



## **Impact of External Debts on Economic Growth in Nigeria.**

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### **Abstract**

*Although Nigeria's growing external debt has over the years been one of the sources of financing used by successive governments to cover the annual fiscal deficit, it has long been a concern for the country's citizens. To this end, this paper attempts to investigate the impact of external debts on economic growth of Nigeria using time series data from periods of 1981 to 2021 to assess the impact of Nigeria's large external debt on the country's economic growth. The data were analysed using the ARDL model. The study finds no evidence of a significant impact of total external debt on economic growth in the long term. However, the short-term ARDL results show a positive and significant impact on economic growth. Furthermore, the exchange rate coefficient is positive and statistically significant in the long run and short run, suggesting a positive impact of the exchange rate on economic growth in Nigeria. The interest rate turned out to be negative and statistically significant in the long run. This shows that interest rate has a significant negative impact on economic growth in Nigeria. The long-term results of foreign direct investment are positive and statistically insignificant. However, in the short term, it shows negative and statistically significant impact on economic growth in Nigeria. The study recommends that the government's credit policy should be productive so that external debt is tied to capital projects such as railways, road construction and power generation and distribution, which have the potential to create jobs. With this, external debts can be said to be productive enough to contribute meaningfully to economic growth in Nigeria.*

**Key Words:** External Debt, Economic Growth, ARDL

**JEL Classification:** F34, F43, C50

### **Contribution to/Originality Knowledge**

The study employed ARDL to examine the impact of external indebtedness on economic growth in Nigeria using recent data and neoclassical growth theory. Previous scholars, to our knowledge, have rarely combined these methodologies in their research.

## **1.0 Introduction**

In order to implement policies aimed at achieving a sustainable economy, less developed nations (LDCs) like Nigeria, known for having limited capital formation due to low levels of domestic savings and investment, borrow money (Ijoko, Magaji & Gombe, 2022; Jacob & Sule, 2022). According to Egbetunde (2015), governments borrow for two main macroeconomic purposes: to finance increased consumption and investment or to finance a temporary balance of payment deficit. They also borrow to finance budget deficits arising from a fall in revenue, promoting economic growth and lowering poverty. Public debt can be classified as either domestic or foreign debt. Domestic debts are obligations incurred within the nation, whereas external debts are obligations incurred outside to assist economic development and progress and are repayable in the currency they were loaned. External debt remains an important source



of finance for most developing countries including Nigeria, mainly as a way of supplementing income from revenue generation to carry out developmental projects. Though higher domestic borrowing will crowd out the private sector, raise interest rates, and restrict growth, necessitating external borrowing (Checherita & Rother, 2019). Households, governmental entities, businesses in the private sector, including banks, and eventually the entire economy are all impacted by a country's debt burden. Nelasco (2017) asserts that because it supplements poor domestic savings and investments and aids nations in carrying out their economic operations, external borrowing has become essential. Suppose external borrowing is directed toward projects to boost the economy and promote economic growth and development, it can be said to be beneficial to the country. In that case, it can be desirable and provide the necessary money for rapid economic expansion. It can result in a pitfall, if these debts are not used for the right productive activities, countries might end up worse-off financially with dire consequences for both immediate and long-run macroeconomic conditions. In their early stages of growth, developing nations like Nigeria borrow money from outside sources to finance infrastructure projects like rail lines, power plants, and highways, necessitating substantial imports of capital goods like machinery, equipment, and technical know-how. Balance of Payment Deficits results from this. Due to the balance of payment imbalance, these nations will borrow to reduce it, which could impede economic development and progress (Jacob & Sule, 2022; Adediyi & Ehisuoria, 2022).

Sulaiman and Azeez (2018) noted that high levels of debt create a heavy debt load, which, particularly for a nation like Nigeria, puts the economy's stability in danger due to debt servicing. The fall in global oil prices, which has a negative impact on the country's earnings, is responsible for the increase in Nigeria's external debt. Since then, the country's debt stock has grown significantly, from \$0.763 billion in 1977 to \$5.09 billion in 1978 to \$8.65 billion in 1980, an increase of more than 73.96 percent. The Debt Management Office (2018) states that this amount increased to \$35.94 billion in 2004. During the rule of Olusegun Obasanjo, the government engaged in intensive debt cancellation between 2003 and 2007, which resulted in a reduction in external debt of up to 438.89 billion Naira in 2007 (Adedoyin et al., 2016). Unfortunately, successive governments quickly resumed reckless borrowing to the extent where Nigeria's debt profile (which includes bilateral, multilateral, Eurobond, Diaspora bonds and other debts) began to rise again, from N438.89 trillion a year 2007 to N523.25 trillion in 2008 to N590.44 trillion in 2009 to N689.84 trillion in 2010 to N896.85 trillion in 2011 to N1.006 trillion in 2012 (CBN, 2018).

