



doi:10.5281/zenodo.15311427

# Empirical Analysis Of The Impact Of Unemployment On Economic Growth In Nigeria

<sup>1</sup>Adekoya Adewale Abiodun; <sup>2</sup>Sule Magaji & <sup>3</sup>Yahaya Ismail

<sup>1</sup>Sustainable Development Center  
University of Abuja

<sup>2,3</sup>Department of Economics  
University of Abuja, Abuja, Nigeria

<sup>1</sup>[emperordgreat@yahoo.com](mailto:emperordgreat@yahoo.com); <sup>2</sup>[sule.magaji@uniabuja.edu.ng](mailto:sule.magaji@uniabuja.edu.ng); <sup>3</sup>[ismail.yahaya@uniabuja.edu.ng](mailto:ismail.yahaya@uniabuja.edu.ng)

## ABSTRACT

This study examines the impact of unemployment on economic growth in Nigeria from 1990 to 2023. Using econometric techniques, the study analyzes the relationship between unemployment rates, measured as a percentage of the labor force, and real GDP growth. The findings suggest a negative correlation between unemployment and economic growth, aligning with Okun's Law. Higher unemployment rates are associated with lower economic output, potentially due to reduced consumer spending, decreased labor force participation, and diminished investment. The study also considers the impact of other factors such as poverty, inflation, and security on economic growth and unemployment. The results highlight the importance of addressing unemployment as a key strategy for promoting sustainable economic development in Nigeria.

**Keywords:** Unemployment, Economic Growth and Autoregressive Distributive Lag Model (ARDL)

## 1.0 INTRODUCTION

Unemployment has long been a critical issue affecting the economic stability and growth of nations, particularly in developing countries like Nigeria (Agbadagbe, Musa & Ismail, 2024). In the past few decades, Nigeria has faced significant challenges related to high unemployment rates, which have raised concerns about their impact on the country's economic performance. Economic growth, typically measured by the rise in Gross Domestic Product (GDP), is influenced by various factors, and unemployment is one of the most prominent among them (Musa, Ismail & Magaji, 2024). The relationship between unemployment and economic growth has been widely debated, with varying perspectives on whether higher unemployment dampens growth or whether a growing economy leads to reduced joblessness (Magaji, & Adamu, 2011). This empirical analysis focuses on Nigeria, examining how the unemployment rate has influenced economic growth from 1990 to 2023.

The period under study, 1990 to 2023, captures significant socio-economic changes in Nigeria, including political transitions, oil price fluctuations, and global financial crises. During this time, Nigeria's economy has gone through cycles of growth and recession, with unemployment rates following a generally upward trend (Magaji, Musa & Aluko, 2023). According to data from the National Bureau of

Statistics (NBS), the country's unemployment rate has consistently risen, reaching alarming levels in recent years. As unemployment remains persistently high, it raises questions about its broader economic implications, especially for a nation with such vast natural resources and an entrepreneurial population (Magaji, Musa & Ismail, 2025).

Several theories suggest a negative correlation between unemployment and economic growth. According to Okun's Law, there is an inverse relationship between unemployment and GDP, meaning that an increase in the unemployment rate can lead to a reduction in economic output (Okun, 1962). Furthermore, unemployment can contribute to lower consumer spending, reduced demand for goods and services, and diminished productivity, all of which negatively affect economic growth (Musa & Ismail, 2023). In the context of Nigeria, where the formal job sector is limited and informal employment dominates, these effects are amplified, leading to a complex situation where joblessness may perpetuate stagnation (Magaji, Musa & Aluko, 2023).

On the other hand, some economists argue that high unemployment in developing countries could be a symptom of structural inefficiencies rather than a direct cause of economic stagnation. They suggest that the mismatch between labor market skills and the needs of industries may result in higher unemployment without necessarily hindering growth (El-Yaqub, Usman, Musa & Ismail, 2024). Moreover, certain forms of unemployment, such as those linked to transitional periods during economic reforms, might not have the same adverse effects on growth as chronic structural unemployment. Therefore, understanding the specific nature of unemployment in Nigeria is essential to evaluate its true impact on economic performance.

This study aims to provide an empirical analysis of the relationship between unemployment and economic growth in Nigeria between 1990 and 2023. Using econometric models and data from reliable sources such as the World Bank and Nigeria's National Bureau of Statistics, this research will assess how fluctuations in unemployment have impacted key economic indicators. By doing so, the study will contribute to the broader discourse on unemployment and economic growth in sub-Saharan Africa, providing valuable insights for policymakers seeking to address both issues in tandem.

## **2.0 Literature Review and Theoretical Framework**

### **2.1 Conceptual Review**

#### **2.1.1 Economic Growth**

Economic growth is the sustained improvement in an economy's capacity to produce goods and services, enhancing living standards through efficient management of land, labor, capital, and entrepreneurship (Igwe, Magaji, & Darma, 2021). Measured by real GDP growth to account for inflation (Balami, 2006), it also requires per capita production increases to match population growth (Jhingan, 2006). Key drivers include labor force expansion, trade volume, technological progress, capital accumulation, and institutional development (Magaji, 2007; Musa, Magaji, & Salisu, 2023). Beyond output, growth must improve quality of life via equitable income distribution and access to essential services (Enaberue, Musa, & Magaji, 2024). Sustainable growth integrates environmental and social equity considerations, with institutions like the IMF (2012) and World Bank (1993) emphasizing productivity and potential GDP increases as indicators of comprehensive and stable development.

#### **2.1.2 Unemployment**

Unemployment refers to the condition in which individuals actively seeking work are unable to find employment and is measured as the percentage of the labor force comprising those employed or actively job-hunting that is jobless. It includes various types: frictional (temporary transitions or new entrants), structural (skill mismatches), cyclical (linked to economic downturns), and seasonal (due to fluctuations in labor demand in specific industries) (Blanchard & Johnson, 2013). Beyond individual hardship, high unemployment reduces consumer spending, slows economic growth, and lowers government tax revenues, while also intensifying poverty, inequality, and social unrest. Persistent unemployment can lead to economic stagnation and discourage job seekers, worsening the issue. In response, governments often adopt fiscal stimulus and job creation strategies to counteract these effects and support labor markets

(Mankiw, 2021). Understanding unemployment's complexities is especially critical for addressing labor challenges in developing countries like Nigeria.

## 2.2 Theoretical Review

### 2.2.1 Okun's Law.

Okun's Law, proposed by Arthur Okun in 1962, describes an inverse relationship between unemployment and real GDP growth, suggesting that a 1% increase in the unemployment rate typically corresponds to a 2% drop below potential GDP (Okun, 1962). This concept illustrates how high unemployment reduces labor force participation, leading to lower overall production and economic output. The theory assumes that fewer employed individuals result in decreased production and consumption, thereby hindering economic growth. Okun's Law is particularly relevant during recessions, when rising unemployment signals declining output, and it provides a framework for understanding the cyclical nature of unemployment. In developing countries like Nigeria, where structural challenges such as skills mismatches and limited job creation are prevalent, the law highlights the adverse impact of unemployment on GDP growth and supports the case for policies that stimulate economic activity and job creation, such as public investment and infrastructure development (Mankiw, 2021).

## 2.3 Empirical Review

World Bank (2024) investigated how insecurity affects economic growth in the Horn of Africa, emphasizing a gap in literature on peri-urban food insecurity in Sub-Saharan Africa (SSA). A cross-sectional survey of 300 randomly selected farm households in Jimma City's peri-urban area, along with KIIs and FGDs, assessed their food insecurity and coping mechanisms amid urbanization. Quantitative data were gathered using structured questionnaires, while qualitative insights came from unstructured formats. Using 12 indicators across four food insecurity dimensions, a food insecurity index was developed. PCA identified key indicators, and ordered probit regression analyzed influencing factors. Results showed that 46% of households faced varying food insecurity levels, influenced by human capital, physical resources, risk behavior, and institutional challenges. Expansion of urban areas and cultivation of market crops, like eucalyptus, worsened food security. Coping strategies included income/farming diversification, social networks, and specialization. The study recommends preserving agricultural land and strengthening coping-based food security programs in response to urban growth.

