



THE SUSTAINABILITY OF EXTERNAL DEBT AND ECONOMIC DEVELOPMENT IN NIGERIA.

Anugwom Chinenye Georgina

Department of Economics, Faculty of Social Sciences, Enugu State University of Science and Technology (ESUT).

Email: anugwomchinenye@gmail.com

Cite this article:

Anugwom Chinenye Georgina (2023), The Sustainability of External Debt and Economic Development in Nigeria. African Journal of Economics and Sustainable Development 6(4), 148-165. DOI: 10.52589/AJESD-UNER2ON9

Manuscript History

Received: 20 Sep 2023

Accepted: 15 Nov 2023

Published: 28 Dec 2023

Copyright © 2023 The Author(s). This is an Open Access article distributed under the terms of Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0), which permits anyone to share, use, reproduce and redistribute in any medium, provided the original author and source are credited.

ABSTRACT: *This study carried out an empirical investigation on an empirical analysis of external debt sustainability and economic growth in Nigeria covering the period 1981 to 2021. Data for the study were extracted from the Central Bank of Nigeria (CBN) statistical bulletin and world development index (WDI) 2020. The method of data analysis used is the linear regression method with the application of Error Correction Model (ECM). The major findings of the study reveal that there exists a negative and insignificant relationship between external debt sustainability and economic growth in Nigeria ($\beta = -0.000206$, $p\text{-value} = 0.4955 > 0.05$) and there is a bi-directional causality relationship between external debt sustainability and economic growth in Nigeria ($p\text{-value} = 0.0005 < 0.05$ and $0.0071 < 0.05$). It is therefore the recommendation of the study that the government should ensure economic and political stability in order to enjoy the benefits of external debt and make the debt burden minimal and the government should acquire external debt largely for economic reasons rather than social or political reasons. This would increase the productivity of the nation.*

KEYWORDS: External Debt, Sustainability, Economic Growth.



INTRODUCTION

Every sovereign economy, whether developing or developed, seeks long-term economic growth. However, less developed countries (LDCs) are more concerned about economic growth and development than advanced countries. This is because LDCs have low capital formation as a result of low levels of domestic saving and investment. This justifies the need for LDCs to borrow from external sources to supplement domestic savings when capital is scarce. Countries, according to Samuel (2019), borrow for two broad reasons: to finance a higher level of consumption and investment, and/or to finance transitory balance of payment deficit and avoid budget constraint so as to boost economic growth and reduce poverty. External debt is created by the constant need for governments to borrow in order to finance the budget deficit (Osinubi & Olaleru, 2016). A debt instrument is a financial claim that requires payment of interest, principal, or both by the debtor to the creditor at a future date. Countries incur debt to a wide range of creditors, including private bond holders, banks, other countries and their official lending institutions, and multilateral lenders such as the World Bank. External debt is the portion of a country's debt that is borrowed from foreign lenders, including commercial banks, governments, or international financial institutions. These loans, including interest, must usually be paid in the currency in which the loan was made. To earn the needed currency, the borrowing country may sell and export goods to the lending country (Asher, 2018).

However, an external debt may either be sustainable or not. Evaluating debt sustainability for a firm is a relatively simple task of weighing revenue generating assets against financial liabilities. However, the external debt of sovereign nations is more complicated and is usually measured in terms of solvency, which means their ability to generate a sufficient stream of income to roll over or service debt and avoid default (Guzman, 2018). Therefore, for nations, the debt source composition matters in the overall analysis. In this context, the International Monetary Fund (IMF) is viewed as the main multilateral institution tasked with gauging the stability of the international monetary system and thus plays a crucial role in formulating debt restructuring programs and providing bailout packages to debt-distressed countries. Therefore, The IMF's Debt Sustainability Analysis (DSA) is a preeminent template among orthodox economists (Abiodun, 2020).

Nigeria's external debt is considered to be the biggest in sub-Saharan Africa and has already been rescheduled several times. In spite of this rescheduling and refinancing by creditors who were either members of the Paris Club (governments), London Club (banks) or independent creditors, the arrears of this debt kept accumulating over time. Records show that Nigeria's external debt remained low until the middle of the 1970s. It was \$1.5 billion in 1970 and \$2.5 billion in 1975. The situation began to get out of control around 1977 when an outstanding growth rate in the country's debt became manifest. The outstanding debt reached \$7.5 billion in 1979 and \$8.9 billion by 1980. This was due to excess borrowing from international agencies and countries at non-concessional interest rate as a result of the decline in oil earnings and the emergence of high trade arrears due to inability of the country to either produce or foot the bills of importation of needed goods and services (Hussein, 2018).

By 2005, the nation's debt had ballooned to about \$30 billion, mostly borrowed from the Paris Club of creditors. Nigeria and the creditors' club then went into a series of negotiations on a mutually acceptable relief on the \$30 billion debt with the Paris Club. In October 2005, Nigeria and the Paris Club announced a final agreement for debt relief worth \$18 billion. The creditors



had canceled \$18 billion and Nigeria repaid \$12 billion. Most of the \$18 billion was registered as aid. By September 2020, the Debt Management Office (DMO) revealed that the country's total public debt stock stood at \$84.574 billion. As of July 31, 2021, Nigeria's external debt stock was about US\$32.9 billion. Of this amount, debt to multilateral institutions such as the World Bank accounted for 54.3%, followed by commercial debt (33%), bilateral debt (12.7%) and promissory notes (0.55%). Domestic debt stock was about N16.5 trillion or US\$40 billion, using the Central Bank of Nigeria's August 30, 2021 official exchange rate of N410 to \$1. Nigeria's total public debt was about \$87 billion. Domestic debt represented 62.3% of this at March 31, 2021, and external debt 37.6% (Akubuilu & James, 2022).

