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Impact of Public Debts Accumulation on Economic Growth in Nigeria: Issues and Implications for Economic Recovery

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Abstract

This paper interrogates the rationale behind federal government continued reliance on Keynesian's fiscal policy prescriptions of deficit financing as a way of spurring sustained economic growth and development in Nigeria, especially when such ideology seems to contrast sharply with the realities of dwindling economic growth indices. In particular, this study investigates the extent both external debt and domestic debt impact on economic growth in Nigeria. Multiple regression method was adopted while Autoregressive distributed lag (ARDL) model was the main technique used in the analysis. The results of the ARDL model demonstrate that external debt (LEXD) and domestic debt (LDD) have a negative impact on LGDP. However, while external debt reveals a significant effect, domestic debt (LDD) has an insignificant impact on LGDP. Thus, the study recommends that government should discontinue the use of external debt to finance budget deficit in the economy, but look inward through aggressive internal revenue generation as well as embrace economic diversification policies, coupled with a drastic cut down on cost of governance in Nigeria.

Keywords: Autoregressive Distributed Lag Model, Chow Breakpoint Test, Domestic Debt, Economic Growth, External Debt, Public Debt.
JEL Classification: C22, E43, F43, J38

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Introduction

Governments generally seek to achieve four main objectives in the economy. These objectives are: the promotion of economic growth, employment creation, price stability, and external balance (Udabah, 2019). For these goals to be achieved, governments design and implement appropriate policies in forms of monetary and fiscal policies. The latter refers to deliberate government's plan for spending and revenue generation. In most cases, especially in the less developed countries (LDCs), the spending side of fiscal policy outweighs the revenue side – thereby launching the economy into a state that cannot guarantee fiscal sustainability. This has made successive Nigerian governments to accumulate public debts through borrowing to finance budget deficit.

Public debt accumulation is meant to fund capital components of government expenditure, with the intention to achieve macroeconomic objectives – economic growth, to be specific. Unfortunately, the Nigerian experience is to the contrary. This is because the country's economic growth has not performed as expected, even when there is overwhelming increase in public debt accumulation. For instance, the external component of Nigeria's debt stands at N15.86 trillion (US$38.39 billion), with over 54 percent owed to multilateral institutions, and its internal component stands at N23.7 trillion (US$57.39 billion).

As a response to continuous public debt accumulation and to set the economy on the path of recovery, the Economic Recovery and Growth Plan (ERGP) (2017 – 2020) was launched. The ERGP policy action slightly achieved its objective as the economy recorded 2.3 percent and 2.4 percent growths in real GDP in 2019 and 2021 respectively. This evidence of growth cannot guarantee fiscal sustainability that can engender economic recovery. In view of this, it becomes germane to ask, 'Did accumulated public debt and its correlates significantly impact on GDP from 1981 to 2021?' It is against this background that it becomes imperative to assess the impact of public debts (external and domestic debts) accumulation on economic growth, with a view to x-raying its associated insights and implications for economic recovery in Nigeria.

From the analysis above, it is observed that while the debt stocks of Nigeria increased overtime, though they declined significantly between 2006 and 2010, the GDP growth rate exhibited instabilities and even recorded negative growth rate in 2016. This implies that public borrowings are yet to grow the economy, even with the debt relief of 2005. The economy is still

characterised by low investments, low aggregate demand, high level of unemployment, and unstable economic growth. It is against this background that the paper investigates the disaggregated impact of public debt accumulations on economic growth in Nigeria.

Besides, this paper differs from the previous ones in some ways. For instance, most of the previous works reviewed are old and need updating in order to catch the current issues on the subject matter. Secondly, none of the authors reviewed bothered to test for any possible structural breaks within the period of analysis, which is the main concern of the present work. This work uses Chow structural breakpoint to check if there was any structural break within the period of this study. Therefore, it is the desire to close these gaps in knowledge that motivated this study.

Study Objectives

This study is guided by the following objectives: to examine the impacts of external debt (LEXD) and domestic debt (LDD) on gross domestic product in Nigeria from 1981 to 2021.

Hypotheses

External debt (LEXD) and domestic debt (LDD) do not have positive significant impacts on gross domestic product (GDP) in Nigeria.

Theoretical Framework

This paper is anchored on the Profligacy theory as propounded by Bohn in 1998. This important theory in the opinions of Oke and Sulaiman (2012) focuses on institutional bargain by which loans are contracted. The theory, which is an element of system stability theory, argues that debt arises because of weak institutions and policies that promote wastages, corruption and weak commitment to improving living standards (Stephen, 1999).

