



## **EFFECT OF PUBLIC DEBT ON ECONOMIC GROWTH IN NIGERIA**

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### ***Abstract***

*Public debt is a critical tool for governments to fund their spending, particularly when it is difficult to raise taxes and reduce public expenditure. However, this process has left most governments with massive outstanding debts, hence, the need to examine the effect of public debt on economic growth in Nigeria. The study employed secondary data, which was sourced from Central Bank of Nigeria Statistical bulletin over a period of 33 years from 1987 to 2020. The study adopted ex post facto research design. The study also employed the Autoregressive distributive lag (ARDL). The result of the study revealed that external debt is a positive determinant of economic growth in Nigeria with a p-value of 0.0255. The study also revealed that domestic debt is a negative significant determinant of economic growth in Nigeria with a coefficient value of 0.0005. The study concludes that public debt has significant effect on economic growth in Nigeria. The study therefore recommends that government of Nigeria should make more use of external debt than domestic debt because of the low interest of external debt to domestic debt which will help in reducing the debt burden.*

### **INTRODUCTION**

Sustainable economic growth is a major concern for any sovereign nation most especially the Less Developed Countries (LDCs) which are characterised by low capital formation due to low levels of domestic savings and investment (Adepoju, Salau & Obayelu, 2007). It is expected that these LDC's when facing a scarcity of capital would resort to borrowing from external sources so as to supplement domestic saving.

Reasonable borrowings to finance public and infrastructure development are the key to foster economic growth but excess borrowings without appropriate planning for investment may lead to heavy debt burden and interest payment, which in turn may create several undesirable effects for the economy (Joy & Panda, 2020). For countries with poor economic structure, high public debt is also a critical issue since it can create uncertainty and low economic growth.



High debt-to-GDP ratios are also considered a concern for investors, as they reduce productive investment and employment in the long-run (Saungweme, Odhiambo and Camarero, 2019). Public debt, therefore, may be an economic stimulant but when its accumulation gets to a very substantial level, a reasonable proportion of government expenditure and foreign exchange earnings will be used to service and repay the debt with a heavy opportunity costs even for future generations. Moreover, the cost of debt servicing can increase beyond the capacity of the economy to cope, adversely affecting the efforts to address the desired fiscal and monetary policy objectives. In addition, rising debt burdens can restrict the government's ability to pursue more productive investment programmes in infrastructure, education and public health (Johnny & Johnnywalker, 2018).

The magnitude of government debt and its consequence has become a major worry to not only the government but the future generation. Developing countries like Nigeria have often contracted large amount of external debts that has led to the mounting of trade debt arrears at highly concessional interest rates. More so, public debt has been increasing in Nigeria. Nigeria's national debt amounted to an approximate value of 27 trillion Naira by the end of 2019. Compared to the previous year, the total public debt grew by 12.4 per cent. Moreover, between the third quarter of 2019 and the first quarter of 2020, the total public debt of Nigeria decreased, eventually rising again between April and June 2020 (Sasu, 2022). Several studies have been carried out on the impact of public and economic growth in Nigeria (Sulaiman and Azeez (2012), Ndubuisi (2017), Odubuasi et al. (2018), and Ugwuanyi et al. (2021) and they found the relationship between public debt and economic growth to be positive. However, Udeh et al. (2016), Okon and Monday (2017), and Onyele and Nwadike (2021) established a negative relationship. Meanwhile, Ohwofasa et al. (2012) found no relationship between public and economic growth in Nigeria. Furthermore, the previous studies concentrated on external debts on economic growth while neglecting the impact of domestic debt on economic growth. Hence, their estimates of the impacts of debt burden variables could hardly be free from the bias caused by these omitted variables and therefore little reliance could be placed in their findings. Therefore, there is the need to examine the impact of debt burden on economic growth in Nigeria.

## **LITERATURE REVIEW**

### **Public Debt**

A country's public debt is the amount it owes to lenders (Dairu, 2017). Public debt, usually referred to as national debt, refers to all of a country's foreign and internal debt. External debts are a country's commitments to foreign organizations like the IMF and AfDB (Udoka & Lari 2011). Internal debts are obligations the government has to the citizens of the nation.



