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PUBLIC DEBT AND FINANCIAL SECTOR PERFORMANCE: EMPIRICAL EVIDENCE FROM NIGERIA.

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Abstract
The seeming impossibility of financing government goals has continued to be a thorny issue with most developing countries. Therefore, borrowing is regarded as one of the means by which government expenditure is financed. This research work therefore aimed at examining the correlation between public debt and financial sector in Nigeria. It specifically investigated the effect of external debt, domestic debt, total debt and debt servicing on the financial sector. The study's independent variables were; external debt, domestic debt, total debt and debt servicing, while the dependent variable was financial sector output. Hence, to achieve the articulated objectives, time series data for the period 1981-2022 were obtained from the Central Bank of Nigeria Statistical Bulletin and the Ordinary Least Squared (OLS) technique was used in the analysis of the data. The Augmented Dickey Fuller (ADF) unit root test was used to ascertain if each of the variables were stationary at the first difference or not. The analysis of the result of the OLS revealed that external debt and the performance of the financial sector in Nigeria is negative and significant. But domestic debt and the aggregated public debt- total debt enhanced financial sector performance in Nigeria by 0.6307 and 0.811397 units respectively. Therefore, it is advised that the domestic debt component of public debt should be used to finance the financial sector. It further recommended that since government borrowing from external source has negative multiplier on financial sector output, it should reduce debt servicing by decreasing borrowing from the external sources.

Keywords: Public Debt, Financial Sector, Total Debt, Debt Overhang, Ordinary Least Squared.

Introduction
Public debt is an integral part of any nation's economic framework, serving as a mechanism for financing government operations and development initiatives. In developing economies like Nigeria, public debt has become a critical tool for bridging the gap between limited domestic resources and the demands of public expenditure. Nevertheless, the increase in Nigeria's public debt has elicited some concerns on sustainability of public debt and its implication for financial sector. The research questions of this study are as follows:

1. What is the nature of the relationship between public debt and financial sector performance in Nigeria?
2. What are the challenges and possibilities associated with the interaction of these significant economic factors?

The study focuses on external debt, domestic debt, total debt, and debt servicing as the independent variables, while financial sector output serves as the dependent variable.

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The Nigerian economy has experienced significant fluctuations in public debt levels over the past decades, influenced by both external and domestic borrowing. Public debt accumulation has been driven by diverse factors, including budget deficits, infrastructure financing, and responses to economic crises (Adedayo, 2020). Despite its potential benefits, excessive public debt can pose significant risks to the economy. High debt levels may crowd out private investment, elevate borrowing costs, and strain government revenues, which in turn could undermine financial sector stability and efficiency (Akinlo, 2021).

This study focusses on the financial sector of Nigeria, the sector consists of banks, capital market, insurance companies and any other financial institutions that exist in Nigeria. However, its performance is often intertwined with the government's debt management strategies. Public debt influences the financial sector through various channels, such as interest rate dynamics, credit allocation, and liquidity conditions (Bamidele & Englama, 2018). For instance, when government borrowing dominates the financial markets, it may limit the availability of credit to private enterprises and dampen economic activity.

Recent trends in Nigeria reveal a growing reliance on domestic and foreign debt, which raises critical questions about the sustainability of the debt profile and its implications for financial sector performance. As of 2022, Nigeria's total public debt stood at over $100 billion, with debt servicing consuming a significant portion of government revenues (World Bank, 2022). Despite efforts to implement fiscal reforms and debt management strategies, the persistent rise in public debt suggests underlying structural challenges. The financial sector's ability to support economic growth while, maintaining stability is increasingly being tested under these conditions. This research aims at filling these gaps by analyzing the link between public debt and the performance of the financial sector in Nigeria, with a view to establishing the main factors and policy implications. To examine the effect of external debt on financial sector performance in Nigeria; to examine the effect of domestic debt on financial sector output in Nigeria; to examine the effect of total debt on financial sector performance in Nigeria; and to examine the effect of debt servicing on financial sector output in Nigeria financial sector performance in Nigeria; evaluate the impact of domestic debt, on financial sector output in Nigeria, analyze the impact of total debt on financial sector performance in Nigeria and identify the effect of debt servicing on financial sector output in Nigeria.