For Ajayi and Oke (2012: 18), 'the conditions also result in the distortions in relative prices, promote capital flight and promote the situation where the citizens maintain huge assets and investments abroad'. Profligacy theory conforms to the work of Ozurmba and Kano (2014), who are of the view that debts arise from the loans and credits procured by a country to bridge the gap between saving and investment. They stipulate that when resources are productively deployed and utilised, they do not constitute any drain on future resources. They further buttress that to ensure sustainability of debt servicing,

borrowing countries need to adopt efficient external management strategies, which entail carefully planned schedules of external debt acquisition, deployment and retirement.

According to Obi (2014:73), 'Nigeria is the largest debtor in the sub-Sahara Africa'. He also observes in a comparative study with Argentina (Latin America's most severely indebted nation), that Nigeria's external debt as a percentage of gross national income has been rising continuously higher than that of Argentina since 1985 and continued an up -ward pattern unlike that of Argentina. The problem is compounded, according to Obadan (2004), by the economy's inability to generate the requisite resources to meet repayment obligations, especially since the early 1980s. Fosu (2007) further shows the severity of the debt burden brought about by pile-up debt (debt arrears as proportion of total debt stock) that is as high as 59%.

As summarised by Stephen (1999) and Brook (1998), some of the factors that make profligacy theory prominent and relevant are as follows: inadequate debt management due to unlimited borrowing at unfavourable conditions; waste of resources as a result of policy deficiencies; political and social instabilities; and non-concessional refinancing and lending policies driven by the desire of lenders to promote their own exports.

The authors of this paper consider the profligacy theory a relevant framework for this study considering the fact that the four key points that made profligacy theory superior, relative to other theories with regard to the issue of public debts as demonstrated above by both Stephen (1999) and Brook (1998), are the major characteristics of the Nigerian economy with respect to public debts. Therein lies the justification for this paper's adoption of profligacy theory as its framework.

Nigeria's Debts Experience

Over time, sustainability of Nigeria's debt has been the major concern of economists. Statistics reveal that Nigeria's total debts increased by 230 percent from N12.6 trillion to N41.6 trillion between 2015 and the first quarter of 2022 (NBS, 2022). According to Somkele (2022), this debt collectively reflects the domestic and external borrowings of the Nigerian government, our 36 states and Abuja. This leads to the startling forecast by the IMF's 2022 macro stress test, which submits that by 2026, Nigeria might spend 100 per cent of its revenue on servicing debt. Corroborating the above submission, Dr Azubuike Nkala of *Orient Daily*, observes that 'the government's continued borrowing is

irresponsible and Nigeria needs alternative solutions other than debt for funding its economic plans (Somekele, 2022).

Nigeria's policymakers, however, have been defending their borrowing practices and explaining their necessity. At the public presentation and breakdown of the 2022 Appropriation Bill in October 2021, the Minister of Finance, Budget and National Planning, Zainab Ahmed, stated that borrowings were instrumental to Nigeria's exit from recession. She submits that 'considering the considerable growth in Nigeria's debt over the past six years, the question of whether our debt situation is sustainable is more than justified'.

Thinking about Nigeria's debt, there are at least three things to consider, which this paper will touch on. First, Nigeria's growing debt is the result of a revenue problem. Second, the proceeds from debt have mostly been put to good use and, as long as plans to improve revenue and curtail expenditures are followed through, Nigeria is well placed to meet its repayment obligations. Already, the government has increased its focus on improving non-oil revenues and strengthening fiscal management. As such, the third aspect is that Nigeria's debt situation has been wrongly emphasised as distressed when, according to Somkele (2022), 'it is not yet an extreme cause for concern.

To better understand the origins of Nigeria's debt situation, let us begin by looking at Nigeria's federal budget. The budget reflects the country's projected revenues and expenditures. If revenues are higher than expenditure, the budget is in surplus and if expenditures are higher than revenues, the budget is in deficit. Revenue depends on a number of assumptions, including those about oil prices, oil production levels, the exchange rate, inflation, and contributions from state-owned enterprises. Revenues also determine the level of funds available to finance expenditures. These projected inflows are often classified as *oil* and *non-oil* revenues. Expenditures are typically split into recurrent (all payments for goods and services other than for capital assets) and capital (payments for investments and acquisition of assets). The budget also usually includes key provisions for debt service (repayment of previous loans) and the sinking fund (a provision for future loan repayments).

In 2016, Nigeria's budget had a deficit of N2.22 trillion while the amount earmarked for debt servicing was N1.36 trillion. Even then, there were comments that Nigeria needed to adopt austerity measures and not resort to unrestrained borrowing. The approved 2023 budget shows that the deficit has tripled to N6.38 trillion and that N3.80 trillion will now be spent on servicing existing debt. This growth in debt is not as worrisome as it may seem when we

consider some of the macroeconomic challenges that Nigeria has faced in recent years.

