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Domestic Debt and Economic Growth in Nigeria: Data-Based Evidence

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ABSTRACT

Economic literature suggests that reasonable levels of borrowings have the potentials to spur growth of the economy of a developing country. This paper employed relevant econometric analysis to examine the effects of domestic debt on economic growth in Nigeria during the 1980-2015 periods. Variables of analytic interest were real gross domestic product (RGDP) as economic growth proxy, and domestic debt stock (DDS) and domestic debt servicing expenditure (DDSE) as determinant variables; with government expenditure (GEXP) and banks' lending rates (BLR) exerting moderating influence. Data sets on the variables were generated from relevant publications of the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS). On individual merits of the explanatory variables, the results showed evidence of significant short- and long-run positive effect for DDS; negative effect for DDSE but insignificant negative effect for BLR. The variables jointly exerted significant effect and exhibited considerably high power in explaining variations in growth of the economy during the period. The conclusion was that domestic debt had short- and long-run growth potentials. Thus, adequate deployment of domestic debt to key sectors of the economy was recommended for sustainable short run growth that might possible translated to long run growth.

Keywords: Domestic debt, Economic growth, Diagnostic analysis, Error correction mechanism.
JEL Classification: C35, C51, H63, O47

1. INTRODUCTION

Economic theory suggests that reasonable levels of borrowings by a developing country are likely to enhance its economic growth (Pereira and Xu, 2000). Therefore, a developing country wishing to mobilise capital resources to foster economic growth and development may at one time or the other resort to borrowing. To encourage growth, countries at early stages of development like Nigeria borrow to augment the dominance of meager capital stocks. The anticipation is that the countries are likely to have investment opportunities with rates of return higher than that of their counterparts in developed economies. Enhanced economic growth has the potentials to alleviate a country's poverty situation (Amakom, 2003). This becomes crystalised when borrowed funds and some internally ploughed back funds are properly utilized for productive investment devoid of macroeconomic instability occasioned by inappropriate policies that distort economic incentives and cause sizable adverse shocks. Growth therefore is likely to increase and allow for timely debt repayments. When this cycle is maintained for a period of time, growth will affect per capita income positively which is a prerequisite for poverty reduction (Amakom, 2003). These predictions are known to hold even in theories based on the more realistic assumption that countries may not be able to borrow freely because of the risk of debt denial.

One major problem that has hindered the attainment of macroeconomic stability and sustainable growth in Nigeria has been Federal Government's excessive reliance on borrowing from the banking system, particularly the Central Bank of Nigeria (CBN), to finance its large but unsustainable fiscal deficits. Borrowing from the CBN amounts to the injection of high-powered money into the system, which has serious adverse implications on price and exchange rate stability. Similarly, it crowds out the private sector from the credit market thereby stalling investment

and output growth. Empirical evidence has shown that fiscal adjustment is critical to successful stabilisation effort in countries facing domestic debt overhangs (J. O. Sanusi, Continental Bank of Nigeria, Nigeria, observation; J. O. Sanusi, Central Bank of Nigeria, Abuja, Nigeria, observation). Nigeria's debt problems have been traced to the collapse of the international oil price in 1981 and the persistent suffering of the international oil market and partly due to domestic lapses. As a result of the debt problem, credit facilities gradually dried up, which led to a number of project getting stalled (Ajayi, 1989). Further, growth of the economy seems to have been hindered by two factors, namely: (1) limitation imposed by inappropriate domestic policies and (2) external factors which are beyond the control of the economy. Over the years the Federal Government of Nigeria has relied largely on the money market and less on the capital market, thus creating a mismatch between short-term funds and investment in capital projects (Sanusi, 2003; DMO, 2007). Debt problems naturally ensue when the resources are utilised to finance current or past consumption rather than being deployed to execute productive projects. Essentially, two issues of concern are raised. First, there is the need to evaluate the economic and social rate of returns of all government projects. Second, there is the need to resolve the question of inter-generational equity which will arise when the present generation incurs debt that is left for the next generation to settle.

Prior to the creation of the DMO in August 2000, the Central Bank of Nigeria (CBN) was statutorily saddled with the responsibility of managing Nigeria's public debt. Hitherto, the law establishing the CBN entrusts it with the issue and management of Federal Government's Ways and Means Advances in respect of temporary deficiency in budget revenue, subject to a limit and full repayment by the end of that year. Therefore, establishment of the DMO was seen as a positive development to enhance the efficiency of not only domestic debt management but also the effectiveness of monetary policy. For the past two decades, Nigeria has borrowed large amount internally, often at highly concessional interest rates with the hope to accelerate development through higher investment, and foster economic growth. However, poverty situations are still staggering at the back door amidst excess debt, although the former was the initial intention. It is therefore obvious that Nigeria's indebtedness has gone beyond reasonable limits needed to achieve desired goals and engender debt-free or less burden that will enhance economic growth with a resultant improvement in poverty level (J. O. Sanusi, Central Bank of Nigeria, Abuja, Nigeria, observation). Available statistics showed that Nigeria's domestic debt stock had been on the increase over time. According to the DMO, domestic debt stock stood at ₦7.421 trillion bringing the total public debt to ₦8.5 trillion excluding state government domestic debts, which stood at ₦1.6 trillion as at December 2013 and ₦7.42 trillion at the end of June 2014 as against ₦7.18 trillion at the end of first quarter of 2014, representing 3.3 percent increase at during the first half of the year. The increase in the local debt profile was attributed to the bond issuances by DMO, which amounted to over ₦200 billion and progressively cumulated to about ₦385 billion with plans to even raise more. The trend of the government's domestic debt, when measured by year-on-year average from 2009 to 2013, showed about 22.1 per cent yearly growth.