The knowledge of the link between public debt and financial sector performance is crucial to the policy makers, financial institutions and other stakeholders in Nigeria. This research work therefore adds to the existing literature by presenting findings and recommendations that can be useful in the formulation of debt management strategies and financial sector development initiatives. By identifying the linkages and potential trade-offs between public debt and financial sector performance, the findings of this research aim to support efforts to achieve sustainable economic growth and financial stability in Nigeria.

Despite extensive research, several gaps remain in the understanding of public debt and financial sector performance in Nigeria; however, most studies focus on individual debt components (e.g., external or domestic debt) without considering their combined effects. An integrated approach that examines external debt, domestic debt, total debt, and debt servicing together is essential to fully capture the dynamics affecting financial sector performance. Furthermore, there is little

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research that has examined the differential effects of public debt on individual sub-sectors of the financial sector including banking, insurance and capital markets. Research findings at sectoral levels are required for policy interventions that are relevant to particular sectors.

Theoretical Review

Keynesian Theory of Public Debt

The Keynesian theory of public debt, rooted in the works of John Maynard Keynes (1936), emphasizes the role of government borrowing as a tool for economic stabilization and growth. Keynes argued that during periods of economic downturn, public debt could be used to finance government spending, stimulate demand, and create jobs. In this context, borrowing is not inherently harmful as long as it leads to productive investments that generate economic returns exceeding the cost of debt. For the financial sector, well-managed public borrowing can enhance liquidity and create opportunities for growth by increasing the velocity of money. However, in Nigeria, challenges such as inefficient allocation of borrowed funds and high debt servicing costs often erode the benefits of this approach, leading to negative effects on financial sector output

In Nigeria, the Keynesian theory provides a framework for understanding the potential benefits of public debt when used for infrastructure development, education, and healthcare. These investments can enhance human capital and productivity, leading to long-term economic growth and financial sector development. However, the theory also highlights the risks associated with unproductive debt usage. Inefficient allocation of borrowed funds or excessive reliance on debt to finance recurrent expenditure can undermine economic stability and strain the financial sector.

Empirical evidence supporting the Keynesian perspective includes studies by Blanchard and Perotti (2002), who found that public debt-financed fiscal stimulus could have positive multiplier effects on the economy. However, Nigeria's experience with high debt servicing costs and limited fiscal space raises concerns about the sustainability of such benefits. The challenge lies in ensuring that debt is used effectively to support sectors that contribute to financial and economic stability.

Crowding-Out Effect Theory

The Crowding-Out Effect Theory is attributed to early proponents like David Ricardo (1817) and later developed by James Tobin (1965) & Diamond (1965**)**. These economists explored the macroeconomic impacts of public borrowing on private sector investment and the broader economy. The crowding-out effect theory posits that high levels of government borrowing can lead to increased competition for financial resources in domestic markets, resulting in higher interest rates. As a result, private entities may find it more expensive to borrow, reducing their access to credit and slowing economic activity. In the Nigerian context, this theory is relevant as domestic borrowing by the government often limits credit availability to the private sector, stifling financial sector growth. The crowding-out effect can constrain financial institutions by redirecting funds away from productive investments to meet government borrowing needs.

Empirical Review

Several empirical studies have explored the relationship between public debt and financial sector performance, shedding light on critical dynamics and regional peculiarities. For instance, Adedayo (2020) investigated the impact of public debt on Nigeria's financial sector and found that while short-term public debt could stimulate economic activity, long-term debt accumulation,

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particularly external debt, imposed adverse effects on financial stability. The study highlighted inefficiencies in debt management as a primary factor limiting positive outcomes.
Similarly, Akinlo (2021) analyzed the interplay between debt servicing and financial development in Nigeria, revealing that high debt servicing costs divert resources away from productive sectors. This resource misallocation constrains credit growth, reduces liquidity in the financial markets, and negatively affects sectoral output.

Bamidele & Englama (2018) focused on domestic debt and its implications for financial intermediation. Their findings emphasized the crowding-out effect, whereby government borrowing in the domestic market raises interest rates and reduces private sector access to credit. The study also noted that domestic debt offers a more predictable repayment structure compared to external debt, but excessive reliance still poses systemic risks.

Globally, Reinhart & Rogoff (2010) provided a comprehensive analysis of public debt levels and financial crises, identifying critical debt thresholds beyond which economic growth and financial stability deteriorate. Their insights, though not Nigeria-specific, offer a valuable benchmark for understanding the implications of high debt ratios in emerging economies.

