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EMPIRICAL EVIDENCE ON THE EFFECT OF PUBLIC DEBT ON ECONOMIC GROWTH IN NIGERIA.

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ABSTRACT

The rising debt profile of developing economies like Nigeria has remained a concern for policymakers and other agents of the economy as to whether it has achieved the desired goal of economic growth in Nigeria. Thus, this study investigated the effect of public debt on economic growth in Nigeria. Relevant secondary data were sourced from Central Bank of Nigeria, Debt Management Office and World Bank

Development Indicators, for the period 2010-2022. The study employed Autoregressive Distributed Lag (ARDL) methods of analysis to estimate the relationship among the variables used in the study. Results revealed that both in the short-run and long-run foreign and domestic debt had a positive significant effect on economic growth in Nigeria; while debt service and inflation exert a negative insignificant effect in the long-run and short-run. The error correction mechanism (ECM) shows that the model will adjust at the speed of 10% in short run towards the long run equilibrium. To this effect, the study recommended that borrowed funds should be optimally invested in productive ventures in Nigeria. Also, the loans should be serviced when they are due to avoid sanctions and debt overhang.

Keywords: Public Debt, Debt Servicing, Debt Overhang, Economic Growth

JEL Classification: H60, H63, H69, O47, F34

1. INTRODUCTION

Raising the level of economic growth has been the desire of all economies in the world. Hence, governments engage in huge capital projects and countries with insufficient domestic resources may resort to borrowing. Apart from taxes, borrowing internally and externally has proven to be ready means of financing government expenditure. With a low tax-to-GDP ratio Nigeria has witnessed a continuous rising debt profile which is often typified by adverse lending conditions, unstable foreign exchange rates and the potential repudiation that occasions debt overhang, hence exerting adverse effects on the economic growth of the nation (Akinwunmi & Adekoya, 2018).

In Nigeria, both domestic and external debt has increased over the years. Available data showed that domestic debt increased from ₦11.19 billion in 1981 to ₦36.79 billion in 1987 while external debt increased from ₦2.33 billion to ₦100.79 billion within the

same period. Domestic debt also increased from ₦497.73 billion in 1995 to ₦6537.54 billion in 2012 while external debt increased from ₦716.87 billion to ₦3325.90 billion within the same period. Between 2015 and 2019, domestic debt increased from ₦8837.0 billion to ₦142272 billion while external debt increased from ₦2111.51 billion to ₦9022.42 billion. Domestic debt further increased from ₦16023.88 billion in 2020 and ₦19242.55 billion in 2021, while external debt increased from ₦12705.62 billion in 2020 to ₦15855.23 billion in 2021 (CBN, 2022). Within these periods, the trend of GDP has been unsteady. Nigeria's GDP growth rate was 3.65% in 2021, an improvement from -1.79% in 2020. The figure was $432.20 billion in 2020, a 3.55% drop from 2019. Nigeria's GDP was $440.83 billion in 2020 (-1.79%), a decline from 2.21% in 2019. Nigeria's GDP was $448.12 billion in 2019, a 6.26% rise from 2018. Nigeria's GDP growth rate was 2.21% in 2019, an improvement from 1.92% in 2018. Nigeria's GDP was $421.74 billion in 2018, a 12.24% rise from 2017. Nigeria's GDP growth rate was 1.92% in 2018, an improvement from 0.81% in 2017 (World Bank, 2021; CBN, 2022). From these data it can be seen that despite the rising debt profile, translating this to meaningful economic growth has been a daunting challenge over the years for the Nigerian economy. Hence, this paper investigates the nexus between public debt and economic growth in Nigeria.

