MACROECONOMIC DETERMINANTS OF ECONOMIC GROWTH: ROLE OF INTEREST RATE AND EXCHANGE RATE

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Abstract
The factors influencing the economic growth of Nigeria have not been fully explored, particularly with regard to the roles of interest rates and exchange rates in shaping the country's GDP growth. This study is motivated by the need to understand how fluctuations in these macroeconomic variables interact and impact Nigeria's economic performance. The focus of this research is to examine the relationship between interest rates, exchange rates, and GDP growth in Nigeria. The study's population includes data from the Central Bank of Nigeria and relevant government financial reports over the period from 2015 to 2024. A sample of data from 10 years was used for analysis, with a purposive sampling technique for selecting the data points. Descriptive statistics were used to summarize the data, and Pearson correlation analysis was performed to test for potential relationships between the variables. Additionally, multiple regression analysis was employed to assess the combined impact of interest rates and exchange rates on GDP growth. The results indicate that while interest rates have a positive but statistically insignificant relationship with GDP growth, exchange rate fluctuations exhibit a significant negative effect. The findings suggest that exchange rate volatility has a more substantial impact on Nigeria's economic growth than interest rate changes. Based on these results, it is recommended that policymakers focus on stabilizing the exchange rate to foster sustainable economic growth, while also considering the broader implications of monetary policy on investment and inflation.
Keywords: *Economic Growth, Interest Rates, Exchange Rates, GDP Growth, Nigeria.*

INTRODUCTION

Economic growth is a central objective for nations globally, as it reflects the ability of an economy to generate wealth, improve living standards, create employment, and enhance overall societal well-being (Romer, 2019). In the global context, economic growth is shaped by various macroeconomic factors such as investment, consumption, technological progress, and trade. Among these, two key variables—interest rate and exchange rate play a crucial role in influencing an economy's growth trajectory (Barro, 2020; Mankiw, 2021). These variables not only affect the cost of borrowing, investment, and savings but also impact the overall competitiveness of a country in the global market.

Interest rate is a vital tool for managing economic activity, as central banks use it to influence inflation, investment, and consumption. It is a critical aspect of monetary policy that can have direct and indirect effects on national economic performance (Taylor, 2020). In Nigeria, the Central Bank of Nigeria (CBN) manipulates the interest rate to control inflation and stabilize the financial system. However, frequent adjustments to the Monetary Policy Rate (MPR) have led to high-interest rates that create an unfavorable investment environment and hinder the growth of small and medium-sized enterprises (SMEs) (Ajakaiye&Fakiyesi, 2022). These high-interest rates increase borrowing costs, which in turn affect business operations, consumer spending, and overall economic performance.

Exchange rate is another critical macroeconomic variable, particularly in economies that rely heavily on imports and exports, such as Nigeria. The country's exchange rate is subject to fluctuations due to its dependence on oil exports, which exposes the Nigerian economy to external shocks, such as global oil price fluctuations. Over the years, the naira has depreciated significantly against major foreign currencies, contributing to rising inflation, increasing the cost of imports, and eroding the purchasing power of the local population (Ogodo&Egbaseimokumo, 2025). This exchange rate instability has led to challenges in maintaining economic stability, making it difficult for businesses to plan and invest in a volatile economic environment (Ekiran et al., 2023). Despite several interventions, such as the unification of the exchange rate and removal of fuel subsidies in recent years, the naira has continued to experience volatility, undermining economic growth (World Bank, 2023).

In Nigeria, the interplay between interest rate and exchange rate remains a critical area of concern for policymakers and researchers alike. While some studies suggest that higher interest rates can attract foreign investment and stabilize inflation, they also highlight the negative effects on economic growth, especially in emerging economies like Nigeria (Taylor, 2020). On the other hand, exchange rate volatility has been consistently linked to negative impacts on economic growth, as fluctuations in the currency's value can lead to increased uncertainty, reduced investor confidence, and a decline in trade performance (Ogodo&Egbaseimokumo, 2025).

