The Effect of Public Debt on Economic Growth of Nigeria

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Abstract
This paper investigates the effects of public debt on economic growth of Nigeria between 1981 – 2019 using annual time series sourced from various issues of statistical bulletin of the Central Bank of Nigeria, Debt Management Office and data from World Development Indicator (WDI). The gross domestic product (GDP) was used as proxy for economic growth and as dependent variable, while external debt, external debt service, external debt outstanding, domestic debt outstanding, total reserve, total debt service as a percentage of gross national income, total debt servicing as a percentage of GDP growth rate and total reserve as a percentage of total external debts were considered as independent variables. These data were analysed using inferential statistics and econometric model of Ordinary Least Square. The test mechanism adopted were the unit root test, causality test, bond test for co-integration and Autoregressive Distribution Lag (ARDL). Result shows that external debt and total debt servicing as a percentage of gross national income is inversely related to economic growth both in the short run and long run. External debt outstanding, external debt servicing, domestic debt outstanding, total reserve, total debt servicing as a percentage of growth rate and total reserve as a percentage of total external debt are positively related to economic growth both in the short run and long run. This paper therefore recommend that government should not consider further borrowing as an option to bridge the gap between revenue and expenditure since there is no evidence that the debt incurred in the past were judiciously used rather they should look for alternative sources of fund by exploring the untapped natural resources of the country, encourage exportation of locally manufactured product to earn foreign exchange, adopt a robust macroeconomic policy, enhance a conducive environment for business to thrive and growing the agricultural base of the country, this will ease financial need of the government and the economy will grow.
Keyword: External Debt, Domestic Debt, Foreign Reserves, Economic Growth, Debt Overhang, Nigeria.

I. Introduction

All over the world economic growth has become one of the major macroeconomic policies that have attracted the attention of government in different nations, at different levels and time. The need for growth has become necessary as a result of the ever increasing growth in population which has placed enormous financial burden on the government. The world is indeed operating in an uncertain economic environment affected by internal and external factors. While the internal factors may be within the control of the government, it is obvious that the external factors are not within its control. According to Calderon and Fuentes (2013), the global financial crisis led to adoption of conventional and unconventional fiscal and monetary policies that increased the sovereign debt of advanced economies. The crisis of 2007 resurfaced the debate on the effect of public debt to economic growth (Benayed, Gabsi & Belguith, 2015). The level of public debt that could engender economic growth are constantly been studied by borrowers, lenders and policy makers at all levels (Baaziz, Guesmi, Heller & Lahiani, 2015). The Sustainable Development Goal (SDG) by the United Nations (2018) has put pressure on nations to be among the 193 country to attain the 17 point agenda by 2030, goal 8 (promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all) and goal 9 (build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation) has led to an increase in the demand for fund to meet these goals.

The revenue of the government lags behind its expenditure. In other to bridge the gap between the receipt of income and expenditure, government borrow externally and internally to finance projects that will position the economy on the path of growth. In Cecchetti, mohanty and Zampolli (2011), finance is key in building modern society as it stimulates economic growth. Without finance no country can provide the necessary goods and services needed to spur economic growth and development (Lee & Ng, 2015). To attain the state of economic growth, no country has the capacity to provide all the needed financial resources without recourse to soliciting for the help of its citizens (internal borrowing) and other nations of the world and institutional lenders (external borrowing), as no country can isolate itself from the rest of the world. According to Essien, Agboegbulem, Mba and Onumonu (2016), the need to borrow is necessitated by the failure of countries to generate enough internal revenue. Infrastructural development is one area that engulfs huge resources and since internally generated revenue is not sufficiently enough, countries resort to borrowing to

finance infrastructural deficit. Nigeria secured US$7.5 billion loan for the construction of standard rail gauge from Lagos to Kano (Premium Times, 2017), this in addition to the huge external debt burden of the country. Public debts are majorly caused by fiscal deficit, high cost of borrowing, inability to generate enough internal revenue and low foreign exchange earnings.

Public debt has become an important instrument of fiscal policy adopted by nations to generate revenue (Ajayi & Edewusi, 2020). To fast track sustainable economic growth, government needs a substantial amount of capital to finance development objectives which can only come through borrowing. There is no crime in borrowing to meet present needs as this has become a global trend. Babu, Kiprop, Kalio and Gisore (2015); Okwu, Obiwuru, Obiakor and Oluwalaiye (2016) are of the view that minimal level of borrowing will enhance productivity and help nations to build capital formation at their teething stage of economic growth. One of the underlining assumptions of the Harrod-Domar growth model is that domestic saving facilitates economic growth through capital formation. However, where savings fall short of expenditure government borrow to bridge the gap, thereby not only promoting economic growth but also improving economic welfare and standard of living of her citizens. Amaefule (2018), the huge gap between receipt of income and expenditure necessitates the need to borrow to finance fiscal deficit.

