

## Effect of Non-Oil Exports on Unemployment Rate in Nigeria

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### Abstract

Nigeria is experiencing persistent increase in unemployment accompanied by slow economic growth despite abundant non-oil export goods in Nigeria. This study investigated the effect of non-oil export goods on unemployment through economic growth in Nigeria from 1986-2025. Unemployment rate was used as the dependent variable while the components of non-oil-exports (agricultural, manufacturing, solid mineral, and services exports) were employed as independent variables. Data were obtained from the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), and World Development Indicators (WDI). The study utilized *ex post facto* quantitative research design. Augmented Dickey-Fuller (ADF) and Phillip Pearons (PP) unit root tests were conducted and the results showed that the data were stationary at first difference. Johansen Cointegration test was carried out and the result revealed the existence of long-run relationship between the variables. The estimated Vector Error Correction Model (VECM) results showed that RGDP had a positive (0.004688) and statistically significant impact on unemployment in the short-run and likewise a positive (0.002701) and statistically significant impact on unemployment in the long-run. Agricultural exports (AGEX) impacted positively (0.000646) on unemployment in the short-run although statistically insignificant but in the long-run it had a positive (0.003502) and statistically significant impact on unemployment. Manufacturing exports (MAEX) both in the short-run and long-run had positive (0.008147) and (0.005935) statistically significant impact on unemployment respectively. Also, solid mineral exports (SMEX) had a negative (-0.144854) and statistically significant impact on unemployment in the long-run. It did not meet the a priori expectation of positive sign. More so, services exports (SREX) in the short-run impacted negatively (-0.019047) on unemployment and statistically significant. The error correction term was negative (-0.626510) and correctly signed. It suggested that the speed of adjustment from short-run to long-run equilibrium will be corrected by 63%. The study concluded that non-oil exports (agricultural exports, manufacturing exports, and solid mineral exports) except services exports had significant transmission effect on unemployment through economic growth in Nigeria during the period under review. The study recommended that the positive and significant transmission effect of the non-oil exports on unemployment through economic growth in Nigeria should be maintained and sustained by the Nigerian government. This can be achieved through investing in agricultural technology, improving market access, and providing subsidies, credit facilities, and insurance to farmers. Also, encouraging production of value-added goods to increase exports and revenue, and by sanctioning illegal mining activities in Nigeria.

**Keywords:** Transmission Effect, Non-oil exports, Economic Growth, Unemployment

### Introduction

Non-oil exports have played critical role in developed nations such as; China, Germany, South Korea, Netherlands, United States, and United Kingdom among others. Economic growth which measures the performance of an economy depends on non-oil exports and its exploitation helps in creating jobs and reducing unemployment. Countries of the world are endowed with natural resources of different varieties and magnitude and one of the numerous natural resources that countries could be endowed with is the crude oil which was discovered in Nigeria in 1956. Crude oil accounts for 90% of the Nigeria's foreign exchange earnings (Central Bank of Nigeria [CBN], 2023). The near neglect of the non-oil exports to foster economic growth and reduce unemployment in Nigeria is attributed to the overdependence on crude oil. The other resources that countries are endowed with are the non-oil exports which include agricultural products, manufacturing products, solid minerals, and services exports. The exploitation of these non-oil exports in Nigeria has enhanced trade by 6.26% between Nigeria and other countries of the world (National Bureau of Statistics, 2024). In a world characterized by increasing



demand for exports especially non-oil exports and the interconnectivity among the nations of the world, the dynamics of non-oil exports have emerged as critical determinants of economic growth, and likewise employment for exporting nations across the world. Increase in demand for non-oil exports depends largely on the dynamics of the population of the importing country. In pursuit of the associated benefits of non-oil exports, developing nations including Nigeria have consistently pursued exports and development strategies with the goal of invigorating economic growth. In this view, Nigeria implemented the Structural Adjustment Programme (SAP) in 1986, characterized by liberalization of trade alongside certain initiatives to boost the growth of non-oil exports particularly agricultural exports in order to achieve sustainable economic growth in the country. The Nigerian government in an attempt to promote exports introduced various policies, schemes and programmes which include among others Export Expansion Grant (EEG) in 1986 and Nigerian Export and Import Bank (NEXIM) in 1991. Also, Nigeria became a member of the World Trade Organization (WTO) in 1995 and its main goal was to ensure trade flows and improves people's standard of living. The Nigerian government in 2018 consolidated on the promotion of exports, signed the African Continental Free Trade Area Agreement (AfCFTA) and its aim was to create a single African market for goods and services (Okoli, Ezenekwe, Geraldine & Collins, 2023).

The Nigerian government has the potential to create employment opportunities for the teeming unemployed Nigerians through exploring the opportunities in the non-oil exports to enhance economic growth. This has not been fully actualized by the government neither by the private sector due to overdependence on crude oil. Besides this, the rise in unemployment rate in Nigeria is associated with the effects of global economic recession and Covid-19 pandemic, high exchange rate, increased interest rate, high inflation rate, and restriction on trade openness among others. The value-added of non-oil exports can be transmitted through economic growth as a mediator in reducing unemployment in Nigeria. The Nigerian government in an attempt to reduce unemployment, introduced schemes and programmes. The National Directorate of Employment (NDE) was established in 1986 to create mass employment opportunities for Nigeria's unemployed population. National Economic Empowerment Development Strategy (NEEDS) was launched in 2004 to empower the people, and foster economic growth (Solomon, Tukur & Zakere, 2018). The Youth with Innovation in Nigeria (YOUWIN) was established in 2011 with the goal of empowering the Nigerian youths by providing grants to small business owners. Agricultural Transformation Agenda (ATA) was established in 2013 with the aim of growing the agricultural sector through the various commodities and generates employment opportunities. The N-power programme was established in 2016 to create more employment opportunities for the unemployed graduates and non-graduates in Nigeria (Ideh, Okolo & Emengini, 2020). More so, Nigeria Youth Investment Fund (NYIF) was launched in 2024 to make funds available for investment in the economy. Despite these efforts, the Nigerian government had realized the harm done to the economic growth and unemployment and attention is being focused on the non-oil exports. Among the non-oil exports in Nigeria, agricultural, manufacturing, solid mineral, and services exports hold utmost significance. Therefore, enhancing these subsectors will invigorate activities by promoting investment, efficient resource utilization, increased output, and aggregate demand (Akeem, 2011, Ajakaiye, & Ojowu, 2014). The aggregate value of non-oil exports increased from ₦552.10 billion in 1986 to ₦1,130, 170.52 billion in 2013, dipped to ₦656,793.95 billion in 2016, and then surged to ₦2, 466, 831.25 billion in 2021, ₦2.03 trillion in 2022, ₦2.31 trillion in 2023, ₦2.73 trillion in 2024 and ₦2.94 trillion in 2025 (CBN, 2025). Nevertheless, the average contributions of agricultural, manufacturing, solid mineral, and services exports to total exports from 2018 to 2021 were 0.90%, 2.63%, 1.9% and 0.27% respectively (CBN, 2023). Considering unemployment, the rates in Nigeria in 1986, 1999, 2000 and 2005 were 3.90%, 4.00%, 3.87%, and 3.69% respectively. In 2010, it was 3.74% but in 2014 it was 3.88%. The unemployment rates for the years 2015 and 2016 were 4.11% and 4.52% respectively and for the years 2018 and 2019, unemployment rates in Nigeria were 5.12% and 5.21% respectively. It then rose to 5.63% in 2020 and it dipped to 5.26% in 2021 and it rose to 5.76% in 2022 and plunged to 3.07% in 2023 but it rose to 4. 62% in 2025 (NBS, 2025). The Nigerian economy recovered from a recession in the early 1980s to attain a growth rate of approximately 6.4% in 1989. Subsequently, the growth rate slowed to an average of 2.6% between 1990 and 1999. Also, from 2000 to 2014, the Real GDP grew at an average rate of 7.9%, followed by a decline to 2.65% in 2015 and during the global financial recession in 2016 it recorded a negative rate of -1.62%. It rose to 2.21% in 2019 and nosedived to -1.79% in 2020 and rose to 3.65% in 2021 and declined to 3.25% in 2022, and it further declined to 2.74% in 2023 but it increased to 3.57% in 2025 (CBN, 2025). Therefore, given the trends and patterns of increase in non-oil exports, low economic growth and high rate of unemployment in Nigeria despite the implementation of policies, initiatives and programmes,