The Nigerian economy has experienced at least two major shocks since 2016: firstly, Nigeria entered a recession because of a crash in oil prices and disruptions to oil production that seriously decreased oil revenue. Revenues fell again in 2020 when the COVID-19 pandemic negatively disrupted oil price benchmarks, global oil production and productivity in other sectors of the global economy. Given that oil remains Nigeria's primary source of revenue, these two critical periods reduced the country's revenues, drove up the fiscal deficit and required significant borrowing.

It is worth highlighting that there are positive sides to borrowing when debt is effectively utilised. Despite the explanations of inadequate revenues to fund the budget and a need for increased debt, can it be said that the proceeds have been put to good use? This question arises because one of the main uses to which these borrowings have been put to is infrastructure development, which is central to building a competitive economy. Nigeria needs to increase spending on infrastructure to over N30 trillion every year over the next few decades to help close the infrastructure gap. For context, Nigeria is expected to spend N1.42 trillion on infrastructure in 2023. In a 2020 article, the McKinsey Global Institute states that, 'infrastructure has a socioeconomic rate of return of about 20%'. This essentially means that the investments made in road, rail, power, and aviation infrastructure could return 20 kobo in the long run for every naira spent.

Presently, as reported in CBN (2021), over N360 billion in SUKUK bonds have been used on some road projects including the dualization of Abuja-Abaji-Lokoja road, and the rehabilitation of the Enugu-Port Harcourt dual carriageway. Furthermore, external borrowing has financed the double-track standard gauge Lagos-Ibadan rail. The Zungeru Hydropower project and National Electrification Project are also key to increasing the infrastructural stock, which is currently around 25 per cent of Nigeria's GDP (NBS, 2022). Infrastructure investments have a lag time, so the benefits will be reflective in due course.

Empirical Literature

This section undertakes a thematic review of current works on how public debts predict economic growth to ensure a synergy between the empirics and stated objectives of the study. The review also runs from the developed countries

experiences, experiences from developing African countries and experiences from Nigerian specifics. This arrangement is aimed at achieving a balanced and comprehensive review of the relation between the dependent and explanatory variables.

Panagiotis (2020) examined the relationship between public debt and the determinants of economic growth such as private and government consumptions, investment, trade openness, and population growth in Greece through the applications of unit root tests, and auto-regressive distributed lag (ARDL) model. The unit root tests indicated mixed integration of order zero and order one among the variables. The results of the ARDL model reveal a long-run relationship between variables; and also show that private and government consumption, investment and trade openness have positive effects on economic growth, while government debt and population growth have negative impact on growth. The study also evaluated the Chow break point effects issue between government debt and economic growth. The results show that the relationship between debt and growth depends on whether the debt has a structural break or not. Hence, the results reveal that as government debt rises after 2000, the effect on economic growth diminishes rapidly and the growth impacts become negative. The major drawback of this study is that the author fails to report the result of the short-run effects to show the speed of adjustment between the short-run and long run periods.

On the other hand, Nassir and Wani (2020) evaluated the relationship existing between public debt and economic growth in Afghanistan for the period 2008-2018 using analysis of variance (ANOVA). The variables included in the model were gross domestic product (GDP), government stock, advances from commercial banks and external debt. The results reveal that government stock, advances from commercial banks and external debt have negative and insignificant influence on gross domestic product (GDP) in Afghanistan. Thus, the study recommends that government should develop a framework for recording and monitoring all contingent liabilities and also formulate and implement a policy for managing contingent liabilities. The government should also put in place policies that will encourage investment in treasury bonds, both by the private and institutional investors, such as pension funds and insurance companies.

Isaac and Rosa (2019) ex-rayed the nexus between public debt and public investments and economic growth in Mexico for the period 1993-2016 using dynamic models of panel data and the generalised method of moments in the analysis. The macroeconomic variables selected were nominal budget deficit,

public income, public spending, volume of interest paid, nominal effective rate of interest, and total value of domestic public debt. The results reveal the positive influence of public debts on public investment and economic growth in the Mexican economy. Though the result was quite robust, however, there is still need for further study in order to update knowledge in this area and to show its efficacy in developing economies like Nigeria.

Furthermore, Naeem (2015) examined the impact of public debt for economic growth investment in Philippines for the period 1975-2010 using the autoregressive distributed lag technique. The results reveal that public external debt is negatively but significantly related to economic growth and investment in Philippines economy. The implication of the above result is that there exists debt overhang effect in Philippines' economy. Following the submissions that domestic debts is negatively related to investment but positively predicts economic growth in Philippines's economy, the study admonishes that the government adopts policies that not only accelerate economic growth but one that is capable of reducing debt burden.