When the government of a nation spends more money than it collects through revenue, it creates budget deficits, which lead to the accumulation of debts or borrowings (both internal and external) (Orgah, 2013).

According to Joyade and Oni (2016), while a country's internal debt (borrowing) may not have a significant burden on its citizens because paying the interest and principal to service the debt involves a transfer of purchasing power from one group of citizens to another and is therefore productive, the external component of public debt is counterproductive and causes a greater burden because paying the interest and principal amount involves transferring resources. According to Lawal and Muna (2017), who collaborated with Joyade and Oni (2016), transferring resources to foreign countries is an unfortunate and sad arrangement for raising money because paying interest alone can reduce a country's net income, which is counterproductive, particularly when the funds are not used effectively, as is the case with many developing African countries. Due to the discrepancy between domestic savings and investment, foreign debt develops (Ogbeifin, 2007). As a result, when the gap continues to grow, countries borrow continuously. The government and private sectors of the Nigerian economy both have debts to foreigners that are paid back with foreign products and services. This debt is referred to as Nigerian foreign debt.

## **Theoretical Review**

### **The debt overhang hypothesis**

The debt overhang hypothesis is the preeminent idea in the literature on the possible detrimental impact of a high external debt burden on growth. With his theory of firm valuation in corporate finance and the impacts of debt-financing, Stewart C. Myers initially proposed the notion of debt overhang in 1977. According to the debt overhang theory, excessive borrowing results in high debt, debt traps, and a slowdown in economic growth. According to the debt overhang hypothesis, predicted debt servicing costs will deter additional domestic and international investment if there is a chance that the government debt may eventually exceed the country's capacity to repay it. Potential investors would be deterred on the grounds that they would be less eager to incur investment costs today in order to increase future output since governments would tax them more heavily the more production there is (Gordon & Cosimo, 2018).

According to Krugman (1988), accumulated public debt act as a tax on future output as well as reduces the incentive for savings and investment. The idea specifically maintained that because the cost of debt servicing affects the amount of money available for investment, a legally imposed liquidity constraint on debt would limit investment and slow growth even more. According to the hypothesis, both the total amount of public debt and



the cost of servicing it have an impact on economic growth by deterring private investment or changing the makeup of government spending. By reducing the public resources available for investment in infrastructure and human capital, debt service may deter growth (Coccia, 2017). The theory goes on to say that public debt might affect growth in ways that are not linear, for as through capital accumulation or productivity growth. Coccia (2017) claimed that the resources utilised to pay down the enormous public debt represent a drain on resources that could have been used to fund vital industries that support growth. Huge public debt servicing expenses could consume a larger portion of the government's meagre earnings, resulting in distortions and slower growth in emerging nations. In countries with high levels of debt, the debt overhang is one of the main reasons for slow economic growth.

As Kos and István (2019) demonstrated in the context of poor countries, financing enormous public debts causes a country's revenue to be drastically reduced, making it difficult for the country to resume its growth trajectory even with vigorous reform efforts. According to Krugman (1988), predicted debt servicing is likely to represent a rising portion of the nation's future output level if a country's debt level exceeds the nation's ability to repay the debt. As a result, by anticipating high tax rates on domestic economic returns issued for the current foreign creditors, investment and expansion will be hindered. The presence of debt overhang prevents private investment programmes due to uncertainty and adverse incentive effects it creates along the way (Spilioti & Vamvoukas, 2015).

### **Empirical Review**

Safdari and Mehrizi (2001) examined the impact of external debt accumulation on economic growth and private investment in Kenya, the study revealed a negative impact between external debt and economic growth. It was also revealed a negative impact between external debt and private investment. While, Clements, Bhattacharya and Nguyen (2003); Babu, Kiprop, Kalio, and Gisore (2014) and Zouhaier and Fatma (2014) investigated the impact of external debt, economic growth and per capital income in low income countries showing a negative impact between external debt and per-capital income as well as the economic growth.