unemployment rate has not reduced. It becomes pertinent to investigate the rise in unemployment accompanied with slow economic growth in Nigeria. It is on this premise that this paper seeks to ascertain the transmission effect of non-oil exports on unemployment through economic growth in Nigeria. To achieve the objective of this paper, the paper has been organized into six sections with the introduction as section one, section two is the literature review and section three is the methodology of the study. Section four is the results and discussion; section five is the discussion of findings and section six is the conclusion and policy recommendations.

## **Literature Review**

### **Conceptual Review**

Non-oil exports can be broadly classified into four major groups. These include the agriculture, solid mineral, services and manufacturing exports. The agricultural exports include cocoa, groundnut, palm produce, rubber (natural), cotton, fish and shrimps, while the manufactured exports and solid minerals include processed agricultural products, textiles, tin metal, beer, cocoa butter, plastic products, processed timber, tires, natural spring water, soap, detergent and fabricated iron rods (CBN, 2020). Nigeria's non-oil export consists of agricultural goods, raw material goods, solid minerals, energy and manufactured goods (NBS, 2018). Akeem (2011) posited that non-oil exports are those commodities excluding crude oil (petroleum products) which are sold in the international market for the purpose of revenue generation. Abogan, Akinola and Baruwa (2014) defined the non-oil exports of the Nigerian economy as the whole of the economy less the oil and gas sub-sector. It covers agriculture, industry, solid minerals and the services sub-sector, including transport, communication, distributive trade, financial services, and insurance. Nigeria's non-oil exports sector is structured into four namely; agricultural exports, manufactured exports, solid mineral exports and services exports. Ajakaiye and Ojowu (2014) categorized Nigeria's non-oil export into four namely; the agricultural exports, manufacturing exports; solid mineral exports and services exports. The non-oil export comprises of agricultural crops and products such as cotton, cassava, cocoa, cashew nuts; solid minerals and chemicals; manufacturing goods such as textile, tyres, machines; manpower, entertainment, and tourism to mention but a few. Exports are movable goods produced within the boundaries of one country, which are traded with another country. Ajakaiye and Ojowu (2014) definition was adopted for it is detailed, holistic, and comprehensive.

Economic growth means sustained increase in Gross Domestic Product (GDP) of a country derived from productive inputs, volume of trade (export, import and domestic trade), size of terms of trade, and aggregate economic stability. In order to increase a nation's GDP, its volume of trade (export, import and domestic trade), export revenue, size of terms of trade have to increase and trade stability have to be assured, which in turn result to increased international trade gain and aggregate economic growth (Okoli, Ezenekwe, Geraldine, & Collins 2023). Jhingan (2003) defined economic growth as the process whereby the real per capital income of a country increases over a long period of time, and it is measured by the increase in the amount of goods and services produced in a country. According to Asogwa, Okechukwu, and Onyekwelu (2018), economic growth refers to the increase in the inflation-adjusted market value of the goods and services produced overtime by an economy. John (2022) conceptualized economic growth as a process by which a nation's wealth increases over time. While the term is frequently used in discussions of short-term economic performance, in terms of the context of economic theory, it refers to an increase in wealth over a long period of time. Ukpabi (2019) defined economic growth as a shift in the inflation-adjusted market value within economy's goods and services over time. Haller (2012) also posited that economic growth is obtained by an efficient use of the available resources by increasing the capacity of production of a country. When production of goods and services increases, the rate of economic growth will increase and consequently, unemployment rate reduces, and the number of jobs opportunities rises, as well as the population's standard of life. The definition of Haller (2012) was adopted because it is broad-based and comprehensive in explaining economic growth as compared to other definitions. Unemployment refers to a situation in which job opportunities are not made available despite sustained investment in the productive sectors of the economy. Most often a reasonable number of the unemployed do not have any gainful and payable work and the trend is sustained overtime. It is witnessed whenever there is a substantial increase in employment of the active labour force in an economy (Conteh, 2021). Unemployment to some extent is synonymous with increase in employment rate or decrease in unemployment rate. Therefore, unemployment can be defined as a situation in which there is decrease in employment rate as a result of decreased economic activities or increase in unemployment rate due to poor introduction and implementation of employment schemes, programmes and policies by the



government. Conteh (2021) definition was adopted as a working definition due to its comprehensive explanation of the meaning of unemployment.

### Theoretical Review

Keynesian theory of unemployment was propounded by Keynes in 1936 and according to the theory, unemployment occurs in an economy when inadequate aggregate demand is witnessed. The theory posits that unemployment is experienced when those that are willing and able to work at a prevailing wage rate are unable to find payable jobs at a given time. It postulates that employment depends on effective demand which brings about increased output and output generates income which in turn creates employment. Effective demand is determined by aggregate demand and supply functions. The theory also explains that since the unemployed workforce in an economy will always exceed job vacancies, so that even if full employment is attained, some labour force will still remain unemployed (Keynes, 1936). The Keynesian theory advocates for higher employment levels and government intervention during period of economic recession and restraint in a period of rapid economic growth.

