following the Covid-19 pandemic outbreak, which mainly affected external trade and tourism (Stats SL (2018) and Stats SL (2021)). During the Covid-19 pandemic in 2020, tourism contracted as tourist arrivals plunged. The country was quick to rebound in 2021, following the swift implementation of a number of prudent fiscal and monetary policy actions. However, the Russian-Ukraine war which has exacerbated global food and energy prices and induced global inflationary pressures has significantly disrupted the economic recovery process in the country 2022.

Before the two outbreaks (shocks), the country was acclaimed as making tremendous progress towards economic stabilization. However, the shocks blew open the fault lines in the model of recovery that the country was using (that is dependence on the extractive sectors). The reliance of the government on natu-

ral resource rents to run the country and the poor management of those rents during the time of plenty means that the recovery process was never sustainable. Had the international community not been intervening, from 2014 to present, the whole situation would have been completely revised to that of the 90s. The interventions of international organizations including the IMF, World Bank and African Development Bank continue to boost resilience in the economy.

This study attempts to examine the macroeconomic impact of the Ebola and Covid-19 crisis in Sierra Leone. It is an established fact that it would be difficult to exactly quantify the impact of these shocks on the economy. In light of this, the study aims to make a simple, mainly qualitative analysis on how these diseases influenced macroeconomic outcomes in the country and deduced lessons that would be helpful in limiting the adverse impact of similar shocks in the future.

Given the introduction, the next section gives a literature review on the subject matter. Section three highlights the methodology and data utilized in the paper. Section four gives detailed analysis and discussion of the impact of Ebola and Covid-19 outbreaks on the stability of the Sierra Leone economy. Section five draw conclusion to the paper.

2. Literature Review

The occurrence of major contagious disease outbreaks around the world is not a new phenomenon. Scientists have been sounding the bells on the certainty of the occurrence of a major pandemic in this 21st century and suggest that current investment in public health systems would not be sufficient to reduce the probability of a major epidemic. The early warnings came from a network of laboratories with high precision of epidemic strain identification (see Kumar & Sharma (2020)). Although the crucial aspect of a contagious disease outbreak is, and will always continue to be the loss of human life, such occurrences could have important repercussions for national and regional economies. The influence of disease on economic growth and well-being is an issue of increasing importance as new and virulent diseases emerge and spread quickly across the globe, exposing the world to a whole new class of illnesses (European Parliament, 2020; Lewis, 2001).

Infectious diseases are increasingly taking on the characteristics of "public goods"—affecting society at large and therefore requiring broad public intervention. Such pervasive effects have implications for economic and political stability. Profound epidemics hinder economic growth, which in turn determines government revenues and expenditures. At the same time, losses at the household and community levels reduce income earning capacity and lead to greater reliance on the government for support just when government capacity is waning. This is what is experienced during the Ebola outbreak of 2014-2015 and Covid-19 pandemic in 2020.

Measuring the economic impact of epidemics is very complex since health and economic developments are entwined. Lower levels of growth (or income as measured by GDP) are associated with worse health, and vice-versa. Moreover,

economic agents—individuals, households, firms, and governments—reaction to adverse health circumstances, most times make the impact hard to capture since adaptations occur constantly at all levels. Thus, assessing the economic impact of diseases requires measuring the effects of ill health and death at the microeconomic level—households and firms—as well as their aggregation to the macroeconomic level—the national economy (Lewis, 2001).

The Ebola outbreak in West Africa between 2014 and 2015 was not the first of its kind. The first three human outbreaks of Ebola Virus Disease (EVD), a zoonotic disease, were recorded between 1976-1979 in the Democratic Republic of Congo and Sudan, with fewer than 400 deaths total (CDC Website, 2021; Pourrut et al., 2005; Piot, 2012; WHO, 1978; LeGuenno et al., 1995). The West African Ebola outbreak of 2014-2015 represent the biggest Ebola crisis in history so far (Granerud, 2018; Coltart et al., 2017).

The EVD was first confirmed in Sierra Leone on 25 May 2014 (National Institute of Health, 2014). Given the situation in neighbouring countries, Sierra Leone had already began an enhanced surveillance programme based in the Lassa fever isolation ward in Kenema General Hospital (Gire et al., 2015). However, it is believed that the authorities in Sierra Leone were slow to react, especially in closing the boarder with Guinea causing the disease to spillover to the country. The country was also ill prepared to respond to the crisis as health infrastructure was very poor and level of poverty was high. Within a month of the outbreak being confirmed in Sierra Leone, over 150 people were reported infected and case numbers appeared to be increasing exponentially (CDC, 2016). The government declared a state of emergency in the "eastern hub" of Kenema and neighbouring Kailahun on 12 June 2014 and WHO reinforced its representation in-country from mid-June (Sack et al., 2014). Within six months of the first reported case, the outbreak in Sierra Leone peaked (November 2014) with up to 150 people a week being infected (CDC, 2016; WHO, 2015a, 2015b; WHO, 2014a, 2014b; Gire et al., 2015; Washington & Meltzer, 2015). By mid-2014, the UK Government took an active role in supporting the National Ebola Response in Sierra Leone. Together with NGOs such as Save the Children, it provided four ETCs with 700 beds in major urban centres, including one specifically for HCWs infected with EVD, which was led by the British military (Uk Government, 2014; Lu et al., 2015; News 24, 2014; The Yorkshire Post, 2014). Subsequently, quarantine restrictions were put in place in high-risk areas; curfews were imposed, including in Freetown, lasting anywhere from 21 days to several months, with restriction of movements between 18.00 hours and 06.00 hours daily; schools and other public places were closed; all large gatherings including sporting events were cancelled these measures had tremendous economic consequences (Associated Press, 2014; UNICEF, 2014; The Guardian, 2014; The Sierra Leone WEB, 2015; Maxmen, 2015; CBC News, 2014; Drazen et al., 2014; Fox News, 2014). Sierra Leone was the only country in which there were strikes by frontline workers because of working conditions and pay (NBC News, 2014; Shuchman, 2014; BBC, 2014; Richards et al., 2015; Levine et al., 2016).

