



David Ikechukwu Jeremiah
Department of Economics,
Ambrose Alli University, Ekpoma,
Edo State
jeremiahdavidikechukeu@gmail.com

Timipa Stanley Ikidi
Department of Economics
Banking and Finance,
Benson Idahosa University, Edo State.
stanleytimipai@yahoo.com

EXCHANGE RATE AND ECONOMIC GROWTH IN NIGERIA

Abstract

This study investigates the effect of exchange rate on the growth of the Nigerian economy, using a multivariate framework that controls for inflation and manufacturing value added. Exchange rate instability remains a major macroeconomic concern in Nigeria due to the country's heavy dependence on oil exports, high import reliance, and exposure to external shocks. Using annual time-series data from 2000 to 2024, the study applies a vector autoregression (VAR) model, supported by Granger causality and variance decomposition techniques, to examine how fluctuations in the exchange rate influence economic growth while accounting for additional macroeconomic conditions. The results show that exchange rate volatility significantly affects GDP in both the short run and long term. Specifically, depreciation exerts a contractionary effect initially but contributes positively to growth over time through competitiveness channels. The control variables, inflation and manufacturing value added, exhibit weak short-run effects, although manufacturing displays internal persistence consistent with structural rigidities in the Nigerian economy. Granger causality tests reveal a bidirectional causal relationship between GDP and the exchange rate, emphasizing the strong feedback between economic performance and currency stability. Variance decomposition results further show that exchange rate shocks become increasingly influential in explaining long-run fluctuations in GDP. The study concludes that effective exchange rate management, macroeconomic coordination, and structural reforms are essential for promoting stable and sustainable economic growth in Nigeria. It recommends policies aimed at improving exchange rate stability, diversifying the economy, strengthening the productive base, and reducing exposure to external shocks.

Keywords: Exchange rate, economic growth, inflation, manufacturing value added, VAR

1. Introduction

Exchange rate plays a pivotal role in shaping the economic trajectory of nations, particularly in emerging economies like Nigeria. Exchange rate is defined as the price of one country's currency expressed in terms of another and serves as a critical indicator of economic stability and competitiveness (Krugman & Obstfeld, 2018). As an oil-dependent economy, Nigeria's exchange rate is significantly influenced by fluctuations in global oil prices, which account for over 85% of its foreign exchange earnings and 70% of government revenue (CBN, 2023).

***Corresponding Author:**

David Ikechukwu Jeremiah
Department of Economics,
Ambrose Alli University, Ekpoma,
Edo State
jeremiahdavidikechukeu@gmail.com

This heavy reliance exposes the economy to external shocks, with depreciation in the naira often translating into inflationary pressures, reduced purchasing power, and heightened uncertainty in investment flows. The centrality of exchange rate as one of the major macroeconomic policies derives from the fact that for most countries, the prevailing objective of monetary policy is price stability. Consequently, volatility in the exchange rate is generally counter-productive to the goals of price stability. This explains the political sensitivity of exchange rate regimes in both developing and developed economies. There is a widespread presumption that volatility of the exchange rates of developing countries is one of the main sources of economic instability in the world. The impact of the global economy on emerging countries like Nigeria is driven significantly by swings among the currencies of the major economic powers like United State. In recent years, these swings have been enormous, volatile and frequently unrelated to underlying economic fundamentals (Adeoye & Saibu, 2014).

The swings and instability in exchange rates have prompted monetary authorities in developing countries to intervene on ad hoc and episodic basis, without any clear sense of a sustainable equilibrium. Such exchange rate stability intervention typically comes too late to prevent severe currency misalignment and volatility. These imbalances, in turn, trigger major economic distortions, protectionist trade pressures, and inevitably sharp currency reversals (Adeoye & Saibu, 2014).

The movement of the exchange rate has further reduced the ability of the Nigerian economy to achieve economic growth, in particular inclusive growth – that provides broadly shared opportunities to accumulate productive assets. Economic growth does not automatically translate into widely shared gains. Therefore, policy choices, especially appropriate exchange rate policy, matter. Despite rapid growth in the time past, abject poverty has persisted due to non- inclusiveness. Inclusiveness depends on the distribution of income and employment creation. Real exchange rate volatility has important effects on production, employment and trade. Thus, it is important to understand its impact on inclusive growth (Adeoye, 2019).

Nigeria's economic growth is intricately linked to its exchange rate dynamics. Between 2015 and 2023, the naira depreciated by over 70% in the official market, with the parallel market showing even sharper declines. This volatility has heightened the cost of importing critical goods and services, weakened local industries reliant on foreign inputs, and increased external debt servicing costs. Despite efforts by the Central Bank of Nigeria (CBN) to stabilize the naira through interventions such as forex market injections, dual exchange rate policies, and monetary tightening, the underlying structural issues remain unaddressed. These include a narrow export base, over-reliance on oil revenue, and weak foreign exchange reserves (Ezeaku et al, 2023)

The instability of Nigeria's exchange rate system poses a severe challenge to achieving sustained economic growth and development. Exchange rate volatility introduces significant risks for businesses, discouraging both domestic and foreign investment. For instance, local industries face higher production costs due to the rising price of imported raw materials, which, in turn, leads to reduced competitiveness in global markets (Obi et al, 2022). Moreover, the depreciation of the naira exacerbates inflationary pressures, eroding the purchasing power of households and widening income inequality.

Despite the CBN's interventions, the widening gap between the official and parallel exchange rates reflects deep structural inefficiencies. The multiplicity of exchange rates has created opportunities for arbitrage, fostering corruption and undermining investor confidence in the economy. Furthermore, the dependence on oil exports exposes the exchange rate to significant volatility, as evidenced during the 2020 global oil price crash, which saw Nigeria's GDP contract by 1.92% (World Bank, 2023). This situation highlights the need for a robust and diversified export base to mitigate the adverse

effects of exchange rate fluctuations on economic growth.

Another critical concern is the rising burden of external debt servicing. With over 60% of Nigeria's external debt denominated in foreign currencies, the depreciation of the naira has significantly increased the cost of debt repayment, diverting resources from essential developmental projects such as infrastructure, healthcare, and education (IMF, 2023). This challenge is compounded by declining foreign reserves, which have constrained the government's ability to stabilize the currency effectively.

Previous studies on the relationship between exchange rates and economic growth in Nigeria have yielded mixed results, with some identifying a positive relationship while others suggest negative impacts depending on the prevailing macroeconomic conditions (Afolabi et al, 2022). These inconsistencies underscore the need for a comprehensive understanding of the mechanisms through which exchange rate movements affect economic performance in Nigeria.

Statement of the Problem

Exchange rate stability is widely recognized as a critical factor in fostering sustainable economic growth, especially in developing economies like Nigeria. However, Nigeria has experienced persistent fluctuations in its exchange rates over the past decades, driven by factors such as global oil price shocks, fluctuations in foreign reserves, inflationary pressures, political instability, and inconsistent monetary and fiscal policies. These volatile movements in the naira's value have created uncertainty for investors, distorted trade flows, and affected macroeconomic planning (Ozigbo et al, 2025).

In theory, exchange rate depreciation can stimulate exports and improve trade balances, while appreciation can enhance purchasing power for imports. In practice, however, the Nigerian economy largely dependent on oil exports and heavily reliant on imports for industrial and consumer goods has often experienced the negative side of exchange rate instability. Persistent volatility has led to higher import costs, inflationary pressures, increased production costs for local industries, and reduced competitiveness of non-oil sectors (Bello & Sanusi, 2019).

