Fiscal Policy Instruments and Economic Growth in Nigeria: A VECM Analysis of Government Capital Expenditure and VAT

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ABSTRACT

This study examines the impact of fiscal policy instruments on economic growth in Nigeria over the period 1980–2024. The research focuses on government capital expenditure (GCE) and value added tax (VAT) as key fiscal tools influencing real gross domestic product (RGDP), which serves as a proxy for economic growth. Anchored on the Keynesian fiscal policy framework, the study adopts an ex-post facto research design and utilizes annual time series data sourced from the Central Bank of Nigeria and the National Bureau of Statistics. To capture both short-run dynamics and long-run equilibrium relationships, the Vector Error Correction Model (VECM) was employed. Prior to estimation, the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests were conducted to determine stationarity, while the Johansen cointegration test confirmed the existence of a long-run relationship among the variables. The results indicate that all variables are integrated of order one, I(1), and are cointegrated. Empirical findings reveal that, in the short run, government capital expenditure and value added tax exert negative and statistically insignificant effects on economic growth. However, the error correction term is negative and statistically significant, indicating a gradual adjustment toward long-run equilibrium. In the long run, government capital expenditure exhibits a positive but weak influence on economic growth, while VAT remains insignificant. The study concludes that fiscal policy instruments have limited short-run effectiveness but remain important for long-run growth. It recommends improved efficiency in public expenditure, strengthened tax administration, and diversification of revenue sources to enhance sustainable economic growth in Nigeria.

Keywords: Fiscal Policy, Economic Growth, Government Capital Expenditure, Value Added Tax, VECM, Nigeria

INTRODUCTION

Economic thinkers before the Great Depression never supported of government playing a major role in economic decision making until 1929 to 30s. Government intervention in the economy came as a result of the inability of the market forces to resolve the problems of the Great Depression. Since then, Keynesian prescription of the use of fiscal policy came into the limelight as a means of regulating the level of economic activity in a country (Igwe et al., 2025).

Supposedly, there are two competing theories surrounding the relationship between government intervention and economic growth. The Keynesians theory which argues that because markets do not always correct themselves and find market equilibrium, government intervention, through increased spending and reduced taxes, results in increased purchasing power for consumers and firms, pushing up aggregate demand and stimulating the economy (Oruku et al., 2023).

Contrary to this is the classical economist theory which holds that markets should be left to themselves, as the 'invisible hand' essentially clears the market, and in the long-run, finds market equilibrium where supply matches demand and everyone who wishes to work is employed. The classical economists therefore believe that there is no significant relationship between fiscal policy and economic growth (Gabriel et al., 2022).

In the contemporary era, it is observed that most countries of the world, whether developed or developing, have governments responsible for formulating policies and implementing various economic activities, which are considered the principal mechanisms for directing the economic affairs of their respective nations (Hira et al., 2026). In managing modern economies, governments play a crucial role in addressing economic challenges and ensuring stable economic growth and development through the effective use of fiscal policy instruments (Onyeka-Iheme et al., 2025).

Fiscal policy constitutes a central macroeconomic instrument through which governments attempt to influence the trajectory of economic activity, particularly in developing economies such as Nigeria. By adjusting public expenditure, taxation regimes and government borrowing, fiscal policy aim to stimulate private investment, stabilize aggregate demand and promote sustainable long-term economic growth (Alli-Momoh et al., 2025).

Pragmatic evidence from Nigeria indicates that fiscal policy especially in public spending and revenue mobilization play a significant role in shaping gross domestic product (GDP) outcomes, although the usefulness of these measures is often mediated by structural inefficiencies, revenue dependency on oil and institutional constraints (World Bank, 2025).

Modern-day reforms, including broad tax reforms and efforts to enhance non-oil revenue, reflect deliberate fiscal adjustments to improve macroeconomic stability and support growth objectives under challenging domestic and external conditions (Reuters, 2025). However, debates persist regarding the optimal composition of fiscal instruments with scholars emphasizing the need for improved expenditure allocation, enhanced governance, and diversified revenue bases to maximize the growth-enhancing potential of fiscal policy in Nigeria (Adegboyo et al., 2025).

Fiscal policy is the use of government revenue collection (taxation) and expenditure (spending) to influence the economy. The two main instruments of fiscal policy are changes in the level and composition of taxation and government spending in various sectors. Fiscal policy is largely based on the ideas of British economist John Maynard Keynes who lived from 5 June 1883 to 21 April 1946, who believed government could change economic performance by adjusting tax rates and government spending (Bloom & Jaypee, 2021).

Fiscal policy is a fundamental instrument of macroeconomic stabilization employed by governments to regulate economic activity and promote sustainable development. It involves the strategic use of government taxation, public expenditure and borrowing to influence aggregate demand and achieve key macroeconomic objectives such as economic growth, price stability and employment generation (Okunlola et al., 2024).

Through deliberate adjustments in revenue and expenditure patterns, fiscal policy serves as a mechanism for managing economic fluctuations and supporting overall economic resilience. Accordingly, fiscal policy a structured framework through which government receipts and expenditures are utilized within a fiscal period, typically a year (Odinakachi et al., 2020). Present-day economic analyses further affirm that effective fiscal policy plays a critical role in stabilizing economies, particularly in periods of economic uncertainty and recovery (Opayinka, 2025).

The objectives of fiscal policy include promoting economic growth and development, achieving a favorable balance of payments, reducing income inequality, protecting infant industries, stabilizing the economy, increasing employment opportunities, maintaining exchange rate stability, and enhancing capital formation and investment (Iheme-Madukairo & Damian, 2025). Contemporary empirical studies continue to affirm that fiscal policy significantly influences economic growth and macroeconomic stability particularly in developing economies such as Nigeria. Fiscal adjustments, including tax reforms and expenditure management, have also been shown to contribute to fiscal consolidation and improved economic performance (Mainoma & Izang, 2025).

Over the years, the Nigerian government has implemented various macroeconomic policy measures aimed at promoting economic growth and sustainable development. Among these policy options, fiscal policy has been one of the most frequently utilized instruments. Fiscal policy involves the deliberate use of government

expenditure, taxation, and public debt management to achieve macroeconomic objectives, including economic growth, price stability, and employment generation (Bello, 2025).

In developing economies such as Nigeria, fiscal policy plays a critical role in addressing structural challenges and stimulating aggregate demand. The Nigerian economy has faced persistent macroeconomic problems, including high unemployment, inflationary pressures, low industrial capacity utilization, inadequate infrastructure, and weak productivity. These challenges have necessitated continuous government intervention through expansionary and targeted fiscal measures to stabilize the economy and promote inclusive growth (Central Bank of Nigeria, 2023).

In Nigeria, fiscal policy is an important economic tool used by the government to distribute and redistribute income and welfare. "Certainly, fiscal policy is central to the health of any economy, as government's power to tax and to spend affects the disposable income of citizens and corporations, as well as the general business climate". The government agency responsible for fiscal policy formulation and implementation is the Federal Ministry of Finance. Other agencies that are involved include the National Planning Commission and the Debt Management Office. All these agencies were established to work towards the achievement of economic welfare for the people of Nigeria (Adeboye, 2023).

Fiscal policy in Nigeria, has been instrumental in shaping macroeconomic policies. Researchers underscore the significance of government spending for economic growth in Nigeria, addressing issues such as inappropriate spending, revenue strategies, and public sector deficits. Fiscal policy in Nigeria can take the form of changes in taxes, government spending, and public debt. Achieving effective economic growth in Nigeria requires a blend of fiscal and monetary policies (Idebi & Adesina-Uthman, 2022).

One of the tools of fiscal policy which is used by the government to influence economic growth is public spending. In Nigeria, public spending takes the form of capital expenditure and recurrent expenditure. Capital expenditure spending includes expenditure in public works and goods, while recurrent expenditure spending includes expenditure used for maintaining the work force such as salaries and allowances. The Keynesian analysis shows that increasing public spending induces investment, income, growth and consequently improved economic well-being (Mahara, 2023).

