DRIVING ECONOMIC GROWTH THROUGH MACROECONOMIC INDICATORS: EVIDENCE FROM NIGERIA

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ABSTRACT

This study empirically examined macroeconomic indicators driving economic growth in Nigeria. The specific objectives of the study were, to examine the relationship between inflation, unemployment rate, exchange rate, interest rate, poverty rate, consumption, investment, government expenditure, and balance of payment and economic growth in Nigeria. The data used for the study is secondary annual time series data covering a period of 1980 to 2024 and were collected from the Central Bank of Nigeria (CBN) annual statistical bulletin and National Bureau of Statistics (NBS). The study employed Autoregressive Distributed Lag (ARDL) model. The result revealed that inflation has a positive (99,919.158) insignificant (0.6970) relationship with economic growth in Nigeria, while interest rate has a positive (199,893.2) significant (0.0113) influence on economic growth in the long run in Nigeria. The result further showed that exchange rate has a negative (-34,967.28) insignificant (0.0906) impact on economic growth in Nigeria. The study also showed that unemployment rate is positively (686,032.6) significantly (0.0357) impact economic growth in the long run. The study further revealed that poverty rate has a positive (95,468.23) statistically significant (0.0404) long run impact on economic growth in Nigeria. More so the study found that consumption negatively (-909.545) insignificant (0.1577) impact economic growth in the long run. While Investment revealed a positive (81.12635) and insignificant (0.4658) impact on economic growth in the long run. The result on government expenditure revealed a negative (-869.8982) and insignificant (0.2589) impact on economic growth in Nigeria in the long run. Lastly, balance of payment has a positive (2.807797) statistically significant (0.0144) impact on economic growth in the long run. The study concludes that macroeconomic indicators have mixed impact on economic growth in Nigeria. The study therefore recommends that Nigeria economic growth needs targeted policies to address these macroeconomic indicators.

Keywords: *Macroeconomic indicators, economic growth, Poverty, Unemployment, Nigeria*

1.0 INTRODUCTION

Nigerian economy was judged as the Africa's largest economy at a time based on the nominal Gross Domestic Product (GDP) measured in U.S. Dollars on the basis of a major "rebasing" exercise in April 2014.

This re-calculation, which updated the base year for measuring economic output from 1990 to 2010, significantly expanded the recognized size of the economy to over $500 billion, top oil producer, and been a largest market; is currently facing significant and several macroeconomic challenges that have impacted growth and welfare of citizens. Some of the key issues include: Exchange rate volatility, which has affected the value of the naira and the vulnerability of foreign currency, investment and inflation. Nigeria's exchange rate has been volatile due to various factors such as dependence on oil exports which makes it vulnerable to fluctuation in global oil prices. The economy's lack of diversification, weak external reserves, and high demand for foreign exchange with multiple exchange rates and the unification of exchange rates which has led to a temporary rate hike, causing the cost of living to increase (World Bank, 2024). The impact of exchange rate volatility on growth and welfare in Nigeria deterred foreign investors, thereby reducing the inflow of foreign capital, increased cost of imports; devalued naira makes imports more expensive, leading to higher production costs and reduced competiveness as well as economic growth (Kobi, 2024).

Another major challenge facing Nigeria's economy is inflation which reached 32.70% as at September, 2024, the highest level since 2017, thereby eroding purchasing power and reducing savings. High inflation rates in Nigeria have led to a decrease in the value of the naira. The causes of high inflation in Nigeria include excess liquidity, supply shocks, exchange rate depreciation, insecurity, exchange rate unification, subsidy removal. Also monetary policy such as low interest rates lead to increase in money supply while fiscal policy results to increased government spending lead to higher aggregate demand and inflation. A third challenge is unemployment that has been high for decades in Nigeria is due to lack of economic diversification. The impact of high unemployment on growth and welfare has led to reduced economy growth as a significant portion of the workforce is not contributing to the economy. Also, high unemployment has led to poverty, as individual and families are unable to earn a sufficient income, high unemployment in Nigeria has also led to social unrest, as individuals become frustrated with lack of opportunities (CBN, 2024).

The Nigerian government has implemented various policies to stabilize macroeconomic variables that include: Exchange rate management where the CBN has operated a multiple exchange rate system to manage the exchange and stabilize the economy with the introduction of flexible exchange rate system to allow the naira to float, and foreign exchange restriction, where the CBN also imposed foreign exchange restriction to conserve foreign exchange reserves and stabilize the economy. Another policy

measures adopted by government is unemployment reduction measures. The government has introduced job creation initiatives to reduce unemployment and stabilize the economy such as N-power program to create jobs for young graduates, vocational training to equip citizens with skills and reduce unemployment and Entrepreneurship support programs to encourage entrepreneurship and job creation (CBN, 2024).

Despite Nigeria's several policies measures to address macroeconomic indicators challenges, the situation has not change rather worsen. According to Barde (2025) CBN has adopted an aggressive monetary tightening stance, raising the monetary policy rate (MPR) by a cumulative 875 basis points to 27.5% in 2024. This was aimed at reducing excess liquidity in the system and slowing down inflationary pressures. Despite these efforts, inflation remains elevated, reaching 34.8% in December 2024 up from 34.6% in November, reflecting the deep-rooted cost-push pressures in the economy. CBN reform on foreign exchange market and management, the unification of multiple exchange rate windows was a major policy shift designed to eliminate arbitrage opportunities and restore investor confidence. However, despite these interventions, the naira remains volatile, fluctuating under speculative pressure largely driven by the activities of currency traders in the parallel market a key driver of exchange rate instability. A major weakness in Nigeria's FX policy remains the unregulated and unchecked operations of currency traders, whose speculative activities fuel exchange rate devaluation. No economy in the world allows its local currency to be freely traded in the black market at the massive volumes seen in Nigeria. Even more alarming is the fact that Nigeria is the only country where the CBN itself has historically supplied foreign exchange to the black market, thereby legitimizing an inherently corrupt and destructive system (Barde, 2025).Central Bank of Nigeria monetary policies demonstrated a clear commitment to tackling inflation and exchange rate volatility through orthodox monetary tools and market transparency initiatives. However, key structural challenges - particularly the unchecked influence of parallel market currency traders, excessive government spending, and fiscal - monetary misalignment – continue to undermine policy effectiveness. (IMF, CBN, and NBS, 2022).

Despite the above chronology of macroeconomic policies and with Nigeria's endowed natural resources and strategic economic position, why have the country's macroeconomic indicators consistently shown a worrisome trend (high inflation, rising unemployment, unfavourable exchange rates volatility, high poverty rate, and high interest rate) hindering sustainable economic growth and development and why are macroeconomic indicators not in their optimal level? It is in this premise that the study seeks to

bridge the knowledge gap and ascertain the macroeconomic indicators influencing the economic growth in Nigeria.

The specific objectives of the study were, to examine the relationship between inflation and economic growth, determine how unemployment rate affect economic growth, investigate the impact of exchange rate, evaluate the influence of interest rate, and ascertain how poverty rate impact economic growth in Nigeria, examine the impact o consumption on economic growth in Nigeria, evaluate the effect of investment on economic growth in Nigeria, ascertain impact of government expenditure on economic growth, and determine the effect of balance of payment on economic growth in Nigeria.

2.0 LITERATURE REVIEW

2.1 Conceptual Review

Macroeconomic indicators are statistics or data readings that reflect the economic circumstances of a particular country, region or sector. They are used by analysts and governments to assess the current and future health of the economy and financial markets (Collin, 2024). Macroeconomic indicators are metrics used to assess the overall heath and performance of a country's economy. These indicators are crucial for understanding economic growth, and are often collected and analyzed by government agencies or private organizations. The key macroeconomic indicators include: Gross domestic product (GDP) the primary indicator of macroeconomic performance representing the total value of goods and services produced within a country, purchasing managers index (PMI) which measures business confidence and production levels, and it helps to forecast economic expansion or contraction, consumer purchasing index (CPI) tracks inflation by measuring price changes in a basket of consumer goods, interest rates- influence borrowing costs, spending, and economic growth, unemployment rates affects consumer spending, economic growth, and overall economic stability (IMF, World Bank & UN, 2020).
Macroeconomic Indicators.This study defines macroeconomic indicators as data or mirror that reveals and reflects the past, current and future health economic situation of a state or a nation.
Economic Growth-the study defines economic growth as a steady rise in the production of goods and services in an economy for a period of time as a result of a rise in the discovery of new use or proper exploitation of abundant or limited natural resources through improved techniques, little wastage which could be utilized for a longer time.