The figures released by Nigeria's Debt Management Office (DMO) showed that Nigeria's domestic debt stock stood at about $43.185 billion or N7.25 trillion as at March 2015 (DMO, 2015; Omoh, 2015), ₦10.606 trillion as at 30 June 2016 (DMO, 2016), and is still increasing. As the debt profiles increase, the debt service charges for domestic debts as well as interest payable also increase.

For the understanding that, unlike domestic debt, external debt is more difficult to service and repay, intellectual discourse has focused largely on external debt thereby neglecting domestic debt entirely or mentioning it briefly. But this is only true when the domestic debt stock is moderate and not when it is large and growing. More so, the implications of growing domestic debt for the growth of the economy ought to constitute issues of concern as well as academic and intellectual discourse, especially as the rapid increase in the stock of Nigeria's domestic debt has been attributed to the need to finance rising profile of government expenditure, accommodating budget deficit and implement monetary policies (Obiwuru et al., 2013). Obviously, Nigeria is not alone in experiencing escalating levels of government domestic indebtedness but in comparison to other Sub-Saharan African countries, Nigeria's domestic debt-GDP ratio is clearly on the high side (Asogwa, 2005). Domestic debt in poor countries has been justified on the ground that it facilitates development of deep and liquid internal financial markets, protects countries from unfavorable external shocks, and mitigates against foreign exchange risk. The ultimate aim is to engender sustainable economic growth and development.

This paper is intended to examine the domestic debt-economic nexus in Nigeria during such a fairly long time period as 1980 to 2015. Anchored on the hypothetical launch pad that domestic debt has not significantly spurred growth of the economy, attempts are made to examine real gross domestic product (RGDP) of the country in relation to such ancillary indices as domestic debt stock (DDS), domestic debt service expenditure (DDSE), government expenditure (GEXP) and banks' lending rates (BLR). The paper has five sections. Following this introduction is section two which is a review of relevant literature. The method of analysis employed in the paper is discussed in section three. Section four is the analysis and discussion of results while section five is conclusion with recommendations.

2. LITERATURE REVIEW

2.1 Conceptual Clarifications

Debt has no particularly fixed meaning and is regarded mainly as that which an entity legally owes to another agreed to be repaid in the future. It is an obligation that is enforceable by legal action to make payment of money (Adofu and Abula, 2010). Debt is created by the act of borrowing. It is a liability an individual or firm or a country must have to repay on maturity (Kumar and Woo, 2010). It may also be a financial guarantee or commitment that ought to be honoured in due time as agreed. Asogwa (2008) explained debt as a contractual obligation of owing or accumulated borrowing with a promise to pay back at a future date. From the perspective of the government, debt may be contracted from within the country (domestic debt) using one instrument or the other and denominated in local currency, or from outside the country (external debt) and denominated in foreign currency. In Nigeria, domestic debts are contracted by the Federal Government as well as states and local governments. In principle, states and local governments can issue debt instruments and are limited in their capacity to do so. Domestic debt instruments in issue in Nigeria usually consist of treasury bills (TBs), treasury certificates (TCs) Federal Government development stocks (DS), bonds and means advances. The TBs, TCs and DS are marketable and negotiable while bonds and ways and means advances are not, but are rather held solely by the Central Bank of Nigeria (Adofu and Abula, 2010). Governments use the debt instruments to borrow in order to close the resource gap between savings and investment. Alison (2003) explained three theoretical reasons for government domestic debt. They are budget deficit financing, monetary policy implementation (i.e., buying and selling of treasury bills in the open market), and development of the financial instruments to deepen the financial market.

Every country requires an amount of capital to generate production in order to attain and possibly sustain growth and development. When government borrows, the debt is a public debt which can either be internal or external. That is, debt incurred by government through borrowing in the domestic or international markets in order to finance domestic investment that would ensure economic growth of the country. For the firm, debt is the resource or money in use which is not contributed by its owners and does not in any way belong to them (Oyejide et al., 2004). It is a liability represented by a financial instrument or other formal equivalent. Debts are classified into productive and dead weight. Productive debt exists when the loan that is obtained is meant for the country or firm to buy some kind of assets. Examples are money borrowed for acquiring electricity, factories, refineries and farm implements. On the other hand, dead weight debts are money borrowed to execute wars or respond to situations of serious security unrest in a country. A good Example is the $1 billion loan request in 2014 by the Federal Government of Nigeria to fight the *Boko Haram* insurgency in the Northeast of Nigeria, and expenses on current expenditures (Onyeiwu, 2012).