Debt risk is not only about how much a country has borrowed, but also the country's ability to service its debt. Economists use two indicators to determine a country's debt sustainability. The first is gross debt as a percentage of a country's economy as measured by the gross domestic product (GDP). This is commonly referred to as the debt-to-GDP ratio. Nigeria's external debt-to-GDP ratio was 12.7% in 2019. The International Monetary Fund puts total debt-to-GDP at 34.3% (Kunle, 2020).

The economic growth pattern in Nigeria has over the years taken a negative trajectory. Nigeria is still recovering from the 2016 recession, with an estimated 2% growth rate in 2019. The drop in global oil prices from 2014 to 2016, combined with lower domestic oil production, caused an abrupt slowdown in economic activity. Nigeria's annual real GDP growth rate fell to 2.7 percent in 2015 and -1.6 percent in 2016, after averaging 7 percent from 2000 to 2014. Growth recovered to 0.8 percent in 2017, then 1.9 percent in 2018, before plateauing at 2 percent in the first half of 2019. Nigeria experienced its deepest recession in four decades in 2020, but growth resumed in the fourth quarter as pandemic restrictions were eased, oil prices recovered, and the government implemented counter-cyclical policies. As a result, the Nigerian economy contracted at a lower rate (-1.8 percent) in 2020 than had been predicted when the pandemic began (-3.2 percent) (NDU, 2021).

The Federal government believes that Nigeria's debt is still sustainable. However, all the red flags from the World Bank, International Monetary Fund (IMF), JP Morgan and the Babel of voices from Nigeria suggest that Nigeria's debts have become too burdensome for its miserable revenue. Nigeria's debt to gross domestic product (GDP) ratio is deceptively low. With total debt now at \$100 billion (N41 trillion), the GDP ratio is slightly below 30 percent. Government officials in their clumsy defense of Nigeria's mounting debt often point to the United States of America (USA), the world's largest economy, as a classic case of excessive borrowing. U.S. debt is \$21 trillion, about 105 per cent of its \$19.5 trillion GDP. Nigerian government officials would gleefully point to Argentina as a classic example of a highly developed economy that is heavily dependent on massive borrowing. Argentina's total debt is \$305 billion, 75 per cent of its GDP. The percentage of revenue that goes into debt servicing is even more disheartening.

This is a clear indication that Nigeria's debt is no longer sustainable. Nigeria spends 90 per cent of its lean revenue on debt servicing. The situation assumed critical proportions in June 2021 when the government had to service its debt with 93 per cent of the revenue, leaving a scanty seven per cent for its outrageous salary bills and alarmingly high cost of governance. The IMF has warned that Nigeria will spend 97 per cent of its revenue on debt servicing in 2023. This is why everyone is worried that the federal government is still borrowing to fund its services rather than exploring other means of funding Nigeria's yawning budget deficits. The problem with the debt burden is that international creditors rate Nigeria as a high-risk borrower.

This automatically translates to outrageous lending rates. With dwindling revenue, Nigeria's debt instruments could only attract foreign investors willing to take risk. Investors factor the risk into their lending rates. Where the U.S. borrows at 1.5 per cent, Nigeria now borrows at 12 per cent. Majority of the studies carried out on the relationship between external debt and economic growth has largely ignored the effect of external debt sustainability on economic growth in Nigeria.

It is no exaggeration that debt-servicing costs are a major challenge faced by the Nigerian economy. The inability of the Nigerian economy to effectively meet its debt servicing requirements has exposed the nation to a high debt service burden. The resultant effect of this debt service burden creates additional problems for the nation, particularly the increasing fiscal deficit which is driven by higher levels of debt servicing. This poses a grave threat to the economy as a large chunk of the nation's hard-earned revenue is being eaten up. This study will therefore examine the impact of external debt sustainability on economic growth in Nigeria. There is a big difference between external debt and external debt sustainability. This study is therefore motivated based on the foregoing.

LITERATURE REVIEW

Conceptual Review

External Debt Sustainability and Economic Growth

Countries incur external debt by borrowing. Borrowing can enable countries to finance important development programs and projects. However, taken too far, the burden of external debt repayment can overwhelm a country's finances, at worst leading to default (Nelson, 2018). To properly carry out an objective assessment of a country's external debt sustainability, it is important to cover all types of debt that pose a risk to a country's public finances (Dalia, 2020). The relationship existing between external debt sustainability and economic growth is demonstrated in Figure 1 below.

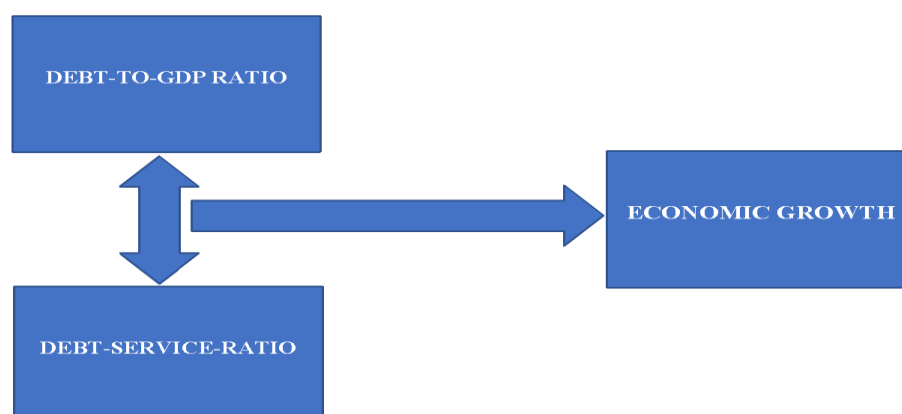


Figure 1: Debt Sustainability and Economic Growth Nexus



In the context of this research, external debt decomposed into two major dimensions, namely debt-to-GDP ratio, which is gross debt as a percentage of a country's economy as measured by the gross domestic product (GDP), and debt service ratio, which is the proportion of export earnings that is used to service a debt, including principal and interest payments.