Furthermore, Ben-Obi, Olaniyi et al (2025) noted that businesses and investors face significant challenges in long-term planning due to uncertainty in foreign exchange markets, discouraging foreign direct investment and undermining economic diversification efforts. Despite various policy interventions, including managed floats, currency devaluations, and foreign exchange restrictions, the volatility remains a major obstacle to achieving steady economic growth.

While numerous studies such as Adeniyi and Olanikanmi (2019), Onabote et al (2022) and Najeem (2024) have examined the relationship between exchange rate dynamics and economic performance, there is still a lack of consensus on the exact nature, magnitude, and direction of this relationship in the Nigerian context. This gap in empirical evidence hampers policymakers' ability to design effective exchange rate and macroeconomic stabilization policies. It is therefore imperative to investigate the impact of exchange rate on Nigeria's economic growth, considering both the short- and long-term implications, in order to provide evidence-based recommendations for achieving macroeconomic stability and sustainable growth.

Objectives of the Study

The main objective of the study is to examine the effect of exchange rate on the growth of the Nigerian economy. The specific objectives are:

- i. Investigate the impact of exchange rate on economic growth in Nigeria in both the short run and long run.
- ii. Examine the extent to which manufacturing value added contributes to explaining exchange rate–growth dynamics in Nigeria.
- iii. Analyze the causal relationship between inflation, exchange rate, and economic growth in Nigeria.

Research Questions

- i. How does exchange rate influence economic growth in Nigeria in the short and long run?
- ii. Does manufacturing value added contribute significantly to explaining exchange rate and growth dynamics in Nigeria?
- iii. What is the causal relationship between inflation, exchange rate, and economic growth in Nigeria?

2. LITERATURE REVIEW

This section discussed the conceptual clarification, theoretical frameworks and empirical literature.

2.1 Conceptual Literature

2.1.1 Exchange Rate

The exchange rate refers to the price of one country's currency expressed in terms of another currency. It serves as a critical indicator of the relative economic performance of nations and plays a pivotal role in international trade and financial markets. Exchange rates can be classified into fixed, floating, and pegged systems, depending on how governments and central banks manage them. A fixed exchange rate is tied to another currency, such as the US dollar, while a floating exchange rate is determined by market forces of demand and supply. Pegged exchange rates are hybrid systems where the currency fluctuates within a controlled band.

The exchange rate affects various aspects of an economy, including trade balances, inflation, and foreign investment. For instance, currency depreciation can make exports more competitive but may also increase the cost of imports, leading to inflationary pressures. Conversely, currency appreciation can reduce export competitiveness but lower import prices, benefiting consumers. In emerging economies like Nigeria, exchange rate volatility significantly impacts economic stability, influencing inflation and foreign direct investment (FDI) inflows. Studies reveal that the interplay of macroeconomic factors such as interest rates, trade balances, and political stability largely determines exchange rate movements (Ezeaku et al., 2022). Additionally, global factors like oil prices and geopolitical tensions can exacerbate exchange rate fluctuations.

Recent research emphasizes the importance of sound exchange rate policies to foster economic growth and stability. For example, Olaniyi and Ogundipe (2023) argue that Nigeria's oil-dependent economy needs diversification to mitigate exchange rate volatility stemming from oil price shocks. Furthermore, adopting a flexible exchange rate regime can provide economies with the resilience needed to absorb external shocks.

The evolution of exchange of the exchange rate in Nigeria up to its present state was influence by a number of factors such as interstate, market expectation and purchasing power parity. Before the establishment of the central bank of Nigeria (CBN) IN 1958 and the enactment of the exchange control act of 1962, exchange rate was earned by the private sector and held in balance abroad by commercial bank which acted as agent for local exporters. During this period, agriculture export

contributed the bulk of exchange. The fact that the Nigeria pound was tied to the British pound sterling at par, with easy convertibility, delayed the development of an active exchange market. However, with the establishment of the CBN and the subsequent centralization of exchange rate authority in the, the need to develop or build exchange market became paramount.

2.1.2 Economic Growth

Economic growth refers to the sustained increase in the production of goods and services in an economy over a specific period, typically measured by the growth rate of Gross Domestic Product (GDP). It is a key indicator of an economy's health and is influenced by factors such as capital accumulation, labour force expansion, technological innovation, and institutional frameworks. Economic growth is often categorized into extensive growth, which stems from increased inputs, and intensive growth, driven by improved productivity and efficiency.

Furthermore, economic growth is defined as the increasing capacity of the economy to satisfy the wants of goods and service of the members of the society. Economic growth is enabled by increase in productivity, which lowers the inputs (labour, capital, material energy etc.) for a given amount of output. Low-cost increase demand for goods and services. In other words, economic growth can also be referred to as the result of population growth and of the introduction of new product and services.

Theoretical frameworks such as the Solow-Swan Growth Model and Endogenous Growth Theory highlight the significance of savings, investments, and technological progress in fostering growth. In developing economies, including Nigeria, growth is often influenced by the effective utilization of natural resources, investment in human capital, and policy interventions aimed at enhancing industrial and agricultural outputs. For example, investment in education and infrastructure has been shown to stimulate economic growth by boosting labor productivity and facilitating trade (Adebayo et al, 2023).

Globalization has played a dual role in economic growth. While it has enabled access to international markets and technology, it has also exposed economies to external shocks, such as financial crises and trade imbalances. Recent studies, like that by Oluwagbade and Ibidapo (2024), underscore the importance of economic diversification in ensuring sustainable growth in resource-dependent economies like Nigeria. Policies targeting fiscal discipline, technological adoption, and private sector empowerment are essential in driving long-term growth.

2.2 Relationship between Exchange Rate and Economic Growth in Nigeria

Exchange rate fluctuations play a significant role in influencing the economic growth of Nigeria, a country heavily reliant on international trade and foreign exchange earnings from crude oil. The relationship between exchange rate dynamics and economic growth in Nigeria is multifaceted, shaped by external shocks, domestic monetary policies, and the structure of the economy. This discussion examines the theoretical and empirical link between exchange rates and economic growth in Nigeria, with recent studies providing context and evidence.

Exchange rates affect economic growth through trade, investment, and inflation channels. Depreciation in the exchange rate can make exports cheaper and imports more expensive, potentially boosting domestic production and growth (Obstfeld & Rogoff, 1996). However, this mechanism assumes that the economy has a diverse production base, which Nigeria lacks due to its dependence on crude oil exports. Conversely, exchange rate volatility can deter foreign investment by increasing uncertainty and reducing the predictability of returns (Ghosh et al, 2016).

Recent reforms in Nigeria's foreign exchange market aim to address these challenges. In June 2023, the CBN introduced a unified exchange rate system to eliminate distortions caused by multiple

exchange rates. Early indications suggest improved transparency and investor confidence, but the long-term impact on growth remains uncertain (International Monetary Fund, 2024).

Moreover, the government's diversification agenda emphasizes reducing reliance on oil exports and increasing investments in non-oil sectors. Effective exchange rate policies are crucial to achieving these goals, as a stable and competitive exchange rate can enhance export competitiveness and attract foreign direct investment (FDI).

The relationship between exchange rate dynamics and economic growth in Nigeria is complex, shaped by structural and policy factors. While exchange rate depreciation can enhance export competitiveness, excessive volatility undermines investment and growth. Empirical studies emphasize the need for a balanced approach to exchange rate management, combining stability with flexibility. Recent reforms, such as the unified exchange rate system, are promising but require complementary measures to address structural weaknesses and enhance economic diversification. With sound policies and effective implementation, exchange rate management can play a pivotal role in fostering sustainable economic growth in Nigeria.

