

## Unpacking the Relationship Between Fiscal Deficit and Economic Growth in Nigeria

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### Abstract

*This study examines the dynamic relationship between fiscal deficit and economic growth in Nigeria from 1981 to 2025, exploring the impact of these two macroeconomic variables within the broader debate on fiscal policy issues. Utilising a range of economic indicators, including GDP growth, fiscal deficit, gross fixed capital formation, labour force participation rate, and trade openness, the study determined the order of integration of the variables using Augmented Dickey–Fuller (ADF) and Phillips–Perron unit root tests and employed the Auto-Regressive Distributed Lag (ARDL) bounds test to investigate short-run and long-run relationships. The study found that fiscal deficit has a significant positive long-run relationship with economic growth in Nigeria. However, in the short run, fiscal deficit exhibits a direct but insignificant relationship with economic growth. Based on these findings, the study concluded that fiscal deficits stimulate growth in the economy in both the short run and long run, but cautions that governments should manage deficit financing carefully to ensure sustainable economic growth without*

*undermining long-term fiscal stability. This study underscores the complex and dynamic relationship between fiscal deficits and economic growth, highlighting the importance of nuanced analysis and strategic policymaking.*

**Keywords:** Fiscal Deficits, Economic Growth, Auto-Regressive Distributed Lag (ARDL), Keynesian Theory, New Growth Theory

### 1. Background to the Study

The relationship between fiscal deficit and economic growth is complex, as evidenced by the contrasting views of the Keynesian and neoclassical schools of economic thought. While Keynesians argue that deficit financing can stimulate demand, boost productivity, and ultimately drive economic growth, neoclassical economists contend that deficit financing may crowd out private investment, lower output levels, and increase unemployment. This complexity is illustrated by Nigeria's post-1999 macroeconomic performance, which fell short of optimistic expectations despite deliberate efforts to improve macroeconomic management (Ekpo, 2017). Such divergence underscores the challenges inherent in achieving robust and sustainable economic management within the Nigerian context.

Most empirical studies on the impact of budget deficits on economic growth in Nigeria conclude that persistent deficits crowd out private investment. This occurs through higher interest rates and reduced savings available for private investors. The relative productivity of public and private capital therefore plays an important role in determining the pace of economic growth. Many countries, especially developing economies, have been influenced by Keynesian prescriptions and have consistently intervened in their economies through extensive public capital expenditure. However, in Nigeria, the application of Keynesian theoretical postulations has not yielded the desired results, as evidenced by the continuous rise in poverty and unemployment levels.

To better understand the relationship between fiscal deficit and economic growth in Nigeria, it is crucial to consider the structural issues and policy environment shaping the country's fiscal challenges. Key factors include:

- **Oil dependency:** Nigeria's heavy reliance on oil revenues has created an unstable fiscal base vulnerable to global oil price fluctuations.
- **Weak tax collection:** A fragile tax system results in low non-oil revenue, leaving the government dependent on oil receipts to finance expenditure.
- **Macroeconomic instability:** The economy has experienced stagflation, characterised by declining productivity, rising inflation, and high unemployment.

These challenges have been exacerbated by over-reliance on crude oil exports, weak coordination between fiscal and monetary policies, and the economic disruptions caused by COVID-19 containment measures.

Given these dynamics, fiscal policy (primarily reliant on tax revenue) remains central to stabilising the economy, making a robust and diversified revenue generation process essential. Understanding the complexities of revenue mobilisation is therefore fundamental to sustaining fiscal policies that promote economic stability and resilience in Nigeria (Ekpo, 2017).

Nigeria's persistent fiscal deficits over the past four decades, despite the adoption of Structural Adjustment Programmes, have coincided with numerous socio-economic challenges, including dependence on oil, inflation and unemployment, rising debt, and suboptimal productivity. While theory suggests that fiscal deficits may stimulate growth in developing economies, empirical evidence remains mixed (Aiyedogbon et al., 2022; Ifeanyi, 2022; Mohammed & Ogbo, 2021; Onyelle & Nwadike, 2021). The efficacy of deficit financing as a driver of economic growth is therefore questioned in light of Nigeria's enduring economic difficulties. This study, therefore, investigates the relationship between fiscal deficit and economic growth in Nigeria, with particular attention to the structural and policy contexts shaping the country's macroeconomic outcomes.

