



RESEARCH ARTICLE

THE CIVIL WAR AND ITS IMPLICATIONS ON SIERRA LEONE'S ECONOMY

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ABSTRACT

The paper focuses on the effect the eleven years civil war has on Sierra Leone's economy. For the purpose of empirical analysis, annual time series data ranging from 1980 to 2015 were used. The method of estimation was Ordinary Least Square (OLS). The unit root test indicated that Real Gross Domestic Product (RGDP), Foreign Direct Investment (FDI) and EXPT became stationary at first difference I (1), FDI became stationary. The estimated OLS results indicated that both FDI and EXPT has a positive relationship with RGDP in Sierra Leone, however, their coefficients indicated having minimal effect on RGDP as a result of the civil war. All the independent variables used in the study were statistically significant at 5% level to explain the dependent variable. It is therefore recommended once the economy of Sierra Leone depends on export of mineral resources; it is prudent coming out with proper legislation indicating the control and management of the returns from these resources to avoid another civil war in the future which in general has a negative consequence on economic growth. Additionally, adding value on all export commodities before exporting them will help boost economic growth in the country. Therefore, peace is a pre-requisite factor that attracts foreign direct investment, it is therefore suggested that the government of the country puts in place the necessary security measures to ensure everlasting peace and order to attract more foreign direct investment to help grow the domestic economy. A rigorous and quick implementation, reconstruction programs are the only way to salvage the economy of Sierra Leone after both the civil war the deadly Ebola virus.

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INTRODUCTION

The economy of Sierra Leone is least developed with an estimated GDP of 1.9 billion USD in 2009. Since the end of the civil war in 2002 the economy is little by little improving with a GDP growth rate between 4 and 7%. In 2008 its GDP in PPP ranked was between 147th (World Bank) and 153rd (CIA) being the largest in the world. The economic development of Sierra Leone has always been held back by an overdependence on mineral exploitation. Successive governments and the population as a whole have always believed that diamonds and gold are adequate generators of foreign currency earnings and entice for investment. As a result, large scale agriculture of commodity products, industrial development and sustainable investments have been neglected by both past and present governments. The economy could therefore be described as one which is "exploitative" and based upon the extraction of unsustainable resources or non-reusable assets. Two-thirds of the population of Sierra Leone is directly involved in subsistence agriculture. In 2007, Agriculture accounted for 58.5 percent national Gross Domestic Product (GDP). However, when peace finally got restored in Sierra Leone, a

number of measures were put in place to reconstruct the country and the economy as a whole. Some of the policies embarked on were:

National Recovery Strategy (NRS)-2003-2004

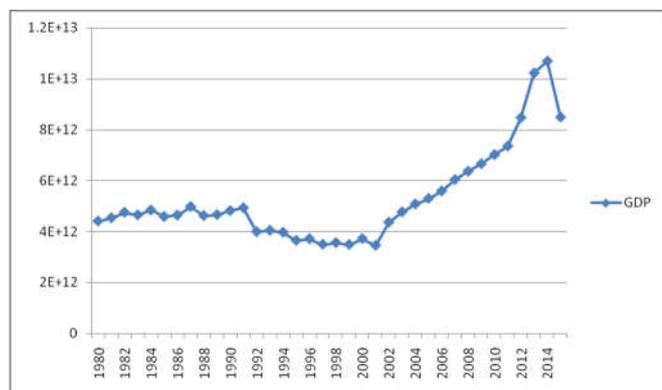
This was connected between short term crisis intercessions and long-term development goals that facilitate the restoration of state authority in newly accessible areas; facilitating resettlement and rehabilitation, resumption of the delivery of basic services to the people, and stimulating the resumption of economic activities in the resettled areas and rebuild communities.

Agenda for Change Sectoral Tipping Points

This was a government policy that positioned its efforts on Energy and Water Resources (rural electrification/clean water), the Bumbuna Hydroelectric Project was completed and commissioned in December 2009, investment in Bumbuna II and mini hydro development were being sought. Increased electricity generation from an operational 5 megawatts (2007) in Freetown the Capital city to over 60 megawatts, 10 mw thermal plants was installed at the Kingtom Power station and 17 mw thermal plants installed at Blackhall Road Power

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Station. A national programme for the electrification of provincial cities and district headquarter towns was also underway. Water supply systems in provincial and district headquarter towns were rehabilitated and enhanced. The Government launched the Free Health Care Initiative for under-five children, pregnant women and lactating mothers. It embarked on the Education sector with the construction of schools all over the country, improvement in school completion rate and a National School Verification Exercises was undertaken to weed out 'ghost teachers' from the system.



