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Assessment of the Relationship between Debt and Economic Growth in Nigeria

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Abstract: *This study examine the relationship between internal and external debt on economic growth and development in Nigeria over the period 1989 to 2019 .It adopted regression analysis of OLS on secondary data sourced from CBN, Economical and Financial review, Business times, Financial Standard and relevant publication from Nigeria on variable like National Income, Debt Service Payment, External Reserves, Interest rate among others. The study employed the Johansen co-integration test and Error Correction Method. The co-integration test shows the existence of long run equilibrium relationship among the variables. The error correction method reveals that the lagged error. The results of this study have shown clearly that causation between debt and economic growth is weak in the Nigerian situation and debt could therefore not be used to forecast improvement or slowdown in economic growth in Nigeria. Hence, changes in GDP cannot be predicted with changes in debt. As causality could not be perfectly established, causation between debt and growth in Nigeria is empirically weak and insignificant, and as such, changes in GDP cannot be predicted with changes in Nigeria debt. Based on the finding the study suggest that for debt to promote growth in Nigeria, fiscal discipline and high level of responsibility in managing public funds should be the paramount concern of the government. External debt which take the larger percentage of Nigeria debt should be spend judiciously on capital and human infrastructure in order to make growth robust, sustainable and inclusive. Government should also ensure that debt accumulation beyond debt threshold level in Nigeria should be blatantly discouraged.*

Keywords: Internal and External debt, Economic growth, External reserve, development

1. INTRODUCTION

Nigeria has low economic growth and low per capita income, with domestic savings insufficient to meet developmental and other national goals. Nigerian exports were commodities with low export earning to finance imports that are majorly capital intensive (Manufactured) goods which are comparably more expensive (Siddique, Selvanathan, & Selvanathan, 2015). Nigeria's drift to mono economy with the discovery of oil and this compounded the problem. The oil sector generates about 95% of foreign exchange earnings and about 80 per cent of budgetary revenue. Inadequate fund for growth and developmental projects such as roads, electricity pipe borne water and so on was as a result of inability to diversify revenue sources coupled with corruption and mismanagement.

The desire for external debt by Nigeria government was as a result of passion for economic growth and development. Nigeria acquired first major external loan of US$28 from World Bank in 1958 to finance railway construction (Ndekwe, 2008). In 1985, the problem of debt servicing began as the total foreign debt of Nigeria rose to USD19 billion, but the government was able to repay the foreign creditors (Paris Club) more than USD35 billion while the borrowed money was then less than USD15 billion (Rieffel, 2005). Following the apparent debt overhang in Nigeria, the Obasanjo's led government in 2003-2007 intensely pursued debt revocation which consequently resulted to a reduction of the foreign debt up to USD3.4 billion in 2007 (Adedoyin, Babalola, Otekunri & Adeoti, 2016) and if translated into the local currency it amounted to N438.89 Billion (CBN Statistical Bulletin, 2018).

The succeeding administrations after President Obasanjo's tenure swiftly resumed the borrowing to such a level that Nigeria's debt profile (comprising loans from Multilateral, Bilateral, Euro Bond, Diaspora Bond, and others) started rising again from N438.89 Billion in 2007; N523.25 Billion in 2008; N590.44 Billion in 2009; N689.84 Billion in 2010; N896.85 Billion in 2011; N1,026.90 Billion in 2012; N1,387.33 Billion in 2013; N1,631.50 Billion in 2014; N2,111.51 Billion in 2015; N3,478.91 Billion in 2016; N5,787.51 in 2017 to N7,759.20 in 2018 (CBN Statistical Bulletin, 2018). As the amount of loans increased, Debt Management

Office (DMO) was established in October, 2000. Prior to the establishment of DMO, Central Bank of Nigeria (CBN) was saddled with the responsibility of management of national debts. At moment, DMO in collaboration with CBN and Federal Ministry of Finance manage Nigeria's debts (Nwannebuike, Ike, & Onuka, 2016).

There are large resources (human and physical) endowed in Nigeria. However, the country has increasing rate of poverty both at the regions and at the national level, high unemployment rate, high income inequality, low quality human capital, high percentage of population on welfare and high out migration in the face of high economic growth measured by GDP. Information from the National Bureau of Statistics – NBS (2012); UNDP (2009) showed that about 15% of Nigeria's population was poor in 1960. Poverty rates in Nigeria increased from 27.2 per cent in 1980 to 42.7 per cent in 2004 and further to 65.6 per cent in 2010.While the27.2 per cent for 1980 equals" 17.7 million persons, in 2010, 112.5million persons were found poor in absolute terms.

