



## EFFECTS OF EXTERNAL DEBT, OIL EXPORT AND FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH IN NIGERIA

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### Abstract

*The sustainability of Nigeria's economic growth has come under scrutiny due to its significant reliance on oil exports and mounting external debt. Foreign direct investment (FDI) has been viewed as a possible engine for economic growth and diversification. Thus, the impacts of external debt, oil export and FDI on economic growth in Nigeria are examined in this study. Time series data was utilized spanning 43 years between 1981 and 2023 to analyze the dynamic relationships between external debt, oil exports, FDI, and economic growth. The empirical process includes preliminary analysis (descriptive analysis; pre-test: unit root test [using ADF test]; cointegration test [ARDL bounds test]); model estimation (ARDL model) and post-estimation test. Following the empirical analysis, it was found that economic growth was positively and significantly impacted by external debt and FDI in Nigeria. Similarly, it is discovered that oil export has a beneficial impact on economic growth, indicating its potential as a catalyst for economic expansion and diversification. The findings have significant ramifications for decision-makers who want to support Nigeria's sustainable economic development and prosperity. Based on the foregoing outcomes, the study recommends that the government should give careful external debt management first priority which would entail a thorough evaluation of the project, open reporting of debt, and a dedication to keeping debt-to-GDP ratios within reasonable bounds. The government should also look into value-added potential in the oil industry, and efforts should be made to draw in more FDI.*

**Keywords:** Economic growth, External debt, Foreign direct investment (FDI), Gross domestic product, Oil export.

### Introduction

Economic growth, often measured by changes in Gross Domestic Product (GDP), is a critical measure of the financial outcomes of a nation. In Nigeria, dynamics as attributed to external debt, oil exports, and foreign

direct investment (FDI) have remained central via its economic discourse. External debt has historically served as a tool for financing developmental projects; however, its mismanagement often leads to debt overhang, thereby stifling economic growth

(Siddique, Malik, & Hussain, 2019). Simultaneously, oil exports, which contribute a remarkable portion of Nigeria's revenue, expose the economy to volatility due to fluctuating global oil prices (Odularu, 2020). Furthermore, FDI, a potential driver of economic development through inflows of capital and technology transfer, remains inconsistent in achieving expected growth outcomes (Adegbite & Olayemi, 2021).

External debt, when strategically managed, can catalyze economic development by bridging the gap between domestic savings and investment needs. However, Nigeria's experience shows that excessive borrowing without productive utilization often leads to a vicious cycle of debt servicing, reducing the resources available for critical infrastructure projects (Ezeaku, Obasi, & Okonkwo, 2021). Nigeria's GDP performance shows that its highest growth between 1985 and 2019 occurred in 2004, reaching 33.74%, while the lowest point was recorded in 1987 with a contraction of -10.75%. Over the past ten years, the growth of the economy has weakened, falling to -1.62% in the year 2016 and later slipping into two consequent periods of unimpressive and negative growth cycles, indicating a recession (World Bank, 2019; Idehi & Uzonwanne, 2021).

The country's reliance on external debt, oil exports, and fluctuating FDI inflows highlights a conceptual gap in understanding how these factors collectively influence economic growth. Despite significant external borrowing, with the debt stock growing up to \$41.69 billion in 2022, concerns persist about the sustainability and longevity of the debt and its impact on resource allocation for productive investments (World Bank, 2023). The foreign debt burden pushes the available finance from international investment toward servicing or alleviating outstanding

payment obligations with huge-interest rates. This, in turn, reduces the funds available within the economy, leading to decreased productivity and resulting in sluggish or stagnant economic growth. Such conditions pose a challenge, as they constrain and undermine the positive impact that FDI could have on the economy (Akinola & Ohonba, 2024).

Simultaneously, the overdependence on crude exportation leaves Nigeria's economy particularly open to world price changes, which complicates fiscal planning and reduces economic stability (Ezeaku *et al.*, 2021). Over dependence on oil revenues in funding the nation's budget can result in economic stagnation or persistent shortfalls (chronic budget deficits) for budget financing. Any significant shock in the international oil trade, leading to movement in oil prices, would directly and adversely impact Nigeria's economy, as a decline in oil revenue would follow (Efanga, Ugwuanyi, & Ogochukwu, 2020). Existing studies such as Adegbite and Olayemi (2021) individually examine external debt, oil exports, and FDI, creating a gap in understanding their combined impact on Nigeria's GDP. FDI, for instance, drives capital but its oil and gas concentration limits broader economic transformation. Inadequate policies and weak institutions further hinder leveraging these tools for robust growth. Addressing this gap is crucial for better policy formulation. Understanding the interplay of these factors is vital for sustainable growth. Enhanced debt management, revenue diversification, and improved investment climate can mitigate adverse effects. Based on the foregoing, the study wants to evaluate the combined influence of external debt, oil exports and FDI on economic growth. The following hypotheses were tested:

**H<sub>01</sub>:** External debts have no significant effect on GDP in Nigeria.

**H<sub>02</sub>:** Oil exports have no significant effect on GDP in Nigeria.

**H<sub>03</sub>:** FDI does not have a huge impact on GDP in Nigeria.

### **Literature Review**

#### **Conceptual Review**

##### **External Debt**

External debt is described as the part and portion that is related to a nation's debt obtained from the provision by external entities, e.g., international corporations, governments, or financial institutions. Countries typically seek external borrowing to cover budget deficits, develop infrastructure, recover from natural disasters, or refinance existing debt obligations (Idehi & Uzonwanne, 2021). According to Ogbonna *et al.* (2021), Foreign debts are loans from oversea entities, i.e., global businesses, governments, and institutions. These debts, along with their interest, must be repaid in the same currency they were borrowed. To provide an accurate financial picture, outstanding debt to foreign creditors must be measured (Ogbonna, *et al.*, 2021). Nigeria's foreign debt started during the pre-independence era when the country secured its first sum of \$28 million in loan capital from the World Bank to finance railway construction (Idehi & Uzonwanne, 2021). Idehi and Uzonwanne (2021) report that Nigeria's external debt stood at about \$150 million by 1960. Besides pursuing developmental plans, the pressure of sustenance of government officials' indulgent lifestyle once again pushed the foreign debt of the country to \$1 billion by 1971 (Ogbonna, *et al.*, 2021).

##### **Oil Export**

Oil export involves the sale and transportation of crude and refined

petroleum products from one province to another, playing a pivotal role in the global energy trade and significantly influencing the economies of oil-producing nations. Countries with substantial oil reserves, such as Nigeria, Saudi Arabia, and Russia, often rely on oil exports as primary revenue sources, funding government expenditures, infrastructure projects, and social programs (Ezeaku, Obasi, & Okonkwo, 2021). The dynamics of oil export are governed by international market supply and demand, with factors like geopolitical stability, production levels, technological advancements, and environmental regulations playing critical roles. Organizations such as the Organization of the Petroleum Exporting Countries (OPEC) are organized to coordinate and harmonize hydrocarbon regulation in constituent nations to stabilize oil markets, ensuring efficient and uniform fuel reserves to consumers, stable income to producers, and equitable returns on petroleum investment (Odularu, 2020).

##### **Foreign Direct Investment**

Investments among less industrialized nations are heterogeneous in nature, whether domestic or foreign. A key external investment avenue is Foreign Direct Investment (FDI), which involves direct capital inflows from multinational companies (MNCs) headquartered in developed countries (Oyegoke & Aras, 2021). FDI serves an essential function in boosting industrial growth by providing access to capital, technology, managerial expertise, and global markets. Capital inflows from abroad, also known as Foreign Direct Investment (FDI), refer to funding provided by private persons, businesses, or governments across national borders, where the investor gains direct ownership and control over business

operations (El-Rasheed & Bello, 2022). They further posited that this direct control distinguishes FDI from FPI, entailing the possession of assets such as equities and debt securities, with no direct role in management decisions. Unlike portfolio investments, describing passive ownership of financial assets, FDI involves effectual management and ownership in business activities, often in the form of new business establishments, mergers, or acquisitions. Developing countries, including Nigeria, often seek to attract FDI to stimulate industrialization, create employment opportunities, and enhance productivity.

### **Economic Growth**

According to Ebimobowei (2022), Economic growth reflects the growth in the value of commodities generated within a country's border over a specified duration. It can be employed in assessing the overall economic size and development of a nation. Economic growth is typically regarded as a macroeconomic variable, representing the increase in the aggregate measure of products created domestically within a given timeframe, commonly one year (Rabiu & Adaramola, 2021). The GDP growth rate provides a pointer that can be noted about a nation's economic growth. While it is often measured annually, it may likewise be assessed in three-month intervals as well. GDP encompasses the entire domestic & international trade balances, administrative expenditures, investments, private inventories, and construction spending, with exports included and imports deducted (El-Rasheed & Bello, 2022).

### **Theoretical Framework**

The study is anchored on two theories namely, the debt overhang theory and resource curse theory. The debt overhang theory posits that as soon as the debt of a

nation outweighs its repayment ability, the burden of servicing the debt can impede economic growth and stifle capital funds invested (Gordon & Cosimo, 2018). As described by Bongumusa, Irrshad, and Lorraine (2022), Sachs (2002), and Krugman (1988), Debt overhang arises when the loan obligations of a state are so substantial that a significant portion of its current GDP are directed towards credit assurance, discouraging investment income will be allocated to repaying creditors (Krugman, 1988; Ogbebor and Aigheyisi, 2019). According to Ogbebor and Aigheyisi (2019), when debt overhang occurs, the government may raise taxes on the private sector to generate funds for debt repayment. However, this approach discourages private investment and limits government spending on infrastructure, as resources are redirected toward servicing debt instead of productive activities. Consequently, both private and public investments decline, leading to reduced economic output and overall economic downturn (Ogbebor & Aigheyisi, 2019).

Coined by Richard Auty in 1993, the resource curse theory, sometimes called the paradox of plenty, highlights how resource-abundant countries frequently fail to maximize their natural endowments for economic development. It highlights how governments in such nations often fail to effectively address public welfare needs despite abundant resources (Akinleye, Olowookere, & Fajuyagbe, 2021). Although it is logical to expect improved development outcomes following the discovery of natural resources, countries endowed with abundant resources frequently face increased conflict and authoritarian rule, coupled with lower stable economic conditions and less growth-oriented than their resource-poor counterparts (Ebimobowei, 2022).