2.2 **Theoretical Review**

Neoclassical Growth Model (Solow –Swan Model)

The most popular version of the neoclassical growth model is the Solow- Swan growth model. The model known as the Solow growth model is a neoclassical economics growth model developed by Robert Solow and Tvevor Swan in the 1950s. The neoclassical growth theory is an economic model of growth that outlines how a steady economic growth rate results when three economic forces come into play: labor, capital and technology. Theory postulates that short-term economic equilibrium is a result of varying amounts of labour and capital that play a vital role in the production process. The theory also argued that technological change significantly influences the overall functioning of an economy. Neoclassical growth theory outlines the three factors necessary for a growing economy. The theory puts emphasis on its claim that temporary or short-term equilibrium does not require any of the three factors. The Solow- Swan model is an economic model of long run economic growth set within the frame work of neoclassical economics (Banton, 2023).

The neoclassical growth model claims that capital accumulation in an economy and how people make use of it is important for determining economic growth. It further claims that the relationship between capital and labor in an economy determines its total output. Finally, the theory states that technology augments labor productivity, increasing the total output through increased efficiency of labor. Therefore, the production function of the neoclassical growth model is used to measure the economic growth and equilibrium of an economy. The general production function in the neoclassical growth model takes the following form:

$$Y = AF(K, L) \quad \ldots\ldots (1)$$

Where; Y = income or the economy's Gross Domestic Product (GDP), K = Capital, L= Amount of unskilled labor in the economy, and A = Determinant level of technology. The dynamic relationship between labor and technology, an economy's production function is re-stated as Y = F (K, AL). This states that technology is labor augmenting and that workers' productivity depends on the level of technology (Banton, 2023).

Neoclassical growth model emphasizes on a steady growth path is reached when output, capital and labour are all growing at the same rate, so output per worker and capital per worker are constant.

Neoclassical economists believe that to raise the trend rate of growth requires an increase in the labour supply plus a higher level of productivity of labour and capital. The neoclassical model treats production improvements as an exogenous variable. They are assumed to be independent of the amount of capital investment. The model features the idea of catch up growth when a poorer country is catching up with a richer country – often because a higher marginal rate of return on invested capital in faster growing countries. The Solow growth model focuses on long run economic growth. A key component of economic growth is saving and investment. An increase in saving and investment raises the capital stock and this raises the full employment, national income and production. Also Solow growth model is a unique and splendid contribution to economic growth theory. It establishes the stability of the steady state of growth through a very simple and elementary adjustment mechanism. Solow growth model marks a breakthrough in the story of economic growth by introducing the possibility of substitute between labour and capital; he gives growth process and adjustability a more realistic touch.

2.3 Empirical Review

Ojima (2025) examined selected macroeconomic indicators and economic well-being in Nigeria. The study focused on the effects of exchange rate fluctuation, inflation, balance of payments, unemployment and literacy rate both short and long run on the well-being of Nigerians. It used econometric analysis on the annual time series data collected from both the Central Bank of Nigeria Statistical Bulletin and World Bank development indicators of 2024. The findings of the study revealed that exchange rate is negative and statistically significant on economic well-being in the long run indicating, that depreciation of the Naira reduces purchasing power and worsens economic conditions. Though inflation has a negative impact, is found to be statistically insignificant, suggesting the presence of economic adaptation mechanisms. Balance of payments was found to have positive and significant effect, demonstrating that an improved trade balance enhances economic well-being. However, unemployment and literacy rates, despite having positive coefficients, are found to be statistically insignificant. This implies that structural labor market inefficiencies and educational mismatch may limit their direct impact on economic well-being. The study concludes that macroeconomic stability, exchange rate management, trade balance improvement and job creation strategies are essential for enhancing economic well-being in Nigeria. The study therefore made the following policy recommendations; ensuring foreign exchange stability measures, export diversification, inflation control policies, labor

market reforms, and investments in infrastructure and education. Implementation of these strategies will contribute to sustainable economic growth and improved living standards for Nigerians.

Moustfa, Aloulou and Kamel (2024) examined the contribution of macroeconomic indicators to the attainment of economic growth objectives in some western Asian countries. The study looks at how macroeconomic variables affect poverty, unemployment and economic growth in seven western Asian nations between 2003 and 2020 using a generalized moment analysis method. The development and effective implementation of policies to accelerate employment growth were essential to success on a continent that still has an exceptionally high rate of poverty. These policies allowed the continent to address the persistent problem of unemployment and poverty. In developing an appropriate policy, countries need to take into account the universal acceleration of trends towards closer integration of the world economy and the rapid pace of liberalization as national economies move increasingly towards a market economy. The study shows that poverty, unemployment, and economic growth are all significantly impacted by sustainable development indices. The study further reveals that investment and the activity rate are the two primary factors influencing economic growth. Western Asian countries should improve the quality of their institutions and their capacity to adapt and acquire new skills. Trade and globalization should not be considered in isolation and policies are needed to reinforce its impact on economic growth.

Nath, Begun and Malegue (2024) investigated on the effect of macroeconomic factors on economic growth: A case study of Bangladeshi. The ultimate purpose of the study was to assess the impact of macroeconomic factors on the economic growth. The research took GDP as a substitute variable for the development of the economy as well as endogenous (dependent) variable and FDI, inflation (INF), money supply (M2), public and private domestic investment (DINVEST), and foreign exchange reserve (FEXR) as independent variables. The study used time series secondary data (2006 to 2022) for econometric analysis. The study also utilized the ADF (Augmented Dickey – Fuller) test to study the unit root (stationary property)of data, the Durbin Watson (DW) statistic techniques to verify the autocorrelation of variables, the VIF test techniques to examine the multicollinearity among independent variables and multiple linear regression to scrutinize the overall effect of macroeconomic factors on growth of the economy. The study findings show that DINVEST and FDI positively affect the economy. This implies that if by 1 unit, they increase economic growth by 2.96 units and 0.62 units respectively. However, inflation, money supply, and foreign exchange reserves have a positive effect on economic

growth, but it is statistically insignificant. The study implies that economists, researchers, academicians, and policymakers can use the findings of the study for future research and decision – making regarding the effect of macroeconomic factors on economic growth.

Alilu, Adenomon and Maijama (2024) analyzed the impact of macroeconomic variables on gross domestic product (GDP) of SSA countries over 33 years, 1990 to 2021. They aimed to fit a panel ARDL model for these variables, estimate their long-run impact on GDP, and identify short- run effects. The study employed panel unit root tests, co- integration analysis, and model estimation. The result shows that in long run, inflation, interest rates, and unemployment had no significant impact on economic growth, while exchange rates negatively affected GDP and export rates positively influenced it. The study found that the ECT of (-1) indicated that the short run error would attain equilibrium at the speed of 16% annually. Inflations rate, interest rate, unemployment rate and export rate have no significant impact on GDP. Exchange rate has a negative significant impact on economic growth on the short- run. The study therefore recommended among other that pursuing trade liberalization policies that reduce barriers to international trade can promote export growth. Removing tariffs, simplifying customs procedures, and addressing non- tariff barrier can enhance the competitiveness of SSA countries in the global market.

Thaddeus, Ngong, Nebong, Akume, Eleazar and Onumere (2024) examined key macroeconomic determinants on Cammeroon's economic growth from 1970 to 2018. Data were obtained from the world Development Indicators and applied on time series data econometric techniques. The autoregressive distributed lag (ARDL) bounds model analyzed the data since the variables had different order of integration. The results showed long and short run's positive and significant connection between economic growth in Cameroon and government expenditure, trade openness, gross capital formation and exchange rate, human capital development, foreign aid, money supply, inflation and foreign direct investment negatively and significantly affected economic growth in the short and long – run. Hence the macroeconomic indicators are death. The study was unable to capture the impact of other macroeconomic variables due to unavailability of data. The study therefore recommended that Cameroon should use proper planning and strategic policy intervention to achieve their sustainable economic growth with human capital development, foreign aid, money supply, foreign direct investment and moderate inflation. Macroeconomic indicators if managed well increase economic growth.

Sani (2024) investigated on how important macroeconomic factors affect certain African nation's economic growth. Those metrics are crucial for the economics' effective development and can be utilized to address the many economic issues that the chosen countries are currently dealing with. 91publications published between 2004 and 2022 were examine using the Scopus database. With an emphasis on five major factors: Gross Domestic Product (GDP), interest rate, exchange rate, inflation, and foreign direct investment. The study evaluated and analyzed the literary elements and themes explored in order to give guidance for future research. The findings revealed that interest rates, inflation, exchange rates and foreign direct investment (FDI) are some of the macroeconomic variables that can affect the selected African economies. Foreign direct investment has been identified as the most important factor in improving industrial prosperity and living standards in developing economies such as Nigeria, South Africa, Egypt, Algeria, and Morocco after stabilizing interest rates, inflation and currency exchange rates. The study findings were supported by material that has been published in previous years. Given that a number of recent economic issues have had an impact on the expansion of the economy, it is necessary to evaluate the ideas using panel data from the past 20 years in order to ascertain whether there are still valid. The report highlights the key macroeconomic factors that may have an impact on five African economies. The study combines a number of economic metrics that have previously been studied separately to assess the trend in the economies it has chosen.

