THE IMPACT OF DEBT BURDEN ON THE ECONOMIC GROWTH OF NIGERIA (1970-2021)

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Abstract

The study used autoregressive distributed lag (ARDL) to examine the influence of external debt on Nigeria's economic growth using annual time series data from World Bank Development Indicators from 1970 to 2021. The findings show a significant positive relationship between interest rates and economic growth in the short and long run. In contrast, inflation rate significantly negatively impacts economic growth in the short and long run. External debt, external debt service, and the exchange rate have an insignificant impact on economic growth in the short and long run. The study recommends reducing the cost of governance to promote development, while investment in the Nigerian economy should be encouraged.

Keywords: external debt, economic growth, exchange rate, inflation rate

1.0 INTRODUCTION

Governments all over the world are responsible for providing security and public goods, defending private property rights, and preventing externalities, but carrying out these responsibilities requires financial resources to support all public expenditures. Taxes (value-added tax, income tax, and pay-as-you-earn) are the primary sources of these financial resources (Mambepa, 2020). African nations are characterised by inadequate internal capital formation due to the negative cycle of low productivity, low income, and low savings. This situation calls for assistance from Western countries in management, finance, and technological expertise to narrow the resource gap (Ayadi & Ayadi, 2008; Edo et al., 2020). External debt refers to financial resources obtained from foreign sources for investment purposes. Typically, this is sourced from external creditors such as commercial banks, governmental entities, or international financial institutions (Aderemi et al., 2020).

During the initial phase of independence, specifically from 1960 to approximately 1975, Nigeria's external debt was relatively insignificant, with concessional interest rates, long-term maturities, and primarily originating from bilateral or multilateral sources. For instance, Nigeria's external debt was approximately $150 million in 1960, but things began to change from 1978 due to the attractiveness of global financial centers. Nigeria started to borrow considerable sums from private sources at variable rates and with shorter maturities. The estimated value of the "jumbo loan" in 1978 was approximately $1 billion. As of 1982, Nigeria's external debt had grown to $18.631 billion, accounting for more than 160% of the country's gross domestic product (GDP) for the same year, bringing about a financial situation that gradually deteriorated as time passed. By1986, Nigeria was compelled to implement a structural adjustment programme sponsored by the World Bank and International Monetary Fund. The objective was to restructure the economy and enhance the country's capacity to repay its debt (Adegbite et al., 2008; Didia & Ayokunle, 2020).

The use of external financing to stimulate economic growth is an important topic of discussion among economists and policymakers. The central question is whether or not external borrowing promotes economic growth in debtor nations. Two main perspectives exist regarding the relationship between external debt and economic growth. The debt trap hypothesis asserts that excessive borrowing can trap nations in a cycle of debt, making it difficult for them to escape the burden. Critics argue that some lenders may intentionally extend loans to countries they know will struggle to repay them, exerting influence and control over their economic and political decisions. The debt trap hypothesis highlights concerns about the potential exploitation of weaker economies (Alam & Taib, 2013; Elhendawy, 2022). However, the neoclassical growth model claims that external debt can provide countries with the necessary funds to invest in physical capital, infrastructure, and technology. This investment can increase productivity and economic growth (Adegbite et al., 2008; Manasseh et al., 2022).

There is growing concern about Nigeria's increasing external debt and its impact on its future. The government has borrowed money from external sources to fund economic activities and promote growth. The external debt stock increased from 12,961.87 million USD in 2006 to 35,717.77 million USD in 2016, but as of December 31st, 2021, the total external debt stood at 76,214.59 million USD. In contrast, the external debt service fell from 6,710.132 million USD in 2006 to 2,491.67 million USD in 2016, but as of December 31st, 2021, the total external debt payment was 8,542.63 million USD (World Bank, 2022). Given Nigeria's rising stock of external debt, the country must critically examine the general implication of the loan on economic growth. As a result of this, assessing the effects of external debt on Nigeria's economic growth from 1970 to 2021 is imperative.