Yusuf and Mohammad (2021) noted that Nigeria has battled with a larger debt service to revenue ratio since the recession in 2016 as revenues decreased in direct proportion due to the decline in oil prices. Of the total revenue of N4.1 trillion or 59.6% of the total revenue, the Nigerian government spent about 2.45 trillion Naira on debt servicing in 2019. Due to the increasing cost of Nigeria's debt profile, the country's indebtedness reached a new milestone as the share of debt service to revenue rises to 83% in 2020, debt service payments constitute a threat to the expansion of the Nigerian economy. This means that 83% of the revenue generated in 2020 was used to pay off debt, which is alarming. The inability of a country to invest these borrowed monies in productive economic sectors prevents it from achieving economic growth

and meeting its debt service commitments, even while a high debt profile only sometimes indicates sluggish economic progress (Adesola, 2019). This failure has led to a severe debt issue for the nation; Nigeria is currently spending a large portion of its income on paying off enormous debts, leaving it with very little money to fund essential infrastructures like schools, railroads, healthcare facilities, and the security of people's lives and property (Ijoko et al., 2022).

It is against this background that; we were prompted to conduct an empirical study on the impact of external indebtedness on economic growth in Nigeria from 1981 to 2021. This work, which represents a significant departure from past research on the relationship between public debt and economic growth in Nigeria, would assist policymakers in engaging in productive and advantageous borrowing. That is, the government will only borrow for investment purposes with a rate of return greater than the cost of borrowing foreign funds, rather than borrowing to finance politicians' jumbo pay and public servant salaries, leaving the majority of the country in poverty.

The study is structured thus: the first section contains the introduction, section two has the literature review, section three is the methodology, Results and discussions are found in section four whereas section five concludes the study with policy recommendations.

## **2.0 Literature review**

This study is anchored on the neoclassical growth theory, which states that external debt is positively related to economic growth. Again, the theory emphasizes the importance of productive utilization of the externally sourced fund for the benefit of the nation in order to achieve the anticipated increase in investment that could lead to economic growth. The neoclassical growth theory argued that a country's economic growth is dependent on its savings and investments, which are major challenges of the Nigeria's economy, which is characterized by low income, resulting in low savings and investments. Because most developing nations have low savings and investment rates, borrowing has increasingly become an alternative source of funds for these nations. As a result, researchers and academicians have dominated the literature on the relationship between external debts and economic growth to ascertain the impact of external debts on economic growth of different countries including Nigeria.

This topic area has been dominated by several literatures. However, the empirical studies analyzed in our study fall into two categories: those that established a positive link and those that discovered a negative relationship between external indebtedness and economic growth in various nations. For instance, Ndubuisi (2019) noted that Nigeria's external debt stock has a negative and large influence on economic development. Isaac, Tinashe and Mensah (2021) argued with empirical basis that, external debt has impact on the growth of Ghana's economy. Their study which utilized a time- series data, spanning from 1991-2019 found a statistically significant and inverse relationship between external debt and economic growth. Investigating 99 developing countries in Asia, Latin America, the Middle East and Sub-Saharan Africa, Elibadawi, Ndulu and Ndung (1997) found external debt to be negatively related to economic growth. The study by Festus and Saibu (2019) reported a negative influence of external debt



stocks on economic growth. In contrast, Polycarp (2020) discovered that the relationship between external debt and GDP is significant and positive. Ndubuaku et al. (2021) employed ARDL and Granger Causality techniques to study Nigeria's external debt dynamics and sustainable growth from 1980 to 2016, and discovered that foreign debt and debt servicing had a detrimental and minor effect on sustainable growth in Nigeria. The study further revealed that there was a uni-directional causality running from debt service to economic growth. Similarly, Iteh and Oyeonu (2021), in an attempt to analyse the impact of external debt on economic growth in Nigeria from 1985 to 2018, employed Vector Autoregressive (VAR) technique and found that the amount of foreign debt and its servicing had a negative and significant impact on economic growth. Meaning that economic growth decreased by 0.495 units for every change in the external debt stock by one unit. Conversely, when external debt service changed by one unit, economic growth decreased by 0.017 units. Using GMM estimation techniques, Agyapong and Bedjabeng (2020), studied the role of external debt and FDI in financial development in Africa. Their study revealed a significant positive relationship between external debt, FDI and financial development in Africa. However, they recommended that the authorities of the selected countries should put borrowed fund to more productive uses.