Public debt was first coined by Davemont in 1710, his work attracted the attention of notable economist like A.P. Lerner, Adam Smith, David Hume, A. G. Hart, J.S. Mill, J. B. Say and David Ricardo. The classical economist oppose public borrowing, according to them it is an easy source of fund which will not be properly utilised, wasted and used unproductively thereby making future generations to suffer for the pain they know nothing about. The classical economist did not condemn public borrowing out rightly, but maintained that borrowing should be limited and used to finance capital expenditure whose economic life will not only benefit the present generation but also future generation. The Keynesian economist were in support of government intervention claiming that huge public debt should not be seen as a liability but an assets on its own which creates income and thereby promotes economic growth and improve economic wellbeing of the citizens. Keynes also believes that public debts will brings multiplier effects in the economy and increases national income.

The determination of the sustainability of public debt cannot be done with precision (Mupunga & Le Roux, 2015). The sustainability of these debts have been of global concern over the years. These debts were incurred to improve the welfare of the citizens but rather than being a blessing it has turned out otherwise. Many indebted nations no longer have the capacity to repay and at one time or the other have sort for debt forgiveness, debt rescheduling and debt cancellation. As noted by (Egbo & Ajibo, 2019) increasing debt burden negates the development of certain sectors due to crowding out effect. In the view of Festus and Saibu (2019), debt as an economic stimulant helps to accelerate economic growth, but increasing debt profile increases government expenditure on debts servicing and depletes the available foreign reserves which would have been used to meet other developmental objectives.

The myriad of debt accumulation have been a recurring decimal that have characterised both developed and emerging market and developing economies (EMDE) for the past fifty years since the global financial crisis (Rajan, 2019). Global debts stood at US$188 trillion while debt-to GDP ratio rose to 226 percent as at 2018 (IMF, 2019). The need to meet the ever growing needs of the present generation and the leaving a formidable economy for coming generation has put pressure on global economies and the resultant effect is the increase in domestic and foreign debt profiles of nations. One major problem is the non-repayment of debt which has continued to attract the attention of policy makers over the years. In other to reduce the huge financial burden of public debt countries negotiate with their creditors to find a way out of their present predicament. According to Nwozor (2009), The Paris Club of Creditor (PCC) granted a debt cancellation to the tune of US$18 billion to Nigeria, the condition attached to the debt cancellation is that the country pays off in two equal installments the outstanding balance of US$12 billion. The country's source of foreign exchange over the past thirty years has been the sales of crude oil with its unstable price regime, the agricultural product which should have served as alternative source of income has not been giving necessary priority with it price elastic nature.

The failures of countries to repay their debts usually trigger financial fright in domestic and international markets, a higher debt to GDP ratio suggest a higher risk of default. Governments try as much as possible to lower their debt to GDP ratio, but this effort becomes fruitless during period of economic recession as currently being experienced. The debt to GDP ratio in the US according to US Bureau of Public Debt stood at 104.17% in 2015 and 105.4% in 2017. Reinhart and Rogoff (2010) estimated external debt to GDP ratio for advanced European economies to 200% and 100% for emerging economies in Europe. The work of Adeniran, Ekeruche, Bodunrin, Ali, Mandri and Tayeb (2018) reveals that African countries have exceeded the 60% debt to GDP threshold prescribed by the African Monetary Co-operation Fund, while 24 countries in Africa have exceeded the threshold of 55% debt to GDP recommended by the International Monetary Fund while Sub-Sahara Africa's debt to GDP stands at 45.9% in 2017 compared to 116% as at 1995.

The objective of this paper is to examine the effect of public debt on the economic growth of Nigeria. There a myriad of literature on public debt and economic growth, but none has been able to include total debt servicing as a percentage of gross national income and total debt servicing as a percentage of economic growth hence this paper tends to fill that gap.

II.   Conceptual Review

Public Debt

Public debt is the amount of a country's internal and external borrowings. Idenyi, Igberi and Anoke (2016) sees public debt as the total of what a country borrowed either by the federal, state or local government. Okoro (2013) sees public debt as the borrowing by the government to offset its fiscal deficits caused by expanding expenditure of the government when money creation and revenue generated from tax cannot fill the gap for development purposes. Public debt is seen as all claims against the government held by the private sector of the economy, or by foreigners, whether interest bearing or not, less any claim held by the government against the private sector and foreigners (Anyanwu, 1997). Public debt is made up of domestic borrowings which are debts sourced within the country using such instruments as Treasure Bills, FGN Bond, Treasury Certificates, Promissory Notes, Treasury Bonds and Development stocks while foreign debts which represents a proportion of a nation's total debts are sourced from outside the country through multilateral organizations, Paris Club, London Club and Promissory Notes (CBN, 2010). According to Soludo (2003) countries borrow for two reasons: macroeconomic reasons (higher investment, higher consumption – education and health) or to finance transitory balance of payments deficits (to lower nominal interest rate abroad, lack of domestic long term credit or to circumvent hard budget constraints). In the view of Nwanne and Eze (2015), foreign debts are inflows to government from non-residents of that country while foreign debt servicing are outflow of government to non-resident for debt obligations. The acquisition of public debt is a better alternative to printing of money and selling of public assets to raise fund for national development.