II. LITERATURE REVIEW

Literature is replete with different views on public debt. Bamidele and Joseph (2013) defined debt as the resources or capital assets utilized in running an organization, devoid of owners contribution and does not belong to the organization. While domestic debts refer to the portion of a country's debt borrowed from within the confines of the country (Ozurumba & Kanu, 2014); external debt on the other hand is debt owned by the Nigeria' economy to non-residents and payable in foreign currency, goods and services (Ogebeifun, 2007). Similarly, Hassan and Akhter (2012) saw public debt as the amount of money owed by the government to institutions, government agencies and other bodies either resident in or outside a country. Building on the position of Hassan and Akhter (2012), this paper views public debt as the total money owed by the government of a country to various creditors, institution, and individuals resident in and outside Nigeria.

Theoretical Framework

The debt overhang theory describes a situation where the debt of a country outweighs its capacity to pay in the future. The debt overhang theory contends that if a country's debt over weighs the repayment capacity, expected debt service is likely to be an increasing functions of the country's output level. The debt overhang effect comes into play when accumulated debt stock discourages investors from investing in the private sector for fear of heavy tax placed on them by the government (Utomi, 2014). In addition to decline in capital accumulation, Pattillo, Poirson and Ricci (2014), pointed out that debt overhang could also reduce the level of investment in human capital and technology which could further worsen a country's growth process.

Also, the debt crowding-out effect theory by Buiter (1976), posited that higher debt service payments can increase a country's budget deficit, thereby reducing public savings if private savings do not increase to offset the difference. This, in turn, may either drive up interest rates or crowd out the credit available for private investment, thereby depressing economic growth. When government increases borrowing to fund higher spending, or reduce taxes, it crowds-out private sector investment through higher interest rates. The net result of the crowding-out hypothesis is that government sector growth, inevitably, comes at the expense of the private sector of the economy, unless the money supply rises during the process (Khan & Gill, 2009). This crowding out effect impedes the effectiveness of the government to influence the economy through fiscal policies.

Relatedly, the Debt-cum Growth Model considers debt capacity in terms of the benefit and cost of borrowing in the process of economic growth. The basic argument is that a country will maintain its capacity to service debt provided that additions to its debt overtime contribute considerably to growth (Abdullahi, Alier, & Abdullahi, 2013). In the context of poor countries like Nigeria, Àkos and Istvàn (2019) explained that servicing of high public debts depletes the revenue of the indebted country to such an extent that the ability to return to growth paths is dim, even if the country implement strong reform programmes. Thus the theoretical framework of this study is anchored on the debt overhang theory.

Opinions are divergent on the effects of public debt on economic growth. Idris and Ahmad (2017) examined the productivity of public debt and economic growth in Sub-Saharan region and found that domestic debt exerts a negative effect on economic growth. Pharm (2018) found that an increase in public debt had a significant and positive impact on the real GDP per capita growth rate of six ASEAN countries comprising Vietnam, Thailand, Singapore, Philippines, Malaysia and Indonesia. In a study of 50 African countries on the effect of public debt on economic growth using both the Ordinary Least Square (OLS) technique and the generalized method of moment (GMM) estimation technique, Lartey, Musah, Okyere, and Yusif (2018) found that public debt and economic growth had a non-linear relationship. In addition, Eze, Nweke and Atuma (2019) in their study on the effect of public debt on economic growth in Nigeria using the ARDL analysis techniques, found that external debt had a significant negative influence on investment and GDP while domestic debt had an insignificant positive effect on investment and GDP. Udoh, Kelvin and Sylvester (2020) investigated the influence of intergenerational debt burden on economic prosperity in Nigeria using the ARDL model and revealed that debt overhang and debt burden in Nigeria was due to the usage of borrowed funds into unproductive activities such as payment of salaries and allowances, which had hindered economic growth. For the Afghan economy, Nassir and Wani (2020) used analysis of variance (ANOVA) and revealed that domestic and external debt have negative and insignificant influence on GDP in Afghanistan

By disaggregating public debt into foreign and domestic debt and using Vector Error Correction Model (VECM), Didia and Ayokunle (2020) revealed that domestic debt had a statistically significant positive relationship with economic growth in the long run in Nigeria; while external debt exhibited a negative relationship with economic growth, which was not statistically significant. Furthermore, Yusuf and Mohd (2021) utilized the ARDL technique and found that external debt had a negative effect on long-term growth in Nigeria, while domestic debt had a positive effect; and that debt service payments had a negative effect on both short-term and long-term growth.