Njoroge (2024) examined the impact of insecurity on education and economic growth in Kenya using a descriptive design with a sample of 150 respondents from 420 targeted CSOs, security, and counter-terrorism agencies. Data were collected through questionnaires and interviews, and analyzed via SPSS and thematic content analysis. Findings revealed that from 1998 to 2020, Kenya implemented counterterrorism strategies such as arrests, prosecutions, public education, income generation, and anti-terror laws. Despite these, most strategies proved ineffective in achieving long-term security and growth outcomes.

Musa (2024) analyzed the relationship between insecurity and youth unemployment in Nigeria from 1990 to 2020 using OLS estimation. The study found that both the National Terrorism Index (NTI) and Crime Rate (CR) had a significant and positive effect on unemployment, with a unit rise in NTI and CR increasing unemployment by 0.000827 and 0.005653 respectively. The study recommends lowering commercial interest rates, boosting skills acquisition programs, tackling corruption, and preventing kidnappings to curb unemployment and insecurity.

Hassan and Magaji (2023) explored Nigeria's cyber banking infrastructure and its implications for crime. While electronic banking reduced cash circulation and certain crimes, weaknesses in cyber security created new risks. Using police data, interviews, and surveys, the study identified shifts in crime patterns post-digitalization, with regional variations like increased abductions in Kaduna compared to Abuja. The authors recommend regular security audits of banking systems to prevent large-scale financial crimes.

Aminu and Duda (2023) studied the economic impacts of kidnapping in Northern Nigeria, linking insecurity to threats such as Boko Haram, banditry, and farmer-herder conflicts. Using Broken Windows

and Queer Ladder theories, they attribute insecurity to poor governance, corruption, and unemployment. The study highlighted a 2.3% GDP decline due to reduced investment and agricultural output. Recommendations include addressing root causes of insecurity and implementing effective security mechanisms to ensure peaceful elections and economic recovery.

Musa, Magaji, and Salisu (2022) investigated the effects of insecurity on youth unemployment in Nigeria (1996–2019) using OLS regression. Findings show that worsening security increases youth unemployment by about 1.16 units. While insecurity and corruption perception had negative effects, government capital spending significantly reduced youth unemployment. The study calls for better-equipped security forces, infrastructure investment, and anti-corruption enforcement to foster job creation and stability.

#### **2.4 Gap in Literature**

This study adds to the corpus of research on the impact of insecurity on Nigeria's economic development by exposing the general public to the enormous social and physical costs associated with the nation's quest of a robust defense. Additionally, it presents factual proof of the link between Nigeria's economic development and insecurity. The dearth of empirical literature on security and economic performance is a significant knowledge gap that this invaluable study fills. Additionally, by not dividing the national cake equally, it will compel the government to recognize the cost of inequality.

### **3.0 METHODOLOGY**

#### **3.1 Research Design**

The ex-post facto research approach was employed in this study, and secondary data were used to determine the correlation between the independent and dependent variables. The nature of the study, which exhibits the following traits, makes the ex-post facto research design appropriate. The study spans more than a year, and the non-manipulable data were already available when it was conducted. This study is essentially analytical in nature and makes use of secondary data to investigate the connection between Nigeria's economic expansion and insecurity. To understand the composition and organization of the data, descriptive analysis was used. To investigate the relationship between the variables and one another, correlation analysis was also performed. The short- and long-term effects of the independent factors on the dependent variable were further investigated using an Autoregressive Distributed Lag Model (ARDL).

#### **3.2 Model Specification**

For the purpose of this study the model of Ajibola (2022) was adapted. This was based on determinant of economic growth, Thus, the relationship is specified as follows:

$RGDP = F(\text{TEXPS}, \text{GFCF}, \text{TLBF}, \text{UE}, \text{POVI}, \text{CUPI}, \text{INFRATE}) \dots \dots \dots (1)$  linearizing the function gives multiple regression equation below as: -

$$RGDP = \alpha_0 + \alpha_1 \text{TEXPS} + \alpha_2 \text{GFCF} + \alpha_3 \text{TLBF} + \alpha_4 \text{UE} + \alpha_5 \text{POVI} + \alpha_6 \text{CUPI} + \alpha_7 \text{INFRATE} + U_t$$

Where:

RGDP = Real Gross Domestic Product proxy for economic growth

TEXPS = Total Expenditure on Security GFCF = Gross Fixed Capital Formation TLBF = Total Labour Force

UE = Unemployment rate

CUPI = Corruption perception Index

POVI = Poverty Index

INFR = inflation rate

Ut = Error term

And the new model is stated as follows:

$$RGDP = f(\text{UN}, \text{NTI}, \text{POVI} \text{ and } \text{INFR})$$

$$RGDP = \alpha_0 + \alpha_1 \text{NTI} + \alpha_2 \text{UE} + \alpha_3 \text{POVI} + \alpha_4 \text{INFR} + U_t$$

#### **3.3 Variable Measurement and Discussion**

Economic growth, represented by the real gross domestic product (RGDP), reflects the gradual increase in an economy's production capacity over time, leading to higher national output and income. This study

uses RGDP as the dependent variable to assess Nigeria's economic growth. Key variables influencing economic growth include unemployment, which highlights the inability of willing workers to find jobs and serves as a policy variable in the model, and inflation, measured by the sustained rise in general price levels, reducing the purchasing power of currency over time. Additionally, poverty, a multifaceted social and economic challenge characterized by a lack of essential resources and opportunities, significantly impacts individuals and communities, influencing overall economic and social well-being.

### 3.4 Sources and Type of Data

The Statistical Bulletin of the Central Bank of Nigeria is the source of secondary data used in this study. The information gathered spans the years 1990 to 2023. The dependent variable was the real gross domestic product, whereas the independent variables were the inflation rate, unemployment rate, poverty rate, and overall security spending.

### 3.5 Method of Data Analysis

#### 3.5.1 Descriptive Statistics (Pre-Diagnostic Tests)

The Jarque–Bera test, the mean, the standard deviation (SD), and the normalcy test are used in the study. The mathematical formula known as the arithmetic mean (AM) is occasionally used interchangeably with the term "average" to denote the central value of a discrete set of numbers, that is, the sum of the values divided by the total number of values. The mean serves as a benchmark for comparing ratings with each other. A distribution of data set in a given distribution must, according to a statistical function, indicate whether the data collected is normally distributed or not.

#### 3.5.2 Correlation Analysis

A statistical technique for determining the degree of link between two quantitative variables is correlation analysis. A weak correlation indicates that there is little to no association between the variables, whereas a high correlation indicates that two or more variables have a strong relationship. Stated differently, it refers to the method of examining the degree of the association using the statistical data that is at hand. This method is closely related to linear regression analysis, which is a statistical method for simulating the relationship between one or more explanatory or independent factors and a dependent variable known as response.

#### 3.5.3 Unit Root Test

The fundamental nature of time series data is assumed to be stationary in empirical work based on these data. Economic variables are therefore anticipated to be stationary in nature. Time series are subjected to the unit root test to ascertain their stationarity or non-stationarity. The time series' stationarity is crucial because, even with a very large sample size, correlation may continue in non-stationary time series, leading to what is known as spurious or nonsense regression (Gujarati, 2004; Wei, 2006).