For works from developing African countries, Waliu, Sallahuddin and Muhammad (2018) undertook a study on the impact of external debt and corruption on economic growth in five Sub-Saharan African (SSA) nations for the period 1990-2015. The technique adopted for the analysis was Panel unit root and panel co-integration tests. With the application of fully modified ordinary least squares (OLS) and dynamic OLS techniques, in addition to panel Granger causality test, the results show that external debt has a negative impact on gross domestic product, with the Granger causality test revealing a reverse causality between the two variables in the economy. The result further confirms a positive relationship between corruption level and economic growth, implying that with a percent rise in corruption cases in Philippines, the economic growth will as well rise by a unit, contrary to the a priori criterion. The directional of causality also reveals a uni-directional relationship running from economic growth to corruption. The study recommends that the governments of the selected African nations should as a matter of urgency, diversify their economy and seek alternative source(s) of capital for investment. While the effort of the above researchers is commendable, it is noticeable that the exclusion of debts service as a key variable from the model may have adversely affected the results generated and the prescriptions made for the economy; thus, motivating the present study.

In addition, Victor and Christopher (2016) interrogated the possible impact of public debt on economic growth in Ghana for the period 1970-2012.

The authors adopted Johansen co-integration test statistics; Vector error correction model (VECM) and Granger causality test statistics to determine if there was significant impact of public debt, inflation rate, government consumption expenditure, openness, investment spending, and population growth on economic growth in Ghana. While a long-run relationship is confirmed among the series included in the model, the VECM results indicate that public debt has positive and significant impact on economic growth (GDP) in the economy. Based on the results, the study admonishes that for a self-sustainable economy; Ghana's government should embrace public debts for very high priority projects and programmes and ensure prudent utilisation of such fund for maximal economic growth and development. The only doubt about this recommendation is the discovery that the unit root results indicate a mixed order of integration among the variables used, which makes the application of ARDL more preferable than the VECM the authors used for the analysis.

Moreover, Christabell (2013) carried out a study on the relationship between public debt and economic growth in Kenya for the period 1993-2012. The method of analysis adopted was analysis of Variance (ANOVA) aimed at establishing the link between and gross domestic product (GDP) as dependent variable and treasury bills, treasury bonds, overdraft at the Central Bank of Kenya, government stock, advances from commercial banks, and external debts as explanatory variables. The regression results confirm a significant relationship between public debt and economic development in the economy. A positive and significant relationship between treasury bonds and GDP is established, while government stock is confirmed to be negatively and significantly related to the economy. Similarly, the results indicate that external debt has a negative and insignificant effect on the economic growth in Kenya. Hence, the study recommends that government should develop a framework for recording and monitoring all contingent liabilities and also formulate and implement a policy for management of the contingent liabilities.

Furthermore, there exists numerous empirical works done in Nigeria on the impact of public debts on the economy within the sampled period. For instance, Lucky and Godday (2017), applying multiple regression, examined the link between public debts profile and the growth indices of the Nigerian economy for the period 1990-2015. The variables included in the model were gross domestic product; domestic debt, external debt; and total debt. The results of multiple regression establish a positive and significant relationship between public debt and gross domestic product in Nigeria. However, when disaggregated, external debt yielded a negative and significant relationship to

economic growth, while domestic debt indicated a positive and significant effect on economic growth in Nigeria. Based on these results, the study warns that only policies that encourage domestic debts acquisition should be pursued if sustainable economic growth is to be accelerated.

In a similar study, Elom-Obed, Odo, Elom and Anoke (2017) examined the nexus between public debt and economic growth in Nigeria for the period 1980-2015 using co-integration test, Vector Error Correction Model (VECM) and Granger causality test. The variables employed in the investigation were real gross domestic product, domestic private savings, external debt, and domestic debt. The empirical results reveal that external debt and domestic debt have negative and significant effects on economic growth in Nigeria. More so, the results show that domestic debt and external debt granger cause real gross domestic product (RGDP) with causality running from external debt and domestic debt to real gross domestic product..

Abula and Ben (2016) examined the effect of public debt on economic development in Nigeria from 1986 to 2014. Johansen co-integration test, Error Correction Method (ECM) and the Granger Causality test were utilised in the analysis. The variables employed in the study include gross domestic product, external debt stock, domestic debt stock, external debt service payment and domestic debt service payment. The results show evidence of long-run relationship among the variables. The results of the ECM indicate that external debt servicing and external debt stock have negative and insignificant impact on economic development in Nigeria; while domestic debt stock has a significant influence on economic development. The results also show that domestic debt service payment has negative and significant effect on the economic development in Nigeria. Therefore, the study recommends that the government should reduce its external debt stock level but embark more on domestic debt accumulation as it will contribute significantly to the development of the economy.

Abu and Abdullahi (2010) investigated the effect of government expenditure on economic growth in Nigeria using disaggregated analysis over the period 1970-2008. The model expresses gross domestic product (GDP) as a function of total capital expenditure, total recurrent expenditure, expenditures on agriculture, defence, transport and communication, health and education, inflation and government fiscal balance. The results show that government's total capital expenditure, total recurrent expenditure, and government expenditure on education have negative impact on economic growth (GDP). However, the results also reveal that government expenditure on transport and

communication, and health have positive influence on gross domestic product (economic growth).