III. METHODOLOGY

Secondary data from the Central Bank of Nigeria (CBN)'s Statistical Bulletin; Debt Management Office (DMO), and the World Development Indicators (WDI) of World Bank were utilized for this study. The data collected covered the thirteen years period (2010Q1-2022Q3). Specifically, the data for domestic debt stock and foreign debt stock are obtained from the CBN Statistical Bulletins, 2022 Edition. The data for real gross domestic products per capita (GDP), which is the proxy for economic growth, is measured at constant 2015 U.S Dollars and inflation rate measured as the annual percentage of consumer prices were obtained from the WDI. The final variable used in this study is the public debt servicing which measures the percentage of the amount used in servicing public debts and sourced from the DMO. Apart from the data for domestic debt and foreign debt which are obtained based on the quarterly frequency, the remaining variables are obtained on the yearly basis and converted to quarterly frequencies using the quadratic match sum as demonstrated by Balcilar, Usman,

and George (2023). In addition, GDP, domestic debt, and foreign debt, were transformed into their logarithmic forms in order to circumvent heteroscedasticity problem, while public debt service and inflation rate are already in percentage.

To investigate the relationship between public debt and economic growth of the Nigeria GDP was used as the independent variable while; domestic debt, foreign debt, and public debt service were used as the explanatory variables. Inflation rate was used as a control variable. Thus, the functional relationship is represented as:

GDP = f (FD, DD, PDS, INFL)- (1)

The econometric transformation of the model is:

$\ln GDP_t = \beta_0 + \beta_1 \ln FD_t + \beta_2 \ln DD_t + \beta_3 PDS_t + \beta_4 INFL_t + \mu_t$ - - - - - - - - - - - -(2)

Where:

GDP = Real Gross Domestic Product per capita
FDS = Foreign Debt Stock
DDS = Domestic Debt Stock
PDS= Public Debt Service
INFL= Inflation Rate
β_0 = constant/intercept
β_1, β_2, β_3, and β_4 = parameter estimates or slope of the variables
U_t = error term

Theoretically, the slope of the coefficient β_1, β_2, is expected to have a positive sign, while β_3, β_4 a negative sign. This can be mathematically stated as follows β_1, β_2, > 0; β_3, $\beta_4 < 0$. The apriori expectation of the model is that as public debt increases, there should be an increase in the GDP. By implication, as domestic debt and foreign debt increases, GDP is expected to increase within this period; while as public debt service and inflation rate decreases GDP is expected to increase.

The data were first tested for unit root to ascertain their stationary in order to distinguish between correlations that arise from sheer trend (spurious) and one associated with an underlying causal relationship. This test helps us to detect a spurious regression on the time series data and it also aid good forecasting. The Lagrange Multiplier unit root test which further captures the effect of structural break that is usually associated with macroeconomic variables was thus conducted (Lee & Strazicich, 2003).

The series contains a mixture of I(0) and I(1) order of integration, which makes the Autoregressive Distributed Lag (Bounds co-integration test) approach most suitable for testing the co-integration among the variables (Pesearan, Shin & Smith, 2001). The ARDL is a linear regression model and therefore, the underlying assumptions of Classical Linear Regression Model (CLRM) have to be verified. These assumptions include linearity, serial correlation and normality among others (Idowu, Mercy & Emmanuel, 2018). This methodology is chosen because; it provides unbiased estimates of the model in the long run and a reliable t-statistics even if some of the explanatory variables are endogenous (Sollis & Harris, 2003).