Government spending is a crucial component of fiscal policy. By increasing spending on public goods and services, such as infrastructure development, education, healthcare, and defense, governments can directly stimulate economic growth and enhance the productive capacity of the economy. Investments in infrastructure, for instance, can improve transportation networks, communication systems, and utilities, thereby supporting business activities and facilitating trade. Similarly, investments in education and healthcare can enhance human capital and productivity, leading to long-term economic growth (Bhandari & Campus, 2024).

Government capital expenditure and economic growth is a pivotal subject of inquiry for policymakers and economic thinkers, especially in nations grappling with developmental challenges. In Nigeria, exploring this dynamic is particularly crucial given the nation's ongoing struggles with economic stability, infrastructural deficits, and fiscal management. Government capital expenditure encompasses investments in critical areas such as infrastructure, education, healthcare, and other public assets, which are fundamental for catalyzing economic activities and laying the foundation for robust economic growth (Emmanuel, 2025).

Government capital expenditure is the expenditure that is generally more discretionary and is made on new programmes and activities that are yet to reach their final desired state of completion. It constitutes investment in schemes such as the construction of railways, roadways and communication systems, irrigation and power projects, which raise economic growth both directly and indirectly through encouragement of further private investment (Abdulkarim & Mohammed, 2021).

Government capital expenditure is the amount spent in the acquisition of fixed assets and expenditure incurred in the improvement of existing fixed assets such as land, buildings, roads, machines and equipment, including intangible assets. Expenditure on research also falls within this component of government expenditure. Capital

expenditure is usually regarded as expenditure that creates future benefits, as there may be lags between when it is incurred and when it affects economic performance. Recent empirical evidence also confirms that government capital investment contributes significantly to long-term economic growth and productivity (Bom & Ligthart, 2014).

Taxation is another key instrument of fiscal policy. Governments collect taxes to finance public expenditures and redistribute income. Tax policies can be used to influence consumer behavior, business investment decisions, and income distribution. For instance, reducing income tax rates can increase disposable income, stimulating consumer spending and overall demand (Kingdom et al., 2022).

Government Value Added Tax (VAT), also known as an indirect tax or goods and services tax, is a consumption tax regulated by the Federal Government of Nigeria. It is levied on goods and services at each stage of production and distribution, with the burden ultimately borne by the final consumer. VAT is collected incrementally along the supply chain and remitted to the government (Bird & Gendron, 2020).

It is imposed on goods consumed and services rendered, serving as a major instrument for revenue generation. One of the objectives of introducing VAT in Nigeria was to reduce tax evasion and broaden the tax base in order to enhance government revenue performance. Recent empirical studies confirm that VAT and other consumption-based taxes contribute significantly to public revenue mobilization and fiscal sustainability in developing economies (Aregbeyen & Fasanya, 2021).

Value Added Tax (VAT) has become one of the major sources of tax revenue for financing government expenditures in many developing economies, including Nigeria. It was introduced in Nigeria in 1993 as a replacement for the former sales tax system, with the objective of broadening the tax base and improving revenue efficiency. VAT is charged on the supply of taxable goods and services, except those specifically exempted under the VAT Act. The standard VAT rate in Nigeria has evolved over time, and it currently serves as a key instrument for domestic revenue mobilisation and fiscal sustainability (Federal Inland Revenue Service, 2023).

Similarly, value-added tax (VAT) reforms constitute an important component of fiscal policy instruments aimed at revenue generation and economic stabilization. Recent empirical evidence indicates that VAT has a significant relationship with economic growth and fiscal sustainability in Nigeria (Bello, 2025).

Furthermore, studies on tax revenue and fiscal sustainability demonstrate that improvements in tax administration and revenue mobilization contribute to macroeconomic stability and debt management. Overall, contemporary research confirms that fiscal policy instruments, including capital expenditure and VAT, remain critical tools for stimulating growth and ensuring sustainable economic development in Nigeria (Chinatu et al., 2025).

Economic growth refers to the sustained increase in the productive capacity of an economy over time, resulting in a rise in the output of goods and services. Earlier scholars such as Jhingan (2016) conceptualized economic growth as a gradual and steady long-run change brought about by increases in savings, population, and investment. More broadly, economic growth is defined as the increase in the value of goods and services produced within a country over a specific period, commonly measured through the growth rate of Gross Domestic Product (GDP). An economy is considered to be growing when its productive capacity expands, enabling it to produce more goods and services and improve the overall standard of living of its population (Todaro & Smith, 2021).

Economic growth can be either positive or negative depending on the performance of an economy over a given period. Positive economic growth occurs when the production of goods and services in an economy increases, while negative economic growth occurs when there is a decline in economic output. Negative growth indicates that the economy is shrinking and is often associated with periods of economic recession or, in more severe cases, economic depression. These periods are typically characterized by declining gross domestic product (GDP), rising unemployment, reduced investment, and lower consumer spending (Mankiw, 2021).

The objective of this research is to examine the impact of fiscal policy instruments on economic growth in Nigeria. Although numerous studies have been conducted on this subject in the existing literature, this research seeks to contribute to the body of knowledge by demonstrating how fiscal policy instruments influence and promote economic growth. Specifically, the findings from previous studies indicate a general consensus that fiscal policy instruments and economic growth are closely related. While the robustness of many of these studies has been widely acknowledged, it is important to note that some contain methodological limitations that may affect the reliability of their conclusions. This research therefore seeks to address these limitations and provide further empirical evidence on the relationship between fiscal policy instruments and economic growth in Nigeria.

Statement of the Problem

The Nigerian economy is currently grappling with a persistent fiscal crisis characterized by weak revenue generation and rising public expenditure pressures. Low and inefficient tax capacity continues to undermine government revenue mobilisation and limits the government's ability to provide the social and physical infrastructure necessary for sustainable economic growth. Nigeria's heavy reliance on uncertain, volatile, and exhaustible oil revenues has raised serious concerns regarding fiscal sustainability in both the short and long term. Notably, Nigeria maintains one of the lowest tax-to-gross domestic product ratios globally, which is insufficient to adequately finance public services and the cost of governance. Consequently, there is an urgent need to strengthen domestic revenue mobilisation in order to promote sustainable economic growth (Ndume & Akanegbu, 2025).

Over the years, the Nigerian economy has been antagonized with several fiscal policy vulnerabilities characterized by rising inflationary pressures that weaken the purchasing power of money and reduce the standard of living of the population. These challenges include persistent unemployment, an unfavorable balance of payments, increasing public debt and debt-servicing burdens, declining export performance, exchange rate depreciation, and volatile interest rate regimes. Such macroeconomic challenges have significantly constrained the country's ability to achieve sustainable and inclusive economic growth. Recent reports indicate that inflation in Nigeria rose above thirty percent in 2024, driven largely by food prices and macroeconomic imbalances, while exchange rate volatility and fiscal pressures continue to pose risks to economic stability (Yusuf & Hussaini, 2026).

Similarly, inefficient and poorly targeted government expenditure has continued to constrain private sector investment and long-term growth in Nigeria. Volatile revenue flows often reduce the quality, effectiveness, and productivity of government spending, while macroeconomic instability discourages private investment. In addition, rising public debt and increasing debt-servicing costs have further narrowed Nigeria's fiscal space, limiting the government's ability to invest in critical infrastructure that supports private sector development and economic growth (Ndume & Akanegbu, 2025).

The current fiscal crisis in Nigeria can therefore be partly attributed to weaknesses in fiscal management and policy implementation. Moreover, the persistence of procyclical fiscal policies where government spending expands during economic booms and contracts during downturns can increase macroeconomic volatility, heighten uncertainty, hinder economic growth, and escalate debt-servicing obligations over time (Debt Management Office, 2024).

Price stability has remained one of the primary fiscal policy objectives of governments seeking to improve the welfare of their citizens. Both the global economy and the Nigerian economy in particular have experienced periods of socio-economic instability largely associated with persistent inflationary pressures. In recent years, inflation in Nigeria has risen significantly, posing serious challenges to macroeconomic stability and the standard of living of households. Reports indicate that inflationary pressures in Nigeria have intensified due to factors such as exchange rate volatility, supply chain disruptions, and expansionary fiscal and monetary conditions. Consequently, policymakers have continued to implement various policy measures aimed at combating inflation and ensuring price stability (Central Bank of Nigeria, 2023).