Economists tend to agree that in the short run an increase in debt-to-GDP, arising from fiscal expansion, stimulates aggregate demand, which should help the economy grow; the longer-term economic impact of public debt accumulation, in contrast, is subject to a more heated debate where views are not unified. Some argue for a negative long-term relationship between the two; others doubt any long-term association between them for low or moderate levels of debt-to-GDP; yet others disregard any long-term association between debt and economic growth altogether. A better understanding of the long-term economic consequences of rising public debt is clearly warranted.

External Debt

According to CBN (2010), foreign debts or external borrowings are debt obligations the government owes to multilateral bodies, London Club, Paris Club, foreign promissory notes and other unclassified external borrowings. External debt therefore refers to the resources of money in use 'in a country that is not generated internally and does not in any way come from local citizens, whether corporate or individual. Nigerian external debt is therefore defined as debt owned by the public and private sectors of the Nigerian economy to non-residents and payable in foreign currency, goods and services (Ogbeifun, 2017).

External Debt Management Strategies

External debt management refers to the establishment of the conditions of issue and redemption of foreign loans. It involves how debts are administered or handled to avoid adverse economic effects. It also involves loan negotiation, monitoring of both government direct debt and nongovernmental debt, controlling the debt including the measurement of the debt servicing capacity, risk management, exchange, interest rate and commodity price risk, debt institutions and the use of computer-based debt management systems (Henry, 2017). To manage external debt effectively, authorities must project the time profile of debt service obligations; they must accurately forecast export earnings, domestic revenue and future access to finance. They must also monitor the potential for prepaying or refinancing their debt borrowings on better terms, to adopt loan maturities to project revenue or to cope with shortfalls in earnings from export or unanticipated expenditures on imports. Thus, debt management requires statistics on debt service obligations and on the balance of payment outlook. The major objective of external debt management policy is to achieve the benefits of external finance without creating difficult problems of macroeconomic and balance of payment stability (Klein, 2018).

Economic Growth

Economic growth is one of the primary macroeconomic goals of any economy, developed or developing. It is an increase in the production of economic goods and services from one period to the next. It can be measured in nominal or real (adjusted for inflation) terms. Traditionally, aggregate economic growth is measured in terms of gross national product (GNP) or gross domestic product (GDP), although alternative metrics are sometimes used (Norris, 2018). In simplest terms, economic growth refers to an increase in aggregate production in an economy.



Often, but not necessarily, aggregate gains in production correlate with increased average marginal productivity. This leads to an increase in incomes, inspiring consumers to open up their wallets and buy more, which means a higher material quality of life or standard of living (Orville, 2017).

THEORETICAL LITERATURE

Debt Overhang Theory

The Debt Overhang Theory was propounded by Howard in 1972. This theory is a phenomenon in a country whereby debt servicing consumes substantial resources in such a way that economic growth is stifled in that country. The high level of indebtedness of the majority of the countries in Africa, especially Nigeria in recent times, makes debt overhang theory a subject of interest. External debt and economic growth have been a complex phenomenon in developing economies. Debt overhang theory submits that what makes the pace of investment to decline in an economy is debt overhang. The bone of contention of this theory is that for any country that lacks repayment ability of its debt, there is a high level of probability in the future that the output of such a country will not be able to provide the expected debt servicing. This could serve as a discouraging factor for both local and foreign investors because some of the returns from investing in the domestic economy could be redistributed to the existing foreign creditors through excessive taxes in an attempt by the indebted country to service the debt and repay the principal.

Ricardian Theory of Public Debt

This theory argues that people will save based on their expectation of increased future taxes to be levied in order to pay off the debt, and that this will offset the increase in aggregate demand from the increased government spending. This also implies that Keynesian fiscal policy will generally be ineffective at boosting economic output and growth. This theory was developed by David Ricardo in the early 19th century and later was elaborated upon by Harvard professor Robert Barro. For this reason, Ricardian equivalence is also known as the Barro-Ricardo equivalence proposition.

Endogenous Growth Theory

The endogenous growth by Solow (1970) asserts that improvements in productivity can be attributed directly to a faster pace of innovation and extra investment in human capital. They stress the need for government and private sector institutions to encourage innovation and provide incentives for individuals and businesses to be inventive. There is also central role of the accumulation of knowledge as a determinant of growth, i.e., knowledge industries such as telecommunication, electronics, software or biotechnology are becoming increasingly important in developed countries.

Empirical Literature

Related studies carried out on the concept of external debt and economic growth were reviewed in this section of the study.