The Keynesian model is built on the premise of real output (Y), real investment demand (I), and real consumption demand (C). Therefore:

$$Y = C + I \tag{1}$$

The equilibrium level of output is expressed as:

$$\Delta Y = \frac{I}{1-c} \tag{2}$$

The aggregate demand for labour is thus,  $L_d$  and the aggregate supply of labour is denoted by  $S_L$ . From this, if the value of investment (I) is quite small, the aggregate demand for labour ( $L_d$ ) can easily be less than aggregate supply of labour ( $S_L$ ) and the result is unemployment. Given that the labour market is competitive, and let  $N_d(w)$  be a firm's profit maximizing demand for labour as a function of the real wage where:

$$w = \frac{w}{p} \tag{3}$$

Note that 'w' must satisfy the condition that:

$$N_d(w) = \Delta Y = \frac{I}{1-c} \tag{4}$$

Equation (4) expressed the equilibrium value of output (GDP), unemployment and real wage in terms of the exogenous investment demand. It is clear that the cause of unemployment is insufficient effective demand and when workers' real income declines, consumption demand also declines, the nominal price level falls, and equilibrium would be re-established at the same levels of output and unemployment as before. One of the pitfalls of the Keynesian theory is that borrowing causes higher interest rates and crowding out effects. Despite the limitations of the Keynesian theory of unemployment it explains the relationship between growth rate and unemployment and emphasizes on the role of change in nominal price level which is required to stimulate investment in an economy. The export-led growth hypothesis was propounded by Kindelberger (1962). It supports long-run growth in developing economies derived from exportation of natural resource outputs. Although one of the most significant problems of developing countries comes from reliance on exporting raw materials which usually leaves negative impact on their economies. The export-led growth hypothesis explains the relevance of depending less on one source of export for other exports. The economic growth function of Export-led growth hypothesis is expressed as:

$$Y = f(L, C, EXP) \tag{5}$$

Where: Y = Economic growth; L = Labour; C = Capital; EXP = Export

The argument is that non-oil exports especially; agricultural, manufacturing, solid mineral, and services exports contribute to economic growth. The export-led growth hypothesis suggests that trade openness, particularly through exports, can promote economic growth, increase employment and lower unemployment rates. The theory failed to explain clearly the mechanisms through which exports can bring about economic growth, increase employment and reduce unemployment rate in the long-run. Despite this weakness the export-led growth hypothesis it is relevant in explaining theoretically the linkage between increase in exports, economic growth and unemployment reduction in the long-run. This study adopted both the Keynesian theory of unemployment and export-led growth hypothesis due to explicit explanation of the relationship between non-oil exports, economic growth and unemployment.

### Empirical Review



Uzma and Aarif (2023) analyzed the effects of oil and non-oil export shocks on the Saudi Arabian's economy using annual time series data from 1970-2021 and the data were collated from Saudi Arabian Monetary Agency (SAMA). The study employed Dynamic Autoregressive Distributive Lag (DARDL) simulation technique. The estimated Dynamic ARDL simulation results revealed that non-oil exports in the short-run and long-run had a statistically significant positive impact on economic growth in Saudi Arabia. Shiro, Abjia and Fadu (2023) investigated the impact of non-oil exports on economic growth in Nigeria and the data covered the period 1981-2020. The data were gathered from the Central Bank of Nigeria (CBN) Statistical Bulletin. The study employed Autoregressive Distributed Lag (ARDL) technique of analysis. The results of the ARDL revealed that non-oil exports had a positive and significant impact on economic growth in Nigeria. Exchange rate and inflation rate separately had a statistically and insignificant positive impact on economic growth in Nigeria during the study period. Ahmed (2022) examined Nigeria's solid mineral potentials, challenges and prospects using both qualitative and survey research design methods. Findings from the study revealed that Nigeria is rich in abundant solid mineral resources such as gold, iron, lead, zinc, coal, and gemstones which hold great potential for the country's development. It was revealed that despite this mineral endowment, the solid mineral exports had contributed 3% to Gross Domestic Product (GDP) and less than 5% to employment generation in Nigeria because only small-scale miners are employed in the subsector.

Alrakhman, Susetyo, and Azwardi (2022) investigated the effect of economic growth on unemployment in Indonesia using panel data which combined cross-section of 33 provinces with a time series that spanned from (2010-2016) collated from the Central Statistics Agency (CSA). The data were analyzed using econometric technique of multiple regression. The results showed that Gross Regional Domestic Product (GRDP) had a negative and statistically significant impact on unemployment in Indonesia. Also, Provincial Minimum Wage (PMW) impacted positively on unemployment rate in Indonesia. Olaniyi, Ali and Moses (2021) analyzed the nexus between GDP growth and unemployment in Nigeria by disaggregating total output into its sectorial components using data from 1980-2015. The data were gathered from CBN Statistical Bulletin. The first bound test revealed that co-integration existed between unemployment and GDP growth. GDP growth rate in the long-run related negatively to unemployment but it impacted positively on unemployment in the long-run. The results of the disaggregated model (second ARDL model) showed that long-run link did not exist among unemployment, agriculture, industry, construction, trade, and services. Ebere, Ajibola and Onakoya (2022) examined the nexus between agriculture and employment creation in Nigeria from 1990-2019. Dynamic Ordinary Least Squares was employed as a method of data analysis. The results revealed that agricultural exports, government expenditure on agriculture, inflation rate, and exchange rate separately had a positive and significant impact on unemployment rate in Nigeria except foreign direct investment which impacted negatively on unemployment rate. Briggs, Nteegah and Ohale (2022) investigated effect of international trade on unemployment in Nigeria and data were sourced from the World Development Indicators (WDI). Autoregressive Distributive Lag (ARDL) bounds technique was utilized. ARDL results showed that non-oil export and trade openness impacted negatively on unemployment rate separately and the impact is statistically insignificant. Foreign Direct Investment (FDI) and real exchange rate impacted positively on unemployment rate. Yilmaz (2021) investigated the effects of manufacturing exports on employment in 28 OECD Countries from 2001-2019. The results of Panel data analysis technique employed indicated that the manufacturing exports of the 28 OECD countries were significant and all had negative effect on employment. Specifically, economic growth, trade openness, and previous employment levels had a positive effect on employment in the current period while manufacturing exports had negative and statistically significant effect on employment during the period of study. The result also revealed that manufacturing exports and financial openness impacted positively on unemployment payment rates in the 28 OECD countries. Adeniyi (2021) analyzed the impact of manufacturing exports and employment in Nigeria and the scope of the study covered the period from 1981-2014. Central Bank of Nigeria (CBN) Statistical Bulletin and World Development Indicators (WDI) were used to collate data for analysis. Vector Error Correction Model (VECM) technique was employed and results established that the estimated elasticity of manufacturing exports had a statistically insignificant positive impact on employment within the period in Nigeria. Aniobi and Adedokun (2021) conducted a study on economy beyond oil; harnessing Nigerian solid minerals and sustainable development. The study adopted an eclectic approach and historical research design. The findings of the study showed that crude oil sector generated about 90% export earnings in Nigeria and this has not created jobs neither has poverty reduced. It indicated that oil wealth concentrated in just less than 1% of the Nigerians. The results revealed that solid minerals had potential of reducing unemployment and poverty by 3.2% and