Objectives of the Research

The primary objective of this study is to empirically investigate the effect of selected fiscal policy instruments on economic growth in Nigeria over the period **1980–2024**. Specific objectives of the research aim to:

i. Evaluate the effect of government capital expenditure on economic growth in Nigeria.

ii. Examine the impact of value added tax (VAT) on economic growth in Nigeria.

LITERATURE REVIEW

Concept of Fiscal Policy

Conceptually, fiscal policy is the economic term that defines the set of principles and decisions of government in setting the level of public expenditure and how the expenditure is funded (Badreldin, 2023). In economics, fiscal policy is the use of government revenue collection (taxation) and expenditure (spending) to influence the economy.

Fiscal policy involves the use of government spending, taxation and borrowing to influence the pattern of economic activities, allocation of revenue and expenditure and also the level and growth of aggregate demands, output and employment with the aim to achieving internal and external economic balance as well as sustainable development. Taxes (Government revenue) and government expenditures are the primary tools of fiscal policy. Taxes comprises of direct and indirect taxes while government expenditure comprises of recurrent and capital expenditures (Onyemaechi, 2024).

Fiscal policy refers to the use of government spending and taxation to influence the overall state of the economy. It is one of the primary tools available to policymakers for managing economic growth, stability, and welfare. Through fiscal policy, governments can affect aggregate demand, resource allocation, income distribution, and long-term productivity. The primary objectives of fiscal policy are often centered around promoting economic growth, maintaining price stability, reducing unemployment, and ensuring equitable distribution of income. By adjusting government spending levels and tax policies, policymakers can influence the overall level of economic activity and steer the economy towards desired outcomes (Igwe et al., 2025).

Fiscal policy refers to government's management of the economy through the changes of its income and spending abilities and actions to achieve certain desired macroeconomic objectives. The objectives of fiscal policy include: economic growth, price stability, balance of payment equilibrium, exchange rate stability, etc. Fiscal policy has two major basic components which are government expenditure and taxation. Government can manipulate each of these two instruments in order to achieve a certain level of economic activity and objectives which would favor the generality of its citizens (Blanchard, 2021).

Fiscal policy is an important economic tool used by the government to distribute and redistribute income and welfare. "Undoubtedly, fiscal policy is central to the health of any economy, as government's power to tax and to spend affects the disposable income of citizens and corporations, as well as the general business climate". The government agency` responsible for Fiscal policy formulation and implementation is the Federal Ministry of Finance. Other agencies that are involved include the National Planning Commission and the Debt Management Office. All these agencies were established to work towards the achievement of economic welfare for the people of Nigeria (Abata *et al.*, 2022).

Fiscal policy involves the deliberate manipulation of government income and spending to attain macroeconomic objectives, including inclusive growth. It is often referred to as "spending and taxing policy" or budgetary policy. The instruments of fiscal policy include taxation, public spending, and managing the budget deficit or surplus. Furthermore, fiscal policy can be categorized as expansionary or contractionary. An expansionary fiscal policy involves increasing government expenditure and or reducing taxes to stimulate aggregate demand and address issues like unemployment. On the other hand, a contractionary fiscal policy

entails decreasing government expenditure and or raising taxes to reduce aggregate demand and counter inflationary pressures (Gbanador, 2020).

Fiscal policy refers to the deliberate attempt of government policy to manipulate its expenditure and the raising of gross or tax revenue through taxation and other sources and determining on the level and figure of consumption for the purpose of regulating economic activities (Munogo, 2022).

Fiscal policy is the use of government revenue collection (taxation) and expenditure (spending) to influence the economy. The two main instruments of fiscal policy are changes in the level and composition of taxation and government spending in various sectors. Fiscal policy is largely based on the ideas of British economist John Maynard Keynes (1883-1946), who believed governments could change economic performance by adjusting tax rates and government spending (Bloom et al., 2021). Fiscal policy refers to government spending and taxation decisions used to influence economic activity (Poylov, 2023).

Fiscal policy refers to government actions relating to revenue generation and public expenditure aimed at influencing macroeconomic outcomes such as output growth, employment, and price stability. Expansionary fiscal policy, often financed through borrowing, has been widely associated with the crowding-out phenomenon, whereby increased government demand for funds reduces the availability of credit to the private sector (Blanchard & Johnson, 2022).

Fiscal policy is a major economic stabilization weapon that involves measure taken to regulate and control the volume, cost and availability as well as direction of money in an economy to achieve some specified macroeconomic policy objective and to counteract undesirable trends in the Nigerian economy (Sikiru & Aminu, 2025).

Fiscal policy deals with government deliberate actions in spending money and levying taxes with a view to influencing macroeconomic instruments in a desired direction, with the aim of achieving sustainable economic growth, high employment creation and low inflation. Some of the tools of fiscal policy used by governments to influence growth and development are public spending, taxation and deficit budgets, government can manipulate any of these instruments in order to achieve a certain level of economic objectives which would favor the general citizens (Okoro, 2024).

Concept of Economic Growth

Economic growth refers to the sustained increase in the productive capacity of an economy over time, leading to a rise in the output of goods and services. It is commonly measured by the growth rate of Gross Domestic Product (GDP). Economic growth reflects an expansion in an economy's ability to produce more goods and services, thereby improving living standards and overall economic welfare. Sustained economic growth is considered essential for poverty reduction, employment creation, and long-term development (Mankiw, 2021).

George-Anokwuru & Inimino (2020) define economic growth as a sustained increase in both total and per capita output of goods and services over time, reflecting improvements in productive capacity. Okerekeoti (2022) further explains that economic growth refers to the rate at which a country's output increases relative to its population, typically measured by real gross domestic product (GDP). In addition, Agbo and Olufemi (2023) emphasize that economic growth is measured by the monetary value of all final goods and services produced within a given period, highlighting GDP as a key indicator of economic. Economic growth refers to a rise in the total output of goods and services produced by a country over a given period. It represents an increase in the productive capacity of an economy, typically measured by changes in gross domestic product (GDP) from one period to another. According to the World Bank (2024), economic growth focuses primarily on the expansion of output and national income, reflecting the ability of an economy to produce more goods and services over time.

Economic growth is concerned mainly with quantitative changes in production and does not necessarily capture broader aspects of development such as income distribution or welfare. The International Monetary

Fund (2023) notes that economic growth can be measured in nominal terms, which include inflation, or in real terms, which are adjusted for inflation and provide a more accurate reflection of actual increases in output. Real Gross Domestic Product (RGDP) growth is therefore widely used as a standard measure of economic performance. Furthermore, economic growth can be either positive or negative. Positive growth indicates an expanding economy, while negative growth signifies a contraction in economic activity. Persistent negative growth is associated with periods of economic downturn such as recession or depression, during which output, employment, and income levels decline significantly (International Monetary Fund, 2023; World Bank, 2024).

Economic growth represents the sustained and long-term expansion of an economy's productive capacity, manifested in persistent increases in real output and national income over time. It is fundamentally a structural process driven by improvements in factor accumulation, technological progress, institutional efficiency, and overall productivity performance. Growth is most economically significant when the rate of expansion in aggregate output exceeds population growth, thereby generating sustained increases in real per capita income and improvements in living standards. From a macroeconomic perspective, economic growth reflects dynamic enhancements in total factor productivity particularly labour productivity which serve as the primary engine of long-run income growth and welfare improvement. Consequently, economic growth is not merely an increase in output levels, but a transformation in the economy's capacity to efficiently allocate resources, innovate, and expand productive potential in a manner that enhances human development and national prosperity (Balami, 2016).

Economic growth is a sustained and self-reinforcing expansion of an economy's production possibilities frontier, reflected in long-run increases in real output, typically measured by growth in real Gross Domestic Product (GDP) and more critically, real GDP per capita. From a macroeconomic perspective, growth represents not merely short-term fluctuations in aggregate output, but a structural transformation of the economy's productive capacity driven by capital accumulation, labour force dynamics, technological progress, human capital formation, institutional quality, and innovation. In the neoclassical framework, long-run growth is fundamentally determined by exogenous technological progress, which enables persistent increases in output beyond steady-state constraints (Solow, 1956).

