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External Debt and Economic Growth in Nigeria: Decades of Unending Dilemma

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Abstract

This study investigates the empirical relationship between external debt and the performance of the Nigerian economy using annual time series data from the Central Bank of Nigeria Statistical Bulletin, the Debt Management Office, and the World Development Indicators. Gross Domestic Product (GDP) was employed as the dependent variable representing economic growth, while external debt, debt servicing, interest rate, exchange rate, gross capital formation, labour force participation rate, and foreign direct investment were used as explanatory variables. Employing the unit root test, bounds test for co-integration, and the Autoregressive Distributed Lag (ARDL) model, the findings reveal that external debt has a statistically significant negative impact on economic growth, with a 1% increase in debt reducing output by approximately 0.7%. Similarly, debt servicing negatively affects growth in the short run, reducing output by about 0.11%. These results imply that debt servicing exerts a greater dampening effect on the economy than the debt itself. The study concludes that the external debt-growth relationship in Nigeria is inverse and non-linear. It recommends aligning external debt management with growth-maximizing debt thresholds and implementing fiscal reforms to enhance debt sustainability and economic performance.

Keywords: External debt, Debt Overhang, Crowding out Effect, Tax, Nigeria, Growth. ARDL, Unit Root

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Introduction

Human wants are insatiable, while the means or resources available for the satisfaction of these wants are limited in supply (Olukunmi, 2007). This assertion holds true in both individual and national contexts. To meet national needs amid limited resources, nations often resort to borrowing. Debt, therefore, results from excessive borrowing. Oyejide, Soyede, and Kayode (1985) explained that debt refers to the aggregate of all claims against the government, held by the private sector of the economy or by foreigners, whether interest-bearing or not.

A shortfall in domestic savings to finance productive activities compels nations to borrow (Ezeabasili, 2006). Debt may originate from within a nation's borders (internal) or from outside (external). According to the World Bank (2004), external debt refers to accumulated funds owed to non-residents, repayable in terms of foreign currency, goods, or services. The effect of external debt on domestic investment and the economic growth of a country has remained a subject of debate among theorists, stakeholders, and academics alike. There is no consensus on its impact.

While external debt may be used to stimulate the economy, when a nation accumulates substantial debt, a significant portion of public expenditure and foreign exchange earnings is absorbed by debt servicing and repayment, often at high opportunity costs (Albert, Brain & Palitha, 2005). Excessive external debt thus constitutes a major constraint to sustainable economic development and poverty alleviation (Maghyere & Hashemite, 2003; Sanusi, 2003; Berensmann, 2004; Siddique, Selvanathan & Selvanathan, 2015).

Proponents of external debt argue that it has a positive effect on the economy, particularly when used for productive ventures, as it can increase capital inflow and accelerate the pace of economic growth. Such capital inflows may be accompanied by managerial know-how, technology, technical expertise, and access to foreign markets. This perspective aligns with the Keynesian theory of capital accumulation as a catalyst for economic growth. However, external debt may negatively affect investment through the debt overhang and credit rationing effects (Nwannebuike, Ugwu & Onwuka, 2016).

The debt overhang phenomenon occurs when substantial resources are devoted to debt servicing, thereby stifling economic growth. It acts as a tax on domestic production, limiting the resources available to the government for implementing growth-oriented policies (Nwannebuike, Ugwu & Onwuka, 2016). The credit rationing effect arises when a country has accumulated debt from various sources to such an extent that it cannot meet repayment obligations. In response, authorities may increase interest rates to narrow the savings-investment gap, thereby reducing new investments and allocating more surplus for debt servicing. However, this can depress future growth prospects.

The divergent views in the literature regarding the relationship between external debt and economic growth serve as a motivating factor for the present study. External

debt refers to financial obligations owed by one party (the debtor country) to another (the lender country), usually repayable in currencies other than the debtor's own. In principle, external debt excludes short-term debts such as trade credits that mature within one or two years or are settled in the fiscal year in which the transaction occurs (Adebayo, 1993).

Upon gaining independence, less developed countries (LDCs) were confronted with the harsh realities of underdevelopment. Given the acute shortage of internally generated resources, the challenge of financing economic development through National Development Plans became enormous. Consequently, it became necessary to rely on external sources of finance to achieve the objectives of accelerated development, with external borrowing emerging as the most accessible option. However, the resulting debt burden has led to persistent concerns and dilemmas.

In Nigeria, the rate of external borrowing increased significantly with the involvement of State Governments in the external loan market. By 1982, the country's loan stock had reached $13.1 billion (Anyanwu, 1997). By 1988, trade arrears totalling $9.8 billion had accumulated due to Nigeria's inability to settle mounting import bills. A reconciliation exercise between 1983 and 1988 with the London and Paris Clubs reduced the principal amount to $3.8 billion, with an accrued interest of $1.0 billion, bringing the total to $4.8 billion, and later to $28 billion in 1998 and 1999. The Paris Club held the largest share at 73.2%, with 75% owed to official creditors (Anyanwu, 2001).

The international community widely acknowledges that excessive foreign indebtedness in developing countries poses a significant obstacle to economic growth and stability (Audu, 2004; Mutabu, 2004, as cited in Eke, 2015; Akujuobi, 2015). Developing countries such as Nigeria have often contracted large amounts of public debt, leading to mounting arrears on trade debts, typically at concessional interest rates. Gohar and Butt (2012) noted that debt service payments create difficulties, particularly in developing countries, as the repayment often exceeds the amount borrowed, thereby slowing economic growth.

It is important to note that Nigeria's inability to meet its debt service obligations has led to a debt overhang or burden, which hinders the country's development (Audu, 2004). The oil boom of the 1970s was initially seen as a blessing, as revenue from oil was sufficient to fund government expenditures on social, physical, and economic infrastructure. By 1980, oil revenue accounted for 22% of Nigeria's GDP, 81% of government revenue, and 96% of export earnings (Ogbe, 1992). Nigeria's journey into public debt began as early as the pre-independence era when it secured a $28 million loan from the World Bank in 1958 to finance railway construction (Angaha, Ogwuche & Olarere, 2015). From 1973 to 1976, Nigeria generated sufficient oil revenue to finance its budget and service existing debt. By 1960, Nigeria's external debt stood at $150 million (Adegbite, Ayadi & Ayadi, 2008), and by 1973–1977 it remained under $600 million (Okoro, 2013).

In 1978, Nigeria secured its first major international loan termed the "Jumbo Loan" worth $1 billion from the International Capital Market (ICM), raising the total external debt profile to $2.2 billion (Ndubuisi, 2017). According to the Debt Management Office (DMO), by 2001, Nigeria's total debt stock was $37.44 billion, comprising $28.44 billion in external debt and $9.09 billion in domestic debt. By December 2004, total outstanding debt reached $46.26 billion. However, by the same period in 2005, it had declined by 30.16% ($13.95 billion) to $32.31 billion. Thanks to the Paris Club debt relief secured in 2005 through the efforts of Ngozi Okonjo-Iweala under President Olusegun Obasanjo.