Omebere, Ezenekwe, Uzoechinaand Nwokoye (2024) examined impact of selected macroeconomic variables on economic growth in Nigeria from 1980 to 2022. They state that Economic growth which represented by real gross domestic product (RGDP) is a key indicator of the nation' economic performance. The study employed an econometric technique which includes descriptive statistics, Augmented Dickey Fuller test for unit roots, the autoregressive distributed lag (ARDL) bound test and the diagnostic test to determine the reliability of the models and result obtained. The independent variables considered in the study are inflation rate, exchange rate, interest rate, unemployment rate and gross fixed capital formation. The findings revealed that inflation rate had negative and significant impact on the economic growth in Nigeria while interest rate, exchange rate had positive significant impact on the economic growth in Nigeria. The study recommended that the negative correlation identified between inflation rate and real GDP growth rate underscores the imperative of maintain price stability via proffer fiscal and monetary policies to assist in tackling inflation. The unexpected positive relationship between interest rate and real GDP growth rate underscores the challenges conventional

economic assumptions, prompting a reconsideration of the intricate dynamics at play within the Nigeria economic context. The study considered that a state exchange rate environment is crucial for fostering economic growth.

According to Madaki (2024) investigated the effect of macroeconomic variables on economic growth in Nigeria covering 1990 to 2024. Ex- post facto research design was adopted for the study. Secondary data were used to carry out the analysis for the study and the data were sourced from CBN and National Bureau of Statistics (NBS). Autoregressive distributed lag (ARDL) model adopted with modification for the study. The data were subjected to diagnostic test which include unit root test and co-integration test before estimating the model. The findings of the study showed that the coefficient of foreign exchange was statistically significant at 5% level, while interest rate, inflation, and foreign direct investment were not statistically significant at 5% level. The study concluded based on the finding that foreign exchange rate has positive and strong influence on economic growth, interest and inflation has a positive and weak influence on economic growth in Nigeria for the period under review the study recommended that Nigeria government and other policy makers and key players should ensure to have sound macroeconomic policies that would formulate good policies towards growth. And that the environment should be conducive for domestic investors and companies towards indigenous productivity which will contribute immensely to economic growth in Nigeria.

According to Nnachi and Ugochukwu (2023) the study evaluates the effect of unemployment and inflation on economic growth of Nigeria for the period 1981 -2021. The study used standard econometrics techniques such as autoregressive distributed lag model (ARDL) to measure the degree of effect of inflation and unemployment on economic growth. It also deployed the Pesaran and Shin bound testing procedure to determine the short run and long run relationship of the variables under study. Their findings revealed that inflation and unemployment is inversely correlated with economic growth whereas inflation is positively related to economic growth. In specific terms, the study revealed that one percent increase in GDP resulted to a fall in unemployment rate by – 0.019. This result also shows R^2 value of about 0.61 percent indicating that gross domestic product accounts for about 61 percent of the variation in unemployment rate in Nigeria. The study therefore recommended that the government should tailor policies that can spur economic activities which in turn will reduce unemployment rate and stabilize prices.

Achilike and Onoh (2023) examined the impact of macroeconomic variables on economic growth of Nigeria from 1999 to 2021. The study specifically examined the effect of exchange rate, interest rate, and unemployment rate on gross domestic product of Nigeria. The study used secondary sources of data collection and adopted ex-post facto research design. The data were sourced from CBN statistical bulletin and analyzed using multiple regression analysis. The result of the analysis shows that exchange rate fluctuation has positive and significant effect on the economic growth of Nigerian. The study also observed that interest rate has a significant and negative effect on the economic growth of Nigeria. The study equally indicated that unemployment rate has a positive and significant effect on the economic growth of Nigeria. Based on the findings and conclusion, the study recommended that government should encourage the export promotion strategies in order to maintain a surplus balance of trade and as well as infrastructural facilities so that foreign investors will be attracted to invest in Nigeria. The Nigeria authorities should carry out reform that would enhance the role of interest rate in order to mobilize funds for investment purpose through a complete regulation of the interest rate, and for a long –term economic performance.

According to Akparhuere (2023) assessed the impact of economic indicators on the economic growth of Nigeria. The study specific objectives were to ascertain the impact of the balance of trade, taxation, consumer prices, unemployment on the Nigeria's economic growth. The study adopted the ex-post facto research method with a sample of 10 years drawn from 2013 to 2022. Data collection was through secondary sources. The method of analysis employed was linear regression model with economic growth (Proxy by real GDP) as dependent variable, while independent variables were balance of trade, inflation consumer price index, and unemployment. The result shows that balance of trade has no significant impact on Nigeria's economic growth, whereas inflation, CPI, unemployment has significant impact on economic growth in Nigeria. The study therefore recommended that government to intensify effort to improve on her exports and also address the challenge of inflation rate by using appropriate fiscal and monetary policies to curb excess liquidity in the system amongst other.

Klhwele (2022), Scrutinized the effect of macroeconomic variables on economic growth in Tanzania, using annual time series data for a period of 1980 to 2020. Ordinary least square (OLS), Error Correction Model (ECM) and Granger Causality test were used to determine the impact of macroeconomic variable on economic growth. Also the dynamic correlations and innovation of macroeconomic variables and economic growth were intuitively analyzed by the impulse response

function (IRF). OLS results showed that economic growth of Tanzana was positive and significantly influenced by inflation, exchange rate and government expenditure. The IRF innovation result suggested that the policy variables inflation rate, money supply, real exchange rate, trade openness and government expenditure have significant impact on economic growth in Tanzania specifically in the long run, thus some time with lag. The study therefore recommended right policy mix given the dynamics would have significant impact to the economic growth in Tanzania.

Soboye and Ihenetu (2021) evaluated the effect of macroeconomic variables on economic growth in Nigeria. Data were collected from CBN statistical bulletin and World Bank for twenty-five years. Ex-post facto design was employed for the study. The data were subjected to unit root test and the result suggested the use of autoregressive and distributed lag model for the analysis. The findings should that inflation rate, unemployment rate, exchange rate and interest rate had no significant effect on economic growth but the combination of these variables had a negative effect on economic growth at 5% level of significance during the period of the study. Bound test was also conducted to check the co-integration so that the error of the short run could be corrected at the long run but the result still showed no relation. Based on the findings, the study recommended that government should strive to bring these variables under control in order to grow the economy.

3.0 METHODOLOGY

3.1 Research Design

This study adopted Ex-post facto research design. This is a quantitative research design used to investigate causal relationships between variables after an event or phenomenon that has occurred. It is a non- experimental design where the researchers have no influence or manipulation of the independent variables. It examines past data or events and analyzes existing data without intervention and compares groups or variables to identify relationships. Ex-post- facto research design is used to explore cause – and – effect relationships, identifies patterns and trends, examines existing data, reducing data collection costs as well as provides insights into past events or decisions. Ex-post –facto research design is employ when investigating historical events or phenomena, analyzing existing datasets (archival records), examining policy or program impacts, studying rare or unique events or when exploring complex systems or relationship. In a nutshell ex-post – facto design is useful for exploring complex relationships, identifying patterns and informing decision –making

3.2 Model for the Study

In order to x-ray the impact of macroeconomic indicators and economic growth in Nigeria, the model for this study is Auto regressive distributed lag model (ARDL). The Autoregressive Distributed Lag (ARDL) model is an econometric model used to analyze the relationships between time series variables, particularly in the context of macroeconomic indicators and economic growth. Or ARDL is a statistical technique used to examine the relationships between economic variables. It's particularly useful for analyzing long-run and short-run dynamics between variables. It allows researchers to examine both short-run and long-run dynamics of these variables, considering lagged values of both the dependent and independent variables.

3.3 Model Specification

To examine the nexus between macroeconomic indicators and economic growth in Nigeria, the study adapted and modified the work of Omebere, et-al (2024) who examined impact of selected macroeconomic variables on economic growth in Nigeria, using Autoregressive Distributed Lag (ARDL) model.

The model is stated thus: GDP = f (INFR, EXR, INR, UNER and GFCF) ……. (2)

Where;

GDP = Gross domestic product, f = functional relationship, IFR = inflation rate, EXR = exchange rate, INR= interest rate, UNER =unemployment rate and GFCF = gross fixed capital formation.

The adapted model and modified model is specified as;

The functional form of the adapted and modified model is specified as;

$RGDP_{gr}$ = f (CONS, INVE, GOVE, BOP, INFR, INTR, UNER, EXCR, POVER,) …… (3)

And the stochastic form of the model which explores the nexus between macroeconomic indicators and economic growth are stated as thus: The econometric equation model become:

$RGDP_{gr} = \beta_0 + \beta 1CONS + \beta_2 INVE + \beta_3 GOVE + \beta_4 BOP - \beta_5 INFR + \beta_6 INTR - \beta_7 UNER - \beta_8 EXCR + \beta_9 POVER + \mu$……. (4)

Where,

RGDP = Real Domestic Product

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9$ = slope coefficients which shows the rate of change in the value of GDP, when there is a unit change in the value of independent variables of (CONS, INVE, GOVE, BOP, INFR, INTR, UNER, EXR, POVER).