Though many studies may have argued that external debt is negatively related to economic growth, but Agbemor (2015) had a different perspective and suggested that external debt can promote growth especially when borrowed funds are invested in sustainable projects that are capable of generating revenue for servicing the debt. Chowdhury (1994) discovered a positive and statistically significant effect of public external debt on Gross National Product (GNP) of some selected countries in Asia and Pacific. Taiwo et al. (2023) indicated that external debt exhibited a negative impact in the short run but a positive impact in the long run on the Nigerian economy when they investigated the interplay between public debt, poverty, and economic growth in Nigeria during the period spanning from 1981 to 2019.

The empirical evaluations revealed varied results, with some researchers discovering a negative and significant relationship between foreign indebtedness and economic growth while others reported a positive and significant relationship. Similarly, some suggested a negative and insignificant association between external indebtedness and economic growth, while others concluded that a positive and insignificant relationship exists. In an effort to contribute to the public finance discussion, we used ARDL to examine the impact of external indebtedness on economic growth in Nigeria using recent data and neoclassical growth theory. Previous scholars, to our knowledge, have rarely combined these methodologies in their research.

### **3.0 Methodology**

#### **3.1 Sources of Data Collection**

This study used time series data obtained from the Statistical Bulletin of the Central Bank of Nigeria (CBN), Nigeria Bureau of Statistics (NBS) and the World Bank Development Index (WDI). Descriptive statistics which was one of the methods of analysis indicates the mean, standard deviation, skewness, maximum and minimum value of the study variables while inferential statistics shows the relationship between the dependent and independent variables.

The unit root test was conducted to ascertain the behaviour of the variables after which the Auto Regressive Distributed Lag Model (ARDL) was carried out using E-View 10 statistical software.

Table 3.1 Variable definitions, sources and expected signs.

Variables	Definition of variables	Source	Expected signs
Economic Growth (GDP)	Annual GDP per capita growth (1%)	WDI	+
External Debt Stock (TXD)	Total External Debt Stock	WDI	+
Exchange Rates (ER)	Exchange rates	WDI	+
Interest rates (IR)	Interest rates	WDI	+
Foreign Direct Investment (FDI)	Foreign direct Investment	WDI	+

Source: Author's computation, 2022

Nigeria opting for external borrowing as a means of ensuring sustained growth, as against domestic borrowing is line with the “neoclassical growth theory”. This theory postulates that investment is a function of savings that requires domestic savings which is not sufficient to ensure economic growth in Nigeria, thereby necessitating complementary external goods and services. Adapting from the study of Ayadi et al. (2008), the Gross Domestic Product (GDP) is of the form:

$$GDP = C + I + G + (X - M) \quad (1)$$

where, C = Consumption, I = Investment, G = Government, X = Exports, M = Imports and S = Saving

Investment in this model includes both private sector investment and government investment expenditure. That is,

$$I = I_p + I_g$$

where,  $I_g$  = G (government expenditures) and  $I_p$  = private sector investment

Since GDP equals domestic consumption plus the domestic saving, it follows from equations (1) that the demand for domestic investment equals the sum of domestic savings and the import balance on current accounts, which is financed by net borrowing from abroad.

$$I = +S (M - X) \quad (2)$$

Where,  $(M - X)$  = net foreign borrowing

recalling the two-gap model put forward by Chenery and Strout (1966), it is easier to understand why debts tends to increase steadily. Basic Transfer (BT) stands for net external borrowing in their model. It can be expressed mathematically as the difference between the

net capital inflow which is the gross capital minus the amortization on past debt and interest payments on the balance of accumulated foreign debt.

$$BT = Dd - rD \quad (3)$$

where,  $D$  = Total Accumulated Foreign Debt,  $d$  = Percentage Rate of Increase in Total Debt,  $r$  = Average Annual Interest Rate,  $Dd$  = Net Capital Inflow or the rate of increase in total external debt and  $rD$  = Total Annual Interest Rate Payments.