Subsequently, as of the first quarter of 2024, Nigeria's external debt rose from ₦56.02 trillion (US$42.12 billion) to ₦63.03 trillion (US$42.90 billion) by the end of the second quarter. This increase further expanded Nigeria's total debt stock and heightened its debt service obligations. In line with these developments, this study underscores the significant impact of external debt on the economic growth of Nigeria.

2.0 Literature Review

2.1 Conceptual Issues

2.1.1 Concept of Public or External Debt

Public debt, also referred to as national or sovereign debt, encompasses the total amount of money a government owes either to its citizens and domestic institutions (internal debt) or to foreign individuals and institutions (external debt). According to Makau (2008), public debt includes funds borrowed from within and outside the country, involving individuals, banks, government institutions, and both bilateral and multilateral organizations. Nnamocha (2002) describes it as the indebtedness of the public sector, reflecting government obligations to various entities locally and internationally. Christabell (2013), citing Makau (2008), emphasized that public debt arises when governments at all levels (local, state, and national) choose borrowing over taxation to finance public expenditures. Today, public debt serves as a key fiscal policy tool used by governments to supplement income and manage budget deficits.

The nature of public debt (whether internal or external) has different economic implications. Internal debt represents a transfer of resources within the country, but it can disproportionately affect the poor if they are taxed to repay the wealthy holders of debt instruments. Conversely, external debt results in capital flight, as interest and principal payments are made to foreign entities in foreign currencies, often through exports. Nnamocha (2002) further explains that public debt may involve direct charges on government revenue, including obligations to institutions like the International Monetary Fund (IMF). Thus, public debt plays a crucial role in national economic management but must be approached carefully to avoid long-term negative consequences such as resource depletion and capital outflow.

2.1.2 Summarized Concept of Economic Growth

Economic growth refers to the sustained increase in the real output of goods and services in a country over a period of time (Adams, 2004). It is often measured by the growth in a nation's Gross Domestic Product (GDP), which represents the total market value of all final goods and services produced within a country's borders during a specific period (Dairu, 2017). According to Adams (2004), a nation is said to experience economic growth when the rate of increase in real output surpasses the growth rate of its population. This growth process involves a long-term rise in the production capacity of the economy, contributing to the overall expansion of national wealth (Kylon & Krusan, 2001).

Economic growth is driven by key factors of production such as land, labour, capital, and entrepreneurship (David & Moore, 2015). It signifies a rise in national income, expenditure, and output, bringing about improvements in citizens' standards of living, increased real incomes, and the government's capacity to invest in infrastructure such as health and education (Gupta & Gamaliel, 2002). Katuma (2001) emphasizes that economic growth reflects increased production of goods and services when compared over different periods. A notable multiplier effect of economic growth is the generation of wealth and expansion of developmental opportunities, making it a fundamental aspect of national progress.

2.2 Theoretical Frameworks

2.2.1 Keynesian Theory of Public Debt

Keynesian economists argue that fiscal expansion can increase aggregate demand for private sector goods through the fiscal multiplier, thereby stimulating private investment (Gordon & Cosimo, 2018). The economic crisis of the 1930s Great Depression played a pivotal role in the emergence of modern public debt theory. The conventional belief, that persistent budget deficits and rising public debt undermine financial stability, was gradually replaced by Keynesian thought. Keynes (1936) viewed large public debt as a national asset rather than a liability, advocating for consistent deficit spending as a catalyst for economic progress. He challenged the classical assumption that economies naturally reach full employment equilibrium. Instead, he proposed that unutilized resources could be activated through deficit budgeting. According to Keynes, increased public debt, via the multiplier effect, raises national income by boosting effective demand, which in turn enhances employment and output. Unlike the classical school, Keynes made no distinction between borrowing for consumption and for investment, maintaining that both stimulate investment and overall economic activity.

2.2.2 The Ricardo Hypothesis of Public Debt

This theory of public debt was propounded by David Ricardo in 1819. In his *Principles*, Ricardo developed the theory by stating that both ordinary and extraordinary government spending were mainly payments made to sustain unproductive labourers. Therefore, any savings from government expenses would be considered part of the income if not the capital of the contributors. In a letter written to McCulloch in 1816, Ricardo expressed his belief that public expenditure represented wasteful ventures undertaken by the state. His theory of public debt was thus based on the idea that the primary burden to the community stemmed from the wasteful nature of public expenditure itself, rather than from the methods used to finance such spending (Precious, 2015).

The theory postulated that financing public expenditure should focus on drawing funds from the liquid resources of the community. This is because, from an economic perspective, it makes no significant difference whether funds are raised through loans or taxes. Accordingly, Ricardo's argument regarding the payment of interest on public debt involves a mere transfer of wealth from one part of society to another. Thus, when countries borrow, it remains uncertain whether the loan will be used productively or unproductively. If the loan is used productively, it fosters economic growth; if used unproductively, it hampers growth (Okoye, Modebe, Erin, and Evbuomwan, 2013).

In conclusion, this theory is relevant to the study, as it helps assess whether government expenditure in Nigeria has, over time, been used productively or unproductively, in line with Ricardo's hypothesis.

2.2.3 Two-Gap Growth Model

These issues are embedded in post-Keynesian growth models for closed economies, as developed by Harrod (1939) and Domar (1946). They sought to identify the preconditions for economic growth in market economies. These two key preconditions are evident in the Nigerian economy:

(i) **Internal** – Inadequate savings inevitably lead to low investment. The gap between savings and investment is referred to as the savings constraint (or savings gap). Bridging this gap requires foreign direct investment (FDI).

(ii) **External** – Inadequate foreign exchange, resulting from limited exports and high import levels, causes a shortfall in foreign currency. The gap between foreign exchange earnings and requirements is termed the foreign exchange constraint (or trade gap), which can be addressed through foreign aid.

When external finance (either grants or loans) supplements domestic resources, this forms the basis of the two-gap model. The model assumes that most developing countries either face a shortage of domestic savings for investment or suffer from

foreign exchange constraints that limit their ability to import needed capital and intermediate goods.

In *Economic Development*, Todaro and Smith (2004) argue that most two-gap models assume the savings gap and the foreign exchange gap are unequal in size and independent in nature. This implies that, at any given time, one of the two gaps will be the "binding" or "dominant" constraint for a less developed country. Essentially, the two-gap model highlights the disparity between a country's available resources and its absorptive capacity. The savings gap arises when domestic savings fall short of what could be productively invested, while the foreign exchange gap emerges when foreign exchange earnings are insufficient to cover the import needs for essential materials and components.