The outbreak in Sierra Leone claimed the lives of 3956 persons and is believed to have infected 14,124 (8706 laboratory-confirmed cases). Sierra Leone is now the country with the largest number of Ebola cases in history (The Guardian, 2015; Fasina et al., 2014; Schoepp et al., 2014; UNDP, 2014a, 2014b; World Bank, 2015a, 2015b; Kaner & Schaack, 2016).

Based on assessment of the economic impacts of EVD on households, traders, and a range of other market actors in Sierra Leone and Liberia, it was established that border and market closures, as well as restrictions on movement of people and goods had significant negative effects on local businesses and food security leading to rapid economic decline (Mercy Corps, 2014, 2015; Bowles et al., 2015; Muiderman, 2014).

The Covid-19 outbreak in 2020 was not the first contagious disease to have started in China in the last two decades. A SARS epidemic breakout in China in 2003, with enormous economic consequences, though short-lived. They stemmed from both the public health measures undertaken to contain the epidemic and uncertain expectations before it became clear that the outbreak was under control and the need for containment was temporary (Bell & Lewis, 2005). Arguably, more serious impact was caused by faltering business confidence. Investors dislike uncertainty, and the uncontrolled outbreak of an unknown disease makes the investment environment very uncertain, in the sense that the associated risks are not clear. In the early phase, the perceived inability of the Chinese government to identify and contain the disease surely generated uncertainty in this sense, and the widely reported deaths of nine foreign businessmen who had visited China provided subjective reinforcement. The premium on financial instruments for China-related investments provides a quantitative measure of the shift in confidence. The Eurobond spreads in China tanked, from 140 in early April to around 40 in August, suggesting wavering business confidence (Brahmbhatt, 2003). Perceptions matter in business, and once established, may be hard to change (Bell & Lewis, 2005). The Covid-19 outbreak in 2020 was the greatest global shock of the 21st century. It sends shockwaves across all facet in society affecting both lives and livelihoods across the global. To contain the outbreak that was later declared a pandemic, almost all countries in the world had to impose stringent restriction measures during the first half of the year. This eventually culminated in the contraction of global economic activities with adverse implications for small open economies like Sierra Leone (see (IMF, 2020a, 2020b)).

3. Methodology

The paper adapts a mix of both qualitative and quantitative approach of analysis using secondary information and data. Variable trends were analysed looking at projections before the occurrence of the outbreaks (ex-ante facto), compared to actual after each outbreak (ex-post facto). In the field of contemporary social science research, an eclectic approach that accommodates different methods of analyses is highly encouraged. It has become a standard practice in research to

use both quantitative and qualitative approaches alternately when addressing fundamental research objectives such as the Effect of Ebola and Covid-19 outbreaks on the Sierra Leone economy. All that is really needed is the right knowledge base and think process to analysis realistically. The data and information were mainly sourced from IMF and World Bank data bases and reports on the impact of the Ebola epidemic and Covid-19 pandemic on the economy of Sierra Leone and its various macroeconomic indicators. These sources were complemented with information from Bank of Sierra Leone and Statistics Sierra Leone publications and databases.

4. Analysis and Discussion

In the aggregate, macroeconomic indicators measure growth in the factors of production: land, labor, and technology. Slower growth in any of these will retard overall economic output as measured by GDP. Common economic models used to predict impacts of disease on national production include demographic projections that extrapolate from past trends to predict the course of the epidemic, and behavioral models that predict the economic growth implications of diseases and their intermediate effects on the economy. The spread of Covid-19 into Sierra Leone in 2020, like the Ebola outbreak in 2014-2015 disrupted both supply and demand conditions in the country. The infections of the disease and subsequent restriction measures implemented by government resulted in reduced labour productivity and tight supply chains. The ensuing loss of income by households and firms led to reduced consumption and investments, negatively affecting output in the country.

Figure 1 one below is an attempt to capture the conceptual framework for the economic impact of contagious disease outbreaks using Ebola and Covid-19 as an illustration.

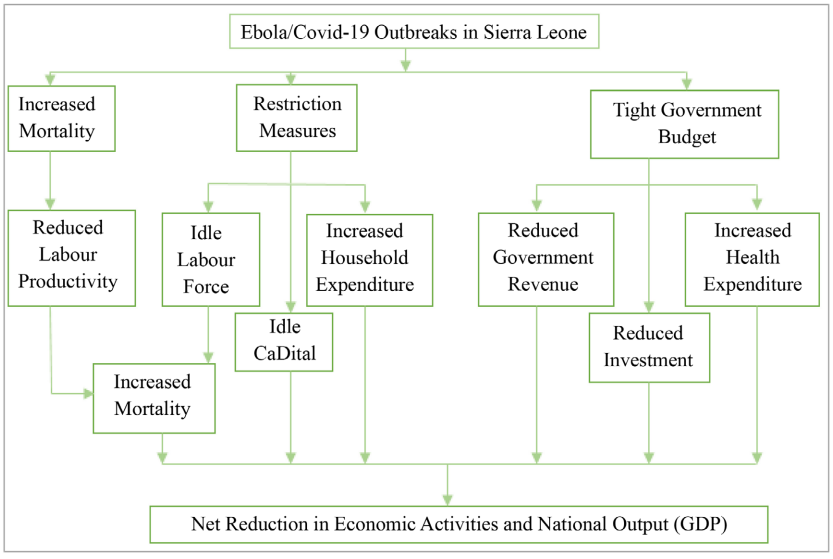

Figure 1. Conceptual framework for the economic impact of Ebola and Covid-19. Source: Authors illustration.