## Empirical Review

Fadare, Oladipo, and Agama (2025) examined the analysis of the relationship between fluctuations in international crude oil prices and the trajectory of Nigeria's economic growth over the significant 27-year period spanning from 1996 to 2022. Their findings revealed that oil price uncertainty and rapid change negatively impacts economic growth, posing threats to the Nigerian economy. Adebanjo, Banchani, and Sanusi (2023) used a robust regression model and simulation to show that a \$1 billion increase in FDI leads to approximately \$3 billion in Nigerian GDP growth, confirming FDI's positive impact. Ajayi, Anifowose, and Ekwere (2023) explored the effect of FDI on external economic factors like export expansion, openness to trade, growth in external debt, foreign portfolio inflows, exchange rate movements, and inflation. Their regression analysis revealed that while exchange rates significantly influenced Nigeria's economy, other factors including FDI did not show a statistically significant impact. Uwaleke, and Ibrahim (2022) examined the interrelation of external debt servicing and development in Nigeria between 1981 and 2020, using the Auto-Regressive Distributed Lags (ARDL) model. Their findings revealed a negative but statistically insignificant nexus between external debt servicing and economic growth.

Manasseh *et al.* (2022) extended the analysis to Sub-Saharan Africa (SSA), investigating the interactional effects of governance, foreign debt, and debt volatility on development across 30 SSA countries from 1997-2020. It was discovered that external debt and its volatility detrimentally and significantly impacted economic growth, confirming the hypothesis that excessive borrowing results in financial instability.

Babuga and Naseem (2022) investigated the enduring relationship between fluctuations in oil prices and economic expansion in Sub-Saharan Africa (SSA), including Nigeria. Using the Dynamic Heterogeneous Panel Pooled Mean Group (PMG) estimation method, their study found that there exists a threshold level beyond which rise in petroleum prices ceases to contribute positively to economic growth. When oil prices rise above this threshold, they can negatively impact economic performance. This finding supports the argument that over-reliance on oil revenue exposes economies to volatility and uncertainty. Osintseva (2022) explored the reliance of economic growth in oil-producing states on key oil-related variables such as levels of output, price changes, and shifts in oil export structures. Using regression analysis, the study found that significant impacts on economic growth were attributed to the fluctuations in oil prices, However, effects vary depending on the economies size and structure.

Adekunle, Adeniyi, and Orekoya (2021) explored the non-linear dynamics of the external debt-economic growth nexus between 1981 and 2015. Using a threshold regression approach, their study established that external debt promotes economic growth only to a specific limit, after which additional borrowing becomes counterproductive, acting as a tax on future investments. The study further demonstrated that excessive external debt servicing exerts a crowding-out effect on domestic investment. Ogbonna *et al.* (2021) analyzed how external debt management affects the economic growth situation in Nigeria through the analysis of yearly time-series data from 1986 to 2018. Their study utilized multiple regression analysis, incorporating variables such as real gross domestic product (RGDP),

foreign loan, external debt servicing, balance of payments, and exchange rates.

The study discovered that debt servicing and external debt significantly influenced economic growth, while the exchange rate did not exhibit a statistically significant effect. Ugwuanyi *et al.* (2021) found that debt management that is external positively and significantly contributed to growth in Nigeria. Their research indicated that the external borrowing by the Nigerian authorities should be directed towards projects with economic payoffs rather than expenditure on consumption. Akinleye, Olowookere, and Fajuyagbe (2021) focused on evaluating the role of oil revenue in shaping Nigeria's economic growth over the years 1981–2018. The findings revealed that oil revenue and previous levels of economic growth had a positive impact on real GDP, whereas petroleum profit tax, inflation, and exchange rate exerted a detrimental effect and impact on growth both in the short and long term.

## Methodology

The research employs an ex-post facto design, appropriate for analyzing historical data and identifying relationships among economic variables. The sample population comprises all economic indicators related to Nigeria's foreign debt, oil exports, FDI, and GDP. The data were collected from

reputable sources which include the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), and World Bank's World Development Indicators (WDI). A purposive sampling technique is applied, focusing on a series of periodic data points ranging between 1981 and 2023. The time horizon was selected to reflect the impact of significant aggregate-economic events, including the 2016 recession, fluctuations in global oil prices, shifts in foreign investment inflows, and Nigeria's increasing external debt burden.

A combination of econometric techniques is used to examine the interactions of external debt, oil exports, FDI, and Nigeria's growth together. This investigation used a time series data approach in accordance with its empirical data structure. The analysis includes preliminary analysis, model estimation (autoregressive distributed lag (ARDL), modelling (technique) and post-diagnostic testing (Breusch-Pagan LM test).

## Measurement of Variables

The study assessed how external debt, oil exports, and foreign direct investment (FDI) influence Nigeria's economic growth, with GDP used as the dependent variable. Exchange rate and labour were employed as control variables to capture the possibility of specification bias.