Economic Growth

Economic growth has become one major macroeconomic objective that is rigorously pursued by countries all over the world as no meaningful development can take place without achieving economic growth. Economic growth is a prerequisite for economic development as there can be no economic development without economic growth. Economic growth occupies a place in economic literature as this has been over debated by many economists since after the Second World War in other to put the economies of the world on the part of economic progress following the devastating effect of the Second World War on many economies. Economic growth is essentially a quantitative concept and it is a rise in GDP or GDP per capita. Economic growth is the amount of goods and services that an economy is able to produce within an estimated period of time usually a year which is net of inflation. According to Maddison (1970) the raising of income level is generally called economic growth in rich countries. Jhingan (2005) defined economic growth as a quantitative and sustained increase in a country's per capita income accompanied by expansion in its labour force, consumption, capital and volume of trade. Zhattau (2013) sees economic growth as the basis of increased prosperity.

Overview of Africa's debt profile

The early part of 1960s was a period of great expectations as many African countries gained independence (Ezenwe, 1993). However, these expectations were short lived as noted by Iyoha (1999), that the socio-economic conditions of many African countries deteriorated sharply in 1980s which was a period that was regarded as Africa's lost decade of development opportunities. The desire to grow the African continent placed a huge financial burden on the continent, with insufficient internally generated revenue and exchange rate volatility, the continent increased its public debt profile which has reached an alarming proportion. According to Lopes da Veiga, Ferreira-Lopes and Sequeira (2014); Kehinde and Awotundun (2012), public debts of African countries are now an issue of global concern threatening her political and socio-economic development. Stressing further Greene & Khan (1990) contended that Africa's external debts problem has become a serious global pandemic such that total external debt of African countries as at 1970 was US$8 billion. In 1982 Africa's external debt was US$140 billion and it reached US$271.9 billion by 1990 (Ezenwe, 1993). Total external debts for Sub-sahara Africa moved from US$236 billion in 2010 to US$583 billion in 2018 representing an increase of 147% (Quartz Africa, 2020).

The amount of debts accumulated by African countries is not commensurate with her level of developmental stride. One factor that has worsened Africa debt crisis is the terms and conditions of these debts. Data obtained from world development indicator show that Africa debts stood at US$11.24 billion as at 1970 with a GDP of US$86.59 billion, GDP per capita growth of 4.65% and GDP growth rate of 7.4% and debt service on external debt for the same period stood at US$1.02 billion with a debt to GDP at 1.2%. Within a period of 10 years the continents external debts increased by over 898%, GDP increased by over 346%, GDP

per capita increased to 812.35, there was a decline in the GDP per capital growth and GDP growth rate which stood at 1.57% and 4.45% respectively and external debts service was US$11.55 billion within the same period and by late 2000 external debt stood at US$272.14 billion, GDP growth rate was 5.87% while external debt service was US$25.6 billion.

Overview of Nigeria Public Debt

The oil boom of 1970 was seen as a blessing as revenue generated from the sale was sufficiently enough to finance government expenditure in building social, physical and economic infrastructure and by 1980 the revenue from oil accounted for 22% of the country's GDP, 81% of government revenue and 96% of export earnings (Ogbe, 1992). The country's journey to public debts has been steady and consistent dating back to pre-independence era when she obtained her first external debt loan from the World Bank in 1958 to the tune $28 million to finance the construction of a railway (Angahar, Ogwuche & Olalere, 2015). From 1973 to 1976, the economy of Nigeria was strong as she generates enough revenue from the sales of crude oil to finance her deficit budget and to service her debt. By 1960, the external debt of Nigeria was $150 million (Adegbite, Ayadi & Ayadi, 2008). Okoro (2013) ascertained that the external debt of the country were insignificant as it was less than US$600 million from 1973 to 1977.

In 1978, the country obtained her first ever major loan referred to as "jumbo loan" from the international capital market (ICM) to the tune of $1 billion thereby increasing her total external loan profile to $2.2 billion (Ndubuisi, 2017). Data available from the Debt Management Office reveals that in 2001, total debt stock of the country stood at US$37,435.29 million comprising of external debt of US$28,347 million and domestic debt amounting to US$9.088.29 million and by December 2004 total outstanding debts was US$46,259.46 million and by the same period of 2005 it stood at US$32,306.73 million representing a decline of 30.16% or US$13.952.72 and by 2009 total outstanding debts were US$25,817.42 and by 2018 it has risen to US$79,436.72.

The Linking Between public debts and economic growth

Over the year's economists, academia and policy makers have made spirited efforts to ascertain the relationship between public debt and economic growth but there has not been a concrete conclusion (Dauda, Ahmad & Azman-Saini, 2013). It is no doubt that fiscal policy is one of instruments used by the government to influence macroeconomic variables such as full employment, price stability, balance of payment, foreign exchange stability and economic growth. According to Essien, Agboegbulem, Mba and Onumonu (2016), in other to understand the link between economic growth and public debt, there is need to understand the mechanism by which public debts affects macroeconomic variables. A priori expectation is that public debt will exert a significant and positive impact on economic growth giving the enormous amount of debts that countries have incurred over the years. Findings by researchers reveal that this expectation may not hold at all times. While some scholars are of the opinion that public debt will influence economic growth positively others are with contrary opinion. In the works of Easterly (2001), Reinhart, Rogoff, and Savastano (2003), Clements, Bhattacharya, and Nguyen (2003), Baker (2004), Cordella, Ricci, and Ruiz-Arranz (2005), Kumar and Woo (2010), Reinhart and Rogoff (2010), Checherita and Rother (2010), Checchetti, Mohanty, and Zampolli (2011), and Patillo, Poirson, and Ricci (2002, 2004, 2011), cited in Swastika, Deandaru and Masih (2013) concludes that there exist a negative relationship between public debt and economic growth.