Derivation of the Two Gap Model:

We start with the basic macroeconomic identity where:

Aggregate output = aggregate expenditure as represented by Equation 2.1 as follows:

$Y = C + I + (X - M)$ Equation 2.1

where: C = consumption; I = investment (or domestic capital formation); x = exports; M = imports.

Now, sources of resources used in the economy = uses of resources in the economy: expenditure targets as shown by Equation 2.2 as:

$Y + M = C + I + X$ Equation 2.2

Subtracting C from both sides, we get Equation 2.3 as:

$Y - C + M = I + X$ Equation 2.3

Then Equation 2.4 is represented as:

$S + M = I + X$

Equation 2.4

The relationship can be restated as follows:

$$\underbrace{M - X}_{\text{Foreign Exchange GAP}} = \underbrace{I - S}_{\text{Savings Gap}}$$

The two constitute two separate constraints. Eliminating one does not get rid of the other.

Note: The analysis rests on the premise that domestic investment can be financed by domestic saving as well as through inflows of capital.

Possible Scenarios:

Using the relationship posited above, the following scenarios may arise:

S may be too small to permit the amount of I that the country would otherwise have the

capacity to undertake. Therefore, a savings gap would exist. X may be too small to permit M to make full use of resources of the economy. Therefore, a foreign exchange (or trade) gap would exist. In some of the work done on the two-gap model, it is suggested not only that they exist but that, most often, the trade gap exceeds the savings gap. This suggests that the trade gap is more powerful i.e., is a binding constraint (McKinnon, 1964).

Proponents of two-gap model contend that imperfections and rigidities exist which preclude the economy from working according to the neo-classical edicts. For example, many governments may not think it desirable to do what neo-classical economics suggests they ought to do. As well, action, which may be theoretically proper may simply not be effective since they are implemented in an environment totally different from that perceived by neo-classical economics.

2.3 Empirical Literature

There is a plethora of literature and debate on the concept of public or external debt. While much of the discourse has traditionally been dominated by political scientists and scholars in the humanities, it has recently gained momentum from the perspective of economists, bringing attention to the economic costs and the potentially devastating effects of debt on growth.

Khan and Gill (2016) examined the impact of public debt on Pakistan's economic growth using quantitative methods with secondary data from 1972 to 2013. Inferential analysis showed a positive but statistically insignificant relationship between public debt and economic growth. The study also found that high population growth adversely affects economic growth**.** Brini, Jemmah, and Ferroukh (2016) re-examined the relationship between public debt and economic growth in Tunisia using a quantitative approach with 23 years of data (1990–2013). Using ARDL and Granger causality analysis, they found that public debt and total debt service exert a significant negative effect on long-term economic growth. There was unidirectional Granger causality from public debt to economic growth in both the short and long run, and bidirectional causality between total debt service and economic growth in the long run. The study recommended measures to reduce public debt to support economic growth.

Isaac and Rosa (2016) investigated the effect of public debt and public investment on economic growth in Mexico from 1993 to 2012 using dynamic panel data models and the generalized method of moments (GMM). Variables included budget deficits, public spending, interest payments, the nominal effective interest rate, and domestic debt. Results indicated that public debt positively influences both public investment and economic growth. Nassir and Wani (2016) analyzed the relationship between public debt and economic growth in Afghanistan for 2008–2012 using ANOVA. Variables included GDP, government stock, advances from commercial banks, and external debt. Findings showed that government stock, advances, and

external debt had a negative but insignificant impact on GDP. The study recommended a framework for recording and managing contingent liabilities and broader reforms to promote investment in treasury bonds by institutional investors such as pension funds and insurance companies.

Saifuddin (2016) studied public debt and economic growth in Bangladesh using data from 1974 to 2014. Applying the ADF test and two-stage least squares regression (2SLS), the study found that public debt positively correlates with both investment and economic growth. It recommended channelling debt into productive investments. Serrao (2016) assessed the impact of public debt on economic growth in 20 advanced countries over 45 years (1964–2009) using econometric analysis. The results revealed a negative relationship between public debt and economic growth. Based on this, the study called for new public debt management strategies tailored to each country's economic and financial performance. Precious (2015) analyzed the effects of external and domestic debt on economic growth in Swaziland from 1988 to 2013 using unit root tests and OLS. Variables included RGDP, growth rate, domestic and external debt, government expenditure, and inflation. The study found that external debt had an insignificant impact on growth. It recommended sustainable borrowing practices and using borrowed funds for productive activities.

Siew-Peng and Yan-Ling (2015) examined the effect of public debt on Malaysia's economic growth from 1991 to 2013, focusing on debt burden indicators such as the budget deficit, expenditure, external debt servicing, and government consumption. Using a quantitative approach, the study found a negative relationship between debt and growth. Budget deficits, government consumption, and external debt service were all found to be decreasing functions of GDP. Swastika, Dewandaru, and Masih (2013) studied the impact of public debt on economic growth in Indonesia using a combination of wavelet and non-linear techniques. The results revealed a lead-lag relationship between the external debt-to-GDP ratio and GDP growth, with debt negatively correlated with growth in the short term but positively related in the long term. The study suggested that a positive relationship between debt and growth is possible if borrowing is reduced. Given Indonesia's classification as a "debt-intolerant" country, the authors recommended shifting from interest-bearing borrowing to risk-sharing mechanisms to foster growth.

3.0 Methodology

The study adopted an ex post facto design, chosen because the researcher had no control over the independent variables. Inferences about the relationships among variables were made without current interaction between the regressand and the regressors (Ndiyo, 2005). Secondary data were used, sourced from various publications of the Central Bank of Nigeria, such as the *Statistical Bulletin* and *Annual Reports and Statement of Accounts*, as well as from the National Bureau of Statistics (NBS) and *World*

Development Indicators (WDI). The models were estimated using time series data on the following economic indicators: Real Gross Domestic Product (RGDP), Exchange Rate (EXCHR), Gross Fixed Capital Formation (GFCF), Interest Rate (INTR), Labour Force Participation Rate (LFP), External Debt (EXDEBT), Debt Service (DS), and Foreign Direct Investment (FDI) for the period 1981–2022. Multiple regression analysis was employed, supported by various diagnostic tests including the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. The Autoregressive Distributed Lag (ARDL) technique was also used to examine the relationship between macroeconomic instability and economic development over the specified period.