5.3% respectively and that the productive capacity of the country (Nigeria) is low. Orji, Ogbuabor, Alisigwe and Anthony-Orji (2021) investigated the impact of agricultural financing and agricultural exports on employment generation in Nigeria from 1981-2017. The study adopted Autoregressive Distributive Lag (ARDL) bounds test in analyzing the data. The results showed that while agricultural financing increased employment generation in both short-run and long-run, agricultural exports increased employment generation only in the short-run. Labour force product, inflation rate, and wages all had insignificant impact on employment generation separately. Gyimah-Brempong and Baah-Boateng (2021) examined the relationship between services export and youth unemployment in African countries from 1990-2014. The study adopted correlation and Panel Granger causality for data analysis. Growth rate of aggregate services export was used as a proxy for services exports. The Correlation matrix showed that services export correlated negatively to aggregate youth unemployment in African countries. Granger causality test results indicated that services exports Granger caused youth unemployment. Isaiah, Henneberry and Radmehr (2020) examined the effects of agricultural, manufacturing, and mineral exports on Angola's economic growth and employment using time series data that covered the period 1970 -2020. The data were sourced from World Bank's world Development Indicators (WDI) database. The study employed Vector Error Correction Mechanism (VECM) and the results revealed that exports from the agricultural, manufacturing and mineral have driven Angola's economic growth in the long-run. Agricultural and mineral exports contributed significantly to economic growth in the short-run.

### Methodology

The study adopted ex-post-facto research design using econometric model to determine the transmission effect of non-oil exports on unemployment through economic growth in Nigeria covering the period 1986-2025. The justification for the choice of ex-post-facto research design is not only based on the availability of time series data on non-oil exports, economic growth and unemployment rate in Nigeria but on reliable facts on the variables of interest. The ex-post facto research design relies on historical facts that already exist (Akpan & Obayori, 2022). Data were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletins, National Bureau of Statistics (NBS) publications and World Development Indicators (WDI) publications. Dickey-Fuller (1981) and Phillips-Peron (1978) unit root tests were used to check whether the time series variables have unit root or not. The Vector Error Correction Model (VECM) was used to estimate the model. The variables of interest are presented in table 1.

**Table 1**

**Types and Sources of Data**

SN	Variables Acronym	Meaning as used in this Study	Types of variable	Unit of Measurement	Expected Sign	Data Source
1	UNER	Unemployment Rate	Dependent	Percent	(+)	NBS
2	RGDP	Real GDP	Mediator	Percent	(+)	NBS
3	AGEX	Agricultural Exports	Independent	₦ Billion	(+)	WDI
4	MAEX	Manufacturing Exports	Independent	₦ Billion	(+)	WDI
5	SMEX	Solid Mineral Exports	Independent	₦ Billion	(+)	WDI
6	SREX	Services Exports	Independent	₦ Billion	(+)	WDI
7	INFL	Inflation Rate	Independent	Percent	(-)	CBN
8	EXCR	Inflation Rate	Independent	Percent	(-)	CBN

**Source:** Author's Compilation (2026)

### Model Specification

The study adopted the Keynesian theory of unemployment and Export-led growth hypothesis. This is justified on the basis that the theories explained the theoretical framework that supported the relationship between long-run growth in developing economies derived from non-oil exports, economic growth and unemployment. The model for the study is specified as:

$$UNER = f(NOEX) \tag{6}$$

$$UNER = f(RGDP, AGEX, MAEX, SMEX, SREX, TROP, EXCR) \tag{7}$$

$$UNER = RGDP + AGEX + MAEX + SMEX + SREX + TROP - EXCR \tag{8}$$

$$UNER = \delta_0 + \delta_1 RGDP + \delta_2 AGEX + \delta_3 MAEX + \delta_4 SMEX + \delta_5 SREX + \delta_6 TROP - \delta_7 EXCR + \varepsilon_t \tag{9}$$



UNER = Unemployment Rate; RGDP = Real Gross Domestic Product; AGEX = Agricultural export; MAEX = Manufacturing export; SMEX = Solid Mineral export; SREX = Services Export; TROP = Trade Openness (used as a control variable); EXCR = Exchange Rate (used as a control variable). The *a priori* expectation is that increase in Agricultural Exports (AGEX), Manufacturing Exports (MAEX), Solid Mineral Exports (SMEX), Services Exports (SREX), and Economic Growth (RGDP) will lead to decrease in unemployment rate (UNER) while increase in inflation rate (INFL) and exchange rate (EXCR) will lead to decrease in unemployment rate (UNER). This is mathematically expressed as follows;  $UNER = \delta_0 + \delta_1 \Delta AGEX_t + \delta_2 \Delta UNER_{t-1} + \delta_3 \Delta \ln RGDP_{t-1} + \delta_4 \Delta MAEX_{t-1} + \delta_5 \Delta SMEX_{t-1} + \delta_6 \Delta SREX_{t-1} + \delta_7 \Delta TROP_{t-1} - \delta_8 \Delta EXCR_{t-1} + \mu_t$ . The *a priori* expectations are;  $\delta_0, \delta_1, \delta_2, \delta_3, \delta_4, \delta_5$  and  $\delta_6 > 0$  while  $\delta_7 < 0$ .

### Model Estimation

The mathematical function of the Vector Error Correction Model (VECM) is expressed as:

$$\Delta UNER_t = \alpha_0 + \sum_{i=1}^p \alpha_1 \Delta UNER_{t-1} + \sum_{i=1}^p \alpha_2 \Delta \ln RGDP_{t-1} + \sum_{i=1}^p \alpha_3 \Delta AGEX_{t-1} + \sum_{i=1}^p \alpha_4 \Delta MAEX_{t-1} + \sum_{i=1}^p \alpha_5 \Delta \ln SMEX_{t-1} + \sum_{i=1}^p \alpha_6 \Delta SREX_{t-1} + \sum_{i=1}^p \alpha_7 \Delta TROP_{t-1} + \sum_{i=1}^p \alpha_8 \Delta EXCR_{t-1} + \mu_t \quad (10)$$

$$\Delta \ln RGDP_t = \lambda_0 + \sum_{i=1}^p \lambda_1 \Delta \ln RGDP_{t-1} + \sum_{i=1}^p \lambda_2 \Delta UNER_{t-1} + \sum_{i=1}^p \lambda_3 \Delta AGEX_{t-1} + \sum_{i=1}^p \lambda_4 \Delta MAEX_{t-1} + \sum_{i=1}^p \lambda_5 \Delta \ln SMEX_{t-1} + \sum_{i=1}^p \lambda_6 \Delta SREX_{t-1} + \sum_{i=1}^p \lambda_7 \Delta TROP_{t-1} + \sum_{i=1}^p \lambda_8 \Delta EXCR_{t-1} + \mu_t \quad (11)$$