In Nigeria, various efforts were made by the government, non-governmental organizations and individuals to reduce poverty in the country. According to Ogwumike (2001) poverty reduction measures implemented so far in Nigeria focuses more attention on economic growth, basic needs and rural development strategies. The economic growth approach focuses attention on rapid economic growth as measured by the rate of growth in real per capita GDP or per capita national income, price stability and declining unemployment among others, which are attained through proper harmonization of monetary and fiscal policies. The basic need approach focuses attention on the basic necessities of life such as food, health care, education, shelter, clothing, transport, water and sanitation, which could enable the poor live a decent life. The rural development approach focuses attention on the total emancipation and empowerment of the rural sector.

Furthermore, Ogwumike (2001) grouped the strategies for poverty reduction in Nigeria into three eras – the pre–SAP era, the SAP era and the democratic era. In the pre-SAP era, the measures that were predominant were the Operation Feed the Nation, the River Basin Development Authorities, the Agricultural Development Programmes, the Agricultural Credit Guarantee Scheme, the Rural Electrification Scheme and the Green Revolution. In the SAP era the following poverty reduction measures were introduced; the Directorate for Food, Roads and Rural Infrastructures, the National Directorate of Employment, the Better Life Programmethe Peoples' Bank, the Community Banks, the Family Support Programme and the Family Economic Advancement Programme. The democratic era witnessed the introduction of the Poverty Alleviation Programme (PAP) designed to provide employment to 200,000 people all over the country. It was also aimed at inculcating and improving better attitudes towards a maintenance culture in highways, urban and rural roads and public buildings. By 2001 PAP was phased out and fused into the newly created National Poverty Eradication Programme (NAPEP) which was an integral part of the National Economic Empowerment and Development Strategy (NEEDS).

Several studies have empirically produced statistical evidences that debt impacts positively and significantly on economic growth (Elwasila, 2018; Matuka & Asafo, 2018; Ndubuisi, 2017; Sulaiman & Azeez, 2012) while the studies of numerous scholars confirm that foreign debt is harmful to economic growth of a nation (Afolabi, Laoye, Kolade, & Enaholo, 2017; Akram, 2016; ALTamimi & Jaradat, 2019; Mbah, Agu, & Umunna, 2016; Onakoya & Ogunade, 2017; Saxena & Shaner, 2015; Udeh, Ugwu, & Onwuka, 2016) among others. This dichotomy among scholars and policymakers on the issue of debt and economic growth of a nation has motivated the present study. The purpose of this study is to examine the relationship between debt and economic growth of Nigeria.

1.1 Statement of the Problem

Nigeria is one of the most highly indebted countries that has low income growth and low per capital income. Developmental goals and other national goals cannot be attained domestic savings. External debt in Nigeria increased to 25609.65 USD million in the first quarter of 2019 from 21591.68 USD million in the fourth quarter of 2018.Various researchers have written copiously on debt and growth relationship in Nigeria. Adamu et al (2017) revealed that external debt is negatively associated with economic growth in both short and long run while domestic debt is positively related to growth contrary to Adofu and Mabula (2011) it was found that increasing domestic debt profile affect the growth of the economy negatively. Onoja 2017, Lliya and Tahir 2017, Adegbite, Folorunso, and Ayida 2013, M C Ekperiwa 2012 and Obademi 2012 revealed that the relationship between debt and growth in Nigeria was negative. This study will contribute to the body of knowledge by examining the variables that granger cause growth and there long term impact on growth. Campell (2009) reiterated that government debt can easily become a burden on the economy, weakening its foundation, warning that the authorities should identify that accumulating debt also means accumulating risks by increasing claims on unearned future income. Debt servicing is an obligation, which is likely to reduce the capacity to improve the welfare of the citizens with its attendant implication.

1.2 Research Objectives

The broad objective of this work is to ascertain the relationship between debt and economic growth in Nigeria. This broad objective is broken down to the following specific objectives which are to:

i. examine the relationship between domestic debt and external debt on economic growth in Nigeria.
ii. evaluate the dynamic impact of debt on economic growth in Nigeria.

1.3 Research Questions

In order to achieve the intended objectives, this study will proffer answer to the following questions

i. What is the relationship between debt and economic growth Nigeria?
ii. What is the dynamic impact of debt on growth in Nigeria?

2. LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Foreign debt and economic growth

Foreign debt or external debt refers to the portion of a country's over-all debt that is borrowed from foreign lenders which include commercial banks, governments or international financial institutions (Focus Economics, 2019). The international financial institutions include the World Bank and the International Monetary Fund (IMF). Money borrowed from foreign lenders (usually European, North American, or Japanese) involves interest which must be paid in the same currency in which the loan is taken, therefore, the borrowing country may be required to export its goods to the lender countries to earn that currency (Business Dictionary, 2019a). The disreputable debtragedy happens when a certain feeble economy is incapable of meeting up with the debt servicing obligations, but will resort to accepting socially and environmentally precarious conditions (Business Dictionary, 2019a).