Equation (3) indicates gains or loss in foreign exchange from international capital flows by a country in a given year.  $BT$  indicates gain if  $d > r$  and loss otherwise. Generally, if borrowing is linked with productive use when rates of return exceeds  $r$  and  $BT$  is positive, increasing the external debt will not have any negative impact on the economy of the recipient country in the long period.

The above theory has relationship with inter-temporal budget constraint on a year-to-year flow, hence, the following equation becomes suitable:

$$(D_t - D_{t-1}) = Y_t - rD_t - C_t - I_t - G_t \quad (4)$$

Where,  $(D_t - D_{t-1})$  = Net Change in Debt from a period  $t$  to a period  $t+1$ ,  $Y_t$  = GNP in period  $t$  (net remittance is included),  $C_t$  = Consumption in period  $t$ ,  $I_t$  = Domestic Investment in time  $t$ ,  $G_t$  = Government Expenditure in time  $t$ .

Given equation (4), increase in a country's output and a reduction in consumption, domestic investment, and government expenditure is expected to results in reduction of the debt size of a country. There might be debt crisis if a country fails to carry out a period-to-period flow analysis to determine the level where Basic Transfer ( $BT$ ) is greater than the sum of output, consumption, domestic investment, and government expenditure in a country as expressed below:

$$C_t + I_t + G_t - Y_t < dD_t - rD_t \quad (5)$$

Note:  $dD_t - rD_t = BT_t$

### 3.2 Model Specification

The regression models in this study take the Solow-type neoclassical growth model adapted from Ayadi and Ayadi (2008) and it is specified in the following forms. Output growth is determined by external debt stock, foreign direct investment, and other macroeconomic variables, such as exchange rate and interest rate.

Functional form:

$$GDP = f(TXD, ER, IR, FDI) \quad (6)$$

Econometric form:

$$GDP_t = \beta_0 + \beta_1 TXD_t + \beta_2 ER + \beta_3 IR_t + \beta_4 FDI_t + \varepsilon_t \quad (7)$$

Where:

$GDP_t$  = Gross Domestic Product at period (t)

$\beta_0$  = Intercepts

$\beta_1, \beta_2, \beta_3, \beta_4$  = Parameters to be estimated

$TXD_t$  = Total External Debt Stock at period (t)

$ER_t$  = Exchange Rates at Period (t)

$IR_t$  = Interest Rates at period (t)

$FDI_t$  = Foreign Direct Investment at period (t)

$\varepsilon_t$  = error term

In log function, it is illustrated as follows:

$$\log GDP_t = \beta_0 + \beta_1 \log TXD_t + \beta_2 \log ER_t + \beta_3 \log IR_t + \beta_4 FDI_t + \varepsilon_t \quad (8)$$

The introduction of natural logs will help to convert the variables into a common denominator.

Putting equation (8) in an ARDL model as follows:

$$\begin{aligned} \Delta \log GDP_t = & \beta_0 + \sum_{i=1}^d \beta_{1i} \log(GD)_{t-i} + \sum_{k=1}^f \beta_{2i} \log(ER)_{t-i} \\ & + \sum_{k=1}^f \beta_{3i} \log(IR)_{t-i} + \sum_{k=1}^f \beta_{4i} \log(FDI)_{t-i} + \varepsilon_t \end{aligned} \quad (9)$$

After establishing a long-run relationship among the variables in line with equation (9), the unrestricted Error Correction Model (ECM) was employed to examine the long-run effect and short-run dynamics. The  $ECT_{t-1}$  in addition determine the output evolution process by which adjustment for prediction of errors made in previous periods.

$$\begin{aligned} \Delta \log(GDP) = & \beta_0 + \beta_{1i} \Delta \log(GDP)_{t-i} + \beta_{2i} \Delta \log(ER)_{t-i} \\ & + \beta_{3i} \Delta \log(IR)_{t-i} + \beta_{4i} \Delta \log(FDI)_{t-i} + \delta(ECT)_{t-1} + \varepsilon_t \end{aligned} \quad (10)$$

### 3.3 Technique of Data Analysis

**Descriptive Statistics:** The study used descriptive statistics to determine the standard deviation mean, median, skewness, kurtosis, maximum value, minimum value and Jarque- Bera probability.