The decision rule is that if the F-statistic value is greater than the upper bound at the specified level of significance, the null hypothesis is rejected and conclude that a long run relationship exist (the variables are co integrated), otherwise the null hypothesis is accepted and a short run relationship is established.

The constructed ARDL model is shown in equation 3:

$$\Delta lnGDP = \alpha_0 + \sum_{i=1}^{p} \beta_1 \Delta \ln GDP_{t-1} + \sum_{i=1}^{q} \beta_2 \Delta \ln DD_{t-1} + \sum_{i=1}^{q} \beta_3 \Delta \ln FD_{t-1} + \sum_{i=1}^{q} \beta_4 \Delta PDS_{t-1} + \sum_{i=1}^{q} \beta_5 \Delta INFL + ECM + \varepsilon_t \text{ ----- (3)}$$

The Error Correction Model (ECM) denotes the error correction mechanism which captures the speed at which disequilibrium in $\ln GDP_t$ are corrected. For the model to be correcting, stable and co-integrated, the ECM coefficient in absolute values must be negatively significant and less than one. The error correction mechanism developed by Engle and Granger (1987) is a means of reconciling the short-run behaviour (Gujarati &

Porter, 2013). The coefficient of the error correction variable gives the percentage of discrepancy between the variables that can be eliminated in the next period. The ECM shows the speed of adjustment from short-run to long-run equilibrium. The apriori expectation is that the ECM coefficient must be negative and significant for errors to be corrected in the long run.

IV. RESULTS AND DISCUSSION

Table 1: Descriptive Statistics

	LNGDP	LNDD	LNFD	PDS	INFL
Mean	7.773848	16.08016	14.96590	0.866724	12.72856
Median	7.744293	16.17696	14.97463	0.825174	12.26223
Maximum	8.084201	16.88598	16.65742	2.163450	19.02734
Minimum	7.564553	15.05862	13.36984	0.032218	7.754089
Std. Dev.	0.153747	0.478441	1.099643	0.640785	3.298659
Skewness	0.571365	-0.227610	0.094482	0.613566	0.203627
Kurtosis	2.124166	2.112608	1.539702	2.331274	1.999422
Jarque-Bera	4.404955	2.113718	4.607379	4.150225	2.479900
Probability	0.110529	0.347546	0.099890	0.125542	0.289399
Sum	396.4662	820.0883	763.2608	44.20295	649.1568
Sum Sq. Dev.	1.181912	11.44527	60.46072	20.53025	544.0574
Observations	51	51	51	51	51

Source: Author's computation using E-views 10 (2023)

Table 1 revealed the location of the centre of distributions of the series via the average values (mean), the minimum values, maximum values as well as how individual variables values are spread on each side of the centre via the standard deviation, thus revealing the uniformity of the items in the distribution of each variable. The peakedness of each variable is given by the kurtosis statistics, the symmetric nature of the series is given by the skewness value while the normality condition of each of the series is given by the Jarque-Bera statistics, which indicated that the null hypothesis of normal distribution cannot be rejected in all the variables.

The minimum and maximum values of LNGDP were 7.564553 and 8.084201 respectively. This shows that the growth in LNGDP has been consistent. For LNDD, the table revealed minimum and maximum values of 15.05862 and 16.88598 respectively, implying that the domestic debt rate has consistently increased over time. Minimum and maximum values of foreign debt reported in table 1 stood at 13.36984, 16.65742 respectively. The minimum and maximum values for PDS and INFL were 0.032218, 2.163450 and 7.754089, 19.02739. From the table, it was observed that variable LNGDP, LNFD, PDS and INFL are skewed to the right, given the corresponding positive skewness statistics of 0.57, 0.09, 0.61 and 0.20 for LNGDP, LNFD, PDS and INFL respectively. Their positive values of skewness show that the coefficients of the variables are positive and their means are more than median values. Also, the positive skewed distribution indicates that there is high risk than what the standard deviation measures. For the LNDD it is skewed to the left given the negative skewness statistics of -0.22. The negative skewness shows the coefficients of the variables to be negative and mean less than the median