Dauda, Ahmad & Azman-Saini (2013); Swastika, Dewandaru & Masih (2013); Irina & Ihnatov (2015); Babu, Kiprop, Kalio & Gisore (2015); Essien, Agboegbulem & Onumonu (2016); Odubuasi, Uzoka, & Anichebe (2018); Senadza, Fiagbe & Quartey (2018); Butkus & Seputiene (2018); Ogunniyi, Iwegbu & Womiloju (2019); Rahman, Ismail & Ridzuan (2019) have also contributed on public debt and economic growth. Udeh, Ugwu and Onwuka (2016); Adegbite, Ayadi and Ayadi (2008) assert that external debt has negative impact in the long run while Sulaiman & Azeez (2012) suggest that external debts have a positive impact on economic growth. Alagba and Eferakeya (2019), opined that domestic debts have a positive and significant impact on economic growth while external debts contributes less to economic growth. The classical economics concludes that if public debt is not properly applied in key sectors of the economy especially in infrastructural development and capital formation, then the essence of borrowing is defeated. The huge external debt of the country remains a major financial leakage in terms of principal repayment and interest payment.

Theoretical Review

Economic literature has been inundated with numerous theories of public debt which includes and not limited to classical theory of public debt, neo-classical theory of public debt, Keynesian theory of public, modern theory of public, debt overhang to mention but a few. Each of these theories examines public debt from different point of view. This paper adopts debt overhang theory in analysing the burden of public debt.

Proponents of debt overhang argued that there is an inverse relationship between public debt and economic growth. Debt overhang arises when the capacity to repay debts is less than the actual debt contracted within an agreed time frame (Ukwuoma & Imandojemu, 2019). Debt overhang is also occasioned by the inability of the loan to be repaid or serviced from the project upon which the money was invested. Krugman (1988), believes that debt overhang exist when creditors do not expect the full amount due to them to be repaid at the appropriate time. The accumulation of these debts over a period of time constitutes and economic and financial nuisance to the country hence such country are ascribed as highly indebted nations. Public debt accumulation discourages private investment, investors expects high level of tax which is a fiscal instrument at the disposal of the government to raise the need financial resources to off-set her public debt burden. Arit (2013) sees debt overhang as a liquidity trap, with a high level of external debt to service, countries tries to allocate their scarce financial resources amongst servicing external debts, investment and consumption.

One major problem that have contributed to debt overhang is the financial illiquidity of most debtor countries especially African nations (Nigeria inclusive) that depend solely on primary products export as their major sources of foreign exchange earner which is price elastic. Meeting debt liabilities in such countries become a difficult task. Debt servicing which is an outflow of a nation's financial resources further depletes the little resources available to a country for its development programmes. Debt can only lead to economic growth if marginal benefit of debt is greater than the marginal cost of debt (Waliu, Nor, Abdul & Hammed, 2020). Udeh, Ugwu and Onwuka (2016) affirm that debt overhang stifles economic growth when large amount are channeled towards it servicing. Debt overhang has an adverse effect on economic reforms, export promotion and monetary policy thus reduce economic performance and devaluation of a country's currency in order to encourage export of its products to earn foreign exchange.

A debtor is a slave to a lender until the debts are settled. Krugman (1988) view a debtor as having less bargaining power and their independence mortgaged on the altar of indebtedness. The problem of debt overhang has been a major issue in Africa as many African countries have failed to honour their financial liabilities to their creditors both domestically and externally. The country's external debt profile has made her to play a second fiddle in the comity of nations. At the international level, Nigeria has little or no meaningful contribution to offer. She imports technology, human resources, medical equipment, transportation, ships, rail lines and most of her essential needs from developed countries. The money she would have used to finance her developmental programmes now goes to foreign creditors in form of principal and interest repayment on loans borrowed.

Empirical Review

Rafindadi and Musa (2019) writing on the impact of debt management strategies on the Nigeria's public debt profile using three dimensional determinant of debt refinancing (DRF), debt forgiveness (DF) and debt conversion (DCV). The time series data obtained from World Development Index, Central Bank of Nigeria (CBN) and Debt Management Office were used. To determine the short run and long run relationship between DRF, DF and DCV on economic growth of Nigeria, autoregressive distribution lagged model of econometric methodology were used to analyse the time series data. Findings from the study reveal that DRF and DF are found to have significant negative impact on total debt profile of Nigeria while DCV has positive and significant effect on total debt profile of Nigeria. The implication of these findings is that the country experiences economic hardship when there is a fall in external reserve, devaluation and rise in exchange rate when public debt is not in line with economic development and fiscal policy of the country. Therefore, it was recommended that in order to reduce the nation's debt profile, the country should seek for DF, strengthen DRF and provide instruments for DCV.