Esther, Folorunso and Felix (2008) investigated the effect of huge external debt with its servicing requirements on economic growth in Nigeria, in order to make meaningful inference on the debt relief granted to the country in 2006. The neoclassical growth model that incorporated external sector, debt indicators and some macroeconomic variables were employed in this study. The study also examined the linear and nonlinear effect of debt on growth and investment by utilising the ordinary least squares (OLS) and the generalised least squares (GLS). The variables used in the study include gross domestic product (GDP) growth rate, total investment-output ratio, growth rate of exports, debt service to GDP ratio, savings, exchange rate, and external debt stock relative to GDP. The results reveal that public debt and its servicing requirements have negative impact on growth in Nigeria. It also indicates that external debt has a positive effect on growth up to the point after which its contributions became negative reflecting the presence of nonlinearity in effects.

Method of Study

This study adopts ex-post facto research design and employs multiple regression method with Autoregressive Distributed lag (ARDL) model and Chow Structural Breakpoint test as the main data analysis technique.

Model Specification

This model specification follows the theoretical frameworks for this. The theory assumed that output or growth (Y) is a function of technology, capital and labour. The equation of the neo-classical growth theory is expressed as:

$$Y = f(A, K, L) \quad (1)$$

Where, Y is the aggregate output, A is the number based on the current state of technology, K is the quantitative measure of the size of the stock of manufactured capital, and L is the quantity of labour employed during that period of time (Precious, 2015).

Thus, the neo-classical growth theory is adopted considering the fact that public debt, if borrowed to finance health, education, and development investments, is considered as being productive, which can contribute positively to economic growth via increased labour, capital, and technology. As a result, government

spending will increase. Hence, instead of having the function Y=f (A, K, L), the function is modified to suit the present study.

Mathematically, the model is specified as:

$$GDP = f(EXD, DD, GEX, NS, CPI) \quad (2)$$

Where; GDP is the gross domestic product growth, EXD is the external debt, DD is domestic debt. The inclusion of GEX (government expenditure), NS (national savings) and CPI (inflation rate) is because they are the major proximate determinants of economic growth in Nigeria and as such, they are included as control variables in this model.

In linear function, the relationship is specified econometrically thus:

$$GDP_t = \varphi_0 + \varphi_1 EXD_t + \varphi_2 DD_t + \varphi_3 GEX_t + \varphi_4 NS_t + \varphi_5 CPI_t + U_t \quad (3)$$

In log function, it is illustrated as:

$$LGDP_t = \varphi_0 + \varphi_1 LEXD_t + \varphi_2 LDD_t + \varphi_3 LGEX_t + \varphi_4 LNS_t + \varphi_5 CPI_t + U_t \quad (4)$$

Where; LGDP is the explained variable; whereas LEXD, LDD, LGEX, LNS and CPI are the explanatory variables; U_t is the error term; φ_0 - constant term; L is the log function, whereas φ_s are the coefficients of the regression equation.

Sources of Data

Secondary data is used in this study to achieve empirical results on the impact of public debt accumulations on economic growth in Nigeria over the period 1981-2021. The variables used in the investigation include gross domestic product, external debt, domestic product, government expenditure, national savings and inflation rate. Data on these variables were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin, volumes 32, 2021 publication.

Empirical Results

(i) Stationarity Test

The order of integration of the series was tested using the Augmented Dickey-Fuller (ADF) unit root test. The decision rule is that the null hypothesis is

rejected if p-values is less than 5% degree of freedom and accepted if otherwise. The results are illustrated below based on this rule of thumb.

Table 1: Unit Root Test between GDP and Public Debts

Trend and Intercept

	Level		First Difference		Order of Integration
Variables	**ADF Statistic**	**5% Critical Value**	**ADF Statistic**	**5% Critical Value**	
LGDP	-0.792308	-2.945842	-3.157453	-2.948404	1(1)••
LEXD	-2.993751	--2.945842	-4.567700	-2.948404	1(0)•
LDD	-1.621270	-2.945842	-4.537783	-2.948404	1(1)••
LGEX	-0.849119	-2.945842	-7.214707	-2.948404	1(1)••
LNS	-0.492972	-2.945842	-4.347939	-2.948404	1(1)••
CPI	-2.377867	-2.858234	-5.754351	-2.948404	1(1)••

Sources: Researchers' computation from E-view 9

1(1)• indicates stationary at level form

1(1)•• indicates stationary after 1st differencing

Thus, as revealed in table 1 above, the series such as LGDP, LDD, LGEX, LNS and CPI are non-stationary at level form and only become stationary after first differencing. However, only LEXD is stationary at level form, thus revealing a mixed order of integration of 1(0) and 1(1). This is a motivation for the test of long-run, steady state and equilibrium relationship among the series included in the model.