2.1.2 Debt servicing and economic growth

IMF (2003) defines debt service as the payments required to be made in respect of both principal and interest for an existing loan. According to Merriam-Webster (2019), debt service is the amount of interest and sinking fund payments due annually on long-term debt. Business Dictionary (2019b) refers to debt service as the payment of principal and interest due on existing debt. IMF (2003) seeks to highlight the difference between actual debt service and scheduled debt service. According to IMF (2003), actual debt service is the set of payments actually made to satisfy a debt obligation, including principal, interest, and any late payment fees. On the other hand, scheduled debt service is the set of payments including principal and interest, which is required to be made throughout the life of the debt (IMF, 2003). In a nutshell, debt service is the amount of money which includes the interest expense and principal – a borrower is required to pay periodically to the lender throughout the lifetime of a loan.

The effect on economic growth is that, if debt servicing is judiciously done, it portrays the borrowing country as a credit worthy country before the creditor countries and other lending organizations. In other words, the economy grows with the inflow of more borrowed funds. The danger is that it may lead to too much dependency on foreign loans and debt overhang. The borrowing country will become so highly indebted, in such a manner that their available resources may not be able to satisfy the debt obligations. Management of debt crisis inhibits economic growth because it involves payment of accumulated interest, principal and interest penalties emanating from failure to keep to the terms.

2.2 Theoretical Review

2.2.1 Overhang debt theory

According to Myers (1977) debt overhang is a situation where a firm has excess debt such that its business expansion through investment is inhibited and the benefit that would have accrued to the shareholders will rather go to the debenture holders and other creditors. Debt overhang is also observed when a country's level of debt is bigger than its financial capability to keep to the debt terms and agreement which involve debt servicing and repayment arrangement. This theory is established on the principle that if the level of debt will exceed the country's capacity to refund with some imminent likelihood, expected debt service is anticipated to be an increasing function of the country's economic growth level (Adedoyin et al., 2016). Krugman (1988) submits that debt overhang theory indicates the probability that in the future, debt will surpass the country's capability to repay; estimated debt-service costs will decrease further domestic and foreign investment because the expected rate of return from the productive investment projects will be very low to support the economy as the significant portion of any successive economic growth will

accrue to the creditor countries. Monogbe (2016) upholds that the failure of the current generation to service the acquired loans will lead to a greater debt burden for the upcoming generation.

2.2.2 Theory of Dependency

The dependency theory seeks to outline the factors that have contributed to the development of the underdeveloped countries. This theory is based on the assumption that resource flow from a "periphery" of poor and underdeveloped states to a "core" of wealthy states thereby enriching the latter at the expense of the former. (Todaro, 2003; Amin, 1976). The phenomenon associated with the dependency theory is that poor states are impoverished while rich ones are enriched by the way poor state are integrated into the world system

2.3 Empirical Review

Similarly, Mbah, Umunna and Agu (2016) looked at the impact external debt has on economic growth in Nigeria. Time series data were used which spanned from 1970 to 2013. The study adopted ARDL bound testing approach, Johansen co-integration and error correction model of econometric were also employed in analyzing the data. The result of Granger Causality indicates a unidirectional causality between debt and economic growth. In the same vein, it is depicted that a long run relationships existed among the variables. At the same time external debt is found to have significant negative impact on GDP. They conclude that Nigeria has not benefited from the dividend accrued to external borrowing which is ought to bridge the savings- investment gap.

Pertinently, Udeh, Ugwu and Onwuka (2016) x-rayed the relationship between external debt and economic growth from the experience garnered by Nigeria. Using GDP as endogenous variable to economic growth and external debt stock, external debt service payment and exchange rate as exogenous variable, they employed ex-post facto research design, a time series study that covered 1980 to 2013. Data were analysed using Ordinary Least Square technique, augmented Dickey Fuller (ADF) unit root test, co integration and error corrective model. The results show that external debt has positive significant relationship with gross domestic product growth at short run, but a negative relationship with economic growth at long run. They recommend that mechanisms be set in motion to ensure that loans are utilized for the purpose of acquisition.

In a similar work, Olasode and Babatunde (2016) modeled some economic theories that explain the causal relationship between external debt and economic growth in Nigerian economy. They empirically used autoregressive Distributed Lag model to analyze data from 1983-2012. They applied augmented Dickey Fuller and Phillips-Perron unit root test to control spurious data. Johansen Co-integration method was employed to test the relationship among variables. The result from the ordinary least square method show that there is dual behavior as lag one of external debt has positive effect while external debt of the present year has a negative effect on the economic performance .they recommend that loans obtained should be channeled towards productive uses.