2.3 Theoretical Literature

There are several theories of the determinants of exchange rate and economic growth. Some of these theories are: the purchasing power parity (PPP) theory, the balance of payment theory, factor endowment theory, Harrod-Domar model of growth, neoclassical theory of growth, and two-gap model theory. But in this study the purchasing power parity (PPP) theory and the balance of payment theory are discussed.

2.3.1 The Purchasing Power Parity (PPP) Theory

The Purchasing Power Parity (PPP) theory was initially introduced by Swedish economist Gustav Cassel in 1918. The theory builds on the concept of the "law of one price," which asserts that in the absence of trade barriers and transaction costs, identical goods should sell for the same price across different countries when expressed in a common currency.

The PPP theory posits that exchange rates between two countries are determined by the relative prices of a basket of goods and services in each country. Essentially, the exchange rate should adjust to equalize the purchasing power of different currencies. For instance, if inflation in Nigeria rises faster than in the United States, the naira should depreciate relative to the dollar to maintain parity. PPP is classified into two forms: absolute PPP, which directly compares price levels across countries, and relative PPP, which considers changes in inflation rates as a determinant of exchange rate movements. PPP links exchange rates to inflation and competitiveness. When the naira depreciates due to inflationary pressures, Nigerian goods become cheaper on the international market, potentially boosting exports. However, in a country like Nigeria, where imports dominate key sectors, depreciation also raises import costs, leading to inflation and reduced purchasing power, which can stifle economic growth.

Empirical studies highlight the limitations of PPP in Nigeria due to structural and institutional factors. For instance, Ogoto (2025) found that the naira's exchange rate does not always adjust to reflect inflation differentials due to speculative activities and government interventions in the forex market. This disconnect limits the effectiveness of PPP in predicting Nigeria's exchange rate movements and their implications for growth. Moreover, Nigeria's dependency on oil exports introduces volatility, as exchange rate movements are often driven more by oil price fluctuations than by inflation differentials. This dynamic undermines the stable relationship between exchange rates and purchasing power predicted by the PPP theory.

2.3.2 The Balance of Payment Theory

The BOP theory posits that a country's exchange rate is determined by the supply and demand for foreign exchange arising from its international transactions. A country with a trade surplus will experience an appreciation of its currency due to increased demand for its goods and, consequently, its currency. Conversely, a trade deficit leads to currency depreciation. The theory highlights the role of foreign trade and capital flows in influencing exchange rates. In an open economy, capital inflows, exports, and remittances strengthen the domestic currency, while excessive imports and external debt repayment weaken it.

The BOP theory directly ties exchange rates to trade balance and economic growth. Currency depreciation can stimulate growth by making exports cheaper and imports more expensive, thereby improving the trade balance. However, prolonged deficits and currency depreciation can lead to inflation and reduced investor confidence, undermining growth prospects. Nigeria's case presents a unique challenge to the BOP theory due to its dependence on oil exports, which account for over 90% of foreign exchange earnings. During periods of high oil prices, Nigeria experiences a trade surplus, leading to currency stability or appreciation. However, when oil prices fall, the country faces trade deficits, currency depreciation, and economic contraction.

For example, the oil price slump of 2015–2016 caused a significant depreciation of the naira, triggering inflation and a recession (CBN, 2016). Empirical evidence, such as the study by Okosu (2022), demonstrates that exchange rate volatility resulting from external shocks to the BOP has a profound impact on Nigeria's economic growth. The study emphasized the need for diversification to reduce reliance on oil exports and stabilize the BOP. The BOP theory remains relevant for understanding Nigeria's exchange rate dynamics. However, the country's heavy reliance on oil exports and vulnerability to external shocks necessitate structural reforms to diversify the economy and enhance the role of non-oil sectors in foreign exchange earnings.

2.4 Empirical Literature

In the empirical literature, studies have been searchlight on the link between exchange rate and the economic growth. Some of the empirical studies will be highlighted in this research work.

Onwuliri et al (2024) investigated the relationship between foreign exchange exposure and economic growth in Nigeria using annual official exchange rate and GDP data covering 2019 to 2023. Their findings revealed a statistically significant relationship between exchange rate exposure and growth, suggesting that fluctuations in the naira directly influence macroeconomic stability. The study recommended the adoption of hedging instruments such as currency forwards, futures, options and cross currency swaps to mitigate currency exposure and enhance growth outcomes.

Najeem (2024) examined the impact of exchange rate fluctuations on Nigeria's economic growth using both quantitative data sourced from CBN, NBS, IMF and World Bank between 1960 and 2022, and qualitative evidence from scholarly literature. Employing the Multivariate Adaptive Regression Spline (MARS) technique, the study revealed that exchange rate fluctuation is the most dominant factor influencing GDP when compared with inflation, interest rate, imports and exports. The study recommended policy reforms geared toward stabilizing the currency to limit volatility spillovers on output.

Paul and Sylvester (2022) assessed the influence of exchange rate volatility on Nigeria's growth using annual data spanning 1983 to 2020. Using the Exponential GARCH model to generate volatility and Ordinary Least Squares for estimation, the results showed heightened exchange rate volatility particularly after 2000, with deep fluctuations between 2016 and 2019. However, exchange rate, interest rate and inflation were all statistically insignificant in explaining GDP. Paul and Sylvester (2022) therefore argued that volatility alone may not sufficiently promote growth

unless supported by efficient macroeconomic policies.

Onabote et al (2022) investigated the relationship among exchange rate, foreign direct investment and GDP in Nigeria from 1981 to 2018 using the Autoregressive Distributed Lag approach. Their results confirmed a long run cointegration among the variables, with foreign direct investment exerting a positive and significant impact on economic growth. The speed of adjustment was strong, showing how quickly the economy responds to disequilibrium. They recommended policies that improve business environment, attract FDI and stabilize the exchange rate.

Abdu et al (2021) examined the effect of exchange rate movements on Nigeria's economic growth from 1986 to 2019 using secondary data from the CBN Statistical Bulletin and estimated with OLS. The findings showed that exchange rate has a significant positive effect on GDP, while inflation and interest rate negatively affect growth. This suggests that currency stability may stimulate production and investment, whereas high lending rates and inflation could dampen growth.

Godwin and Sergius (2021) studied the effect of exchange rate on GDP, GNP and unemployment in Nigeria using annual data for 2009 to 2018. The results indicated that exchange rate significantly impacts GDP and GNP, but has no significant effect on unemployment. The implication is that exchange rate policy influences national income and output more quickly than labour market conditions. Godwin and Sergius (2021) recommended policies aimed at maintaining exchange rate stability as a tool for welfare improvement.

Adeniyi and Olasunkanmi (2019) evaluated the effect of exchange rate volatility on growth in Nigeria using ARDL and the Error Correction Model. The results indicated that export significantly improves GDP while import was insignificant. Exchange rate volatility, although positively related to growth, remained insignificant in both short and long run. This implies that volatility alone may not necessarily hinder growth if supported by strong export performance and conducive macroeconomic policies.

Mahonnye and Tenda (2019) examined the effect of real exchange rate fluctuations on output and inflation in Zimbabwe using Johansen cointegration and Vector Error Correction Model for the period 1990 to 2006. Their findings showed that real exchange rate variations significantly affect output and inflation in both short and long run, confirming exchange rate as a key macroeconomic driver in developing economies.