(ii). Auto Regressive Distributed Lag (ARDL) Bounds Co-integration Tests

The derivation of a mixed order of integration of 1(0) and 1(1) gives rise to the application of ARDL Bounds co-integration test as developed by Pesaran and Shin (1999) and Pesaran, Shin and Smith (2001). This technique deals with the analysis of the long-run relationship and short-run dynamic interactions among the underlying variables. The results are shown in table 2 below.

Table 2: ARDL Model between LGDP and Public Debts

Dependent Variable: LGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LGDP(-1)	0.602348	0.102779	5.860603	0.0000
LEXD	-0.069716	0.031626	-2.204362	0.0362
LEXD(-1)	0.074462	0.026502	2.809692	0.0091
LDD	-0.054168	0.109976	-0.492545	0.6263
LDD(-1)	0.168500	0.109692	1.536126	0.1361
LGEX	0.184218	0.065830	2.798386	0.0094
LNS	0.092092	0.059563	1.546121	0.1337
CPI	0.000109	0.000643	0.169410	0.8667
C	1.132546	0.295044	3.838572	0.0007

R-squared	0.999200	Mean dependent var	8.543717
Adjusted R-squared	0.998963	S.D. dependent var	2.260913
F-statistic	4215.147	Durbin-Watson stat	1.971407
Prob(F-statistic)	0.000000		

Sources: Researcher's computation from E-view 9

Estimation model: $LGDP_t = 1.132546 - 0.069716LEXD_t - 0.054168LDD_t + 0.184218LGEX_t + 0.092092LNS_t + 0.000109CPI_t$

Results of the ARDL above show that at lag zero, external debt (LEXD) and domestic debts (LDD) have a negative relationship with LGDP in Nigeria; while government expenditure (LGEX), national savings (LNS), and cost price index (CPI) are positively related to LGDP in Nigeria within the period under review. On the other hand, it can be seen that only external debt (LEXD) impacts positively and significantly on LGDP, while domestic debt (LDD), government expenditure (LGEX), Savings (LNS), and consumer price index (CPI) at lag zero have insignificant impact on LGDP. This result is adjudged correct considering the coefficients and the p-values of the corresponding variables. However, this result is at variance with the findings of Elom-Obed, Elom and Anoke (2017), which reveal that external debt and domestic debt have negative and significant effects on economic growth in Nigeria. Subsequently, with R^2 value of 0.999200, the result implies that the regressors are able to predict the deviation of the regress up to 99.92%, which is of good fit. Similarly, the results

reveal the absence of serial correlation with Durbin-Watson stat of 1.971407, which is close to 2 in line with the a priori criterion.

Table 3: ARDL Bounds Test between LGDP and Public Debts

Test Statistic	Value	K
F-statistic	5.821029	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Researchers' compilation from E-view 9

The ARDL bounds test as shown in Table 3 above reveals evidence of long-run relationship among the series under study. This is because the F-statistic has a coefficient of 5.821029, which, following the decision rule, is greater than the 5% chosen critical value bounds. The submission is that long-run relationships exist among the series under study.

Table 4: ARDL Short-run and Long-run Coefficients Test

Short-Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LEXD)	-0.069716	0.031626	-2.204362	0.0362
D(LDD)	-0.054168	0.109976	-0.492545	0.6263
D(LGEX)	0.184218	0.065830	2.798386	0.0094
D(LNS)	0.092092	0.059563	1.546121	0.1337
D(CPI)	0.000109	0.000643	0.169410	0.8667
ECT(-1)	-0.397652	0.102779	-3.868999	0.0006

Cointeq = LGDP - (0.0119*LEXD + 0.2875*LDD + 0.4633*LGEX + 0.2316

*LNS + 0.0003*CPI + 2.8481)

Long Run Coefficients

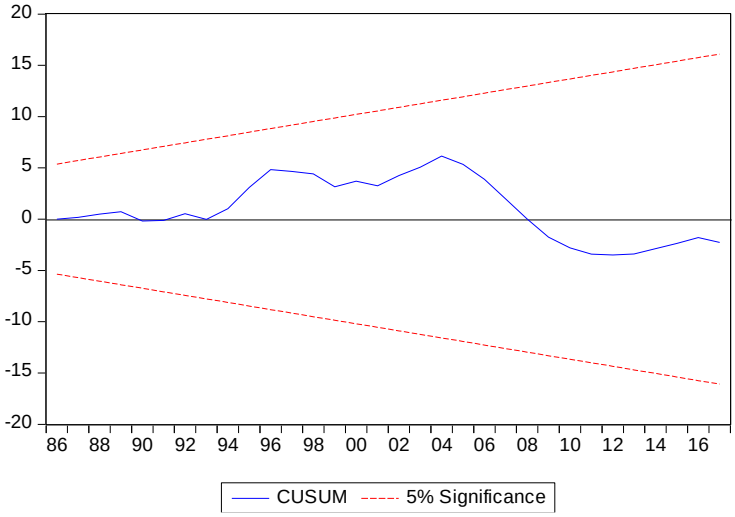
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEXD	0.011935	0.057099	0.209022	0.8360
LDD	0.287517	0.163646	1.756947	0.0903
LGEX	0.463264	0.116170	3.987799	0.0005
LNS	0.231589	0.135003	1.715438	0.0977
CPI	0.000274	0.001590	0.172216	0.8646
C	2.848082	0.183197	15.546585	0.0000