Fagbola and Sokunbi (2020) examined the contribution of external debts to economic growth in Nigeria from 1981 to 2018 via the application of the Autoregressive Distributed Lag model and Bounds Testing techniques. The significant contributions of this study to the field of research are as follows: past economic growth did not contribute to the present economic growth in Nigeria. In the same vein, external debt caused a significant setback to economic growth in Nigeria during the periods under investigation. Meanwhile, debt servicing and economic growth had a direct relationship in the country. Exchange rate contributed a negative impact on economic growth, whereas the foreign reserves had a positive and significant impact on economic growth in Nigeria.

Sulaiman (2017) examined the effect of external debt on the economic growth of Nigeria. The model built for the study proxy gross domestic product as the endogenous variable measuring economic growth as a function of external debt, ratio of external debt to export, inflation, and exchange rate proxy as the exogenous variables. Annual time series data was gathered from the Central Bank of Nigeria Statistical bulletin and Debt Management Office from 1970 to 2016. The econometric techniques of Ordinary Least Square (OLS), Augmented Dickey-Fuller (ADF) Unit Root test, Johansen Cointegration test and Error Correction Method (ECM) are employed in the empirical analysis. The cointegration test shows that long-run equilibrium relationships exist among the variables. The findings from the error correction method show that external debt has contributed positively to the Nigerian economy.

Ayadi and Ayadi (2018) examined the impact of the huge external debt with its servicing requirements on economic growth of the Nigerian and South African economies. The neoclassical growth model, which incorporates external debt, debt indicators, and some macroeconomic variables, was employed and analyzed using both Ordinary Least Square (OLS) and Generalized Least Square (GLS) methods. Their finding revealed a negative impact of debt and its servicing requirement on the economic growth of Nigeria and South Africa.

Ogunmuyiwa (2019) examined whether external debt promotes economic growth in Nigeria using time-series data from 1970-2018. The regression equation was estimated using econometric techniques such as Augmented Dickey-Fuller test, Granger causality test, Johansen Cointegration test and Vector Error Correction Method (VECM). The results revealed that causality does not exist between external debt and economic growth in Nigeria.

Adesola (2019) empirically investigated the effect of external debt service payment practices on the economic growth of Nigeria. Ordinary Least Square method of multiple regression was used to examine how debt payment to multilateral financial creditors, Paris Club creditors, London Club creditors, promissory notes holders and other creditors relates to gross domestic product (GDP) and gross fixed capital formation (GFCF) using data from 1981 to 2018. The study provides evidence that debt payment to Paris Club creditors and promissory notes holders are positively related to GDP and GFCF while debt payment to London Club creditors and other creditors show a negative significant relation to GDP and GFCF.

Audu (2014) examined the impact of external debt on economic growth and public investment in Nigeria from 1970-2013. The empirical investigation was done using the cointegration test and Error Correction Method. The study shows that debt servicing pressure in the country has had a significant adverse effect on the growth process and past debt accumulation negatively affects public investment.



Clements, Bhattacharya, and Nguyen (2020) examined the channels through which external debt affects growth in low-income countries. Their results suggest that the substantial reduction in the stock of external debt projected for highly indebted poor countries (HIPC) would directly increase per capita income growth by about 1 percentage point per annum. Reductions in external debt servicing could also provide an indirect boost to growth through their effects on public investment.

Malik, Hayat, and Hayat (2016) explored the relationship between external debt and economic growth in Pakistan for the period between 1972 and 2015, using time series econometric techniques. Their result shows that external debt is negatively and significantly related to economic growth. The evidence suggests that an increase in external debt will lead to a decline in economic growth.

Yusuf and David (2020) investigated the effect of government debt on Nigeria's economic growth using annual data from 1980 to 2018 and the Autoregressive Distributed Lag technique. The empirical results showed that external debt constituted an impediment to long-term growth while its short-term effect was growth-enhancing. Domestic debt had a significant positive impact on long-term growth while its short-term effect was negative. In the long term and short term, debt service payments led to growth retardation, confirming debt overhang effect.

METHODOLOGY

Research Design

This study adopted the *Ex post facto* design. This is a quasi-experimental design examining how an independent variable affects a dependent variable. The design also creates a framework whereby the researcher has no direct control over the variables but will estimate them as they are objectively.

Model Specification

The guiding econometric model for this research is specified thus:

$$\text{Implicitly: } GDP_r_t = f(DBTGDP_t, DSERV_t, INF_t, GOVT_t)$$

The explicit panel econometric model is specified thus:

$$GDP_r_t = \beta_{0t} + \beta_1 DBTGDP_t + \beta_2 DSERV_t + \beta_3 INF_t + \beta_4 GOVT_t + \mu_{it} \dots \dots (3.2)$$

where:

GDP_r = Rate of Gross Domestic Product (Measure of Economic Growth)

DBTGDP = Debt-to-GDP Ratio

DSERV = Debt Service Ratio

INF = INF

GOVT = Government Expenditures



t = Time Period

β 's = structural Parameters to be estimated

μ = Stochastic Error Term.