Where, CONS = Consumption, INVE = Investment, GOVE = Government Expenditure, BOP= Balance of payment, INFR = Inflation Rate, INTR = Interest Rate, UNER = Unemployment Rate, EXR = Exchange Rate, and POVER = Poverty Rate.

β_0 = intercept coefficient which shows the rate at which GDP will change independent variable

μ = Error term which shows other external factors that must affect the magnitude of GDP that are not stated in the model.

3.4 **Nature and Sources of Data**

The data used in this study are time series secondary and purely quantitative data. The data are secondary data due to the fact that they were already collected and set for researcher to use for their study. The data for the study were sourced from the National Bureau of statistics (NBS) from 1980 to 2024. The real gross domestic product is modeled as a function of macroeconomic indicators of inflation rate, unemployment rate, interest rate, exchange rate, government expenditure, and poverty rate that affect or impact economic growth in Nigeria.

4.0 **RESULTS AND DISCUSSION**

Table 1 Descriptive Statistics Results

	RGDP	CONS	INVE	GOVE	BOP	INFR	INTR	UNER	EXCR	POVER
Mean	39053041	2729.913	9124.611	4210.630	1007223.	19.58054	16.80697	16.36044	179.5234	57.86953
Median	28701907	1018.000	8385.960	2068.880	136463.8	14.00000	16.93750	12.60000	118.5669	61.20000
Maximum	76684941	18773.77	15789.67	19251.09	5822589.	72.80000	29.80000	56.10000	1679.260	88.70000
Minimum	16048308	9.640000	5668.870	10.50870	-7905600.	5.400000	7.200000	1.800000	0.600000	27.20000
Std. Dev.	21342333	4030.482	2429.978	4722.318	2573191.	15.44109	4.779420	14.29333	332.9741	15.58342
Skewness	0.523246	2.225637	0.903798	0.982893	-0.479776	1.702700	0.275963	0.951214	3.623322	0.024187
Kurtosis	1.627784	8.233192	3.354359	3.428127	4.825712	5.425387	3.392259	2.858830	16.04304	2.162131
Jarque-Bera	5.459891	84.56690	6.079082	7.420618	7.976186	32.77359	0.859669	6.823434	417.4402	1.261986
Probability	0.065223	0.000000	0.047857	0.024470	0.018535	0.000000	0.650617	0.032985	0.000000	0.532063
Sum	1.72E+09	117386.2	392358.3	185267.7	45325045	881.1245	756.3137	736.2200	8078.554	2488.390
Sum Sq. Dev.	1.96E+16	6.82E+08	2.48E+08	9.59E+08	2.91E+14	10490.80	1005.086	8989.170	4878357.	10199.41
Observations	44	43	43	44	45	45	45	45	45	43

Source: Author's Computation from E-views 12, 2025.

Table 1 reports the descriptive values for both the controlled variables and the focal indicators employed for the study and which shows that the mean value of real gross domestic product (RGDP) is 39,053,041, consumption (CONS) 2, 729.913, investment (INVE) 9, 124.61, government expenditure

(GOVE) 4, 201.630, Balance of payment (BOP) 1,007,223, inflation rate (INFR) 19.58054, interest rate (INTR) 16.80697, unemployment rate (UNER) 16.36044, exchange rate (EXCR) 179.5234, and poverty rate (POVER) 57.86953 respectively. The series that measures the highest level of discrepancy as shown in the standard deviation result is RGDP, while interest rate shows the lowest level. Skewness indicated the rate of asymmetry or discrepancy of the variables. Accordingly, all the controlled variables and focal indicators have long right tail because they exhibit positive values.

Kurtosis measures the pawedness and flatness of the series and the result shows that CONS, INVE, GOVE, BOP, INFR, INTR and EXCR are leptokurtic relative to its normal distribution because their value is greater than 3, while the RGDP, UNER and POVER have their kurtosis value lesser than 3. This shows that the peak of their distribution is less than normal, thus, referred as platykurtic distribution. Jarque-Bera statistical test indicates the variables that are normally distributed as its measures the differences in the skewness and kurtosis. The result shows that Jarque- Bera statistics rejects the null hypothesis of no normal distribution for all the variables. Thus, it is concluded that all the variables are normally distributed.

Table 2 Unit Root Test (Phillips-Perron Test Statistic (PP))

Series	Phillips-Perron Test	Critical Value (5%)	P-value	Order of Integration
RDGP	3.148144	-2.933158	0.0305	1(1)
CONS	-3.864300	-2.9389870.0051	1(1)	
INVE	-5.334266	-2.938987	0.0001	1(1)
GOVE	-3.999150	-2.933158	0.0034	1(1)
BOP	-4.917257 -2.931404	0.0002	1(0)	
INFR	-3.055736	-2.929734	0.0375	1(0)
INTR	-3.260859	-2.929734	0.0230	1(1)
UNER	-15.00432	-2.931404	0.0000	1(1)
EXCR	-5.691732	-2.931404	0.0000	1(1)
POVER	-10.44358	-2.943427	0.0000	1(1)

Source: Author's Computation from E-views 10, 2025.

The result in table 2 presents a summary of the unit root test results based on the Phillips –Perron test statistic. The variables used in the analysis are real gross domestic product (RGDP), consumption (CONS), investment (INVE), balance of payment (BOP), inflation rate (INFR), interest rate (INTR), unemployment rate (UNER), exchange rate (EXCR) and poverty rate (POVER). The result shows that variables such as INFR and INTR rate were integrated at order zero or at level I (0) because their p-values were less than 5% critical value. And their p-value of the test statistic is less than the 0.05 significance level. This also means that there is enough evidence to conclude that the null hypothesis

(H1) is true. But RGDP, INVE, UNER, CONS, EXCR, GOVE, BOP, and POVER were integrated at first difference 1 (1) when their p-values became less than the 0.05 critical value. A mix of 1(0) and 1(1) variable signifies that different dynamics variables have different orders of integration, indicating varying responses to shocks or each variable has its own underlying factors driving its behaviours. The result of the unit root provides the basis for the study to proceed to co-integration test as well employed the autoregressive distributed lag (ARDL) model for its estimates.

Table 3 ARDL Long-run and Bound Test (Co-integration)

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	8.147390	10%	1.8	2.8
K	9	5%	2.04	2.08
		2.5%	2.24	3.35
		1%	2.5	3.68

Source: Author's Computation from Eviews 10, 2025.

The Bound test result in Table 3 shows the existence of long-run relationship between variables which was checked and confirmed using the long-run and bound test, F-statistic is compared to the upper critical bound value in the ARDL bound test shown in table 4.3 to established whether co-integration exists among the variables. The result therefore shows that the F-statistic 8.147390) is greater than the upper bound critical value (2.08), reject the null hypothesis of no long-run relationship, indicating a significant long-run relationship (co-integration) exists and conclude that there is a long-run relationship between the variables.

Table 4 ARDL Error Correction Mechanism (ECM)

ECM Regression Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(RGDP(-1))	-1.126598	0.128861	-8.742717	0.0003
D(CONS)	29.53654	148.5586	0.198821	0.8502
D(CONS(-1))	712.6471	171.2998	4.160233	0.0088
D(INVE)	501.3648	63.71735	7.868576	0.0005
D(GOVE)	428.7287	71.51709	5.994773	0.0019
D(GOVE(-1))	600.9484	74.99072	8.013636	0.0005

D(BOP)	0.518763	0.059004	8.792056	0.0003
D(BOP(-1))	-2.134811	0.173397	-12.31167	0.0001
D(INFR)	-6263.784	3419.864	-1.831589	0.1265
D(INFR(-1))	-23077.64	4151.061	-5.559455	0.0026
D(UNER)	88739.13	20379.29	4.354378	0.0073
D(UNER(-1))	-269883.0	39104.88	-6.901517	0.0010
D(INTR)	38979.03	14226.83	2.739825	0.0408
D(INTR(-1))	-42344.39	15109.55	-2.802491	0.0379
D(EXCR)	90191.59	9409.443	9.585220	0.0002
D(POVER)	-9134.843	5529.252	-1.652094	0.1594
D(POVER(-1))	-98305.26	9361.421	-10.50111	0.0001
CointEq(-1)*	-0.042961	0.002620	-16.39707	0.0000

R-squared	0.988504	Mean dependent var	1507519.
Adjusted R-squared	0.975476	S.D. dependent var	1610175.
S.E. of regression	252154.5	Akaike info criterion	28.01592
Sum squared resid	9.54E+11	Schwarz criterion	28.83220
Log likelihood	-444.2627	Hannan-Quinn criter.	28.29058
Durbin-Watson stat	2.873009		

* P-value incompatible with t-Bounds distribution.