Ijirshar, Fefa and Godoo (2016) investigated the relationship between external debt and economic growth in Nigeria for the period of 1981-2014. They used both descriptive and econometric tools in empirically analyzing the time series data generated. The findings show a significant relationship between external debt and economic growth in Nigeria in a long run, while external debt servicing had both long run and short run negative effect on Nigeria economic growth. They recommend that external loan stock borrowed be effectively managed since it increases growth rate.

Monogbe (2016) empirically examined data pooled from 1981 to 2014 as an instrument for investigating intergenerational effect of external debt on economic performance of Nigeria. He found that total money supply, multilateral creditors and bilateral creditors which are proxy for external debt have positive and significant relationship with economic growth in Nigeria.

Ugwuegbe, Okafor and Azino (2016) used annual time series data to investigate the effect of external borrowing and foreign aid on economic growth in Nigeria from 1980 to 2013. They used GDP as a parameter for economic growth and external debt, foreign aid, exchange rate regime and foreign reserve as the exogenous variables. Econometric techniques of Ordinary Least Square (OLS) multiple regression, Augmented Dickey Fuller (ADF), Johansen Cointegration, Error Correction Method (ECM) were applied. The results show that external debt has a positive and significant effect on economic growth, foreign aid has positive and insignificant effect on economic growth in Nigeria.

Ugwu and Nzewi (2016) evaluated the effect of external debt on economic growth parameters in Nigeria. They employed ex post facto research design and the result show that positive relationship exists among external debt and economic growth parameter (GDP, exchange rate, capital expenditure). They conclude that small external debt accumulation stimulates the economy while huge debt s negative impact on the economy.

Adeniran, Azeez and Aremu (2016) empirically examined the impact of external debt on economic growth in Nigeria with data from 1980 to 2014, while applying Vector Error Correction model found that external debt service payment do negatively impact significantly on Nigeria economic growth.

Elwasila (2018) investigated the effect of external debt on the economic growth of Sudan from 1969 to 2015, using vector error correction method (VECM). The study also employed exchange rate and foreign direct investment as the controlling factors. The dependent variable was the GDP while the external debt to exports ratio was the proxy for the external debt which is the main explanatory variable. Thus, the findings revealed that external debt to export ratio had impacted positively on Sudan's economy while the control variables (the exchange rate and FDI) employed exerted a negative influence on GDP growth in Sudan. Matuka and Asafo (2018) examined the impact of external debt on economic growth in Ghana using co-integration analysis and an error correction methodology. The study made use of annual time series data covering a period from 1970 to 2017. The findings indicated that external debt impacted positively on economic growth in Ghana, both in the long and short terms.

Shkolnyk and Koilo (2018) empirically examined the relationship between external debt and economic growth in Ukraine from 2006 to 2016 using different econometric techniques. The study established that a high level of external debt and macroeconomic instability impede economic growth. The study further revealed that the debt burden on Ukraine as found in other emerging economies had denied them expected economic improvement.

AL-Tamimi and Jaradat (2019) investigated the impact of external debt on economic growth in Jordan using annual time series data covering a period from 2010 to 2017. The empirical finding revealed that external debt had a significant negative impact on economic growth. Thus, the study suggested foreign direct investment as an alternative method of financing.

3. METHODOLOGY

3.1 Research design and sources of data collection

This study employed a causal research design in order to achieve the purpose of the study. According to Kothari (2004), causal research is used to explore the effect of one variable on another and this is consistent with this study which seeks to establish the effect of foreign debt on economic growth. Here, the research adopted the econometric analysis techniques of ordinary least squares (OLS) multiple regression techniques. The study made use of a secondary form of data spanning from 1989 to 2019. All the data employed in this study were obtained from the Central Bank of Nigeria Statistical Bulletin, 2019 edition, and World Bank. Due to the difference in the values, all the data were expressed in logarithm form for uniformity.

This study covers the period of 30 years and data were sourced from central bank of Nigeria and debt management office from 1989 to 2019. This study adopts the Autoregressive Distributed Lag (ARDL), a variant of the vector auto regression (which is used to capture the linear interdependencies among multiple time series). The ARDL otherwise known as the bounds test is perhaps the most suitable for testing the presence of a long run relationship or equilibrium among time series data. The cointegration technique does not require pre-tests for unit roots as seen in some other techniques but testing for stationarity is however integral in cases where series are integrated of order (2) since ARDL fails in the presence of series integrated of order(2). The ARDL co-integration technique is fairly preferable when dealing with series that are integrated of different orders, I(0), I(1) or combination of the both and, robust when there is a single long-run relationship between the underlying series in a small sample size. The long-run relationship of the underlying series is detected through the F-statistic.