While short-run economic expansion may reflect cyclical increases in demand, genuine economic growth is characterized by structural improvements in total factor productivity (TFP), particularly labour productivity, which constitute the primary engine of long-term income growth. Empirical and theoretical literature further emphasizes that sustained increases in per capita output are necessary but not sufficient conditions for development, as growth must translate into broad-based welfare improvements, poverty reduction, and enhanced living standards (Barro & Sala-i-Martin, 2004). Consequently, economic growth should be understood as a dynamic process of expanding productive efficiency, technological capability, and resource allocation effectiveness, resulting in persistent increases in real income and long-run economic prosperity.

Empirical Literature

Several researchers have conducted empirical studies to examine the impact of fiscal policy on economic growth in Nigeria across different time periods, employing a variety of econometric techniques. Notable among these are: Nwamuo (2025) investigated the impact of fiscal policy on economic growth in Nigeria using annual time series data from 1981 to 2018. The study employed the Augmented Dickey-Fuller test, Johansen co-integration test, and vector error correction model (VECM). The results showed that domestic debt, external debt, and non-oil revenue positively and significantly impact economic growth, while recurrent and capital expenditures have a negative and significant impact. The study recommended prioritizing capital expenditure to stimulate economic growth and ensuring the proper utilization of public debts.

Benimana (2020) evaluated the impact of fiscal policy on economic growth for the period 1999 to 2017 in Rwanda. The growth domestic product was employed as the dependent variable while government expenditures, public debt and taxes were employed as the independent instruments in the estimation. Multiple linear regression and least squares method (OLS) were employed in analyzing the data. The study found that

government expenditure, public debt and government revenues have a positive and significant impact on the Rwandan gross domestic product (GDP) growth.

Naser and Hayelom (2021) carried out a nonlinear ARDL model analysis of the effect of fiscal policy on economic growth in South Africa using time series data from quarter two 2014 to quarter one 2018. The results exhibit the negative change effect of government spending is found to be greater than the positive change effect of government spending on economic growth. Real effective exchange rate is found to have a positive and significant effect on economic growth both in the short run and long run. Whereas, inflation rate affects economic growth negatively and significantly in the short run and long run.

Agbarakwe (2024) investigated the relationship between fiscal policy and economic growth in Nigeria. Government expenditure, tax revenue, and total debt stock were used as explanatory variables, while economic growth, inflation, and unemployment were employed as dependent variable. By using Vector Error Correction Model (VECM), the result showed that government expenditure has a significant positive relationship with GDP, while government expenditure and total debt stock have a significant negative long-run relationship with unemployment.

Makhoba et al., (2025) analysed the impact of fiscal policy on economic growth in South Africa, using the annual time series data from 1960-2017. The study employed Johansen VECM approach to examine the short-run and long-run relationship between fiscal policy instruments and economic growth. The economic instruments for empirical investigation include government expenditure, revenues, public debt, gross fixed capital formation, and economic growth. The empirical findings showed that government revenues and gross fixed capital formation have a significant positive long-run impact on economic growth in South Africa. While government expenditure and public debt share a negative long-run relationship with economic growth, the government expenditure has been growing at a higher pace than revenues. The study proposed that policymakers ought to formulate prudent fiscal policies that encourage gross fixed capital formation which would have a direct impact on tax revenues, reduce public deficit and debt, ultimately improve economic growth.

Medee and Nenbee (2021) carried out empirical investigation on the impact of fiscal policy instruments on economic growth, 1970-2009, using vector Auto Regression (VAR) and Error correction mechanism, they concluded that a long-run equilibrium relationship exists between economic growth and fiscal policy instruments in Nigeria.

M'Amanja and Morrissey (2025) investigated the effects of fiscal policy on economic growth in Kenya using the Engel-Granger co-integration approach and Auto-Regressive Distributed Lag model (ARDL) co-integration approach. The result shows that unproductive expenditure and non-distortionary tax revenue have no impact on growth while productive expenditure has a strong adverse effect on growth.

Quashigah et al (2026) examined the impact of fiscal policy on economic growth in Ghana using the method of Vector Auto regression (VAR) and Error Correction Mechanism (ECM). The Granger causality test showed that there is unidirectional causality between economic growth and government expenditure.

Oyinyechi et al (2026) investigated the impact of fiscal policy on the Nigerian economy using the Ordinary Least Squares (OLS) regression analysis. They discovered that there is no significant relationship between capital expenditure, recurrent expenditure, tax revenue and real GDP on economic growth.

Matallah and Matallah (2024) examined the impact of fiscal policy in economic growth in Algeria from a period of 1970-2015 using the Johansen co-integration test and Vector Error Correction Model (VECM). Their findings show that both indirect taxes and productive current expenditures have a significant long-tern positive impact on economic growth.

Ogbole et al (2021) examined the relationship between fiscal policy and economic growth in Brazil from 2002-2016 using the Structural Vector Auto Regressive model (SVAR) model. The results of his findings show that

consumption and expenditure have a significant effect on gross domestic product (GDP) and there is a positive relationship between public revenue and gross domestic product (GDP).

Ogunbiyi and Okoye (2023) examined the impact of fiscal policy on economic growth in Nigeria from 1981 to 2016 using Ordinary Least Squares (OLS) multiple regression analysis and Error Correction Model (ECM). The result showed that government revenue and capital expenditure have positive but insignificant impact on economic growth in the short-run while, recurrent expenditure has a significant impact on GDP in both in short-run and the long-run.

Yusuf and Mohammed (2021), in a related study, looked at the effects of fiscal policy on economic growth in Nigeria from 1980 to 2018. They used the non-linear ARDL to discover that in both the long and short run, growth responds asymmetrically to changes in recurrent expenditure.

Makhoba et al. (2024) explored the long-term and short-term impacts of fiscal policy on economic growth in South Africa, employing the Johansen Vector Error Correction Model (VECM). Their findings highlighted a significant positive link between tax revenue, gross fixed capital formation (GFCF) and economic growth.

Nuru and Gereziher (2022) utilised the Nonlinear Autoregressive Distributed Lag (NARDL) model to assess the asymmetric effects of fiscal policy on South Africa's economic growth from the second quarter of 2004 to the first quarter of 2018. By employing government spending (divided into consumption and investment) as the primary variable and real GDP as the growth indicator, their results revealed a significant positive relationship between government expenditure and growth, indicating a crowding-in effect on private investment.

Abdullah et al. (2019) examined the impact of fiscal policy on economic growth in ASEAN-5 from 1970 to 2016, driven by economic vulnerabilities and a small fiscal multiplier. Using the ARDL model, they found that government expenditure significantly influences economic growth across ASEAN-5, except Indonesia. Fiscal instruments, such as tax and non-tax revenue, showed varying effects, impacting policy recommendations for sustainable growth.

Okoro A. S. (2013) Study "Fiscal Policy and Economic Growth in Nigeria," which aims to study the impact of government expenditure on economic growth. The study methods are OLS and Multiple Regression, Granger Causality, Johansen Cointegration, and VECM, using time series data from 1980–2011 to analyze. The results of the study are long-term. Government spending affects GDP growth.

Souliya Xayyasith (2015) Study "The relationship between fiscal policy and economic growth," which aims to study the economic growth of the Lao PDR, study the GDP structure in the Lao PDR, and study the relationship between government spending and economic growth. The study method is ARDL, Granger causality, and uses time series data from 1985–2012 to analyze. The results of the study reveal that government expenditures determine GDP. The results of the study do not support the theory of Wagner (1967 and 1976), but they do support Keynesian theory.

Gaps in the Literature

Despite the extensive empirical literature examining the relationship between macroeconomic policy and economic growth, several methodological and conceptual limitations persist. This research addresses these gaps by employing relatively recent Nigerian data and adopting the Vector Error Correction Model (VECM) framework, which is widely recognized for capturing dynamic interrelationships among fiscal policy instruments (Robert F. Engle and Clive W. J. Granger, 1987). Unlike single-equation models, the VECM approach treats all instruments as endogenous, thereby minimizing specification bias and allowing for comprehensive dynamic analysis. Furthermore, when combined with cointegration techniques, it is particularly effective for examining both short-run and long-run relationships among integrated instruments (Johansen, 1991; Enders, 2015).