3.1 Model Specification

The model for this study is as specified as follows:

3.1.1 External Debt and Economic Growth equation

The functional form of the model for domestic debt and economic growth equation for this study is given as: RGDP=f (EXDEBT,DS, FDI, GFCF,EXR,INTR,LFP.) …… (1)

The econometric form of the model is given as:

$RGDPt = a_0 + a_1EXDEBT_t + a_2DSt + a_3FDIt + a_4GFCFt + a_5EXR_t + a_6INTR_t + a_7LFPt + U_t$ …… (2)

Linearizing it we will have:

$logRGDP_t = \log a_0 + a_1 logEXDEBT_t + a_2 logDSt + a_3 logFDIt + a_4 logGFCFt + a_5 logEXR_t + a_6 logINTR_t + a_7 logLFPt + Ut$… (3)

RGDPt – Real Gross Domestic Product growth in time t
EXDEBTt – External Debt in time t
DSt – Debt Service in time t
FDIt – Foreign Direct Investment in time t
GFCFt – Gross fixed Capital Formation in time t
EXRt – Exchange Rate in time t
INTRt – interest rate in time t
LFPt – labour force participation rate in time t
Ut – Error term

a priori Expectation shows that $a_1 < 0$, $a_2 > 0$, $a_3 < 0$, $a_4 < 0$, and $a5 > 0$.

Table 1: Data Description and Sources

S/N	Variables	Description of Data	Expected Source
1	RGDP	Real GDP is the inflation adjusted total economic output of a nation's goods and services in a given period of time. Also known as "constant price GDP" inflation corrected GDP. Real GDP is derived by isolating and removing inflation from the equation by placing value at base-year prices, making GDP a more accurate reflection of a nation's economic output.RGDP serve as a dependent variable inthe model and a proxy for economic growth.	CBN Statistical Bulletin (2023)
2	EXDEBT		CBN Statistical Bulletin (2023)
3	EXR	This is the rate at which a country's currency is exchanged for another country's currency. It is measured by the value of one currency in relative to another measured by Naira to Dollar.It serves as explanatory variables for thethe models.	CBN Statistical Bulletin (2023)
4	GFCF	This is a country's net capital accumulation in an accounting period, usually one year.It serves as explanatory variables for the models.	CBN Statistical Bulletin (2023)
5	LFP	Labour force participation rate is the proportion of the working age population that is either working or actively looking for work. This rate is an important labour market measure because it represents the relative amount of labour resources available for the production of goods and services.	CBN Statistical Bulletin (2023)
6	INTR	Interest rate is the percentage of a sum paid on the loan for investment. In the case of government investment, it is the price paid to raise funds for investment using lending rate. It served as an explanatory variable in the model	World Bank Indicator (2023)
7	FDI	FDI is a purchase of an interest in a company by a company or an investor located outside its borders. It serves as explanatory variables in the model.	World Bank Indicator (2023)

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Trend Analysis

The trend analysis of external debt and economic growth in Nigeria, as shown in Figure 1, indicates a moderate annual increase in external debt from 1982 to 1996, while GDP followed a generally upward trajectory. For instance, external debt rose from 16 percent in 1984 to 58 percent in 1987. It then declined from 44 percent in 1989 to 9 percent in 1991. This downward trend continued from 39 percent in 1992 to -3 percent in 1997.

After 1997, external debt growth resumed a positive trend until the 2005–2007 period, when it declined sharply, recording negative growth rates of over -100 percent and -2 percent. Between 2009 and 2011, external debt increased from 11 percent to 23 percent and rose further to 25 percent in 2013. This growth was sustained until 2017, when external debt peaked at 39 percent. However, post-2017, growth slowed, dropping to 19 percent in 2021. In 2023, the growth rate surged again to 28.20 percent.

GDP also showed an upward trend. It increased from 4 percent in 1983 to 11 percent in 1985, then grew progressively from 5 percent in 1986 to nearly 24 percent in 1989. Although it dipped to 16 percent in 1990, GDP rebounded to 34 percent in 1992 and 39 percent in 1995. From 1997, GDP rose by 8 percent, reaching 28 percent in 2002. Between 2003 and 2014, GDP growth remained generally positive, ranging from a minimum of 10 percent in 2013 to a maximum of 23 percent in 2004. Growth continued from 5 percent in 2005 to 11 percent in 2019. Though the trend remained uneven, GDP grew by 3.46 percent (year-on-year) in real terms by the last quarter of 2023.

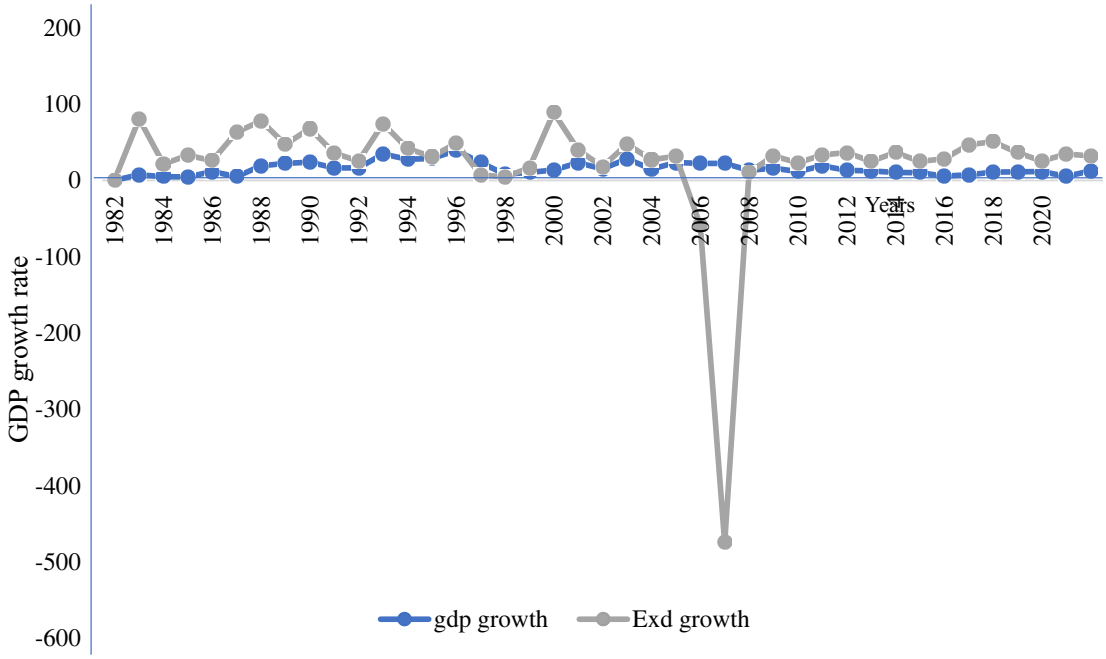

Figure 1: Trend analysis of GDP growth and external debt in Nigeria (1982-2024).
Source: Author's research (2024).