value. But for the LNDD skewed distribution is less risky unlike LNGDP, LNFD, PDS and INFL to what the standard deviation measures. As regard kurtosis, a kurtosis with distribution greater than 3 is a leptokurtic distribution. A leptokurtic distribution (greater than 3) has a sharper peak with lower probability than a normal distribution of kurtosis whose value is equal to 3. A kurtosis with less than 3 is a platykurtic distribution which has a lower and wider peak with higher probability than leptokurtic and normal distribution. Notably, the kurtosis statistics revealed that LNGDP, LNDD, LNFD, PDS and INFL are not normally distributed but are platykurtic since they are all less than 3.

Also, figure 1(Appendix B), revealed the time series of the variables and provides information about the trends of the variables. The graphs showed that both domestic debt (DD) and foreign debt (FD) trends upward, indicating an increase in domestic and foreign debts over time. GDP, PDS and INFL have no clear-cut trend. They exhibit high level of fluctuations leading to structural breaks. The fluctuations identified might be caused by macroeconomic policy shifts.

Table 2: Lee-Strazicich LM unit root test

	L-Stest at level		**L-S test at 1st difference**	
Variables	Statistics	Break date	Statistics	Break date
$lnGDP$	-3.5331 (2)***	2015Q1	-4.1772 (7)***	2019Q4
$lnDD$	-2.2482 (6)	2016Q3	-3.5877 (8)*	2018Q1
$lnFD$	-2.1657 (6)	2013Q2	-5.0820 (8)***	2019Q1
PDS	-2.4375 (5)	2012Q4	-4.0815 (7)***	2017Q3
$INFL$	-6.0807 (8)***	2015Q4	-4.9368 (7)***	2012Q4
Critical Values				
1 Percent	-4.084000			
5 Percent	-3.487000			

Notes: *** and * denote 1% and 10% significance levels. The lag length is given in the Bracket ( ).

Source: Author's computation using E-views 10 (2023)

As shown in Table 2, the lnGDP is found to be stationary at level with evidence of structural breaks in 2015:Q1, while INFL is also found to be stationary at level with evidence of structural breaks in 2015:Q4. This structural break could be associated with a shock in oil prices at international crude oil market in 2013 through 2015. This shock affected GDP growth because of the heavy dependence of the Nigerian economy on crude oil export as its major foreign earnings. Furthermore, LNDD, LNFD, and PDS are only stationary after their first difference. The results identified structural break data of 2016:Q3 for the case of LNDD, 2013:Q2for the case of LNFD and 2012:Q4 for the case of PDS. These dates correspond with the period of a significant fall in the prices of crude oil at the international oil market, thus, the resort to domestic and foreign borrowing to sustain the economy. This led to increase debt to GDP ratio.

Table 3: Bounds test Cointegration Results

			H_O: No levels relationship	
		Significance level	I(0)	I(1)
F-statistic	4.4632**	10%	2.45	3.52
K	4	5%	2.86	4.01
		1%	3.74	5.06
t-statistic	-4.3287**	10%	-2.57	-3.66
		5%	-2.86	-3.99
		1%	-3.43	-4.60

Note: I(0) and I(1) represent the lower and upper bounds respectively. ** denotes 5% significance level

Source: Author's computation using E-views 10 (2023).

From table 3, the F-statistics value (4.4632) is greater than the upper bounds critical value at 5% significance (4.01) level which suggests there is a long-run relationship among the variables; hence the null hypothesis of no cointegration between the variables is rejected. This result is sustained in the case of t-statistic where -4.3287 (in absolute term) is greater than 4.01 which the upper bounds of the 5% level of significance. Overall, based on the value of f-statistic and t-statistic as reported, it is concluded that there is a cointegration between the variables investigated in this study.