Source: *World Development Indicators, World Bank (2017)*

GDP Growth of Sierra Leone from 1980-2015(US\$ Millions)

The government also focused on transportation with the construction of trunk, feeder and township roads. The Government transformed the national transportation network by designing and implementing the largest road construction plan in the history of Sierra Leone. The above measures helped the economy to start showing signs of economic growth after the war as indicated on the graph above from 2003 onwards. The economy recovered strongly in the immediate post conflict period, with real GDP expanding by an average of 16.8% during 2000 to 2003. Economic growth averaged was 7.1% during 2004-2007, a return to normal long run growth, economic activity has started to rebound after the international food, oil and financial crisis. The food, fuel and financial crisis adversely affected the growth of the economy in 2008-2009. Real GDP growth slowed down to 5.5% in 2008 and further down to 3.2% in 2009 but higher than the sub-Saharan average of 2% during the same period. The country's economic growth recovered after the crisis. The investments in basic infrastructure combined with the recovery in mining and continued expansion of agriculture and services led the economy to recover strongly in 2010 with real GDP expanding by 5.0%. From the discussions above, it is clear that the civil war impacted negatively on the economic growth of Sierra Leone, however after the war with the necessary measures put in place, GDP started growing henceforth. This study therefore seeks to empirically see how the war affected some macroeconomic indicators of growth in Sierra Leone.

Literature Review

The theoretical inspiration of this work is from modernization theory, in which society, economy and politics are systematically interrelated. Lipset (1959) argues and concludes that economic development and democracy positively correlate. Olson (1993) finds more economic benefits overall when governments safeguard the rights of property and individual rights. Scully (1988), studying the role of institutional frameworks on the growth and efficiency of

economies, establishes that politically open countries that abide by the rule of law and private rights grow three times more than countries which do not strictly follow laws, and do not safeguard private rights. These politically open countries are two and a half times more efficient as producers than countries which deny political freedom. Barsh (1992) and Bardhan (1993) support the positive correlation of political and civil freedoms with development. Elbadawi and Sambanis (2000), whose focus is Africa, conclude that political and economic development failures are responsible for civil wars in the war-torn continent.

They find a higher prevalence of poverty and failed political institutions to be the basic reasons for civil wars in Africa. Simultaneously, improvement in Asia's economic and political indicators has decreased the risk of civil wars. Alternatively, Baum and Lake (2003), studying the indirect effects of development indicators on economic growth, find public health, particularly life expectancy, and education intimately interlinked with sources of growth. In alternative explanations, some studies dispute the links between political freedom and economic development. Barro (1994, 1999), for example, is skeptical about the positive relationship between freedom and development, particularly when high levels of freedoms are present. Minier (2003) also considers that growth-orientated institutions can be established in non-representative environments, even in authoritarian states.

However, Sen (1999) observes that there is no convincing evidence that authoritarian governance is beneficial to economic development. Statistical studies as discussed earlier find no conflict between political rights and economic performance as democracy and liberty have their own importance in economic developmental processes. In another study, Sen (2008) identifies poverty and gross inequalities as good grounds for rebellion, even violent rebellion. The above discussion largely finds positive links between development and freedom and as Fedderke and Klittgard (2013) conclude, political rights matter for economic growth. Sen (2003) observes the links between rights and conflicts, and suggests that it is important to examine the connection between political and civil rights and the prevention of conflict. If conflicts originate because of deprivation, grievances, and suffering, governmental response to the acute suffering of the people depends upon the pressure that people exert on the government. This is where the exercising of political rights (voting, criticizing, and protesting) can make a real difference.

The linkages between poverty, hunger and violence in African countries are explained by Fisman and Miguel (2008, p. 149). They state that lack of rain leads to declines in income from agriculture, thus giving way to violence and war. A similar logic applies to other income shocks in Africa that include a drop in commodity prices. For instance, Rwanda heavily relies on coffee export, and when the world prices of coffee drop, so do most Rwandans' incomes. This acts like a deficiency, leading to an unexpected decline in income that leaves people desperate and violence-prone. Murdoch and Sandler (2002) observe that violent conflict is not solely confined to a nation in turmoil. There are strong negative spillover effects in neighbouring countries, including disruptions of trade, increased risk perceptions of foreign investors, collateral damage from neighbouring battles, and resources in the economy are spent to assist refugees.