It can be deduced from the figure that, most often, the impact of Ebola and Covid-19 on the economy is more pronounced on output before any other macroeconomic indicator. Ultimately, the three key macroeconomic variables in any economy—GDP growth, inflation and unemployment are impacted at various point in time and at varying degrees. Consequently, real GDP contracted by 20.5 percent in 2015 and 2.0 percent 2020 corresponding to the occurrence of both Ebola and Covid-19, respectively.

Figure 2 captures the relative magnitude of the impact of the 2014-2015 Ebola outbreak and the 2020 Covid-19 pandemic on real economic activities in Sierra Leone. In the 2 years preceding the Ebola outbreak, the Sierra Leone economy registered unprecedented real output growth rates of 15.2 percent and 20.7 percent in 2012 and 2013, respectively. In the absence of the Ebola outbreak, growth was projected to moderate slightly to 11.3 percent in 2014 and 8.9 percent in 2015 due to a drop in global iron ore prices. However, the Ebola epidemic instantly reversed all the economic gains made after the brutal rebel war. Actual real GDP dropped to 4.6 percent in 2014 before plunging to −20.5 percent in 2015 officially putting the economy in recession. But the economy quickly rebounded to 3.2 percent in 2015 boosted by a surge in health related spending mainly financed by international development partners, including the IMF and World Bank. Before the outbreak of Covid-19, the Sierra Leone economy was on a pathway of fully recovering from the impact of Ebola. The economy recorded a growth of 3.5 percent and 5.3 percent in 2018 and 2019 respectively. Inflation was also on a downward trend, falling from 17.4 percent in 2016 to 15.3 percent and 14.2 percent in 2018 and 2019 respectively. However, due to the impact of Covid-19 mainly on the real, external and fiscal sectors, the economy contracted by 2.0 percent in 2020, while inflation was above the West African Monetary Zone's threshold of single digit. Economic activities started recovering again in 2021, but this recovery process remains highly fragile due to the additional shocks induced by the Russian-Ukraine war that started in February 2022 and still ongoing.

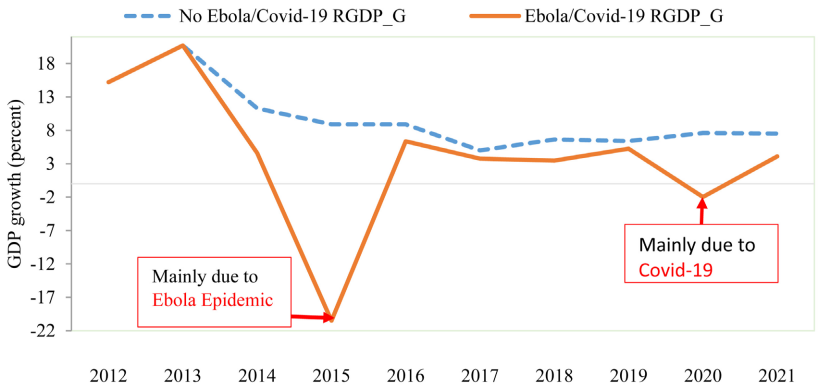

Figure 2. Impact of Ebola and Covid-19 outbreak on real GDP growth (percent). Data source: Sierra Leone's IMF country reports November 2015(No. 15/323), June 2017 (No. 17/154), IMF WEO database October 2017 and October 2022. Note: RGDP_G represents real GDP growth.

On a sector specific basis, agricultural growth declined sharply to 0.8 percent in 2014 from 4.6 percent the previous year, following the advent of the Ebola epidemic. However, the sector rebounded quickly, recording a growth rate of 3.5 percent and 3.9 percent in 2015 and 2016, respectively. The immediate rebound reflects the easing of restriction measures and NGOs support to farmers in 2015. The sector was again negatively affected by the Covid-19 pandemic in 2020. This time around, in addition to the restriction of movement of people, the sector was affected by the limited availability of agricultural input, especially fertilizer as global supply chains were disrupted by the pandemic. However, the share of agriculture as a percent of GDP continued only declined slightly during Ebola, while it increased during the Covid-19 period. The sector's contribution to GDP dropped slightly from 40.7 percent in 2013 to 39.3 percent, but bounced back to 40.6 percent in 2015. The share of the sector also rose from 58.2 percent in 2019 to 59.5 percent in 2020 (see **Figure A1** in the Appendix) and still remains the largest contributor to real output (Stats SL, 2018; BSL, 2017) (see **Figure 3**).