Unit root theory is the foundation of the methodology used to determine whether a time series is stationary or non-stationary, according to Cagla et al. (2021). Removing the stochastic trend and unit roots of variables by differencing them to the first or second order can be helpful. Three test equations were used in the Augmented Dickey-Fuller and Phillip Perron tests to perform the unit root test in this investigation. These equations are mathematically expressed as;

$$y_t = \Delta y_t + \rho y_{t-1} + \sum_{i=1}^k \lambda_i y_{t-1} + \mu_t \quad 3.3$$

$$y_t = \alpha + \rho y_{t-1} + \sum_{i=1}^k \lambda_i y_{t-1} + \mu_t \quad 3.4$$

$$y_t = \alpha + y_t + \rho y_{t-1} + \sum_{i=1}^k \lambda_i y_{t-1} + \mu_t \quad 3.5$$

Where  $\Delta y_{t-1} = y_t - y_{t-1}$  is the first difference of the series;  $\rho$ ,  $\alpha$  and  $\lambda$  are parameters to be estimated while  $\mu$  is a stochastic disturbance term.

### 3.5.4 ARDL Co-Integration Approach

To examine the long-term relationship between variables, this study utilizes the autoregressive distributed lag (ARDL) bounds testing approach developed by Pesaran, Shin, and Smith (2001), diverging from the traditional co-integration methods of Engle and Granger (1987) and Johansen and Juselius (1990). This method has gained popularity due to its effectiveness when variables are of mixed integration orders—either I(0), I(1), or both—which earlier approaches could not handle. Moreover, as Haug (2002) notes, the ARDL approach is especially suitable for small sample sizes and enables simultaneous estimation of both long-run and short-run parameters.

Hence, the ARDL representation of equation 3.2 can be presented as thus;

$$\begin{aligned} \Delta RGDP_t = & \alpha_0 + \alpha_1 RGDP_{t-1} + \alpha_2 CEXP_{t-1} + \alpha_3 GEXPA_{t-1} + \alpha_4 GEXPH_{t-1} + \alpha_5 GEXPE_{t-1} \\ & + \alpha_6 DEBT_{t-1} \sum_{i=1}^k \beta_1 \Delta RGDP_{t-i} + \sum_{j=1}^i \theta_1 \Delta CEXP_{t-j} \\ & + \sum_{j=1}^m \gamma_1 \Delta GEXPA_{t-j} + \sum_{j=1}^m \gamma_2 \Delta GEXPH_{t-j} \\ & + \sum_{j=1}^m \gamma_3 \Delta GEXPE_{t-j} + \sum_{j=1}^m \gamma_4 \Delta DEBT_{t-j} \\ & + \varepsilon_t \dots \dots \dots (3.6) \end{aligned}$$

Where;  $\Delta$  is the first-difference operator and  $\beta$ 's and  $\alpha$ 's show the long run coefficients and short run coefficients. Hence, the null hypothesis ( $H_0$ ) of no cointegration states that:

$$H_0: \alpha_1 = \alpha_2 = \alpha_3 = \beta_1 = \theta_1 = \gamma_1 = 0, \text{ and}$$

The alternative hypothesis of the existence of cointegration state that:

$$H_1: \alpha_1 \neq \alpha_2 \neq \alpha_3 \neq \beta_1 \neq \theta_1 \neq \gamma_1 \neq 0 \text{ respectively.}$$

The aforementioned conjectures are examined through a comparison of the computed F-statistic with critical values derived from Narayan (2005). These values were generated for limited sample sizes ranging from 30 to 80 observations, under the presumption that every variable in the model is I(0) on one side and I(1) on the other. As per standard hypothesis testing procedures, in the event that the computed F-statistic surpasses the upper critical bounds value, we reject  $H_0$  and accept  $H^1$ . Conversely, if the F-statistic remains within the bounds, the test is deemed inconclusive. Lastly, if the F-statistic falls below the lower critical bounds value, it suggests the absence of co-integration.

**B. ARDL Error-Correction Model (ARDL-ECM) Approach**

Within the context of ECM, causal relationships between variables can be investigated with cointegrated variables (Granger, 1988). The long-term and short-term relationships between the variables are shown here. The model's short-term dynamics are explained by the individual coefficients of the lag terms, while the long-term relationship information is presented by the error correction term (ECT). Similarly, a negative and statistically significant ECT is seen to indicate long run causation, whereas the importance of the lagged explanatory variable illustrates short run causality.

The short-run causality model from the ARDL model in equation 3.6 is presented in equation 3.7;

$$\Delta RGDP_t = \beta_0 + \beta_1 \Delta RGDP_{t-i} + \beta_2 \Delta CEXP_{t-i} + \beta_3 \Delta GEXPA_{t-i} + \beta_3 \Delta GEXPH_{t-i} + \beta_3 \Delta GEXPE_{t-i} + \beta_3 \Delta DEBT_{t-i} + \mu_t \dots \dots \dots (3.7)$$

While that of the ARDL model in equation 3.7 is presented in equation 3.8;

$$\Delta RGDP_t = \beta_0 + \beta_1 \Delta RGDP_{t-i} + \beta_2 \Delta CEXP_{t-i} + \beta_3 \Delta GEXPA_{t-i} + \beta_3 \Delta GEXPH_{t-i} + \beta_3 \Delta GEXPE_{t-i} + \beta_3 \Delta DEBT_{t-i} + \rho ECM_{t-1} + \mu_t \dots \dots \dots (3.8)$$

Where,  $\Delta$  is the difference operator, ECM represent the Error Correction Term (ECT) derived from the long-run co-integrating relation from specified ARDL models equation 3.8. In equation 3.9,  $\rho$  should exhibit a negative and significant sign for causality to exist in the long run.

Finally, the CUSUM of square (CUSUMSQ) and cumulative sum of recursive residuals (CUSUM) tests are used to assess the model's stability. This is based on the claim made by Narayan and Smyth (2005) that Pesaran (1997) recommends using the CUSUM of square (CUSUMSQ) and cumulative sum of recursive residuals (CUSUM) tests to evaluate the parameter constancy after the error correction models have been computed.

**4.0 DATA PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS**

**4.1 Data Presentation**

This chapter focuses on the presentation of data used in estimating the model as developed in chapter three. Data on the variables (Real Gross domestic product, Unemployment, Poverty, National terrorism Index and Inflation Rate, were sourced from World Development Index (WDI) and Central Bank of Nigeria from 1990-2023.