1.2 RESEARCH OBJECTIVES

This study aims to analyze the effect of external debt on economic growth in Nigeria. The specific objectives were to:

i. Ascertain the effect of interest rate on economic growth in Nigeria.

ii. Investigate the effect of exchange rate on economic growth in Nigeria.

iii. Ascertain the impact of inflation rate on economic growth in Nigeria.

iv. Examine the effect of external debt on economic growth in Nigeria.

Ascertain the impact of external debt service on economic growth in Nigeria.

2.0 REVIEW OF LITERATURE

2.1. Keynesian Theory of Economic Growth

The theory asserts that active government involvement is required for economic development and stability. Keynesian economists argue that private sector actions may sometimes produce inefficient macroeconomic consequences, but monetary policy action by the central bank and fiscal policy action by the government is necessary to steer the economy (Rocha & Oreiro, 2013; Bortz et al., 2022). Keynesian economists suggest that government spending can stimulate aggregate demand and boost economic activity during periods of economic downturn or recession. In this context, external borrowing can provide governments with additional funds to finance expansionary fiscal policies, such as infrastructure projects or increased public spending on goods and services. By injecting more spending into the economy, external debt can help increase employment, output, and overall economic growth (Ahuja & Pandit, 2020). This indicates that Keynesian theory views capital accumulation as a driving force behind economic growth and supports using foreign loan, since these loans inject funds into the system, increasing economic activity and, ultimately, leading to growth.

2.2 Empirical Review

Udeh et al. (2016) used the autoregressive distributed lag (ARDL) model to investigate the effect of external debt on economic growth in Nigeria using time series data from 1980–2013. This finding shows that external debt, external debt service, and exchange rates all had significantly negative effects on short-term and long-term economic growth.

Festus and Saibu (2019) used the autoregressive distributed lag (ARDL) model to investigate the effect of external debt on economic growth in Nigeria using time series data from 1981 through 2016. Their findings shows that trade openness, gross fixed capital formation, external debt, and exchange rates have an insignificant effect on economic growth in the short and long run. However, inflation rate has a significantly positive effect on economic growth in the short run and an insignificant effect in the long run.

Yusuf and Mohd (2021) used the autoregressive distributed lag (ARDL) model to investigate the effect of external debt on economic growth in Nigeria using time series data from 1980 to 2018. Their findings show that external debt stock, foreign direct investment, and debt service payments have a significantly negative effect on economic growth in the short run. However, foreign reserve position, interest rate, gross fixed capital formation, and domestic debt stock had a significantly positive effect on economic growth in the short run. Furthermore, their finding reveal that external debt stock, foreign reserve position, gross fixed capital formation, and foreign reserve position have a significant positive effect on economic growth in the long-run while domestic debt stock, debt service payments, and interest rate have a significant negative effect on economic growth in the long-run.

Alagoa et al. (2023) used the autoregressive distributed lag method to examine the correlation between debt burden and economic stability in Nigeria from 1981 to 2020. The findings show that external debt had significant negative impacts on economic growth. However, external, domestic, and domestic debt services did not impact economic growth.

3.0 METHODOLOGY

3.1 SAMPLE SIZE AND SOURCES OF DATA

The research design adopted in this study is ex post facto, as it involves time series data. The study used secondary and time series data from the World Bank Development Indicators from 1970–2021.

3.1.2 Model Specification

To evaluate the impact of external debt on the economic growth in Nigeria, the study modified and adapted Ada et al.'s (2016) model. The model is specified as follows:

$GDPG_t = \beta_{0+} \beta_1 INTR_t + \beta_2 EXTR_t + \beta_3 INFL_t + \beta_4 EXTD_t + \beta_5 EXDS_t + et$ .... (1)

Where:

GDPG= Gross Domestic Growth

INTR = Interest Rates

EXTR = Exchange Rates

INFL = Inflation Rates

EXTD = Total External Debt

EXDS = External Debt Service

et = Error term

β_0, β_1, β_2, β_3, β_4 and β_5 = Parameters

3.1.3 Measurement of Variables

Variable	Measurement	Sources
GDP Growth	Annual growth rate of GDP at market prices (%)	Udoka and Ogege (2012) Obademi and Okubanjo (2013)
Official Exchange Rates	Official exchange rate (US$ to ₦)	Udeh et al. (2016) Festus and Saibu (2019)
Interest Rate	Deposit interest rate (%)	Adedoyin et al. (2016)