## **2. Literature Review**

### **2.1 Theoretical Literature**

#### **2.1.1 Classical Theory**

Classical theory, espoused by Adam Smith in 1776, suggests that government deficit financing crowds out private investment, resulting in limited economic growth. Furthermore, increased public debt service obligations can hinder government spending on critical infrastructure, and in an economy operating at full employment, fiscal stimulus through debt or money creation can result in inflation without stimulating growth. According to classical theory, price flexibility allows for full employment through the invisible hand, and monetary policy adjustments can only influence inflation, not output growth.

And as Khan and Reinhart (1997) observed, economic growth can only be sustainable if it is driven by the private sector. Therefore, deficit financing is counterbalanced by the crowding-out effect on private sector investment, and this will in turn stifle economic growth. Moreover, deficit financing could increase the public debt burden, and the resultant service obligation could deprive the government of the funds needed to develop critical infrastructure for productive capacities. Furthermore, the multiplier effect will not activate if the economy is already operating at full employment. In that

case, an increase in government expenditure funded by debt or seigniorage will only lead to inflation and will not stimulate growth in output, employment or national income.

### **2.1.2 Keynesian Theory**

Keynesian theory, developed by John Maynard Keynes in 1936, is also referred to as the income-expenditure approach. In contrast to classical theory, Keynesian theory posits that the economy rarely operates at full employment due to unemployment caused by persistent and widespread negative demand shocks. Therefore, the Keynesian approach suggests that fiscal policy should be countercyclical to address aggregate demand shortages. Keynesian economists believe that the use of deficit financing during a recession can stimulate economic activity by increasing investment and consumption, thereby restoring full employment and output levels. Moreover, Keynesians argue that deficits do not necessarily crowd out private investment as classical theory suggests.

### **2.1.3 Endogenous Growth Theory**

The endogenous growth theory, also called “new growth theory”, was developed by Paul Romer in the 1980s and emerged as a response to the limitations of neoclassical growth theory. The theory postulates that economic growth is generated by factors within the production process, such as increasing returns or induced technological change. According to this theory, technological progress arises from investments in human capital and knowledge-intensive industries. The theory suggests that public policy plays a crucial role in promoting economic development through investments in human capital, knowledge-intensive industries, and institutions. Despite its proposed advantages over neoclassical growth theory, the endogenous growth theory has faced criticism on several grounds. (Jhingan 2011; Todaro and Smith 2011).

However, the endogenous growth theory proposes that economic growth is an endogenous outcome of the system. Since growth is endogenous, government policies can influence its magnitude, and that government plays a vital role in economic development. Capital formation in physical assets of a country, human capital formation and public investment in areas such as infrastructure and science and technology wield a positive impact on output. Similarly, government policies about the law-and-order situation and the economised taxation system encourage growth in an endogenous manner. Thus, unlike other theories, the fiscal policy can affect long-run growth performance if growth is considered as an endogenous variable (Saleh, 2003). Hence, this theory can be placed in the context of fiscal deficit.

## **2.2 Empirical Literature**

Empirical studies on the relationship between fiscal deficit and economic growth in Nigeria and other developing economies have produced mixed and often contradictory results. The findings can be grouped into five major themes:

### **2.2.1 Fiscal Deficit, Debt, and Growth**

Several studies emphasise the debt implications of fiscal deficits. Onwioduokit (2005) highlighted how expansionary fiscal policy leads to deficits and public debt accumulation, constraining domestic investment through heavy debt servicing. Similarly, Edeminam (2021) and Didia and Ayokunle (2020) found that public and external debt negatively affect long-run growth, while domestic debt tends to have a more positive impact because interest payments remain within the economy. Nwanna and Nkiruka (2019) and Aiyedogbon et al. (2022) confirmed this pattern, recommending prioritisation of domestic over external borrowing.

Studies also show that the debt burden undermines economic stability. Onyelle and Nwadike (2021) reported that revenue adequacy and debt ratios negatively affect growth, while Omesì, Nkak, and Orlu (2021) found that rising debt and debt servicing had little growth impact. Ekpo (2024) further demonstrated that fiscal deficits could support growth in the long run but warned that inflationary effects must be controlled within specific thresholds.

### **2.2.2 Deficit Financing, Investment, and Capital Formation**

The crowding-out or crowding-in effects of deficit financing on investment are widely debated. Adeboye (2008) found that deficits stimulate growth where gross capital formation is high but harm growth when capital formation is weak. Audu (2012) also noted strong causal links between fiscal policies, GDP, and exports, suggesting that well-directed deficits can support growth.

Other studies underscore the importance of investment composition. Akamobi and Unachukwu (2021) found that deficits boost public investment and growth but negatively affect private investment. Similarly, Ayodele and Monegbe (2017) observed that while deficits can stimulate growth in line with Keynesian theory, they may also exert negative effects depending on the estimation method used.