Techniques and Procedure

Unit Root/Stationarity Test

This was used to test whether a variable's mean value and variance vary over time. It is necessary in time series variables in order to avoid the problem of spurious regression. The Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) test was used for the analysis. Augmented Dickey-Fuller (ADF) test is used to test the existence of unit root when there is autocorrelation in the series and lagged terms of the dependent variable are included in the equation. The following three models represent pure random walk, random walk with drift and random walk with drift and trend used in Augmented Dickey-Fuller tests:

$$\Delta\psi_t = \Omega\psi_{t-1} + \sum_{i=1}^p \beta_i \Delta\psi_{t-i} + \varepsilon_t$$

$$\Delta\psi_t = \alpha_0 + \Omega\psi_{t-1} + \sum_{i=1}^p \beta_i \Delta\psi_{t-i} + \varepsilon_t$$

$$\Delta\psi_t = \alpha_0 + \Omega\psi + \beta_2 t + \sum_{i=1}^p \beta_i \Delta\psi_{t-i} + \varepsilon_t$$

where: $\Omega = (\lambda - 1)$ The null hypothesis is $H_0 : \Omega = 0$ and the alternative hypothesis is $H_a : \Omega < 0$

Decision Rule

If the ADF test statistic (t-statistic of lagged dependent variable) is absolutely greater than the critical value. We reject the null hypothesis and conclude that the series is stationary (there is no unit root) but, if otherwise, we accept the null hypothesis and conclude that the series is not stationary (there is unit root).

The Phillips-Perron (PP) test on the other hand uses nonparametric statistical methods to take care of the serial correlation in the error terms without adding lagged difference terms. The asymptotic distribution of the PP test is the same as the ADF test statistic.

Cointegration Test

This will be used to test if there exists a long-run relationship between the variables under investigation. The Johansen or Engel-Granger methodology will be used. The long-run equilibrium relationship is estimated with the following equation:

$$X_t = \alpha_0 + \alpha_1 Z_t + \varepsilon_t$$



If there is cointegration, α_0 and α_1 estimates reveal “super-consistent” estimators in the OLS regression. In this estimation, fitted values of ε_t series are tested for stationarity. In this analysis, DF or ADF may be used. However, in hypothesis testing, critical values constructed by McKinnon (1991) are used. If this series is stationary, we can conclude that there is cointegration between X_t and Z_t . The fitted values of ε_t may be used as an error correction term of the model.

Decision Rule

If the ADF statistics of residual series is absolutely greater than the critical values at 5% level of significance, then there exists a long-run relationship between the variables and if otherwise, there exists no long-run relationship among the variables.

Error Correction Model (ECM)

The error correction analysis is an econometric analysis carried out if the variables under investigation are seen to be cointegrated. The Error Correction Mechanism (ECM) was used to estimate the speed of adjustment of the short-run dynamics of the variables and timing to long run convergence. The ECM is given by the equation: $\Delta GDP_r_t = \beta_0 + \Delta\beta_1 DBTGDP_t + \Delta\beta_2 DSERV_t + \Delta\beta_3 INF_t + \Delta\beta_4 GOVT_t + ECM_{t-1} + \mu_t \dots 3.4$

where Δ = First Difference Operator

Granger Causality Mechanism

The Granger causality model is a statistical technique that will be used to determine the direction of causality that exists between the dependent and independent variables. The model is defined as follows:

$$\begin{aligned}
 GDP_r &= \beta + \sum_{i=1}^n \eta_i GDP_{r,t-i} + \sum_{i=1}^n \gamma_i DBTGDP_{t-i} + \sum_{i=1}^n \gamma_i DSERV_{t-i} + \sum_{i=1}^n \gamma_i INF_{t-i} \\
 &\quad + \sum_{i=1}^n \gamma_i GOVT_{t-i} + \Omega. \\
 DBTGDP &= \phi + \sum_{i=1}^n \theta_i DBTGDP_{t-i} + \sum_{i=1}^n \vartheta_i GDP_{t-i} + \sum_{i=1}^n \gamma_i DSERV_{t-i} \\
 &\quad + \sum_{i=1}^n \eta_i INF_{t-i} + \sum_{i=1}^n \gamma_i GOVT_{t-i} + \psi \\
 DSERV &= \beta + \sum_{i=1}^n \gamma_i DSERV_{t-i} + \sum_{i=1}^n \theta_i GDP_{t-i} + \sum_{i=1}^n \vartheta_i DBTGDP_{t-i} + \sum_{i=1}^n \eta_i INF_{t-i} \\
 &\quad + \sum_{i=1}^n \eta_i GOVT_{t-i} + \mu
 \end{aligned}$$



$$\begin{aligned}
 INF &= \beta + \sum_{i=1}^n \gamma_i INF_{t-i} + \sum_{i=1}^n \theta_i DSERV_{t-i} + \sum_{i=1}^n \vartheta_i GDP_{t-i} + \sum_{i=1}^n \gamma_i DBTGDP_{t-i} \\
 &\quad + \sum_{i=1}^n \gamma_i GOVT_{t-i} + \mu \\
 GOVT &= \beta + \sum_{i=1}^n \gamma_i GOVT_{t-i} + \sum_{i=1}^n \theta_i DSERV_{t-i} + \sum_{i=1}^n \vartheta_i GDP_{t-i} \\
 &\quad + \sum_{i=1}^n \gamma_i DBTGDP_{t-i} + \sum_{i=1}^n \gamma_i INF_{t-i} + \mu
 \end{aligned}$$

Decision Rule

If the probability value of an estimated Granger causality is less than 0.05, we reject the null hypothesis and conclude that a Granger causality exists, while if the probability value is greater than 0.05, we accept the null hypothesis and conclude that there exists no causality relationship among the variables.

Data and Sources

Variables	Description	Sources
GDP	Gross Domestic Product	Central Bank of Nigeria (CBN) Statistical Bulletin, 2021.
DBTGDP	Debt-to-GDP Ratio	Central Bank of Nigeria (CBN) Statistical Bulletin, 2021.
DSERV	Debt Servicing Ratio	Central Bank of Nigeria (CBN) Statistical Bulletin, 2021.
INF	Inflation	National Bureau of Statistics (NBS) 2021
GOVT	Government Expenditures	Central Bank of Nigeria (CBN) Statistical Bulletin, 2021.