3.2 Model Specification

GDP= F(EXD,DMD,LDR,RSV)----------1

The econometric representation of the model is as follows;

$GDP_t=\alpha+ \beta EXT_t+ \beta DMD_t + \beta\ LDR_t+ \beta LDR_t+ \beta RSV_t+\mu_t$ ----------2

GDP is Gross Domestic Product
EXD is External Debt
DMD is Domestic Debt
LDR is Lending Rate
RSV is Total Reserves
μ is Stochastic Term.

3.3 Short-Run and Long-Run ARDL Model Specification

$$lnGDP_t = \alpha_0 + \beta_1\ lnGDP_{t-1} + \beta_2\ lnDMD_{t-1} + \beta_3\ lnEXD_{t-1} + \beta_4\ lnLDR_{t-1} + \beta_5\ lnRSV_{t-1} + \sum_{i=1}^{p} \varphi_i \Delta lnGDP_{t-i} + \sum_{j=0}^{q} \varphi_j \Delta\, lnDMD_{t-j} + \sum_{k=0}^{m} \varphi_k \Delta\, lnEXD_{t-k} + \sum_{l=0}^{n} \varphi_l \Delta\, lnLDR_{t-l} + \sum_{s=0}^{v} \varphi_s \Delta\, lnRSV_{t-s} + \gamma ECT_{t-1} + \mu_t \quad \text{--------3}$$

where α_0 is the intercept, $\beta_1, \beta_2, \beta_3, \beta_4,$ and β_5 represent the long run parameter of gross domestic product, domestic debt, external debt, lending rate and total reserve respectively while φ_i, φ_j, φ_k, φ_l, and φ_s are short run parameters. The term γ represent the coefficients of the error correction term while μ_t is the error term which is expected to be unautocorrelated.

3.4 Expected Behaviour Of Variables In The Model.

Dependent variable

Gross Domestic Product is the growth rate of domestic product in Nigeria. It shows the impact of the wealth of the economy on the welfare of the people.

Independent variables

External debt and Domestic Debt are expected to have a positive relationship with gross domestic product in Nigeria if debt incurred is spent on productive investment rather than on recurrent expenditures. It expressed the impact of debt on growth.

Lending rate and gross domestic product should be negatively related since an increase in lending rate will increase cost of capital, thereby reducing investment and growth.

Reserves is country's wealth kept in foreign currency to finance export ,stabilise exchange rate fluctuations and attract foreign investors. it is expected to have negative relationship with economic growth because keeping foreign reserve reduces growth while depletion and judicious use of foreign reserves bring about rapid economic growth.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Table 1: Descriptive Statistics

	DMD	EXD	GDP	LDR	RSV
Mean	3151.017	1839.096	38007.43	19.03740	110.9773
Median	1329.685	716.8656	31709.45	17.98000	33.88668
Maximum	12774.40	7759.200	69810.02	29.80000	444.3568
Minimum	47.02960	133.9563	16215.37	13.54250	3.149426
Std. Dev.	3903.629	1909.796	19229.88	3.528814	134.4344
Skewness	1.316822	1.427962	0.496305	1.422150	1.297629
Kurtosis	3.454341	4.392982	1.672930	4.765708	3.532964
Jarque-Bera	9.225738	13.04157	3.547417	14.47671	9.066751
Probability	0.009923	0.001473	0.169703	0.000718	0.010744

Source: Author's computation 2020

4.2 Interpretation of Descriptive Statistics

Mean: It measures the average value of the series. It is obtained by adding up the values of the series in the sample and dividing by the number of observations. From the table 1 above, the mean of gross domestic product, external debt,domestic debt ,lending rate and reserves are 38007.43,1839.096,3151.017,19.03740 and 110.9773 respectively.

Median: is the middle value of the series when the values are arranged in ascending order. From the table1above the median for gross domestic product, external debt, domestic debt, lending rate and reserves are 31709.45, 716.8656, 1329.685, 17.98000 and 33.88668 respectively.
Standard Deviation: This is a measure of dispersion or spread in the series. Thus, the higher (lower) the value, the higher (lower) the deviation of the series from its mean.
Gross domestic product and lending rate both exhibit a deviation below their mean while domestic debt, external debt, and total reserve deviate above their mean.

Skewness: The asymmetry of the distribution of series around its mean is being captured by the skewness. Variables greater than zero are positively skewed, variables below zero are negatively skewed, while variables with zero skewness are normally distributed around it mean (i.e. normally skewed). All the variables were found to be positively skewed which shows that they contained more of higher values.

Kurtosis: The peskiness and flatness of the distribution of the series was captured and explained by Kurtosis. Kurtosis is neither peaked nor flat. when it is equal to 3 (i.e. mesokurtic), a variable is peaked when its value it's greater than 3 (i.e. leptokurtic), a variable is flat when its value is less than 3 (i.e. platykurtic). Domestic debt, external debt, total reserve, and lending rate were leptokurtic (i.e. values are more peaked relative to their mean); while gross domestic product is platykurtic (i.e. its values are more flat relative to its mean).