3.0 Methodology

This study is anchored on the theoretical link between exchange rate dynamics and economic growth, drawing particularly from the Balance of Payments Constrained Growth Model (Thirlwall, 1979) and extensions of the Endogenous Growth Theory. Thirlwall's framework emphasizes that long-term growth in developing economies is constrained by balance of payments conditions, where exchange rate movements influence external competitiveness, trade flows, and ultimately, output growth. In this regard, persistent exchange rate volatility may undermine growth by creating uncertainty for exporters, discouraging investment, and increasing the cost of imported inputs (Edwards, 1989). Exchange rate volatility, on the other hand, can distort resource allocation, discourage long-term investment, and weaken the manufacturing base of economies like Nigeria that are import-dependent. Within this framework, the exchange rate is not a neutral variable but a central driver of growth dynamics. Against this theoretical backdrop, the study employs a Vector Autoregressive (VAR) modeling framework to empirically examine the dynamic interactions among exchange rate, inflation, manufacturing value added, and economic growth in Nigeria. The VAR approach is particularly suitable for this analysis because it treats all variables as endogenous,

allowing the detection of feedback relationships and the tracing of dynamic responses to shocks (Sims, 1980).

The study utilizes annual secondary time-series data covering the period 2000–2024, sourced from the World Bank’s World Development Indicators (WDI).

3.1 Model Specification

The general form of a VAR(p) model is given as:

$$Y_t = \alpha + \sum_{i=1}^p \beta_i Y_{t-i} + E_t \quad (3.1)$$

Where:

Y_t is a vector of endogenous variables,

α is a vector of intercepts,

β_i are coefficient matrices for lagged terms,

E_t is a vector of white noise error terms.

For this study, the vector of variables includes:

$$Y_t = [LGDP_t, LEXR_t, LINF_t, LMVA_t] \quad (3.2)$$

$LGDP_t$ = Log of Gross Domestic Product (current US\$)

$LEXR_t$ = Log of Official Exchange Rate (LCU per US\$, period average)

$LINF_t$ = Log of Inflation, consumer prices (annual %)

$LMVA_t$ = Log of Manufacturing Value Added (% of GDP)

3.2 Estimation Procedure

The analysis begins with descriptive statistics to examine the basic behavior, trends, and irregularities in the data, providing a foundation for understanding variable relationships before formal testing. Stationarity is then assessed using the Augmented Dickey Fuller and Phillips Perron tests to determine the order of integration and avoid spurious regression. Optimal lag length is selected through information criteria such as AIC, SC, and HQ to ensure the model adequately captures data dynamics without overfitting. With these preliminaries established, a Vector Autoregressive (VAR) model is estimated to analyze the dynamic interdependencies among endogenous variables. Impulse response functions and variance decomposition are subsequently used to trace the impact of shocks and quantify each variable’s forecast error variance contribution. To ensure statistical validity, diagnostic tests including the LM test for autocorrelation, White test for heteroskedasticity, and Jarque Bera test for normality are conducted, consistent with Brooks (2014). Finally, the stability of the VAR is verified by examining the inverse roots of the characteristic polynomial, where all roots must lie within the unit circle to guarantee stable and meaningful system dynamics as emphasized by Lütkepohl (2005).

Table 3.1 Variable Description

Variable	Measurement	Proxy/Indicator	Source
LGDP	Economic growth	GDP (current US\$)	World Bank, WDI (2023)
LEXR	Exchange rate	Official exchange rate (LCU per US\$, period average)	World Bank, WDI (2023)
LINF	Inflation	Inflation, consumer prices (annual %)	World Bank, WDI (2023)
LMVA	Industrial performance	Manufacturing, value added (% of GDP)	World Bank, WDI (2023)

Source: Author’s Compilation

3.3 Justification for Methodology

The choice of the VAR framework is justified by both the theoretical and empirical context of the study. Unlike single-equation models, the VAR treats all variables as endogenous, making it suitable for analyzing macroeconomic linkages where causal relationships are not strictly predetermined (Sims, 1980). Furthermore, since the variables are integrated of order one but not cointegrated, a Vector Error Correction Model (VECM) would not be appropriate. The unrestricted VAR thus provides a flexible and robust tool for capturing short-run dynamics while preserving the time series properties of the data (Gujarati & Porter, 2009; Lütkepohl, 2005).

4.0 RESULTS AND DISCUSSION

This section presents the empirical results and interpretation of the relationship between exchange rate dynamics and economic growth in Nigeria within the vector autoregressive (VAR) framework.

4.1 Descriptive Statistics

Table 4.1 Descriptive Statistic Output

	GDP	EXR	INF	MVA
Mean	3.29E+11	268.0462	13.93160	10.54777
Median	3.67E+11	157.3120	12.87660	9.648950
Maximum	5.74E+11	1478.970	33.24210	15.36380
Minimum	6.92E+10	101.6970	5.388010	6.552820
Std. Dev.	1.53E+11	284.2844	5.938609	2.568688
Skewness	-0.385691	3.329694	1.436884	0.335637
Kurtosis	1.885313	14.46391	5.774965	1.854415
Jarque-Bera	1.914121	183.0925	16.62394	1.836432
Probability	0.384020	0.000000	0.000246	0.399231
Sum	8.22E+12	6701.156	348.2899	263.6942
Sum Sq. Dev.	5.65E+23	1939623.	846.4100	158.3558
Observations	25	25	25	25

Source: Author's computation (2025).

The descriptive statistics of the key variables, Gross Domestic Product (GDP), exchange rate (EXR), inflation (INF), and manufacturing value added (MVA) are summarized in Table 4.1. GDP recorded an average of $\text{₦}3.29 \times 10^{11}$, with a minimum of $\text{₦}6.92 \times 10^{10}$ and a maximum of $\text{₦}5.74 \times 10^{11}$. This shows that output grew substantially during the study period, though the large standard deviation of $\text{₦}1.53 \times 10^{11}$ suggests considerable fluctuations. The distribution of GDP is slightly left-tailed, as reflected in the negative skewness (-0.39), while the kurtosis value (1.89) indicates a platykurtic distribution. The Jarque-Bera probability (0.384) shows that GDP is approximately normally distributed. For the exchange rate, the mean stood at 268.05 , with values ranging between 101.70 and 1478.97 , pointing to the sharp depreciation of the naira over time. Its very high standard deviation (284.28) further underlines the high level of volatility. The strongly positive skewness (3.33) and extreme kurtosis (14.46) show that the distribution is heavily right-tailed and characterized by outliers, while the Jarque-Bera test ($p < 0.01$) rejects normality.

Inflation averaged 13.93 percent, with values ranging between 5.39 percent and 33.24 percent. The standard deviation of 5.94 indicates moderate variation around the mean. The positive skewness (1.44) and high kurtosis (5.77) suggest the presence of upward spikes in inflation. The Jarque-Bera test statistics of ($p < 0.05$) rejects normality, confirming that inflation has not been evenly distributed over the years. Manufacturing value added (MVA) averaged 10.55 percent, with a minimum of 6.55

percent and a maximum of 15.36 percent. Compared with GDP and the exchange rate, MVA shows relatively lower volatility, as reflected in its standard deviation of 2.57. Its skewness (0.34) is only slightly positive, while kurtosis (1.85) suggests a platykurtic distribution. Importantly, the Jarque-Bera probability (0.399) indicates that MVA is normally distributed.