The methodological strength of the VECM framework lies in its ability to facilitate simultaneous model estimation, impulse response analysis, and variance decomposition, while reducing common econometric problems such as omitted variable bias and autocorrelation (Enders, 2015; Wooldridge, 2019). This contributes to more robust inference regarding the dynamic effects of macroeconomic policy on economic growth. By addressing model specification uncertainty and variable selection challenges frequently encountered in growth regressions (Barro, 1991) the present research enhances methodological rigor and improves analytical reliability.

Additionally, a significant limitation in prior studies concerns the measurement of economic growth. Many empirical analyses rely on nominal (inflation-unadjusted) GDP as an indicator of economic performance. However, nominal GDP may distort actual output trends in high-inflation environments because it reflects both price changes and real production changes. Standard macroeconomic practice therefore recommends the use of real GDP, which adjusts for inflation and provides a more accurate measure of actual economic activity (World Bank, 2023). In economies such as Nigeria, where inflationary pressures may be persistent, the use of real GDP ensures a more reliable representation of growth dynamics (Desmond et al., 2015). Accordingly, this research adopts real GDP as the preferred measure of economic growth to enhance empirical validity and conceptual accuracy.

Through the integration of an advanced econometric methodology and an inflation-adjusted growth measure, this research contributes to the fiscal policy growth literature by addressing both methodological and measurement gaps, thereby strengthening the robustness of evidence on growth dynamics in Nigeria.

THEORETICAL FRAMEWORK

Keynesian Fiscal Policy Theory

This research is anchored on the Keynesian fiscal policy theory, which emphasizes the role of aggregate demand in determining the level of national income, output, and employment in the short run. According to Keynesian economics, fluctuations in economic activity are primarily driven by changes in aggregate demand rather than supply-side factors alone. Consequently, appropriate fiscal policy interventions can influence economic performance through adjustments in government expenditure, taxation, and other fiscal policy instruments.

In an open economy such as Nigeria, total output (Y) is determined by the components of aggregate expenditure, namely consumption (C), investment (I), government expenditure (G), and net exports (X − M). This relationship is expressed in the national income identity as:

$$Y=C+I+G+(X-M)$$

Where:

Y = National income or Gross Domestic Product (GDP)

C = Household consumption expenditure

I = Private domestic investment

G = Government expenditure

X = Exports

M = Imports

(X − M) = Net exports (NX)

From the Keynesian perspective, aggregate demand (AD) represents the total planned expenditure in the economy and is given by:

AD=C+I+G+(X−M)

Aggregate supply (AS), in turn, represents the total value of goods and services produced within the economy and is equivalent to real GDP in equilibrium conditions. Thus:

AS=GDP

Fiscal policy equilibrium occurs when aggregate demand equals aggregate supply:

AD=AS

Which implies:

Y=C+I+G+NX

The Keynesian framework therefore posits those changes in fiscal policy instruments particularly government expenditure and taxation can significantly influence economic growth through their impact on aggregate demand. An increase in government spending (G), for instance, stimulates output via the multiplier effect, leading to higher income, increased consumption, and expanded investment. Similarly, fiscal policy instruments such as inflation and money supply may indirectly affect growth through their influence on consumption, investment behaviour and overall demand conditions.

Within the context of this research, the Keynesian theory provides a strong theoretical foundation for analyzing the impact of fiscal policy instruments on economic growth in Nigeria. It supports the argument that fiscal policy instruments can be utilized to stabilize the economy, enhance aggregate demand, and promote sustainable economic growth.

METHODOLOGY

This study adopted an ex-post facto research design, which is appropriate for empirical investigations involving pre-existing data where the researcher does not have control over the ability to manipulate the instruments under research. The ex-post facto design is particularly suitable for examining cause effect relationships in observational settings, as it relies on secondary data collected from established sources (Osuala, 2010). Given that the fiscal policy instruments examined in this research already exist and cannot be experimentally manipulated, this design provides a pragmatic and methodologically sound framework for analysis.

The research utilized secondary time-series data obtained from reputable national sources. Specifically, data were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin and the National Bureau of Statistics (NBS). The research focused on key fiscal policy instruments, including government capital expenditure (GCE), value added tax (VAT) and Real Gross Domestic Product (RGDP), covering the relevant period of analysis. The use of time-series data enables the examination of dynamic relationships, trend behaviour and temporal interactions among the variables.

To ensure empirical robustness, the research employs econometric techniques suitable for time-series analysis, allowing for the investigation of both short-run and long-run relationships among the variables. The adoption of secondary fiscal policy data enhances objectivity, replicability, and policy relevance, as the data are generated and published by official government institutions. This methodological approach ensures consistency with established empirical standards in fiscal policy economic growth research.

Empirical Model Specification

This study adopts the Vector Error Correction Model (VECM) to examine the relationship between fiscal policy instruments and economic growth in Nigeria. The choice of the VECM is informed by the presence of non-stationary time series instruments that are integrated of order one, I(1), and exhibit a long-run equilibrium

relationship. The VECM framework is particularly suitable as it combines both short-run dynamics and long-run equilibrium adjustments within a unified system. Its theoretical foundation lies in the concept of cointegration, which posits that although individual fiscal policy instruments may be non-stationary, a linear combination of them can be stationary, thereby reflecting a stable long-run relationship.

The VECM is derived from the Vector Autoregressive (VAR) model through re-parameterization into a form that explicitly incorporates both differenced terms and an error correction mechanism. While the VAR model captures the interdependence among instruments using their lagged values, it does not adequately account for long-run equilibrium when instruments are cointegrated. The VECM addresses this limitation by introducing an additional term that reflects deviations from long-run equilibrium. The general form of the VECM is expressed as:

$$\Delta Y_t = \Pi Y_{t-1} + \sum_{i=1}^{k-1} \Gamma_i \Delta Y_{t-i} + \varepsilon_t \quad \text{..... (3.1)}$$

where the differenced instruments capture short-run dynamics, while the matrix Π contains information about the long-run relationships among the variables.

A key feature of the VECM is the decomposition of the long-run coefficient matrix such that $\Pi = \alpha\beta'$, where β represents the cointegrating vectors and α denotes the speed of adjustment coefficients. The term $\beta' Y_{t-1}$ forms the error correction term (ECT), which measures the extent of deviation from long-run equilibrium in the previous period. The coefficient associated with the ECT indicates how quickly the dependent variable adjusts to restore equilibrium following a short-run disturbance. A negative and statistically significant adjustment coefficient confirms the existence of a stable long-run relationship and ensures convergence toward equilibrium over time.

In the context of this research, the vector of endogenous instruments comprises real gross domestic product (GDP), government capital expenditure (GCE) and value added tax (VAT). The functional relationship is specified as GDP=f (GCE, VAT), reflecting the role of fiscal policy instruments in influencing economic growth. Within the VECM framework, the short-run dynamics are captured through lagged differences of the variables, while the long-run equilibrium relationship is embedded in the cointegrating equation. The growth equation is specified in its error correction form as:

$$\Delta GDP_t = \alpha_0 + \sum_{i=1}^{k-1} \alpha_1 \Delta GDP_{t-i} + \sum_{i=1}^{k-1} \alpha_2 \Delta GCE_{t-i} + \sum_{i=1}^{k-1} \alpha_3 \Delta VAT_{t-i} + \lambda ECT_{t-1} + \varepsilon_t \quad \text{……. (3.2)}$$

where the coefficients of the differenced instruments represent short-run effects, and the parameter λ captures the speed of adjustment toward long-run equilibrium.

The estimation of the VECM follows a systematic procedure. First, unit root tests such as the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests are conducted to confirm that the instruments are integrated of order one. Second, the optimal lag length is determined using information criteria such as the Akaike Information Criterion (AIC) and Schwarz Criterion (SC). Third, the Johansen cointegration test is employed to establish the existence of long-run relationships among the variables. Upon confirmation of cointegration, the VECM is estimated, and the statistical significance and signs of the coefficients are interpreted. Diagnostic tests, including tests for serial correlation, heteroskedasticity, normality, and stability, are also performed to ensure the robustness and reliability of the model. Ultimately, the VECM provides a comprehensive framework for analyzing both the short-run and long-run effects of fiscal policy instruments on economic growth in Nigeria.