Domestic or internal as well as national debt consists of liabilities that a country's citizens and government owe. It is the amount of money raised by the government in local currency and from its own residents. Generally, domestic debt consists of two categories - bank and non-bank borrowings. Bank borrowing is made up of advances to the Government by the Central Bank. Although, borrowing from the Central is usually discouraged, time usually arises when the Government is compelled to resort to it. Non-bank borrowing-Securitised debt is made by the government from the general public through the issuance of government securities such as TBs, DS and bonds. The TBs have short maturity period of one year maximum, usually 3 to 12 months or 91 to 364 days. It includes the gross liabilities of Federal, states and local governments transfer obligations to the citizens and corporate firms within the country (Odozi, 1996). Essentially, the concept of domestic debts in Nigeria entails debt instruments issued by the Federal, states and local governments and denominated in local currency (O. L. Oshadami, Kogi State University, Nigeria) but excludes contractor debts and supplier credit owed by the governments, as well as contingent liabilities and inter-agency debts.

Economic growth is encapsulated as the positive trend in total output of a country over long period of time. It entails sustained increases in output or real gross domestic product of a country. It implies a sustained increase in gross domestic product (GDP) as well as measure of total output of goods and services of a country for a long time. However, as economic growth indicator, it must be expressed in real terms like any other quantitative identity. That is, it must be adjusted for effects of inflation to fit in as a measure of growth overtime.

2.2 Theoretical Framework

In the theoretical literature, budget deficit financing, monetary policy implementation and financial sector development (supply of tradable financial instruments to deepen the financial markets) are among the main justifications for government domestic debt (Alison, 2003). The factors considered to be responsible for the increasing domestic dept profile in Nigeria include high budget deficits, low output growth, large expenditure growth, high inflation rate and narrow revenue base (Odozi 1996). Modern growth theory identifies three specific channels through which domestic debt [and its] management might [impact on capital accumulation and technological

progress] to affect long term growth. The channels are advisory role, policy formulation and management . Closely related to the theory is the profligacy theory, which is an extension of the system stability theory. It postulates that debt arise from weak institutions and policies. As a result, relative prices are distorted and capital flight is encouraged - as reflected in substantial external liquid funds of private people of debtor countries in foreign banks. Patillo (2002) explore to core of debt overhang theory to explain that high debt acts as an anticipated foreign tax by reducing the incentives to save and invest thereby promoting capital flight. Further, large debt stock tends to hinder growth through the channel of reduced investment. Though debt accumulation stimulates growth initially, past debt accumulation impairs growth via liquidity constraint. Moreover, debt services and repayments reduce export earnings and thus exert negative effects on growth. Further, inappropriate macroeconomic policy environment affects growth via poorly designed, allocation and execution of projects thereby lowering the productivity of capital.

Relevance of the theories to this paper is the explanation of why economic growth may be hampered despite rising domestic debt profile. Specifically, the paper adapts the debt-growth viability model developed by Solis and Zedillo (1985) and used by Ajayi (1991) and Mbire and Atingi (1997). The model establishes a relationship between growth (output level, *Y*, as proxy) and debt (capital, *K*, as proxy) to explain how debt affects the growth prospects of a debtor country.

$Y = \sigma K$ ……..…….... (1)
where σ is the efficiency parameter of capital, *K*.

Change in *Y* is attributed to change in *K*. Thus,

$\Delta Y = \sigma(\Delta K)$ …….. (2)

Considering change in capital, *K*, as the positive difference between current investment, I_t, and the level of immediate preceding capital stock, K_{t-1}, the right hand side (RHS) of equation (2) becomes:

$\Delta K = I_t - \delta K_{t-1}$ ……..…..…… (3)
where δ is infinitesimal change in immediate preceding capital stock, K_{t-1}.

Subsequently, current output level, Y_t, can be expressed as the sum of current investment, I_t, and immediate preceding output level, Y_{t-1}. Thus,

$Y_t = \sigma I_t + (1-\delta)Y_{t-1}$ …..……..…… (4)

Given the following national output cum income identities

$Y_t = C_t + I_t + (X_t - M_t)$ ……..…….. (5.1)
$Y_t = C_t + S_t + r_tD_{t-1}$ ……..……..…….. (5.2)
where C_t is current consumption expenditure, $(X_t - M_t)$ is net export, S_t is current savings, D_{t-1} is the immediate preceding debt stock with its growth rate, and *r* is debt service rate during time period, *t*.