Jarque Bera: This measure the normal distribution of the series via the differences between the Skewness and Kurtosis. Gross domestic product is found to be normally distributed as the Jarque Bera probability value is not significant at 5% critical level, thus the null hypothesis of normal distribution could not be rejected, otherwise for domestic debt, external debt and total reserve which their null hypothesis of normal distribution was rejected.

Table 2: Summary of Phillip Perrons and Augmented Dickey Fuller test for unit root

Variables	**Augmented Dickey-Fuller**		**Phillips-Perrons**		**Decision**
	Level	***First difference***	***Level***	***First difference***	
DMD	-2.3289 (0.1699)	-3.9881 (0.0047)*	-2.1731 (0.2196)	-4.0562 (0.0040)*	I(1)
EXD	-1.6150 (0.4624)	-3.8493 (0.0066)*	-1.6212 (0.4597)	-3.8365 (0.0068)*	I(1)
GDP	-0.3465 (0.9058)	-2.7325 (0.0808)***	-0.2629 (0.9192)	-3.661861 (0.0956)***	I(1)
LDR	-3.9734 (0.0047)*	-7.8763 (0.0000)*	-4.2983 (0.0021)*	-12.7623 (0.0000)*	I(0)
RSV	-1.4461 (0.5460)	-3.9002 (0.0058)*	-1.6945 (0.4237)	-3.7948 (0.0076)*	I(1)

Source: Author's computation 2020

*Note: * ** *** denotes significant level at 1%, 5%, and 10% respectively*
The pre-diagnostic test was with constant and without trend.

The unit root test is essential to ascertain the stationarity properties of the variables employed in the study. The Augmented Dickey-Fuller test statistic showed all the variables were stationary at their first difference I(1) with an exception of the lending which was stationary at levels I(0). This was also consistent with Phillips-Perrons test statistic results (Table 2).

4.3 Lag Selection Criteria

The Lag Selection Criteria is primarily based on Schwarz information criterion which is consistent with the unit root selection. Thus we then conclude that the most appropriate lag

selection is 1

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-71.71172	NA	0.000137	5.290464	5.526204	5.364295
1	101.1047	274.1225*	5.26e-09*	-4.903770*	-3.489326*	-4.460784*
2	125.5257	30.31573	6.48e-09	-4.863839	-2.270692	-4.051698

Source: Author's computation 2020

Unidirectional Causality

$y_t \rightarrow x_t : x_t = \sum_{i=1}^{k} \beta_i x_{t-i} = 0 \; while \sum_{i=1}^{k} \delta_i y_{t-i} \neq 0$ ----------4

$x_t \rightarrow y_t : y_t = \sum_{i=1}^{k} \beta_i x_{t-i} \neq 0 \; while \sum_{i=1}^{k} \delta_i y_{t-i} = 0$ ----------5

Bidirectional Causality

$x_t \leftrightarrow y_t : \sum_{i=1}^{k} \beta_i x_{t-i} \neq 0 \; and \sum_{i=1}^{k} \delta_i y_{t-i} \neq 0$ ----------6

No-causality

$\sum_{i=1}^{k} \beta_i x_{t-i} = \sum_{i=1}^{k} \delta_i y_{t-i} = 0$ ----------7

Table 3: Pairwise Granger Causality (1989-2019)

Direction of Causality	F-Statistic (Prob)	Decision
EXD does not granger cause GDP	0.7525 (0.3933)	Do not reject
GDP does not granger cause EXD	0.3449 (0.5618)	Do not reject
DMD does not granger cause GDP	0.0175 (0.8957)	Do not reject
GDP does not granger cause DMD	4.9786 (0.0342)	Reject

Source: Author's computation 2020

Optimal lag = 1
All variables were in their natural logarithm.

Pairwise granger causality was conducted in other to achieve the first objective of the study. The result obtained was discussed as follows;

The result (Table 3) shows that external debt does not stimulate growth in Nigeria in the long-run as the null hypothesis of no granger causality could not be rejected. This result is further confirmed by the long-run ARDL employed in the study. Conclusively, there is no causality between external debt and economic growth in Nigeria. The result is in agreement with the previous studies conducted by M.S Ogunmuyiwa (2011), Ibi Egbe and Aganyi Alfred (2014) that causation between debt and economic growth in Nigeria is weak and insignificant, and as such, changes in GDP cannot be predicted with changes in external debt.