**Table 1: Measurement of Variables**

Dependent Variable	Proxy/Measurement	Definition	Source
Economic Growth	Growth of real Gross Domestic Product (GDP)	Real GDP is the aggregate value of goods and services produced in Nigeria, adjusted for inflation.	CBN, NBS, World Bank
Independent Variables	Proxy/Measurement	Definition	Source
External debt	Total External Debt Stock (USD)	The total amount of outstanding debt whether	CBN Statistical Bulletin

		privately or publicly owed to foreign creditors.	
Oil Exports	Oil Revenue (USD)	The total earnings of crude oil and petroleum products exports.	CBN Statistical Bulletin
Foreign Direct Investments	Net FDI Inflows (USD)	The net inflow of investment capital from foreign investors into Nigeria.	WDI
Exchange rate	Naira/Dollar exchange rate	Unit of Naira required to exchange for one US Dollar.	CBN Statistical Bulletin
Labour	Active population	Number of people actively involved in economic activities.	WDI

### Authors Compilation (2025)

#### Model Specification

This study adapts the Solow growth model as an underpinning model. The Solow growth model is one of the neoclassical growth models that demonstrates how productive inputs (such as labour, capital, and technological progress) determine output over time ( $t$ ). Thus, the essential variables in the Solow growth model are output –  $Y(t)$ ; capital –  $K(t)$ ; labour -  $L(t)$  and technical-know-how or knowledge -  $A(t)$ . All the variables are function of time ( $t$ ). Thus, the Solow's production function is formulated as:

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

Based on the foregoing, the Solow growth model can be utilized to analyse the effect of external debt ( $EXD$ ), oil export ( $OXP$ ) and foreign direct investment ( $FDI$ ) on production development. Taking external debt and FDI as capital in addition to oil export, and using total active population for labour force ( $LB$ ) as labour, the modified Solow's output equation for the study is presented as follows:

$$Y(t) = f(EXD(t), OXP(t), FDI(t), LB(t)) \quad (2)$$

Consolidating all the competing variables with real GDP (an indicator of output performance) as the dependent

variable while external debt, oil exports, and foreign direct investment (FDI) are the core independent variables. Besides, to account for any possible specification bias, exchange rate and labour force (using active population for labour) are taken as the control variables. Thus, using equation (3.2) as the baseline function, the functional form of the mode is specified as follows:

$$GDP_t = f(EXD_t, OXP_t, FDI_t, EXCHR_t, LB_t)$$

Where:

$GDP_t$  represents Nigeria's Gross Domestic Product at time  $t$

$EXD_t$  represents external debt at time  $t$

$OXP_t$  represents Oil Exports at time  $t$

$FDI_t$  represents Foreign Direct Investment at time  $t$

$EXCHR_t$  represents Naira/Dollar exchange rate at time  $t$

$LB_t$  represents labour force at time  $t$

$t = 1981 \dots 2023$  (annual time series)

Following the pre-estimation test, the ARDL ( $p, q_1, q_2, q_3, q_4, q_5$ ) Error Correction Model (ECM) specification is given as:

$$\begin{aligned}
\Delta GDP_t &= \theta + \sum_{i=1}^p \alpha_i \Delta GDP_{t-i} + \sum_{i=1}^{q_1} \beta_{1i} \Delta EXD_{t-i} \\
&+ \sum_{i=1}^{q_2} \beta_{2i} \Delta OXP_{t-i} + \sum_{i=1}^{q_3} \beta_{3i} \Delta FDI_{t-i} \\
&+ \sum_{i=1}^{q_4} \beta_{4i} \Delta EXCHR_{t-i} + \sum_{i=1}^{q_5} \beta_{5i} \Delta LF_{t-i} + \phi ECM_{t-i} \\
&+ \epsilon_t
\end{aligned} \tag{4}$$

As shown in equations (3.4), the ARDL short-run coefficients are represented by  $\alpha_i$ ,  $\beta_{1i}$ ,  $\beta_{2i}$ ,  $\beta_{3i}$ ,  $\beta_{4i}$ ,  $\beta_{5i}$ , at various lags ( $i = 1, 2, 3, \dots, q$ ).

To captures the long-run form, equation (3.4) can be modified as follows:

$$\begin{aligned}
\Delta GDP_t &= \theta + \sum_{i=1}^p \alpha_i \Delta GDP_{t-i} + \sum_{i=1}^{q_1} \beta_{1i} \Delta EXD_{t-i} \\
&+ \sum_{i=1}^{q_2} \beta_{2i} \Delta OXP_{t-i} + \sum_{i=1}^{q_3} \beta_{3i} \Delta FDI_{t-i} \\
&+ \sum_{i=1}^{q_4} \beta_{4i} \Delta EXCHR_{t-i} + \sum_{i=1}^{q_5} \beta_{5i} \Delta LB_{t-i} \\
&+ \psi GDP_{t-1} + \vartheta_1 EXD_{t-1} + \vartheta_2 OXP_{t-1} \\
&+ \vartheta_3 FDI_{t-1} + \vartheta_4 EXCHR_{t-1} + \vartheta_5 LB_{t-1} \\
&+ \epsilon_t
\end{aligned} \tag{5}$$

As shown in equations (3.5), the ARDL long-run coefficients are given as  $\vartheta_1, \vartheta_2, \vartheta_3, \vartheta_4, \vartheta_5$ . More specifically, the long-run specification is expressed as follows:

$$\begin{aligned}
GDP_t &= \phi_0 + \phi_1 EXD_t + \phi_2 OXP_t + \phi_3 FDI_t \\
&+ \phi_4 EXCHR_t + \phi_5 LB_t \\
&+ \mu_t
\end{aligned} \tag{6}$$

In double-log specification, equation (3.6) is specified as follows:

$$\begin{aligned}
\log(GDP_t) &= \phi_0 + \phi_1 \log(EXD_t) + \phi_2 \log(OXP_t) \\
&+ \phi_3 \log(FDI_t) + \phi_4 \log(EXCHR_t) \\
&+ \phi_5 \log(LB_t) + \mu_t
\end{aligned} \tag{7}$$

Based on the specification of equation (7), the estimates obtained are elasticity.