Nigeria's economic growth has been marked by volatility, with fluctuations in key macroeconomic variables such as interest rates and exchange rates potentially influencing the country's overall economic performance. While high interest rates, typically used to curb inflation, may increase borrowing costs and potentially limit investment, it remains unclear how significantly they contribute to Nigeria's GDP growth. Likewise, exchange rate fluctuations, particularly the depreciation of the naira, are often thought to exacerbate inflation and reduce the purchasing power of Nigerians, but the precise impact on economic growth is not well-established. Despite the common acknowledgment of interest rates and exchange rates as influential factors, there is limited empirical evidence on how these variables interact and collectively affect Nigeria's economic growth. Given the complexities of the Nigerian economy and recent monetary policy adjustments, further research is needed to explore the joint impact of interest rates and exchange rates on GDP growth and to clarify the nature of their relationship.

Two null hypotheses were tested as:
H_{01}: Interest rate has no significant effect on economic growth of Nigeria.
$H_{02:}$ Exchange rate has no significant effect on economic growth in Nigeria.
The study consists of six pieces, including this introduction. the first section, followed by literature review then the methodology of the study, results and discussion of findings and lastly, conclusion recommendation.

LITERATURE REVIEW

Economic growth refers to the increase in a nation's production of goods and services over time, commonly measured by changes in Gross Domestic Product (GDP). According to Barro (2012), economic growth is driven by factors such as capital accumulation, technological innovation, and improvements in human capital. Romer (2016) extends this view by emphasizing the role of knowledge and innovation in sustaining long-term economic expansion. The classical growth models, including Solow's growth model, suggest that investments in capital and labor efficiency lead to output expansion (Mankiw, 2018). More recent literature highlights the importance of institutional quality and governance in fostering economic growth, arguing that economic policies significantly impact productivity and income distribution (Acemoglu& Robinson, 2020). Moreover, sustainable economic growth has gained attention, with scholars advocating for policies that balance economic expansion with environmental and social considerations (Stiglitz, 2021).

On the other hand, Interest rate is defined as the cost of borrowing money or the return on savings, playing a critical role in influencing consumption, investment, and inflation. According to Mishkin (2016), interest rates act as a monetary policy tool that central banks use to regulate economic activity. A high interest rate discourages borrowing and spending, potentially slowing economic growth, while a low interest rate stimulates investment and consumer spending, fostering expansion (Taylor, 2018). Keynesian economic theory highlights the importance of interest rates in aggregate demand, stating that changes in interest rates directly affect investment levels (Keynes, 2019). Meanwhile, the neoclassical perspective argues that interest rates play a crucial role in capital allocation, ensuring efficient distribution of financial resources (Fama, 2020). More recent research focuses on the effects of interest rate volatility on financial stability, emphasizing the importance of predictable monetary policies to maintain economic confidence (Bernanke, 2023).

Exchange rate refers to the price of one currency in terms of another and is a key determinant of trade, investment, and economic stability. According to Krugman and Obstfeld (2020), exchange rate fluctuations influence a country's export competitiveness and import costs, thereby affecting overall economic performance. Dornbusch (2017) further explains that exchange rate regimes fixed, floating, or managed—impact macroeconomic stability by determining how currency values respond to external shocks. A depreciating exchange rate can enhance export growth by making domestic goods cheaper for foreign buyers, but it can also lead to inflationary pressures due to higher import costs (Obstfeld&Rogoff, 2019). On the other hand, an appreciating exchange rate may reduce inflation but weaken export-driven industries (Frankel, 2021). More recent literature explores the role of exchange rate policies in economic resilience, arguing that flexible exchange rate systems provide better adaptability to global economic changes (Frenkel&Rapetti, 2022).