Ajayi and Edewusi (2020), examining the effect of public debt on economic growth of Nigeria, the study looked at the relationship between external debt and domestic debt on economic growth using time series from 1982 to 2018, the data were analysed using descriptive statistics, unit root test, Johansen co-integration test and vector error correction model. Generally, domestic debt and external debt have varying degree of effect of economic growth. Specifically, the result of the analysis reveals that there exist a negative relationship in both the short run and long run between external debt and economic growth while domestic debts has a positive effect in the short run and long run on economic growth of Nigeria. The paper concludes that policy makers should ensure proper management of domestic debts; national debts should be invested in the provision of basic amenities and programmes needed to encourage development and social well being.

Omotosho, Bawa and Doguwa (2016), investigates the existence of the threshold effects in the relationship between public debts and economic growth in Nigeria, using quarterly time series data from 2005 to 2015 obtained from the Central Bank of Nigeria. Empirical result reveals that there is an inverted U-shaped relationship between public and economic growth. Result obtained from the analysis shows the reflection point for domestic debt was 30.9 percent, external debt stood at 49.4 percent while public debt to GDP was 73.70 percent. The implication is that any debt above the threshold estimated above will be detrimental to the

economy. It was also observed that prior to debt forgiveness in 2005, the country's external debt profile has exceed the threshold. However, if public debt will be incurred, it must be in a manner that projects economic growth.

Ndubuisi (2017), carried out an analysis of the impact of external debt on economic growth of Nigeria using time series data covering a period of 1985 – 2015; the variables that were analysed using Ordinary Least Square Regression, ADF Unit root test, Johansen cointergration and error correction test where Gross Domestic Product, exchange rate, external debt stock, external debt reserve and external reserve. The result from the analysis reveals that external debt stock has positive and significant effect on economic growth; debt service payment has negative and insignificant impact on economic growth while external reserve and exchange rate have positive and significant effect on growth. The causality test shows that both external debt and gross domestic product are unidirectional, there exist a long run relationship between external debt and growth index as shown by the Johansen cointegration test while ADF unit root test reveals that the variable are not stationary at levels but at first difference. It was therefore recommended that proper legislations should be put in place to improve business environment, focus on human capital development by reducing external borrowings, initiate debt management policy and external loans should be channeled to infrastructural development.

In similar vein, Omodero and Alpheaus (2019), examines the effect of foreign debt on economic growth of Nigeria from 1997 to 2017, data sourced from CBN statistical bulletin and World Bank were nominal gross domestic product, inflation rate, foreign debt stock, exchange rate and foreign debt servicing using nominal gross domestic product as the dependent variable foreign debt stock and foreign debt servicing were the independent variable while exchange rate and inflation rate were used as control variable. Data collected were tested using the OLS technique. Result obtained shows that foreign debt service has a positive and significant impact on economic growth while foreign debt has a negative and significant influence on economic growth. On the other hand, inflation and exchange rate are insignificant in explaining economic growth under this circumstance. The study recommend the creation of employment; revival of abandoned industries to reduce foreign borrowings and adopt a more purposeful borrowing pattern and revenue generation through profitable capital investment as a substitute for foreign debt.

In a related development, Iyoha (1999) looked at the impact of external debt on economic growth in Sub-Saharan Africa: an econometric study from 1970 – 1994 using a small macroeconomic model. Findings reveals the importance of extension variables in investment equation, implies that increasing external debt reduces investment through disincentive and crowding out effect. In other to ascertain the impact of debt stock reduction on economic growth, policy simulation was adopted. Policy simulation was taken into consideration to investigate the impact of alternative debt stock reduction on investment and economic growth. This analysis reveals that debt stock reduction increased growth performance and investment. It was noted that the period 1987-1994, a 20% reduction in debt stock increased investment and GDP growth rate by 18% and 1% respectively. Investment and economic growth in sub-Sahara will be stimulated through debt forgiveness.

Lopes da Veiga, J., Ferreira-Lopes, A., & Sequeira, T. (2014), examined the implication of public debt on economic growth and inflation from 1950- 2012 involving 52 African economies. The result reveals the limit of public debt that affect the growth rate of the economy given an inverted U shape behaviour between economic growth and public debt. Growth in the economy is attained at an inflation rate of 8.2% given that the public debt reaches 60% of real GDP. However, economic growth is negatively affected by high level public debt and inflation when the ratio falls between 60-90% and reaches above 90% economic growth drops by up 1.32 percent and 1.64 percent respectively. The highest rate of economic growth in North African countries is when public debt to GDP ratio is 30% with an inflation rate of 5.33% while that of Sub-Sahara African countries is achieved when public debt to GDP ratio is in the neighbourhood of 30-60%.

Ukwuoma and Imadonjemu (2019), examining the impact of external debts on economic growth in Nigeria, time series data collected were external debt, trade balance, government expenditure, capital formation, consumption and external debt servicing. In analysing the data to determine the inter-temporally variations and response of the dependent and the independent variables the VAR model was used. To ascertain the direction of causality between the dependent and independent variables, the Granger Causality test was adopted while the co-integration test was used to test the existence of long run relationship between the variables. While the co-integration test shows that there are no long run relationship between public debt and economic growth, the causality test reveals the short run relationship. It was therefore recommended that anti-corruption agencies should be strengthened; the economy should be opened up through diversification and external debts should be used for economic purposes rather than for political and social reasons.