**Unit Root Test:** Unit root test was carried out as part of pre-estimation tests to ascertain data stationarity. This is to guide against spurious analysis.

**Co-integration Test:** Co-integration analysis was conducted for variables that were non-stationary at levels but became stationary after first difference in order to ascertain the long run relationship between them.

**Autoregressive Distributed Lag (ARDL):** For this study, the ARDL bound test of Pesaran et al. (1999) and Error Correction Mechanism (ECM) were used to establish the long-run equilibrium relationship between the variables and to determine the impact of external debt stock on economic growth in Nigeria. The ARDL model was chosen because the variables have a mixture of both order zero  $I(0)$  and order one  $I(1)$ . In addition, the ARDL approach allows different optimal lags for the different variables, which is not obtainable in the standard co-integration test. It also has superior small sample statistical properties as it is relatively more efficient on small sample data sets found mainly in studies in developing countries such as Nigeria; the long-run and short-run parameters of the model are estimated simultaneously.

## 4.0 Results and Discussion

In line with the study's objectives, this sub-section presents the results of the analysis and discussions.

### 4.1 Descriptive Analysis

This subsection reports the results of the descriptive statistics of all variables employed in the research, as captured in Table 4.1. These include central tendency statistics, measure of dispersion, minimum and maximum values, degree of peak, asymmetric value and the Jarque-Bera statistics of all variable used in the research. The statistics reported in this sub-section showed measures of centrality and how individual variable values are distributed on either side of the center across the root mean square (standard deviation). The kurtosis statistic gives the peakedness of each variable and the symmetry given by the skewness value, while the normality status of each series is reflected by the Jarque-Bera statistic.

**Table 4.1 Descriptive Analysis**

Statistics	GDP	TEXD	ER	IR	FDI
Mean	3.041951	34.81122	108.1676	22.33122	1.476341
Median	3.650000	24.46000	111.9400	22.42000	1.090000
Maximum	15.33000	120.8400	399.9600	36.09000	5.790000
Minimum	-13.13	4.950000	0.610000	10.00000	0.200000
Std. Dev.	5.385503	30.18113	109.9109	6.079340	1.238600
Skewness	-0.818925	0.895240	0.972926	-0.187863	1.752269
Kurtosis	4.620557	3.129580	3.172433	2.696854	6.137699
Jarque-Bera	9.069132	5.505291	6.519126	0.398158	37.80020
Probability	0.010732	0.063759	0.038405	0.819485	0.000000
Observation	41	41	41	41	41

Source: Author's computation using E-view 10 (2022)

Table 4.1 above shows the descriptive statistics of variables based on observations collected over the period spanning from 1981 to 2021. As reported in Table 4.1, among the variables, ER has the highest mean value of 108.1676, followed by TEXD with a mean value of 34.81122 and IR with a value of 22.33122; FDI has the lowest mean value of 1.476341. Furthermore, the Table 4.1 revealed that GDP has a maximum and minimum values 15.33000 and -13.13



corresponding to the year 2001 and 1981 respectively. Table 4.1 revealed that the variables TDX, ER, and FDI used in the study are all found to be positively skewed except interest rate GDP and IR, with reported values of 0.895240, 0.972926, 1.752269, -0.818925 and -0.187863. Reported kurtosis statistics revealed that the variables are leptokurtic except interest rate IR, which is platykurtic with a kurtosis of less than 3. In specific terms, reported kurtosis statistics stood at 4.620557, 3.129580, 3.172433, 6.137699 and 2.696854 for gross domestic product, external debt, exchange rate, foreign direct investment and interest rate, respectively. Jarque Bera statistics reported in the Table 4.1 stood at 9.06913 ( $p = 0.010732 < 0.05$ ) for gross domestic product, 5.505291 ( $p = 0.063759 > 0.05$ ) for external debt, 6.519126 ( $p = 0.038405 < 0.05$ ) for exchange rate, 0.398158 ( $p = 0.819485 > 0.05$ ) for interest rate and 37.80020 ( $p = 0.00000 < 0.05$ ) which demonstrates that all the variables are not normally distributed except total debt stock and interest rate that are normally distributed.