4.2 Correlation Matrix

Table 4.2 Correlation Matrix

Variables	(1)	(2)	(3)	(4)
LGDP	1.000			
LEXR	0.361	1.000		
LINF	-0.101	0.660	1.000	
LMVA	-0.391	0.444	0.440	1.000

Source: Author's computation (2025).

Building on the descriptive analysis, the correlation matrix in Table 4.2 provides further insight into the relationships among GDP, exchange rate (EXR), inflation (INF), and manufacturing value added (MVA). The results indicate that while some variables are moderately correlated, none of the coefficients exceeds the conventional threshold of 0.8, which is typically considered a red flag for severe multicollinearity. In practical terms, this means that although GDP shares moderate associations with EXR, INF, and MVA as would be expected in an economy where exchange rate shocks, inflationary trends, and industrial performance are closely tied to output growth, the correlations remain within acceptable bounds. Similarly, the interrelationships among EXR, INF, and MVA, though present, are not excessively high. This finding is important for the subsequent econometric estimations, as it implies that the explanatory variables can be included in the same regression framework without the concern of distorted coefficient estimates or inflated standard errors.

4.3 Unit Root Test

To ensure the reliability of the time series analysis, the study first examined the stationarity properties of the data. Table 4.3 reports the results of both the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. The evidence shows that all the variables, namely the log of GDP (LGDP), the log of exchange rate (LEXR), the log of inflation (LINF), and the log of manufacturing value added (LMVA), exhibit unit roots at their levels, indicating that they are non-stationary in their raw form. However, after first differencing, each of the series became stationary, which implies that they are integrated of order one, 1(1).

Table 4.3 Unit Root Test

Variables	ADF T-Bar	PP	Remarks
LGDP	-5.9960 (0.0000) ***	-6.0060 (0.0000) ***	I (1)
LEXR	-7.0920 (0.0000) ***	-7.0156 (0.0000) ***	I (1)
LINF	-5.8767 (0.0001) ***	-6.7054 (0.0000) ***	I (1)
LMVA	-3.4897 (0.0179) **	-4.2380 (0.0145) **	I (1)

Source: Author's computation (2025). **Note*****, **, *denotes 1%, 5% and 10% level of significant while the P-value is enclosed by the parenthesis

4.4 Lag Criteria Selection

Table 4.4 presents the outcome of the lag length selection exercise based on several criteria, namely the Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Criterion (SC), and Hannan-Quinn Criterion (HQ). The evidence indicates that most of the criteria, especially the FPE, AIC, and HQ, point to lag 2 as the most suitable lag length. In contrast, the SC criterion suggests a shorter lag of 1. Given that the majority of the criteria favor lag 2 and in order to balance model efficiency with the need to retain sufficient information, this study adopts lag 2 as the optimal specification. This choice ensures that the VAR model captures the dynamic interactions among the variables more effectively, while avoiding the risks of underfitting or excessive parameterization.

Table 4.4 Lag Criteria Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-26.23400	NA	0.000163	2.629043	2.826520	2.678708
1	89.80062	181.6194*	2.79e-08	-6.069619	-5.082233*	-5.821295
2	109.1350	23.53746	2.43e-08*	-6.359562*	-4.582267	-5.912578*

Source: Author's computation (2025).

4.5 Vector Autoregression

Table 4.5 presents the results of the vector autoregression (VAR) estimates, where GDP (LGDP), exchange rate (LEXR), inflation (LINP), and manufacturing value added (LMVA) are treated as endogenous variables. For the GDP equation, the first lag of GDP has a negative but statistically insignificant coefficient (-1.5249 ; $t = -1.45$). By contrast, the second lag is positive and statistically significant (2.1904 ; $t = 2.12$). This suggests that a 1% increase in GDP two periods earlier leads to about a 2.19% increase in current GDP, highlighting the persistence of growth momentum in Nigeria. Exchange rate dynamics also play a critical role. The first lag of LEXR has a negative and significant effect on GDP (-3.3636 ; $t = -2.50$), implying that a 1% depreciation of the naira reduces GDP by approximately 3.36% in the short run. However, the second lag of LEXR reverses this effect, with a positive and significant coefficient (3.2778 ; $t = 2.54$), which indicates that although depreciation initially dampens output, it stimulates growth in the medium run, likely through improved competitiveness.

For the exchange rate equation, LEXR is strongly influenced by its own past values. The first lag is positive and significant (3.5630 ; $t = 2.78$), meaning that a 1% increase in the exchange rate in the previous period raises the current exchange rate by about 3.56%. The second lag, however, is negative and significant (-2.5632 ; $t = -2.08$), suggesting partial correction or mean reversion in exchange rate movements. GDP also feeds back into exchange rate dynamics, as the first lag of GDP has a positive but insignificant effect (1.7985 ; $t = 1.80$), while the second lag is negative and insignificant (-1.5530 ; $t = -1.58$). In the inflation equation, the coefficients of both lagged inflation terms are statistically insignificant, and inflation also shows weak predictive power in the other equations. This indicates that inflationary shocks do not exert strong short-run influences on GDP, exchange rate, or manufacturing activity within this VAR framework, which may reflect weak monetary policy transmission mechanisms in Nigeria.

The manufacturing value added (MVA) equation shows stronger persistence. The first lag of LMVA is positive and statistically significant (0.6812 ; $t = 2.65$), suggesting that a 1% increase in manufacturing output in the previous period leads to a 0.68% increase in current MVA. This highlights inertia in industrial activity. However, the lags of MVA are largely insignificant in explaining GDP, exchange rate, or inflation, underscoring the limited spillover effects of the manufacturing sector on the broader Nigerian economy.

The constant terms provide further insights. For example, the constant in the GDP equation is positive and significant (9.7090; $t = 2.45$), implying the presence of an underlying baseline growth trend even after accounting for lagged dynamics. Finally, the goodness-of-fit statistics confirm the robustness of the model. The R-squared values are particularly strong for GDP (0.95), exchange rate (0.97), and MVA (0.92), indicating that the VAR explains most of the variation in these variables. Inflation, however, records a weaker explanatory power (0.71), which aligns with its generally insignificant coefficients across the system.

Table 4.5 VAR Output

	LGDP	LEXR	LINF	LMVA
LGDP(-1)	-1.524913 (1.04971) [-1.45270]	1.798470 (1.00018) [1.79815]	0.115957 (1.91418) [0.06058]	-0.383911 (0.60045) [-0.63938]
LGDP(-2)	2.190386 (1.03176) [2.12295]	-1.553000 (0.98308) [-1.57972]	-0.286131 (1.88146) [-0.15208]	0.324348 (0.59018) [0.54957]
LEXR(-1)	-3.363566 (1.34586) [-2.49919]	3.562978 (1.28236) [2.77845]	1.708628 (2.45422) [0.69620]	-0.783375 (0.76985) [-1.01756]
LEXR(-2)	3.277806 (1.29176) [2.53748]	-2.563190 (1.23081) [-2.08252]	-1.123433 (2.35556) [-0.47693]	1.021977 (0.73890) [1.38310]
LINF(-1)	0.049995 (0.14818) [0.33740]	0.059849 (0.14119) [0.42390]	0.070177 (0.27021) [0.25972]	-0.024661 (0.08476) [-0.29095]
LINF(-2)	0.342222 (0.18047) [1.89623]	-0.247961 (0.17196) [-1.44197]	-0.383402 (0.32910) [-1.16499]	0.056400 (0.10323) [0.54633]
LMVA(-1)	-0.393013 (0.44863) [-0.87604]	0.381072 (0.42746) [0.89148]	-0.368832 (0.81809) [-0.45085]	0.681173 (0.25662) [2.65439]
LMVA(-2)	-0.010410 (0.47797) [-0.02178]	0.057450 (0.45542) [0.12615]	0.637893 (0.87160) [0.73187]	0.035153 (0.27341) [0.12857]
C	9.709003 (3.95602) [2.45424]	-7.238999 (3.76937) [-1.92048]	4.029078 (7.21394) [0.55851]	0.997208 (2.26290) [0.44068]
R-squared	0.949919	0.970588	0.705663	0.920789
Adj. R-squared	0.921302	0.953782	0.537471	0.875526

Source: Author's computation (2025).