$$\Delta AGEX_t = \delta_0 + \sum_{i=1}^p \delta_1 \Delta AGEX_{t-1} + \sum_{i=1}^p \delta_2 \Delta UNER_{t-1} + \sum_{i=1}^p \delta_3 \Delta \ln RGDP_{t-1} + \sum_{i=1}^p \delta_4 \Delta MAEX_{t-1} + \sum_{i=1}^p \delta_5 \Delta \ln SMEX_{t-1} + \sum_{i=1}^p \delta_6 \Delta \ln SREX_{t-1} + \sum_{i=1}^p \delta_7 \Delta TROP_{t-1} + \sum_{i=1}^p \delta_8 \Delta \ln EXCR_{t-1} + \mu_t \quad (12)$$

$$\Delta MAEX_t = \gamma_0 + \sum_{i=1}^p \gamma_1 \Delta MAEX_{t-1} + \sum_{i=1}^p \gamma_2 \Delta UNER_{t-1} + \sum_{i=1}^p \gamma_3 \Delta \ln RGDP_{t-1} + \sum_{i=1}^p \gamma_4 \Delta AGEX_{t-1} + \sum_{i=1}^p \gamma_5 \Delta \ln SMEX_{t-1} + \sum_{i=1}^p \gamma_6 \Delta \ln SREX_{t-1} + \sum_{i=1}^p \gamma_7 \Delta TROP_{t-1} + \sum_{i=1}^p \gamma_8 \Delta EXCR_{t-1} + \mu_t \quad (13)$$

$$\Delta \ln SMEX_t = \pi_0 + \sum_{i=1}^p \pi_1 \Delta \ln SMEX_{t-1} + \sum_{i=1}^p \pi_2 \Delta UNER_{t-1} + \sum_{i=1}^p \pi_3 \Delta \ln RGDP_{t-1} + \sum_{i=1}^p \pi_4 \Delta AGEX_{t-1} + \sum_{i=1}^p \pi_5 \Delta MAEX_{t-1} + \sum_{i=1}^p \pi_6 \Delta \ln SREX_{t-1} + \sum_{i=1}^p \pi_7 \Delta TROP_{t-1} + \sum_{i=1}^p \pi_8 \Delta EXCR_{t-1} + \mu_t \quad (14)$$

$$\Delta SREX_t = \rho_0 + \sum_{i=1}^p \rho_1 \Delta SREX_{t-1} + \sum_{i=1}^p \rho_2 \Delta UNER_{t-1} + \sum_{i=1}^p \rho_3 \Delta \ln RGDP_{t-1} + \sum_{i=1}^p \rho_4 \Delta AGEX_{t-1} + \sum_{i=1}^p \rho_5 \Delta MAEX_{t-1} + \sum_{i=1}^p \rho_6 \Delta \ln SMEX_{t-1} + \sum_{i=1}^p \rho_7 \Delta TROP_{t-1} + \sum_{i=1}^p \rho_8 \Delta EXCR_{t-1} + \mu_t \quad (15)$$

$$\Delta TROP_t = \beta_0 + \sum_{i=1}^p \beta_1 \Delta TROP_{t-1} + \sum_{i=1}^p \beta_2 \Delta UNER_{t-1} + \sum_{i=1}^p \beta_3 \Delta \ln RGDP_{t-1} + \sum_{i=1}^p \beta_4 \Delta AGEX_{t-1} + \sum_{i=1}^p \beta_5 \Delta MAEX_{t-1} + \sum_{i=1}^p \beta_6 \Delta \ln SMEX_{t-1} + \sum_{i=1}^p \beta_7 \Delta SREX_{t-1} + \sum_{i=1}^p \beta_8 \Delta EXCR_{t-1} + \mu_t \quad (16)$$

$$\Delta EXCR_t = \theta_0 + \sum_{i=1}^p \theta_1 \Delta EXCR_{t-1} + \sum_{i=1}^p \theta_2 \Delta UNER_{t-1} + \sum_{i=1}^p \theta_3 \Delta \ln RGDP_{t-1} + \sum_{i=1}^p \theta_4 \Delta AGEX_{t-1} + \sum_{i=1}^p \theta_5 \Delta MAEX_{t-1} + \sum_{i=1}^p \theta_6 \Delta \ln SMEX_{t-1} + \sum_{i=1}^p \theta_7 \Delta SREX_{t-1} + \sum_{i=1}^p \theta_8 \Delta TROP_{t-1} + \mu_t \quad (17)$$

Where:

$\alpha_0, \lambda_0, \delta_0, \gamma_0, \pi_0, \rho_0, \beta_0$  and  $\theta_0$  are intercepts parameters.

$\alpha_1-\alpha_8, \lambda_1-\lambda_8, \delta_1-\delta_8, \gamma_1-\gamma_8, \pi_1-\pi_8, \rho_1-\rho_8, \beta_1-\beta_8$  and  $\theta_1-\theta_8$  are coefficients of parameter estimates.

## Presentation of Results

### Pre-Estimation Test

#### Unit Root Results

The stationarity properties of the variables included in the model were tested using Augmented Dickey-Fuller (ADF) and Philips-Perron unit root tests as presented in Table 2.

**Table 2**

#### Augmented Dickey-Fuller (ADF) and Philips-Perron Unit Root Tests Results

Variables	ADF		PP		Order of Integration
	At Level P-value	1 <sup>st</sup> Difference P-value	At Level P-value	1 <sup>st</sup> Difference P-value	



LRGDP	0.4902	0.0007**	0.4902	0.0007**	I(1)
UNER	0.2379	0.0000**	0.2597	0.0000**	I(1)
LAGEX	0.1589	0.0000**	0.2225	0.0000**	I(1)
LMAEX	0.5587	0.0000**	0.4735	0.0000**	I(1)
LSMEX	0.9143	0.0003**	0.9860	0.0003**	I(1)
LSREX	0.7434	0.0006**	0.7113	0.0005**	I(1)
TROP	0.1952	0.0000**	0.1592	0.0000**	I(1)
EXCR	0.9994	0.0001**	0.9999	0.0001**	I(1)

\*\*Denotes significant at 5% level

Source: Authors' Computation (2026) using E-views12

Table 2 presented Augmented Dickey-Fuller (ADF) and Philips-Perron (PP) unit root tests results of the variables used in this study. The null hypothesis for ADF time series data is that it has no unit root or it is not stationary. On the other hand, the null hypothesis for PP is that the time series is trend stationary. The tests were conducted at level, order I(0) and at first difference, order I(1) and the asterisk symbol (\*\*) indicated level of significance at 5%.

### Johansen Co-integration Test

The results of Johansen co-integration test is presented in Table 3.