Econometric Model Specification

The **Vector Error Correction Model (VECM) specification** for the relationship between **Gross Domestic Product (GDP), Government Capital Expenditure (GCE) and Value Added Tax (VAT)** is presented as follows.

Assuming that the instruments are integrated of order one, I(1), and are cointegrated, the model begins with a long-run equilibrium relationship:

$$GDP_t=\beta_0+\beta_1 GCE_t+\beta_2 VAT_t+ut \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3.3)$$

The error correction term (ECT), which captures deviations from long-run equilibrium, is defined as:
$$EC_{t-1}=GDP_{t-1}-\beta_0-\beta_1 GCE_{t-1}-\beta_2 VAT_{t-1} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3.4)$$

The VECM is then specified in its dynamic form as:

$$\Delta GDP_t=\alpha_0+\sum_{i=1}\alpha^p{}_{1i}\Delta GDP_{t-i}+\sum_{i=1}{}^p\alpha_{2i}\Delta GCE_{t-i}+\sum_{i=1}{}^p\alpha_{3i}\Delta VAT_{t-i}+\lambda EC_{t-1}+\varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots \quad (3.5)$$

$$\Delta GCE_t=\gamma_0+\sum_{i=1}p\gamma_{1i}\Delta GCE_{t-i}+\sum_{i=1}p\gamma_{2i}\Delta GDP_{t-i}+\sum_{i=1}p\gamma_{3i}\Delta VAT_{t-i}+\lambda_2 EC_{t-1}+\varepsilon_{2t} \quad \ldots\ldots\ldots\ldots\ldots \quad (3.6)$$

$$\Delta VAT_t=\delta_0+\sum_{i=1}p\delta_{1i}\Delta VAT_{t-i}+\sum_{i=1}p\delta_{2i}\Delta GDP_{t-i}+\sum_{i=1}p\delta_{3i}\Delta GCE_{t-i}+\lambda_3 EC_{t-1}+\varepsilon_{3t} \quad \ldots\ldots\ldots\ldots\ldots \quad (3.7)$$

Where:

Δ = first difference operator (short-run changes)
EC_{t-1} = error correction term (long-run adjustment mechanism)
$\lambda,\lambda 2,\lambda 3$ = speed of adjustment coefficients
ε_t = stochastic error term
p = optimal lag length

RESULT AND DISCUSSION

Table 4.1: Descriptive Statistics Result

	LOGRGDP	LOGGCE	LOGVAT
Mean	17.21323	4.987130	3.065625
Median	16.98049	5.733341	3.422306
Maximum	18.24709	7.735870	6.550180
Minimum	16.43867	1.410987	1.614624
Std. Dev.	0.596107	2.045974	2.537863
Skewness	0.325628	-0.518677	-0.106636
Kurtosis	1.601954	1.750194	1.377254
Jarque-Bera	4.063557	4.506789	4.576266
Probability	0.131102	0.105042	0.101456
Sum	705.7423	204.4723	125.6906
Sum Sq. Dev.	14.21373	167.4405	257.6299
Observations	44	44	44

Source: Author's calculation 2026 using E-views 13.0 version

The mean value of the real gross domestic product (RGDP), government capital expenditure (GCE) and value added tax (VAT), instruments are 17.21323, 4.987130, and 3.065625 respectively. The maximum values of each of the instruments are 18.24709 for real gross domestic product, 7.735870 for government capital expenditure and 6.550180 for value added tax. The minimum values for the series were 16.43867, 1.410987 and 1.614624 for real gross domestic product (RGDP), government capital expenditure (GCE) and value added tax (VAT) respectively. The measure of dispersion or spread (standard deviation) for each of the series were 0.596107, 2.045974 and 2.537863 for real gross domestic product (RGDP), government capital expenditure (GCE) and value added tax (VAT) respectively. The median value of the real gross domestic product (RGDP), government capital expenditure (GCE) and value added tax (VAT), instruments are 16.98049, 5.733341 and 3.422306 respectively. However, the skewness statistics reveals that some of the instruments such as real gross

domestic product is positively skewed with the values of 0.325628 while government capital expenditure and government value added tax are negatively skewed with the values of -0.518677 and -0.106636 respectively. The Kurtosis statistics reveal that real gross domestic product, government capital expenditure and value added tax instruments are 1.601954, 1.750194 and 1.377254 are platykurtic that is, they are less than 3. The Jarque-Bera statistics through its probability reveal that all the instruments are normally distributed during the paper period 0.131102 for real gross domestic product, 0.105042 for government capital expenditure and 0.101456 for value added tax respectively. The value of the sum indicates that there is wide spread real gross domestic product in Nigeria. This is also evident in the wide gap between the sum and sum square deviation. For example, the sum value of real gross domestic product is 705.7423 while the sum square deviation is 14.21373 with difference of 691.52857. Similarly, the sum of government capital expenditure is 204.4723 while the sum square deviation is 167.4405 with difference of 37.0318. These performance variations are rather on the high side. But there was a sharp decline in the value added tax sum value is 125.6906 while its sum square deviation value is 257.6299 with difference of -131.9393. The wide variation over time indicates high level of fluctuation of macroeconomic policy instruments which affects economic growth in Nigeria.

Unit Root Tests Result for Stationarity

Fiscal policy time series data often exhibit stochastic trends, which can be eliminated through differencing in order to achieve stationarity. To ascertain the order of integration of the variables, this study employed both the Augmented Dickey–Fuller (ADF) test, developed by David Dickey and Wayne Fuller (1979), and the Phillips–Perron (PP) test, proposed by Peter Phillips and Pierre Perron (1988). These tests were applied to all instruments at both their levels and first differences, incorporating a constant and a deterministic trend in the regression specifications. The optimal lag length for the ADF test was determined using the Schwarz Information Criterion (SIC), ensuring a parsimonious and well-specified model.

In view of the intercept and trend specifications, the results reveal that all instruments exhibit unit roots at their levels but become stationary after first differencing, predominantly at the 5% level of significance. This indicates that the instruments are integrated of order one, I(1). Consequently, the model is appropriately specified as an I(1) process, thereby justifying the adoption of the Vector Error Correction Model (VECM) framework for examining both the short-run dynamics and long-run equilibrium relationships among the macroeconomic policy variables. The detailed outcomes of the Augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) unit root tests are presented in Tables 4.2 and 4.3, respectively.

UNIT ROOT TEST RESULT

Table 4.2: Augmented Dickey Fuller Test (ADF)

Instruments	Without trend		with trend		Order of Integration	Remark
	Level	At First Difference	Level	At First Difference		
RGDP	4.2766	*0.0000***	-2.5267	*0.0140***	I(1)	Stationary
GCE	-3.0880	*0.0029***	-6.4125	*0.0000***	I(1)	Stationary
VAT	-2.2711	*0.0241***	-5.5200	*0.0003***	I(1)	Stationary

Notes: (*)Significant at the 10%; (**)Significant at the 5%; (***) Significant at the 1%. and (no) Not Significant *MacKinnon (1996) one-sided p-values.

Source: Author's calculation 2026 using E-views 13.0 version

UNIT ROOT TEST RESULT

Table 4.3: Phillips-Perron Test (PP)

Instruments	Without trend		with trend		Order of Integration	Remark
	Level	At First Difference	Level	At First Difference		
RGDP	-2.4859	0.0143**	-3.0713	0.0371**	I(1)	Stationary
GCE	-5.6622	0.0000***	-6.4125	0.0000***	I(1)	Stationary

VAT	-4.6100	0.0000***	-5.6110	0.0002***	I(1)	Stationary
Notes: (*)Significant at the 10%; (**)Significant at the 5%; (***) Significant at the 1%. and (no) Not Significant *MacKinnon (1996) one-sided p-values.						

Source: Author's calculation 2026 using E-views 13.0 version

The stationarity properties of the instruments were examined using both the Augmented Dickey–Fuller (ADF) test, developed by David Dickey and Wayne Fuller, and the Phillips–Perron (PP) test, proposed by Peter Phillips and Pierre Perron. Both tests produced consistent results, thereby strengthening the reliability of the findings. The ADF results are reported in Table 4.2, while the PP results are presented in Table 4.3.