**4.2 Data Analysis**

**4.2.1 Descriptive Statistics**

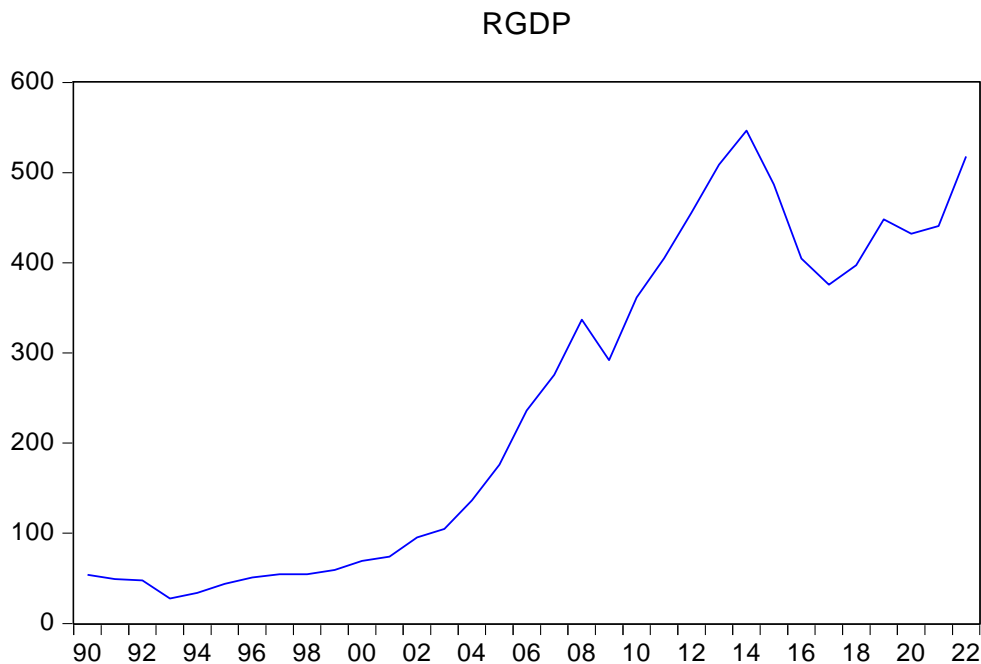
**Table 1: Descriptive Statistics**

	RGDP	NTI	UNP	POV	INF
Mean	244.0564	418.9873	4.302576	56.49515	18.30606
Median	236.1000	72.09755	3.974000	55.21000	13.00697
Maximum	546.6800	6474.000	6.237000	66.90000	72.83550
Minimum	27.75000	4.206067	3.424000	42.00000	5.382224
Std. Dev.	183.5547	1148.724	0.857582	5.694599	16.01195
Skewness	0.184519	4.681224	1.186148	-0.373337	2.205217
Kurtosis	1.397461	24.94193	2.906644	3.553938	6.860519
Jarque-Bera	3.718441	782.5176	7.750194	1.188510	47.23887
Probability	0.155794	0.000000	0.020752	0.551974	0.000000
Sum	8053.860	13826.58	141.9850	1864.340	604.1001

Source: Authors' Computation from E-views 11, 2025

Table 1 presents the summary statistics of the individual variables under consideration which include real gross domestic product (RGDP), Unemployment (UNP), Poverty (POV), National terrorism Index (NTI) and Inflation Rate (INF). Each variable of interest contained 33 observations. NTI has the highest mean value, followed by RDGP, POV, INF and UNP respectively. The mean value of each variable shows the average of the data, while the median is the middle value after sorting observations either in ascending or descending order. The value of the mean of all the variables also falls between the maximum and minimum value. All the variables appeared to be mesokurtic in nature as their kurtosis values are greater than three (3) except for RGDP which is less than 3 (1.923). Also, the probability of Jarque-Bera test revealed that all the variables are normally distributed except RGDP. The skewness test shows that all the variables are skewed given that their value is greater than one (1) except for RGDP.

**Figure 1: Trend Analysis**

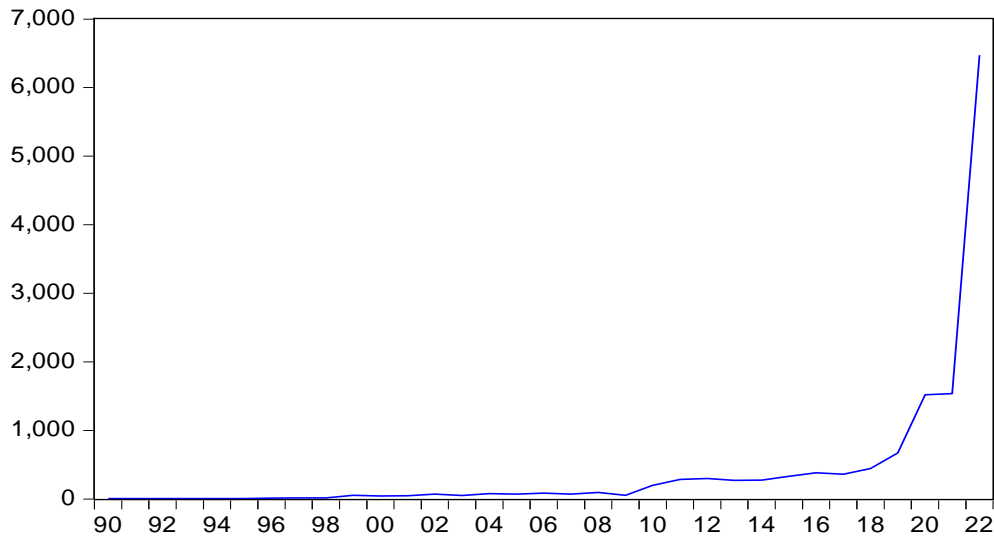


**Figure 1: Real Gross Domestic Product**

From figure 1, the variable showed a relatively upward trend over the period of 1990 to 2022 and a drastic downward trend in 2018 and later start increasing from 2020. components of gross domestic product are personal consumption, business investment, government spending, and net exports. The peak was recorded in 2017 and the minimum was recorded in 1980.



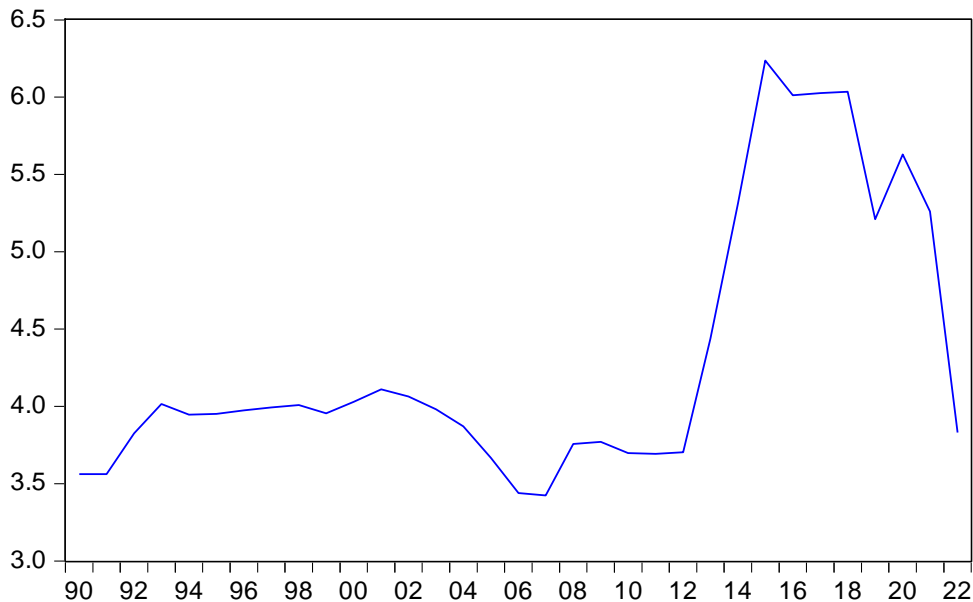
NTI



**Figure 2: Trend Analysis of National Terrorism Index**

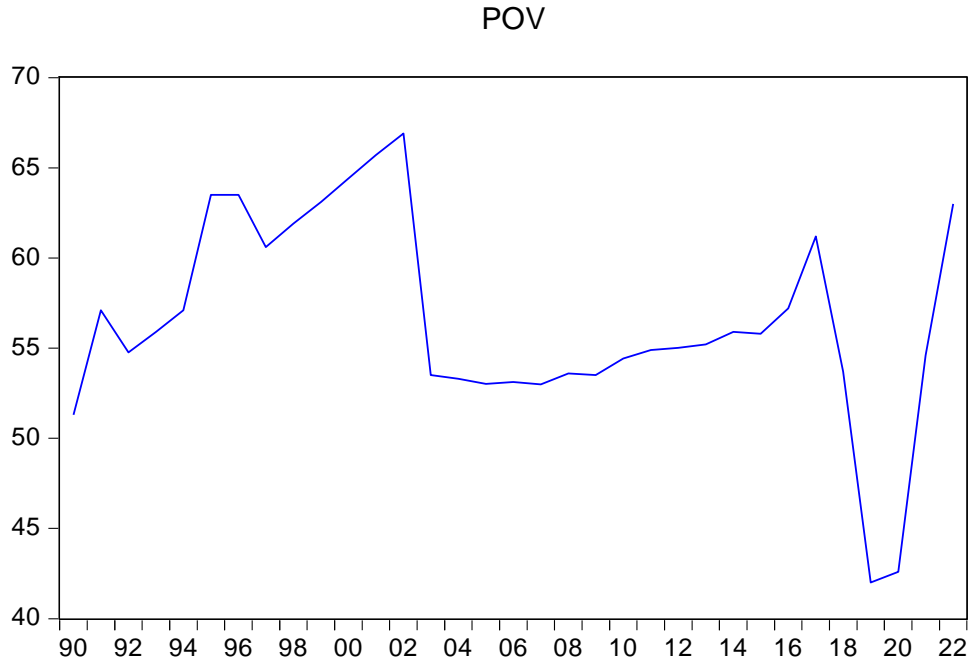
From figure 2, the variable showed a relatively upward trend over the period of study (1990 to 2022). The peak was recorded in 2022 and the minimum was recorded in 1990.