Source: Author's Computation from E-views 12, 2025.

Why error correction mechanism (ECM) ? Is a crucial component in ARDL model estimation because it captures long –run relationships between variables, allowing for the estimation of the speed of adjustment towards equilibrium, is also essential for co-integration analysis, which determines if variables are co-integrated and have a long-run relationship, and it provides insights into dynamics (short-run and long-run dynamics) that helps to distinguish between the dynamics and enabling researchers to understand the relationships between variables over different time horizons. The ECM coefficient provides insights into the speed of adjustment towards equilibrium, indicating how quickly variables respond to deviations from the long-run relation. Lastly ECM provides valuable information for policymakers, enabling them to design policies that take into account the long-run relationships and dynamics between variables. The result in table 4 indicates that the error correction term ECT (-1) has a value of -0.042961and with p-value of 0.0000. This result shows that the three basic criteria of less than one (fractional), negative value and, p-value less than 0.05 (significant) exist and this implies a strong corrective force. Thus, the ECM is significant, fractional and negative which justifies the above claim. The estimated coefficient value of ECM -0.042961has a priori (negative) sign. This is in line with the expectation, and is an indication of the fact that any short-run fluctuation between the dependent variable and the independent variables will adjust to a stable long- run relationship between the variables. The coefficient also means that the speed of adjustment is 4.2%. This is however a slow speed

of adjustment from disequilibrium (short-run) to equilibrium (long-run). The error correction model equation is as thus:

EC = RGDP = - 227246190.8013 - 44448.7731*CONS + 1888.3908*INVE -20248.7570*GOVE + 65.3575*BOP+ 230889.8119*INFR + 15968888.4187*UNER + 4652945.0232*INTR - 813938.9588*EXCR +2222229.1109*POVER - 0.042961ECM ……. (5)

The result further reveals that the R^2 is 0.988504 or 98.8504% which indicated that the model is a good fit and adjusted R-squared is 0.975476 or 97.5476%. The study reveals that a high R-squared value 98% implies goodness of fit of the model or the model explains a large proportion (98%) of the variation in the dependent variable and the model is also reliable, good fit to the data, have good predictive power and a strong explanatory variable (independent variables in the model are strong predictors of the dependent variables. It is also observed that the overall test F-statistic p-value (0.0000) is less than 0.05 percent, this means the overall test is significant. The study chooses Akaike Information Criterion (AIC) for selecting optimal lag.

Table 5 Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
CONS does not Granger Cause RGDP	39	0.74652	0.4816	Accept H1
RGDP does not Granger Cause CONS		1.13943	0.3319	Accept H1
INVE does not Granger Cause RGDP	39	1.92137	0.1620	Accept H1
RGDP does not Granger Cause INVE		9.31620	0.0006	Reject Ho
GOVE does not Granger Cause RGDP	42	1.87778	0.1672	Accept H1
RGDP does not Granger Cause GOVE		2.21707	0.1232	AcceptH1
BOP does not Granger Cause RGDP	42	1.00855	0.3746	AcceptH1
RGDP does not Granger Cause BOP		0.77980	0.4659	AcceptH1
INFR does not Granger Cause RGDP	42	0.76112	0.4743	AcceptH1
RGDP does not Granger Cause INFR		0.72926	0.4891	AcceptH1
UNER does not Granger Cause RGDP	42	5.73252	0.0068	Reject Ho
RGDP does not Granger Cause UNER		7.47263	0.0019	Reject Ho
INTR does not Granger Cause RGDP	42	0.05459	0.9470	Accept H1
RGDP does not Granger Cause INTR		1.08270	0.3492	Accept H1
EXCR does not Granger Cause RGDP	42	1.37276	0.2660	Accept H1
RGDP does not Granger Cause EXCR		1.81793	0.1766	Accept H1

POVER does not Granger Cause RGDP	36	5.22519	0.0111	Reject Ho
RGDP does not Granger Cause POVER		0.06356	0.9385	Accept H1

Source: Author's Computation from E-Views 12, 2025.

This test was employed to establish the direction of causalities among explanatory variable in the model economic growth. Consequently, table 5 presented the Granger causality test. It is observed from the result that null hypothesis of granger causality between consumption (CONS), investment (INVE), government expenditure (GOVE), balance of payment (BOP), inflation (INFR), interest rate (INTR) and exchange rate (EXCR) were fail to be rejected at 5% level of significance level since their p-values were greater 0.05 respectively. This information indicates that there exists a **non-directional** causality running from the above explanatory variables to economic growth (RGDP) and vice –versa. This also implies that changes in these variables do not precede RGDP and changes in RGDP too do not precede these variables in Nigeria. This suggests that to a large extent, these variables do not exhibit strong influence on RGDP (economic growth). Similarly, RGDP has no strong impact on these variables in Nigeria. The result indicates that past value of these variables do not provide useful information for predicting future values of RGDP. More so the result shows that investment (INVE) and poverty rate (POVER) indicates that there is **unidirectional** causality. This implies that investment reject null hypothesis (Ho) for one direction as the p-value is less than the 0.05 significance level. This also means that investment does not granger causes RGDP but RGDP granger cause investment as the p-value is less than 0.05 level of significance or the past values of investment do not provide useful information for predicting future values of RGDP but past values of RGDP provide useful information in predicting future values of investment.

Similarly, poverty rate reject null hypothesis (Ho) indicating that it granger cause RGDP, that is past values of poverty provide useful information in predicting future value of RGDP. And RGDP fail to reject Ho as p-value is greater than 5% significance level. RGDP does not granger caused poverty rate. This suggests that past values of RGDP are not useful for predicting future poverty rate. In nutshell, unidirectional causality, one variable granger another variable, but not vice versa. Lastly, UNER and RGDP both grangers cause each other. This implies that the past values of each variable provide useful information for predicting future value for each other. UNER and RGDP exhibit bidirectional causality as both variables granger causes one another or vice versa.

Table 6 ARDL Model Estimation Results (Estimated long-run parameters)

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-9762626.	3268165.	0.000000	0.0000
RGDP(-1)*	-0.042961	0.078694	-0.545919	0.6086
CONS(-1)	-1909.545	1150.029	-1.660431	0.1577
INVE(-1)	81.12635	102.8007	0.789161	0.4658
GOVE(-1)	-869.8982	683.2663	-1.273147	0.2589
BOP(-1)	2.807797	0.764173	3.674294	0.0144
INFR(-1)	9919.158	24038.89	0.412630	0.6970
UNER(-1)	686032.6	240514.7	2.852352	0.0357
INTR(-1)	199893.2	51122.49	3.910083	0.0113
EXCR(-1)	-34967.28	16710.58	-2.092523	0.0906
POVER(-1)	95468.23	34736.80	2.748331	0.0404
D(RGDP(-1))	-1.126598	0.321966	-3.499124	0.0173
D(CONS)	29.53654	637.0384	0.046365	0.9648
D(CONS(-1))	712.6471	1178.242	0.604839	0.5717
D(INVE)	501.3648	179.6214	2.791231	0.0384
D(GOVE)	428.7287	246.4688	1.739484	0.1424
D(GOVE(-1))	600.9484	319.4174	1.881389	0.1187
D(BOP)	0.518763	0.315935	1.641995	0.1615
D(BOP(-1))	-2.134811	0.571307	-3.736718	0.0135
D(INFR)	-6263.784	10622.01	-0.589698	0.5810
D(INFR(-1))	-23077.64	16165.43	-1.427592	0.2128
D(UNER)	88739.13	96939.78	0.915405	0.4020
D(UNER(-1))	-269883.0	198270.8	-1.361184	0.2316
D(INTR)	38979.03	53466.19	0.729041	0.4987
D(INTR(-1))	-42344.39	48827.57	-0.867223	0.4255
D(EXCR)	90191.59	30150.41	2.991389	0.0304
D(POVER)	-9134.843	21887.08	-0.417362	0.6937
D(POVER(-1))	-98305.26	20341.83	-4.832664	0.0047

* p-value incompatible with t-Bounds distribution.

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CONS	-44448.77	78539.40	-0.565942	0.5959
INVE	1888.391	3519.895	0.536491	0.6146
GOVE	-20248.76	47706.15	-0.424447	0.6889
BOP	65.35753	123.0969	0.530944	0.6182
INFR	230889.8	432242.1	0.534168	0.6161
UNER	15968888	28912144	0.552325	0.6045
INTR	4652945.	8243652.	0.564428	0.5968
EXCR	-813939.0	1640396.	-0.496184	0.6408
POVER	2222229.	4588182.	0.484338	0.6486
C	-2.27E+08	4.51E+08	-0.503908	0.6357

EC = RGDP - (-44448.7731*CONS + 1888.3908*INVE -20248.7570*GOVE +

65.3575*BOP + 230889.8119*INFR + 15968888.4187*UNER + 4652945.0232*INTR -813938.9588*EXCR + 2222229.1109*POVER - 227246190.8013)

Source: Author's Computation from E-views 12, 2025.