The result between domestic debt and economic growth reveal that there is a unidirection relationship between the variables as economic growth was found to stimulate domestic debt and not vice versa. We therefore conclude that both external debt and domestic debt in Nigeria does not stimulate growth in the Long-run as reported in table 3

4.4 ARDL bound co-integration test

Considering the likelihood of long-run relationship between variables in time series, it is necessary to conduct co-integration tests when conducting time series analysis. The usual co-integration tests found in the econometric literature are the Engle-Granger and ARDL Bounds tests for univariate model. The selection of appropriate co-integration test is depends on the nature of stationary of the variables that are involved in the empirical model. While the Engle-Granger test is suitable only when preliminary unit root tests reveal that all variables in the model are stationary at first difference, I(1), the bounds test is right when unit root tests show a mixture of variable that are stationary at levels I(0) and those that are stationary at first difference I(1).

Regarding the fact that we have mixed order of integration in table 2, this study adopts then ARDL bounds tests approach developed by Pesaran et al. (2001). A Summary of the bound test conducted is presented in table 2 above

From the results, it is evident that the series in model are co-integrated based on the criterion the calculated F-statistic statistically outweighs the upper bound. Thus, we then conclude that the variable are exhibit a long-run association at 0.01 critical level which then stimulate a need to further estimate both the short run the Long-run ARDL.

Table 4: Summary of the ARDL Bound Test Result

Critical Level	Lower Bound	Upper Bound
1%	3.29	4.37
5%	2.56	3.49
10%	2.2	3.09
F-statistic: 8.6182		

Source: Author's computation using E-views 10

4.4.1 Error Correction Mechanism

Table 5: Summary of ECM Regression

Variable	**Coefficient**	**Standard Error**	**t-statistic**	**Probability**
CointEq(-1)*	-0.0866	0.0107	-8.0397	0.0000

Adjusted R-squared: 0.5165
Restricted Constant and No Trend
Author's Computation using E-views 10

This statistically predicts the speed of adjustment of the model from short run to long-run. In other words, it expresses how the model corrects itself from short-run to long-run. The lag error correction term is expected to be negative, less than one and be significant. From the result, the speed of adjustment from short run to long run is very slow. That is, the model rate of correction is slow.

From the result, the speed of adjustment is 0.08, which is equivalent to 8% per year. Conclusively, it will take 12 years and 5 month for the model to be at equilibrium.

Table 6: Summary of ARDL Regression for both Short-run and Long-run

Variable	**Coefficient**	**Standard Error**	**t-statistic**	**Probability**

Short-run Estimate				
ΔDMD	-0.0555	0.0336	-1.6521	0.1141
ΔEXD	0.0003	0.0115	0.0282	0.9778
ΔLDR	0.1678	0.0278	6.0327	0.0000
ΔRSV	0.0294	0.0103	2.8427	0.0101
Long-run Estimate				
DMD	0.1464	0.1929	0.7592	0.4566
EXD	0.0301	0.1504	0.2005	0.8431
LDR	2.9845	1.5291	1.9517	0.0651
RSV	0.4144	0.2386	1.7363	0.0979
GDP (-1)	-0.0866	0.0506	-1.7117	0.1024
DMD (-1)	0.0126	0.0227	0.5587	0.5825
EXD (-1)	0.0026	0.0121	0.2157	0.8313
LDR (-1)	0.2587	0.0868	2.9777	0.0074
RSV (-1)	0.0359	0.0084	4.2339	0.0004

Source: Author's computation 2020

4.4.2 ARDL Result Interpretations

In other to achieve the second objective of this research ARDL bound test was carried out and the interpretation is as follows;

To establish whether there exists a long-run relationship between external debt, domestic debt, lending rate, reserves and economic growth in Nigeria, the ARDL Bounds test was carried out. The result shows that the F-statistic value is (8.6182), which is greater than the critical value for the upper bound I (1) which is (4.37) at 1% significant level, and therefore suggesting the rejection of the null hypothesis, This shows that there is co-integration or a long-run relationship or long-run equilibrium between external debt, domestic debt, lending ,rate ,reserves and economic growth. Having established the existence of the long run relationship between external debt, domestic debt, lending, rate, reserves and economic growth, the ARDL co-integration approach can now be applied to estimate the individual long run relationship between the variables.
Domestic debt was to be positively related to growth both in the short-run and in the long-run. Though was found to be mixed. The impact was negative in the short-run while it was found to be positive in the long-run. Ultimately, the insignificant impact could be attributed to the channel of expenditure, that is, either through a recurrent expenditure which is often termed stomach infrastructure and capital expenditure, which is often termed physical expenditure.

For external debt, the impact is insignificantly positive both in the short run and in the long-run of which the justification to this could follow that of domestic debt. This result is line with Adamu jibir et.al (2018), Lliya, Ayuba and Tahi, Hussaini (2017), , Md.Saidfudin (2016), Kiproticch Ng'eno and James Maingi (2018), Akinkunmi Mustapha (2017).