Oladipo, et al (2020) employed the Autoregressive Distributed Lag (ARDL) technique for the assessment of the variables in the study on the impact of foreign debt in relation to promoting economic growth and made focus on public sector financial management functional. The variables used in the study were the debt to Gross Domestic Product (GDP) ratio, interest service ratio, inflation ratio and the foreign debt to export ratio as the independent variables and the gross domestic product as the dependent variable. The analysis indicated that the debt-to-GDP ratio, the foreign debt-to-export ratio, and the exchange ratio were positively and significantly related to GDP. However, the study found out that the level of inflation and interest saving ratios had a negative and significant relationship with the GDP in Nigeria. The data also showed that both exchange and interest rates had an inverse and negligible impact on the real GDP.

Edo & Ashakah (2023) examined the accumulation of foreign debt in four main African countries. This paper analyzes the 2000Q1-2018Q4 period and applies the generalized method of moments (GMM), auto-regressive distributed lag (ARDL), and vector error correction mechanism (VECM) to evaluate the relative effect of fiscal imbalance and financial development on foreign debt. The estimation results from the three approaches, which are relatively similar, reveal that both factors exerted a significant positive impact. Fiscal imbalance is a more serious problem than financial development**.**

Ezenwobi & Anisiobi (2021) examined the effect of government borrowing on economic development in Nigeria. This study covered the period 1990–2020, and secondary data were obtained from the World Development Indicators database (2020) and the CBN statistical bulletin. Data analysis was done using multiple regression model with ADF unit root test, Johansen co-integration test and ECM. Foreign debt (EXD), domestic debt (DOD), interest rates (INTR), and inflation (INF) were used as independent variables while human development index (HDI) was used as the dependent variable and a measure of development. The study established that there is a significant positive correlation between external debt and economic development in Nigeria, as is the case with a negative statistically significant relationship between interest

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rates and economic development. But inflation was established to be statistically insignificant to economic growth in Nigeria.

Method of Data Analyses

This study, adopted the ex-post facto research design to evaluate the relationship between public debt components and the financial sector in Nigeria. Ex-post facto method facilitates the gathering of numerical and quantitative data on historical events, which are inherently fixed and cannot be altered. Given the historical nature of the study variables—such as public debt components and the performance of the financial sector—the ex-post facto design ensures that the analysis is based on actual, observed data rather than speculative or hypothetical scenarios. This approach is widely used for analyzing historical data to understand cause-and-effect relationships in a context where experimental methods are impractical or impossible. The study utilizes secondary data collected from reliable and authoritative sources. Specifically, annual time series data for the period 1981 to 2022 were employed, focusing on variables related to public debt and the financial sector. The primary source of data for this research is the Central Bank of Nigeria (CBN) Annual Statistical Bulletin 2022 edition, a widely recognized and credible source for macroeconomic and financial data in Nigeria.

Model Specification

The functional form of the model is specified below:

FIS = f(EXD, DOD, TOD, DSE)……...…Eqn 1.1

The econometrics form of the model is stated as:

$FIS = d_o + d_1EXD + d_2DOD + d_3TPD + d_4DSE + \mu t$…… ….Eqn1.2

Where:

NOS = Non-oil Sector
PUD = Public Debt
EXD = External Debt
DOD = Domestic Debt
TPD = Total Public Debt
DSE = Debt Servicing
FIS = Financial Sector output
d_o= Constant parameters
d_i = Slope parameters, i= 1,2,3,4,

A priori Expectation; On the a priori, a_1-a_4 <0

Data Analyses

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Table 1: Summary of the Descriptive Statistics

	FIS	EXD	DOD	TPD	DSE
Mean	1300.724	2702.228	4038.054	6740.283	1208.924
Median	252.4500	669.3250	1091.485	3107.870	125.2750
Maximum	6701.130	18702.25	22210.36	40912.62	10369.72
Minimum	7.750000	2.330000	11.19000	13.52000	2.660000
Std. Dev.	1770.832	4281.546	5852.148	9816.273	2387.255
Skewness	1.354774	2.353025	1.592670	2.031677	2.484928
Kurtosis	3.851830	8.076075	4.541301	6.478005	8.457899
Jarque-Bera	14.11772	83.84852	21.91350	50.06290	95.35422
Probability	0.000860	0.000000	0.000017	0.000000	0.000000
Sum	54630.40	113493.6	169598.3	283091.9	50774.81
Sum Sq. Dev.	1.29E+08	7.52E+08	1.40E+09	3.95E+09	2.34E+08
Observations	42	42	42	42	42