MATERIALS AND METHODS

The methodology used for this study is the OLS together with Eviews software to run the regression of the econometric model. Additionally, the following diagnostic tests such as heteroskedasticity, serial correlation, functional form, stability tests are done. Unit root test is done by employing the Augmented Dickey Fuller Test (ADF).

Model Specification

The aim of this study is to do an empirical analysis on the economic consequences of civil war in Sierra Leone which lasted for 11years. It starts with the production function as follows:

$$RGDP=f(EXPT *FDI* PE)..... (1)$$

Now, adding the stochastic term to this production function, the econometric model is as follows:

$$RGDP = \beta_0 + B_1EXPT + \beta_2FDI + \beta_3PE + \varepsilon.... (2)$$

Where:

RGDP is real gross domestic product, a proxy for economic growth measured in million US dollars
 EXPT is merchandise exports of Sierra Leone measured in million US dollars

effect of the 11 years civil war has on economic growth in Sierra Leone.

Unit Root Test

In order to avoid estimating a spurious model, there is the need to test for unit root to ascertain the stationarity nature of the variables employed in the study. On that basis, unit root test of the variables is done by employing Augmented Dickey Fuller test (ADF) technique developed by Dickey and Fuller (1979). A trend analysis of the variables used for the study was done to observe their nature and behaviour with respect to time. The analysis indicated that the variables were trending so the following test equation was used to do the unit root test:

$$\Delta z_t = \alpha + \theta z_{t-1} + \gamma t + \alpha_1 \Delta z_{t-1} + \alpha_2 \Delta z_{t-2} + \dots + \alpha_\rho \Delta z_{t-\rho} + \varepsilon_t$$

Where:

α = constant term, t = time (trend), ρ = number of lags, θ =coefficient and Δz_t = difference in variables.
 The test was done with the null hypothesis that the variables have unit roots as thus, $H_0: \theta = 0$.The results are presented on the table below.

Data Type and Sources

This study used annual time series data which covered a period of 35 years thus from 1980-2015.

Table 1. Expected Result Signs Of Independent Variables

Independent Variable	EXPECTED SIGNS
Expt	Positive effect(+)
Fdi	Positive effect(+)
Pe	Negative effect(-)

Table 2. Augmented Dickey-Fuller Test (ADF) Results

VARIABLES	Statistics Of ADF Test			Critical Value (5%)			Order of Integration
	Level	1 st Difference	2 nd Difference	Level	1 st Difference	2 nd Difference	
RGDP		-3.786062 (0.0306)			-3.557759		I(1)
FDI		-4.822556 (0.0026)			-3.557759		I(1)
Log(EXPT)		-3.478413 (0.0010)			-1.951000		I(1)

Source: Author's computation with Eviews (2017)

Table 3. Dependent Variable: Log (RGDP)

Variables	Coefficients	Std. Error	t-Statistic	Prob.
C	12.44848	3.421770	3.638022	0.0010
FDI	0.003567	0.001235	2.888134	0.0071
EXPT	2.09E-10	4.38E-11	4.779589	0.0000
PE	-0.122740	0.037068	-3.311249	0.0024
Log(RGDP(-1))	0.573941	0.117370	4.889999	0.0000
R²		0.954558		
Adjusted R ²		0.948499		
Durbin-Watson		1.965542		
F-Statistic(Prob)		157.5453(0.000000)		
No. Observation		35		

Source: Author's computation with Eviews (2017)

FDI is foreign direct investment measured in percentage terms. PE is a dummy variable indicating the civil war period in Sierra Leone and it takes the form if there was civil war in the country, PE=1 and if other wise, PE=0. This is to ascertain the

The study depends mainly on secondary data for the regression analysis with the major source of data from World Bank (WB).After the regression is run, the following signs are expected as the effects independent variables have on the dependent variable, RGDP.

EMPIRICAL FINDINGS AND DISCUSSION OF RESULTS

Empirical Findings

From the results, GDP, FDI and EXPT were found to be stationary at first differenced, I (1).

Estimated OLS Results

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.164565	Prob. F(4,30)	0.3461
Obs*R-squared	4.704192	Prob. Chi-Square(4)	0.3190
Scaled explained SS	4.882714	Prob. Chi-Square(4)	0.2995

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.248841	Prob. F(2,28)	0.3023
Obs*R-squared	2.866411	Prob. Chi-Square(2)	0.2385

Source: Author's computation with Eviews (2017)

Ramsey RESET Test:			
F-statistic	0.628819	Prob. F(1,29)	0.4342
Log likelihood ratio	0.750808	Prob. Chi-Square(1)	0.3862

Source: Author's computation with Eviews (2017)

From the table above, all the independent variables are statistically significant to explain the dependent variable with their expected signs met.