The industry sector in Sierra Leone has always been fragile and volatile due to the reliance on mining output for which the country is a price taker in the international market. The sector was growing at an average growth rate of 112.5 percent between 2012 and 2013 (The immediate preceding years of the Ebola epidemic). This strong performance of industry was driven by iron ore production. Thus, the coinciding effects of the plunge in global iron ore prices and emergence of the Ebola outbreak led to a significant decrease in the sector's growth and it eventually dipped in 2015 with a contraction rate of −77.3 percent. Although the sector rebounded in 2016 with a growth rate of 27.4 percent, it was mainly on account of base effect. The sector has been mainly volatile since the Ebola episode taking another major hit in 2020 due to the pandemic (see **Figure 4**). The sector's share as a percent of GDP also plunged from 29.8 percent in 2014 to 6.5 percent in 2015. It improved slightly to 10.2 percent in 2016, fell again to 7.8 percent in 2017 and has been the least contributing sector to GDP since then (see **Figure A2** in the Appendix).

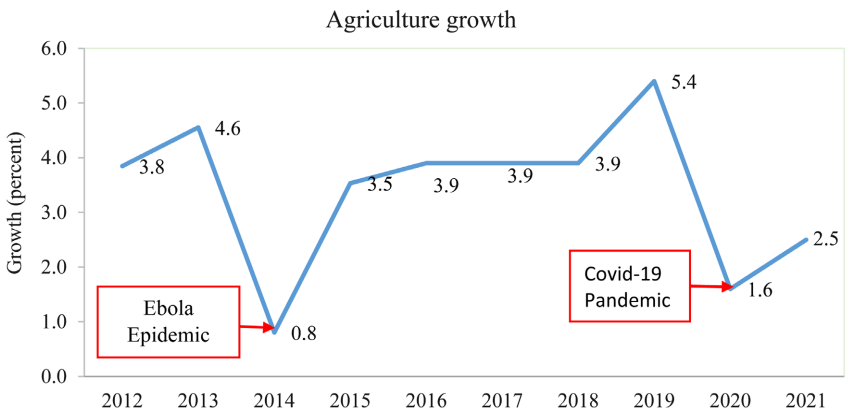

Figure 3. Agriculture growth rates. Data source: Stats SL reports 2017 and 2022: https://www.statistics.sl/images/StatisticsSL/Documents/gdp/gdp_2017/gdp_2016_2017_analysis.pdf

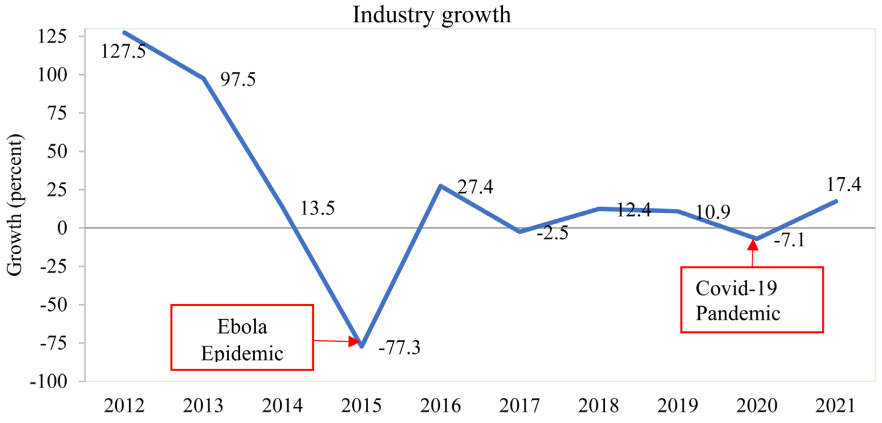

Figure 4. Industry growth rates. Data source: Stats SL reports 2017 and 2022: https://www.statistics.sl/images/StatisticsSL/Documents/gdp/gdp_2017/gdp_2016_2017_analysis.pdf.

The impact of the Ebola outbreak on the services sector was relatively minimal as contraction in trade, tourism and transport was partly counterbalanced by positive outturn in finance, public services and health services. Consequently growth in the sector declined from 6.1 percent in 2013 to 1.8 percent in 2014 and trended upwards again afterwards. However, the sector was hard-hit during the Covid-19 pandemic contracting by 5.6 percent in 2020 from the positive growth of 3.7 percent in 2019 (**Figure 5**). This severe contraction, was mainly underscored by the stringent restriction measures and closure of the economy on land, sea and air, which resulted in trade, tourism, entertainment and related services crunch (**Figure 5**). Meanwhile, the contribution of the sector to overall GDP has remained relatively stable around the average of 32 percent between 2012 and 2021 (see **Figure A3** in the Appendix).

In addition to destabilizing economic growth, the Ebola and Covid-19 crises also had ramifications on other key macroeconomic variables including unemployment, inflation, trade, exchange rate, fiscal deficit and public debt. During the Ebola episode, unemployment only increased marginally from 4.6 percent in 2013 to 4.7 percent in 2014 and remained flat in 2015. In terms of unemployment, the available data revealed a rather inconsistent relationship between the outbreaks and unemployment rate in the country, which could be the result of a complex number of factors. This development could be explained by the fact that the Agriculture and services sectors which, together, employs the greater population rebounded in 2015 (see **Figure A1** & **Figure A3**). Another factor was the immense employment of youths by NGOs for burial of Ebola causalities and surveillance purposes during the outbreak. Similarly, during the height of Covid-19, unemployment rate increase only slightly to 4.6 percent in 2020. Although the rate of unemployment appeared to have surged in 2021, it seems a bit ironical as the economy was recovery from the contraction in 2020 (see **Figure 6**).