4.6 Stability Test of the VAR Model

An important step in validating the reliability of the VAR estimates is to examine the stability of the system. Stability ensures that the model is not explosive and that shocks to the variables will eventually dissipate over time. Figure 4.2, which plots the inverse roots of the AR characteristic polynomial, confirms this condition. All the roots lie well within the unit circle, with none located on or outside the boundary. This outcome implies that the estimated VAR model is dynamically stable. In practical terms, it means that disturbances to LGDP, exchange rate, inflation, or manufacturing value added gradually die out rather than amplifying uncontrollably. As a result, the VAR model is

suitable for forecasting purposes and provides a consistent basis for the interpretation of impulse response and variance decomposition results.

Inverse Roots of AR Characteristic Polynomial

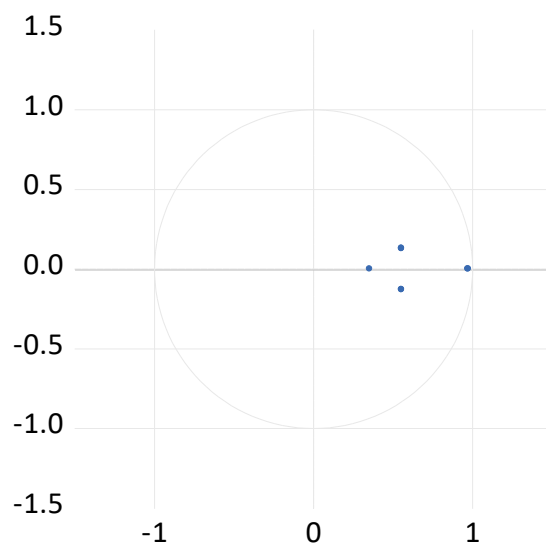


Figure 4.2 Inverse Roots of AR Characteristic Polynomial

4.7 VAR Granger Causality

The results of the Granger causality and block exogeneity Wald tests, reported in Table 4.6, provide useful insights into the dynamic interactions among GDP, exchange rate, inflation, and manufacturing value added in Nigeria. The evidence indicates that GDP Granger-causes the exchange rate at the 5% significance level ($p = 0.0400$), suggesting that past movements in output significantly help to predict currency fluctuations. Conversely, the exchange rate also Granger-causes GDP at the 10% level ($p = 0.0797$). Taken together, these results establish a bidirectional causality between GDP and the exchange rate, underscoring the strong feedback relationship between growth performance and exchange rate stability. This finding reflects the structural nature of Nigeria's economy, where growth outcomes are sensitive to exchange rate movements, while currency stability itself is shaped by the performance of the broader economy.

Another notable result is that manufacturing value added (LMVA) Granger-causes the exchange rate at the 10% level ($p = 0.0523$). This indicates that fluctuations in the industrial sector, although relatively modest in size, have measurable effects on exchange rate behavior. However, the absence of causality running from GDP to LMVA or from LMVA to GDP points to a weak direct linkage between industrial output and overall growth in the short run. This reinforces the perception that Nigeria's manufacturing sector remains insufficiently integrated into the wider growth process.

Inflation (LINF), in contrast, does not Granger-cause any of the variables, nor is it significantly influenced by GDP, exchange rate, or manufacturing activity. This suggests that inflationary pressures in Nigeria behave largely as an exogenous force within the VAR system, with limited short-run causal influence on other key macroeconomic indicators. The implication is that price dynamics are driven more by structural and external factors than by direct feedback from growth, exchange rate, or industrial activity.

Table 4.6 VAR Granger Causality/Block Exogeneity Wald Tests

	Chi-sq	df	Prob.
LGDP – LEXR	6.438798	2	0.0400 **
LGDP – LINF	3.614188	2	0.1641
LGDP – LMVA	2.139501	2	0.3431
LEXR – LGDP	5.057843	2	0.0797 *
LEXR – LINF	2.728461	2	0.2556
LEXR – LMVA	2.650456	2	0.2657
LINF – LGDP	0.395647	2	0.8205
LINF – LEXR	1.948246	2	0.3775
LINF – LMVA	0.579996	2	0.7483
LMVA – LGDP	0.725488	2	0.6958
LMVA – LEXR	5.902532	2	0.0523 *
LMVA – LINF	0.491901	2	0.7820

Source: Author's computation (2025).

4.8 Variance Decomposition

The variance decomposition analysis provides deeper insights into the dynamic sources of fluctuations in LGDP, LEXR, LINF, and LMVA across different horizons. Period 1 reflects the short run, period 5 the medium run, and period 10 the long run as indicated in Table 4.7.

For LGDP, own shocks dominate in the short run, accounting for most of the variations. By the medium term (period 5), the contribution of LGDP's own shocks declines slightly as LEXR and LMVA begin to exert stronger influence. In the long run (period 10), LGDP remains largely self-explanatory but with increasing contributions from LMVA (above 20 percent) and LEXR (around 14 percent), while LINF continues to play a negligible role. This suggests that output growth in Nigeria is initially self-driven, but over time, exchange rate dynamics and industrial activity become important drivers of performance. For LEXR, own shocks are the main source of variation in the short run. However, over the medium and long term, LGDP shocks emerge as a significant determinant of exchange rate movements, highlighting the strong feedback between economic growth and currency stability. LMVA shocks also contribute modestly in the long run, while LINF remains largely irrelevant. This indicates that exchange rate movements are path-dependent in the short run but increasingly influenced by broader macroeconomic fundamentals over time.

In the case of LINF, the decomposition shows that its forecast error variance is overwhelmingly explained by its own shocks across all horizons. The contributions of LGDP, LEXR, and LMVA remain very small, whether in the short, medium, or long run. This underscores that inflationary pressures in Nigeria are largely exogenous within this VAR framework and not strongly linked to growth, currency movements, or industrial performance. However, LMVA own shocks dominate in the short run. However, as the horizon lengthens, LGDP and LEXR shocks jointly account for a growing share of the variation. By the long run, the performance of the manufacturing sector becomes increasingly dependent on the wider economy and exchange rate conditions. LINF again contributes minimally, underscoring its weak direct influence on industrial activity.

Table 4.7 Variance Decomposition

Variance Decomposition of LGDP:					
Period	S.E.	LGDP	LEXR	LINF	LMVA
1	0.145060	100.0000	0.000000	0.000000	0.000000
5	0.434392	77.76253	8.483621	0.120306	13.63355
10	0.634067	77.19273	10.73718	0.227684	11.84241
Variance Decomposition of LEXR:					
Period	S.E.	LGDP	LEXR	LINF	LMVA
1	0.138215	93.89507	6.104931	0.000000	0.000000
5	0.477486	76.18745	9.939966	0.930875	12.94170

10	0.769545	76.43006	7.983344	1.404587	14.18201
Variance Decomposition of LINF:					
Period	S.E.	LGDP	LEXR	LINF	LMVA
1	0.264521	7.356207	3.326049	89.31774	0.000000
5	0.503032	51.80515	10.50805	26.52954	11.15726
10	0.725782	65.50042	13.01423	13.10057	8.384788
Variance Decomposition of LMVA:					
Period	S.E.	MVAP	LNTR	GEE	LLFPR
1	0.082976	0.532617	36.89621	1.280158	61.29101
5	0.188105	49.32950	30.98989	0.336058	19.34455
10	0.386119	63.98079	14.23313	0.783218	21.00286

Source: Author's computation (2025).