Swastika, Deandaru and Masih (2013) examining the impact of debt on economic growth: A case study of Indonesia using the combination of wavelet and non-linear techniques examined the impact of debt on economic growth in Indonesia. Result from the study reveals that there exist a lead-lag relationship between external debt-to-GDP ratio and GDP growth such that debt is inversely correlated with economic growth in short term but positively related in the long run. The positive relationship between debt and growth can only

occur if the country stops the habit of borrowing. Indonesia was considered as a "debt intolerant" country and therefore recommends that the country should move away from interest bearing to risk sharing to stimulate economic growth.

Sulaimon and Azeez (2012), examines the effect of external debt on economic growth of Nigeria sourcing its data from the annual statistical bulletin of the Central Bank of Nigeria and Debt Management of Office from 1970 – 2010. Gross domestic product was represented as endogenous variable while external debt, ratio of external debt to export, inflation and exchange rate was used to measure economic growth. The data collected were tested using the Ordinary Least Square Method (OLS), Augmented Dickey-Fuller (ADF) Unit Root Test, Johansen Co-integration test and Error Correction Method (ECM). The result shows that there is a long run relationship between the variables. The Error Correction Method (ECM) reveals that external debt has impacted positively to the economic growth of Nigeria. The study recommends that the economic fortunes of the country will be deepened if there is economic and political stability and external debt should be incurred for economic reasons alone.

III. Methodology

The annual time series data were sourced from the Central Bank of Nigeria Statistical Bulletin of various issues, World Development Indicator (WDI) database of the World Bank and Debt Management Office. The data were analysed to determine the effect of the independent variables on the dependent variable using econometric model of ordinary least square method (OLS). The OLS was adopted because of its Best Linear Unbiased Estimator (BLUE), coupled with the fact that it is easy to understand, simple interpretation and it has been used in a wide range of relationship with statistical result. The results carried out include the unit root test, Granger causality test, the bond test which is the co-integration test and the Auto Regressive distribution Lag (ARDL).

Model Specification

$GDP = F[EXD, EXDS, DODO, TR, DSGI, DSGR, TREXD]$

GDP = Gross domestic product

EXD = External debt

$EXDS$ = External debt servicing

$EXDO$ = External debt outstanding

$DODO$ = Domestic debt outstanding

TR = Total reserve

$DSGI$ = Total debt service % of GNI

$DSGR$ = Total debt service % of growth rate

$TREXD$ = Total reserve % of total External debt

$GDP = F[EXD, EXDS, DODO, TR, DSGI, DSGR, TREXD]$ …………………………….1

$GDP = \beta_0 + \beta_1 EXD + \beta_2 EXDS + \beta_3 EXDODO + \beta_4 TR + \beta_5 DSGI + \beta_6 DSGR + \beta_7 TREXD + \mu_t$ ..2

$GDP = \beta + \beta_1 \sum EXD + \beta_2 \sum EXDS + \beta_3 \sum DODO + \beta_4 \sum TR + \beta_5 DSGI + \beta_6 DSGR + \beta_7 TREXD + \mu_t$ …………………………….3

$LOGGDP = \beta_0 + \beta_1 \sum LOGEXD + \beta_2 \sum LOGEXDS + \beta_3 \sum LOGDODO + \beta_4 \sum LOGTR + \beta_5 \sum DSGI + \beta_6 \sum DSGR + \beta_7 \sum TREXD + \mu_t$ …………………………….4

AUGMENTED DICKEY FULLER UNIT ROOT TEST

Variables	ADF statistic @ level	ADF statistic @ 1st difference	Order of integration
LOGGDP	-0.07859	-4.22591***	I(1)
LOGEXD	-2.55224	-4.60985***	I(1)
LOGEXDS	-3.727500***	-------------	I(0)
LOGDODO	-1.99580	-4.566145***	I(1)
LOGTR	-0.739339	-5.560483***	I(1)

DSGI	-2.041502	-6.044255***	I(1)
DSGR	-4.158013***	_____	I(0)
TREXD	-2.078149	-4.299889***	I(1)

Source: Author`s computation 2021

      It shows the result of the stationary test using the Augmented Dickey fuller test at both the level and 1ˢᵗ different for the variables under review in the model. The study applies constant, intercept and trend terms. The optimal lag length of each variable is chosen, using the Schwarz information criteria (SIC). From the table LOGEXDS and DSGR are both stationary at level. After taking the first different of the stationary test, LOGGDP, LOGEXD, LOGDODO, LOGTR, DSGI and TREXD became stationary. The result shown by the ADF calculated statistic for the variables under review indicates that the critical value is greater that the ADF at either 1% or 5% level of significant (or both) as denoted by **** and ** respectively. This implies that the variables in the model are integrated at order 0 or 1 denoted by I(0) and I(1). From the obtained result the study further carry out the co integration test using the ARDL bond test