Table 4.2 Correlation Analysis

	GDP	TEXD	ER	IR	FDI
GDP	1				
TEXD	0.060853	1			
ER	0.158634	-0.512724	1		
IR	0.336852	0.128575	0.537558	1	
FDI	0.164706	0.405888	-0.191229	0.249623	1

Source: Author's computation using E-view 10, (2022)

The Table 4.2 shows that there exists a weak positive correlation between GDP and TEXD, ER, IR and FDI with coefficient values of 0.060853, 0.158634, 0.336852 and 0.164706 respectively. It therefore means that GDP has weak association with external debts variables for the period under study.

#### 4.1.2 Unit Root Analysis

This sub-section presents a summary result of the unit root test conducted to determine the stationarity property, i.e predictability properties of the variables. The test displayed the order of integration of each variable, as presented in Table 4.3.

Table 4.3 Unit Root test

Levels	ADF Test		PP Test	
Variables		Critical Values		Critical Values
GDP	-3.94522	-3.615588***	-4.274372	-3.605593***
TEXD	-1.309305		-1.309305	
ER	2.714122		3.027307	
IR	-2.893815	-2.936942**	-2.76861	-2.606857*
FDI	-3.841662	-3.605593***	-3.814828	-3.605593***
<b>First Difference</b>				
GDP	-3.957643	-3.621023***	-10.70735	-3.610453***
TEXD	-5.947136	-3.610453***	-5.952444	-3.610453***
ER	-4.074471	-3.610453***	-3.973382	-3.610453***
IR	-7.017115	-3.615588***	-8.884834	-3.610453***
FDI	-5.540723	-3.621023***	-14.5344	-3.610453***

Note: (\*\*\*) , (\*\*) and (\*) represents the level of sig at (1%) , (5%) and (10%) respectively  
Source: Author's computation using E-view 10, (2022)

The results of the unit root test as presented in the Table 4.3 indicate that some of the variables used for the study have a unit root problem in their level forms but become stationary after the first difference. It was revealed by the Augmented Dickey-Fuller (ADF) and Philips-Peron (PP) statistics for each variable with their corresponding critical values. It could be observed from the Table 4.3, that the results both from ADF and PP shows that only GDP, IR and FDI were stationary at the levels, i.e. they were integrated at order zero  $\{I(0)\}$  and at 1% and 5% significance levels. On the contrary, GDP, IR, FDI, TEXTD and ER were all found to be stationary at the first difference; this is integrated to order one  $\{I(1)\}$  and at a significance level of 1%. Table 4.3 also shows that their ADF and PP test statistics were each larger than the critical test statistics at a 1% significance level in their order of integration. Nevertheless, the variables are not stationary at the levels; there is still a tendency for us to expect a long-term equilibrium relationship between dependent and independent variables despite the presence of unit roots.

**Table 4.4 Bound Test Co-Integration Analysis**

F-Bounds Test		Null Hypothesis: No Level Relationships		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	4.362466	10%	2.2	3.09
K	4	5%	2.56	3.49
		1%	3.967	5.455

Source: Author's computation using E-view 10

The results presented in Table 4.4 are a summary of the co-integration bound tests performed in the research in line with the model specified that enable us examine the impact of external debt on Nigeria's economic growth. The F-statistics presented in Table 4.4 provided strong evidence to reject the null hypothesis of absence of co-integration at the 10%, 5%, and 1% significance levels because the statistical value of the F-statistics is greater than (1). Since there is co-integration among the variables, the ARDL test was conducted to show the long-run and short-run relationship of the variables as shown in the following Table 4.5.

#### 4.5 Autoregressive Distributed Lag (ARDL)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Long run Coefficients				
TEXTD	0.197671	0.135441	1.459461	0.158
ER	0.076435	0.045867	1.666458	0.1092*
IR	-1.101285	0.659577	-1.669684	0.1085*
FDI	0.691559	1.319621	0.524058	0.6053
C	13.68068	6.890391	1.985472	0.0591
Short run Coefficients				
D(TEXTD)	0.15048	0.036851	4.083481	0.0005***
D(TEXTD(-1))	-0.091118	0.036905	-2.468988	0.0214***
D(TEXTD(-2))	-0.024336	0.035817	-0.679443	0.5036
D(TEXTD(-3))	-0.08039	0.035806	-2.245139	0.0347***
D(ER)	-0.062678	0.021091	-2.971792	0.0068***

D(IR)	0.424635	0.11142	3.811132	0.0009***
D(IR(-1))	0.416038	0.125139	3.324594	0.003***
D(FDI)	-1.380491	0.391564	-3.525585	0.0018***
CointEq(-1)*	-0.489274	0.086675	-5.644906	0.0000
$R^2 = 0.740713$				
Adj $R^2 = 0.66663$				
D-W Stat. = 2.087625				

Note: (\*\*\*), (\*\*) and (\*) represents the level of sig at (1%), (5%) and (10%) respectively.