4.9 Diagnostic Tests of the VAR Model

To validate the robustness of the estimated VAR model, a series of post-estimation diagnostic checks were carried out. The serial correlation LM test shows that the null hypothesis of no autocorrelation cannot be rejected at lag 1 ($p = 0.4099$) and lag 2 ($p = 0.0867$). This implies that the residuals are free from serious autocorrelation issues, suggesting that the model adequately captures the dynamic interactions among the variables. The joint test for heteroskedasticity also produces a Chi-square probability value of 0.3088, which is comfortably above the 5 percent significance threshold. This indicates that the model is not plagued by heteroskedasticity and that the residuals maintain constant variance over time. Similarly, the Jarque-Bera test of normality reveals that the residuals across all four equations are approximately normally distributed, with the joint probability value (0.8208) being statistically insignificant. This outcome satisfies one of the crucial assumptions of the VAR framework, reinforcing the reliability of the estimates.

Taken together, the diagnostic results confirm that the VAR model is statistically well-specified. It does not suffer from serial correlation, heteroskedasticity, or non-normality, thereby making it a reliable tool for drawing valid inferences and for subsequent forecasting exercises.

Table 4.7 Diagnostic Tests Output

Test	Probability	P-Value
Serial Correlation LM	0.4099	0.4371
Heteroskedasticity	168.4094	0.3088
JB statistics	4.3852	0.8208

Source: Author's computation (2025).

4.10 Discussion of Findings

The empirical analysis provides fresh insights into the relationship between exchange rate volatility, economic growth, inflation, and manufacturing value added in Nigeria. The trend analysis revealed that while LGDP exhibited a long-run upward trajectory, growth was intermittently disrupted by shocks from exchange rate instability and persistent inflation. The exchange rate experienced sustained depreciation, particularly after 2015, while inflation remained highly volatile. Manufacturing value added recorded only modest improvements, pointing to enduring structural weaknesses in the industrial sector. Descriptive statistics confirmed the relative stability of LGDP and LMVA, contrasted with the high volatility of the exchange rate. Correlation results showed moderate associations among variables, with no evidence of multicollinearity, while unit root tests established that all series are integrated of order one, justifying the use of a VAR framework.

The VAR estimation highlighted a strong two-way relationship between LGDP and the exchange rate. In the short run, exchange rate depreciation was contractionary, but in the medium term, its effect turned expansionary, reflecting delayed competitiveness gains. LGDP, in turn, influenced

exchange rate behavior, confirming feedback dynamics. Manufacturing value added showed persistence in its own growth but had weak spillovers to LGDP and the exchange rate, while inflation had generally insignificant effects across the system. Granger causality tests reinforced these patterns, showing bidirectional causality between LGDP and the exchange rate, and unidirectional causality from LMVA to the exchange rate, but no causal links involving inflation. Variance decomposition results provided further evidence on the relative importance of shocks. In the short run, each variable was largely explained by its own innovations. Over the medium and long run, however, shocks from the exchange rate and manufacturing became increasingly important in explaining LGDP fluctuations. Exchange rate variation was initially self-driven but became more sensitive to GDP shocks over time. LMVA also grew more dependent on GDP and exchange rate dynamics in the long run, while inflation consistently remained dominated by its own shocks, underscoring its weak integration with the other macroeconomic indicators.

The diagnostic tests confirmed the robustness and stability of the estimated VAR model, validating the reliability of these findings. Overall, three key insights emerge. First, Nigeria's growth trajectory is closely tied to exchange rate performance, as evidenced by the bidirectional causality between LGDP and the exchange rate. Second, the weak role of manufacturing in driving LGDP reflects the underdeveloped industrial sector, though its influence on exchange rate movements is non-negligible. Third, inflation appears largely exogenous within the system, suggesting that while it remains a persistent policy challenge, it does not play a central causal role in shaping output, exchange rate, or industrial dynamics. These findings align with earlier studies that emphasize exchange rate management as a crucial determinant of growth in developing economies (Adeniran, Yusuf & Adeyemi, 2014; Obi, 2020).

5.0 Conclusion and Recommendations

5.1 Conclusion

The findings demonstrate that exchange rate movements and manufacturing performance are critical determinants of Nigeria's economic growth trajectory. The bidirectional causality between GDP and exchange rate underscores the interdependence of real and external sectors. The weak role of inflation suggests that monetary stability alone may not be sufficient to drive growth unless complemented by structural and industrial policies. Overall, the results highlight the necessity of exchange rate stability and industrial development in sustaining long-run economic performance.

5.2 Recommendations

Based on the findings, the following policy recommendations are proposed:

- i. Policymakers should prioritize exchange rate management through a mix of monetary and fiscal interventions to reduce volatility, as exchange rate shocks significantly affect GDP.
- ii. Strengthening the manufacturing sector, given its increasing contribution to GDP fluctuations, policies that enhance industrial productivity—such as improved access to credit, infrastructure investment, and technology adoption—should be aggressively pursued.
- iii. Export diversification should be promoted by encouraging non-oil exports, especially agro-processing and light manufacturing, to generate stable foreign exchange inflows and cushion the economy from oil price shocks.
- iv. Medium- to long-term economic frameworks should be designed to ensure policy consistency, as variance decomposition results show that exchange rate shocks become more influential in the long run.