The inflationary situation during the respective Ebola and Covid-19 outbreaks in the country was mixed. Before the Ebola outbreak in 2014, consumer price

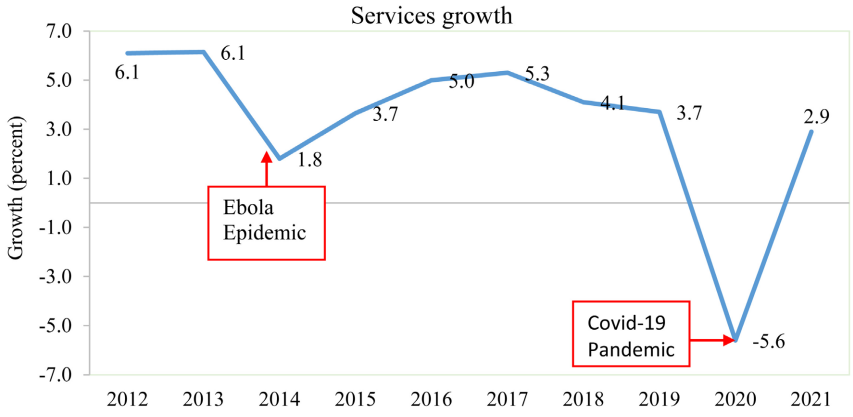

Figure 5. Services growth rates. Data source: Stats SL reports 2017 and 2022: https://www.statistics.sl/images/StatisticsSL/Documents/gdp/gdp_2017/gdp_2016_2017_analysis.pdf

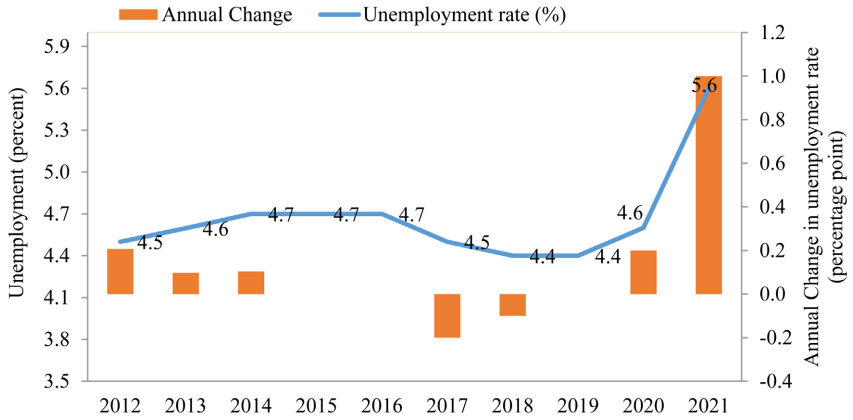

Figure 6. Trend in unemployment rate. Data Source: Statistics Sierra Leone.

inflation was very low, mainly as a result of tight monetary policy and slowing down of nominal exchange rate depreciation. On account of a favorable outlook for inflation, the monetary policy rate was adjusted significantly downwards from 20 percent in the first quarter of 2013 to 10 percent in the fourth quarter of 2013. So when the shocks hit the economy in 2014, there was little room for monetary policy to respond immediately. The monetary policy rate had to be lowered further to mitigate the impact on economic activities. As monetary policy remains broadly accommodative in addition to accelerating nominal exchange rate depreciation, inflation rose sharply and peaked at 20 percent in the first quarter of 2017. When the economy rebounded in 2016, the central bank started tightening monetary policy again to bring down inflation. Inflation began declining in the second quarter of 2017 but has failed to get back to pre-Ebola levels. The Covid-19 pandemic in 2020, on the other hand, had a reducing effect on inflation due to a combination of factors including the prudent actions quickly implemented by the Bank of Sierra Leone, drop in international fuel prices and huge foreign exchange inflows from international development partners, which enhanced exchange rate movement (see **Figure 7**).

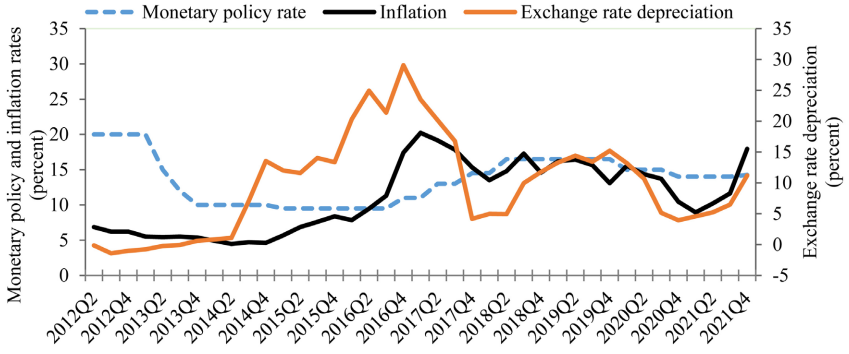

Figure 7. Impact of Ebola on exchange rate depreciation and consumer price inflation. Source: Bank of Sierra Leone data warehouse https://app.datawarehousepro.com/go/sierraleone. Note: Quarterly data has been used in **Figure 10** due to the fact that monetary policy rate (MPR) are set on a quarterly basis.