Depicting the sum of net export and demand for investible funds as d_t yields:

$d_t = (X_t - M_t) + rD_{t-1}$ ……..…….. (6)
Consequently, $I_t = S_t + d_t$ ……..…….. (7)

Let the savings function be
$S_t = s(Y_t - r_tD_{t-1})$ …….. (8)

Using equation (4), investment can be expressed
$I_t = [\frac{s(1-\delta)}{1-s\sigma}]Y_t - 1\ (\frac{s}{1-s\sigma})r_tD_t - 1 + (\frac{1}{1-s\sigma})d_t$ ……..…… (9)

Equations (4) and (9) were solved for a number of possible paths of D_t and r_t. The rule used for D_t is the dynamic equation. However, a linear version of the equations is used in this paper to investigate the effect of domestic debt on economic growth in Nigeria.

2.3 Review of Empirical Studies

Several studies have attempted to investigate public debt in relation to economic growth and development, especially for the developing countries (Seetanah, Radachi and Durbarry, 2007; Ogege and Ekpudu, 2010; Egbetunde, 2 0 1 2; Aminu, Ahmadu and Salihu, 2013). Some of the studies have considered external debt in relation to growth and development (Ezenwa 2011; Ajayi and Oke, 2012) while others have focused on the effects of domestic debt on economic growth (Asogwa, 2005; Blavy, 2006; O. L. Oshadami, Kogi State University, Nigeria, observation; Adofu and Abula, 2010; Obiwuru, Okwu and Ekezie, 2013). The literature suggests that studies on domestic debts in relation to economic growth have been relatively scanty for Nigeria.

In analysing optimal domestic debt level in low-income countries, including 40 Sub-Saharan African countries and emerging markets between 1975 and 2004, Abbas and Christensen (2007) found moderate level of marketable domestic debt as a percentage of GDP to have significant positive effect on economic growth. They also provided evidence that debt level exceeding 35% of total bank deposits have negative impact on the economic growth. Seetanah, Radachi and Durbary (2007) and Hammed, Ashraf and Chaudhary (2008) also investigated the link between public debt and economic growth using Vector Error Correction model and production function for the time series, respectively. They established that debt servicing burden has a negative effect on productivity of labour and capital which ultimately negatively affects economic growth. A cross-sectional study of domestic debt markets in 27 Sub-Saharan African countries during the years 1980 to 2000, Christensen (2004) found the markets to be generally small, highly short term, and often hang a narrow investor's base as well as domestic relative to foreign indebtedness. The study further found domestic debt to have significant crowd-out effects on private investment.

Asogwa (2005) investigated the effects of domestic debt on economic growth and concluded, on the basis of the findings, that domestic debt in Nigeria has continued to suffer a form of confidence crisis as market participants have consistently shown greater unwillingness to hold longer maturities. Adofu and Abula (2010) showed that domestic had negative effect on Nigeria economic growth during 1994-2008. Thus, the authors suggested reducing government domestic borrowing and increasing revenue through tax reforms. Onyeiwu (2012) employed ordinary least squares (OLS) on error correction model to investigate the relationship between domestic debt and economic growth during 1994-2008 years. The study found domestic debt stock holding by government to be far above a healthy threshold of 35 per cent of bank deposit, thereby providing evidence of private investment crowd out in addition to negative growth effect during the period investment. The findings were consistent with some previous works (O. L. Oshadami, Kogi State University, Nigeria, observation; S. M. Abbas, University of Oxford, Oxford, observation). Specifically, Abbas (ibid.) showed in the extension of his 2005 work (Abbas, 2005) that above a ratio of 35% of bank deposits domestic debt undermines economic growth. Aminu, Ahmadu and Hamidu (2013) employed ordinary least squares (OLS) regression analysis techniques to examine the impact of public debt on economic growth in Nigeria during 1970-2010 periods. They found that external debt dwindled growth potentials of the economy unlike domestic debt which enhanced economic growth. The study also found a bi-directional causation between external debt and GDP growth, no causation existed between domestic debt and GDP growth, and no causation existed between external and domestic debts. Hence, they concluded that sustainable per capita growth might be attributed to the level of domestic debt as against external debt. Obiwuru et al. (2013) employed time series design and empirical method to investigate how domestic debt affected the growth of Nigerian economy during the period 1990-2010. Based on certain economic growth and domestic debt indices as well as moderating variables such as interest rate and credit to the economic, they showed that domestic debt and credit to the economy had significant positive effects while interest rate had negative but not significant effect. However, the result showed that the causal variables in their model had significant joint effect and explained greater proportion of variations in growth dynamics during the period.

Obviously, the findings by the above empirical studies show no consensus yet on the domestic debt-economic growth relationships.