Using a time series data from 1978 – 2002, Mohammed (2005) adopted ordinary least square method and the study found the existence of debt overhang problem in Sudan. Ejigayehu, (2013) examined the impact of external debt on economic growth in some selected (Eight) heavily indebted poor African countries. The study revealed that external debt and economic growth is found to be positive and significant in terms of debt crowding out effect. Hung (2021) examined the dependence pattern of economic growth on external debts supply by accounting for the safety of debts, measured by the sovereign debts rating.



The method of cross section regression is based on a sample of 145 advanced and developing economies with averaged data over 1990-2019. The pattern of economic growth shows an U-shaped curve, for which the growth rate is first decreasing then increasing on the external debts supply. Suna (2015) examined external debt and economic growth nexus in Turkey over the period of 2003 to 2014. Using, Vector AutoRegression (VAR) and Granger Causality, the study revealed a unidirectional causality from external debt to economic growth in Turkey.

Thao (2018) analysed the effect of government debt on economic growth in six ASEAN countries, namely, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam over the period 1995– 2015. The General Method of Moments (GMM) estimation technique was adopted to measure the effect of government debt indicators on economic growth. The findings revealed a significant and positive impact of public debt, FDI, GFCF and real effective exchange rate on economic growth while population growth had a significant negative effect on the growth rate of these countries.

Mhlaba, Phiri, and Nsiah (2019) examined the long-run and short-run effects of public debt on economic growth for South Africa. Using ARDL method, the results of the study indicated a significant negative impact of public debt on economic growth. Odubuasi, Uzoka and Anichebe (2018), analysed the effect of external debt on the economic growth of Nigeria from 1981 to 2017 using Granger Causality and Johansen Co-integration estimation technique. The study revealed that external debt stock and government capital expenditure have positive on Nigeria's economic growth while external debt service had no significant impact on economic growth.

Saungweme and Odhiambho (2019) explored the causal relationship between government debt, debt servicing and economic growth in Zambia for the period 1979 to 2017 using a dynamic multivariate ARDL approach. The study results indicated a unidirectional causal relationship from economic growth to public debt in Zambia. The study findings supported the hypothesis that the pace of economic growth matters in defining the level of public sector indebtedness.

Festus and Saibu (2019) investigated the effect of external debt on economic growth in Nigeria. Time series data on external debt stock, real gross domestic product, trade openness, and gross fixed capital formation as a percentage of GDP as well as data on inflation and exchange rates were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin and World Bank World Development Indicators. The study tested for both the long run and short run relationship as well as presenting further evidences on the



relationship between external debt and economic growth. The Autoregressive Distributed Lag (ARDL) Model was employed as a technique of estimation in the study and the results led a finding that the external debt contribute negatively to growth in Nigeria based on data from 1981 through 2016 which was in line with Ayadi and Ayadi (2008).

Efuntade *et al.* (2020) empirically investigated the impact of external debt on economic growth in Nigeria between 1981 and 2018 using ARDL-ECM estimation technique. The variables used in the study were tested for stationarity using the Augmented Dickey Fuller. The result revealed that EDS, DDS, FDI and GOVE were stationary at first differencing while GDPGR was stationary at level. The study revealed that external debt and foreign direct investment positively affect economic growth while domestic debt and government expenditure hinders economic growth in Nigeria. The error correction model coefficient which is -0.969 means that nearly 96.9 per cent of any disequilibrium in economic growth is corrected by the external debt, domestic debt, foreign direct investment and government expenditure within one period (one year).

Yusuf and Mohd (2021) examined 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**

The study relied on secondary data, which sourced from Central Bank of Nigeria Statistical bulletin over a period of 33 years from 1987 to 2020. 1987 was chosen because it was post structural adjustment programme in Nigeria while 2020 was chosen because the Central Bank of Nigeria Statistical bulletin of 2021 is yet to be published as at the commencement of this study. The study adopted ex post facto research design. This research design was adopted because the fact of the study was already available before the commencement of this study therefore the research has no influence on the fact of the study. The study employed the Autoregressive distributive lag (ARDL). ARDL is a least squares regression approach involving the lag of both the endogenous variable and exogenous variables.