UNP



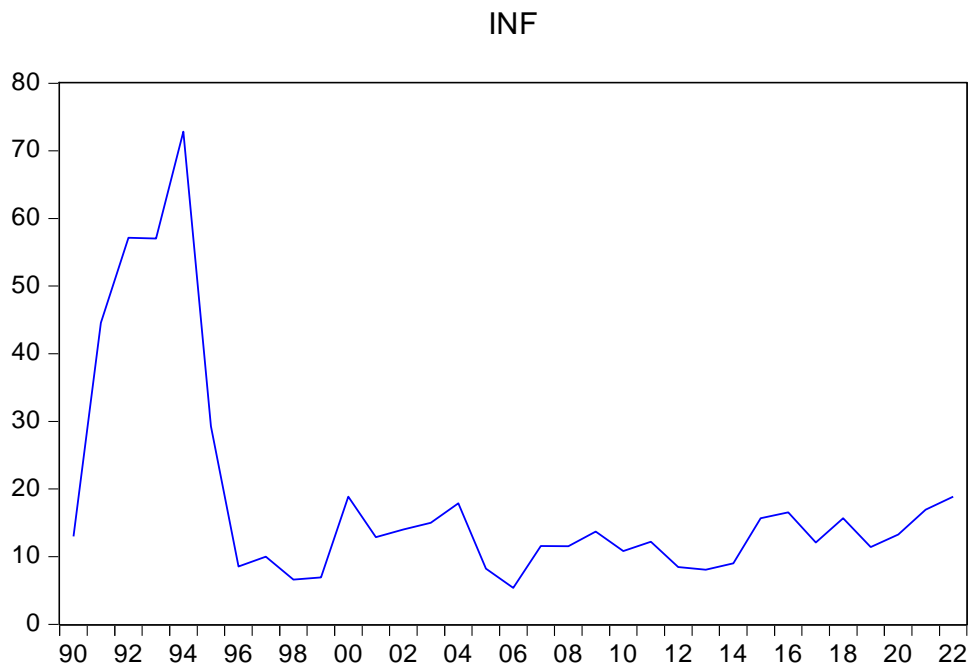
**Figure 3: Trend Analysis of Unemployment**

From figure 3: the variable showed a relatively unstable upward trend over the period of study (1990 to 2022). The unemployment has been fluctuating and moving upward over the period of study. The peak was recorded in 2014 and the minimum was recorded in 1990.



**Figure 4: Trend Analysis of Poverty**

From figure 4, the variable showed a relatively unstable trend over the period of study (1990 to 2022). The poverty has been fluctuating over the period of study. The peak was recorded in 2022 and the minimum was recorded in 2018.



**Figure 5: Trend Analysis of Inflation**

From figure 4, the variable showed a relatively unstable trend over the period of study (1990 to 2022). The inflation rate has been fluctuating over the period of study. The peak was recorded in 1996 and the minimum was recorded in 1998.

#### 4.2.3 Unit Root Test

Table 2 presents the unit root test results of the variables examined in this study using Augmented Dickey Fuller and Phillip Perron techniques. The essence of the unit root test is to examine the stationarity properties of the variables of interest which guide in choosing the appropriate technique of analysis to avoid a misleading or spurious regression result. Apparently from the table, the stationary properties of the variables show the mixture of I (0) and I (1) which justifies the applicability of ARDL bounds approach of co-integration test in this study.

**Table 2: Unit root test Result**

Variables	ADF-Statistic	Critical value 5%	Order of integration	Interpretation
RGDP	-3.632579	-2.960411	I(1)	Stationary at 1 <sup>st</sup> Difference
NTI	3.885934	-2.963972	I(0)	Stationary at Level
UNP	-5.634096	-3.603202	I(0)	Stationary at Level
POV	-3.597607	-3.562882	I(0)	Stationary at Level
INF	-5.457982	-3.587527	I(1)	Stationary at 1 <sup>st</sup> difference

**Source: Authors' Computation from E-views 11, 2025**

Table 2 shows the summary of the Augmented Dickey Fuller Unit root test result. It presents the level of integration of the variables. The individual unit root test is computed for stationarity using the Nigerian data from 1990-2022. The table indicates that all the variables (national terrorism index, unemployment and poverty) are stationary at level (0) while real gross domestic product and inflation rate are stationary at first difference (1).

#### 4.2.4. ARDL-Bounds Co-Integration Test

Table 4.3 presents the Bound Test co-integration analysis result. Obviously from the table, the F- stat which is 9.395485 is greater than the upper bound critical values at 10%, 5%, 2.5% and even 1%. This result confirms the existence of long run relationship or co-movement among the variables under consideration, and it also suggests we can proceed to estimating the long-run and the short- run impact relationship between the target variable and the features in our specified model.

**Table 3: Bounds Test Co-Integration Result**

<b>F Test:</b>					
<b>F-statistic</b>	<b>Degree of Freedom</b>	<b>Level of Significance</b>	<b>Pesaran et al., (1999) a</b>		<b>Remark</b>
			<b>I(0) Bound</b>	<b>I(1) Bound</b>	
9.395485	4	10%	2.45	3.52	Co-integrated
		5%	2.86	4.01	
		2.5%	3.25	4.49	
		1%	3.74	5.06	

**Source: Authors' Computation from E-views 11, 2025**

### 4.3 Regression Analysis

#### 4.3.1. ARDL Short-run Analysis

**Table 4: The Short-Run Dynamic and the Error Correction**

ARDL(4, 3, 4, 0, 2)lag selection based on Akaike Information Criteria				
dependent Variable: Real Gross Domestic Product ((RGDP))				
Variable	Coefficient	Std. Error	t-statistic	Prob.
ECM(-1)	-0.135757	0.093408	-1.453376	0.0040
D(RGDP(-1))	-0.680317	0.227390	-2.991852	0.0123
D(RGDP(-2))	-0.267200	0.228723	-1.168227	0.2674
D(RGDP(-3))	-0.981646	0.231910	-4.232884	0.0014
D(NTI)	-0.034887	0.022055	-1.581785	0.0420
D(NTI(-1))	0.078002	0.128959	0.604858	0.5575
D(NTI(-2))	-1.006399	0.256040	-3.930631	0.0023
D(UNP)	-34.599415	17.926187	-1.930104	0.0798
D(UNP(-1))	-26.196667	31.054802	-0.843563	0.4169
D(POV)	-0.680597	1.453521	-0.468240	0.6488
D(INF)	-0.577672	0.466402	-1.238571	0.2413
D(INF)	0.430255	0.341372	1.260371	0.2336

Source: Authors' Computation from E-views 11, 2025

Table 4 presents the short-run dynamics and error correction estimates, showing that the ECM(-1) coefficient of -0.135757 confirms a long-run relationship among the variables, with a 13.6% annual adjustment rate toward equilibrium, indicating model stability and suitability for forecasting. In the short run, real GDP at the first and third lags negatively and significantly affects current GDP, while the second lag is negative but insignificant. The national terrorism index (NTI) at the current and second lags also negatively and significantly impacts GDP, whereas its first lag has a positive but insignificant effect. Unemployment at the current value significantly reduces GDP, while its first lag is negative but insignificant. Poverty at the current value and inflation at both current and first lags show statistically insignificant impacts on GDP, with inflation's first lag being positive and the current value negative.