Source: *Researchers' Computation using E-Views 9* (2024)

Table 1 above illustrates the summarized statistics of the variables. The mean value of the distribution of the financial system is ₦1.300 billion. Also the external debt for the period averaged ₦2,702 billion, while that of domestic debt is ₦4,038 billion and debt servicing ₦1,208 billion. This revealed that Nigerian debt servicing value nearly equal to the output of the financial sector. The skewedness of the distribution indicated that all the four variables have long tail, this is shown by their positive elasticity. This implied the data on the variables are positively skewed and credibility.

Table 2: Augmented Dickey Fuller Unit Root Test Results

Variable	At Levels	1st Diff	Order of Integration
FIS	-1.8965	6.3404	
	-0.6382	[0.000]	1(1)
EXD	-1.9849	-4.8441	
	[0.5916]	[0.0018]	1(1)
DOD	-1.6369	-4.9772	
	[0.7601]	[0.0013]	1(1)
TPD	-2.1971	-4.7193	
	[0.4782]	[0.0026]	1(1)
DSE	-3.5133	-7.5185	
	[0.0511]	[0.000]	1(1)

Source: Researchers Computation using E-VIEW 9.0(2024)

The Unit Test Result on the Table above shows data on financial sector output and data on public debt variables such as external, domestic, total and debt servicing achieved stationarity after first differencing. This indicated that they are integrated at order one. Thus, the data has statistical properties that do not vary over the period of the study**.**

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Table 3: Johansen Cointegration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.475264	65.98099	69.81889	0.0974
At most 1	0.403237	40.18659	47.85613	0.2159
At most 2	0.270840	19.53716	29.79707	0.4548
At most 3	0.146377	6.902662	15.49471	0.5890
At most 4	0.014199	0.572022	3.841466	0.4495

Source: Researchers' Computation using E-view 9 (2024)

Table 4: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.475264	25.79441	33.87687	0.3334
At most 1	0.403237	20.64943	27.58434	0.2980
At most 2	0.270840	12.63450	21.13162	0.4864
At most 3	0.146377	6.330640	14.26460	0.5712
At most 4	0.014199	0.572022	3.841466	0.4495

Source: Researchers' Computation using E-view 9 (2024)

The outcome of the Unit root test paved the way for the determination of the long-run relationship between the variables using the Johansen co-integration approach. From the results of the Johansen co-integration test in Table 3 and 4 above, there is no long-run relationship between the variables. This is because none of the Trace Statistical value is greater than the 0.05 critical values. This was further confirmed by lower values of the Max-Eigen statistic value, which do not exceed the 0.05 critical values.

Table 5: Ordinary Least Square (OLS) Results

	OLS Estimates			
	Coefficient	***Std. Error***	**t-stat**	***p-value***
C	-1.042255	0.438549	-2.376601	0.0228
EXD	-0.587251	0.220934	-2.658043	0.0115
DOD	0.630670	0.273044	2.309774	0.0266
TPD	0.811397	0.470447	1.724735	0.0929
DSE	0.043698	0.076656	0.570047	0.5721
R-squared = 0.9798; F-stat = 44.804 (p-value =0.0000*); DW = 1.5738				

Note: * indicates that the *p-value* of the test statistic is significant at the 5% level
Source: Researchers' Computation using E-view 9 (2024)

The data were analyzed using the Ordinary Least Squared method. Results from Table 5 above displayed the outcome of the OLS. The R squared indicated that 97 percent changes in the output of the financial sector are explained by variation in public debt variables. The DW value indicated that there is no serious serial correlation problem.

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The result revealed that external debt decreased the output of the financial sector by 0.587251 units, this negative impact had statistically significant impact on the sector with a probability value of 0.0115. Conversely, domestic debt has positive and significant impact on the financial sector. It increased the output of the sector by 0.63067 units. Furthermore, when public debt is aggregated into total debt, has aa overall positive but, insignificant impact on the performance of the financial sector. Specifically, from the result above, total public debt increases the financial sector output by 0.811397 unit. Finally, debt servicing has a direct impact but non-significant impact on the financial sector.