$\phi_0$  = intercept coefficient

$\phi_1$  = Partial slope elasticity coefficient of *GDP* with respect to *EXD*

$\phi_2$  = Partial slope elasticity coefficient of *GDP* with respect to *OXP*

$\phi_3$  = Partial slope elasticity coefficient of *GDP* with respect to *FDI*

$\phi_4$  = Partial slope elasticity coefficient of *GDP* with respect to *EXCHR*

$\phi_5$  = Partial slope elasticity coefficient of *GDP* with respect to *LB*

$\epsilon_t$  = The error term, accounting for factors that influence GDP but are excluded from the model

## Results and Discussion

### Descriptive Statistics

The descriptive analysis offers the statistical properties of the variable as summarised in Table 2. The variables include: external debt, oil exports, and foreign direct investment (FDI), Gross Domestic Product (GDP) for economic development measures, exchange rate (EXCHR) and labour (LB).

**Table 2:- Summary Statistics**  
**Realization:- T = 43 (1981 – 2023)**

Statistics	GDP	EXD	OXP	FDI	EXCHR	LB
Obs.	43	43	43	43	43	43
Mean	10.445	6.629	7.017	0.376	3.724	18.083
Maximum	11.260	10.550	10.390	2.180	6.470	18.655
Minimum	9.690	0.850	1.970	-1.670	-0.490	17.520
Std. Dev.	0.551	2.183	2.722	1.103	2.036	0.341
Skewness	0.1861	-0.7009	-0.6610	-0.0339	-0.8073	-0.0189
Kurtosis	1.4326	3.2254	2.0202	1.9161	2.4546	1.8072
<b>Normality Test:</b>						
Jarque-Bera	4.6496	3.6114	4.8512	2.1131	5.2032	2.4923
p-value	0.0978	0.1644	0.0884	0.3476	0.0742	0.2876

Source: Authors' computation (2025)

Table 2 presents the summary statistics. It could be observed that GDP, EXD, OXP, EXCHR and LB demonstrate low level of variability in their distributions for the given realization. The foregoing is attributed to the fact that the standard deviations (a measure of variability) of the variables are below the respective averages. Therefore, it could be deduced that the aforementioned variables are likely to exhibit high predictive capacity. However, foreign direct investment (FDI) exhibits high variability having the standard deviations above the average, thus, suggesting low forecasting power in FDI. Meanwhile, all other competing series except GDP, demonstrate a negatively skewed (long-left tailed) pattern of distributions, suggesting high occurrences of small observations relative to the medians of the variables. However, GDP exhibits positively skewed (long-right-tailed) pattern of distributions, suggesting higher output occurrences relative to the median of the variables. Meanwhile, except for external debt (EXD), relative to a normal distribution, all other variables exhibit a flat-topped (platykurtic) shape, indicated by kurtosis coefficients that are less than 3.0. However, EXD tends to be peaked (leptokurtic) relative to the normal distribution with kurtosis coefficients being above the margin of 3.0. Given the Jarque-Bera statistics, other competing variables, all the variables demonstrate normal distribution "having insignificant Jarque-Bera (JB) statistics with the respective *p*-values above 0.05 level of significance". Thus, the variables demonstrate the normality assumption for the application of ordinary least squares estimation method.

### Pre-Tests

#### Unit Root Tests

Prior to the evaluation phase, to determine the stationarity status of the

investigated variables, the unit root test was conducted. The stationarity of each variable establishes whether or not its moment features (such as mean and variances) remain constant. A non-trending feature in the data is indicated by a stationary variable. Furthermore, the effects of shocks or unforeseen events (such as international crises, policy regime changes, and socioeconomic pandemics, among others) may be long-lasting for a non-stationary variable. Nonetheless, a stationary variable implies that shocks to the variable will only have a transient effect.

To test for the unit root, augmented Dickey-Fuller (ADF) was used and is reported by Table 3. It could be seen from the analysis that the series involving *GDP*, external debt (*EXD*), oil export (*OXP*) and exchange rate (*EXCHR*) are integrated of order one *meaning* they follow *I*(1) process since the variables are insignificant in level form specification of the unit root tests. Thus, the technique of "first differencing" was applied in order to make the series to become stationary. Based on the foregoing, the impact of impulses to the variables may have a long-term memory in the presence of non-stationary conditions. However, FDI and LB series demonstrate integration of order zero *i.e.* they follow *I*(0) process since the variables demonstrate significant stationary in level form specification. The foregoing suggests that impulses or shocks to the variables may have short-term impact. Consequently, the unit root test results obtained for the models advocate the conditions for the use of bounds co-integration test, as proposed by Pesaran, Shin and Smith (2001), to examine the presence or otherwise of linear combination or connection which is for a long period within the variables in the model