		Yusuf and Mohd (2021)
Inflation Rate	Consumer Price Index (%)	Festus and Saibu (2019) Edeminam (2021)
External Debt	Total external debt stocks ($)	Obademi and Okubanjo (2013) Udeh et al. (2016)
External Debt Service	Total debt service is the sum of principal repayments and interest ($)	Ada et al. (2016) Udeh et al. (2016)

4.0 RESULTS AND DISCUSSION

4.1.1 Descriptive Analysis

The descriptive statistics revealed that the mean interest rate is 9 percent, with a maximum of 23 percent. The mean exchange rate (EXTR) is ₦85 to USD, while the maximum EXTR is ₦400 to USD. The annual GDP growth rate during the same period had a mean of 4 percent, with a maximum of 25 percent and a minimum of -13 percent. The inflation rate has a mean and maximum value of 18 percent and 73 percent, respectively. The natural logarithm of external debt has a mean value of $24 million and a maximum value of $24 million, while the natural logarithm of external debt service has a mean and maximum value of $21 million and $22 million, respectively.

Table 4.1: Descriptive statistics of variables

	INTR (%)	**EXTR**	**GDPR (%)**	**INFL (%)**	**LEXTD** ($)	**LEXDS** ($)
Mean	9.4173	85.3356	3.8250	18.1720	23.5246	20.9854
Minimum	2.6667	0.5468	-13.1279	3.4577	20.5450	18.3638
Maximum	23.2416	400.0000	25.0072	72.8355	25.0568	22.8988

Std. Dev	4.8070	106.9302	6.2835	15.3253	1.1767	1.1822
OBS	**52**	**52**	**52**	**52**	**52**	**52**

Source: Author's Computation, 2023

4.1.2 Correlation analysis

The Spearman Correlation Coefficient (correlation matrix) and Variance inflation factor (VIF) were used to investigate the presence of a correlation between the variables. Multicollinearity may result in a misleading regression result. This section also discusses the results of the correlation between the dependent and independent variables.

Table 4.2 Correlation matrix

	INTR	**EXTR**	**GDPG**	**INFL**	**LEXTD**	**LEXDS**
INTR	1.0000					
EXTR	-0.0219	1.0000				
GDPG	0.0195	0.0085	1.0000			
INFL	0.3788	-0.2372	-0.2266	1.0000		
LEXTD	0.6374	0.5449	-0.2559	0.1256	1.0000	
LEXDS	0.4892	0.4731	-0.2964	0.0934	0.8415	1.0000