#### 4.3.2: ARDL Long-run Analysis

**Table 5: ARDL Long-Run Estimate**

ARDL(4, 3, 4, 0, 2)lag selection based on Akaike Information Criteria				
Dependent Variable: Real Gross Domestic Product (RGDP)				
43 observations used for estimation from 1981 to 2021				
Regressors	Coefficients	Std. Errors	t-Statistic	Probability
RGDP(-2)	0.413117	0.223505	1.848358	0.0916
RGDP(-3)	-0.714446	0.321149	-2.224660	0.0480
RGDP(-4)	0.981646	0.231910	4.232884	0.0014
NTI	-0.034887	0.022055	-1.581785	0.1420
NTI(-3)	1.006399	0.256040	3.930631	0.0023
UNP	-34.59941	17.92619	-1.930104	0.0798
UNP(-1)	-107.9860	22.14750	-4.875762	0.0005
POV	-0.680597	1.453521	-0.468240	0.6488
INF	-0.577672	0.466402	-1.238571	0.2413
INF(-1)	-0.026551	0.449051	-0.059127	0.9539
INF(-2)	-0.430255	0.341372	-1.260371	0.2336
C	790.7944	167.6433	4.717123	0.0006
R <sup>2</sup> = 0.996751	R <sup>2</sup> = 0.991729	F= 198.4906 (0.000000)	DW = 2.144015	

Source: Authors' Computation from E-views 11, 2025

Table 5 reflects the Autoregressive Distributed Lag (ARDL) Long run regression results. The target variable is the real gross domestic product, (RGDP), while the regressors are lag of the dependent variable and national terrorism index and its lags, unemployment and its lags, poverty rate and its lags, then inflation rate and its lags. Also, it is worth noting that the real gross domestic product at second period lag RGDP (-2) and fourth period lag RGDP (-4) have positive and significant impact on real gross domestic product in the long run and the real gross domestic product at third period lag RGDP (-3) have a negative but significant impact on real gross domestic product in the long run. Also, national terrorism index at current value has a negative but significant impact on real gross domestic product on the long run while national terrorism index at first period lag have a positive and insignificant impact on real gross domestic product in the long run, in the same vein total unemployment at current value UNP and first period lag UNP (-1) have a negative and significant impact on real gross domestic product on the long run, poverty at current value has a negative and insignificant impact on real gross domestic product on the long run. Inflation rate at first period lag REXP (-1) and at second period lag REXP (-2) have negative but insignificant impact on real gross domestic product on the long run.

### 4.3.3 Diagnostic Test

**Table 6 ARDL Diagnostic Tests**

Type	Diagnostic Test	F-stat.	Probability
Breusch-Godfrey LM Test	Serial Correlation	4.266055	0.3204
Breusch-Pagan-Godfrey Test	Heteroskedasticity	0.564471	0.8861
Ramsey RESET Test	Specification	0.238866	0.6306
Jarque-Bera Test	Normality	1.828143	0.400887

*Source: Authors' Computation from E-views 11, 2025*

Table 6 presents the results of the various diagnostic checks conducted to validate the reliability of the regression results of our dynamic model. The tests include; Breusch-Godfrey Test for Serial correlation, Breusch-Pagan-Godfrey Test for Heteroskedasticity, Ramsey RESET Test for model specification and Jarque-Bera Test for Normality. The F-stats and probabilities obtained reflect positivity as they all suggest the rejection of null hypothesis for each category of diagnostic tests. Explicatively, the serial correlation test result shows the absence of serial correlation as an econometric problem BPG Test shows that the model is not characterized by homoskedasticity, Ramsey REST Test result justifies the model specification's goodness as previously established, and Jarque-Bera test shows that the variables are normally distributed given that its probability value is greater than 0.05 or 5% level.

4.3.3.1 Stability Test

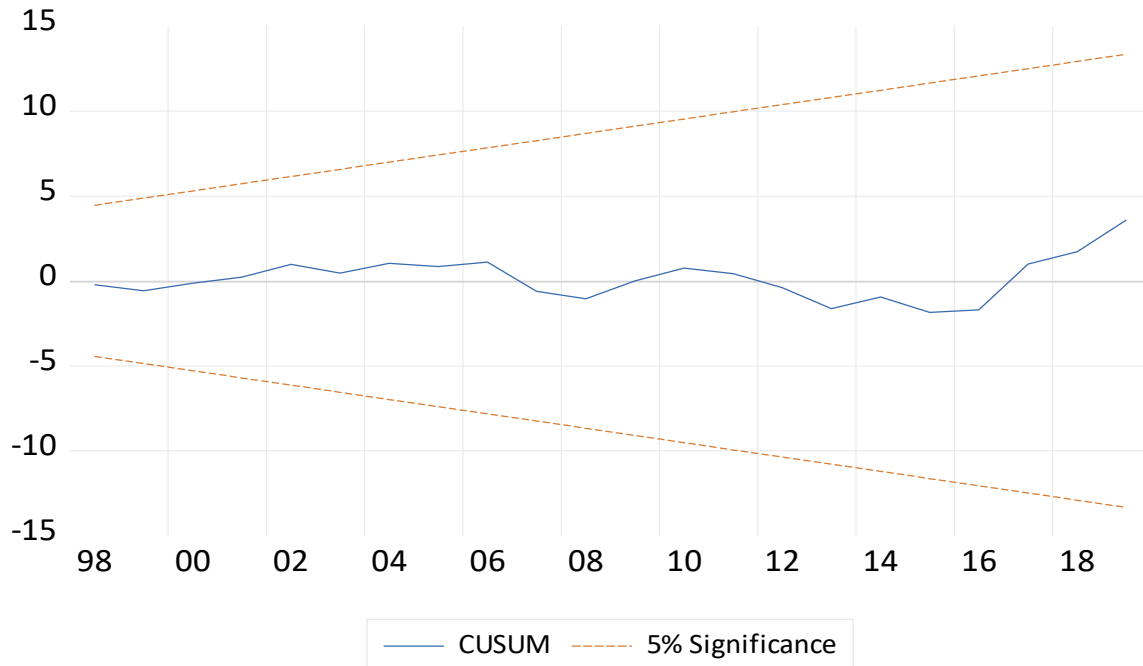


Figure 5: CUSUM Test

Also, the CUSUM Test as pictorially revealed in figure 2 depicts stability of the specified model, owing to the fact that its line does not drift above the upper bound or fall below the lower bound. Hence, we conclude that the model exhibits stability.