4.0 DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Descriptive statistics and matrix of correlations

Table 2: Descriptive statistics

	RGDP	DS	EXDEBT	EXR	FDI	GFCF	INTR	LFP
Mean	205.8707	3.89E+08	2709.433	110.9262	2.571429	21.40810	17.19452	59.92381
Median	3.325000	4.04E+08	669.3250	115.2550	1.870000	22.31750	17.38000	60.24500
Maximum	8505.311	7.93E+08	19004.84	385.6100	8.840000	33.04000	29.80000	75.60000
Minimum	-13.00000	55524691	2.330000	0.610000	0.190000	9.897000	7.750000	53.31000
Std. Dev.	1311.874	2.20E+08	4309.290	110.7434	2.518099	5.636323	4.640599	3.608884
Skewness	6.246833	0.222321	2.375845	0.929147	1.111183	-0.085045	0.310012	2.650979
Kurtosis	40.02343	1.907149	8.223510	3.050014	3.124394	2.688217	3.477816	12.60071
Jarque-Bera	2671.946	2.436055	87.26131	6.047571	8.670177	0.220744	1.072292	210.4976
Probability	0.000000	0.295813	0.000000	0.048617	0.013101	0.895501	0.584999	0.000000
Sum	8646.571	1.63E+10	113796.2	4658.900	108.0000	899.1400	722.1700	2516.800
Sum Sq. Dev.	70561568	1.98E+18	7.61E+08	502828.3	259.9737	1302.493	882.9414	533.9858
Observatios	**42**	**42**	**42**	**42**	**42**	**42**	**42**	**42**

The descriptive statistics of the variables are presented in Tables 2A and 2B. These tables highlight key trends in Nigeria's external debt indicators over the review period. The data reveal high levels in real gross domestic product (RGDP), debt service (DS), total external debt stock (EXDEBT), exchange rate (EXR), interest rate (INTR), labour force participation rate (LFP), and gross fixed capital formation (GFCF).

For RGDP, the mean, median, and maximum values are 205.87, 3.33, and 8505.31, respectively. DS shows a mean of ₦3.89×10^8, median of ₦4.04×10^8, and a maximum of ₦7.93×10^8. EXDEBT has a mean of 2709.43, median of 669.33, and maximum of 19,004.84. The EXR statistics are 110.93 (mean), 115.26 (median), and 385.61 (maximum). INTR records a mean of 17.19, median of 17.38, and maximum of 29.80. LFP has a mean of 59.92, median of 60.25, and maximum of 75.60. GFCF shows a mean of 21.41, median of 22.32, and maximum of 33.04.

In contrast, foreign direct investment (FDI) contributed relatively less to economic growth and debt accumulation, with a mean of 2.57, median of 1.87, and maximum of 8.84. The responses of RGDP, EXDEBT, and FDI to economic conditions were volatile during the period. RGDP had a standard deviation of 1311.87; EXDEBT, 4309.29; and FDI, 2.52, indicating significant fluctuations in these indicators.

Skewness and Kurtosis Analysis:
The skewness results indicate that only one variable is positively skewed, suggesting right-tailed distributions. The kurtosis results show that only real gross domestic product (RGDP), total external debt stock (EXDEBT), exchange rate (EXR), foreign Direct Investment (FDI), interest rate (INTR), and labour force participation rate (LFP) are leptokurtic (kurtosis > 3), indicating peaked distributions. Conversely, Gross fixed capital formation (GFCF) and debt service (DS), is platykurtic (kurtosis < 3), reflecting flatter distributions.

Normality and Variability:
The Jarque-Bera test confirms that all variables are normally distributed over the analysis period. The standard deviation values highlight the extent of variation in the data, with most variables showing significant deviations from their true values. Exceptions include debt service (DS) interest rate (INTR) and gross fixed capital formation (GFCF), which have relatively small deviations of 2.436055, 1.072292 and 0.220744, respectively.

Table 3: correlation Matrix

	RGDP	EXDEBT	DS	FDI	EXR	GFCF	INTR	LFP
RGDP	1							
EXDEBT	-0.07	1						
DS	-0.64	0.06	1					
FDI	-0.24	-0.60	-0.22	1				
EXR	-0.75	-0.02	0.76	0.32	1			
GFCF	0.21	0.32	-0.52	0.30	0.01	1		
INTR	-0.01	0.26	-0.55	0.53	0.03	0.84	1	
LFP	-0.12	-0.19	-0.63	0.47	-0.37	0.20	0.48	1

The correlation matrix of the variables is as shown in Table 3 above. The correlation matrix is a statistical tool that measures the relationship between multiple variables. It provides a table of correlation coefficients which describe the strength and direction of the linear relationships between each pair of variables. From the table above therefore, RGDP has a positive correlation coefficient with GFCF. This indicates that the variables tend to move in the same direction. Meanwhile, DS, EXDEBT, FDI, EXR LFP and INTR have a weak negative correlation (-0.64, -0.07, -0.24, -0.75, -0.12 and -0.01) indicating that, as RGDP increases, DS, EXDEBT, FDI, EXR, LFP and INTR tend to decrease. Also, from the table, there exist positive correlation coefficient between EXDEBT and DS, GFCF, INTR and between FDI and EXR, GFCF, INTR and LFP, while there is a weak negative correlation between DS and FDI, GFCF, INTR and LFP, while EXDEBT also have a weak correlation with FDI, LFP and EXR.

4.2 Unit Root Test

The Augmented Dickey Fuller and the Philip-Perron unit root tests were conducted to examine the stationarity condition of the variables. As indicated in Table 4 below, RGDP, GFCF and LFP were stationary at level in ADF, and PP, while EXR, DS, EXDEBT, FDI, and INTR were stationary after first differencing in both ADF and PP. In other words, the variables are integrated of order zero and one (i.e., I (0) and I(I)).

Where some of the variables are I (0) while others are I (1) suggests the problem of unit root in the equations. It becomes imperative to perform co-integration tests to determine the presence of equilibrium relationship amongst the variables in each equation. The study adopts the ARDL bound testing technique for co-integration, as the variables are integrated of diverse orders (i.e., order zero and order one).

Table 4: ADF and Philip-Perron Unit Root Test Results

Variables	ADF Level	1st Difference	Order of integration	Level	PP 1st Difference	Order of integration
RGDP	-6.399008**	-	I(0)	-	-	I(0)
EXR	1.752293	-9.960455	I(1)	-	-	I(1)
GFCF	-3.005072	-	I(0)	-	-	I(0)
INTR	-2.406282	-9.644692	I(1)	-	-	I(1)
LFP	-3.725070	-	I(0)	-	-	I(0)
DS	-1.401929	-3.181270	I(1)	-	-	I(1)
EXDEBT	1.354210	-2.793132	I(1)			I(1)
FDI	-2.079542	-2.953776	I(1)			I(1)

Source: Researcher's computation (2025), using E-Views 9.