Source: Author's Computation, 2023

Table 4.3 Variance inflation factor

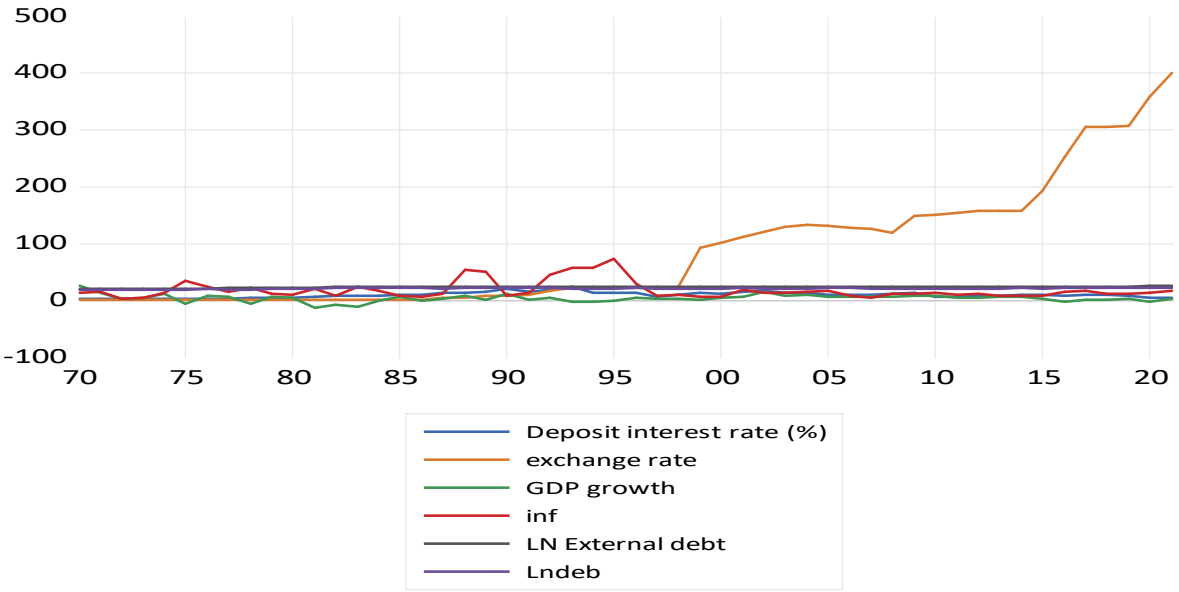
	VIF	**1/VIF**
LEXTD	6.51	0.1537
LEXDS	3.48	0.2876
INTR	2.69	0.3724
EXTR	2.19	0.4557
INFL	1.24	0.8033
Mean VIF	3.22	

Source: Author's Computation, 2023

Based on the results in Table 4.2, there is a strong relationship of 0.8415 between external debt and external debt service; similarly, the study used variance inflation factors (Table 4.3) to assess multicollinearity between the independent variables. The VIF values for all independent variables were below the specified threshold of 10 (Wooldridge, 2015), showing no significant multicollinearity among the independent variables.

4.1.3 Trend Movement

Figure 4.1: Trend Movement



4.1.4 Unit Root Test

Table 4.4 shows the result of the stationarity test using the augmented Dickey-Fuller test of stationarity. The result reveals that GDP growth and inflation rates are integrated at the stationary level I(0). However, interest rate, exchange rate, external debt, and external debt service are integrated at the first difference, I(1). Because the variables are a combination of I(1) and I(0), the ARDL bound testing approach was employed.

Table 4.4: ADF Unit Root Test (ADF Regression with Intercept and a Linear Trend)

Variables	Order of Integration	T- Statistics ADF	Critical ADF Statistics	Probability
Interest rate	I(1)	-4.0203	-2.925	0.0029
Exchange rate	I(1)	-4.4022	-2.9212	0.0009

GDP growth	I(0)	-5.758320	-2.919952	0.0000
Inflation rate	I(0)	-3.5259	-2.9200	0.0111
External debt	I(I)	-4.8714	-1.947520	0.0000
External debt service	I(I)	-8.6534	-1.947520	0.0000

Source: Author's Computation, 2023

4.3.3 Bounds Test

Table 4.5: ARDL Bound Test Result

F-STATISTICS	**CRITICAL VALUES BOUNDS**		
6.1024	Significant level	I(0)	I(1)
	10%	2.703	3.697
	5%	3.149	4.293
	1%	4.214	5.52

Source: Author's Computation, 2023

According to Table 4.5, the F-statistic is 6,1024, greater than the 1% significance level's upper limit of 4,2140. This implies that co-integration exists in the model. We will therefore estimate the ARDL regression models for both the short-run and the long-run.