3. METHODOLOGY

3.1 Design, Data and Sources

This paper employed time series analysis design and techniques of multiple regression analysis model using secondary data values on real gross domestic product (RGDP), domestic debt stock (DDS), domestic debt service expenditure (DDSE) and average banks' lending rate (BLR). RGDP entered the model as dependent variable; DDS and DDSE entered the model as independent variables while BLR was included in the model for its moderating role in domestic debt contracts. The justification is that at attractive bank lending rates the government would likely prefer borrowing from the banking industry to issuing debt instruments such as treasury bills, development stocks and treasury bonds. The model expressed RGDP in relation to DDS , DDSE and B L R based on assumed functional

relationship between the dependent and independent variables. Values of the variables that constitute the data sets were considered at annual regular time intervals, hence the time series design. The time series data values were generated from relevant publications of the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS). The annual data sets used in the analysis span the periods of 1980 to 2015. The 36-year period is considered adequate for analysis and reliable results to draw inferences about the effects of domestic on economic growth in Nigeria or any other developing country with similar characteristics.

3.2 Model for the Analysis

Given the internal factors that influence domestic debt accumulation in Nigeria, an empirical assessment is presented using a linear time trend regression analysis model akin to one used in a previous study by Kalemli-Ozcan et al. (2003), to estimate the intercept and coefficients.

$$RGDP = \theta_o + \theta_1 DDS_t + \theta_2 DDSE_t + \theta_3 BLR_t + \theta_4 ECM(-1)_t + \varepsilon_t \ldots. \text{ Aggregate Eqn/Hypothesis.}$$

where RGDP, DDS, DDSE and BLR are as earlier described. ECM(-1) is one-period lagged error correction mechanism. θ_1, θ_2 and θ_3 are the coefficients of the respective variables in the model that were estimated. The coefficient of *ECM(-1)*, θ_4, which is expected be negatively signed, is a measure of the speed of adjustment to long-run equilibrium from a short-run disequilibrium. θ_o is the model intercept while ε_t is the stochastic term to accommodate influence of any other determinants of growth that have not been explicitly considered for inclusion in the functional model. The descriptor, *t* depicts each specific year in the time frame. Positive level of RGDP is expected in the absence of the independent variables. DDS is expected to have positive effect on RGDP; DDSE is expected to have either positive or negative effect on RGDP, depending on investment or consumption preferences of recipients of domestic debt services expenditure (DDSE) by the government; and BLR is expected to have negative effect on RGDP. Thus, $\theta_o > 0$; $\theta_1 > 0$; $\theta_2 \neq 0$; $\theta_3 < 0$; $\theta_4 < 0$.

Descriptive statistics as well as graphic trend analysis were examined for foresight into actual fluctuations in time series values of the variables data sets. Further, it necessary to considered error correction mechanism (ECM) version of the model so as capture to typify the short-run growth fluctuations as well as capture speed of adjustments of time series values of the variables to converge at long-run equilibrium. Pre-estimation diagnostics such as unit roots tests for stationarity tests (Dickey and Fuller, 1981) and co-integration tests (Johansen, 1988; Adams and Chadha, 1991; Ericsson, 1992) were carried out for robustness and ensure non-spurious regression results (Granger and Newbold, 1974; Stock and Watson, 2011; Greene, 2012).

For effects of the domestic debt variables (DDS and DDSE) and banks' lending rate (BLR) in isolation as well as evaluation of specific hypotheses thereof, the model was specified in simple equations as follows:

$$RGDP = \theta_o + \theta_1 DDS_t + \varepsilon_1 \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{ Hypothesis 1 } (H_01) \ldots\ldots \text{ Sub-equation (1)}$$

$$RGDP = \theta_o + \theta_2 DDSE_t + \varepsilon_2 \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{ Hypothesis 2 } (H_02) \ldots\ldots \text{ Sub-equation (2)}$$

$$RGDP = \theta_o + \theta_3 BLR_t + \varepsilon_3 \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{ Hypothesis 3 } (H_03) \ldots\ldots \text{ Sub-equation (3)}$$

Appropriate estimation techniques were employed to obtain the numerical values of the intercept, coefficients of the independent variables and relevant statistics. Numerical values of the coefficients served to determine the effects of the respective independent variables on growth of the economy during the period of study interest. The statistics provided the basis to evaluate the specific effects, and aggregate effect of the variables on growth as well as the extent to which the domestic debt indices and banks' lending rate explained economic growth variations in the country during the period under review.

4. ANALYSIS, RESULTS AND DISCUSSION

4.1 Data Description and Descriptive Statistics of Variables

Data definitions and summary of variable descriptive statistics are shown in Table 1.

Table 1: Description and Descriptive Summary Statistics of the Variables

Variable	Description	Mean	Minimum	Maximum	Std. Dev.
RGDP	Real gross domestic product (billions of naira)	432112.40	31546.76	1063715.00	271680.20
DDS	Domestic Debt Stock (trillions of naira)	1813461.00	8231.50	9324748.00	2592613.00
DDSE	Domestic debt service expenditure (billions of naira)	237711.20	256.95	1018796.00	298074.90
BLR	Banks' lending rate (annual % average)	17.94	7.50	29.80	5.26

Notes: RDPPC, DDS and DDSE are transformed into logs for the analysis. The data sets cover 1980-2015 years. Summary of descriptive statistics are authors' computations.