GRANGER CAUSALITY TEST

Pairwise Granger Causality Tests
Date: 01/05/21   Time: 06:57
Sample: 1981 2019
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LOGEXD does not Granger Cause LOGGDP	37	1.54931	0.2279
LOGGDP does not Granger Cause LOGEXD		0.53796	0.5891
LOGEXDS does not Granger Cause LOGGDP	37	6.97479	0.0031
LOGGDP does not Granger Cause LOGEXDS		0.91698	0.4100
LOGDODO does not Granger Cause LOGGDP	37	12.6402	9.E-05
LOGGDP does not Granger Cause LOGDODO		1.50249	0.2379
LOGTR does not Granger Cause LOGGDP	37	0.55060	0.5820
LOGGDP does not Granger Cause LOGTR		6.80778	0.0034
DSGI does not Granger Cause LOGGDP	37	3.96599	0.0289
LOGGDP does not Granger Cause DSGI		0.32547	0.7245
DSGR does not Granger Cause LOGGDP	37	0.66311	0.5222
LOGGDP does not Granger Cause DSGR		1.51668	0.2348
TREXD does not Granger Cause LOGGDP	37	0.09964	0.9054
LOGGDP does not Granger Cause TREXD		0.33269	0.7194
LOGDODO does not Granger Cause LOGEXD	37	3.60592	0.0387
LOGEXD does not Granger Cause LOGDODO		4.34602	0.0214
TREXD does not Granger Cause LOGEXD	37	0.12867	0.8797
LOGEXD does not Granger Cause TREXD		6.62746	0.0039
DSGI does not Granger Cause LOGDODO	37	4.82238	0.0148
LOGDODO does not Granger Cause DSGI		3.71522	0.0354

T Source: Author`s computation e.view  9.0 Source:   Author`s computation e.view 9.0he
Source: Author`s computation 2021

The result for the pairwise Granger causality test shows that neither LOGGDP nor LOGEXD granger cause. We therefore accept the null hypothesis. LOGEXDS granger caused LOGGDP with the probability of 0.0031 but LOGGDP does not granger cause LOGEXDS indicating unit directional causality, we therefore reject the null hypothesis for the LOGEXDS that granger caused LOGGDP. We reject the null hypothesis that LOGGDP does not homogenously granger caused LOGTR but do not cause in the opposite directly, indicating unit directional causality. LOGDODO and LOGEXD have bi-directional causality with the probability of 0.0387 and 0.0214 we therefore reject the null hypothesis that there is no causality between the two variables. Also there is bi-directional causality between DSGI and LOGDODO with the probability of 0.0148 and 0.0354. TREXD does not granger caused LOGEXD but LOGEXD granger caused TREXD, indicating that LOGEXD runs one way to TREXD and not the other way round.

ARDL Bounds Test
Date: 01/14/21 Time: 18:15
Sample: 1982 2019
Included observations: 38
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	7.730324	1

Critical Value Bounds

Significance	I(0) Bound	I(1) Bound
10%	4.04	4.78
5%	4.94	5.73
2.5%	5.77	6.68
1%	6.84	7.84

Source: Author's Computation 2021

The ARDL Bond test with F-statistic value of 7.730324 is greater than the critical value of the lower bound I(0) and also greater than the critical value of the higher bound I(1) at 10%, 5%, 2.5% but higher than the critical value of the lower bond I(0) and lesser than the critical value of the higher bound I(1) at 1%. We therefore reject the null hypothesis saying that there is no co-integration between the variable in view but we accept the null hypothesis at 1% for the upper bond. The result shows that there is a long run relationship between the dependent and the independent variables.

Dependent Variable: LOG(GDP)
Method: ARDL
Date: 01/14/21 Time: 18:03
Sample (adjusted): 1982 2019
Included observations: 38 after adjustments
Maximum dependent lags: 1 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (1 lag, automatic): LOG(EXD)
Fixed regressors: LOG(EXDS) LOG(EXDO) LOG(DODO) LOG(TR) DSGI
    DSGR TREXD C
Number of models evalualted: 2
Selected Model: ARDL(1, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LOG(GDP(-1))	0.776493	0.059226	13.11061	0.0000
LOG(EXD)	-0.183852	0.531884	-0.345661	0.7322
LOG(EXDS)	0.120161	0.086386	1.390981	0.1752
LOG(EXDO)	0.037368	0.413471	0.090377	0.9286
LOG(DODO)	0.042647	0.035619	1.197291	0.2412
LOG(TR)	0.049373	0.060469	0.816510	0.4211
DSGI	-0.047266	0.023707	-1.993779	0.0560
DSGR	0.016532	0.005784	2.858359	0.0079
TREXD	8.84E-05	0.000651	0.135868	0.8929

C	5.337240	3.944700	1.353016	0.1869

R-squared	0.985979	Mean dependent var	25.55135
Adjusted R-squared	0.981472	S.D. dependent var	0.956971
S.E. of regression	0.130261	Akaike info criterion	-1.017619
Sum squared resid	0.475102	Schwarz criterion	-0.586676
Log likelihood	29.33477	Hannan-Quinn criter.	-0.864293
F-statistic	218.7742	Durbin-Watson stat	1.994647
Prob(F-statistic)	0.000000		

Author's computation 2021.