PRESENTATION AND ANALYSIS OF RESULTS

Empirical Results

Time series data are often assumed to be non-stationary and thus, it is necessary to perform unit root tests to ensure that the data are stationary. The test was employed to avoid the problem of spurious regression. Therefore, the Augmented Dickey-Fuller (ADF) unit root test was used to determine the stationarity of the data to complement each other. The decision rule based on the ADF test is that its statistic must be greater than the Mackinnon Critical Value at 5% level



of significance and in absolute terms. The results of the unit-root test are reported in Table 4.1 below.

Unit-Root Test Result

Table 4.1: Unit Root Test Result

VARIABLE	ADF STAT.	CRITICAL VAL.	ORDER
GDP _r	-4.104880	-3.533083	I(1)
DBTGDP	-3.549705	-1.949609	I(1)
DSERV	-6.942142	-1.949609	I(1)
INF	-3.095670	-1.951332	I(1)
GOVT	-2.106057	-1.949856	I(1)

Source: Author's Computation Using E-views 10.

Table 4.1 clearly shows that all the variables are stationary at first difference (I(1)). This means that the variables have unit-root until differenced in the first order.

Cointegration Analysis (Johansen Methodology)

Table 4.2: Cointegration Test Result

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.524093	77.10069	69.81889	0.0117
At most 1 *	0.459742	48.14193	47.85613	0.0470
At most 2	0.291001	24.12928	29.79707	0.1950
At most 3	0.169749	10.71716	15.49471	0.2295
At most 4	0.084946	3.462106	3.841466	0.0628

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Author's Computation Using E-views 10.

The Johansen method of cointegration was used for the study because all the variables are stationary at first difference. The Johansen result as displayed in Table 4.2 clearly shows evidence of cointegration as trace statistics test indicates two cointegrating equations as the trace statistic value is greater than that of 5% critical value ($77.10069 > 69.81889$) & ($48.14193 > 47.85613$). This entails that there exists a long-run relationship between the variables under analysis.



Error Correction Model Regression Results

Table 4.3: ECM Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.074009	0.025936	2.853551	0.0073
D(DBTGDP)	-0.000206	0.000299	-0.688940	0.4955
D(DSERV)	-0.001716	0.005010	-0.342420	0.7341
D(INF)	-0.005717	0.005933	-0.963507	0.3421
D(GOVT)	-0.000307	8.400905	-3.648195	0.0009
ECM(-1)	-0.046398	0.085309	-0.543880	0.5901
R-squared	0.554538	Mean dependent var	-0.010296	
Adjusted R-squared	0.489029	S.D. dependent var	0.194478	
S.E. of regression	0.139017	Akaike info criterion	-0.970958	
Sum squared resid	0.657076	Schwarz criterion	-0.717626	
Log likelihood	25.41916	Hannan-Quinn criter.	-0.879361	
F-statistic	8.465043	Durbin-Watson stat	2.133643	
Prob(F-statistic)	0.000028			

Source: *Author's Computation Using E-views 10.*

It can be clearly seen from Table 4.3 that external debt sustainability measured with the ratio of external debt to GDP (DBT/GDP) yielded a regression numerical coefficient of -0.000206 with a corresponding probability value of $0.4955 > 0.05$. This entails that external debt sustainability contributes negatively and insignificantly to economic growth in Nigeria for the period analyzed. This further entails that the external debt in Nigeria is not sustainable.

The numerical coefficient of the regression output also shows that debt service ratio yielded a negative numerical value at the magnitude of -0.001716 with a corresponding probability value of $0.7341 > 0.05$. This entails that debt service ratio has a negative relationship with economic growth in Nigeria. Hence, a one percent increase in debt to service ratio reduced economic growth by 0.001716 per cent. This conforms to economic a priori expectation because there is an inverse relationship between debt service ratio and Gross Domestic Product.

The regression output also shows that inflation has an inverse relationship with economic growth in Nigeria. This entails that a 1% increase in inflation yielded a reduction in economic growth by -0.005717% and vice-versa. This conforms to economic theory.

Government expenditures yielded a negative numerical coefficient of -0.000307 with a corresponding p-value of $0.0009 < 0.05$. This entails that government expenditures contribute negatively and significantly to economic growth in Nigeria for the period reviewed. This does not also conform to economic a priori expectations. This is because it is expected that



government expenditures should have a positive relationship with economic growth in Nigeria for the period analyzed.

The F-statistics which is employed to test for the statistical significance of the entire regression plane yielded 8.465043 with a corresponding probability value of $0.000028 < 0.05$. This entails that the test is statistically significant at the entire regression plane.

The coefficient of determination (R^2) which measures the explanatory power of the independent variables yielded 0.554538. This implies that approximately 55% of the variations in economic growth are explained by changes in external debt sustainability and other control variables as used in this study. This is however relatively high and significant.

The error correction mechanism (ECM) which measures the speed of the adjustment of the variables at which equilibrium is restored yielded -0.046398. This is correctly signed (negative) at 5 percent level, and therefore confirms our earlier proposition that the variables are cointegrated. The speed suggests that economic growth in Nigeria adjusts relatively slowly to the long-run equilibrium changes in the explanatory variables and it gives the proportion of the disequilibrium error accumulated in the previous period that is corrected in the current period. The speed of adjustment is specifically at 4.6% annually.