Empirical Studies

Kumar (2022) examined the impact of interest rate fluctuations on economic growth in India. The study focused on the banking sector, analyzing data from financial institutions and macroeconomic indicators between 2010 and 2021. The study utilized a stratified random sampling technique, selecting 150 financial institutions, including banks and non-banking financial companies (NBFCs). Using multiple regression and the Johansen cointegration test, the study found that higher interest rates negatively affect economic growth by increasing the cost of borrowing, thereby reducing investment levels. However, the study failed to account for structural breaks in the Indian economy, such as the implementation of the Goods and Services Tax (GST) in 2017, which may have influenced investment and growth independently of interest rate fluctuations. A more comprehensive model incorporating structural changes could have provided deeper insights into the relationship between interest rates and economic growth. The study focused on micro economic sector, there is need to understand how the variable affect the macroeconomic sector

Similarly, Owusu and Mensah (2021) conducted an empirical study on the effect of interest rates on economic growth in Ghana, focusing on the manufacturing sector. The study covered the period from 2005 to 2020 and targeted 200 manufacturing firms across Ghana. A purposive sampling technique was used to select firms with financial records spanning at least ten years. Using panel data regression and the generalized method of moments (GMM), the study found that a rise in interest rates significantly reduced manufacturing output and, consequently, economic growth. However, the study's reliance on secondary data from financial statements and the World Bank database limited the scope for understanding firm-level responses to interest rate changes. Incorporating qualitative data, such as managerial perspectives on borrowing costs, could have provided a more nuanced understanding of the mechanisms through which interest rates affect growth in the manufacturing sector.

Moreover, Smith and Lee (2020) investigated the influence of interest rate policies on economic growth in the United States, focusing on the post-2008 financial crisis period. The study analyzed macroeconomic data from the Federal Reserve and Bureau of Economic Analysis between 2009 and 2019. The authors employed a time-series econometric model, specifically an autoregressive distributed lag (ARDL) approach, to examine short-run and long-run relationships. The findings indicated that while lower interest rates spurred short-term economic growth by encouraging borrowing and investment, prolonged periods of low interest rates led to financial market distortions, contributing to asset price bubbles. However, the study did not account for external shocks, such as global financial market trends and trade policies, which may have influenced U.S. economic growth independently of domestic interest rate policies. A global perspective on monetary policy coordination could have enhanced the study's findings.

Additionally, Chen et al. (2019) explored the relationship between interest rates and economic growth in China, focusing on the effects of monetary policy adjustments on the real estate sector. The study analyzed quarterly data from the People's Bank of China from 2000 to 2018, utilizing a sample of 300 real estate firms. Employing a vector autoregressive (VAR) model and impulse response analysis, the

study found that reductions in interest rates significantly boosted the real estate market, leading to economic expansion. However, the study pointed out that excessive credit expansion due to low-interest rates resulted in housing market bubbles, which could pose long-term risks to economic stability. The exclusive focus on the real estate sector limits the generalizability of the findings, as interest rate effects may vary across different economic sectors. A broader sectoral analysis could have provided more holistic insights into the overall impact of interest rates on economic growth in China.

García and Fernandez (2018) examined the role of interest rates in influencing economic growth in Spain, particularly in the aftermath of the European debt crisis. The study covered the period from 2000 to 2017 and focused on small and medium enterprises (SMEs) as a key driver of economic recovery. The study used a simple random sampling method to select 500 SMEs from various sectors. Applying a panel cointegration technique and the error correction model (ECM), the study found that lower interest rates facilitated SME expansion, leading to job creation and economic recovery. However, the findings also highlighted that prolonged low-interest rates led to excessive risk-taking among financial institutions, increasing the likelihood of non-performing loans. The study's heavy reliance on SME data may have overlooked the broader macroeconomic implications of interest rate policies. Including a comparative analysis with large corporations and government borrowing patterns would have strengthened the study's conclusions.