### **2.2.3 Regime Differences and Political Economy**

Some evidence suggests that fiscal deficits have differing impacts across political regimes. Edame and Okoi (2015) reported that deficits stimulated growth during military rule but not under democracy, attributing this to weak institutions and political interference in the budgetary process. They recommended stronger budgetary discipline and reduced political influence to ensure productive use of deficits.

### **2.2.4 Fiscal Deficit, Macroeconomic Stability, and Policy Coordination**

Another body of literature focuses on the broader macroeconomic consequences of fiscal deficits. Wosowei (2013) found an insignificant but negative effect of deficit financing on growth, with evidence of long-run bi-directional relationships. Sanya and

Abiola (2015) linked deficits to discouraged human capital accumulation and macroeconomic instability, recommending prioritisation of capital expenditure.

Tung (2018), using evidence from Vietnam, demonstrated that deficits harmed GDP, private investment, and exports, suggesting that excessive deficits undermine macroeconomic stability. In Nigeria, Austine et al. (2022) showed that deficits negatively affect growth in the long run through interest and exchange rates, while Onwana (2022) found externally financed deficits support growth but domestically financed deficits crowd out private investment. These results highlight the importance of the financing mix and coordination between fiscal and monetary policies.

### **2.2.5 Taxation, Revenue, and Fiscal Policy**

Some studies examine how revenue mobilisation interacts with deficits and growth. Ekpo et al. (2022) found company income tax to significantly promote growth, whereas petroleum profit tax and VAT were insignificant. Ekpo and Udoh (2022) reported an inverse relationship between taxation and growth, attributing this to poor business conditions that weaken the tax base. Similarly, Olisaji and Onuora (2021) confirmed that company income tax supports growth, while government expenditure showed no significant effect, underscoring the importance of efficient fiscal policy.

### **2.4 Evaluation of Literature and Research Gap**

The literature presents no consensus on the growth impact of fiscal deficits. While some studies (Tunde & John, 2017; Ifeanyi, 2022; Yussuf & Abolaji, 2020) provide evidence that deficits can stimulate growth under Keynesian assumptions, others (Mohammed & Ogba, 2021; Musa, 2021; Austine et al., 2022) argue that deficits undermine stability and long-term development. The divergent findings suggest that outcomes depend on how deficits are financed, the efficiency of capital utilisation, and the institutional and policy context.

The literature review on the relationship between fiscal deficit and economic growth reveals a landscape marked by conflicting findings and a lack of consensus. This section aims to synthesise the existing research, highlighting the gaps that this study seeks to address.

Studies by Tunde and John (2017), Yussuf and Abolaji (2020), and Akamobi and Unachukwu (2021) point to a significant positive relationship and hence support the Keynesian theory, while others like Wosoweil (2013), Mohammed and Ogbo (2021), and Onyelle and Nwadike (2021) establish a negative relationship and invariably corroborate the Classical theory. The presence of contradictory evidence suggests that, on average, empirical research has struggled to establish a consistent and statistically significant connection between fiscal deficit and economic growth. This

inconclusiveness serves as a call for the current study to re-evaluate this relationship and potentially offer insights that contribute to resolving the existing discrepancies in the literature.

### 3. Methodology

#### 3.1 Research Design

This study utilises a dual approach of descriptive analysis and quasi-experimental design to investigate the relationship between fiscal deficit and economic growth. The descriptive analysis aims to uncover trends, patterns and stylised facts associated with these two variables, while the quasi-experimental design integrates theoretical and empirical perspectives, facilitating the examination of the impact of explanatory variables on the explained variable. The study adopts a comprehensive timeframe spanning 1981 to 2025, allowing for an in-depth examination of the complex interplay between fiscal deficit and economic growth over time. This extensive analysis provides a nuanced understanding of the relationship between these variables, with implications for the Nigerian economy (Ekpo *et al.*, 2025).

#### 3.2 Variable Description and Data Sources

To investigate the relationship between fiscal deficit and economic growth in Nigeria over a 44-year period, the study employs annual data from 1981 to 2025, sourced from reputable organisations including the African Development Indicator, World Bank, Central Bank of Nigeria, and National Bureau of Statistics. The selected economic indicators for analysis encompass GDP growth, fiscal deficit, gross fixed capital formation, labour force participation rate, and trade openness. This comprehensive set of data will provide a robust foundation for evaluating and understanding key economic trends and dynamics within the specified context.