Serial Correlation LM Test Result

Table 4.4: Serial Correlation Test Result

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.382240	Prob. F(2,32)	0.2656
Obs*R-squared	3.180809	Prob. Chi-Square(2)	0.2038

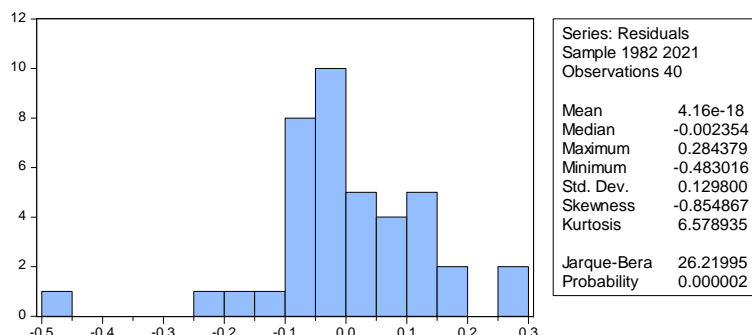
Source: *Author's Computation Using E-views 10.*

The Breusch-Godfrey Serial Correlation LM Test was used to carry out the test of autocorrelation. It is clearly seen that the Obs*R-squared which follows the computed Chi-Square distribution yielded 3.180809, and it is clearly greater than the Chi-Square probability which yielded 0.2038. This compels us to accept the null hypothesis that there is no serial correlation of any order. Hence, there is no presence of autocorrelation problem in the model.



Normality Test

Table 4.5



Source: Author's Computation Using E-views 10.

The normality test was carried out to evaluate if the residuals are normally distributed. The Jarque-Bera statistics which yielded 26.21995 reveals that the residuals are not normally distributed. However, the implication of this result is that the data is not large enough.

Granger Causality Test Result

Table 4.6: Causality Test Result

Pairwise Granger Causality Tests

Date: 09/27/22 Time: 15:35

Sample: 1981 2021

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
DBTGDP does not Granger Cause GDPR	39	15.9636	0.0005
GDPR does not Granger Cause DBTGDP		5.73529	0.0071

Source: Author's Computation Using E-views 10.

The Granger Causality test was carried out to identify the causality relationship between economic growth and external debt sustainability in Nigeria. The Granger Causality output in Table 4.6 shows that DBTGDP causes economic growth ($p\text{-value} = 0.0005 < 0.05$) and economic growth (GDPR) also granger causes DBTGDP ($p\text{-value} = 0.0071 < 0.05$). Hence, there is a bi-directional causality relationship between the two variables.



SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary of Findings

This study is focused on carrying out an empirical analysis of external debt sustainability and economic growth in Nigeria. The study covered a time period of 1981–2021. The major findings of the study are:

1. There exists a negative and insignificant relationship between external debt sustainability and economic growth in Nigeria ($\beta = -0.000206$, $p\text{-value} = 0.4955 > 0.05$).
2. There is a bi-directional causality relationship between external debt sustainability and economic growth in Nigeria ($p\text{-value} = 0.0005 < 0.05$ and $0.0071 < 0.05$).

CONCLUSION OF THE STUDY

External debt plays a crucial role in an economy. The optimal utilization of external debt by the government would avoid debt overhang and crowding out of investments which will boost economic growth. The bane of the study has been to examine the effect of external debt sustainability on the economic growth of Nigeria covering the period 1981 to 2021. This study employed linear regression with the application of Ordinary Least Squares (OLS) technique to address its objective. Meanwhile, debt sustainability and economic growth had an inverse relationship in the country. It was discovered that external debt sustainability contributed negatively to economic growth in Nigeria for the period investigated, even when these variables bi-directionally cause each other. This leads to a conclusion that in Nigeria, in particular, and other highly indebted countries in Africa, past external debts are inhibitors to economic growth in the country. Therefore, policymakers in Nigeria should explore other means of financing the country's deficit budget rather than external debt.

RECOMMENDATIONS

It is based on the findings of the study that the following recommendations were articulated:

1. The government should ensure economic and political stability in order to enjoy the benefits of external debt and make the debt burden minimal. This can be achieved through overhauling the security and political system for the better.
2. Government should acquire external debt largely for economic reasons rather than social or political reasons. This would increase the productivity of the nation.
3. Government should diversify the nation's export base so as to increase export earnings and promote industrialization in order to reduce import dependency. This can be achieved through aggressively developing the agricultural sector. The allocation to the agricultural sector should be increased by at least 20%.