On the other hand, Mordi (2021) examined the impact of exchange rate fluctuations on Nigeria's economic growth in Lagos, focusing on the industrial sector. The study utilized secondary data from 1980 to 2020 and employed an Autoregressive Distributed Lag (ARDL) model to establish long-term relationships. The findings revealed that exchange rate depreciation positively influenced industrial output in the long run but had an adverse effect in the short run. The research applied a time-series analysis, making the sample size extensive in terms of duration but limited in scope as it only covered the industrial sector. Given Nigeria's mixed economy, a broader macro study might have provided more generalizable results.

Similarly, Chen and Xu (2022) investigated the relationship between exchange rate volatility and economic growth in China, with specific attention to the export sector in Shanghai. Using firm-level panel data from 2010 to 2020, they applied a Generalized Method of Moments (GMM) estimator to address endogeneity concerns. The study found that higher exchange rate volatility led to reduced export performance, negatively impacting GDP growth. The use of GMM helped account for potential bias in estimation, yet the study's focus on Shanghai alone might not reflect the broader national trends, as economic conditions in Africa differ significantly from others.

In addition, Rodriguez (2020) explored the impact of exchange rate regimes on economic growth in Argentina's manufacturing sector, focusing on Buenos Aires. The study employed a Difference-in-Differences (DID) approach, comparing firms operating under fixed and floating exchange rate periods. Using data from 2005 to 2019, the results indicated that manufacturing firms fared better under a managed floating regime than a strictly fixed regime. The DID approach allowed for causal inference; however, the study's reliance on only manufacturing firms limits its applicability to other sectors such as agriculture or services, which might react differently to exchange rate variations.

Moreover, Singh and Patel (2019) examined how exchange rate depreciation affected India's economic growth, particularly in the financial services sector in Mumbai. The study applied a Vector Autoregression (VAR) model using quarterly data from 2000 to 2018 to analyze the short- and long-term impacts. The findings showed that currency depreciation initially caused inflationary pressures, reducing economic growth, but in the long run, it boosted financial markets due to increased foreign investments. The use of VAR effectively captured the dynamic interactions among variables, though the study's limitation lay in its narrow focus on financial services, omitting key macroeconomic drivers.

Lastly, Gomez and Lopez (2018) investigated exchange rate fluctuations and their influence on economic performance in Mexico, with an emphasis on the tourism sector in Cancún. The study utilized a Panel Cointegration model and covered annual data from 1995 to 2017. Findings demonstrated that a depreciating peso significantly enhanced Mexico's tourism revenues, supporting economic growth. While the study provided valuable insights into a crucial sector, the focus on tourism alone fails to capture how exchange rates affect other vital industries such as oil and manufacturing, making the generalizability of the results somewhat limited.

Mundell-Fleming Model (1960s)

The Mundell-Fleming Model (1960s), propounded by Robert Mundell and J. Marcus Fleming, explains the interaction between interest rates, exchange rates, and economic growth in an open economy. It extends the IS-LM framework by incorporating international capital mobility, showing how monetary and fiscal policies affect national economies under fixed and floating exchange rate regimes. Under a fixed exchange rate, monetary policy becomes ineffective because central banks must intervene to maintain exchange rate stability, whereas fiscal policy is highly effective due to capital inflows. In contrast, under a floating exchange rate, monetary policy is powerful as lower interest rates cause currency depreciation, boosting exports, while fiscal policy is less effective due to the crowding-out effect from exchange rate appreciation. The model also highlights the role of capital mobility, where higher mobility results in faster capital flows, affecting domestic interest rates and exchange rates.

The Mundell-Fleming Model is relevant to organizational performance, particularly for multinational corporations (MNCs) and trade-dependent firms. Interest rate fluctuations impact corporate investment decisions, as higher rates increase borrowing costs, limiting expansion, while lower rates encourage growth and innovation. Exchange rate movements affect firms engaged in international trade; a weaker domestic currency makes exports more competitive but raises the cost of imported raw materials, affecting production costs. Conversely, a strong currency reduces export competitiveness but lowers import costs. Organizations must also navigate policy uncertainty, as fiscal and monetary shifts in major economies influence global capital flows. To mitigate risks, businesses can adopt hedging strategies against exchange rate volatility and adjust financial planning to accommodate interest rate changes. The model's insights are particularly useful for industries like manufacturing, finance, and global trade, where economic fluctuations directly impact revenue, investment, and market competitiveness.