Like in the case of exchange rate and inflation, the impact of Ebola and Covid-19 on external trade was mixed. Before the Ebola outbreak, the trade deficit was in a reducing trend, decreasing from USD 1945 million in 2011 to USD 1265 million in 2012 and further to USD 503 million in 2013. However, with the outbreak of Ebola, the deficit widened to USD 1365 million and USD 1448 million in 2014 and 2015, respectively. In terms of the impact of Covid-19 on the other hand, trade was relatively unaffected in 2020, mainly underpinned by the very limited external trade activities due to closure of international boarders to curb the spread of the disease. Both exports and imports were subdued, leaving the trade balance almost unchanged from the preceding years (**Figure 8**).

Contagious disease outbreaks are always a burden the government of any country in which they occur. They always lead to low revenue coupled with high expenditures. Government budget deficit was relatively low and stable prior to the emergence of the Ebola epidemic in the country in 2014. However, given the increased health related expenditures and loss of revenue due to the Ebola economic downturn, the budget deficit took an increasing trend up until 2018 and 2019 when it took another decreasing trend due to government consolidation efforts. The gains made between 2018 and 2019 were reversed by the Covid-19 global pandemic as government had to forgo certain tax revenues, while at the same time had to increase expenditures to save the lives and livelihoods of its citizens (see **Figure 9**).

The outbreak also had implications for government debt. The ratio of public debt to GDP in the country decreased sharply between 2010 and 2013, driven by the economic expansion emanating from the boom in iron ore production. However, following the outbreak of Ebola in 2014, the government debt started accumulating rapidly and increased sharply in 2015. The increased debt induced the government to borrow more from the financial system, putting pressure on the limited available domestic financial resources and crowding out the private sector. The debt to GDP ratio has been trending upwards since then with the Covid-19 pandemic increasing the risks of debt distress in the country (see **Figure 10**).

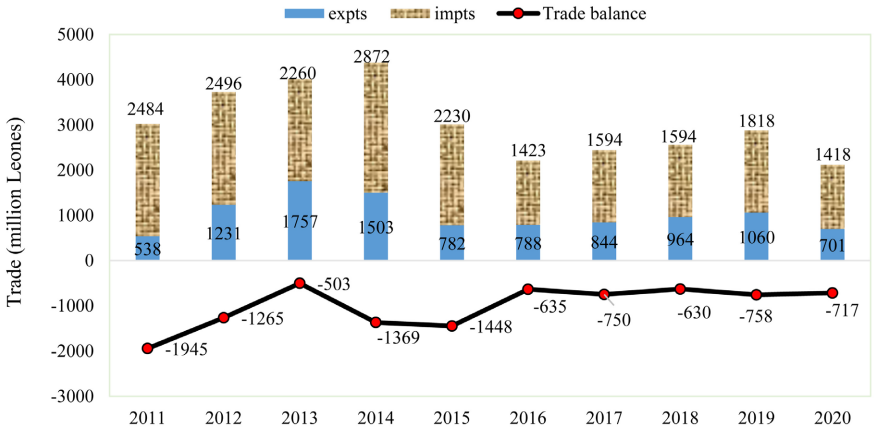

Figure 8. Impact of Ebola on trade. Data Source: World Bank Development Indicators (WDI, 2022).

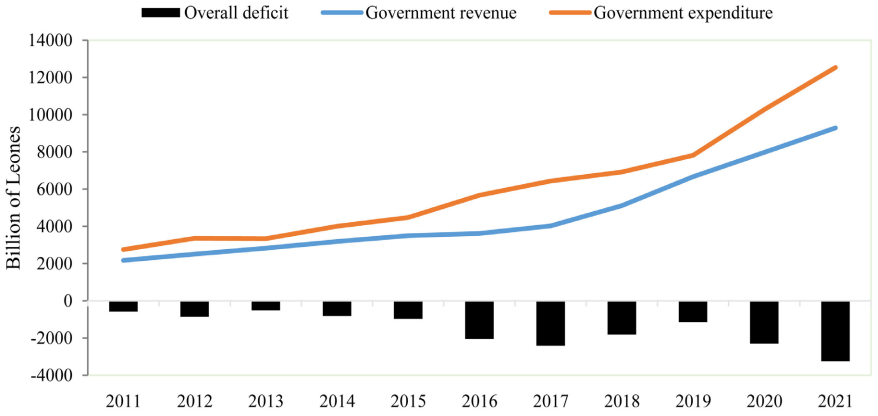

Figure 9. Impact of Ebola on government budget. Data source: World Bank Development Indicators (WDI, 2022).

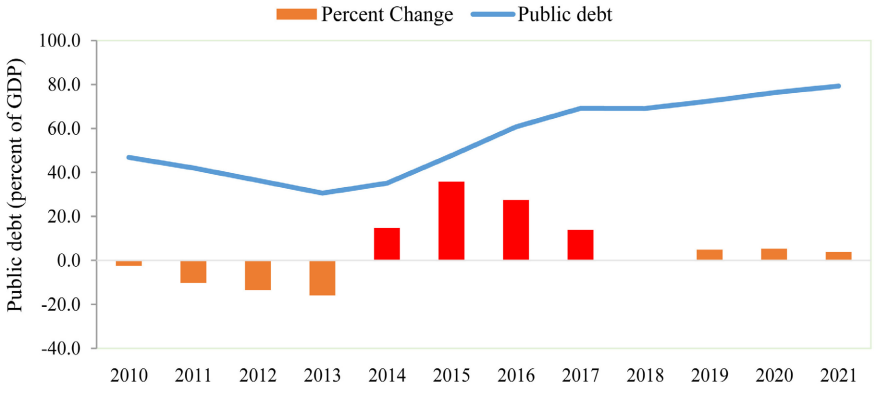

Figure 10. Ebola impact on public debt. Data source: IMF World Economic Outlook (WEO) October, 2022.