Table 4: Long-Run ARDL Coefficients

Dependent Variable = $lnGDP$

Variables	Coefficient	Std. Error	t-Statistic	*p*-value
Long-run Coefficients				
$lnDD$	0.2697**	0.1231	2.1900	0.0362
$lnFD$	0.3459*	0.1766	1.9589	0.0575
PDS	-0.3350*	0.1865	-1.7961	0.0804
$INFL$	-0.0276*	0.0158	-1.7434	0.0893
Short-run Coefficients				
Constant	0.8050***	0.2833	2.8414	0.0072
$\Delta lnDD$	0.6616***	0.1025	6.4516	0.0000
$\Delta lnFD$	0.1112***	0.0229	4.8377	0.0000
ΔPDS	-0.0707***	0.0257	-2.7457	0.0092
$\Delta INFL$	-0.0159***	0.0039	-4.1065	0.0002
ECM_{t-1}	-0.1004***	0.0353	-2.8436	0.0071

Note: ***, **and *denote significance level at 1%, 5% and 10%. The maximum lag order is 2 and the optimal lag order selected is 1 based on the AkaikeInformation Criterion (AIC).The ARDL model estimated is based on Case 3:

Unrestricted Constant and No Trend.

Source: Author's computation using E-views 10 (2023)

Table 4 presents the empirical results based on the ARDL estimation approach. To perform this estimation, the unrestricted constant and no trend is applied with a maximum lag order of 3 and the optimal lag order of 1. The selection of the ARDL model was based on the Akaike Information Criterion (AIC). Based on the long-run estimation, the effect of both domestic debt and foreign debt on economic growth measured by the real GDP per capita is positive and statistically significant. This result implies that, a 1% increase in domestic debt would cause economic growth to increase by 0.2697% in the long run, if other variables remain constant. Similarly, a 1% increase in foreign debt would result to about 0.3459% increase in economic growth if all other variables remain constant. The effects of public debt servicing and inflation rate on economic growth are negative and significant in the long run. Particularly, a 1% increase in public debt servicing would decrease economic growth by 0.3350% while a 1% increase in inflation causes economic growth to decrease by 0.0276%.

Furthermore, coefficient of error correction term (ECM_{t-1}) is -0.1004, which is significant at 1% level. This implies that whenever there is a short-run disequilibrium, the speed of adjustment to the path of long-run equilibrium is 10.04% every quarter through changes in domestic debt, foreign debt, public debt servicing, and inflation rate. In addition, the short term effect of domestic debt and foreign debt on economic growth is positive and statistically significant while the effect of inflation rate on economic growth is negative and statistically significant. Particularly, a 1% increase in domestic debt and foreign debt would bring about an increase economic growth by 0.6616% and 0.1112% respectively in the short run while a 1% increase in public debt servicing and inflation rate will reduce economic growth by 0.0707% and 0.0159% if other factors remain constant.

These results are consistent with the a-priori expectations. The plausible explanations for these findings are consequent upon the fact that borrowing makes the government of the day to discharge its responsibility of ensuring that a conducive environment is created for the economic players to participate in economic activities. Borrowing through domestic and foreign debts can help government to embark on infrastructural developments thereby growing trade and investments. As government is developing the state of the infrastructures, foreign direct investments as well as domestic investments are attracted by increasing investors' confidence in pooling their funds into the economy of the host country. This would increase the revenue of the government through taxes and other revenue earnings of the government.

Furthermore, the negative effect of public debt servicing on economic growth implies that servicing public debt is a withdrawal of funds from the economy which dampens economic activities. In other words, as public debts are serviced, funds are withdrawn from the economy. This may affect the role of the government in economic growth. Also, the negative effect of inflation on economic growth signifies that an increase in the level of inflation distorts economic growth. This is because investors tend to reduce their level of investment to reduce high risks of losing their funds during the period of high inflation. Generally, investors and household would face difficult challenges of making economic decisions during the period of high inflation. Firms also face difficulty of minimizing costs of production and maximizing outputs during the period of inflation. Consequently, economic growth may be dampened significantly due to high level of inflation.