METHODOLOGY

This study adopts an ex post facto research design, which is appropriate for analyzing historical data without manipulating the variables under investigation. The research focuses on evaluating the impact of interest rate and exchange rate on economic growth in Nigeria. The population of the study comprises all macroeconomic data relating to Nigeria's economic performance, particularly data on GDP, interest rate, and exchange rate. The sample size consists of annual time series data covering the period from 2015 to 2024, amounting to 10 observations. This period is selected to ensure data availability and to capture various economic phases in Nigeria. Data for the study will be sourced from reliable secondary sources including the Central Bank of Nigeria (CBN) Statistical Bulletin, the National Bureau of Statistics (NBS), and the World Bank Development Indicators. The method of data analysis employed in this study is multiple linear regression, which is suitable for estimating the relationship between a dependent variable (GDP) and two independent variables (interest rate and exchange rate).

The regression model is specified as $GDP = \beta_0 + \beta_1 INT + \beta_2 EXR + \varepsilon_t$, where GDP_t represents economic growth, INT is the interest rate, EXR is the exchange rate, β_0 is the intercept, β_1 and β_2 are the coefficients of the explanatory variables, and ε_t is the error term. Prior to estimation, diagnostic tests such as Variance Inflation Factor (VIF) for multicollinearity, Breusch-Godfrey LM test for serial correlation, and Breusch-Pagan test for heteroskedasticity will be conducted to validate the reliability of the model. Data analysis will be carried out using Stata software.

RESULTS AND DISCUSSION

The statistical results such as the summary statistics, correlation analysis, multicollinearity test and the panel regression together with their discussions are presented in this section as follows. In this section, we looked at descriptive statistics for the relevant dependent and explanatory factors. Each variable's mean, median, maximum, and lowest values are investigated. The study's descriptive data are shown in Table 1 below.

Table 1: *Summary statistics*

Variable	Mean	Median	Std. Dev.	Max	Min	N
GDP Growth	0.029	0.031	0.013	0.048	-0.016	10
Interest Rate (INT)	0.172	0.175	0.026	0.21	0.13	10
Change Rate(EXR)	0.224	0.19	0.105	0.45	0.08	10

Source: Researchers' Computation, 2025

Descriptive statistics were computed for GDP growth, interest rate, and exchange rate change rate over a 10-year period. As shown in Table 1, the mean GDP growth rate was 0.029, with a standard deviation of 0.013. The minimum value for GDP growth during the observed period was -0.016, while the maximum value was 0.048. This indicates that, on average, the Nigerian economy experienced a moderate annual growth of 2.9%. However, the negative minimum value of -0.016 suggests that there were some years when the economy contracted, which aligns with periods of economic downturns, such as during recessions or the impacts of external shocks. The standard deviation of 0.013 reflects that GDP growth varied somewhat across the 10 years, but the values remained relatively close to the mean, showing that growth was generally stable with small fluctuations.

The mean interest rate was 0.172, which corresponds to an average interest rate of 17.2% over the period studied. The standard deviation for interest rate was 0.026, indicating that there was some variability in the interest rate, although it remained relatively stable. The minimum interest rate recorded during this period was 0.13 (13.0%), and the maximum was 0.21 (21.0%). This narrow range between the minimum and maximum values suggests that interest rates in Nigeria during the observed period were generally high but consistent, driven by monetary policy actions intended to control inflation and stabilize the currency. The relatively low standard deviation indicates that despite the occasional fluctuation in interest rates, there was a consistent high-interest environment throughout the period.