Table 3

#### Johansen Co-integration Test using Trace and Max-Eigen Value

Hypothesized No. of CE(S)	Trace Statistic	@5% Critical Value	Prob.	Max-Eigen Statistic	@5% Critical Value	Prob.
None*	246.5293	159.5297	0.0000	82.37062	52.36361	0.0000
At most 1*	164.1586	125.6154	0.0000	57.75653	46.2314	0.0020
At most 2*	106.4021	95.75366	0.0076	40.85123	40.07757	0.0408
At most 3	65.55087	69.81889	0.1044	27.56659	33.87687	0.2342
At most 4	37.98428	47.85613	0.3027	15.54243	27.58434	0.7042
At most 5	22.44185	29.79707	0.2746	11.47119	21.13162	0.6003
At most 6	10.97066	15.49471	0.2133	9.392808	14.26460	0.2549
At most 7	1.577853	3.841465	0.2091	1.577853	3.841465	0.2091

Trace test indicates 3 cointegration eqn(3) at the 0.05 level

\*Denotes rejection of the hypothesis at the 0.05 level

Source: Authors' Computation (2026) using E-views12

Johansen co-integration test results presented in Table 3 revealed 3 cointegration equations and this showed that the variables were cointegrated. Trace statistic values were greater than the 5% critical values. Also, the Max-Eigen values were greater than the critical values and the P-values were less than 0.05 level of significance. The study therefore, rejected null hypothesis and concluded that there existed long-run relationship among non-oil exports (agricultural, manufacturing, solid mineral, and services exports), economic growth and unemployment rate in Nigeria during the period of study. The implication is that the variables all moved in the same direction in the long-run.

### Vector Error Correction Model (VECM) Results

The results of the estimated short-run and long-run Vector Error Correction Model are presented in Table 4.

Table 4

#### Dependent Variable: Unemployment Rate (UNER)

#### Estimated Short-run and Long-run VECM Results

Variable	Short-run Results		
	Coefficient	Standard Error	t-statistic
Constant	2.005202	0.92713	-2.16281
DUNER(-1)	1.066778	0.35926	2.96934**
DUNER(-2)	0.019498	0.22288	0.08748
DRGDP(-1)	0.004688	0.00165	2.83481**
DRGDP(-2)	-0.002503	0.00109	-2.29329
DAGEX(-1)	-0.001290	0.00068	-1.89687
DAGEX(-2)	0.000646	0.00060	1.08387



DMAEX(-1)	0.008147	0.00317	2.56622**
DMAEX(-2)	-0.003224	0.00382	-0.84491
DSMEX(-1)	-0.060125	0.06825	-0.88096
DSMEX(-2)	-0.276196	0.07598	-3.63525
DSREX(-1)	-0.019047	0.00488	3.90060**
DSREX(-2)	-0.008136	0.00445	-1.82879
DEXCR(-1)	0.077653	0.02436	3.18766**
DEXCR(-2)	-0.043607	0.02607	-1.67297
DTROP(-1)	0.000941	0.00061	1.54507
DTROP(-2)	0.001897	0.00062	3.04595**
ECT <sub>-1</sub>	-0.626510	0.20642	-3.03511
R-squared (R <sup>2</sup> )	0.670830	F-statistic	2.157823
Long-run Results			
UNER(-1)	1.000000		
LRGDP(-1)	0.002701	0.00087	3.10444**
LAGEX(-1)	0.003502	0.00060	5.83730**
LMAEX(-1)	0.005935	0.00209	2.84606**
LSMEX(-1)	-0.144854	0.02217	3.63521**
LSREX(-1)	0.003456	0.00297	1.16479
EXCR(-1)	-0.007165	0.01096	-0.65360
LTROP(-2)	0.002547	0.00024	10.6048
Constant	-9.450260		

\*\* Significant level at 5% (t-cal > t-tab (2.015))

Source: Authors' Computation (2026) using E-views13

The value of the intercept (2.005202) in Table 4 signified that if all the explanatory variables were equal to zero, unemployment rate in Nigeria would be 2.01% in the short-run base on the period under review. The coefficient of UNER (-1) was positive (1.066778) and correctly signed and statistically significant. This indicated that the value of UNER in the past year led to increase in UNER in the current year by 1.07%. The coefficients of RGDP(-1) met the *a priori* expectations of positive sign both in the short-run (0.004688) and long-run (0.00271) and statistically significant. The *a priori* expectations were met. It implies that 1 unit increase in RGDP will reduce unemployment by 5% in the short-run and by 3% in the long-run. The coefficients of AGEX(-1) were positive both in the short-run (0.004688) and long-run (0.003502) and statistically significant. The *a priori* expectations based on economic theory were met. It implies that 1 unit increase in AGEX will reduce unemployment by 0.5% and 0.3% in the short-run and long-run respectively. The coefficients of MAEX(-1) met the *a priori* expectations of positive sign both in the short-run (0.008147) and long-run (0.005935) and were statistically significant. It implies that 1 unit increase in MAEX will reduce unemployment by 0.8% in the short-run and by 0.6% in the long-run.

The coefficients of SMEX(-1) were both negative in the short-run (-0.060125) and long-run (-0.144854) and statistically significant and statistically significant. The negative signs did not meet the *a priori* expectations. The implication is that 1 unit increase in SMEX will increase unemployment by 0.6% in the short-run and by 0.14% in the long-run. The coefficient of SREX(-1) in the short-run was negative (-0.019047) and statistically insignificant but in the long-run it met the *a priori* expectation of a positive sign (0.003456) and statistically significant. It implies that 1 unit increase in SREX will increase unemployment by 1.9% in the short-run and by 0.3% in the long-run. The coefficient of the past value of EXCR(-1) in the short-run was positive (0.001897) and wrongly signed and statistically significant. It implies that 1 unit increase in EXCR will increase unemployment by 0.2% in the short-run. The coefficient of the past value of TROP(-2) in the short-run was positive (0.001897) and correctly signed and statistically significant. It implies that 1 unit increase in TROP will reduce unemployment by 0.2% in the short-run. The coefficient of the ECT<sub>-1</sub> was negative (-0.626510) and correctly signed. This indicated a responsive economic system where short-run dynamics or variations were corrected, leading to a stable long-run equilibrium relationship among the variables in the model. It suggested that the system can quickly absorb shocks and return to its long-run equilibrium state. The speed of adjustment from short-run to long-run equilibrium would be corrected by 63%. The implication is that short-run policy effects fade fast. The error correction term



showed a strong equilibrating force and therefore, policy should target fundamentals that define the long-run relation and not short-run deviations.

### Diagnostic Test Results

The results of the diagnostic tests are presented in Table 5.