Source: Researchers' compilation from E-view 9

The combination of ARDL long-run and short-run results are shown in Table 4 above. From the coefficients of the results, the value of ECT is -0.397652 with the associated p-value as 0.0006, which is below alfa level (0.05). What this shows is that the speed of adjustment from the short-run disequilibrium to long-run equilibrium relationship is 39.8% annually.

(iv). Chow Structural Breakpoint Test

Graph 1: Structural Stability Test



Chow structural stability as shown above was conducted to determine the structural stability of the parameter estimates. From the result, since the

CUSUM stat is outside the upper limit, the estimated parameters are stable over the study time.

Chow Breakpoint Result

The Chow breakpoint tests is manually computed here as pointed out earlier to check if there is any structural break within the period of the study (1981 to 2021). This is the value added of this study and the justification is that the author is unaware of any previous work that checked for the structural stability test of the series used which may have affected the recommendations earlier made on this issue.

(i) From the first sample (1981-2011), the LGDP function is estimated as

Modeling LGDP by OLS

LGDP- 1.694698 - -0.198970LEXD + 1.286331LDD

RSS_1 = 2.097766

With $(n_1 - k)$ = 26 – 3 = 23 degrees of freedom

ii) From the second sample (2011-2021), the LGDP function is estimated as

Modeling LGDP by OLS

LGDP = 5.302307 + 0.031591LEXD + 0.645364LDD

RSS_2= 0.021523

With $(n_2 - k)$ = 11 – 3 = 8 degrees of freedom

iii) From the 'pooled' sampled of all 40 observations (1981-2021), the LGDP function is estimated as

Modeling LGDP by OLS

LGDP = 1.878596 - 0.144299LEXD + 1.189467LDD

RSS= 2.631952 = Q_1

With $(n_1 + n_2 - k)$ = 37 – 3 = 34 degrees of freedom

iv). The sum of the squared residuals between the two separate regressions is

Q_2 = RSS_1 + RSS_2= 2.097766 + 0.021523 Q_2 = 2.119289

With $n_1 + n_2 - 2k$ = 26 + 11 – 2(3) = 31 degrees of freedom

v) The difference of the above sum and the 'pooled' residuals is

$Q_3 = Q_1 + Q_2 = RSS - (RSS_1 + RSS_2)$
$= 2.631952 - (2.097766 + 0.021523)$
$= 2.631952 - 2.119289$
$= 0.512663$
With K = 3 degrees of freedom

vi) The F* ratio is

$$F^* = \frac{RSS - (RSS_1 + RSS_2)/k}{RSS_1 + RSS_2/n_1 + n_2 - 2k} = \frac{0.512663/3}{2.119289/31} = \frac{0.17088767}{0.06836416}$$

$F^* = 2.50$

From the calculation above, the calculated F* ratio is 2.50 and the theoretical value of F-tabulated at 5% level significance with $V_1 = 3$, $V_2 = 31$ degrees of freedom is 2.90. Following the rule of thumb, since F* - calculated of 2.50 is less than F- tabulated of 2.90, the null hypothesis of no significant structural break between public debt stocks (i.e. external and domestic debts) and economic growth in Nigeria is not rejected and the alternative rejected.

v. Test of Research Hypotheses

H_{01}: External debt (LEXD), domestic debt (LDD), does not have positive significant impacts on gross domestic product (GDP) in the Nigerian economy.

These hypotheses were tested using the coefficients and the p-values of the included variables, as generated from the results of the ARDL model in Table 4 above. As shown from the results, the coefficient of the external debt (LEXD) is -0.087399 with the p-value of 0.0262 which is less than 5% critical value. Since the coefficient of the variable is negative and its p-value of 0.0262 is less than 5% critical value, the study rejects the null hypothesis (H_0) and concludes that external debt (LEXD) has a negative and significant impact on gross domestic product (LGDP). For domestic debt (LDD), the coefficient of LDD is -0.146461 with the P-value of 0.1057. Since the coefficient of the variable is negative and the p-value of 0.1057 is greater than 5% critical value, the study accepts the null hypothesis (H_0) and concludes that there is no significant positive impact of domestic debt on economic growth in Nigeria. Moreover, there exists government expenditure (LGEX), savings (LNS) and consumer price index (CPI) with the coefficients of 0.184218; 0.92092 and 0.000109 with their corresponding P-values of 0.0094; 0.1337 and 0.8667 respectively. Since

their respective P-values are higher than the theoretical alfa level of 0.05 at 5% critical value, the study accepts the null hypotheses and concludes that there is no significant positive impact of government expenditure, savings and consumer price index on economic growth. This finding corroborates the submission of Abu and Abdullahi (2010) that government total capital expenditure, total recurrent expenditure, and government expenditure on education have negative impact on economic growth (GDP) in Nigeria.