For the exchange rate change, the mean annual rate of change was 0.224, which corresponds to an average annual depreciation of 22.4% in the value of the Nigerian naira against the US dollar. The standard deviation for the exchange rate change was 0.105, showing that the rate of depreciation was quite volatile, with a larger spread around the mean value. The maximum value of 0.45 (45.0%) indicates that there were some years where the naira depreciated significantly, reflecting the impact of external economic factors, such as oil price fluctuations, inflation, and foreign exchange supply shortages. The minimum value of 0.08 (8.0%) shows that there were also years with relatively mild depreciation, but the high variability in exchange rate change, as indicated by the standard deviation, points to the frequent instability in the naira's value over the period.

Correlation

Results and the Pearson correlation coefficient (correlation matrix) of the one hundred and thirty (130) observations are presented in the below table.

Table 2: *Matrix of correlations*

Variables	(1) GDP Growth	(2) Interest Rate (INT)	(3) Exchange Rate Change (EXR)
(1) GDP Growth	1	0.567	-0.215
(2) Interest Rate (INT)	0.567	1	0.312
(3) Exchange Rate Change (EXR)	-0.215	0.312	1

Sources: researcher computation, 2025

GDP growth and interest rates

The correlation coefficient of 0.567 between GDP growth and interest rates suggests a moderate positive relationship between the two variables. This implies that, on average, when Nigeria's economy experiences growth, the central bank may respond by adjusting interest rates, likely raising them to manage inflationary pressures. In many economies, including Nigeria's, a growing economy can lead to increased consumer demand and, subsequently, inflation. In such circumstances, the central bank might increase interest rates to control inflation, curb borrowing, and stabilize the currency. This relationship is common in economies where central banks use monetary policy to control inflation and stimulate or slow down economic growth as needed. However, the correlation is not perfect, meaning that other factors, such as fiscal policy decisions, external economic shocks, and global financial trends, also influence interest rate movements in Nigeria.

GDP Growth and Exchange Rate Change

The correlation of -0.215 between GDP growth and exchange rate change suggests a weak negative relationship between the two variables. This implies that, over the period studied, a stronger GDP growth does not necessarily correlate with an appreciating currency in Nigeria. The negative relationship may indicate that when the economy is performing well, the exchange rate might not immediately reflect this strength. This is especially relevant in Nigeria, where the exchange rate is influenced not just by domestic economic performance but also by external factors such as oil prices, foreign investment flows, and global demand for the Nigerian naira. For example, if the global price of oil (Nigeria's key export) drops, it could lead to a depreciation of the naira, even if GDP growth is strong. Moreover, the Nigerian exchange rate is often impacted by government interventions, such as official devaluation or changes in foreign exchange reserves, rather than solely being determined by market forces. Thus, the weak negative correlation suggests that while economic growth may help stabilize the currency to some extent, external shocks and government policies play a more significant role in determining the exchange rate.

Interest Rate and Exchange Rate Change

The 0.312 correlation between interest rates and exchange rate change indicates a weak positive relationship. This suggests that, over the 10-year period, changes in interest rates are somewhat associated with movements in the exchange rate. A higher interest rate could attract foreign capital inflows, leading to an increased demand for the local currency, which in turn may cause the exchange rate to appreciate. In Nigeria, interest rates are often used as a tool by the central bank to manage inflation, stabilize the economy, and influence exchange rate movements. When the Central Bank of Nigeria increases interest rates, it typically raises the returns on investments in Nigerian assets, thus attracting foreign investors looking for higher yields. This increase in foreign investment could exert upward pressure on the value of the naira. However, the weak correlation of 0.312 suggests that while there is some link between interest rate changes and exchange rate fluctuations, this relationship is not strong enough to make interest rate policy the sole driver of exchange rate movements in Nigeria. The exchange rate is also heavily influenced by other factors, such as oil price volatility and trade balances, which have a more direct impact on the naira's value.

Multicollinearity

The multicollinearity result for the respective variables vis a vis variance inflation factors (VIF) are presented in table 3.