Summary of the descriptive statistics shows that during the 36-year period, average values of RGDP, DDS and DDSE were 432112.40 billion naira, 1813461.00 trillion naira and 237711.20 billion naira respectively and that on the average BLR was 17.94%. Minimum values of RGDP, DDS and DDSE were 31546.76 billion naira, 8231.50 trillion naira and 256.95 billion naira respectively, and that minimum BLR was 7.5%. RGDP, DDS and DDSE reached maximum values of 1063715.00 billion naira, 9324748.00 trillion naira and 1018796.00 billion naira respectively, BLR reached a maximum of approximately 30%. The standard deviation indicates wider deviation from mean value of RGDP than there were from mean values of DDS and DDSE, thereby suggesting relatively low differential levels of domestic debt acquisition as well as debt servicing expenditures. This might have been as a result of servicing maturing domestic debts by issuing new sets of debt instruments. It thus supports the argument that government does not actually repay domestic debts.

4.2 Graphic Trend Analysis of RGDP, DDS and DDSE

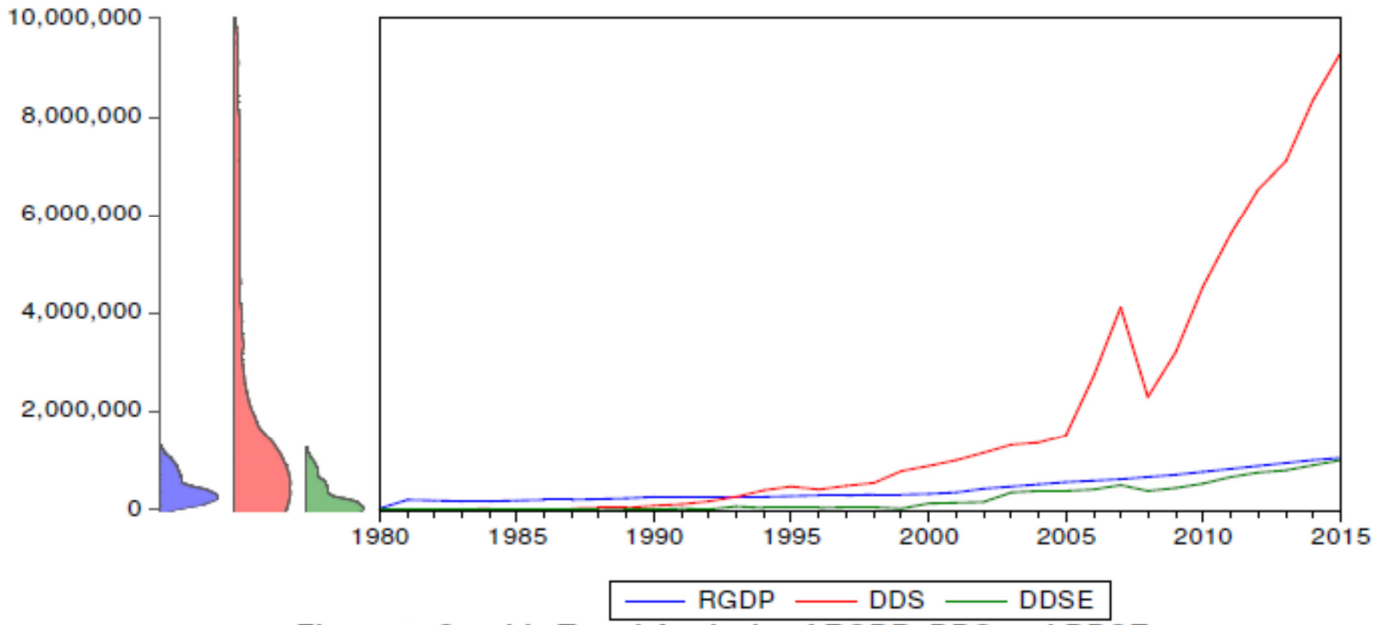

Figure 1: Graphic Trend Analysis of RGDP, DDS and DDSE

Figure 1 shows that RGDP, DDS and DDSE maintained somewhat flat growth trends between 1980 and 1992, with RGDP being slightly above DDS and more above DDSE. During 1993, DDS rose steadily and equaled RGDP by end of the year and during which DDSE maintained slightly steady decline. Thereafter, DDS overshoot RGDP in value terms and sustained the increasing trends till 2005 after which it rose sharply till end-2 0 0 7 but dropped drastically

throughout 2008. From 2009 through 2015, DDS sustained increasing levels with a marginal decrease during 2012 through 2013. The increasing trend in DDS continued after 2013 and through remaining period of the analysis, thereby reflecting the figures of 7.25 trillion naira as at end-March 2015 and 10.61 trillion naira as at 30 June 2016 released by DMO, which was still increasing. On the other hand, RGDP sustained slightly increasing trends; falling widely below DDS but slightly above DDSE, and with DDSE exhibiting slight fluctuations, throughout the period under consideration.