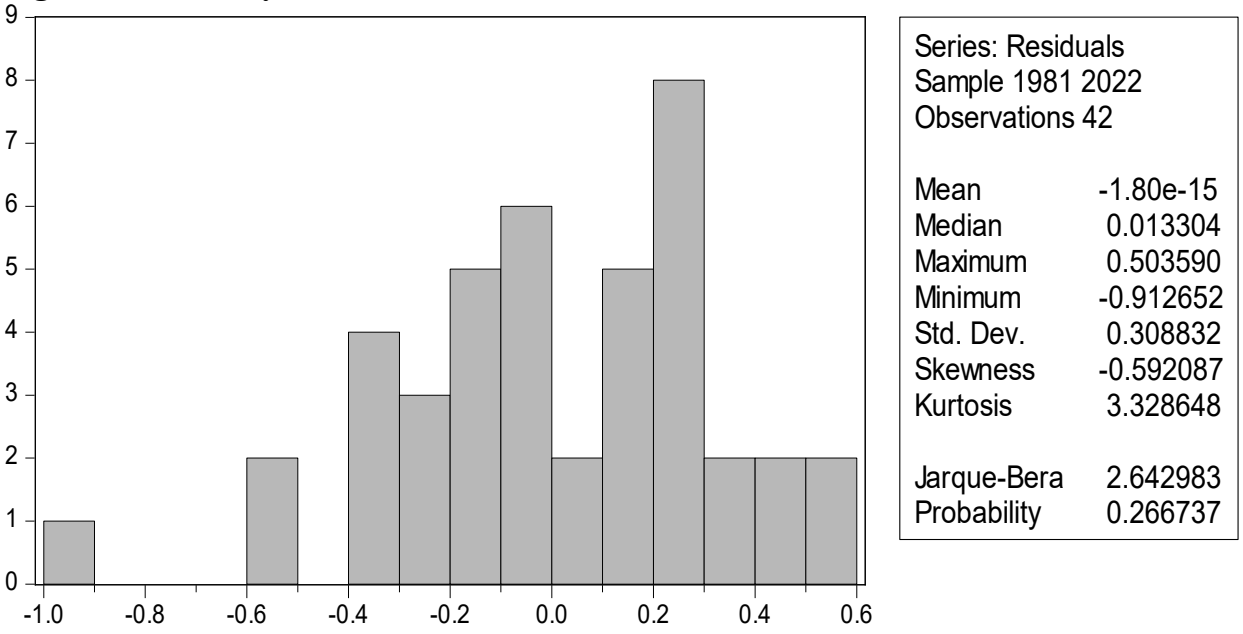
Table 5: Diagnostic Tests with Decision Rules

	Diagnostic test statistics		
	F-statistics	**Durbin Watson Statistics**	**ARCH Heteroscedasticity Test**
Model IV	44.804 (p-value=0.000)*	1.5738	0.633 p-value = 0.5377
Decision	There is joint effect on financial sector output	No autocorrelation in the model (DW value tends to 2)	residuals are distributed with equal variance

Note: * indicates that the p-value is significant at the 5% level
Source: Researchers' Computation Using E-view 9 (2024)

The diagnostic tests result of the post estimation evaluation in Table 5 showed that there is no autocorrelation in the model as the Durbin Watson statistics value tends to 2 than to zero while, the Arch Heteroscedasticity test revealed that the model has equal variance.

Figure 1: Normality Test Result



Source: Researchers' Computation using E-view 9 (2024)