Table 5: Results of Diagnostic Tests

Tests	Statistics	p-values
Breusch-Godfrey LM serial correlation	2.0173: [2]	0.1478
ARCHHeteroskedasticity Test	2.0564: [1]	0.1583
Ramsey RESET	0.0436: [1]	0.8357
Jarque-Bera normality	57.3809	0.0000

Note: [ ] denotes the lag length selected for the test
Source: Author's computation using E-views 10 (2023).

The result of the serial correlation test using Breusch-Godfrey LM test indicates that series is statistically insignificant, signifying that the error terms are not serially correlated. This implies that error terms are independent and identically distributed. Normality (Jarque-Bera) test is shown to be statistically significant at 1% probability value, showing that the series are not normally distributed. This means a rejection of the null hypothesis of the normally distributed series and accepting the alternative that the series are not normally distributed. However, if the sample is higher than 30, then one can ignore the normality issue as per central limit theorem. The results of the Breusch-Pagan-Godfrey heteroscedasticity test illustrate a high p-value. This suggests an acceptance of the null hypothesis and conclusion that the residuals have a constant variance (Homoscedasticity). The result of Ramsey test suggests that the functional specification of the model via linear ARDL model was correct and there was no issue of misspecification.

Stability Test

Furthermore, in order to ascertain the stability of the parameters of the model, the cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares off recursive residuals (CUSUMQ) tests were conducted. If the plots of CUSUMQ break in the lower/upper bounds the parameters are said to unstable. From Figures 2 and 3 (Appendix B), the CUSUM and CUSUM squares revealed that the models are stable both in the short run and long run.

Discussion of Findings

The results of the ARDL cointegration test revealed that there exists a long-run relationship between the variables under investigation and no diagnostic problem was encountered in the model. The findings revealed that a unit increase in foreign debt would lead to an increase in GDP by 35%, that is to say that foreign debt through the procurement of capital inputs would increase the outputs of goods and service. Again, a unit increase in domestic debt would lead to an increase in GDP growth rate by 26% implying that domestic debt would lead to increase in economic growth. Thus, public debt are veritable channels in financing profitable public investment at the start up stage and so in the long run, the returns from the investment helped to speed up economic growth. This is consistent with *apriori* expectation as well as the work of Pharm (2019), who found that an increase in public debt in the six Asian countries brings about increase in economic growth.

Also, unit increase in public debt servicing would lead to a decrease in gross domestic growth rate by -0.33%, this could be attributed to the fact that revenue that should have been channeled towards procurement of capital project to boost economic growth are being used in servicing debt, thus, decrease in economic growth. This also concurs with the empirical results of Udoh, Kelvin and Sylvester (2020), whose findings indicated a significant negative impact of

public debt on economic growth. Similarly, the findings further revealed that a unit increase in inflation rate would lead to a -0.02% decrease in GDP growth rate. This signified that at a very high inflation rate, inflation can lead to higher interest rates, which makes borrowing more expensive for businesses and consumer spending, hence retarding economic growth. From the foregoing, the null hypothesis of no significant relationship between public debt and economic growth is rejected and therefore conclude that there exist a significant relationship between public debt and economic growth in Nigeria.

V. CONCLUSION AND RECOMMENDATION

This study sought to find if a long run relationship exist between public debt and economic growth. Based on the findings, it is concluded that external debt of Nigeria has been an instrument in enhancing growth in the economy; and that, an increase in the level of debt servicing to the various creditors would reduce the level of economic growth. It was also revealed that domestic debt impact positively on the overall economic growth. Though caution should be applied as the findings also reveal that domestic and foreign debt accumulation causes increase in inflation which implies crowding out effect of private investment. This paper recommends that though external debt does play an important role in the growth process of Nigerian economy, the government should increase the level of external debt with caution and continue to invest in highly productive projects. Also, the DMO should adequately keep track of the debt payment obligations and the debt should not be allowed to pass a certain threshold so as to avoid debt overhang. The Nigerian government should look seriously into diversification by increasing its tax to GDP ratio which is very low and promote import substitution strategies that will enhance domestic investment, hence its revenue source and also avoid reliance on borrowings to finance its budget.