4.3 Lag Length Selection

Table 5: Lag length criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2108.158	NA	1.86e+37	108.5209	108.8622	108.6434
1	-1919.357	290.4634	3.31e+34	102.1209	105.1920*	103.2228
2	-1824.726	106.7626	1.06e+34	100.5501	106.3512	102.6315
3	-1696.893	91.77750*	1.63e+33*	97.27658*	105.8077	100.3375*

Source: *Researcher's computation (2025), using E-Views 9.*

The efficiency and validity of an error correction model depends on the lag structure. The study used VAR lag order selection criteria to determine the lag lengths. The study employed the Akaike Information Criterion (AIC) and Schwarz Criterion (SC) and the result shows four optimal lag lengths in the inclusive growth index and fiscal deficit models as shown in Table 5 above. In order to reduce the possibilities of underestimation while maximizing the likelihood of recovering the true lag (Venus, 2004), the study used three and four as the maximum lag lengths, respectively.

4.1.4 Co-integration Test Results

From the bound testing result reported in Table 6 below, long run relationship exists among the variables in all the estimated equations, given that the values of the F-statistic are greater than the critical values at five percent level in both the upper and the lower bounds. Therefore, the null hypothesis of absence of co-integration is rejected, while the study proceeds to estimate the long run coefficient of each of the equations.

Table 6: Co-Integration Test Results

5% critical value

Equations	K	F-Stat	I (0)	I (1)	Outcome
RGDP (EXDEBT,DS,FDI,GFCF,EXR,INTR,LFP)	7	43.50	2.32	3.50	Co - integration

Note:

K: number of parameters

Source: Researcher's computation (2025), using E-Views 9.

4.2 Findings, Presentation and Analysis of Econometric Results of the Long run coefficients of External debt and economic growth Equation Results

Table 7: Dependent variable: RGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DS	-0.000002	0.000001	-1.771116	0.1103
EXDEBT	-0.819809	0.265142	-3.091960	0.0129
EXR	19.637130	7.768377	2.527829	0.0324
FDI	-600.172857	179.494415	-3.343685	0.0086
GFCF	268.505115	80.772832	3.324201	0.0089
INTR	-186.268886	41.905929	-4.444929	0.0016
LFP	-359.902094	133.608975	-2.693697	0.0246
C	21787.753831	7582.555705	2.873405	0.0184

Source: Researcher's Computation (2025).

The long run relationship between real gross domestic product (RGDP) and external debt variables is presented in Table 7 above. Based on the ARDL long run estimates, the findings reveal the following insights:

The coefficient for DS is negative and statistically insignificant, indicating that a unit increase in DS results in a -0.002% decrease in RGDP. This finding is in line with a priori expectation in the long run. The negative effect suggests that, within the period under review, the depreciation of the naira, inflationary activities in the domestic economy and servicing foreign debt is becoming highly expensive for developing economy like Nigeria. This result therefore shows a warning sign of unsustainable fiscal policy. It suggests that debt is no longer serving as a tool for growth, but rather becoming a burden that inhibits economic growth, especially if not accompanied by reforms or investments in productive sectors. Hence, managing debt efficiently and keeping debt service at sustainable levels is critical for preserving economic growth.

The coefficient of EXDEBT is negative and statistically related to RGDP. Therefore, a one-unit rise in EXDEBT will lead to -81.98% decreases in RGDP. This result deviates from a priori expectation, implying that external debt beyond a certain level becomes a drag on the economy. It reflects poor debt sustainability, inefficient resource use, and increased economic vulnerability. Therefore, the negative relationship reflects problem of debt overhang, increased vulnerability to external shocks, reduced fiscal space, lower investors' confidence, possible sovereign debt crisis, intense pressure on balance of payments and poor debt utilization.

The coefficient for EXR is positive and statistically significant, indicating that a unit rise in EXR results in a 196.37% increase in RGDP. This finding deviates from a priori expectation of a negative relationship between exchange rates and economic growth during the study period. Therefore, within the period under review, the exchange rate dynamics was a powerful tool that stimulates economic activity, particularly through export promotion and import substitution.

The coefficient of FDI is negative and statistically significantly related to RGDP, indicating that a unit rise in FDI will lead to -600.17% decrease in RGDP. This result is not in line with a priori expectation. This outcome is counterintuitive, since FDI is generally expected to boost growth. However, when this negative relationship is observed, it suggests underlying structural or institutional problems, such as poor quality or type of FDI, weak linkages with the domestic economy, poor repatriation, crowding out of local firms, regulatory and institutional weaknesses, overdependence on FDI without building local capacity and misalignment with development goals.

The coefficient for GFCF is positive and statistically significant, indicating that a one-unit increase in GFCF contributes to a 268.50% rise in RGDP. This finding is in conformity with the a priori expectation. This result therefore suggests that GFCF is a key driver of productive capacity and long term output. It also indicates that investment in physical assets fuels higher output, boost productivity and lays foundation for long

run economic growth and development. This productivity is experienced as a result of job creation and income generation, infrastructural development, crowding in of private investment and long term economic resilience.

The relationship between interest rate (INTR) and real gross domestic product (RGDP) is negative and statistically significant. A one-unit increase in INTR results in a 186.26% reduction in RGDP. This finding aligns with a priori expectations, suggesting that high interest rates discourage investment and consumption, thereby hindering economic growth. Consequently, this negative relationship also affects domestic debt, increasing borrowing costs, undermining fiscal sustainability, and creating a crowding-out effect.

LFP exhibits a negative but statistically significant relationship with RGDP. A one-unit increase in LFP is associated with a -359.90% decrease in RGDP. This finding deviates from a priori expectations, refuting the effect that labour force participation is supposed to boost productivity. However, during the study period, the negative relationship causes productivity to reduce, increases fiscal pressure, reduces tax base, and weaker economic fundamentals which may push the government to borrow more domestically to stimulate growth or maintain public services.

In summary, the long run analysis highlights the intricate interactions between total external debt stock variables and economic growth. Whereas certain factors such as gross fixed capital formation (GFCF) and exchange rate (EXR) positively influenced economic growth, others like debt service (DS), total external debt stock (EXDEBT), interest rate (INTR), foreign direct investment (FDI) and labour force participation rate (LFP) posed significant challenges. These findings underscore the need for targeted policy interventions to address structural issues and optimize the contributions of external debt variables to Nigeria's economic growth.