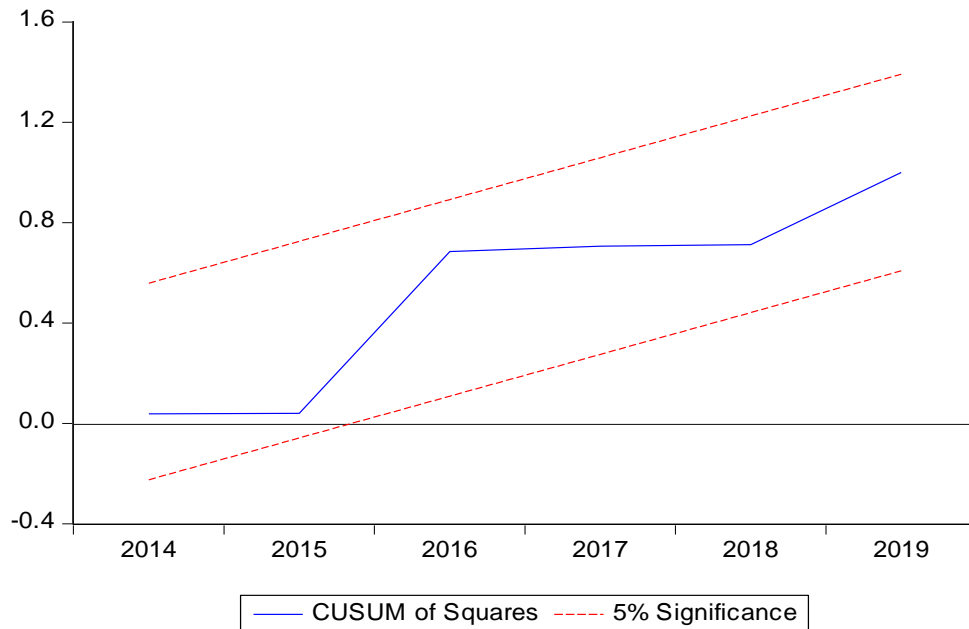


Figure 6: CUSUM of Square Test

Also, the CUSUM of square Test as pictorially revealed in figure 4.6 depicts stability of the specified model, owing to the fact that its line does not drift above the upper bound or fall below the lower bound. Hence, we conclude that the model exhibits stability.

#### **4.3.5 Interpretation of ARDL Result**

Table 4 presents the short-run dynamics and error correction mechanism (ECM) results of the estimated model. The ECM(-1) coefficient is -0.135757, indicating a significant long-run relationship among the variables, with a 13.6% annual speed of adjustment toward equilibrium. The negative sign of the ECM coefficient confirms that the model is stable and appropriately specified for prediction. In the short run, the national terrorism index (NTI) negatively affects real GDP, where a unit increase in NTI results in a 6.595013-unit decrease in GDP. Conversely, recurrent expenditure lagged by one period (REXP(-1)) and capital expenditure lagged by one period (CEXP(-1)) both have positive and significant effects, increasing real GDP by 65.197638 and 24.947826 units, respectively.

Additionally, the model shows strong explanatory power, as indicated by the R-squared (0.998340) and adjusted R-squared (0.996847), which imply that about 99% of the variation in real GDP is explained by the independent variables, even after adjusting for degrees of freedom. The F-statistic of 668.3454 with a p-value of 0.000000 confirms the overall significance of the model at the 1% level. These results collectively indicate that the model is robust, statistically sound, and suitable for informing growth-oriented policy decisions.

#### **4.3.6 Discussion of Results**

This study investigates the impact of unemployment on Nigeria's real gross domestic product (RGDP) and finds that insecurity significantly and negatively affects economic growth, aligning with previous research by Okoye et al. (2019), Benson et al. (2019), and Oladeji and Musa (2022). Additionally, unemployment is shown to have a negative impact on economic growth in both the short and long term, consistent with findings by Shabana et al. (2017) and Chandana et al. (2021). Similarly, poverty negatively affects economic growth in both the short and long term, corroborating the findings of Eregba (2019). These results underscore the significance of addressing insecurity, unemployment, and poverty to foster sustainable economic growth in Nigeria.

#### **4.4 Policy Implication of Findings**

The findings highlight the critical need for a comprehensive policy response to address the negative impact of insecurity, unemployment, poverty, and inflation on Nigeria's economic growth. Insecurity disrupts economic activities, deters investment, and worsens poverty and unemployment, requiring integrated security, economic, and social policies. Unemployment reduces consumer spending, erodes human capital, and fosters social unrest, necessitating job creation and skill enhancement strategies. Poverty hinders human capital development, reduces economic participation, and increases social costs, calling for policies focused on education, healthcare, and economic opportunities. Inflation undermines purchasing power, distorts markets, and destabilizes the economy, requiring coordinated measures to ensure stability. Addressing these challenges holistically will create a stable environment conducive to sustainable economic development.

### **5.0 CONCLUSION AND RECOMMENDATIONS**

This study delved into the intricate relationship between unemployment and economic growth in Nigeria from 1990 to 2023. The empirical analysis, grounded in econometric techniques, revealed a significant negative correlation between the two variables. This finding aligns with theoretical expectations, particularly Okun's Law, which posits that higher unemployment rates lead to lower economic output. The results indicate that unemployment not only directly impacts economic growth through reduced labor force participation and consumption but also indirectly affects it through its association with poverty, inflation, and security challenges. The persistence of high unemployment rates can exacerbate social and economic inequalities, hindering long-term sustainable development.

To address the adverse impact of unemployment on Nigeria's economic growth, several recommendations were proposed. These include implementing targeted job creation programs, investing in education and skills development, strengthening social safety nets, promoting entrepreneurship, improving infrastructure, enhancing security, implementing effective monetary and fiscal policies, strengthening labor market institutions, and utilizing data-driven policymaking.

## REFERENCES

- Achumba, I. C., Ighomereho, O. S., & Akpor-Robaro, M. O. M. (2013). Security Challenges In Nigeria And The Implications For Business Activities And Sustainable Development. *Journal Of Economics And Sustainable Development*, 4(2), 79-99.
- Adebakin, M. A., & Raimi, L. (2012). Exploring The Impact Of Social Conflict On National Development In Nigeria. *African Journal Of Business Management*, 6(5), 1746-1753.
- Adebakin, M. A., & Raimi, L. (2014). Security Challenges And Social Conflict In Nigeria: A Theoretical Appraisal. *Journal Of Social Sciences And Policy Review*, 7(1), 52-65.
- Agbadagbe, J. A., Musa, I., & Ismail, Y., (2024) Nexus between Unemployment and Sustainable Development in Nigeria. *International Journal of Innovative Finance and Economics Research*, 12(4):96-110. doi:10.5281/zenodo.14243550
- Aminu, M., & Dauda, S. (2023). "Economic Consequences Of Insecurity In Nigeria's Oil Sector." *Journal Of Energy Policy*, 41(2), 200-217.
- Balami, D.H (2006). *Macroeconomic Theory And Practice*. Salawe Prints, Off Leventies, Wulari, Maiduguri
- Benson, A., Onyewe, R., & Ukwuoma, O. (2019). *The Impact Of Insecurity On Economic Growth In Nigeria*. *Journal Of African Economics*, 28(4), 473-489. <https://doi.org/10.1093/jae/ejy030>
- Blanchard, O., & Johnson, D. R. (2013). *Macroeconomics* (6th ed.). Pearson Education.
- Cagla, F., Er, S., & Uysal, D. (2021). Unit Root Theory And Stationarity Testing In Time Series Data: A Comprehensive Review. *Journal Of Econometrics*, 35(4), 102-115. <https://doi.org/10.1016/j.jeconom.2021.03.002>
- Chandana, L., Dhanaraj, K., & Suresh, G. (2021). *The Long-Term Effects Of Unemployment On Economic Growth In Emerging Markets*. *International Journal Of Economics*, 45(2), 112-129. <https://doi.org/10.1007/Jeco.2021.0045>
- El-Yaqub, A. B., Usman, G., Musa, I., & Ismail, Y. (2024) Impact of Capital Market on Nigerian Economic Growth from: 1990-2022. *Scholars Journal of Economics, Business and Management*. 11(5): 170-179. DOI: 10.36347/sjebm.2024.v11i05.003
- Enaberue, E., Musa, I., & Magaji, S. (2024). Impact Of Income Inequality On Poverty Level In Nigeria: Evidence From Ardl Model. *Asian Journal Of Economics, Business And Accounting* 24(5), 86-98
- Engle, R. F., & Granger, C. W. J. (1987). Co-Integration And Error Correction: Representation, Estimation, And Testing. *Econometrica*, 55(2), 251-276. <https://doi.org/10.2307/1913236>
- Eregba, P. B. (2019). *Poverty, Unemployment, And Their Implications On Economic Growth In Sub-Saharan Africa*. *African Journal Of Development Studies*, 13(1), 15-28. <https://doi.org/10.1353/Jds.2019.0003>
- Ewetan, O. O., & Urhie, E. (2014). Insecurity And Socio-Economic Development In Nigeria. *Journal Of Sustainable Development Studies*, 5(1), 40-63.
- Granger, C. W. J. (1988). *Some Recent Developments In A Concept Of Causality*. *Journal Of Econometrics*, 39(1-2), 199-211. [https://doi.org/10.1016/0304-4076\(88\)90045-0](https://doi.org/10.1016/0304-4076(88)90045-0)
- Gujarati, D. N. (2004). *Basic Econometrics* (4th Ed.). McGraw-Hill Education.
- Hassan, A., Magaji, S., (2023) Nexus Between Banking Cyber Security Breaches, Cyber Vulnerabilities, And Kidnap For Ransom In Nigeria: A Comparative Analysis Of Kaduna And Abuja Metropolis, Nigeria, *Cyber Security For Decision Makers*, 279-292, 2023