#### 3.3 Analytical techniques and model specification

The study utilises the autoregressive distributed lag (ARDL) bounds test approach put forward by Pesaran *et al.* (2001), based on unrestricted error correlation, while noting the conditions in which it must be used. The analytical framework adopted for this work follows essentially the Keynesian framework and borrows extensively from Bazza, Binta and Alhaji (2018). Again, the production function is used to represent the relationship between economic growth and the variables.

$$Y = f(K, L, T) \dots\dots\dots (3.1)$$

Where;

Y = gross domestic product

K = stock of capital, L = labour force, T = technological progress

Note that stock of capital (K) will be represented by gross fixed capital formation as a ratio of GDP, labour force (L) will be represented by labour force participation rate and

technological progress (T) will be represented by fiscal deficit as a ratio of GDP, while trade openness is a policy variable.

The functional form of the model adopted for this study can be written as:

$$RGDP_t = f(INV_t, LFPR_t, FD_t, OPN_t) \dots\dots\dots (3.2)$$

Where

RGDP<sub>t</sub> = real GDP growth rate, INV<sub>t</sub> = gross fixed capital formation as a ratio of GDP

LFPR<sub>t</sub> = labour force participation rate, FD<sub>t</sub> = fiscal deficit as a ratio of GDP

OPN<sub>t</sub> = Trade openness

Equation (3.2) could be expressed in an econometric form as:

$$RGDP_t = \beta_0^i + \beta_1^i INV_t + \beta_2^i LFPR_t + \beta_3^i FD_t + \beta_4^i OPN_t + \mu \dots\dots\dots (3.3)$$

Where  $\beta_0^i$  is constant term,  $\beta_1 - \beta_4$  are slope parameters,  $\mu$  is error term Based on economic theory, the following should be expected:

$$\beta_1, \beta_2, \beta_3, \beta_4 > 0$$

The following ARDL representation of equation (3.3) will be estimated in order to test the existence of long run relationship between economic growth and fiscal deficit in equation (3.4)

$$\begin{aligned} GDPG_t = & \beta_0^i + \sum_{i=1}^k \beta_1^i \Delta INV_{t-1} + \sum_{i=1}^k \beta_2^i \Delta LFPR_{t-1} + \sum_{i=1}^k \beta_3^i \Delta FD_{t-1} \\ & + \sum_{i=1}^k \beta_{14}^i \Delta OPN_{t-1} \\ & + \beta_5^i \Delta GDPG_{t-1} + \beta_6^i INV_{t-1} + \beta_7^i LFPR_{t-1} + \beta_8^i FD_{t-1} + \beta_9^i OPN_{t-1} + \varepsilon \dots\dots\dots (3.4) \end{aligned}$$

Once the co-integrating relationship is established, the short run dynamics is also analyzed and the error correction model representation of the ARDL model is specified in equation (3.5) below:

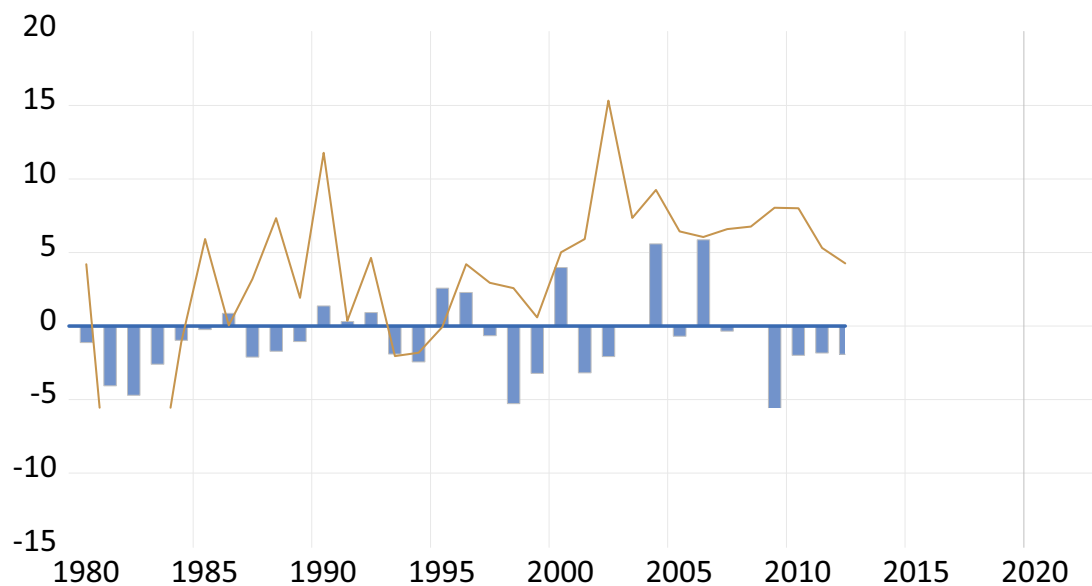
$$\begin{aligned} \Delta GDPG_t = & \beta_0^i + \sum_{i=1}^k \beta_1^i \Delta GDPG_{t-1} + \sum_{i=1}^k \beta_2^i \Delta INV_{t-1} + \sum_{i=1}^k \beta_3^i \Delta LFPR_{t-1} + \\ & \sum_{i=1}^k \beta_4^i \Delta FD_{t-1} + \sum_{i=1}^k \beta_5^i \Delta OPN_{t-1} + \mu z_{t-1} + \varepsilon_t \dots\dots\dots (3.5) \end{aligned}$$