Lending rate is significantly positive to stimulate growth both in the short-run and in the long-run which slides against the *aprori* expectation. This follows the fact that over years the policy condition for giving loan to developing countries by IMF, Paris Club and other credit advancing agents were not favourable yet the keep on accessing it even though at a high interest rate. The case of Nigeria was not different from this fact, sequel to this, the high level of poverty create awareness to all Nigerians living below poverty line to collect bank loan even at higher interest rate. If the loan taken is efficiently utilized it will eventually increase the output level.

Total reserve has a positive significant impact on growth both in the short-run and in the long-run as expectated. This shows the stability effect of reserves in controlling exchange rate fluctuations and provides accurate check on the excess of commercial banks

and abitrager dealings in the financial market. This result is in line with Adofu and M. abula (2010), Ajayi,Lawrence B and Oke,Michael O (2012).

4.5 Post-Estimation Result

Several post estimation test were conducted in order to validate the reliability of the estimation process. The most appropriate post-estimation assessment for ARDL modelling technique include Normality test (using Jarque Bera), Serial Correlation (using LM test), Stability test (using CUSUM test), Linearity test (using Ramsey Rest Test), and Heteroscedasticity test (using Breusch-Pagan-Godfrey test).

4.5.1 Normality Test

The essence of this is to examine the behavior of the residual of the model. It is expected that the residual is independently and identically distributed. Jarque-Bera probability value was employed as a guide for the decision process following the null hypothesis that the residual is normally distributed. From the estimated result, the probability value for the Jarque-Bera test conducted was 0.7114 which was statistically above the critical value of significance. Thus, I could not reject the null hypothesis that the residual is normally distributed.

4.5.2 Serial Correlation (LM test)

The most prominent tests for autocorrelation is the Breusch-Godfrey LM. The null hypothesis states that there is no autocorrelation. The *F-statistic* of 0.3830 indicated that there is no presence of serial correlation in the model as the null hypothesis could not be rejected

4.5.3 Stability test (CUSUM test)

The purpose of the CUSUM test is to validate the stability of the model and appropriateness in making long run decision. The result obtained shows that the model parameter is structurally stable and suitable in making a long run decision i.e. all the coefficients in the dynamic least squares regression are stable.

4.5.4 Linearity test (Ramsey Rest Test)

The essence of this is validate if the model is correctly specified and linearly related. The null hypothesis states that the model is linear. Thus, Ramsey Reset result showed that the model linear based on both t-statistic and f-statistic of 0.6893 which is above the significant level.

4.5.5 Heteroskedasticity test (Breusch-Pagan-Godfrey)

The essence of this is to validate that the residuals variance is finite. Thus, the null hypothesis states that the residual has a constant variance (i.e. homoscedasticity). The F-statistic result (0.3333) shows that the residual has a constant variance as the null hypothesis of homoscedasticity could not be rejected.

Conclusively, none of the post estimation result expectation were violated. Thus, the model is reliable and suitable for policy recommendations.

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusion

It is noteworthy that external debt plays a vital role in an economy. The efficient utilization of external debt by the government would prevent debt overhang and crowding out of investments. The mean point of this study has been to examine the impact of debt on the economic growth of Nigeria. The study employed the Johansen co-integration test and Error Correction Method. The co-integration test shows the existence of long run equilibrium relationship among the variables. The error correction method reveals that the lagged error

The results of this study have shown clearly that causation between debt and economic growth is weak in the Nigerian situation and debt could therefore not be used to forecast improvement or slowdown in economic growth in Nigeria. Hence, changes in GDP cannot be predicted with changes in debt. As causality could not be perfectly established, causation between debt and growth in Nigeria is empirically weak and insignificant, and as such, changes in GDP cannot be predicted with changes in Nigeria deb profile. Therefore, it is suffix to say that expenditure on recurrent items such as administration, education and transport, communication does not matter for economic growth in Nigeria. Also it could be as result of missing expenditure between release

and execution of profound capital projects to bring about rapid economic growth or complete abandonment of capital project it could also be long duration of completion of project in which economy has out grown its impact.

5.2 Recommendation

For debt to promote growth in Nigeria, fiscal discipline and high level of responsibility in managing public funds should be the paramount concern of the government. External debt which take the larger percentage of Nigeria debt should be spend judiciously on capital and human infrastructure in order to make growth robust, sustainable and inclusive. Government should also ensure that debt accumulation beyond debt threshold level in Nigeria is blatantly discouraged. Furthermore, government should pay close attention to the debt management profile for items of expenditures whether they are those that promote growth or otherwise. In the same vein government should stop from taken loan from non-concessional sources to reduce the burden of repayment. Since investment bring about rapid growth, government should create a serene environment for entrepreneurship to thrive high in other to promote local and foreign direct investment and place embargo on new loan

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