Discussion of Results

ARDL Bounds Co-integration Test Results

From the results of the ARDL model used as analytical techniques for this study, the empirical analysis reveals that at lag zero, external debt (LEXD) has a negative and significant impact on LGDP; while domestic debt has a negative and insignificant impact on economic growth. This means that 1% increase in external and domestic debts will decrease gross domestic product (GDP) in Nigeria by 0.0874 units and 0.1465 units, respectively. The negative and significant impact of external debt as revealed by the results is a clear confirmation of the existence of debt overhang in Nigeria's economy.

Similarly, the empirical findings is at variance with the findings of Alejandro and Ileana (2017), and Tajudeen (2012), who evaluate the impact of government debts on gross domestic product in 16 Latin American economies using Two-Stage Least Squares (2-SLS) technique; and find that public debt has a positive impact on GDP growth in those economies.

On the other hand, the discoveries are in conformity with the submissions of Elom-Obed, et al. (2017), Abula and Ben (2016), Esther et al. (2008), and Obi (2014), who examine the relationship between public debt and economic growth in Nigeria, applying co-integration test, Vector Error Correction Model (VECM) and Granger causality test. The results indicate that external debt and domestic debt have negative effects on economic growth in Nigeria.

Chow Structural Breakpoint Test Results

The Chow Breakpoint Test was applied to test for structural break between public debts and economic growth, following the debt relief secured by Nigeria from Paris Club in 2006. In the estimation, the results reveal that there is no

significant structural break between public debts and economic growth in Nigeria within the period under review. This claim is evident by the F-tabulated and F*-calculated. From the results, the F*-calculated value is 2.50 while the F-tabulated is 2.90 at 5% level of significance. Hence, since the F* - calculated of 2.50 is less than the theoretical F of 2.90, the study concludes there is no significant structural break between public debt stocks (i.e. external and domestic debts) and economic growth in Nigeria.

This argument is also evident by F-statistic and the p-value of the estimation equation. The results show F-statistic of 2.830467 and p-value of 0.0545 which is greater than the 5% level significance. Thus, the result further affirms the earlier finding above. This result implies that though Nigeria secured debt relief in 2006, the two relationships have not differed significantly. That is, the GDP function has not changed between the two periods. Recall that while the country secured debt relief on external debt, domestic debt rose rapidly to fill the gap created by the event of the debt forgiveness, thereby causing structural break not to exist in the time series.

Conclusion

This study examined the impact of external and domestic debts on economic growth in Nigeria from 1981 to 2021. The equation specified made gross domestic product (LGDP) a function of external debts (LEXD), domestic debts (LDD) and other proximate determinants of economic growth. ARDL model and Chow Breakpoint test were utilised in the analysis.

The ARDL model results reveal that external debt (LEXD) has a negative and significant impact on LGDP, while domestic debt (LDD) has a negative and insignificant effect on LGDP. The findings conform to the submission made by Elom-Obed, Odo, Elom and Anoke (2017) for the Nigerian economy and Victor and Christopher (2016) for the Ghanaian economy. The results also show that whereas national savings (LNS) has a positive and insignificant effect on LGDP in Nigeria, government expenditure (LGEX) reveals that there is no significant positive impact of government expenditure, savings and consumer price index on economic growth in Nigeria.

Recommendations

The following recommendations are made based on the findings and the objectives of the study.

Following the discovery that external debt has a negative and significant impact on economic growth in Nigeria, government should discontinue the use of external debt to finance budget deficit in the economy. Government should rather look inward through aggressive internal revenue generation as well as embracing economic diversification policies to drive economic growth.

More so, domestic debt has negative and insignificant relationship with gross domestic product (GDP). Hence, government should henceforth discontinue the use of domestic debt to finance fiscal deficit; but as a matter of urgency, government should cut down on recurrent expenditures, especially the salaries of public office holders and stimulate the revenue base of the economy in order to finance capital investment projects in Nigeria for a sustainable economic development.

Suggestions for Further Studies

Due to dearth of data and the page limitations for this study, the researchers were unable to examine the implications of public debt servicing on the economy, whose stock is becoming higher than the public debt stock in Nigeria. Therefore, the aforementioned aspect is recommended to other researchers who may have interest in this field of knowledge

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