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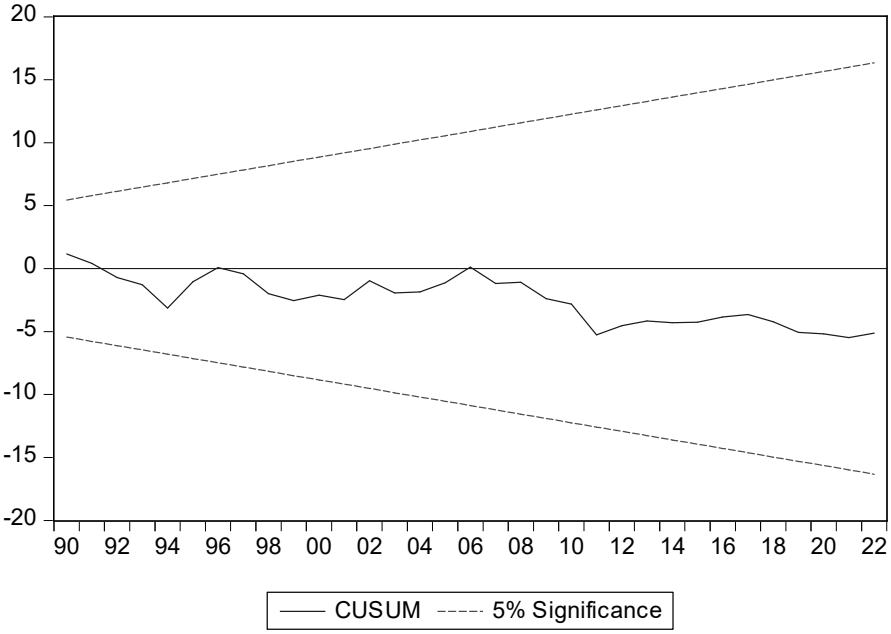
From the Normality test outcome in Figure 1 above, the Jacque-Bera Statistics value of 2.64289 and its accompanied probability value of 0.266737 are above 0.05 level of significant. This indicated that the variables are normally distributed.

Figure 2: Cumulative Sum Square Plot



Source: Researchers' Computation using E-view 9 (2024)

The Cumulative Sum (Cusum) line in Figure 2 above illustrates that the blue line remains consistently within the upper- and lower-5 percent bounds throughout the observation period. This result suggests that there are no significant deviations or structural breaks in the model over time, which supports the conclusion that the model exhibits stability. Stability in this context implies that the model's parameters have not changed significantly and that it continues to accurately capture the underlying patterns and relationships in the data. This is particularly important for ensuring reliable predictions and consistent performance in applications where the model is used.

Discussion of Findings

The financial sector is one of the important sectors within the non-oil sector in Nigeria. The study discovered that external debt severely reduces the production of the financial sector in the short term. This suggests that a rise in Nigeria's external debt reduces finance sector growth. Oladipo et al. (2020) observed a similar negative effect of external debt on economic development. Akinlo (2021) discovered that the effect of foreign debt cost considerably surpasses the good side of external debt. As a result, the study observed that external debt has a negative influence on financial sector performance.

The study also discovered that a rise in domestic debt boosts banking sector productivity dramatically. This is consistent with the findings of Bamidele & Englama (2018) who stated that a growth in domestic debt leads to an increase in development in the short term, however external debt of the federal government has not resulted in an improvement in development in

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Nigeria. The study also discovered that overall public debt had a beneficial influence on Nigeria's financial progress. The above findings agreed with a priori expectation. The effect of debt servicing was positive but not significant and this proves that debt servicing exerts positive effect on the financial sector which gives an insight into the productive nature of these debts. However, Edo & Ashakah (2023) observed that increased debt servicing does not always come from proceeds from investments but from budgetary provisions and this has long term potential negative effect on the overall development of Nigeria's financial sector.

Conclusion and Recommendations

This study analyzed the effect of public debt on growth of the non-oil sector of the Nigerian economy. The study can be said to be from a sectorial perspective as it improved on previous studies which examined public debt on the growth of the overall economy. This gives a new dimension and interesting outlook for the study. The emphasis on public debt (both external and domestic) emanates from the fact that the Nigerian government has in recent times proposed and actually executed external borrowings coupled with domestic borrowings in order to raise funds for various developmental projects. This study examined the key sub-sectors in the non-oil sector and the analysis gave some useful insight.

The conclusion emanating from the findings is that both external and domestic debt profile of Nigeria have exerted significant effect on the growth of the agricultural, manufacturing, ICT, financial and transportation sectors in Nigeria. However, external debt appears to be significantly detrimental to growth of the non-oil sector mainly due to the over-bearing effect of debt servicing on the economy. The effect of domestic debt on these key non-oil sectors has been substantially mild.

Overall, the study found that public debt explains more than 70 per cent of the changes witnessed in Nigeria's financial sector and for this reason, the Nigerian government needs to effectively device a means to fund projects from sources other than external borrowings. We therefore recommend a reduction in debt servicing in order to support the financial sector.

Since, the financial sector's output has been negatively impacted by high debt servicing obligations, which deplete resources that could otherwise be used to stimulate economic activities. To address this, the government should focus on reducing the external debt profile, as external debt servicing often places a significant burden on the national budget. A shift toward domestic borrowing, which has a less severe impact on the financial sector, was advisable.

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