Source: Author's computation using E-view 10.

Table 4.5 presents both the long-run and short-run estimates of the ARDL regression model for the external debt variables. From the Table 4.5, no evidence of a significant impact of total external debt stock on economic growth in the long-run. This is contrary to the finding of Taiwo et al. (2023) and Iteh et al. (2021), where they found that external debts exhibited a positive significant relationship with economic growth in the long run. However, the short-run ARDL results shows a positive and significant impact on economic growth corroborating the findings of Polycarp (2020) and Chowdhury (1994) where they argued that external debts have a significant positive relationship with economic growth.

In addition to the findings in the Table 4.5, the coefficient of exchange rate is positive and statistically significant in the long-run and short-run suggesting a positive impact of exchange on economic growth in Nigeria. This is consistent with the earlier postulation made in the study.

Furthermore, the results obtained in the Table 4.5 indicated that the coefficient of interest rate is negative and statistically significant in the long-run. This shows that interest rate has a severe negative impact on economic growth in Nigeria. Thought, the coefficient results of interest rate are positive and statistically significant in the short-run. This may be connected to the facts that in the long-run the accumulated interest rates make servicing of loan costlier to Nigeria which reduces the money available for the government to spend on growth inducing projects thereby slowing down economic growth.

Also, in the Table 4.5, the results of the coefficient of foreign direct investment in the long-run is positive and statistically insignificant. While in the short-run the it shows a negative and statistically significant impact on economic growth in Nigeria. The result of DW of 2.087625 in the Table 4.5 indicates a negative autocorrelation in the model because the value lies between 2.0 and 4.0. Also, the value of  $R^2 = 0.740713$  indicates that 74% of the total variation in the dependent variable is being explained by the explanatory variables making it a good fit for analysis.

### **Diagnostics Analysis**

In this study various post estimation tests were carried out to ascertain the appropriateness and stability of the model including the robustness of the results obtained from the regression analysis.

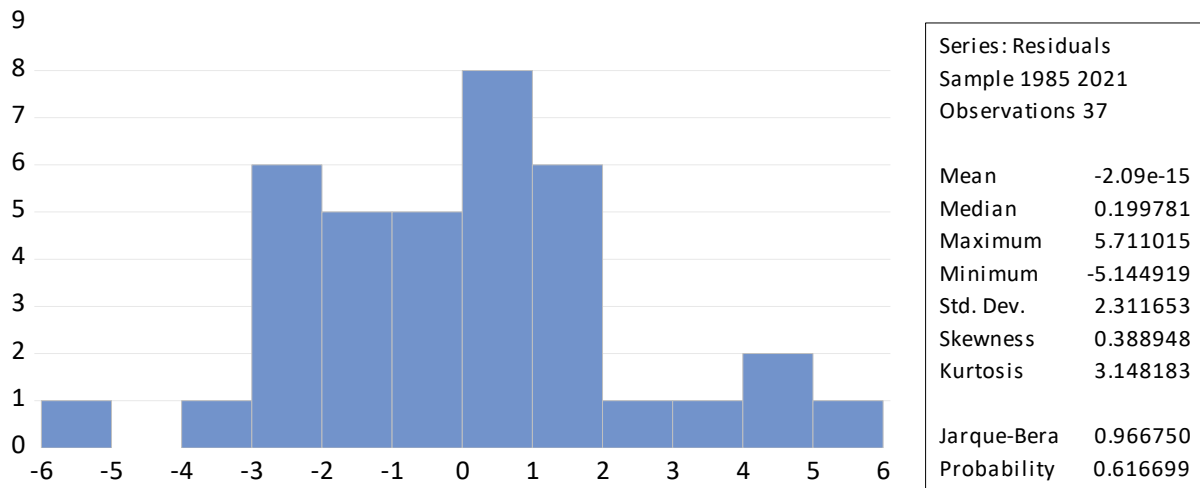


Table 4.6 Breusch - Godfrey Serial Correlation LM Test

F-statistic	0.399017	Prob. F(2,21)	0.676
Obs*R-squared	1.354582	Prob. Chi-Square(2)	0.508

Source: Author's Computation using E-view 10, (2022)

Table 4.6 contains the Breusch-Godfrey serial correlation test. We accept the null hypotheses that there is no serial correlation among the error terms employed in the model. The decision was based on the probability F-value of 0.676 which is greater than 0.05, implying that there is no serial correlation among the variables.