**4. The Trend of Fiscal Deficit and Economic Growth in Nigeria.**

In the 1980s, the Nigerian government ran a huge fiscal deficit, which was largely financed by borrowing from the Central Bank. This led to inflation and a decline in economic growth. In the 1990s, the government implemented economic reforms in fiscal consolidation which led to a fall in the fiscal deficit and an improvement in economic growth. However, as seen in figure 4, the growth was short-lived, and by the early 2000s the deficit was increasing again due to rising oil prices and increased government spending. Nevertheless, this was followed by a global economic crisis in 2008, which caused a sharp decline in oil prices and a contraction in government

revenue. This further led to an increase in the fiscal deficit and a decline in economic growth. Since then, the Nigerian economy has experienced a number of challenges, including a decline in oil prices and the COVID-19 pandemic.

To address these challenges, the Nigerian government has implemented a number of policies to stabilise the economy. They are reduction in government spending, increase in taxes and borrowing from international financial institutions. However, these policies have had mixed results, and the economy remains vulnerable to external shocks.



**Figure 4. Fiscal Deficit and Economic Growth Graph.**

Between 1995 and 2010, fiscal deficits in Nigeria were relatively low while economic growth was high. The reason for this was that oil prices were relatively high, which increased government revenue. Further, the government implemented reforms that led to the increase in economic efficiency. The reforms were privatisation of state-owned enterprises, trade liberalisation and deregulation, etc. Moreover, Nigeria received a significant amount of aid from international donors. This aid was used to finance infrastructure projects, education and healthcare. Surprisingly, critics argued that this aid had a negative effect on the economy, as it led to a dependence on foreign assistance.

In 2022, real GDP growth fell to 3.3% from 3.6% in 2021; this was precipitated mainly by a decline in oil production. The fiscal deficit expanded to 5.4% of GDP in 2022 from 5.2% of GDP in 2021 and was financed by borrowing. Inflation peaked at a two-decade high of 18.8%, fuelled by energy and food price increases and the pass-through effect of exchange rate depreciation.

The reason for the increase in fiscal deficit as a percentage of GDP from 2020 was the reduction in tax revenue and increase in government spending occasioned by the COVID-19 pandemic. The increased government expenditure was spent on a number of stimulus measures to support businesses and individuals affected by the pandemic.

## 5. Empirical Results and Analysis

### 5.1 Preliminary Data Analysis and Diagnostics.

#### 5.1.1 Descriptive Statistics.

**Table 5.1: Descriptive Statistics**

	GDPG	FD	INV	LFPR	OPN
Mean	2.941577	-1.514197	8.190567	58.81280	33.30234
Median	3.251681	-1.900436	7.752972	55.78000	34.02388
Maximum	15.32916	5.857085	15.63972	84.60000	56.39031
Minimum	-13.12788	-6.526412	1.501513	54.73600	6.176985
Std. Dev.	5.341382	2.862217	3.923612	7.836143	12.92361
Skewness	-0.796055	0.707264	0.098235	2.536136	-0.182374
Kurtosis	4.701703	3.348146	1.931674	8.050201	2.206144
Jarque-Bera	9.277290	3.625246	2.015697	87.52213	1.303883
Probability	0.009671	0.163225	0.365003	0.000000	0.521033
Observations	41	41	41	41	41

***Source: Authors' Computation Using EViews 12***

Table 5.1 presents the descriptive statistics of the variables used in the study, which are fiscal deficit as a percentage of GDP, the GDP (output) growth, gross fixed capital formation, labour force participation rate and trade openness over the sample period 1981-2024. GDP growth on average had a dismal 2.94 per cent with moderate volatility, as revealed by the standard deviation of 5.3 per cent. The mean value is less than the median, indicating that the economy was not growing at a sustainable rate, as it was relying too heavily on periods of high growth to maintain an overall positive trend.