4.2 Results of Unit Root Tests

Results of the unit root tests are presented in Table 2.

Table 2: ADF Unit Root Tests Results

	Level		First Difference		
Variable	t-Statistic	McKinnon Critical Value	t-Statistic	McKinnon Critical Value	Order of Integration
LRGDP	2.2569	-3.5654 (1%) -2.8672 (5%) -2.5287 (10%)	-36.8789**	3.5484 (1%) -2.7822 (5%) -2.5283 (10%)	*I(1)*
LDDS	-1.3187	-3.5473 (1%) -2.8527 (5%) -2.7218 (10%)	-5.5132**	-3.5473 (1%) -2.8691 (5%) -2.5296 (10%)	*I(1)*
LDDSE	-1.5882	-3.7724 (1%) -2.8716 (5%) -2.6345 (10%)	-3.4228*	3.7802 (1%) -2.5476 (5%) -2.5214 (10%)	*I(1)*
LBLR	-2.7662	-3.4541 (1%) -2.7658 (5%) -2.2264 (10%)	-5.1709**	-3.6826 (1%) -2.7302 (5%) -2.2246 (10%)	*I(1)*

Source: Authors' computations (2016)

Notes: RDPPC, DDS and DDSE are transformed into logs (L) for the analysis.

*Significant at 5% McKinnon Critical value; **Significant at 1% McKinnon Critical value.

The Unit Root test results in Table 2 show that the time series values of the variables are stationary their first difference, *I(1)*, but non-stationary at levels, *I(0)*.

4.3 Results of Co-integration Tests

The variables were subjected to co-integration tests to determine whether they are co-integrated, i.e., whether there is relationship among the variables in the long run. Results of the co-integration tests are shown in Table 3. Thereafter, error correction model is estimated to determine effects and speed of adjustments of the variables to long-run equilibrium from short-run disequilibrium.

Table 3: Johansen Co-integration Test

Sample Period: 1980 2015; Included observations: 36; Trend assumption: Linear deterministic trend (restricted);
Series: LRGDP LDDS LDDSE LBLR; Lags interval (in first differences): 1 to 1

Hypothesised No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None**	0.6672	91.2163	70.6198	0.0003
At most 1**	0.5527	56.4921	48.7562	0.0086
At most 2*	0.5785	30.1496	27.8293	0.0436
At most 3	0.2698	11.2814	11.8687	0.3157
At most 4	0.0097	0.3274	2.9426	0.5926

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**Mackinnon-Haug-Michelis (1999) p-values

Source: Authors' computations (2016)
Notes: RDPPC, DDS and DDSE are transformed into logs (L) for the analysis.
*Significant at 5% McKinnon Critical value; **Significant at 1% McKinnon Critical value

The co-integration tests results show that two (2) co-integrating equations at the 1% level of significance and one (1) co-integrating equation at the 5% level of significance. These are evidenced by the probabilities values of 0.003, 0.0086 and 0.0436 associated with the Trace statistic values of 91.2163, 56.4921 and 30.1496 respectively. Thus, the results showed that the variables are co-integrated. That is, economic growth (RGDP as proxy) has a long-run relationship with domestic debt stock (DDS).

4.4 Results of the Error Correction Model

Results of the error correction model (ECM) are shown in Table 4.

Table 4: Results of Error Correction Model

Dependent Variable: LRGDP; Method: Least Squares; Sample period: 1980 2015
Included observations: 36

	Effect		Evaluation Statistic		
Variable	Coefficient	Numerical Value	Std. Error	t-Statistic	Prob.
Intercept	θ_o	0.0283	0.0345	0.2555	0.6448
LDDS	θ_1	0.5327*	0.1839	2.8418	0.0215
LDDSE	θ_2	-0.0669**	0.0246	-5.3111	0.0002
LBLR	θ_3	-1.7642	0.2532	-0.1358	0.2268
ECM(-1)	θ_4	-0.8317	0.1589	-5.5534	0.0000

R-squared 0.6875 F-Statistic 16.8272 Durbin-Watson statistic 1.9634
Adjusted R-squared 0.6518 Prob(F-statistic) 0.0000

Estimated Model: RGDP = 0.0283 + 0.5327DDS – 0.0669DDSE – 1.7642BLR – 0.8317ECM(-1) + ε

Source: Authors' computations (2016)
Notes: RDPPC, DDS and DDSE are transformed into logs (L) for the analysis.
*Significant at the 5% level; **Significant at 1% level.