**Model Specification**

Following the review of literature and particularly the neo-classical growth model, which serves as a vehicle for economic growth of any country. The model of this study was stated as:

$$EG = f(ED, DD, K, N).....(3.1)$$

$$EG = \beta_0 + \beta_1 ED_{t1} + \beta_2 DD_{t2} + \beta_3 K_{t3} + \beta_4 N_{t4}.....(3.2)$$

Econometrically, it can be written thus:

$$EG = \beta_0 + \beta_1 ED_{t1} + \beta_2 DD_{t2} + \beta_3 K_{t3} + \beta_4 N_{t4} + \mu_t.....(3.3)$$

The model can be transformed into ARDL-ECM form as:

$$\Delta EG_t = \beta_0 + \beta_1 \Delta EG_{t-1} + \beta_2 \Delta ED_t + \beta_3 \Delta ED_{t-1} + \beta_4 \Delta DD_t + \beta_5 \Delta DD_{t-1} + \beta_6 \Delta K_t + \beta_7 \Delta K_{t-1} + \beta_8 \Delta N_t + \beta_9 \Delta N_{t-1} + \beta_{10} ECM_{t-1} + \mu_t.....(3.4)$$

Where:

EG = Economic Growth (Proxy with Growth Rate of Gross Domestic Product)

ED = External Debt (Proxy with the ratio of external debt to GDP)

DD = Domestic Debt (Proxy with the ratio of domestic debt to GDP)

K= Capital (Proxy with the ratio of capital formation to GDP)

N = Labour (Proxy with the ratio of employment generation to GDP)

$\mu$  = Error term

$\beta_0$  = Constant

$\beta_1, \beta_2, \beta_3$  and  $\beta_4$  = Slope coefficient

**RESULTS AND DISCUSSION**

**Unit root test**

**Table 4.1: ADF Unit Root Test Results**

Variable	ADF		Philip Peron test		Order of Integration (ADF)	Order of Integration (PP)
	Test statistic	p-value	Test statistic	p-value		
Economic Growth	-4.718121	3.568379	-13.30568	3.557759	I(1)	I(1)
Domestic Debt	-4.327258	3.562882	-3.965905	3.557759	I(1)	I(1)
External Debt	-4.204180	3.557759	-4.012424	3.557759	I(1)	I(1)



Labour	- 4.602959	- 3.557759	- 7.366686	- 3.552973	I(0)	I(0)
Capital	- 5.160016	- 3.557759	- 5.178647	- 3.557759	I(1)	I(1)

The unit root test is performed to determine the stationarity of the variables. The stationarity of the variables provides information on their order of integration. The order of integration of variables is necessary for cointegration test. The test is conducted using the Augmented Dickey-Fuller (ADF) and Philip Peron unit root tests. The tests hypothesis is that the variable contains unit root. Table 4.1 shows that labour is stationary at level while economic growth, domestic debt, external debt and capital became stationary after first differencing. The unit root test confirms that the variables are mix of I(0) and I(1) series. This implies that the test for long-run relationship (cointegration) can only be conducted by performing Autoregressive Distributed Lag (ARDL) bounds test.

**Table 4.2: ARDL Bound Test for Trading Volume**

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Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	14.64624	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

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From the result on table 4.2 above, it can be viewed that the bound test F-statistics of 14.64624 is greater than the upper bound critical value 4.01 at 5% level of significance. This indicates that there is a long run relationship among the variables. And this result qualified us to move on with the estimation of the ARDL model one.