From the ARDL long-run result in table 6 reveals that estimated parameters of consumption (CONS), government expenditure (GOVE), and exchange rate (EXCR) are negatively related to economic growth in Nigeria. This implies that one percent increase in consumption, government expenditure, and exchange rate, of -1909.545, -869.8982, and -34967.28 also brings about a decrease in percent in RGDP respectively. On the other hand, investment (INVE), balance of payment (BOP), inflation (INFR), unemployment (UNER), interest rate (INTR) and poverty (POVER) are positively related to economic growth in Nigeria Also one percent increase in the INVE, BOP, INFR, UNER, INTR, and POVER of 81.12635, 2.807797, 99919.158, 686032.6, 199893.2, and 95468.23 million naira will bring a corresponding increase in RGDP.

From the long-run result, it is observed that inflation rate is insignificant and positively related to economic growth in Nigeria. This implies that 1 % increase in inflation rate will increase RGDP by 9919.158 thousand of naira in the economy. This study did not align with the studies by Iheanachor and Ozegbe (2021), Omebere et-al (2024) that had a significant adverse impact on economic growth in Nigeria. However, CONS in the short run has a positive (29.53654) but insignificant impact on real economic growth. The coefficient of interest rate is significant and positively related to economic growth in Nigeria. This means that 1% increase in interest rate increases the economic growth by 199,893.2 million in the long run. This also agrees with the work by Omebere et-al (2024) on positive significant impact. Also interest rate is insignificant and positively impact or influence economic growth in Nigeria in a short run. A 1% increase in interest rate leads to an increase in economic growth by 38979.03 thousand naira in short run. The coefficient of unemployment rate is found to be significant (0.0357) and positively (686,032.6) impact on economic growth in Nigeria in the long run and in the short run UNER also has positive (88,739.3) but insignificant (0.4020) impact on RGDP in Nigeria. This implies that 1%increase in unemployment, increases economic growth (RGDP) by 686,032.6 million naira in a long run in economic growth in Nigeria and a percentage increase in unemployment rate, positively impacted or increased economic growth by 88,739.13 in a short run in Nigeria. This is consistent with the studies by Nnachi and Ugochukwu (2023), Idris (2021), and Omar and Nor (2020). Exchange rate coefficient is found to be insignificant (0.0906) and negatively (-34967.28) related to

economic growth. A percentage increase in exchange rate leads to -34967.28 decreases in economic growth in Nigeria in long-run, while in the short run, EXCR has a positive (90191.59) and significant (0.0304) impact on RGDP in Nigeria respectively. This study differs with the works of Omebere et al (2024), Achilike and Onoh (2023) whose works showed that exchange rate has significant positive impact on economic growth in Nigeria. But this study aligns with the works of Iheanachor and Ozegbe (2021) whose result also had a negative and insignificant impact. Furthermore, poverty rate from the analysis is found to be significant (0.0404) positively (95468.23) related to economic growth in Nigeria in the long run but in the short-run is insignificant (0.6937) negatively ((-9134.843) impact on economic in Nigeria. This implies that an increase in poverty rate of 95468.23 and -9134.843 leads to increase and decrease in economic growth in Nigeria both in long run and short-run respectively. In the other hand, poverty rate coefficient is found to be significant and positively affect economic growth in Nigeria. This implies that 1% increase in poverty rate leads to an increase in economic by 95468.23 in the long run. And 1% increase in poverty rate of – 9,134.843 thousand naira in a short-run leads to the corresponding decrease in economic growth. The negative coefficient suggests that higher poverty rates are associated with lower economic growth. This study is consistent with the works by Ezuwore-Obodoekwo et al (2024).

Lastly, the results of the controlled variables show that CONS has a negative (-1909.545) insignificant (0.1577) impact on economic growth in a long run but with insignificant (0.9648) positive impact on economic growth in short-run. Whereas INVE of (81.12635) reveals a positive and insignificant impact on economic growth in Nigeria in the long run but INVE in the short run has positive (501.3648) significant (0.038) impact on economic growth in Nigeria respectively. The result of GOVE has a negative (-869.8982) insignificant (0.2589) impact in long run but has a positive (428.7287) and insignificant (0.1424) impact on economic growth in Nigeria in short run respectively. Lastly, the coefficient of balance of payment (BOP) reveals a positive (2.807797) significant (0.0144) impact on RGDP in the long run, but in the short run, BOP exhibit a positive (0.518763) insignificant impact on real economic growth in Nigeria. Therefore, the estimated ARDL model for the study is as stated below:

RGDP= -227246190.8013 - 44448.7731*CONS + 1888.3908*INVE -20248.7570*GOVE + 65.3575*BOP + 230889.8119*INFR + 15968888.4187*UNER + 4652945.0232*INTR - 813938.9588*EXCR + 2222229.1109*POVER+ μ ……. …… (6)

Table 7 Breusch-Godfrey Serial Correlation LM Test

F-statistic	2.326301	Prob. F(2,32)	0.1140
Obs*R-squared	5.204451	Prob. Chi-Square(2)	0.0741

Source: Author's Computation from Eviews 10, 2025.

Table 7 Breusch – Godfrey serial correlation LM test. The result in this table shows that obs* R-squared statistics of LM test is 5.204451 with p-value of 0.0741 is greater than 0.05 critical value (significance level). The study therefore fails to reject null hypothesis (Ho) of no serial correlation in the model. Hence the study concludes that there is no presence of serial (autocorrelation). Also Durbin-Watson stat of 1.82 is close to 2 indicates or affirm that no serial correlation in the model. The implication is that there is no statistically significant evidence of serial correlation (autocorrelation) in the model's residuals at a 5% significance level. The residuals are independent, meaning the model does not suffer from autocorrelation problems at the specified lags. Obs*R-squared (5.204451) / Prob. Chi-Square (2) (0.0741) is the LM test statistic. While it is below the 10% threshold (0.10), it is above the standard 5% significance level (0.05), suggesting the evidence against the null is not strong enough to reject it. F-statistic (2.326301) / Prob. F(2,32) (0.1140)**;** this provides further confirmation that the serial correlation is not significant. The implication of the model is that regression model's standard errors are likely valid. In summary, the model passes the diagnostic check for serial correlation.

Table 8 Heteroskedasticity Test: Breusch-Pagan-Godfrey Test

F-statistic	0.252882	Prob. F(27,5)	0.9919
Obs*R-squared	19.04984	Prob. Chi-Square(27)	0.8682
Scaled explained SS	0.527094	Prob. Chi-Square(27)	1.0000

Source: Author's Computation from Eviews 10, 2025.

Table 8 Heteroscedasticity Test (Breucsch-Pagan-Godfrey) reveals that obs*R-squared statistics is 0.252882, with p-value of 0.9919 is greater than 0.05 significance level, the study therefore does not reject null hypothesis of Homoscedasticity. Hence the study concludes that the variance of the residuals is constant across all levels of the independent variables which confirm the homoscedasticity. Prob. F

(27, 5) = 0.9919**:** A p-value close to 1 means there is almost no evidence to suggest that the variance of the residuals changes.

Prob. Chi-Square (27) = 0.8682, this value is much higher than the standard 0.05 significance level, which is reinforcing the failure to reject the null hypothesis. In Conclusion**,** the data is homoscedastic. The variance of the analysis residuals is constant across the range of measured values, fulfilling a key assumption of Ordinary Least Squares (OLS) regression. The implication for the study model is that OLS coefficients are BLUE (Best Linear Unbiased Estimators). One can trust the standard errors, t-statistics, and p-values reported in the regression output.