**Table 3:- Unit Root Test Results**  
**Realization:-  $T = 43$  (1981 – 2023)**

<b>Specification</b>		<b>Level Form</b>					
		<b>GDP</b>	<b>EXD</b>	<b>OXP</b>	<b>FDI</b>	<b>EXCHR</b>	<b>LB</b>
Constant	<i>t</i> -stat.	-0.1890	-1.0688	-1.2345	-2.1650	-1.9576	-0.6917
	<i>p</i> -value	<b>0.9318</b>	<b>0.7190</b>	<b>0.6506</b>	<b>0.2216</b>	<b>0.3038</b>	<b>0.8374</b>
Constant & Trend	<i>t</i> -stat.	-1.9668	-1.8608	-1.2959	-2.8255	-1.6477	-5.6858***
	<i>p</i> -value	<b>0.5997</b>	<b>0.6563</b>	<b>0.8754</b>	<b>0.1966</b>	<b>0.7565</b>	<b>0.0002</b>
None	<i>t</i> -stat.	2.6557	2.2169	2.3232	-1.9621**	2.2391	3.0270
	<i>p</i> -value	<b>0.9975</b>	<b>0.9927</b>	<b>0.9943</b>	<b>0.0486</b>	<b>0.9931</b>	<b>0.9991</b>
<b>First Difference Form</b>							
<b>Specification</b>		<b><math>\Delta(GDP)</math></b>	<b><math>\Delta(EXD)</math></b>	<b><math>\Delta(OXP)</math></b>	<b><math>\Delta(FDI)</math></b>	<b><math>\Delta(EXCHR)</math></b>	<b><math>\Delta(LB)</math></b>
Constant	<i>t</i> -stat.	-4.0208***	-4.9109***	-6.6425***	-	-5.4830***	-
	<i>p</i> -value	<b>0.0032</b>	<b>0.0002</b>	<b>0.0000</b>	-	<b>0.0000</b>	-
Constant & Trend	<i>t</i> -stat.	-3.9241**	-4.7444***	-5.6911***	-	-5.7222***	-
	<i>p</i> -value	<b>0.0198</b>	<b>0.0023</b>	<b>0.0002</b>	-	<b>0.0001</b>	-
None	<i>t</i> -stat.	-2.3588**	-4.4112***	-5.4005***	-	-4.2843***	-
	<i>p</i> -value	<b>0.0195</b>	<b>0.0000</b>	<b>0.0000</b>	-	<b>0.0001</b>	-
<b>Order: <math>I(d)</math></b>		<b><math>I(1)</math></b>	<b><math>I(1)</math></b>	<b><math>I(1)</math></b>	<b><math>I(0)</math></b>	<b><math>I(1)</math></b>	<b><math>I(0)</math></b>

**Source:** Authors' computation (2025)

**Note:** \*\*\*, \*\* & \* denote statistical significance at 1%, 5% and 10% at levels.  $\Delta$  = First difference operator

#### Cointegration Test

Following the test outcomes of the variables stationarity, the subsequent phase is to investigate whether a long-term connection exists within the variables in the study's model. Thus, ARDL bounds cointegration test was applied, which is suitable for models with combined orders of integration ( $I(0)$  and  $I(1)$ ) of variables. The table 4 demonstrates the outcome of the bounds test. Evidently, the variables demonstrate long-run relationship or linear combination in the presence of non-

stationarity for the given model. Bounds test yielded significant test statistics ( $F = 7.7368$ ) exceeding the reference point at the upper bounds,  $I(1)$ , at 1% level of significance, thus, suggesting a very strong linear combination of the variables. Thus, the cointegration test results indicate no existence of spurious relationships in the model. Thus, the response and policy variables in the model have the likelihood to converge equilibrium in the long-term in which economic agents operate at optimum capacity.

**Table 4:- Bounds Co-Integration Test Results**

<b>Model</b>	<b>F-stat.</b>	<b>Sig.</b>	<b><math>I(0)</math></b>	<b><math>I(1)</math></b>
<b>GDP</b>	7.7368***	1%	3.06	4.15
		5%	2.39	3.38
		10%	2.08	3.00

**Source:** Authors' computation (2025)

**Note:** \*\*\*, \*\* & \* denote statistical significance at 1%, 5% and 10% at levels.  $I(0)$ : lower bound;  $I(1)$ : upper bound.

#### Model Estimation

Following the study's structure, the variables of the ARDL estimation approach was utilized following the pre-estimation test results. Moreover, the analysis revealed

compelling evidence of a significant linear combination and cointegrating relationship among the variables under investigation. The model was estimated to include both long-run and short-run coefficients. (see appendix).

Table 5 presents the estimated outcomes of the model. The optimum lags selected for the model estimation yielded the least AIC (Akaike information criteria) of -6.6350 at the lags of 2, 5, 5, 5, 5 and 5 for each of *EXD*, *OXP*, *FDI*, *EXCHR* and *LB* respectively (see appendix for details: optimal lag selection). As shown in Table 5, the coefficients ( $\gamma = -0.5208$ ,  $p = 0.0003$ ) of the *ECT* term (error correction mechanism), is negatively and statistically significant. In line with expectations, the speed of adjustment coefficients all lie between -1 and 0 for a

convergent or equilibrium condition in the long-period. The foregoing implies that the economic output performance (*GDP*) adjusts to *GDP*, *EXD*, *OXP*, *FDI*, *EXCHR* and *LB* over the long-term period, under conditions of full productive capacity of the economy. It could be put that about 52.08 percent of the deviation from the long-run equilibrium from the previous period was rectified in the present period. The foregoing suggests a moderately quick adjustment process in which economic growth reacts to variations in policy variables in the model.