**Table 5**

#### Diagnostic Tests' Results

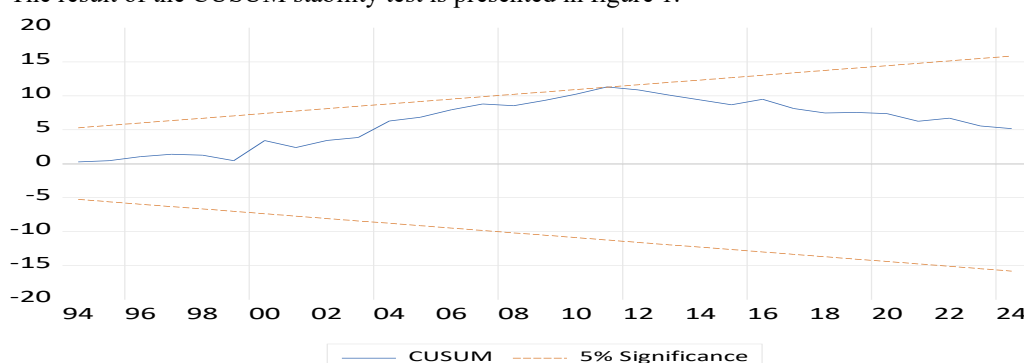
Test	F(stat)	Prob.
Serial Correlation Test /Breush-Godfrey LM Test	0.808871	0.4552
Heteroskedasticity Test /Breush-Pagan Godfrey Test	1.393898	0.2430
Specification Error Test /Ramsey Reset Test	1.771660	0.1880

**Source:** Authors' Computation (2026) using E-views12

The p-value (0.4552) of the serial correlation test was greater than the typical significance level of 0.05, thus, the null hypothesis that there was no serial correlation in the residuals was accepted. The p-value (0.2430) of heteroskedasticity test was greater than 0.05 and the null hypothesis that the variance of the residuals was constant was accepted. The Ramsey Reset test was used to detect non-linear relationships between the dependent variable and the independent variables. The p-value (0.1880) was greater than the significance level of 0.05, and therefore, the null hypothesis of misspecification was rejected. This showed that the model was not mis-specified and the relationships between the variables were adequately captured by the linear specification.

### Stability Test Result

The result of the CUSUM stability test is presented in figure 1.



**Figure 1:** CUSUM Stability Test

Figure 1 presented the CUSUM stability test of the transmission effect of non-oil exports on unemployment through economic growth in Nigeria. The CUSUM was within the required region of 5% and this showed that the transmission effect of non-oil exports on unemployment through economic growth in Nigeria was stable under the period of review.

### Sobel Test

Table 6 presented Sobel test of the transmission effect of non-oil exports on unemployment through economic growth in Nigeria.

**Table 6: Sobel Test Results**

Variable	t-statistic	Std. Error	P-value	Z-score
LAGEX	4.5138659	0.0006069	0.0000063	4.5100
LMAEX	1.9037917	0.0016543	0.0019373	4.2610
LSMEX	1.7603074	2.6763795	0.0783557	1.7800
LSREX	2.8600985	0.0003423	0.0042350	2.8700

**Source:** Author's Computation (2026) using Sobel Test Calculator

The results of the Sobel test in Table 6 revealed that agricultural exports (LAGEX), manufacturing exports (LMAEX), and services exports (SREX) separately had a high and statistically significant transmission effect on unemployment through economic growth in Nigeria. The p-values were less than 0.05 level of significance. Solid mineral exports (LSMEX) showed marginal evidence of transmission effect on unemployment through economic growth in Nigeria because the p-value (0.0783557) was greater than the 0.05 level of significance. Based on the Sobel test, it was evident that non-oil exports' effect on economic growth contributed to unemployment reduction in Nigeria during the study period.



## Discussion of Findings

Based on the VECM results it was discovered that in the short-run, Real Gross Domestic Product (RGDP) had a positive and statistically significant impact on unemployment rate (UNER) in Nigeria. This finding corroborated with the study of Olaniyi, Ali and Moses (2021) but it did not agree with the finding of Alrakhman, Susetyo and Azwardi (2022) which established a negative impact of economic growth on unemployment. The long-run VECM finding revealed that RGDP had a statistically significant and positive impact on UNER. In other words, the combined impact of the non-oil components on RGDP subsequently led to reduction in unemployment in Nigeria. Agricultural exports (AGEX) in the short-run was found to have a positive and statistically insignificant impact on unemployment rate (UNER) in Nigeria. This is attributed to low level of agricultural productivity due to the activities of kidnappers, bandits, and farmers-herders clash in Nigeria. On the other hand, the long-run result indicated that AGEX had a positive and significant impact on UNER and this agreed with the finding of the study conducted by Yilmaz (2021). The multiplier effect of agricultural activities was responsible for positive and significant impact of AGEX on UNER in Nigeria.

Manufacturing exports (MAEX) both in the short-run and long-run had a positive and statistically significant impact on unemployment rate (UNER) in Nigeria. This agreed with the finding of Adeniyi (2021) but it failed to support Yilmaz (2021) who found out that MAEX impacted negatively on UNER. The finding was due to; improvement in technological innovations, investment in infrastructure, and government policies especially tax incentives, subsidies, and trade agreements. Solid mineral exports (SMEX) in the short-run had a negative and statistically insignificant impact on unemployment rate (UNER) in Nigeria. This was due to government inability to implement solid mineral exports policies in Nigeria within the study period. However, in the long-run SMEX had a negative but statistically significant impact on unemployment rate (UNER) in Nigeria and this agreed with the studies conducted by Aniobi and Adedokun (2021) and Ahmed (2022) whose study found out that SMEX impacted positively on UNER. The significant impact of SMEX on UNER in the long-run was due to regulatory framework and implementation of mining policy which encouraged investment in the solid minerals sector of the Nigerian economy.

Also, in the short-run that services exports (SREX) had a positive and statistically significant impact on unemployment rate (UNER) in Nigeria but in the long-run, SREX had a positive and statistically insignificant impact on UNER. This contradicted Gyimah-Brenpong and Baah-Boateng (2021) whose study established that SREX impacted negatively on UNER. The insignificant impact of SREX on UNER was because of mismatched skills, overdependence on labour-intensive instead of knowledge-intensive, unique country characteristics such as; economic structure, demographic factors, and economic structure among others. More so, exchange rate (EXCR) in the short-run impacted positively and statistically significant on unemployment rate (UNER) in Nigeria and this agreed with the findings established by Eber, Ajibola and Onakoye (2022). Depreciation in the Naira made Nigerian exports more competitive in the global market and this led to increased demand and job creation in export-oriented industries. However, the findings of the long-run revealed that exchange rate (EXCR) had a negative but statistically insignificant impact on unemployment rate (UNER) in Nigeria. This finding is due the effect of increased import costs on the economy, complex global supply chains, and low-price elasticity of demand for non-oil exports. Furthermore, it was discovered that both in the short-run and long-run, trade openness (TROP) had a positive and statistically significant impact on unemployment rate (UNER) in Nigeria. This agreed with the findings of Asogwa and Onyegbulam (2021). The comparative advantage of increased productivity, increased foreign investment, and reallocation of resources from less productive to more productive sectors (non-oil subsectors) among others was responsible for the significant impact of trade openness on unemployment in Nigeria.