## CUSUM

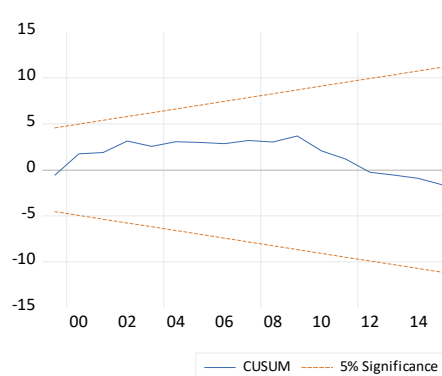


Figure 4.1: CUSUM Stability Tests

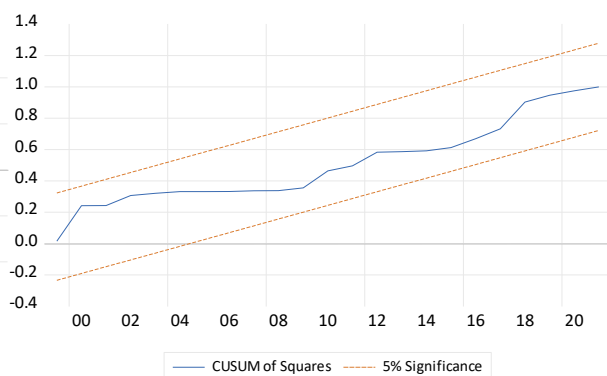


Figure 4.2: CUSUMSQ

From the figures 4.1 and 4.2, the Cumulative Sum CUSUM and Cumulative Sum of Squares (CUSUMQ) tests were employed to perform the stability tests of the recursive residuals. The plots (CUSUM and CUSUMQ) shows they are stable and appropriate as well as remain within the critical limits of 5% significance level.

## 5.0 Conclusion and Policy Recommendation

This study is an empirical investigation of the impact of external debts on economic growth from 1981 to 2021 using annual time series data sourced from CBN statistical bulletin. From

the ARDL results obtained, the study revealed that the stock of external debt has a positive and significant impact on economic growth in Nigeria in the short run during the period studied. This is in line with our a priori expectation that the returns from external borrowings can contribute to investment and growth in Nigeria. Consistent with Neoclassical growth theory, the a priori expectation is that borrowing would lead to economic growth. The considerable positive association between external debt and economic growth in the short run may be attributed to prior governments' proper utilization of borrowed funds for productive purposes. However, in the long run, external debt stock has an insignificant positive relationship with economic growth in Nigeria. Similarly, the coefficient of exchange rate is positive and statistically significant in the long-run and short-run suggesting a positive impact of exchange on economic growth in Nigeria. The study also found that interest rate is negative and statistically significant in the long-run. This shows that interest rate has a severe negative impact on economic growth in Nigeria. Though, the coefficient results of interest rate are positive and statistically significant in the short-run. Foreign direct investment in the long-run is positive and statistically insignificant suggesting that foreign direct investment is good for the economy of Nigeria.

Based on the study's findings, the following recommendations are put forward for policy makers:

1. Given the beneficial short-run impact of Nigeria's external debt stock on economic growth, present managers are advised to conduct a detailed analysis of how previous leaders used borrowed funds and take a cue in order to sustain the gains already obtained.
2. Given the insignificant positive long-run impact of external debt, the government must adopt long-term economic strategies that take into account the implications of external borrowing. Policymakers are recommended to focus on ensuring that external borrowing is channelled toward projects such as railways, ports, roads, electricity and investments in interest yielding financial assets that will benefit the economy in the long run.
3. Because the exchange rate is positive and statistically significant in both the long-run and short-run periods, policymakers should increase their efforts on import substitution and export promotion strategies to stimulate domestic production and export. This will provide foreign exchange profits to strengthen the Naira.
4. The negative and statistically significant impact of FDI on Nigerian economic growth demonstrates that international investors have no desire to invest in Nigeria. To reverse this narrative, the government should create an enabling business environment that encourages international investors to pick Nigeria as a business destination.

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