Further, it shows that the economy has witnessed a series of recessions occasioned by shocks or sudden events that caused disruptions, such as the 2008 financial crisis and the COVID-19 pandemic.

The fiscal deficit as a percentage of GDP on average recorded 1.5 percent. It was relatively stable throughout the period, as the standard deviation showed 2.86 per cent. The mean value is greater than the median, implying that the government spending had exceeded government revenue by a large margin as a result of increased spending on social investment programmes, security, etc. Further, it may be that GDP growth is not keeping pace with the growth of government spending.

Investment, which is measured by the gross fixed capital formation as a percentage of GDP, on average had 8.2 per cent with fairly high fluctuation given the standard deviation of 3.9 per cent during this period. The positive skewness of investment expenditure shows that a large amount of investment spending is concentrated at the high end of the distribution. The reason for this could be either that there were a small number of large investments or a large number of small investments.

Trade openness on average was 33 percent with a standard deviation of 12.9 percent, indicating a high variability; the mean value is less than the median, implying a potential for trade imbalance in Nigeria. The labour force participation rate on average was 58.8 percent which was somewhat volatile given the standard deviation of 7.8 per cent. The positive skewness implies that either a large proportion of the population is unemployed or the economy is not using its workforce efficiently.

### **5.1.2 Unit Root Test**

Although the ARDL approach to co-integration does not require the pretesting of the variables included in the model for unit root, the Augmented Dickey-Fuller (ADF) unit root test is considered, as this is necessary to establish whether the time series have a stationary trend and, if non-stationary, to show the order of integration.

However, due to the probability of structural changes that might have occurred during the time period covered by the study, the ADF test might be biased in identifying data as being integrated even if there are structural changes. In order to control for the shortcoming that might arise from the ADF test, we make use of another unit root test called the Phillips-Perron (PP). This test evaluates the time series properties in the presence of structural changes at an unknown point in time; hence, it endogenises this structural break (Ekpo *et al.*, 2023).

**Table 5.2: ADF Unit Root Test Results.**

Variable	ADF Statistic At Level	ADF Statistic At 1st Difference	Integration Order
FD	-4.762859***	_____	I(0)
GDPG	-2.855478	-12.08960***	I(1)
INV	-3.666358**	_____	I(0)
LFPR	-2.870707	-5.663356***	I(1)
OPN	-2.123507	-7.246456***	I(1)

*Source: Authors' Computation Using EViews 12*

Note: \*\*\* significant at 1%, \*\*significant at 5%, -4.192337 and -3.520787 are critical values at level for 1% and 5%, respectively, while -3.600987 and -2.935001 are critical values at first difference for 1% and 5%, respectively.

**Table 5.3: Phillips-Perron Unit Root Test Results**

Variable	ADF Statistic At Level	ADF Statistic At 1st Difference	Integration Order
FD	-4.745708***	_____	I(0)
GDGP	-3.792029***	_____	I(0)
INV	-2.224082	-12.76825***	I(1)
LFPR	-1.763210	-6.078248***	I(1)
OPN	-2.016142	-7.433673***	I(1)

*Source: Authors' Computation Using EViews 12*

Note: \*\*\*Significant at 1%, \*\*significant at 5%, -3.596616 and -2.933158 are critical values at level for 1% and 5%, respectively, while -3.600987 and -2.935001 are critical values at first difference for 1% and 5%, respectively.

The results of the ADF unit root test show that all the variables except fiscal deficit as a percentage of GDP and gross domestic product growth failed the unit root test at the 5 percent level of significance in their level form. However, all the variables passed the test for stationarity in their first difference form. This implies that FD and GDPG are stationary at level, while INV, LFPR and OPN are stationary at first difference.

However, the results of the PP unit root test are slightly different. It shows that all the variables, with the exception of fiscal deficit as a percentage of GDP and gross domestic

product growth, failed the unit root test at 5 percent level of significance in their level form. This indicates that while FD and GDPG are stationary at the level INV, LFPR and OPN are stationary at the first difference. Remarkably, on account of the disparity between the results of ADF and PP unit root tests, it therefore signifies that there may be an influence of a structural break in the first objective mode. Hence, we adopt the Phillips-Perron unit root test results.

### 5.1.3. Cointegration Test Analysis.

Since some variables in the model are stationary at first difference I(1) while others are stationary at levels I(0), there is need to examine further if there is a possibility of a long-run relationship among the variables.