The result of the ARDL indicates that the previous GDP has an impact in the current GDP, it is statistically significant at 1%. For every 100% increase in the previous GDP as influenced by the variables in view, current GDP will increase by 77.6%. External debt of the economy is inversely related to the growth of the economy but it is not statistically significant in the model. The external debt servicing has a positive impact on the growth of the economy because it shows the credit worthiness of a nation which is a criteria for the portfolio inflow into the economy meanwhile it is not statistically significant in the model. External debt outstanding, domestic debt outstanding, total reserve as a percentage of total external debt, total reserve of the economy and total debt service percentage of the growth rate are all having positive impact on the growth of the economy. Only debt service percentage of the growth is significant at 5%. Total debt service as a percentage of gross national income is inversely related to the growth but it is statistically significant at 10%.

The R square 98.6% indicates that the combination of the dependent variables in the model explained 98.6% of the growth in the economy. The adjusted R square of 98.1% indicates that if other variables that affect the growth of the economy are included in the model, 98.1% of the economy growth will be explained by the model. The Durbin Watson statistic of 1.99 shows that there is no auto correlation or present of serial correlation, while F-statistic of 0.0000 shows the robustness of the model at 1%.

ARDL Cointegrating And Long Run Form
Dependent Variable: LOG(GDP)
Selected Model: ARDL(1, 0)
Date: 01/14/21   Time: 18:09
Sample: 1981 2019
Included observations: 38

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(EXD)	-0.183852	0.531884	-0.345661	0.7322
DLOG(EXDS)	0.120161	0.086386	1.390981	0.1752
DLOG(EXDO)	0.037368	0.413471	0.090377	0.9286
DLOG(DODO)	0.042647	0.035619	1.197291	0.2412
DLOG(TR)	0.049373	0.060469	0.816510	0.4211
D(DSGI)	-0.047266	0.023707	-1.993779	0.0560
D(DSGR)	0.016532	0.005784	2.858359	0.0079
D(TREXD)	0.000088	0.000651	0.135868	0.8929
CointEq(-1)	-0.223507	0.059226	-3.773781	0.0008

Cointeq = LOG(GDP) - (-0.8226*LOG(EXD) + 0.5376*LOG(EXDS) + 0.1672
*LOG(EXDO) + 0.1908*LOG(DODO) + 0.2209*LOG(TR) -0.2115*DSGI +
0.0740*DSGR + 0.0004*TREXD + 23.8795)

Source: Author's Computation 2021.

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(EXD)	-0.822577	2.306597	-0.356619	0.7241
LOG(EXDS)	0.537616	0.338260	1.589357	0.1232
LOG(EXDO)	0.167190	1.835550	0.091085	0.9281
LOG(DODO)	0.190806	0.159339	1.197486	0.2412
LOG(TR)	0.220903	0.262883	0.840311	0.4079
DSGI	-0.211474	0.087960	-2.404197	0.0231
DSGR	0.073965	0.035899	2.060359	0.0488
TREXD	0.000396	0.002913	0.135790	0.8930
C	23.879507	15.885772	1.503201	0.1440

Source: Author's Computation 2021.

This shows how related the variables are in the long run. For every 100% increase in the growth of the economy in the long run, external debt will drop by 82% though but not statistically significant. Also the total debt services as a percentage of growth of national income have inverse relationship with the growth of the economy in the long run. Every 100% increase in economic growth in the long run leads to 21% drop in the DSGI, it is significant at 5%. External debt servicing, external debt outstanding, domestic debt outstanding, total reserve of the economy, total debt service as a percentage of growth rate and total reserve percentage of the total external debt are all having positive impact on the growth of the economy in the long run.

IV.   Findings and Conclusion

The result of the analysis carried out to determine the effect of public debt on economic growth reveals that external debt of the country is inversely related to growth both in the short and long run, this is in conformity with the works of Amaefule (2018); Alagba and Eferakeya (2019); Egbo and Ajibo (2019); Festus and Saibu (2019). The negative value of external debt shows that the huge amount borrowed by the government to improve the welfare of the people especially in building key infrastructural sectors over the years have not been properly utilised, meaning that such funds have been channeled into a less productive activities. It is not out of place to state that most of the public debt incurred by the government has been plummeted into white elephant projects to the detriment of the larger society. The result also indicates that external debt servicing is positive both in the short and long run this in line with the work of Omodero and Alpheaus (2019), this result is not unexpected given the fact the debt servicing has to be repaid in the currency it was borrowed, as the local currency gets weaker in relation to foreign currency, external debt servicing will continue to exert a positive effect on economic growth. External debt outstanding, domestic debt outstanding and total reserves are positive and statistically insignificant in short run and long run. The result reveals domestic debt outstanding having a positive but statistically insignificant effect on economic growth, this finding is also in agreement with the work of Ajayi and Edewusi (2020).

This paper therefore recommend that government should not consider further borrowing as an option to bridge the gap between revenue and expenditure since there is no evidence that the debt incurred in the past were judiciously used rather they should look for alternative sources of fund by exploring the untapped natural resources of the country, encourage exportation of locally manufactured product to earn foreign exchange, adopt a robust macroeconomic policy, enhance a conducive environment for business to thrive and growing the agricultural base of the country, this will ease financial burden and enhance economic progress.

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