4.2.1 Findings, Presentation and Analysis of Econometric Results of the short run estimates of external debt and economic growth Equation Results

Table 8: Dependent variable: RGDP

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(RGDP(-1))	0.053025	0.119046	0.445414	0.6665
D(RGDP(-2))	-0.143238	0.068732	-2.084006	0.0668
D(DS)	-0.000007	0.000001	-4.421867	0.0017
D(DS(-1))	0.000008	0.000002	3.436339	0.0074
D(DS(-2))	-0.000001	0.000001	-1.066060	0.3142
D(EXDEBT)	0.165341	0.104415	1.583510	0.1478

D(EXDEBT(-1))	-0.320801	0.162304	-1.976541	0.0795
D(EXDEBT(-2))	0.512834	0.133901	3.829953	0.0040
D(EXR)	-2.951767	3.095859	-0.953457	0.3653
D(EXR(-1))	-12.282737	4.450922	-2.759594	0.0221
D(EXR(-2))	-21.369847	4.576042	-4.669941	0.0012
D(FDI)	-104.405097	75.973623	-1.374228	0.2026
D(GFCF)	49.630467	21.684026	2.288803	0.0479
D(GFCF(-1))	-17.749802	25.983506	-0.683118	0.5117
D(GFCF(-2))	-75.136976	34.297917	-2.190715	0.0562
D(INTR)	-94.252682	32.292488	-2.918718	0.0171
D(INTR(-1))	35.192645	29.374198	1.198080	0.2615
D(INTR(-2))	54.389832	27.279446	1.993803	0.0773
D(LFP)	-322.667259	45.793967	-7.046065	0.0001
D(LFP(-1))	-408.702101	44.971335	-9.088058	0.0000
D(LFP(-2))	214.052388	31.724854	6.747151	0.0001
CointEq(-1)	-1.026197	0.160541	-6.392109	0.0001

R-squared	0.989208	Mean dependent var	222.1685
Adjusted R-squared	0.954436	S.D. dependent var	1361.273
S.E. of regression	290.5751	Akaike info criterion	14.25373
Sum squared resid	759904.9	Schwarz criterion	15.53339
Log likelihood	-247.9476	Hannan-Quinn criter.	14.71286
F-statistic	28.44770	Durbin-Watson stat	2.711091
Prob(F-statistic)	0.000007		

The short-run dynamics of the relationship between total external debt and economic growth Equation Results is as presented in Table 8, reveal several significant findings.

In the current and second period lag, debt service (DS) exhibits a negative and significant relationship with RGDP, but became positive and significant after a period lag. Specifically, a 1% increase in DS leads to a -0.0007% and 0.0001% decreases in RGDP in current and second period and 0.0008% increase after a period lag. The result of the current and second period lags aligns with a priori expectations, showing a warning sign of unsustainable fiscal policy.

The coefficient of total external debt stock (EXDEBT) is negative and insignificant in both current and first period lags but became positive in period two, indicating that a unit rise in EXDEBT will lead to -16.53% and -32.08% decrease in RGDP in both current and first period lag, and 51.28% increase in second period. The result of the second period lag is in line with a priori expectation.

The coefficient of exchange rate (EXR) is negative and statistically significant in both current, first, and second period lags, indicating that a 1% increase in EXR results in a -295.17%, -122.82% and -213.69% reductions in RGDP. This finding supports a priori expectations and highlights the negative role of exchange rate in depreciating domestic currency, making imports expensive, weakens the currency and reduces the pass – through effect of global price increases to domestic inflation.

The coefficient of FDI is negative and statistically insignificantly related to RGDP in the short run, indicating that a unit rise in FDI will lead to -104.40% decrease in RGDP. This result is not in line with a priori expectation. The result negates the positive role of FDI in economic growth.

GFCF is positive and significantly related to RGDP in the current period but negatively and insignificantly related at first and second period lags of the short run. Therefore, a unit rise in GFCF will lead to a 496.30% increase in RGDP in the current period and -177.49%, -751.36% decreases in first and second period lags. While GFCF is theoretically expected to enhance economic growth, the result of the first and second period lags suggests that during the period under review, inadequate investment in physical assets did not bring about higher output, and therefore did not boost productivity and economic growth, but was improved at current period of the short run.

Interest rate displays a negative and significant relationship with RGDP in current period but positive and insignificant relationship in the first and second period lags. A unit increase in INTR is associated with a -942.52% decrease in RGDP in current period, and 351.92% and 543.89% increase in RGDP in first and second period lags. However, the result of the first and second period lags contradict priori expectations, while the result of the current period is in line with the theoretical expectation, suggesting that negative relationship of interest rate impinges on economic growth and domestic debt thereby causing cost of borrowing and fiscal sustainability to increase crowding-out effect.

The coefficient of labour force participation rate (LFP) is negative and significantly related to RGDP in current and first period lags but positive and statistically significant in second period lag of the short run. Therefore, a 1% increase in LFP is associated with a -322.66% and -408.70% reductions in RGDP in current and first periods, and 214.05% increase at second period lag. The result of the current period lag aligns with a priori expectation, indicating that boost in labour force participation will increase productivity and therefore discourage borrowing.

The ECM coefficient (-1.026197) is correctly signed and statistically significant, indicating that approximately 103% of short-run disequilibria adjust to the long run equilibrium within a year. The t-statistic (-6.392109) confirms the significance of the ECM at the 5% level.

The R-squared value (0.989208) and adjusted R-squared (0.954436) demonstrate that approximately 98% of the variation in RGDP is explained by the included variables (both current and lagged), with 2% attributable to factors outside the model. The F-statistic (28.44) confirms the joint significance of the model's variables, ensuring a good overall fit. Additionally, the Durbin-Watson statistic (2.71) indicates no autocorrelation, affirming the reliability of the results for forecasting and policy formulation.

We proceed to test the stability and reliability of our estimates by extracting the CUSUM and CUSUM sum of squares. The result of our stability test presented in Figure 2 shows that, within the 2 standard deviation bandwidths, our estimates were stable under 5 percent level of significance.

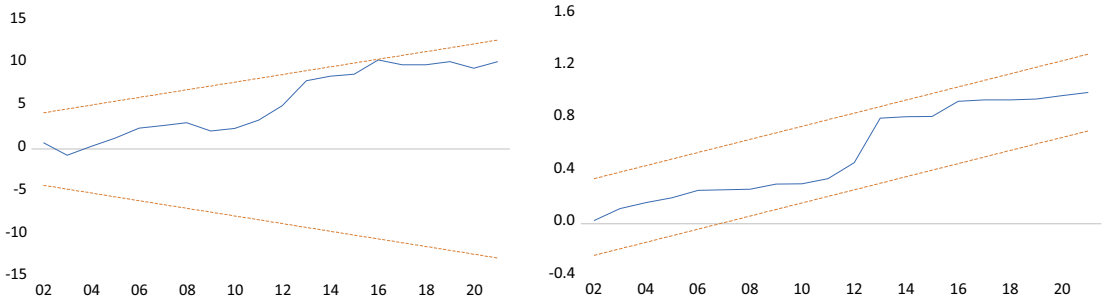

Figure 5.6: Model stability test

Source: Author's extracted from E-views 12.