**Table 4.3: Estimated Long-run Coefficients Based on ARDL for Economic Growth**

Regressor	Coefficient	Standard Error	t-Statistics	p-Value
Dependent Variable: Economic Growth				
External Debt	2743.317739	1001.437646	2.739379	0.0255
Domestic Debt	-0.483975	0.085033	-5.691635	0.0005
Capital	-128.649548	29.113630	-4.418877	0.0022
Labour	15080.177095	4839.456594	3.116089	0.0143
C	137016.56601	63848.800162	-3.560462	0.0074
R <sup>2</sup> =			0.856325	
Adjusted R <sup>2</sup> =			0.841677	
S.E of regression =			446.8905	
F-statistics =			8.341419	
Prob(F-statistics) =			0.002209	
Durbin Watson =			2.043058	

Source: Author computation using Eviews 9.0

Table 4.3 shows that the R-squared is 0.856325 and this indicates that the model is of good fit. This implies that 85.6% of variations in economic growth are accounted for by external debt, domestic debt, capital and labour. The F-statistic of 8.341419 with a p-value of 0.002209 indicates that the model is statistically significant. This suggests the model is adequate and capable of making predictions.

Also, as indicated in the Table 4.3, the coefficient of external debt is 2743.317739 with a p-value of 0.0255, indicating that the value of external debt has a positive and significant



effect on economic growth. However, the value of domestic debt has a negative and significant effect on economic growth because it has a coefficient of -0.483975 with a p-value of 0.0005. Turning to capital and labour, these variables have coefficient values of -128.649548 and 15080.177095 with a p-values of 0.0022 and 0.0143 and this indicate that capital and labour have significant effect on economic growth. However, capital shows a negative relationship with economic growth while shows a positive relationship with economic growth in Nigeria.

**Table 4.4: Short run Results and Diagnostics Tests results**

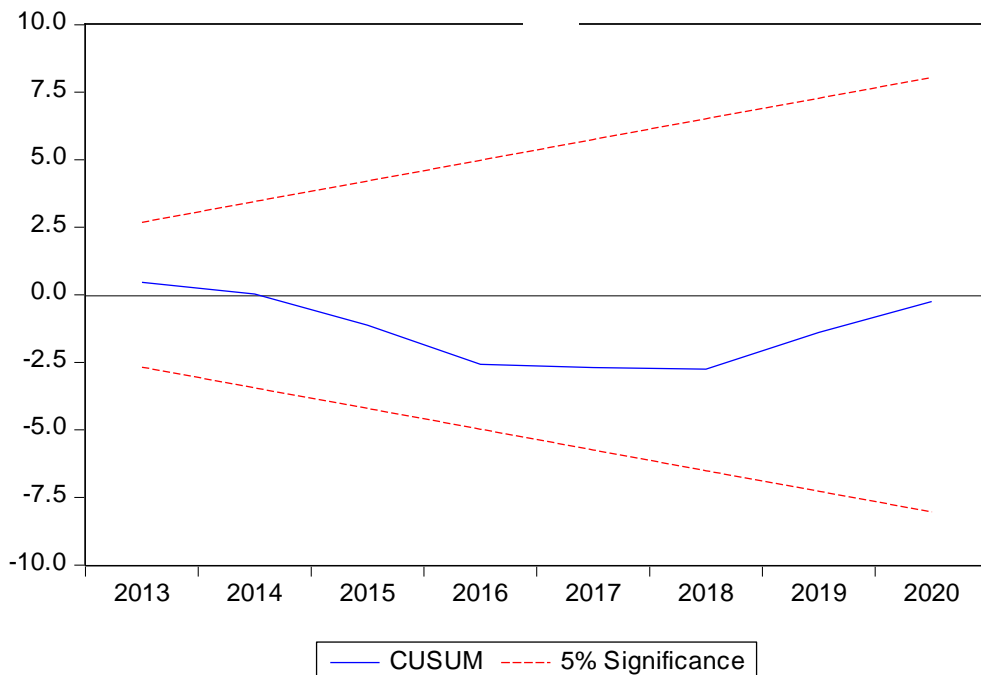
<b>Dependent Variable: Economic Growth</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
D(EG(-1))	0.924941	0.229198	4.035550	0.0038
D(EG(-2))	0.315071	0.202967	1.552322	0.1592
D(EG(-3))	-0.624261	0.164366	-3.798001	0.0053
D(EXTERNALD EBT)	3365.918341	2000.356583	1.682659	0.1309
D(EXTERNALD EBT(-1))	-2939.150595	1949.440974	-1.507689	0.1701
D(EXTERNALD EBT(-2))	3229.556452	2027.130376	1.593167	0.1498
D(EXTERNALD EBT(-3))	-1357.651629	1746.594959	-0.777313	0.4593
D(DOMESTIC_ DEBT)	0.625286	0.363610	1.719662	0.1238
D(CAPITAL)	-168.202223	67.299525	-2.499308	0.0370
D(CAPITAL(-1))	66.729046	72.057691	0.926050	0.3815
D(CAPITAL(-2))	271.567698	80.529291	3.372285	0.0098
D(CAPITAL(-3))	-171.457887	53.993629	-3.175521	0.0131
D(LABOUR)	-97369.958832	27103.371295	-3.592540	0.0071
D(LABOUR(-1))	-429.685854	132.060886	-3.253695	0.0116
D(LABOUR(-2))	223.019826	129.653868	1.720117	0.1237
D(LABOUR(-3))	700.251467	142.078341	4.928629	0.0012
CointEq(-1)	-2.075652	0.297144	-6.985349	0.0001
<b>Diagnostic Tests</b>				
Test	F-statistics	Prob. Value		