Numerical values of the model intercept and coefficients as well as the evaluation statistics, as shown in Table 4, yield some interesting insights into the effects of domestic debts on economic growth in Nigeria during the period under consideration. Interestingly, all the values are appropriately signed and, thus, are consistent with the pre-estimation expectations. Positive value of the model intercept (θ_o = 0.0283) has the expected sign, which implied that the economy would have experienced some growth even without domestic debts and banks' lending rates. Similarly for the estimates of the coefficients of DDS (θ_1 = 0.5327), DDSE (θ_2 = -0.0669), BLR (θ_3 = 1.7642) and ECM(-1) (θ_4 = -0.8317), respectively. The implications are that during the, domestic debt stock (DDS) had positive effect on growth of the economy while domestic debt service expenditure (DDSE) and banks' lending rates (BLR) had negative effects. The negative and significant coefficient of DDSE (θ_2 = -0.0669) suggests that recipients of domestic debt service expenditures by the government had preference for immediate consumption spending over postponed or investment spending. The coefficient of the one-period lagged error correction mechanism, ECM(-1), implies that from a short-run disequilibrium the variables adjust to their long-run equilibrium levels at the speed of about 83%. The standard error as well as t-statistic values indicate that the positive effect of domestic debt stock (DDS) was statistically significant at the 5% level while the negative effect of domestic debt service expenditure (DDSE) was statistically significant at the 1% level. These are evidenced by the p-values of 0.0215 < 0.05 and 0.0002 < 0.01associated with the respective t-statistics of the coefficients of the respective variables. The evaluation statistics for significance of the effects of the individual variables provide evidence that the negative effect of banks' lending rates was not statistically significant at the 5% level (p-value = 0.2268 > 0.05). Therefore hypotheses H_01 and H_02, sub-equations (1) and (2), are rejected while hypothesis H_03, sub-equation (3), is accepted. However, the F-statistic value of 16.8372 and its probability of 0.0000 < 0.05 showed that the variables DDS, DDSE and BLR jointly exerted statistically significant effect on growth of the economy during the period. Therefore, the overall hypothesis (aggregate equation) that domestic debts did not enhance economic growth in Nigeria during 1980-2015 years is rejected. Further, the adjusted R-squared value of 0.6518 showed that the independent variables explained about 65% of the total variations in growth of the economy during the period. The analysis was not subject to the problem of spurious regression results as indicated by the Durbin-Watson statistic value of 1.9634 which provides evidence that the time series values of the independent variables in the model were free from the problem of serial autocorrelation. Therefore, the model is a good fit.

4. SUMMARY, CONCLUSION AND RECOMMENDATIONS

This paper has examined the effects of domestic debt in Nigeria during 1980-2015 based on available data sets. The main caveat of this paper is that it considers domestic debt, which is just a fractional part of public or government debt. However, based on relevant diagnostics, appropriate analysis and results, the paper concludes that domestic debts enhanced growth of the economy while domestic debt service expenditures by the government and lending interest rates by the banks dampened investments and thus limited growth potentials of the country during the period. The investments dampening cum economic growth potentials limiting were assumed manifest consequent upon perceived preference for immediate consumption spending by recipients of government domestic debt service expenditures during the period. However, results of the diagnostic analysis provided reliable statistical evidence that domestic debts have the potentials to induce sustainable growth and ultimately development of the economy in the long-run. Further, domestic debts, its service expenditures, lending rates of the banks and growth of the economy have the tendency to adjust to their long-run equilibrium levels from short-run disequilibrium at considerably high speeds.

Therefore, the paper emphasises the need for the government to sustain commensurate growth-inducing levels of domestic debts at all times. Further, it is recommended that investment incentives should be put in place to discourage the perceived immediate consumption spending behaviour of recipients of government domestic debt service expenditures. Also, the need to improve infrastructure such as electricity is paramount so as to banks' operating costs and ultimately lending rates the banks charge on credit facilities, especially for investments. These would in turn increase aggregate investment, output and ultimately accelerate growth of the economy. Finally, broader analysis based on entire public debts (domestic and external) is recommended.

COMPETING INTERESTS

There are no competing interests whatsoever in respect of this article.

AUTHORS' CONTRIBUTIONS

Each of the authors contributed to sourcing and extracting the data sets used for analysis in section four. Each also contributed to the review of empirical studies (section two). Author *3* wrote the introduction (section one) and conceptual clarifications (section two) of the article. Authors *1*, *2* and *4* contributed to the theoretical framework (section two). The methodology, analysis and discussion of the results were done by authors *1* and *2*. Author *1* summarised the article, drew conclusion and suggested the recommendations.

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ENDNOTES

1. The Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS) are the main reputable sources of secondary data on economic growth in Nigeria.
2. Debt Management Office (DMO) is the main reputable source of secondary data on public debt in Nigeria.
3. Before August 2000, the Debt Management Office (DMO) was just a department in the Central Bank of Nigeria (CBN).
4. Public debt in Nigeria consists of debts owed by the Federal Government of Nigeria (FGN), states and local governments in Nigeria.
5. J. O. Sanusi (Continental Bank of Nigeria, and Central Bank of Nigeria) were papers delivered on Debt Conversion/Asset Trading, and Monetary Policy Forum organised respectively by Continental Bank of Nigeria in 1988 and Central Bank of Nigeria in 2003.

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