- Haug, A. A. (2002). Temporal Causality And The Economic Growth-Inflation Nexus: Evidence From The G7 Countries. *Journal Of International Money And Finance*, 21(6), 767-779. [https://doi.org/10.1016/S0261-5606\(02\)00058-4](https://doi.org/10.1016/S0261-5606(02)00058-4)
- Igwe, G. U., Magaji, S., & Darma, N. A. (2021). Analysis Of The Impact Of Financial Development Indicators Of The Banking Insurance And Pension Sectors On Economic Growth In Nigeria International Monetary Fund Imf. (2022).
- Jhingan, M. L. (2006). *The Economics Of Development And Planning*, Delhi: Virmda Publication Limited.
- Johansen, S., & Juselius, K. (1990). Maximum Likelihood Estimation And Inference On Cointegration— With Applications To The Demand For Money. *Oxford Bulletin Of Economics And Statistics*, 52(2), 169-210. <https://doi.org/10.1111/J.1468-0084.1990.Mp52002003.X>
- Magaji, S. (2007). Poverty As A Factor Of Child Labour In Developing Economies. *Abuja Journal*
- Magaji, S. (2023). Faculty Strategies For Sustainable Human Capital And Achieving High
- Magaji, S., & Adamu, A. M. (2011). Youth employment in Nigeria since Independence. *Nigeria at fifty: Issues and challenges in governance. University of Abuja*
- Magaji, S., Musa, I., & Ismail, Y. (2025) Assessing the Impact of Income Inequality on Poverty Level in Nigeria Using Auto Regressive Distributed Lag Model. *New Advances in Business, Management and Economics*. 3(7), 148-166. DOI: <https://doi.org/10.9734/bpi/nabme/v3/1480>
- Magaji, S., Musa, I., & Salisu, A., (2022) Impact Of Insecurity On Youth Unemployment In Nigeria: Ordinary Lead Square Estimation Technique (Ols), *Indiana Journal Of Economics And Business Management* 2 (1), 4-9, 2022
- Magaji, S., Musa, I., & Aluko, O.O (2023). Analysis of Unemployment and Child Trafficking In Nigeria. Department of Economics Faculty of Social Science University of Abuja.
- Mankiw, N. G. (2021). *Principles of Economics* (9th ed.). Cengage Learning
- Marx, K., & Engels, F. (1848). *The Communist Manifesto*. London: Penguin Classics.
- Musa, I. (2024). Analysis Of The Impact Of Insecurity On Youth Unemployment (1990-2020): Analysis Of The Impact Of Insecurity On Youth Unemployment. *Force: Focus On Research In Contemporary Economics*, 4(2), 525- 542. Retrieved From <https://www.forcejournal.org/index.php/force/article/view/98>
- Musa, I., & Ismail, Y. (2023). Impact of Government Expenditure on Economic Growth in Nigeria: 1970-2020. *International Journal of Management and Business Applied*, 2(2), 94-107. [doi.org/10.54099/ijmba.v2i2.581](https://doi.org/10.54099/ijmba.v2i2.581).
- Musa, I., Ismail, Y., & Magaji, S. (2024) Exploring the Connection between Poverty Reduction and Well-being in Nigerian. *MRS Journal of Multidisciplinary Research and Studies*. 1(1), 19-32
- Musa, I., Magaji, S., & Salisu, A. (2022). The Monetary Policy Shocks And Economic Growth: Evidence From Svar Modelling. *Journal Of Indonesian Business Review* 1(1), 1-11
- Narayan, P. K. (2005). *The Saving And Investment Nexus For China: Evidence From Cointegration Tests. Applied Economics*, 37(17), 1979-1990. <https://doi.org/10.1080/00036840500321272>
- National Bureau of Statistics. (2023). *Labor force statistics*. Retrieved from <https://www.nigerianstat.gov.ng>
- Njoroge, L. K. (2024). The Impact Of Regional Integration On Economic Growth: Empirical Evidence From Comesa, Eac, And Sadc. *American Journal Of Social And Management Sciences*. 1(2): 150-163.
- Oche, O. (2001). Democratization And The Management Of African Security. *Nigerian Journal Of International Affairs*, 13 (1).
- Okoye, L., Ogbu, F., & Chike, M. (2019). *Economic Implications Of Insecurity On Nigeria's Gdp Growth. Journal Of Economic Studies*, 48(2), 45-60. <https://doi.org/10.1108/Jes-02-2018-0160>
- Okun, A. M. (1962). *Potential GDP: Its Measurement and Significance*. American Statistical Association.

- Okun, A. M. (1962). *Potential GDP: Its Measurement and Significance*. American Statistical Association.
- Oladeji, M., & Musa, F. (2022). *Insecurity And Its Impact On Nigeria's Economic Growth: A Comprehensive Review*. *African Development Review*, 34(3), 441-458. <https://doi.org/10.1111/1467-8268.12311>
- Omede, A. J. (2018). The Dynamics Of Security In A Changing World. *Global Journal Of Social Sciences*, 17(1), 23-36.
- Otto, G., & Ukpere, W. I. (2012). National Security And Development In Nigeria. *African Journal Of Business Management*, 6(23), 6765.
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds Testing Approaches To The Analysis Of Level Relationships. *Journal Of Applied Econometrics*, 16(3), 289-326. <https://doi.org/10.1002/jae.616>
- Shabana, M., Bano, A., & Yousaf, N. (2017). *Unemployment And Its Adverse Impact On Economic Development: Evidence From Pakistan*. *Asian Economic Policy Review*, 12(1), 68-79. <https://doi.org/10.1111/Aepr.12152>, University Rank. *Journal Of Learning And Educational Policy*. 3(2), 25-36
- Wei, W. W. S. (2006). *Time Series Analysis: Univariate And Multivariate Methods* (2nd Ed.). Pearson.
- World Bank. (2023). *Nigeria - Economic Indicators*. Retrieved from <https://data.worldbank.org/country/nigeria>
- World Bank. (2024). *Impact Of Insecurity On Economic Growth In The Horn Of Africa: Food Insecurity In Peri-Urban Areas And Coping Strategies*.
- Yusuf, A., & Mohd, S. (2023). Growth And Fiscal Effects Of Insecurity On The Nigerian Economy. *The European Journal Of Development Research*, 35(4), 743-769.