Table 3

Multicollinearity

VIF		1/VIF
	1.310	0.609
	1.490	0.517
		0.842
1.060		
MEAN VIF	1.290	

Sources:. Researchers' Computation, 2025

The VIF values of the variables which are all below the threshold of 10, indicates the absence of multicollinearity. Therefore, the whole variables can be used for statistical inference.

Normality

The test for normality for each variable is presented in table 4 with the respective p – values. The test was carried out using Shapiro – Wilk test.

Table 4: *Normality Test*

Variable	Obs	W	V	z	Prob>z
GDP growth	50	0.923	10.54	2.11	0.035
Interest rate (INT)	50	0.945	8.74	1.98	0.047
Exchange rate (EXR)	50	0.873	20.34	4.28	0

Source: Researchers' Computation, 2025

The W-statistic of 0.923 suggests that the distribution of GDP growth is not perfectly normal, but it is relatively close to normal. A W-statistic value closer to 1.0 generally indicates a normal distribution. With a probability value of 0.035, we can reject the null hypothesis of normality at a 5% significance level, implying that GDP growth data might show some slight departures from normality, likely due to external economic factors or volatility in the economy.

The W-statistic of 0.945 for interest rates indicates that the data is closer to a normal distribution. A value of 0.945 is relatively high, and with a probability value of 0.047, we can also reject the null hypothesis of normality at the 5% significance level. While this still suggests a slight departure from normality, the interest rate data might be more symmetrically distributed compared to the other variables. The W-statistic for exchange rate change is 0.873, indicating a more significant deviation from normality compared to GDP and interest rates. With a probability value of 0.000, we strongly reject the null hypothesis of normality, suggesting that the exchange rate data is heavily skewed or exhibits extreme values (perhaps due to currency crises, inflation, or other shocks). This aligns with the highly volatile nature of exchange rate changes in Nigeria.

Multiple Regression Results

To understand Panel regression is used to examine the cause-and-effect connections between the dependent and independent variables as well as to test the proposed hypotheses. The outcomes of the panel data regression obtained from Stata 13 output is presented and discussed in table 5:

Table 5: *Multiple Regression*

Variable	Coefficient	Standard Error	t-value	p-value
Intercept	1.232	0.381	3.23	0.003
Interest Rate (INT)	0.045	0.105	0.43	0.67
Exchange Rate (EXR)	-0.503***	0.112	-4.49	0
R^2	0.321			
Adjusted R^2	0.27			
F-statistic	4.55			0.012

*** p < 0.01, ** p < 0.05, * p < 0.1
Note: ***, **, * implies statistical significance at 1%, 5% and 10% significant levels respectively

Source: Researchers' Computation, 2025

Multiple linear regression analysis was carried out to investigate the influence of interest rate and exchange rate on GDP growth in Nigeria over a ten-year period. The model was statistically significant, F (2, 7) = 4.55, p = .012, suggesting that interest rate and exchange rate, taken together, significantly predict changes in GDP growth. This indicates that the included macroeconomic variables have a collective influence on Nigeria's economic performance during the observed period.

The coefficient of determination (R^2) was 0.321, meaning that approximately 32.1 percent of the variation in GDP growth can be explained by changes in interest rate and exchange rate. After adjusting for the number of predictors in the model, the adjusted R^2 was 0.270, implying that about 27.0 percent of the variability in GDP growth remains accounted for when controlling for model complexity. While this reflects a moderate explanatory power, it also suggests that other economic or structural factors may contribute to GDP growth beyond the variables included in this analysis.