4.3 Econometric Analysis

4.3.1 The Long Run ARDL

Table 4.6 Long Run ARDL

Variable	**Coefficient**	**T-Stat**	**P-value**
C	107.3072	3.4377	0.0016
GDPR(-1)	-0.0716	-0.5171	0.6085
INTR	0.5019	1.7267	0.0936

INTR(-1)	-0.0745	-0.2604	0.7961
INTR(-2)	0.90373	2.7197	0.0103
EXTR	-0.0371	-0.9338	0.3572
EXTR(-1)	0.0636	1.5099	0.1406
INFL	-0.3326	-4.6466	0.0001
INFL(-1)	0.1585	2.1402	0.0398
INFL(-2)	-0.0869	-1.2891	0.2063
LEXTD	-1.3831	-0.4123	0.6828
LEXTD(-1)	-3.3153	-0.6719	0.5063
LEXTD(-2)	2.8587	0.7977	0.4307
LEXDS	-0.9195	-0.7432	0.4626
LEXDS(-1)	-1.1797	-0.9453	0.3514
LEXDS(-2)	-1.2563	-1.2205	0.2309
R-squared	0.6311		
F-statistic Prob(F-statistic)	3.5292 0.0011		

Source: Author's Computation, 2023

The coefficient of determination (R^2) is 63 percent. This implies that about 63% of variations in economic growth are jointly explained by the explanatory variables: interest rate, inflation rate, exchange rate, external debt, and external debt service. The remaining 37 per cent is attributed to the stochastic error term.

1. Interest Rate

Table 4.6 shows a significant positive correlation between interest rate and economic growth (Coefficient = 0.5019, P = 0.0936 < 0.10); this means that interest rate increases economic growth in the long term. These findings are consistent with those of Yusuf and Mohd (2021) but contradict the results of Ijirshar et al. (2016), who found a significant negative relationship between interest rate and economic growth.

2. Exchange Rate

The exchange rate has an insignificant effect on economic growth (Coefficient = -0.0371, P = 0.3572 > 0.10). This means the exchange rate does not affect economic growth in the long term. These findings are consistent with those of Festus and Saibu (2019) but contradict the results of Udeh et al. (2016), who found a significant positive relationship between exchange rate and economic growth**.**

3. Inflation Rate

The inflation rate has a significantly negative correlation with economic growth (Coefficient = -0.3326, P = 0.0001 < 0.10). This means that an increase in the inflation rate will lead to a fall in economic growth in the long term. These findings are consistent with those of Edeminam (2021) but contradict the results of Festus and Saibu (2019), who found an insignificant relationship between the inflation rate and economic growth.

4. External Debt

External debt has an insignificant effect on economic growth (Coefficient = -1.3831, P = 0.6828 > 0.10). This means that external debt does not impact economic growth in the long term. These findings are consistent with those of Festus and Saibu (2019) but contradict the results of Udeh et al. (2016), who found a significant negative relationship between external debt and economic growth.

5. External Debt Service

External debt service has an insignificant impact on economic growth (Coefficient = -0.9195, P = 0.4626 > 0.10). This means that external debt service does not impact economic growth in the long term. These findings are consistent with those of Udoka and Ogege (2012) and Ada et al., (2016) but contradict the results of Udeh et al. (2016), who found a significant negative relationship between external debt service and economic growth.

4.4.2 The Short Run ARDL (Error Correction Model)

Table 4.7 Short Run ARDL

	Coefficient	**t-Statistic**	**Prob.**
C	0.3845	0.5351	0.5966

d(GDPR(-1))	0.1107	0.8526	0.4006
d(INTR)	0.5573	2.3267	0.0269
d(INTR(-1))	-0.1049	-0.4622	0.6473
d(INTR(-2))	1.1668	4.1032	0.0003
d(EXTR)	-0.0357	-1.0282	0.3121
d(EXTR(-1))	0.0608	1.6842	0.1025
d(INFL)	-0.3883	-6.1929	0.0000
d(INFL(-1))	0.1878	3.2630	0.0028
d(INFL(-2))	-0.1067	-1.8675	0.0716
d(LEXTD)	-2.3649	-0.7749	0.4444
d(LEXTD(-1))	-3.0670	-0.9650	0.3422
d(LEXTD(-2))	3.7003	1.1460	0.2609
d(LEXDS)	-1.1523	-0.9995	0.3255
d(LEXDS(-1))	-2.0186	-1.8195	0.0788
d(LEXDS(-2))	-2.2265	-2.5970	0.0144
ECM(-1)	-1.0782	-4.9394	0.0000
R-squared	0.7918		
F-statistic Prob(F-statistic)	6.3393 0.0000		

Source: Author's Computation, 2023

The coefficient of determination (R^2) is 79 per cent. This implies that about 79% of variations in economic growth are jointly explained by the explanatory variables interest rate, exchange rate, inflation rate, external debt, and external debt service. The remaining 21 per cent is attributed to the stochastic error term.