Turning to the financial sector of the economy, the general expectation is that during times of a crisis like the Ebola and Covid-19 outbreaks, domestic credit to the private sector reduces as government borrows to undertake health expenditures crowding out the private sector. Non-performing loans on the other hand

are expected to increase due to the accompanying fall in economic activities disrupting ongoing investment projects. However, the data revealed that this was not the case during the periods of the respective outbreaks in 2015 and 2020. There was no significant impact observed on domestic credit to the private sector. Rather, it continued to increase during Ebola episode and only decreased marginally during the Covid-19 in 2020. This development maybe due to less crowding out effect from the government as it received significant international donors and grants during the both outbreaks (see Figure 11).

The ratio of non-performing loans to gross loans of the banking system increased significantly during the Ebola epidemic period, reflecting the slowdown in economic activities and disruption of ongoing investment projects. However, the ratio took a downward trend during the post-Ebola recovery period and was relatively low during the Covid-19 pandemic in 2020. The relatively low non-performing loans in 2020 could be partly due to the prudent non-conventional monetary policy actions quickly implemented by the Bank of Sierra Leone to stem the negative effects of the pandemic on the stability of the financial system and the economy at large (see Figure 12).

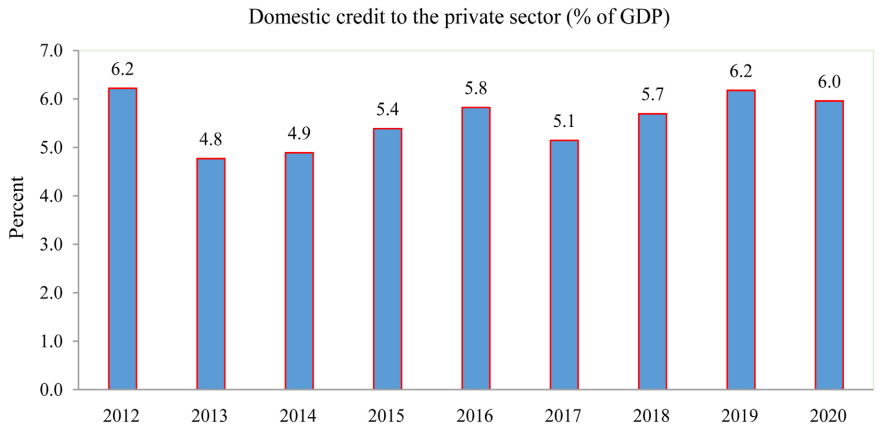

Figure 11. Ebola Impact on domestic credit to the private sector. Source: World Bank data atlas (2022).

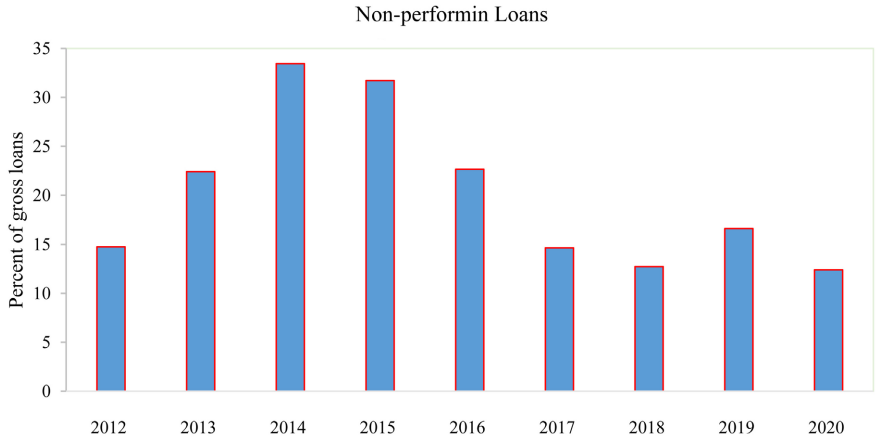

Figure 12. Ebola impact on non-performing loans. Data source: BSL.

5. Conclusion

The study attempted to examine the impact of the Ebola epidemic of 2014-2015 and Covid-19 pandemic of 2020 on key macroeconomic indicators in Sierra Leone. It applies the simple technique of counterfactual analysis wherein the situation during the epidemic is compared to a situation without the epidemic, thus allowing important inferences to be drawn using secondary data mainly from 2012-2021. Based on the analysis, it has been established that the two outbreaks adversely affected most of the key indicators of the four main sectors of the economy at varying magnitudes. Some of the indicators were quick to rebound, while some that were thought to have worsened actually improved during the outbreak. The most glaring impact was observed on real output, which contracted during both the Ebola and Covid-19 outbreaks. The impact on inflation was mixed, being negative during the Ebola episode and positive during the Covid-19 episode due to the nature of supply and demand conditions during those respective episodes.

Despite being significantly affected by both the Ebola and Covid-19, the agriculture and services subsectors were quick to rebound each crisis episode following gradual easing of restriction measures. But the industry sector (including mining) remained depressed due to the closure of the two major iron ore mining companies in 2014. Unemployment rate was relatively stable during the crisis periods underpinned by NGOs hiring of youths to help fight the crises. On the external front, the trade deficit worsened during the period of the ebola epidemic due to a drop in export combined with increase in imports (mainly of health equipment). Consequently, exchange rate depreciation accelerated worsening inflationary pressures in the economy.