REFERENCES

- Abiodun, O. (2020). Role of public debt in economic growth of Nigeria: An ARDL Approach. *Nigerian Journal of Applied Economics*, 27(2), 189-212.
- Abdelmawla, U. & Mohammed, S. (2015). Empirical evaluation on external debt of Nigeria. *International Business & Economics Research Journal*. 7(2), 95–108.
- Adesola, N. (2019). The impact of external debt on economic growth: A comparative study of Nigeria and South Africa. *Journal of Sustainable Development in Africa*, 12(4), 222-229
- Adepoju, D.O., Salau, M. & Obayelu, P. (2017). External debt and economic growth in Sub-Saharan Africa countries, *Journal of African Economic Research*, 90(3): 15-18.
- Akhanolu, G. & Gregory, P.I (2018). Economic growth, export and external debt causality: The case of African countries, *Applied Econ.*, 28:21 – 27.
- Akinmade, G. (2016). What are the Channels through which External Debt Affects Economic Growth”. IMF working paper No. W04/15.
- Akubuilu, B. & James, O. (2022). Effect of external debt on economic growth and development of Nigeria. *International Journal of Business and Social Science*, 3(12), 297-304.
- Asher, I. (2018). *Reclaiming Development: An Alternative Economic Policy Manual*. London: Zed Books.
- Audu, L. (2014). External debts and its impact on economic and business growth in Nigeria, *International Research Journal of Finance and Economics*. 20:132-140.
- Ayadi, R. & Ayadi, P. (2018). The effects of external debt management on sustainable economic growth and development: Lessons from Nigeria, Munich Personal RePEc Achieve (MPRA), Paper No. 2147. (On-line) Available at: ideas.repec.org/p/pramprapa/2147.html.
- Babu, E.E & Daniel, O. (2015). Nigeria debt management and control problems and prospects. *Economics and Finance Review* 31(31(4)).
- Central Bank of Nigeria, Annual Report and Statement of Accounts, CBN, Nigeria Various Issues (2010).
- Clements, A., Bhattacharya, I.O & Nguyen, P. (2020). Does Debts Foster Economic Growth? The Experience of Malaysia. *African Journal of Business Management*. 4(8), 1564–1575.
- Choong, E., Lau, O.P., Liew, N. & Pua, L. (2018). External debts and economic growth in Malaysia. *Quarterly Bulletin, Bank Negara Malaysia*. (June), 33–40
- Dalia, E. (2020). Impacts of external debt on economic growth in Nigeria: a VAR approach. *Journal of business management and administration*, 3(1), 1-5.
- Egbetunde, A.A (2012). The effect of debt burden on the Nigerian economy. *Journal Of Research in National Development* 8(2).
- Elom-Obed, K. (2017). The real exchange rate and economic growth. Harvard, University Cambrige, September
- Fagbola, O. & Sokunbi, V. (2020). Effect of external debt on economic growth of Nigeria. *Journal of Economic and Sustainable Development*, 3 (8).
- Gabriel, E. (2017). Effect of external debt on economic growth of Sudan: Empirical analysis (1969-2015). *Journal of Economic Cooperation & Development*, 39(1), 39-62.
- Gómez-Puig, P. & Sosvilla-Rivero, U. (2017). The impact of external debt on economic growth: empirical evidence from highly indebted poor countries. Discussion Paper 15.10. University of Western Australia Department of Economics
- Guzman M (2018). The Elements of Sovereign Debt Sustainability Analysis. Centre for International Governance Innovation. CIGI Papers No. 196. Available at:



- <https://www.cigionline.org/sites/default/files/documents/Paper%20No.196web.pdf>
(Accessed 10 August 2022)
- Henry, T.O (2017). External Debt, Economic Growth and Investment in Nigeria. *European Journal of Business and Management*, 4 (11)
- Hussein, U. (2018). External debt and economic growth in Nigeria: A Vector Auto-Regression (VAR) approach. *International Journal of Management and Commerce Innovations*, 4(1), 706-714.
- Karogol, P.O (2017). Economic growth, export, and external debt causality: The case of Turkey. *Turkish Development Review*. 39(4 PART II), 591– 608.
- Klein, D. (2018). Principles of International Finance. Forthright Educational Publishers, Lagos.
- Kunle, U. (2020). Debt forgiveness and its impact on the growth of Nigerian economy: An Empirical Study. *Pakistan Journal of Social Sciences*, 7(2): 34-39.
- Mhlaba, A. & Bernard, Y. (2019). The impact of external debt on economic growth in Sub-Saharan Africa. *Journal of Economic Development*, 21(1), 93–118.
- Nelson, O. (2018). Implications of external debt on the Nigerian economy: Analysis of the dual gap theory. *Journal of economics and sustainable development*, 6(13), 238-248.
- NDU (2021). Foreign Assistance and Economic Development. *American Economic Review* 56, 697 – 733
- Ogunmuyiwa, R.R. (2019). The impact of external debt on economic growth: A comparative study of Nigeria and south Africa, *Journal of sustainable Development in Africa*, 10(3): 234-264.
- Ogbeifun, N. (2017). External debt and economic growth: The case of emerging economy. *Journal of economic integration*, 33(1), 1141-1157.
- Osinubi, L. B., & Olaleru, M. O. (2016). Effect of external debt on economic growth and development of Nigeria. *International Journal of Business and Social Science*, 3(12), 297-304.
- Pattillo, M. & James, A.A (2016). Effect of debt servicing on economic growth in Nigeria. Reikojournals.org
- Samuel, C. O. (2019). Debt, Poverty and Inequality. In: Okonjo Iweala, Samuel and Muhtar (Eds.) “Debt Trap in Nigeria”. Africa World Press NJ, P. 23 – 74.
- Saungweme, S. & Odhiambo, T.T (2019). The causality analysis of external debt service and GNP: the case of Zambia. *Central Bank Review*, 2 (1), 39–64.
- Sulaiman, T. (2017). The relationship between external debt and economic growth: Empirical evidence from Ukraine and other emerging economies. *Investment Management and Financial Innovations*, 15(1),387- 400.
- Thao, R.R (2018). The effect of external debt on economic growth of Nigeria. *Journal of Economies and Sustainable Development*.www.iiste.org 3(8)
- Udeh, S.S & Rhoda, T. (2016). What are the channels through which External Debt affects growth. International Monetary Fund (IMF) working paper, Africa, Asia and Pacific department. w.p/04/15.
- Yusuf, E.E & David, O.O (2020). Impact of external debt on economic growth: A Case Study of Nigeria, *Advances in Management and Applied Economics*, 3(4): 59 – 82.