The speed of adjustment required to restore equilibrium in the dynamic model after a disturbance is represented by the error correction term ECM (-1). As expected, ECM (-1) was negative and had a statistical significance of 1%. Its value of -1.0782 means that economic growth shocks in the current period will be corrected at a rate of approximately 107.82% in the next period.

1. Interest Rate

Table 4.7 shows a significant positive correlation between interest rates and economic growth (Coefficient = 0.5573, P = 0.0269 < 0.10); this means an interest rate increase, increases economic growth in the short term. These findings are consistent with those of Ajayi and Oke (2012) but contradict the results of Yusuf and Mohd (2021)**,** who found a significant negative relationship between the interest rate and economic growth.

2. Exchange Rate

The exchange rate has an insignificant effect on economic growth (Coefficient = -0.0357, P = 0.3121 > 0.10); this means that the exchange rate does not have a short-term effect on economic growth. These findings are consistent with those of Festus and Saibu (2019) but contradict the results of Udeh et al. (2016), who found a significant negative relationship between exchange rate and economic growth.

3. Inflation Rate

The inflation rate has a significantly negative effect on economic growth (Coefficient = -0.3883, P = 0.0000 < 0.10); an increase in the inflation rate will lead to a fall in economic growth in the short term. These findings are consistent with those of Edeminam (2021) but contradict the results of Festus and Saibu (2019), who found a significant positive relationship between inflation rate and economic growth.

4. External Debt

External debt has an insignificant effect on economic growth (Coefficient = -2.3649, P = 0.4444 > 0.10); this means that external debt does not have a short-term impact on economic growth. These findings are consistent with those of Festus and Saibu (2019) but contradict the results of Udeh et al. (2016), who found a significant negative relationship between external debt and economic growth.

5. External Debt Service

External debt service has an insignificant impact on economic growth (Coefficient = -1.1523, P = 0.3255 > 0.10); this means that external debt service does not have a short-term impact on economic growth. These findings are consistent with those of Udoka and Ogege (2012) and Ada et al. (2016) but contradict the results of Udeh et al. (2016), who found a significant negative relationship between external debt service and economic growth.

4.4 Diagnostic Test

Table 4.8: Results of diagnostic tests

	X^2 -statistic	Probability
Breusch-Godfrey Serial Correlation LM Test	0.1809	0.8355
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.8110	0.6742
Jarque-Bera test	1.9154	0.3838

Source: Author's Computation, 2023

The model was tested for serial correlation, indicating no serial correlation since the (p-value = 0.8355 > 0.05). The model was subjected to a heteroscedasticity test, and the results indicated that the residual variance is constant (Prob-Value = 0.6742 > 0.05). In the Jarque-Bera test, the population is normally distributed (p-value = 0.3838 > 0.05).

5.0 CONCLUSIONS AND RECOMMENDATIONS

The study investigates the effect of external debt on Nigeria's economic growth using annual time series data from World Bank Development Indicators from 1970 to 2021. The dependent variable, economic growth, was proxied by the annual gross domestic product growth. The independent variables were interest rate, inflation rate, exchange rate, external debt, and external debt service. The autoregressive distributed lag (ARDL) was employed to analyse the data. The findings show a significant positive relationship between interest rates and economic growth in the short and long run. In contrast, inflation rate had a significantly negative impact on economic growth in the short and long run. External debt, external debt service, and the exchange rate had insignificant impacts on economic growth in the short and long run. Therefore, the study recommends that the government of Nigeria should use debt productively and exercise fiscal discipline. The cost of governance should be reduced to promote development, while investment in the Nigerian economy should be encouraged. Accountability in governance, a sound macroeconomic environment, and increased exportation of domestic products are also necessary.

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