The reliability of the population sample was tested by conducting the sample normality test and presenting the result in Figure 3. The figure shows that our population sample were normally distributed. Thus, our result was from a statistically normal distribution population.

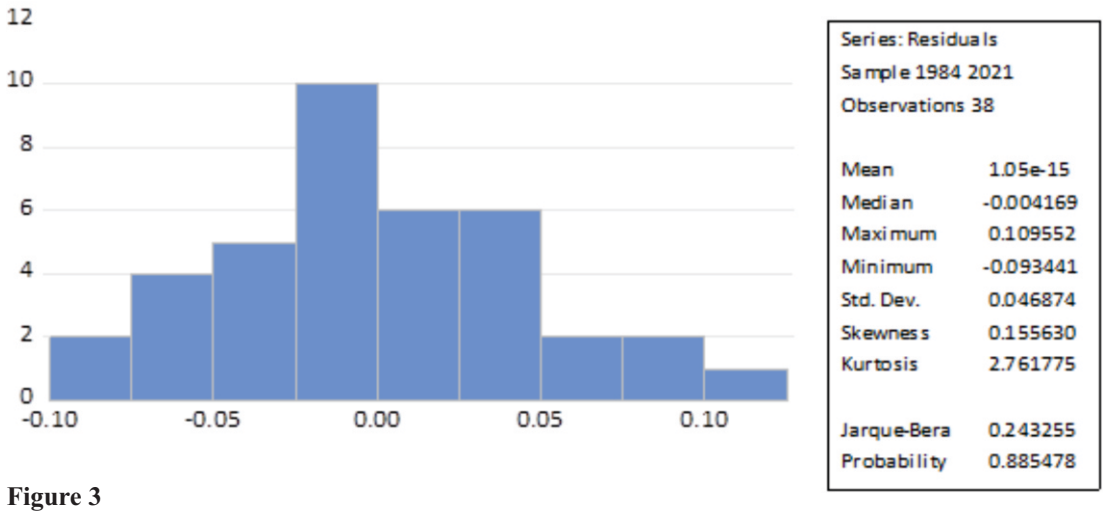

Figure 3
Source: Authors, extracted from E-views 12.

5.1 Discussion of Findings

The short run and long run ARDL dynamics offer valuable insight, as the regression results show a positive and significant relationship between exchange rate (EXR) and gross fixed capital formation (GFCF), both interacting with the dependent variable, real gross domestic product (RGDP). The results suggest that increases in EXR and GFCF lead to corresponding increases in total external debt (EXDEBT), with measurable impacts. This is due to the exchange rate's negative role in depreciating domestic currency, making imports more expensive, weakening the currency, and reducing the pass-through effect of global price increases on domestic inflation. At the same time, investment in physical assets drives productive capacity and long term output, fuelling higher output, boosting productivity, and laying the foundation for sustainable economic growth and development. This productivity manifests through job creation, income generation, infrastructural development, crowding in of private investment, and long term economic resilience.

This finding aligns with the studies of Isaac and Rosa (2016) and Saifuddin (2016), which examined public or external debt and economic growth in Mexico and Bangladesh, respectively, using different methods. Their empirical results indicated that public debt positively influences public investment and economic growth.

However, debt service (DS), total external debt stock (EXDEBT), foreign direct investment (FDI), interest rate (INTR), and labour force participation rate (LFP) show a negative relationship with RGDP in both the short and long run. This suggests that increases in these variables tend to coincide with declining economic growth and rising external debt stock. The negative relationship of EXDEBT points to poor debt sustainability, inefficient resource use, and heightened economic vulnerability. It also reflects issues such as debt overhang, exposure to external shocks, reduced fiscal space,

low investor confidence, potential sovereign debt crises, pressure on the balance of payments, and poor debt utilization.

The negative relationship of DS implies depreciation of the naira, inflationary pressures, and increasing costs of servicing foreign debt, indicating that foreign debt has become prohibitively expensive for a developing economy like Nigeria. This signals an unsustainable fiscal policy.

The negative relationship between FDI and economic growth suggests structural or institutional weaknesses, including poor FDI quality, weak domestic linkages, profit repatriation, crowding out of local firms, regulatory deficiencies, overdependence on FDI, and misalignment with development goals. The negative relationship between INTR and economic growth indicates higher borrowing costs, which reduce investment by firms and consumption by households. Rising interest rates make domestic debt costlier to service. If revenue does not increase proportionately, the government may issue more debt, further worsening fiscal balances.

The negative relationship of LFP with economic growth appears counterintuitive. It may indicate that rising participation is driven by economic distress—more individuals seeking work due to declining household income. It may also reflect a mismatch between skills and available jobs, leading to underemployment and low productivity. A lower LFP can shrink the tax base, pushing the government to rely more on borrowing, thereby increasing domestic debt.

Conclusion and Recommendation

The study investigates the empirical relationship between total external debt and the performance of the Nigerian economy from 1981-2023, adopting the autoregressive distributive lag model. The study observed that changes in the ratios of exchange rate (EXR) and Gross Fixed Capital Formation (GFCF) variables affect economic growth in Nigeria. In addition, the study revealed a negative relationship between total external debt (EXDEBT), debt service (DS), foreign direct investment (FDI), interest rate (INTR) and labour force participation rate (LFP), implying that these ratios are mostly above the threshold levels. It means that the continuous accumulation of high total external debt stock to GDP, Debt service to GDP, interest rate and labour force participation rate will worsen external debt or increase borrowing cost, reduce investment, tax base and productivity.

Recommendations

From the conclusion above, we therefore recommend the following:

(i) The public authority should implement debt restructuring by negotiating with creditors to extend maturities or lower interest rates. It should also increase domestic revenue through broad-based taxation and improved tax collection to reduce reliance on external borrowing.

(ii) Borrowed funds should be used productively by channelling them into infrastructure, education, and technology to enhance long-term productivity. Regular debt sustainability analyses (DSAs) should also be conducted to keep debt within manageable thresholds.

(iii) The study recommends that the government enhance macroeconomic stability, improve the investment climate, and provide targeted incentives. This can be achieved through fiscal consolidation supported by appropriate monetary policy to sustain growth.

iv) Finally, government should implement labour market reforms, improve on education and skills training and ensure gender and youth inclusion policies through removing legal and cultural barriers that hinder participation of women and young people. All these aimed at stimulating the local economy vis a vis curtailing external debt accumulation

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