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APPENDICES

Appendix A

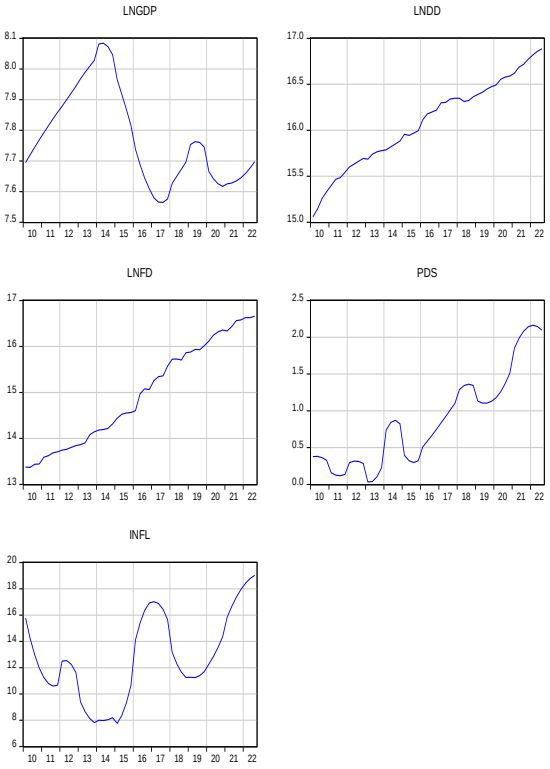

Figure 1: Time plots of GDP, domestic debt, foreign debt, and inflation rate expressed in their natural logarithms except inflation rate which is already in percentage.
Source: Author's computation using E-views

Appendix B

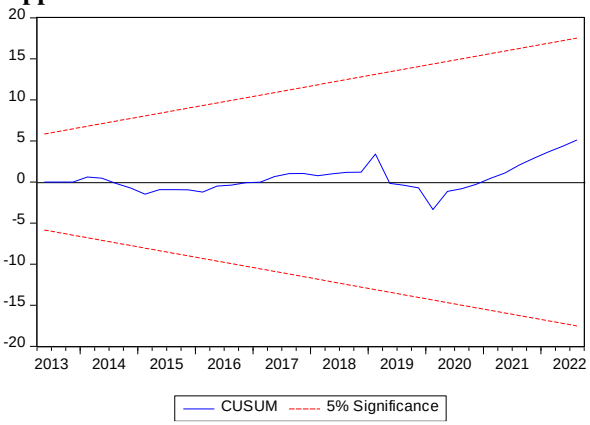

Figure 2: CUSUM Stability Test Result
Source: Authors computation from E-views 10 (2023)

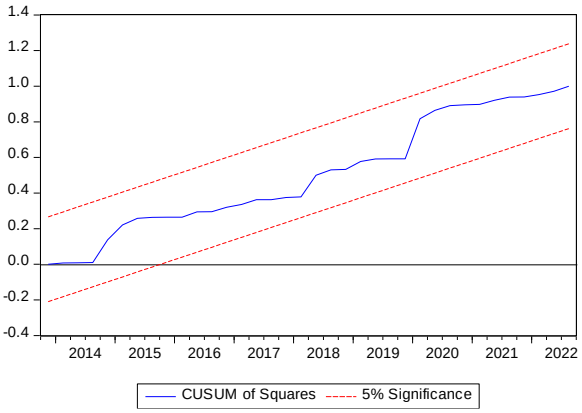

Figure 3: CUSUM and CUSUM of Squares Plots
Source: Authors computation from E-views 10 (2023)