**Table 5:- Model Estimation Results**

Sample:  $T = 43$  (1981 – 2023)

Response Variable	Ln(GDP)
<b>Model Selection Criterion</b>	<b>AIC</b>
	-6.6350
<b>Optimum Lags</b>	(2,5,5,5,5)
<b>Short-run Estimates</b>	
<b>Speed of Adjustment:</b>	
$ECT_{t-1}$	-0.5208*** (0.0003)
Adjusted R-Squared (short-run)	0.9654
<b>Long-run Estimates</b>	
$C$	-9.4451*** (0.0073)
$\ln(EXD)$	0.2265*** (0.0013)
$\ln(OXP)$	0.1439*** (0.0067)
$\ln(FDI)$	0.2307*** (0.0002)
$\ln(EXCHR)$	-0.3557*** (0.0030)
$\ln(LB)$	1.2278*** (0.0002)
<b>Model Diagnostics</b>	
<b>Serial Correlation Test (BG-LM)</b>	
F-Stat.	48.0702 (0.1055)
<b>Heteroscedasticity Test – ARCH (5)</b>	
F-Stat.	2.0429 (0.1056)
LM Stat. ( $T^*R$ -squared)	9.0257 (0.1080)
<b>Normality Test</b>	
Jarque-Bera	1.7384

(0.4193)

**Source:** Authors' computation (2025)

Note: \*\*\*, \*\* & \* denote statistical significance at 1%, 5% and 10% at levels. Meanwhile, values in parentheses are *p*-values of the respective coefficients and statistics. Ln = natural logarithm operator.

### Tests of Hypotheses

#### Hypothesis 1 – $H_0$ : External debt has no significant effect on GDP in Nigeria.

**EXD → ( $\emptyset_1$ ) GDP:** As shown in Table 5, long-run estimation results show that changes in external debt (EXD:  $\emptyset_1 = 0.2265$ ;  $p = 0.0013 < 0.01$ ) exert positive statistically strongly significant effect on GDP (economic growth) in Nigeria in the long-run when the economic agents are functioning at optimum capacity. The rate of the statistical significance state indicates the rejection of the null hypotheses, *i.e.*,  $H_0: \emptyset_1 = 0$  is rejected. Moreover, it could be observed that the partial slope coefficients ( $\emptyset_1 = 0.2265$ ) indicate that the responsiveness of GDP is significantly inelastic with respect to EXD having partial coefficients being below one.

#### Hypothesis 2 – $H_0$ : Oil exports have no significant effect on GDP in Nigeria.

**OXP → ( $\emptyset_1$ ) GDP:** As shown in Table 5, long-run estimation results show that changes in oil export (OXP:  $\emptyset_2 = 0.1439$ ;  $p = 0.0067 < 0.01$ ) exert positive statistically strongly significant effect on GDP (economic growth) in Nigeria in the long-run when the economic agents in the column are functioning at optimum capacity.

**The statistical significance state of the foregoing empirical test:** The statistical significance of the preceding empirical test indicates the rejection of the null hypotheses, *i.e.*,  $H_0: \emptyset_2 = 0$  is rejected. Similarly, it could be observed that the partial slope coefficients ( $\emptyset_1 = 0.1439$ ) indicate that the responsiveness of GDP is significantly inelastic with respect to OXP having partial coefficients being below one.

#### Hypothesis 3 – $H_0$ : FDI have no significant effect on GDP in Nigeria.

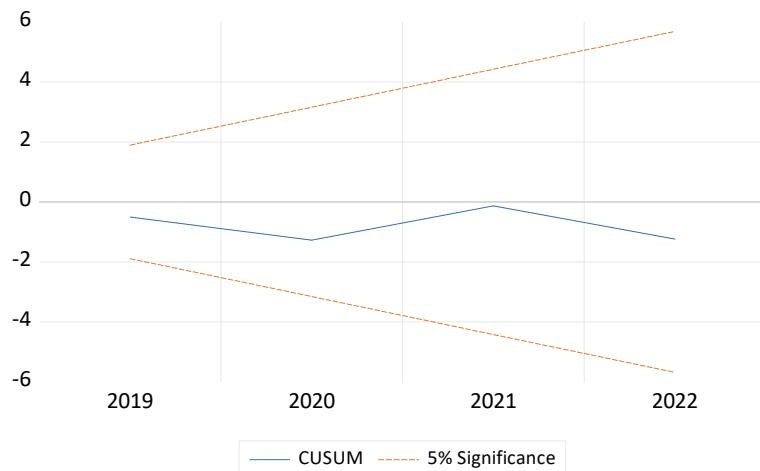
**FDI → ( $\emptyset_1$ ) GDP:** As shown in Table 5, long-run estimation results show that changes in foreign direct investment (FDI:  $\emptyset_3 = 0.2307$ ;  $p = 0.0002 < 0.01$ ) exert positive statistically strongly significant effect on GDP (economic growth) in Nigeria in the long-run when economic agents in the column are functioning at optimum capacity. Due to the statistical significance found at the tests, it indicates the rejection of the null hypotheses, *i.e.*,  $H_0: \emptyset_3 = 0$  is rejected. Similarly, it could be observed that the partial slope coefficients ( $\emptyset_1 = 0.2307$ ) indicate that the responsiveness of GDP is significantly inelastic with respect to FDI having partial coefficients being below one.