Breusch-Pagan Godfrey Serial	24.41677	0.1113
Breusch-Pagan- Godfrey Heteroskedasticity	1.057218	0.4985

Source: Author computation using Eviews 9.0

Table 4.6 above reports the result of short dynamics of the model. The negative statistically significant estimate of CointEq(-1) validates the established long run relationship among the variables of the model. The results also indicate that the estimate of CointEq(-1) is -2.075652 and is statistically significant at 1 per cent level. This implies that about 2.75 per cent of the deviations from long run equilibrium are corrected for in the next quarter period. The diagnostic test on the table also indicates there is no problem of serial correlations, as the null hypothesis of serial correlation is rejected; therefore, there is also no misspecification error. In addition, Breusch-Pagan heteroskedasticity statistics of 1.057218 with p-value of 0.4985 suggest that there is absence of heteroskedasticity in the model because the statistics are not significant and the test’s null hypothesis of equal variance is not rejected.



**Fig 4.1: CUSUM TEST.**



### **Stability Tests**

The study proceeded by testing for stability of long run coefficients using the cumulative sum of recursive residuals (CUSUM) tests. The test result for cumulative sum of the model is shown in Figure 4.1. To establish stability, it is expected that the cumulative should remain within the two critical lines at 5% significance level. Otherwise, there is problem of instability. However, it was shown in Figure 1 that the CUSUM plot is within the two critical bounds. It therefore suggests stability of parameters for the model.

### **Discussion of Findings**

Fully modified OLS were employed to investigate the impact of public debt on economic growth in Nigeria. The findings of the study also revealed that external debt is a significant determinant of economic growth in Nigeria which is consistent with the a-priori expectations and also consistent with the studies of Efuntade *et al.* (2020) and Yusuf and Mohd (2021). Therefore the null hypotheses state that, external debt does not impact significantly on economic growth in Nigeria should be rejected.

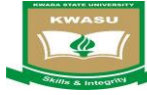
The study also discovered that domestic debt has significant impact on economic growth in Nigeria which is consistent with the work of Saungweme and Odhiambo (2019). Based on these, the null hypotheses that state there is no significant effect of domestic debt on economic growth in Nigeria should be rejected. This study is consistent with the a-priori expectations and also consistent with the debt overhang hypothesis that assumes that the both the stock of public debt and its service affect growth by discouraging private investment or altering the composition of public spending.

### **CONCLUSION AND RECOMMENDATIONS**

The study concluded, based on its empirical findings, that external debt has a positive significant impact on economic growth in Nigeria. Domestic debt was found to have a negative impact on economic growth in Nigeria. Therefore, this study therefore recommends that government of Nigeria should make more use of external debt than domestic debt because of the low interest of external debt to domestic debt which will help in reducing the debt burden.

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