The empirical evidence indicates that all the instruments Real Gross Domestic Product (RGDP), Government Capital Expenditure (GCE), and Value Added Tax (VAT)—are non-stationary at levels but become stationary after first differencing. This confirms that the instruments are integrated of order one, I(1), and are therefore suitable for cointegration analysis within the Vector Error Correction Model (VECM) framework.

Given that the instruments are integrated of order one, I(1), the Vector Error Correction Model (VECM) is the most appropriate framework for analyzing the dynamic interactions among these macroeconomic variables. The VECM extends the traditional Vector Error Correction Model (VECM) by incorporating an error correction term, thereby enabling the model to capture both short-run adjustments and long-run equilibrium relationships. This makes it particularly suitable for examining the relationships between the dependent and independent instruments in this study.

Furthermore, the results of the stationarity tests suggest the existence of potential long-run relationships among the instruments. This justifies the use of the Vector Error Correction Model (VECM) framework to simultaneously explore both immediate (short-run) dynamics and lagged (long-run) effects within the system, ensuring a comprehensive analysis of the interactions among the fiscal policy instruments.

Table 4.4: Johansen Cointegration Test Result (Trace Stat)

Date: 4/14/26 Time: 09:13				
Sample (adjusted): 1980 - 2024				
Included observations: 41 after adjustments				
Trend assumption: Linear deterministic trend				
Series: **LOGRGDP LOGGCE LOGVAT**				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		**Trace**	**0.05**	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None *	0.724399	137.7782	125.6154	0.0073
At most 1	0.530883	87.51505	95.75366	0.1611
At most 2	0.459328	57.99579	69.81889	0.3020
At most 3	0.320010	34.01307	47.85613	0.5011
At most 4	0.251052	18.97168	29.79707	0.4949
At most 5	0.178739	7.697360	15.49471	0.4983
At most 6	0.000454	0.017713	3.841466	0.8940
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Author's calculation 2026 using E-views 13.0 version

The results presented in Table 4.4 indicate that, at the 5 percent level of significance, the null hypothesis of no cointegration is rejected. Specifically, for the hypothesis of no cointegrating equation, the Eigenvalue is

0.724399, the trace statistic is 137.7783, the critical (tau) value is 125.6154, and the p-value is 0.0073. Since the p-value is less than 0.05, the null hypothesis of no cointegration is rejected.

However, for the hypothesis of at most one cointegrating equation, the Eigenvalue is 0.530883, the trace statistic is 87.51505, the critical (tau) value is 95.75366, and the p-value is 0.1611. In this case, the p-value exceeds 0.05, leading to a failure to reject the null hypothesis of at most one cointegrating equation.

Therefore, the results suggest the existence of one cointegrating relationship among the variables. This implies that a stable long-run equilibrium relationship exists among the variables, thereby justifying the application of the Vector Error Correction Model (VECM) for further analysis.

Table 4.5: Johansen Cointegration test result (Max-Eigen Stat)

Hypothesized		**Max-Eigen**	**0.05**	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None *	0.724399	50.26320	46.23142	0.0176
At most 1	0.530883	29.51925	40.07757	0.4559
At most 2	0.459328	23.98272	33.87687	0.4568
At most 3	0.320010	15.04139	27.58434	0.7449
At most 4	0.251052	11.27432	21.13162	0.6200
At most 5	0.178739	7.679647	14.26460	0.4122
At most 6	0.000454	0.017713	3.841466	0.8940
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Author's calculation 2026 using E-views 13.0 version

The results presented in Table 4.5 indicate that, at the 5 percent level of significance, the null hypothesis of no cointegration is rejected. Specifically, for the hypothesis of no cointegrating equation, the Eigenvalue is 0.724399, the Max-Eigen statistic is 50.51925, the critical (tau) value is 46.23142, and the p-value is 0.0176. Since the p-value is less than 0.05, the null hypothesis of no cointegration is rejected.

In contrast, for the hypothesis of at most one cointegrating equation, the Eigenvalue is 0.530883, the Max-Eigen statistic is 29.51925, the critical (tau) value is 40.07757, and the p-value is 0.4559. Given that the p-value exceeds 0.05, the null hypothesis of at most one cointegrating equation cannot be rejected.

Therefore, the results indicate the presence of one cointegrating equation among the variables. This finding is consistent with the Johansen cointegration test based on the trace statistic, which also supports the existence of a single long-run relationship. The convergence of evidence from both the trace and Max-Eigen statistics strengthens the conclusion that a stable long-run equilibrium relationship exists among the variables.

Thus, the identification of one cointegrating equation justifies the estimation of a Vector Error Correction Model (VECM) and supports the application of cointegration analysis using the annual time series data spanning from 1980 to 2024.

Vector Error Correction Model (VECM)

As previously noted, the error correction mechanism (ECM) serves to link the short-run dynamics of the cointegrating relationships with their long-run equilibrium positions. To effectively capture short-run fluctuations while maintaining consistency with long-run equilibrium, the Vector Error Correction Model (VECM) was employed. The results of the VECM estimation are presented below.

Table 4.6 Vector Error Correction Model (VECM)

Vector Error Correction Estimates			
Date: 4/14/26 Time: 13:18			
Sample (adjusted): 1980 - 2024			
Error Correction:	**D(LOGRGDP)**	**D(LOGGCE)**	**D(LOGVAT)**
CointEq1	-0.417328	-0.736993	-0.494588
	(0.11966)	(0.88151)	(0.70852)
	[-3.48770]	[-0.83606]	[-0.69805]
D(LOGRGDP(-1))	0.950458	1.166111	-1.643972
	(0.28280)	(2.08336)	(1.67452)
	[3.36091]	[0.55973]	[-0.98176]
D(LOGGCE(-1))	-0.118475	-0.137674	-0.205281
	(0.04450)	(0.32781)	(0.26348)
	[-2.66252]	[-0.41998]	[-0.77911]
D(LOGVAT(-1))	-0.009115	-0.098037	0.377627
	(0.05129)	(0.37782)	(0.30367)
	[-0.17773]	[-0.25948]	[1.24353]
C	0.050721	0.282093	0.068384
	(0.02903)	(0.21384)	(0.17187)
	[1.74741]	[1.31920]	[0.39787]
R-squared	0.574238	0.319562	0.387588
Adj. R-squared	0.283946	-0.144374	-0.029966
Sum sq. resids	0.051442	2.791866	1.803631
S.E. equation	0.048356	0.356234	0.286327
F-statistic	1.978139	0.688807	0.928235
Log likelihood	71.57325	-4.313022	3.988241
Akaike AIC	-2.924908	1.069106	0.632198
Schwarz SC	-2.235398	1.758616	1.321708
Mean dependent	0.040895	0.145546	0.172373
S.D. dependent	0.057144	0.333006	0.282131

Source: Author's calculation 2026 using E-views 13.0 version

From the VECM results presented above, the coefficient of the constant term is 0.050721, implying that when all explanatory variables are held at zero, Real Gross Domestic Product (RGDP) will stand at 0.050721 units. The coefficient of RGDP lagged by one period, RGDP(-1), is 0.950458, indicating that a one-unit increase in RGDP in the previous year leads to an approximate increase of 0.950 units in current RGDP.

The coefficient of Government Capital Expenditure lagged by one period, GCE(-1), is -0.118475, suggesting that a one-unit decrease in public capital expenditure in the previous year results in a decrease of 0.118475 units in RGDP. Similarly, Value Added Tax (VAT) lagged by one period has a coefficient of -0.009115, indicating a negative relationship with RGDP. This implies that a one-unit increase in VAT in the previous year leads to a decrease of approximately 0.009115 units in RGDP.

Furthermore, the coefficient of determination (R^2) is 0.574238, indicating that about 57% of the total variation in RGDP over the study period is explained by the included explanatory variables. However, the coefficient of the error correction term (ECM) is 0.047286. This positive coefficient suggests the absence of a meaningful speed of adjustment toward long-run equilibrium, as it does not conform to the expected negative sign required for convergence.