**Table 5.4: Bounds Test for Existence of Cointegration**

Test Statistic	Value	Significance	I(0)	I(1)
F-Statistic	9.460617	10%	2.45	3.52
K	4	5%	2.86	4.01
		2.5%	3.25	4.49
		1%	3.74	5.06

**Source: Authors' Computation Using EViews 12.**

Table 5.4 above reveals a cointegration results, which show that the computed f-statistic of 9.460617 exceeds the lower and upper bounds critical values of 3.74 and 5.06, respectively, at 1 percent significance level. Thus, the null hypothesis of no cointegration is rejected, meaning that GDPG, INV, FD and OPN have a long-run relationship.

#### 5.1.4. Correlation Matrix Results

This is used to determine the correlation strength between the variables in the model

**Table 5.5: Correlation Coefficients Matrix**

	GDPG	INV	LFPR	FD	OPN
GDPG	1				
INV	0.055232	1			
LFPR	-0.511869	-0.428130	1		
FD	0.311472	-0.419313	-0.46067	1	
OPN	0.448592	0.680689	-0.680689	0.304879	1

*Source: Authors' Computation Using EViews 12.*

The above table reveals that only labour force participation rate is negatively correlated with the dependent variable; the other variables are positively correlated with the dependent variable. The correlation between the degree of openness and labour force participation rate is the highest, whereas the lowest correlation is between gross fixed capital formation and economic growth. The rest of the correlation coefficients maintain values of between 0.176 and 0.512, which are accepted to avoid the problem of multicollinearity.

#### 5.2: Long Run Dynamics

The long run estimated coefficients are presented in the Table 5.6

**Table 5.6: Estimated of the long run coefficients ARDL Dependent Variable: GDGP**

Test Statistic	Coefficient	Std. Error	t-statistic	Prob.
INV	-2.368529	0.677936	-3.493735	0.0040
LFPR	-0.641264	0.202609	-3.165030	0.0075
FD	2.970369	1.095662	2.711025	0.0178
OPN	0.007484	0.078495	0.095344	0.9255

*Source: Authors' Computation Using EViews 12.*

The result of the long-run relationship in Table 5.6 shows that fiscal deficit and degree of openness are in agreement with the a priori expectation. Invariably FD and OPN have the expected sign, but INV and LFPR do not conform to the theoretical expectation. Two of the variables are statistically significant at one percent; one variable is significant at 5 percent while one variable is not statistically significant.

Fiscal deficit, which is the variable of interest, shows a positive and significant long-run relationship with GDP growth in Nigeria. This means that a one percent increase in fiscal deficit increases GDP growth by about 2.97 percent. This finding corroborates the works of Adeboye (2008), Edame and Okoi (2015), Akamobi and Unachukwu (2021), and Onwana (2022), thus supporting the Keynesian theory. However, the result contradicts the findings of Wosowei 2013, Tung 2018, Nwanna and Nkiruka 2019, Mohammed and Ogba 2021, and Ausrine *et al.* 2022.

The degree of openness of the economy reveals a positive, though statistically insignificant long-run relationship with GDP growth in Nigeria. This implies that a one per cent increase in trade openness spurs economic growth by about 0.0075 percent.

Gross fixed capital formation as a percentage of GDP, which is a measure of investment, exhibits a negative and statistically significant long-run relationship with GDP growth in Nigeria. This means that a one percent increase in the level of investment decreases GDP growth by about 2.369 percent. Again, the reason for this deviation from economic theory is that governments have implemented public projects that turned out to be money-draining projects; government contracts were awarded at inflated prices or completely abandoned after mobilisation fees had been paid. Further, poor infrastructure, including energy supply and transportation networks, may be limiting the ability of businesses to grow and expand.

Labour force participation rate reveals a statistically significant negative long-run relationship with economic growth in Nigeria. Its coefficient shows that in the long-run, a one per cent rise in labour force participation rate decreases economic growth by about 0.641 per cent. This is contrary to the economic theory. The reason may be the progressive increase in unemployment rate in the country as well as the inadequate staff training.