## Conclusion

The paper empirically investigated the transmission effect of non-oil exports (agricultural exports, manufacturing exports, and solid mineral exports) on unemployment in Nigeria through economic growth in Nigeria. Time series data that spanned from 1986-2025 were used and Vector Error Correction Model (VECM) technique of data analysis was utilized in the estimation of the specified model. The results of the study indicated that Real Gross Domestic Product (RGDP) had a positive and significant impact on unemployment and it served as a mediator through which non-oil exports impacted on unemployment in Nigeria within the study period. The study concluded that non-oil exports (agricultural exports,



manufacturing exports, and solid mineral exports) except services exports had significant transmission effect on unemployment through economic growth in Nigeria during the period under review.

### Policy Recommendations

The study recommended that

1. The positive and significant transmission effects of the non-oil exports (agricultural exports, manufacturing exports, and solid mineral exports) on unemployment through economic growth in Nigeria be maintained and sustained by the Nigerian government. This can be achieved through investing in agricultural technology, improving market access, and providing subsidies, credit facilities, and insurance to farmers.
2. Encouraging production of value-added goods to increase exports and revenue
3. By sanctioning illegal mining activities in Nigeria.

### References

- Abogan, O. P., Akinola, E. P., & Baruwa, O. I. (2014). Non-oil export and economic growth in Nigeria (1980-2011). *Journal of Research in Economics and International Finance*, 3(1), 1-11.
- Adeniyi, A. (2021). Manufacturing exports and employment in Nigeria. *International Journal of Finance and Banking Studies*, 10(2), 111-119.
- Ahmed, H. A. (2022). Overview of Nigeria's solid mineral potentials, challenges and prospects. *Journal of the Environment*, 16(1), 76-91.
- Ajakaiye, O., & Ojowu, O. (2014). Exchange rate depreciation and the structure of sectorial prices in Nigeria under an alternative pricing regime (1986-1989). *AERC Research Paper*, No. 25, Nairobi: African Economic Consortium.
- Akeem, U. O. (2011). Non-oil export determinants and economic growth in Nigeria. *European Journal of Business and Management*, 3(3), 236-257.
- Akpan, J. I., & Obayori, J. B. (2022). Non-oil exports financing: An implication for economic growth. *European Journal of Accounting and Investment*, 8(9), 1-12.
- Alrakhman, D., Susetyo, D., & Azwardi, T. (2022). Effect of economic growth on unemployment rate in Indonesia. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, 5(2), 1014-1032.
- Aniobi, S. C., & Adedokun, J. O. (2021). Economy beyond oil: Harnessing Nigerian solid-mineral deposits for sustainable development. *International Journal of Academic Accounting, Finance and Management*, 5(8), 24-31.
- Asogwa, J. O., Okechukwu, E. U., & Oyekwelu, U. L. (2018). Evaluation of the effect of federal government external debts and reserves on economic growth in Nigeria. *Journal of Economics and Sustainable Development*, 9(6), 1-16.
- Briggs, D. T., Nteegah, A., & Ohale, L. (2022). Does international trade reduce unemployment? Empirical evidence from Nigeria. *Asian Journal of Economics, Finance and Management* 4(1), 462-481.
- Central Bank of Nigeria (2020). *Annual Statistical Bulletin*. CBN Publications, Abuja, Nigeria.
- Central Bank of Nigeria (2023). *Annual Statistical Bulletin*. CBN Publications, Abuja, Nigeria.
- Central Bank of Nigeria (2025). *Central Bank of Nigeria Annual Report*, Abuja, Nigeria.
- Conteh, K. (2021). Economic growth and unemployment: An empirical assessment of Okun's law in the case of Liberia. (6), 1-13.
- Dickey, D. A., & Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time Series with a unit root. *Econometrica*, 4(2), 1057-1072.
- Ebere, C. E., Ajibola, J. O., & Onakoya (2022). Agriculture and employment creation: Evidence from Nigeria. *Euro Economica*, 2(42), 58-66.
- Gyimah-Brempong, K., & Baah-Boateng, W. (2021). Service exports and youth unemployment in Africa. *Journal of African development*, 22(1), 166-196.
- Haller, S. A. (2012). Intra-firm trade, exporting and firm performance. *Canadian Journal of Economics*, 45(4), 1397-1430.
- Ideh, A. O., Okolo, N. M., & Emengini, E. S. (2020). Non-oil sector and economic growth in Nigeria: The national accounts perspective. *European Journal of Sustainable Development*, 10(1) 185-202.
- Isaiah, Z. T., Henneberry, S. R., & Radmehr, R. (2020). Effects of agricultural, manufacturing, and mineral exports on Angola's economic growth. *Energies*, 13(6), 1494.
- Jhingan, M. L. (2003). *Macroeconomic theory*, New Delhi: Vrinda publishers' Ltd.
- John, C. (2022). *Economic Growth*. Encyclopaedia Britannica, 4 Oct. 2018.
- Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. Paperbound ed. London and Basingstoke: Macmillan.
- Kindelberger, C. P. (1962). *Foreign Trade and the National Economy*: Yale University Press.
- National Bureau of Statistics (2018). *Unemployment/underemployment watch Q3*. NBS, Abuja.



- National Bureau of Statistics (NBS, 2025). *Annual Abstract of Statistics*, 6(2). 47-62.
- Okoli, C. L; Ezenekwe, R., Geraldine., N., & Collins, U. (2023). Impact of non-oil export on economic growth in Nigeria. *Journal of International Economic Relations and Development Economics*, 2(1). 44-63.
- Olaniyi, O., Ali, M., & Moses, A. B. (2021). A review of the unemployment-economic growth nexus in Nigeria from 1980-2015: A disaggregated approach. *Asian Growth journal*, 8(1), 48-56.
- Orji, A., Ogbuabor, J. E., Alisigwe, J. N., & Anthony-Orji, O. I. (2021). Agricultural financing, agricultural exports, and employment generation in Nigeria. *European Journal of Business Science and Technology*, 7(1), 74-90.
- Phillips, P. C. B., & Perron, P. (1988). Testing for unit root in time series. *Biometrika*, 75(2), 335-345.
- Shiro, A. A., Abjia, R. O., & Fadun, O. S. (2023). Non-oil export and its effects on economic growth in Nigeria (1981-2020). *Nigerian Journal of Risk and Insurance*, 13(2), 1-18.
- Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In Leinhardt (Ed.), *Sociological methodology*. San Francisco: Jossey-Bass, pp 290-312.
- Solomon O. I., Tukur, M. U., & Zakere, S. (2018). A disaggregated impact of non-oil export on economic growth in Nigeria: 1981-2016. *International Journal of Management Sciences and Business Research*, 7(12), 67-77.
- Uzma, K., & Aarif, M. K. (2023). An analysis of the effects of oil and non-oil export shocks on the Saudi economy. *Investment Management and Financial Innovations*, 20(1), 127-137.
- Yilmaz, A. H. (2021). Effects of manufacturing export on employment in OECD Countries. *Journal of Economic Policy Researches*, 8(2), 1-26.