Stability Test

This stability diagnostic test comprises of cumulative sum (CUSUM) test and cumulative sum (CUSUM) of square test

Cumulative Sum (CUSUM) Test

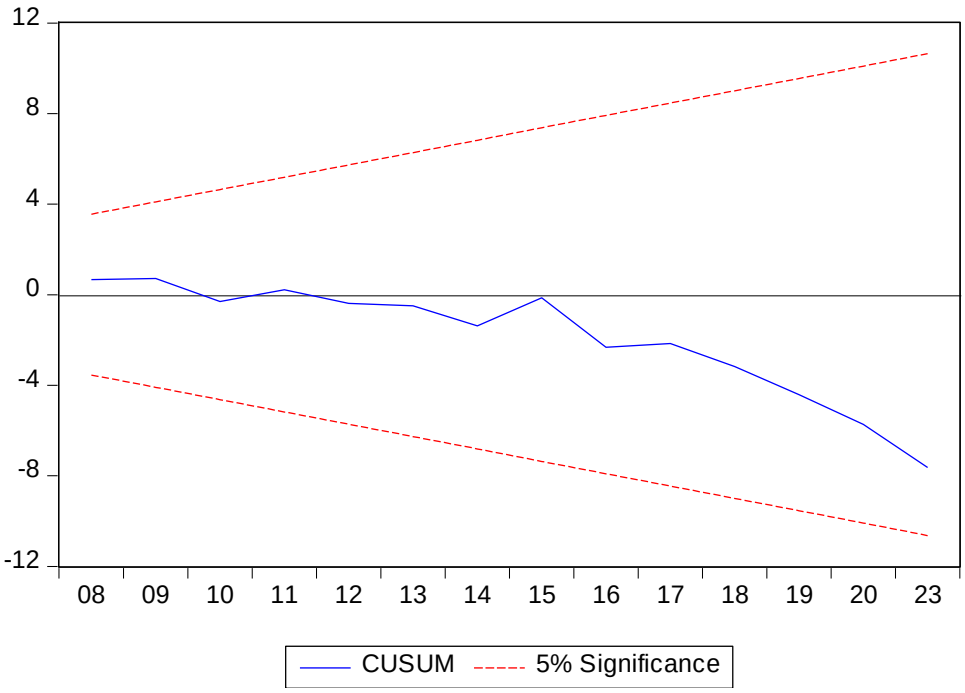

Figure 1: CUSUM Test

Source: Author's Computation from Eviews 10, 2025.

Figure 1 CUSUM of residuals test is used to determine the level of stability and constancy of the error term. CUSUM test focuses on the stability of the model. The result indicates evidence of stability in the parameters of the model and constancy of the error terms since the blue line within the critical region at 5% level of significance.

4.7. Discussion of Findings

This study has shown that some macroeconomic indicators can have different impact on the economic growth. The findings of this study contribute to the growing body of literature on the nexus between macroeconomic indicators and economic growth (real GDP).

Precisely the autoregressive distributed lag (ARDL) long-run result for the focal macroeconomic indicators: inflation rate (INFR) reveals insignificant positive relationship with economic growth. This implies that 1% increase in inflation rate will increase RGDP by 9919.158 thousand of naira in a long run. This study did not align or support the works by Omebere et-al (2024), and Iheanachor and Ozegbe (2021), and Adaramola and Dada (2020) whose findings showed that inflation exert a significant adverse impact on economic growth in Nigeria. This study is in line with the study apriori expectation. The positive coefficient suggests a potential complex relationship between inflation and economic growth. Other factors might be driving economic growth and inflation may not be a significant contributor.

Furthermore, interest rate (INTR) from the analysis was found to be significant and positively related to economic growth in Nigeria. This means that 1% increase in interest rate, leads to an increase economic growth by 199,893.2 million naira in a long run. This study aligns with the works of Omebereet-al (2024) whose findings stated that interest rate had positive significant impact on economic growth in Nigeria. A positive coefficient and significant p-value of interest rate implies that interest rate has a significant and positive impact on economic growth in Nigeria. The implications of this result means that a higher interest rates may attract foreign investment, leading to increased capital inflows and economic growth. Also a positive relationship between interest rate and economic growth, suggests that monetary policy can be an effective tool for stimulating economic activity in Nigeria. In the short run, the result reveals insignificant and positive related to RGDP. That is 1% in interest rate leads to increase in RGDP by 38979.03 thousand of naira in the short run.

Exchange rate (EXCR) result found to be insignificant negative impact real GDP in Nigeria. A percentage increase in exchange rate leads to -349667.28 and 90191.59 thousand-naira decrease in real gross domestic product in both long run and short run. Exchange rate coefficient is found to be insignificant and negatively related to economic growth in the long run. A percentage increase in exchange rate leads to -34967.28 and 90191.59 decreases in economic growth in Nigeria both in long-run and short –run respectively. This study differs with the works of Omebere et al (2024), Achilike and Onoh (2023). This study also differs with the works of Iheanachor and Ozegbe (2021), and Adaramola and Dada (2020) whose findings showed that the exchange rate had or exert a significant adverse impact on Nigeria's economic growth. This study is also in line with the study apriori expectation. A negative coefficient of exchange rate with insignificant p-value on economic growth implies that exchange rate is statistically not significant. The implications of this result is that exchange rate volatility hurts economic growth or insignificant negative coefficient indicates that exchange rate volatility can lead to decreased economic growth, making it challenging for policymakers to achieve sustainable economic growth. An unstable exchange rate fluctuation creates uncertainty, deterring investment and hinders economic growth.

The result of unemployment rate (UNER) coefficient is found to be positively significant. This implies that 1% increase in unemployment rate, will increases economic growth (RGDP) by 686032.6 million naira in a long run. This is not consistent with the studies by Nnachi and Ugochukwu (2023), Idris (2021), and Omar and Nor (2020), whose findings showed that the coefficient of unemployment has a negative insignificant effect on economic growth in Nigeria. More so, the study is not in agreement with Nnachi and Ugochukwu (2023) whose finding showed that unemployment is inversely correlated with economic growth. This is also in line with the study apriori expectation. A positive coefficient of unemployment rate with significant p-value on economic growth in Nigeria implies that unemployment has a significant and positive impact on economic growth. This relationship suggests that as unemployment rates increase, economic growth tends to increase. Also a high unemployment rates can lead to social instability, increased crime rates and decreased overall well-being. In a short run, the analysis also reveals positively and insignificant impacts economic growths by 88739.13 in short run in Nigeria.

Furthermore, the coefficient of poverty rate from the result is significant and positively affects RGDP in a long run. This implies that 1% increase in poverty rate in Nigeria leads to a corresponding increase in

economic growth by 95468.23. But the result on long run reveals significant and positively related to economic growth in Nigeria. This implies that an increase in poverty rates leads to corresponding increase in RGDP by 95468.23 million naira. The negative coefficient in the short run suggests that poverty rate is negatively related to economic growth, meaning that as poverty rate increases, economic growth tends to decrease. The insignificant p-value indicates that the relationship between poverty rate and economic growth is not statistically significant. Given the lack of statistical significance, policymakers may not have prioritized poverty reduction as a means to boost economic growth.

The coefficients of the control variables indicate that consumption has a negative impact on real gross domestic product in Nigerian. This implies that a 1% increase in consumption leads to a decline or reduction in RGDP by 1909.545 which is statistically insignificant in Nigeria the in long run. This result is not consistent the works of Theaddeus et-al (2024) and Ibali et-al (2022) that found that consumption have a positive and significant impact on economic growth in Cameroon and Kosovo economic growth respectively. The coefficient of investment reveals a positive and insignificant impact on economic growth in Nigeria in the long run. But in short run investment also has a positive and statistically significant impact on real GDP in Nigeria. More so the coefficient of government expenditure shows a negative statistically insignificant impact on the real gross domestic product in Nigeria in the long run. This study did not align with study by Kihwele (2022) who stated that government expenditure has a positive significant impact on economic growth in Tanzanis specifically in the long run. Lastly the slope of balance of payment indicates a positive and statistically significant impact on real gross domestic product (RGDP) in Nigeria in the long run. This study technically aligns with the studies by Akparhuere (2023) and Tom et al (2021) whose works stated that balance of trade and trade openness have positive and significant impact on Bangladesh economic growth. The study further differs or not consistent with work of Alin (2023) who stated that current account balance has a negative and significant impact on gross domestic product (GDP).

The coefficient of determination (R^2) and its adjusted counterpart R-squared bar shows a high predictive power of the model with coefficient of 0.988504 and 0.973725 respectively in a long run. The estimated coefficient of error correction term was found to be -0.042961, showing that deviations from long run equilibrium are corrected at 4.2962% annually and converge towards its long –run steady state path. This indicates a signal that long run policy toward macroeconomic indicators has a significant impact on growth.

4.8. Policy Implications of Findings

The policy implications of the study findings suggest a unique economic landscape for Nigeriawhere traditional macroeconomictheories (like the inverse relationship between unemployment and growth are challenged and the policy implications shift from traditional economic theories to addressing structural issues and unorthodox relationships. The policy implications are as follows:

The statistically insignificant p-value and positive coefficient of inflation rate indicates that inflation in Nigeria is currently 'growth-neutral" or level that neither boosts nor hinders GDP. The relationship between inflation and economic growth is not statistically significant. This implies that inflation may not have significant impact on economic growth, other factors might be driving economic growth and inflation may not be a significant contributor.