Fiscal operations were largely constrained during the crises as revenues fall, while health and social safety net expenditures rose. However, this was cushioned by the intervention of international organizations including the IMF and World Bank, as well as donors from bilateral development partners. Public debt pressures were also elevated during the crises periods meanwhile, in the financial sector, domestic credit to the private sector was found not to have been affected by the two disease crises as it grew steadily during the outbreaks. Non-performing loans, nonetheless, increased during the Ebola crisis, but subdued during the Covid-19 period.

The analyses in this paper have shown that the traditional sectors of agriculture and services are more resilient in the face of an adverse shock. Agriculture has two interlinked benefits to an economy as it can improve exports and reduce import at the same time. Sierra Leone is endowed with different natural resources and arable land mass. With the right planning by government in partnership with the private sector, the country has the potential to produce a variety of high value products that can fetch significant foreign exchange inflows. This has to be diversified away from primary mineral exports to value added products, which can increase the country's economic resilience. This will also in-

crease the country's trade partners from only a few countries like China and Belgium to many more across the globe.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix

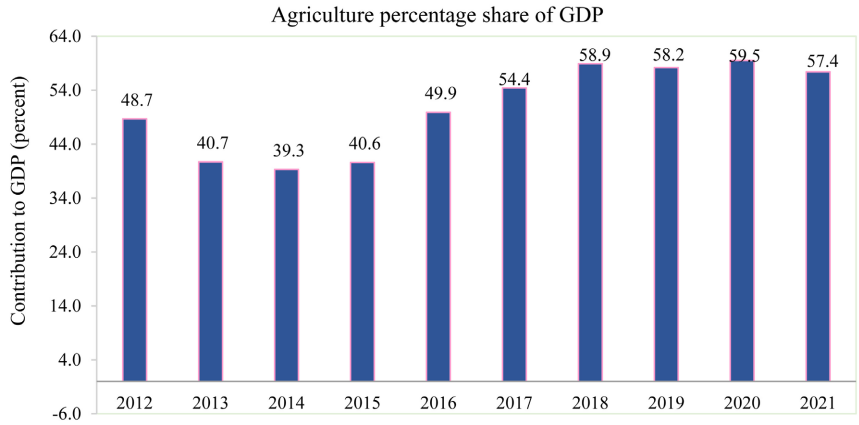

Figure A1. Agriculture percentage share of GDP. Data source: Stats SL reports: https://www.statistics.sl/images/StatisticsSL/Documents/gdp/gdp_2017/gdp_2016_2017_analysis.pdf.

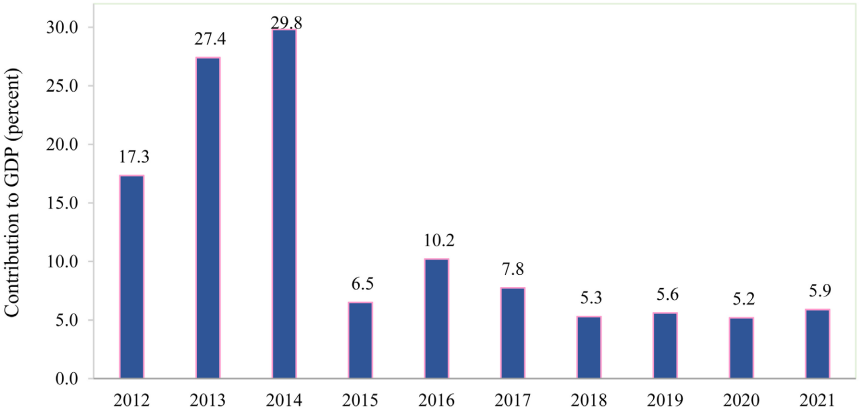

Figure A2. Industry percentage share of GDP. Data source: Stats SL reports: https://www.statistics.sl/images/StatisticsSL/Documents/gdp/gdp_2017/gdp_2016_2017_analysis.pdf.

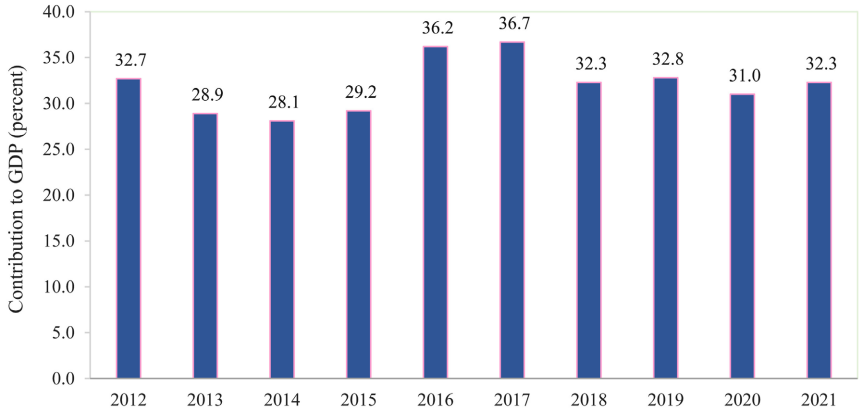

Figure A3. Services percentage share of GDP. Data source: Stats SL reports: https://www.statistics.sl/images/StatisticsSL/Documents/gdp/gdp_2017/gdp_2016_2017_analysis.pdf.