DISCUSSION OF RESULTS

The aim of this work is to assess how the civil unrest which lasted for a little over a decade impacted the economic growth of Sierra Leone. It is clearly understood as indicated in the literature that civil unrest affect economic growth negatively as it stands the chance of driving away foreign investors, damage of critical infrastructure needed for economic growth, etc. In the case of Sierra Leone, civil unrest did not only affect economic growth as an event on its own but also led to a serious health problem in the country as a result of a complete breakdown in the country's health system. Thus, Sierra Leone is one of the countries in West Africa that was hardly hit by the deadly Ebola virus disease which had a negative consequence on the country's wealth creation. From the estimated OLS, it is indicated that a percentage increase in FDI and EXPT will increase RGDP by about 0.36% and 0.00% respectively all things being equal. Clearly looking at the coefficient of EXPT, it is negligible indicative of the fact that the civil war affected Sierra Leone's exports trade resulting in its minimal effect it has on economic growth even though it has a positive relationship with RGDP. This is the case because, it shows clearly that the economy depends on the export of mineral resources specifically diamonds, however, how these mineral resources were to be controlled and in returns managed, was one of the fundamentals that led to the 11 year civil war in Sierra Leone, hence export is said to have a minimal effect on the country's economic growth.

In order to see how the civil war affected economic growth in the country, a dummy variable Peace (PE) was used to do the analysis. The results indicated that because there was a civil war in Sierra Leone which lasted for a little over a decade, it reduced economic growth by 12.3% during the 11 year period of civil war. This is so because, during the period of turmoil, thousands of skilled labour were killed and displaced,

destroyed critical infrastructure needed for growth and so on. For instance, the health care system of the country was affected immediately the war ended in the early 2000s, the country was undergoing a reconstruction process and not quite long, the deadly Ebola virus disease emerged which was very difficult to control because of the breakdown in the health care system in the country as a consequence of the war. The fraction of variation (R^2) of the dependent variable explained by the independent variables is 95.8%.

The Ramsey RESET test shows that there is no functional form misspecification of any order. The Breusch-Godfrey serial correlation LM test indicated that the model is free from serial correlation. Furthermore, Breusch-Pagan-Godfrey heteroskedasticity test shows that the model has no heteroskedasticity.

Diagnostic Test

The Breusch-Godfrey serial correlation LM Test indicates that the probability value of the Chi-Square is more than 5% which indicates that the model is free of autocorrelation. The probability value of the Chi-Square with reference to the observed R-Squared indicates that, the model is free of heteroskedasticity. Ramsey RESET Test was done to find out whether the model has the problem of functional form misspecification in terms of data measurement, omission of other independent variables that can explain the dependent variable, as to whether the model is supposed to be in a quadratic form etc. The result indicates that, there is no functional form misspecification shown by the probability value of the Chi-square that is 38.6% which is more than 5% as shown on the table above.

Conclusion and Recommendations

The aim of this work is to find out how the 11 years civil war has affected economic growth in Sierra Leone. The study used annual time series data from 1980 to 2015 for the empirical analysis. The method of estimation was OLS. The unit root test indicated that RGDP, FDI and EXPT became stationary at first difference I (1). The estimated OLS results indicated that both FDI and EXPT has a positive relationship with RGDP in Sierra Leone however their coefficients indicated having minimal effect on RGDP as a result of the civil war. Also, the empirical analysis indicated the 11 year old civil war in general reduced economic growth in Sierra Leone as explained earlier. All the independent variables used in the work were statistically significant at 5% level to explain the dependent variable. It is therefore recommended that once the economy of Sierra Leone

depends on export of mineral resources; it is prudent to come out with proper legislation indicating the control and management of the returns from these resources to avoid another civil war in the future which in general has a negative consequence on economic growth. Additionally, adding value on all export commodities before exporting them will help boost economic growth in the country. Furthermore, peace is a pre-requisite factor that attracts foreign direct investment, it is therefore suggested that the government of the Sierra Leone puts in place the necessary security measures to ensure everlasting peace in order to attract more foreign direct investment to help grow the domestic economy. Finally, a rigorous and quick implementation reconstruction programs is the only way to salvage the economy of Sierra Leone after both the civil war and the deadly Ebola virus disease.

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