A positive coefficient of unemployment rate with p-value statistically significant impact on economic growth in Nigeria is counter-intuitive which suggests "jobless growth" scenario or an expansion in the informal sector where labor is underutilized despite rising RGDP or (even in low-productivity jobs) technically adds to real gross domestic product (RGDP). This unexpected result implies that as unemployment rate increases, economic growth tends to increase. This calls for transition from quantity-based employment to quality-based employment policies as unemployment can exacerbate poverty levels as well as social instability, increase crime rate, and decreased overall well-being.

More so, insignificant negative coefficient of exchange rate indicates that volatility can lead to decreased economic growth, making it challenging for policymakers to achieve sustainable economic growth. Exchange rate fluctuations create uncertainty, deterring investment, and hindering economic growth. Also a negative coefficient of exchange rate suggests that a depreciation of the Nigeria currency (naira) can lead to decreased economic growth, possibly due to increased costs of imports, reduced investment and decreased consumer purchasing power. The lack of significance implies that exchange rate fluctuations (depreciation) are not strongly driving output or the growth in Nigeria is not currently driven by currency movements, likely due to a heavy reliance on imports for production.

Furthermore, interest rate with positive coefficient and significant p-value implies that interest is statistically significant and positively impact economic growth. This indicates that higher rates may be attracting investment or reflecting a well-managed monetary environment that spurs growth. Or higher

rates are positively driving growth which is counter-intuitive but may suggest that high rates are attracting foreign portfolio investment (FPI); or improving banking sector profitability which filters in RGDP. Also higher interest rate may attract foreign investment, leading to increased capital inflows and economic growth. A positive relationship between interest rates and economic growth suggest that monetary policy can be an effective tool for stimulating economic activity in Nigeria.

A positive coefficient of poverty rate and statistically significant suggests that poverty rate is positively related to economic growth meaning that as poverty rate increases, economic growth also increases. This further suggests that the benefits of RGDP growth are not reaching the poor (inequality). This is critical "red flag' finding. It implies that Nigeria's growth may be driven by sectors that benefit from low-wage labor or that the wealth generated is highly concentrated.

The negative and significant coefficient of consumption suggests that the Nigeria economy is likely driven more by external demand (exports) or government activity, or factors other than the domestic household spending such as oil exports.

The positive and insignificant impact of investment on economic growth in Nigeria implies that investment is not currently a strong enough engine for growth or is currently "sub-optimal" while it is in the right direction (positive), but it is not strong enough to move the needle on growth significantly.

Government expenditure with negative and insignificant impact on real economic growth points to 'fiscal drag' or inefficient public spending that fails to stimulate the economy. Or it suggests 'fiscal crowding out' or high level of wasteful and unproductive spending. In nutshell, government spending is not effectively boosting growth may be due to inefficiencies, leakages, government actions (taxes spending) slowing growth.

The result of balance of payment with positive and significant impact on economic growth suggests that Nigeria's growth is heavily tied to its external trade position (likely oil exports) or Nigeria remains an export-dependent economy (oil) where trade surpluses are major engine of growth.

5.0 Conclusion

The study concludes that macroeconomic indicators such as inflation, unemployment, interest rate, exchange rate and poverty rate, and the control variables have varied impact on economic growth in

Nigeria. Precisely inflation, exchange, consumption, investment and government expenditure do not exert a statistically significant long-run impact on economic growth in Nigeria. These macroeconomic indicators have no significant impact on economic growth in Nigeria, suggesting other factors drive growth. On the other hand, unemployment, interest rate, poverty rate and balance of payment have significant impact on economic growth in Nigeria. Poverty rate have significant positive impact on economic growth in Nigeria, possibly due to increased government spending on poverty alleviation and growing informal sector contributions. The study therefore concludes that macroeconomic indicators have a mixed impact on economic growth in Nigeria. Specifically, unemployment, interest rate, poverty rate and balance of payment have significant impact on economic growth in Nigeria; whereas inflation, exchange rate, consumption, investment and government expenditure are not statistically significant or their impact on economic growth in Nigeria is insignificant. Poverty reduction efforts may be contributing to economic growth, unemployment and interest rate are 'counter-intuitive' whereas inflation currently growth-neutral in Nigeria. Investment on the other hand is currently 'sub-optimal' while government expenditure points to 'fiscal drag' or suggests 'fiscal crowding out'

The findings suggest that Nigeria's economic growth is on the other hand resilient to traditional macroeconomic indicators, but vulnerable to poverty. This implies that economic growth is not solely driven by monetary policy or exchange fluctuations, but rather by the well-being of its citizens. The significant positive impact of poverty rate on economic growth indicates that reducing poverty can be key driver of economic expansion.

Based on the findings, macroeconomic indicators and economic growth in Nigeria general observation indicates that macroeconomic indicators (inflation, exchange rate, consumption, investment and government expenditure) shows insignificant impact on economic growth, suggesting: weak macroeconomic management with respect to ineffective policies or structural issues and economic growth is driven by other factors (example oil, and external factors). The study findings have a mixed performance. Macroeconomic indicators are not strongly influencing economic growth in Nigeria, and poverty reduction efforts have significant positive impact on economic growth, indicating effective poverty- targeted interventions.

The findings reinforce the argument that macroeconomic indicators are not in their optimal level in Nigeria as clearly shows that inflation is not at optimal level due to persistent high inflation rates in Nigeria history. Unemployment rate is not in its optimal level as high unemployment rates persist in Nigeria. Exchange rate too is not at optimal level base on volatile exchange rate, impacting investment, interest rate also not optimal with high interest rates, limiting access to credit and poverty rate improving, but still high through with significant positive impact on growth.

The study therefore concludes that macroeconomic indicators are not in their optimal level due to: structural issues (weak institutions, infrastructure constraint), policy challenges (ineffective policy implementation, corruption), and external factors (global economic trends, oil price volatility). Nigeria's macroeconomic indicators require sustained policy attention to achieve optimal levels and promote sustainable growth.

5.1 Recommendations

Based on the study findings, the following recommendation are made for the government or policymakers:

i. As regards inflation rate control, policymakers and Central Bank of Nigeria (CBN) should shift focus from aggressive inflation targeting to supporting output and maintaining prudent fiscal and monetary policies to ensure price stability rather than aggressive contractionary measures, as current inflation level are not the primary bottleneck for growth. Fiscal spending should regulate and fiscal-monetary misalignment should be address.
ii. Of exchange rate management, policymakers or Central Bank of Nigeria (CBN) should maintain and focus on stable exchange rate regime rather than aggressive devaluation or revaluation. The goal should be to reduce uncertainty for importers of capital goods without expecting currency changes to be a primary driver of RGDP. Or instead of heavy market intervention to defend the naira, policy should focus on structural reforms to diversify exports, promote export-oriented policies, and making the economy less vulnerable to external currency shocks.
iii. For unemployment reduction, policymakers should shift from mere 'growth-tracking' to 'inclusive growth' strategies and focus on labor-intensive sectors like agriculture and manufacturing to ensure RGDP growth actually translates into jobs. Also implement job-creating policies, promote

entrepreneurship, skills development and unemployment reduction strategies should be reevaluated and targeted.

iv. Interest rate management, policymakers or Central Bank of Nigeria should use the monetary policy rate (MPR) as a primary tool for economic growth stimulation, and monitor the threshold to ensure rates do not become high enough to stifle local borrowing. And to review interest rates structures to stimulate investment, and monetary policy transmission mechanism should be strengthening as well as explored other alternative growth drivers and policy tools.

v. Poverty rate, policymakers should implement inclusive growth policies, shift focus toward 'pro-poor' and scale up poverty-targeted interventions to enhance social safety nets, expand conditional cash transfers programmes, redistributive fiscal policies (progressive taxation), and livelihood support programs and to enhance vocational training, entrepreneurship programs, access to finance, prioritize human capital development, and regional integration to ensure rising RGDP actually reduces poverty rate rather than co-existing with it.

vi. Government should stimulate domestic aggregate demand with policies like personal income tax cuts, or improved consumer credit facilities to help turn consumption in a positive driver of growth or the policies should aim to boost domestic, purchasing power and stimulate aggregate demand to create a more balanced consumption-led growth model.

vii. Policy should improve the 'ease of doing business' provide tax incentives to transition investment from 'insignificant' to a primary driver of RGDP and address structural bottlenecks like power and security to make investments more 'significant in their impact on RGDP.

viii. Government should implement drastic reform of public financial management aimed to eliminate waste and redirect spending toward productive capital projects (infrastructure) rather than recurrent costs or enhance fiscal discipline, shift spending to capital expenditure that have higher multipliers for growth.

ix. Government should prioritize export diversification and import substitution to maintain a healthy surplus and protect the economy from external shocks, and policies should encourage non-oil exports to protect the balance of payment from global oil price volatility.

These macroeconomic indicators with insignificant negative influence on economic in Nigeria should serve as a pointer to the government or policymakers in terms of policy to keep track of the effect of these macroeconomic indicators on economic growth in future to ensure that there is a smooth and predictable outcome when economic decisions are made.

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