### 5.3: Short Run Dynamic

The short run estimated coefficients are presented in Table 5.7

**Table 5.7 Estimates of the Short Run Error Correction.**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	51.62773	6.453760	7.999636	0.0000
D(GDPG(-1))	-0.257250	0.094590	-2.719633	0.0175
D(INV)	-0.559795	0.249799	-2.240980	0.0431
D(INV(-1))	0.373889	0.276224	1.353572	0.1989
D(INV(-2))	0.557179	0.212702	2.619534	0.0212
D(INV(-3))	0.490857	0.238897	2.054683	0.0606
D(LFPR)	-0.023524	0.109295	-0.215231	0.8329
D(LFPR(-1))	0.331549	0.118960	2.787067	0.0154
D(FD)	0.095991	0.238511	0.402458	0.6939
D(FD(-1))	-1.896123	0.309266	-6.131042	0.0000
D(FD(-2))	-2.140975	0.269481	-7.944805	0.0000
D(FD(-3))	-0.866198	0.198610	-4.361303	0.0008
D(OPN)	-0.001706	0.068905	-0.024757	0.9806
D(OPN(-1))	-0.016216	0.080307	-0.201919	0.8431
D(OPN(-2))	-0.373572	0.071382	-5.233440	0.0002
ECM(-1)*	-0.892083	0.113425	-7.864978	0.0000
			Adjusted R	-
R-squared	0.887274		squared	0.787810

**Source: Authors' Computation**

The results of the short-run dynamics reveal that the estimated lagged error correction mechanism (ECM(-1)) is negative and significant at one per cent. This is in line with the cointegration among the variables represented by equation 3.5. The feedback coefficient is -0.89, which suggests a high speed of adjustment to equilibrium from the previous year's shock. Approximately 89 percent of the disequilibrium from the previous year's shock converges to the long-run equilibrium in the current year.

Observably, the lagged values of investment and labour force participation rate were positive in the short run, implying a short-run positive relationship between investment, labour force participation rate and economic growth in Nigeria.

#### 5.4: Diagnostic Test Results

It is necessary to perform some diagnostic tests in order to assess the adequacy of the chosen model.

**Table 5.8 Diagnostic Test**

TEST TYPE	STATISTIC	VALUE	PROBABILITY	REMARKS
Normality	Jarque-Bera	0.06625	0.96742	Normally distributed residuals
Serial correlation (LM)	F-Statistic	0.172044	0.8442	No serial correlation
Heteroskedasticity(ARCH)	F-Statistic	0.717271	0.7517	No heteroskedasticity
Specification (Wald)	F-Statistic	8.531592	0.0003	The model is well specified
Stability	CUSUM and CUSUMSQ		Within bands	Stable

*Source: Authors' Computation*

The residual for all the estimated equation three were found to be normally distributed and stable. Absence of serial correlation and heteroskedasticity were observed in the equation, implying that the estimates are reliable and consequently, can be relied on for policy formulation purposes.

### 6. Summary, Conclusion and Recommendations

#### 6.1 Summary

This study examines the impact of fiscal deficit on economic growth in Nigeria. Given the focus on Nigeria, the study used ARDL bounds test with annual time series data over the period 1981 to 2025 for a limited set of macroeconomic time series variables, such as fiscal deficit as a percentage of GDP, GDP growth, gross fixed capital formation as a ratio of GDP (investment), labour force participation rate and trade openness, to evaluate the long-run and short-run dynamic of fiscal deficit and economic growth relationship.

In unpacking the relationship between fiscal deficit and economic growth, the following major findings were observed:

- i. Fiscal deficit shows a long-run significant positive relationship with economic growth in Nigeria.
- ii. Fiscal deficit in the short-run exhibits a short-run direct relationship with economic growth in Nigeria.
- iii. Labour force participation rate shows an inverse relationship with economic growth in Nigeria in the long-run.
- iv. Again, gross fixed capital formation shows that expenditure on investment in Nigeria is not growth-enabling in the long-run, but in the short-run, gross fixed capital formation appears to spur economic growth.

- v. Degree of openness shows that the more the economy is open to trade, the greater the productivity, which invariably fosters economic growth in Nigeria.

## 6.2 Conclusion

This study appraised, for Nigeria over the period 1981 to 2025, the relationship between fiscal deficit and economic growth. The empirical evidence from the ARDL bounds test shows that in both short-run and long-run, fiscal deficit stimulates growth in the economy. Therefore, espousing the Keynesian theory.

## 6.3 Recommendations

Consequent upon major findings of the study, the following recommendations are suggested:

- i. Government should keep the deficit financing within control to stimulate economic growth, as deficit spending above a considerable level may retard economic growth.
- ii. Government functionaries and policymakers should strive to fight and reduce corruption to the barest minimum and embrace fiscal deficit and monetary discipline in a bid to achieve sustainable economic growth in Nigeria.

## Suggestions for further studies

Further research on the relationship between fiscal deficit and economic growth in Nigeria could consider several avenues.

First, investigating the impact of public investment and government spending composition on growth may shed light on whether fiscal deficits are associated with productive or wasteful expenditures.

Second, examining the role of external financing sources, such as foreign aid or borrowing, in mitigating or exacerbating the effects of fiscal deficits on growth can provide insights into the sustainability of fiscal deficits.

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