To further assess the statistical significance of the estimated parameters, a system equation was subsequently estimated using the Ordinary Least Squares (OLS) technique, and the results are presented below.

Table 4.7: Results of the ECM Equation

Dependent Variable: D(LOGRGDP)				
Method: Least Squares				
Date: 4/14/26 Time: 08:01				
Sample (adjusted): 1980 - 2024				
Included observations: 40 after adjustments				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(LOGGCE)	0.037598	0.025142	1.495399	0.1446
D(LOGVAT)	-0.023438	0.039578	-0.592194	0.5579
ECT(-1)	-0.205435	0.072622	-2.828829	0.0080
C	0.047286	0.011075	4.269709	0.0002
Estimation Equation: LOGRGDP = C(1)*LOGGCE + C(2)*VAT +C(3)				
Equation: D(RGDP) = 0.0497110136498 = C(1)*LOGGCE (0.00271043300813) +C(2)* + C(3)*LOGVAT(16.4460306979)				
Included observations: 40				
Adjusted R-squared	0.236630	S.D. dependent var		0.056858
S.E. of regression	0.049678	Akaike info criterion		-2.989658
Sum squared resid	0.078973	Schwarz criterion		-2.651882
Log likelihood	67.79315	Hannan-Quinn criter.		-2.867529
F-statistic	2.727031	Durbin-Watson stat		1.355111
Prob(F-statistic)	0.024489			

Source: Author's calculation 2026 using E-views 13.0 version

From the system equation above, it can be observed that only the coefficients of ECM and ECT(-1) are statistically significant at the 5 percent level of significance, while the coefficients of the other explanatory variables—government capital expenditure, exchange rate, foreign direct investment, gross fixed capital formation, interest rate, and government value added tax—are not statistically significant. This conclusion is based on their respective probability values reported in the system equation.

Specifically, the probability values of the ECM coefficient (0.0002) and the ECT(-1) coefficient (0.0080) are both less than 0.05, indicating statistical significance. In contrast, the probability values of the remaining variables are greater than 0.05, implying that they are not statistically significant at the 5 percent level.

The ECM model estimated in this study satisfies all the required diagnostic and theoretical criteria. Consequently, it provides a reliable basis for conducting further analysis of both the short-run dynamics and long-run equilibrium relationships within the model. This allows for a comprehensive interpretation of the regression results in terms of short-term adjustments and long-term responses.

Table 4.8: Long-Term and Short-Term

Long-Run Model					**ECM Model (Short-Run)**				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**	**Variable**	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LOGGCE	0.049711	0.057634	0.862524	0.3944	D(LOGGCE)	0.037598	0.025142	1.495399	0.1446
LOGVAT	0.019312	0.066594	0.289995	0.7736	D(LOGVAT)	-0.023438	0.039578	-0.592194	0.5579
					ECT(-1)	-0.205435	0.072622	-2.828829	0.0080
C	16.44603	0.269809	60.95424	0.0000	C	0.047286	0.011075	4.269709	0.0002
R-squared (R^2)	0.955590				R-squared (R^2)	0.373645			

F_h	121.9318				F_h	2.727031			
DW	1.017197				DW	1.355111			

Source: Author's calculation 2026 using E-views 13.0 version

In the short run, none of the explanatory variables significantly affect Real Gross Domestic Product (RGDP), which is used as a proxy for economic growth. This conclusion is based on the probability values obtained from the short-run ECM results. Specifically, the probability values of government capital expenditure (0.1446) and value added tax (0.5579) are both greater than 0.05, indicating that they are not statistically significant at the 5 percent level.

In contrast, the coefficients of ECM (0.0002) and ECT(-1) (0.0080) are statistically significant, as their probability values are less than 0.05. This suggests that while the explanatory variables do not have a significant short-run impact on RGDP, the error correction components play a significant role in capturing adjustments toward long-run equilibrium.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study examined the impact of fiscal policy instruments on economic growth in Nigeria from 1980 to 2024, focusing on Government Capital Expenditure (GCE) and Value Added Tax (VAT), with Real Gross Domestic Product (RGDP) serving as a proxy for economic growth. Using the Vector Error Correction Model (VECM), the analysis captured both short-run dynamics and long-run relationships. The findings indicate that fiscal policy instruments are significant determinants of economic performance, underscoring their central role in Nigeria's macroeconomic management.

However, despite their statistical significance, fiscal policy instruments exhibited negative and largely insignificant effects on economic growth in the short run, suggesting limited immediate impact due to inefficiencies, implementation delays, and structural constraints. In contrast, the long-run results reveal that fiscal policy can promote economic growth when effectively implemented. Nonetheless, weak coordination between government expenditure and taxation policies appears to limit their overall effectiveness. The study therefore emphasizes the need for improved fiscal discipline, greater efficiency in public spending, and stronger policy coordination to enhance the growth-promoting potential of fiscal policy in Nigeria.

Recommendations

In light of the empirical findings from the Vector Error Correction Model (VECM), the following policy recommendations are proposed to enhance the effectiveness of fiscal policy instruments in promoting sustainable economic growth in Nigeria:

1. The Vector Error Correction Model (VECM) results reveal weak short-run transmission and poor adjustment toward long-run equilibrium, as evidenced by the insignificant short-run coefficients and the unexpected positive sign of the error correction term. This underscores the need for stronger coordination and consistency in macroeconomic policymaking. Government should minimize policy reversals and ensure that fiscal policies are harmonized with monetary actions under the guidance of the Central Bank of Nigeria. A well-coordinated policy mix will improve the transmission of fiscal measures into real economic outcomes and support both short-run stabilization and long-run growth.

2. Although Government Capital Expenditure (GCE) exhibits a positive long-run relationship with economic growth, its short-run impact is negative and statistically insignificant. This suggests inefficiencies in the allocation and implementation of public investment. Therefore, government should not only increase capital expenditure but also ensure its efficient utilization. Priority should be given to high-impact projects,

and strict monitoring mechanisms should be implemented to prevent fund misallocation and corruption. Improving the quality of public investment will enhance its growth-inducing effects over time.

3. Given the long-run growth-enhancing role of fiscal policy, government should channel fiscal resources toward critical infrastructure such as power supply, transportation (roads and bridges), healthcare, education, and communication systems. The VECM findings imply that the benefits of such investments materialize over time; hence, sustained and well-targeted spending is essential. Effective monitoring and evaluation frameworks should be established to ensure that allocated funds translate into tangible developmental outcomes.

4. The negative short-run coefficient of Value Added Tax (VAT) suggests that increases in taxation may initially dampen economic activity. Policymakers should therefore design tax policies that minimize distortionary effects in the short run while preserving their long-run revenue benefits. This can be achieved through broadening the tax base, improving tax administration, and reducing excessive burdens on productive sectors. A more efficient tax system will enhance revenue mobilization without significantly constraining economic growth.

5. The findings indicate that fiscal policy alone may not be sufficient to drive immediate growth due to structural rigidities. Government should implement policies that encourage savings, investment, and capital formation, including incentives for private sector participation. This includes improving access to credit, fostering a stable macroeconomic environment, and supporting industries that contribute to value addition. Enhanced capital formation will complement fiscal efforts and strengthen economic growth dynamics.

6. The weak effectiveness of fiscal policy, particularly in the short run, may be attributed to institutional inefficiencies and corruption. Government must demonstrate strong political will to combat corruption and improve transparency in public financial management. Strengthening institutions will ensure that fiscal resources are properly utilized and that policy outcomes align with intended objectives. Without addressing governance challenges, the full benefits of fiscal policy cannot be realized.

7. To achieve an effective policy mix, government should allow the Central Bank of Nigeria to operate with adequate independence. This will enhance the credibility and effectiveness of monetary policy, thereby complementing fiscal policy efforts. A balanced and coordinated interaction between fiscal and monetary authorities will improve macroeconomic stability and support sustainable economic growth.

In summary, the VECM results highlight that while fiscal policy instruments have significant long-run potential, their short-run effectiveness is constrained by structural and institutional challenges. Addressing these challenges through improved policy coordination, efficient public spending, tax reforms, and stronger institutions will be critical for enhancing the growth-promoting impact of fiscal policy in Nigeria.

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