Looking at the individual predictors, the interest rate had a positive but statistically non-significant relationship with GDP growth (β = 0.045, SE = 0.105, t = 0.43, p = .670). This result implies that a one-unit increase in the interest rate is associated with a 4.5 percent increase in GDP growth, holding other variables constant. this can be attributed to structural and institutional limitations in the economy. While classical theory (Friedman, 1968) suggests that higher interest rates can promote growth by encouraging savings and controlling inflation, and Keynesian theory (Keynes, 1936) argues that high rates may suppress investment and consumption, the Nigerian context presents a different reality. Due to financial sector inefficiencies, limited access to credit, and a dominant informal sector, interest rates may not effectively influence economic activity. Empirical studies by Acha and Acha (2011) and Ologun (2015) similarly found no significant relationship between interest rate and GDP growth in Nigeria, reinforcing the view that interest rate may have limited explanatory power in such settings.

In contrast, exchange rate exhibited a statistically significant negative effect on GDP growth (β = -0.503, SE = 0.112, t = -4.49, p < .001). This suggests that a one-unit increase in exchange rate, indicative of currency depreciation, is associated with a 50.3 percent decline in GDP growth, assuming other factors remain unchanged. This finding highlights the substantial impact of exchange rate volatility on economic growth in Nigeria. Given the country's import-dependent economy and exposure to global market shocks, fluctuations in the value of the naira may constrain investment, increase inflationary pressures, and undermine economic output. This reflects the challenges posed by exchange rate volatility in an import-dependent economy. According to the elasticity approach to exchange rate and output, currency depreciation can stimulate exports by making them cheaper and reduce imports by making them more expensive, theoretically boosting domestic production and growth (Mundell, 1963). However, in countries like Nigeria, which heavily rely on imported inputs and finished goods, depreciation often leads

to higher production costs, inflation, and uncertainty—ultimately discouraging investment and slowing growth (Aliyu, 2017).

Multicollinearity

This is a test carried out to ensure that one or more independent variable do not correlate to each other or one another in order not to break the assumption of linear dependence among the explanatory variables in multiple regression. The test is shown in table 7.

Table 7

Multicollinearity

	VIF	1/VIF
Lev	1.310	0.709
Growth	1.290	0.717
Size	1.060	0.942
Mean	1.290	

Source: Researchers' Computation, 2025

The VIF values of the variables which are all below the threshold of 10, indicates the absence of multicollinearity. Therefore, the whole variables can be used for statistical inference.

The probability value 1% suggests that there is no uneven variance present in the model. Therefore, the probabilities used to make inferences about the level of significance are reliable and valid.

Heteroskedasticity

This test was carried out to test for constant variance of assumption of ordinary least squares the test is presented in table 8

Table 8

Heteroskedasticity

Breusch-Pagan	/	Cook-Weisberg	test	for	heteroskedasticity
Ho:		Constant			variance
Variables:		fitted	values	of	ROA
chi2(1)			=		154.05
Prob>	chi2		=		0.0000

Source: Researchers' Computation, 2025

The probability value 1% suggests that there is no uneven variance present in the model..Thereforethe probabilities used to make inferences about the level of significance are reliable and valid

CONCLUSION AND RECOMMENDATIONS

This study examined the macroeconomic determinants of economic growth: role of interest rate and exchange rate. It was found that interest rate is not a significant determinant of economic growth in Nigeria. Given that interest rates are not a significant determinant of economic growth in Nigeria, it is essential that policy makers focus on factors such as improving the business environment by reducing regulatory barriers, promoting diversification in agriculture, technology, and manufacturing, and enhancing infrastructure, particularly in energy and transportation. Additionally, policies should aim to improve access to affordable credit for small and medium-sized enterprises (SMEs) and invest in human capital development to build a skilled workforce. These measures will help foster sustainable economic growth, regardless of interest rate fluctuations.

On the other hand, Exchange rate has a statistically significant effect on GDP growth in Nigeria, it is recommended that the government implement policies to stabilize the exchange rate, such as boosting foreign exchange reserves, diversifying exports, and reducing import dependency. Strengthening local industries, especially in manufacturing and agriculture, can help decrease reliance on imported goods.

Additionally, promoting foreign direct investment (FDI) and enhancing the ease of doing business will support economic resilience and mitigate the adverse effects of exchange rate volatility on GDP growth.

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