Meanwhile, exchange rate (EXCHR:  $\emptyset_4 = -0.3557$ ,  $p = 0.0030 < 0.0$ ) yielded negative and statistically significant effect on GDP in an inelastic fashion. The foregoing suggests that depreciation of Naira against the US Dollar adversely and significantly affect GDP in Nigeria. On the other hand, labour (LB,  $\emptyset_5 = 1.2278$ ,  $p = 0.0002 < 0.01$ ) yielded positive statistically significant effect on GDP in Nigeria. GDP appears to be elastic with respect to LB having elasticity coefficients being above one.

### Post-Estimation Tests

As shown in Table 5, the serial correlation test using the Breusch-Pagan LM test ( $F = 48.0702$ ,  $p = 0.1055$ ); heteroscedasticity using the autoregressive conditional heteroscedasticity [ARCH] test ( $F = 2.0429$ ,  $p = 0.1056$ ; LM-stat = 9.0257,  $p = 0.1080$ ), normality test using Jarque-Bera statistic (stat = 1.7384, 0.4193) yielded insignificant results (*i.e.*  $p$ -values  $> 0.05$ ), suggesting, respectively, the absence of serial correlation, presence of homoscedasticity

and existence of normality in the residuals of the estimated model.



**Fig. 4.1:- Model Plots of Cumulative Sum (CUSUM) of Recursive Residuals**

Moreover, using CUSUM test criterion, Fig. 4.1 displays the result of the stability test of the estimated model. Evidently, the plot falls within the critical bounds throughout the realization (sample period) at 5% level of significant. Hence, the estimated model is considered be structurally stable in the estimates over the sample period. In all, the post-diagnostic tests results suggest that the

estimates obtained as regards the effects of external debt, oil exports, and FDI on Nigeria's economic growth are efficient and valid for inferences and policy implication.

#### Summary of Hypotheses Testing Results

Table 6 presents a summary of the significance tests of the estimated model, showing the results of the study's hypotheses tests.

**Table 6: Tests of Hypotheses Summary**

Effects of external debt, oil exports, and FDI on Nigeria's economic growth		
	Null Hypothesis ( $H_0$ )	Stat. Sign.
1.	External debt has no significant effect on GDP in Nigeria	+ Significant ( $p < 0.01$ )
2.	Oil export has no significant effect on GDP in Nigeria	+ Significant ( $p < 0.01$ )
3.	Foreign direct investment (FDI) has no significant effect on GDP in Nigeria	+ Significant ( $p < 0.01$ )

Source: Authors' computation (2025)

#### Discussion of Findings

Following the empirical results, it was observed that external debt was an important determining factor of economic growth in Nigeria. The foregoing suggests that effective utilization of foreign loans has the tendency to accelerate the development of the economy. The aforementioned empirical outcome corroborates the findings obtained in Adekunle, Adeniyi, and Orekoya

(2021), Ogbonna *et al.* (2021) and Ugwuanyi *et al.* (2021) that foreign debt significantly impacted on economic growth. However, insignificant relationships between external debt and economic growth were revealed in Idehi and Uzonwanne (2021), Akanbi, Uwaleke, and Ibrahim (2022).

Empirical outcome revealed that oil export showed a statistically significant positive effect on economic growth in the

long-run when economic agents were functioning at optimal capacity in Nigeria. The foregoing result is consistent with Akinleye, Olowookere, and Fajuyagbe (2021), Efanga, Ugwuanyi, and Ogochukwu (2020), Obisike, Onwuka, Okoli, and Udeze (2020) and Aminu and Raifu (2019) that asserted that oil export substantially and beneficially influenced Nigeria's economic development.

Results revealed that FDI was positively and significantly associated with GDP in Nigeria in the long-period. Theoretically, a positive interaction is expected exist between foreign direct investment and output growth. FDI is key determinant of the real sector in Nigeria. Similarly, El-Rasheed and Bello (2022); Alabi (2019) and Adebanjo, Banchani, and Sanusi (2023) revealed that FDI had a positive influence on economic growth.

### **Conclusion And Recommendations**

Nigeria's external debt, oil exports, and (FDI) all have favourable and notable relationships with economic growth. Thus, external debt, oil exports, and (FDI) are essential catalysts for the progress of Nigeria's economy. However, excessive debt can cause problems with debt servicing, crowding out other important expenses and possibly impeding economic progress, even while external debt might supply the money needed for development projects. Nigeria has a strong reliance on oil exports, however because of this, the nation is vulnerable to fluctuations in global oil prices, which may impact economic stability and growth. However, foreign direct investment (FDI) can aid economic development and diversity through the injection of capital, technology, and management experience. Following the essential empirical findings, the study has put forward the following recommendations in accordance with study's findings:

- i. Nigeria should put in place a debt sustainability framework that guarantees borrowed funds are used for initiatives with good economic returns; the government should give careful external debt management first priority. This would entail a thorough evaluation of the project, open reporting of debt, and a dedication to keeping debt-to-GDP ratios within reasonable bounds.
- ii. Nigeria should invest in industries like manufacturing, services, and agriculture to diversify its economy away from oil exports. By diversifying its sources of income, the nation would become less susceptible to changes in the price of oil globally. To increase income and provide employment, the government should also look into value-added potential in the oil industry.
- iii. By boosting infrastructure, offering incentives to foreign investors, and strengthening the business climate, efforts should be made to draw in more FDI. Nigeria might become a more appealing location for foreign direct investment by streamlining regulatory procedures, maintaining security, and fostering economic stability. In order to improve local capabilities, the government should also prioritize industries with significant development potential and support technology transfer and capacity building.

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