REFERENCES

- Abdu, M., Umar, M. R., Mohammed, B., & Ajannah, J. M. (2021). Exchange rate fluctuations and economic growth nexus: An empirical evidence from Nigeria. *Asian Journal of Economics, Finance and Management*, 5(2), 33–40.
- Adebayo, K., Okeke, C. U., & Iwu, E. (2023). The role of human capital development in sustaining economic growth in Africa. *Economic Research Journal*, 18(4), 101–120.
- Adeniran, J. O., Yusuf, S. A., & Adeyemi, O. A. (2014). The impact of exchange rate fluctuation on the Nigerian economic growth: An empirical investigation. *International Journal of Academic Research in Business and Social Sciences*, 4(8), 224–233. <https://doi.org/10.6007/IJARBS/v4-i8/1096>
- Adeniyi, A. P., & Olasunkanmi, A. O. (2019). Impact of exchange rate volatility on economic growth in Nigeria (1980–2016). *International Journal of Management Studies and Social Science Research*, 1(4), 6–14.
- Adeoye, B. (2019). Exchange rate volatility and inclusive growth: The Nigerian experience. *Unilag Journal of Humanities*, 4(1), 135–144. Retrieved from <https://ujh.unilag.edu.ng/article/view/233>
- Adeoye, B. W., & Saibu, M. O. (2014). Monetary policy shocks and exchange rate volatility in Nigeria. *Asian Economic and Financial Review*, 4(4), 544–562.
- Afolabi, A. A., Adeoye, B. W., & Olayemi, K. O. (2022). Exchange rate volatility and economic growth in Nigeria: Evidence from ARDL bounds testing approach. *African Economic Review*, 10(2), 45–67.
- Akinyemi, E., & Ogundipe, A. (2021). The impact of exchange rate regimes on macroeconomic performance: Evidence from Nigeria. *Journal of African Studies*, 15(3), 112–129.
- Aliyu, S. U. R., Yakub, M. U., Sanni, G. K., & Duke, O. O. (2009). Exchange rate pass-through in Nigeria: Evidence from a vector error correction model. *Central Bank of Nigeria Economic and Financial Review*, 47(2), 21–56.
- Azeez, B. A., Kolapo, F. T., & Ajayi, L. B. (2012). Effect of exchange rate volatility on macroeconomic performance in Nigeria. *Interdisciplinary Journal of Contemporary Research in Business*, 4(1), 149–155.
- Baghebo, M., & Mienebimo, K. (2024). Balance of trade, exchange rate and economic growth in Nigeria. *Advance Journal of Economics and Marketing Research*, 9(4).
- Bakare, A. S. (2011). The determinants and roles of exchange rate in promoting economic growth in Nigeria (1970–2009). *British Journal of Arts and Social Sciences*, 3(1), 56–65.
- Bello, U. A., & Sanusi, A. R. (2019). Inflation dynamics and exchange rate pass-through in Nigeria: Evidence from augmented nonlinear New Keynesian Phillips curve. *CBN Journal of Applied Statistics*, 10(2), 109–127.
- Ben-Obi, O. A., Olaniyi, O., Okoroafor, D. O. K., & Obi, B. (2025). Asymmetric effect of exchange rate volatility on foreign direct investment, inflation and balance of trade in Nigeria. *American Journal of Industrial and Business Management*, 15, 681–698. <https://doi.org/10.4236/ajibm.2025.155033>
- Brooks, C. (2014). *Introductory econometrics for finance* (3rd ed.). Cambridge University Press.
- Central Bank of Nigeria. (2016). *Financial stability report: June 2016*. CBN.
- Central Bank of Nigeria. (2023). *Annual economic report 2022*. Central Bank of Nigeria.
- Edwards, S. (1989). *Real exchange rates, devaluation, and adjustment: Exchange rate policy in developing countries*. MIT Press.
- Eme, O. A., & Johnson, A. A. (2012). Effect of exchange rate movements on economic growth in Nigeria. *CUDIMAC Economic Review*, 4(1), 1–13.
- Engle, R. F., & Granger, C. W. J. (1987). Co-integration and error correction: Representation, estimation, and testing. *Econometrica*, 55(2), 251–276. <https://doi.org/10.2307/1913236>

- Ezeaku, H. C., Chukwuemeka, I. U., & Okonkwo, T. E. (2023). Exchange rate management and economic stability in Nigeria: Policy perspectives and challenges. *Economic Research Letters*, 8(1), 25–40.
- Ghosh, A. R., Ostry, J. D., & Chamon, M. (2016). Two targets, two instruments: Monetary and exchange rate policies in emerging market economies. *Journal of International Money and Finance*, 60, 172–196. <https://doi.org/10.1016/j.jimonfin.2015.03.005>
- Godwin, A. A., & Sergius, N. U. (2021). Exchange rate and economic growth in Nigeria. *Advance Journal of Management and Social Sciences*, 5(5).
- Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics* (5th ed.). McGraw-Hill Irwin.
- International Monetary Fund. (2023). *Nigeria: Country report on debt sustainability*. IMF.
- International Monetary Fund. (2024). *Annual report on exchange arrangements and exchange restrictions 2023*. IMF. Retrieved from <https://www.imf.org/en/publications/annual-report-on-exchange-arrangements-and-exchange-restrictions/issues/2024/12/19/annual-report-on-exchange-arrangements-and-exchange-restrictions-2023-541890>
- Iyoha, M. A. (1998). *An econometric study of the main determinants of exchange rate movements in Nigeria* (AERC Research Paper No. 82). African Economic Research Consortium.
- Krugman, P., & Obstfeld, M. (2018). *International economics: Theory and policy* (10th ed.). Pearson.
- Lütkepohl, H. (2005). *New introduction to multiple time series analysis*. Springer.
- Mahonnye, N., & Tenda, Z. (2019). Exchange rate impact on output and inflation: A historical perspective from Zimbabwe.
- Najeem, A. O. (2024). The impact of exchange rate fluctuation on Nigeria economy growth. *IRE Journals*, 8(2).
- Obadan, M. I. (2006). Overview of exchange rate management in Nigeria from 1986 to date. *Central Bank of Nigeria Bullion*, 30(3), 1–10.
- Obi, O. C., Amadi, S. N., & Ude, U. M. (2022). The implications of exchange rate depreciation on the Nigerian economy: A sectoral analysis. *Nigerian Journal of Economic Policy*, 9(4), 77–92.
- Obstfeld, M., & Rogoff, K. (1995). Exchange rate dynamics redux. *Journal of Political Economy*, 103, 624–660.
- Ogodo, P. E. (2025). The effect of exchange rate on the growth of the Nigerian economy. *International Journal of Research and Innovation in Social Science*, xx(x), 1872–1886. <https://dx.doi.org/10.47772/IJRISS.2024.8120160>
- Ogun, O. (2006). Real exchange rate behaviour and non-oil export growth in Nigeria. *African Journal of Economic Policy*, 13(2), 1–29.
- Okosu, N. D. (2022). Assessing exchange rate volatility and economic growth in Nigeria: A GARCH model approach. *International Journal of Research and Innovation in Social Science*, 6(7), 152–163.
- Olaniyi, S., & Ogundipe, A. (2023). Exchange rate policy and its impact on Nigeria's economic growth. *Journal of Economic Policy*, 15(2), 87–101.
- Oluwagbade, E. O., & Ibidapo, C. O. K. (2024). Impact of globalization on the economic development of Nigeria. *International Journal of Development and Economic Sustainability*, 12(1), 26–51.
- Onabote, A. A., Adama, I. J., Obasaju, B., et al. (2022). Exchange rate, foreign direct investment and economic growth nexus in Nigeria. *International Journal of English Literature and Social Sciences*, 7(1).
- Onwuliri, O. C., Oshiole, S., Nwankwo, U. C., Nwakeze, E. O., & Okorie, I. C. (2024). Foreign exchange rate exposure mitigation and connection to economic growth: The Nigerian experience (2019–2023). *Afropolitan Journal of Economic Studies*, 3(1), 55–72.

- Ozigbo, S., Ekane, R. O., & Ujuju, L. E. (2025). Exchange rate fluctuations and economic growth in Nigeria: An empirical analysis. *International Journal of Economics and Financial Issues*, 15(2), 252–259. <https://doi.org/10.32479/ijefi.17833>
- Paul, E. O., & Sylvester, O. (2022). The influence of exchange rate fluctuation on economic growth in Nigeria. *ResearchGate*. Retrieved from <https://www.researchgate.net/publication/365858540>
- Romer, P. M. (1986). Increasing returns and long-run growth. *Journal of Political Economy*, 94(5), 1002–1037. <https://doi.org/10.1086/261420>
- Sims, C. A. (1980). Macroeconomics and reality. *Econometrica*, 48(1), 1–48. <https://doi.org/10.2307/1912017>
- Thirlwall, A. P. (1979). The balance of payments constraint as an explanation of international growth rate differences. *Banca Nazionale del Lavoro Quarterly Review*, 32(128), 45–53.
- World Bank. (2023). *World development indicators*. World Bank. <https://databank.worldbank.org/source/world-development-indicators>