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## IMPACT OF INTERNATIONAL TRADE ON ECONOMIC GROWTH IN NIGERIA

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### ABSTRACT

*This research examined the impact of international trade on Nigeria's economic growth using annual time series data covering 1981 to 2024. The work employed the autoregressive distributed lag (ARDL) model to analyze the data collected from the Central Bank of Nigeria Statistical Bulletin and World Development Indicators. The findings of the study reveal that export trade has a significant positive impact on gross domestic product in Nigeria in both the short-run and long-run, while import trade has a negative coefficient and significant p-value on GDP in Nigeria in both the short-run and long-run. The control variable of foreign direct investment made an insignificant negative impact on GDP in both the short-run and long-run, whereas the exchange rate made an insignificant negative impact on GDP in the short-run and a significant positive impact on GDP in the long-run. The study concludes that international trade exerts a significant impact on economic growth in Nigeria. Based on the findings, the study recommends that there is a need for the government to sustain and consolidate its export policies, and further enhance the component of the policies that seek to boost export activities.*

**Keywords:** Economic Growth, Export and Import, Foreign Direct Investment, Autoregressive Distributed Lag (ARDL)

**JEL Classification:** O47, F14, F21, C22

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## 1. Introduction

International trade has long been considered a crucial engine for economic growth and development. The exchange of goods, services, and capital across national borders allows countries to specialize in producing goods and services where they have a comparative advantage, leading to increased efficiency, productivity, and overall economic expansion. For a developing nation like Nigeria, with its abundant natural resources and a large, growing population, international trade presents both opportunities and challenges in its pursuit of sustainable economic growth (Afolabi, Danladi & Azeez, 2023; Al-Yousif, 2019). In the quest for sustainable economic growth, the period from 1981 to 2024 saw the implementation of various trade liberalization policies, structural adjustment programs, and participation in international trade agreements, all of which have influenced Nigeria's economic growth and its integration into the global trading system. International trade also deals with the African Continental Free Trade Area (AFCFTA), which was a major development in 2018 and 2019. In 2018, African Union member states signed the AFCFTA agreement, thereby creating the largest free trade area by number of members states after the World Trade organization. These free trades also aim to protect local manufacturers and entrepreneurs. AFCFTA marked significant progress in African economic integration, aiming to boost intra-African trade and create a single continental market. Thus, recent economic growth statistics from NBS (2024) show that in Q1 of 2024, Nigeria's GDP grew by 2.98% year-on-year in real terms. This was a slight improvement from the 2023 annual GDP growth rate of 2.86%, but a decrease from the 2022 annual GDP growth rate of 3.25%. The IMF GDP growth rate projection for Nigeria in 2025 is moderately 3.0%. Nigeria's economic growth has been historically volatile, influenced by oil prices, political instability, and policy inconsistencies. While the country has experienced periods of high growth, it has also faced recessions and periods of slow growth. Understanding the role that international trade has played in these fluctuations is crucial for formulating effective economic policies (Ahmad & Kwan, 2017). There are two major components of Nigeria's international trade- exports and imports (Maria C. U, 2020; Diptibala R. S., 2022)

Nigeria's exports have been heavily dominated by crude oil. Oil exports typically account for a very significant portion (often over 70% and sometimes over 90%) of total export earnings (CBN, 2024). This has made Nigeria's export revenue highly susceptible to global oil price volatility. The value of Nigeria's exports has fluctuated considerably, largely driven by changes in international oil prices. For example, periods of high global oil prices (e.g., in the early 1980s, mid-2000s, and early 2010s) saw significant increases in Nigeria's export earnings. Conversely, periods of low oil prices (e.g., in the late 1980s, late 1990s, and mid-2010s) led to substantial declines in export revenue. Ajayi and Oguntomi (2022) hold that while crude oil dominates, Nigeria also exports non-oil products, including agricultural goods, solid minerals, and manufactured goods. However, the contribution of non-oil exports to total export earnings has historically been relatively small, though there have been efforts to increase diversification. Recent data suggests some growth in non-oil exports. Nigeria's main export destinations have varied over time

but have generally included countries in Europe, Asia, and North America. According to recent data, Nigeria's exports have seen significant increases. For instance, there has been substantial year-on-year growth in exports, driven by increases in shipments of energy, crude oil, agricultural goods, raw materials, and manufactured goods, and in recent years, there has been a focus on increasing the contribution of non-oil exports to diversify the export base.

In terms of imports, it is challenging to provide a single statistic to summarize Nigeria's imports due to the many factors that influence import values and composition. Nigeria imports a wide variety of goods to meet the needs of its growing population and economy. These imports include machinery and transport equipment, manufactured goods, food and live animals, chemical and chemical products, mineral fuels, lubricants, and related materials. Machinery and transport equipment are often a significant portion of Nigeria's imports, reflecting the need for industrial development and infrastructure projects (Amos and Idris, 2024). Nigeria's import includes textiles, consumer goods, and other industrial products; and despite having agricultural potential, Nigeria imports a substantial amount of food to supplement domestic production. Furthermore, even though Nigeria is a major oil exporter, it also imports refined petroleum products due to limitations in its domestic refining capacity. While international trade offers opportunities for economic expansion through access to larger markets, technology transfer, and increased efficiency, its impact on Nigeria's economic growth between 1981 and 2024 has been complex and multifaceted. The question bordering the researcher's mind is this: how is it that Nigeria's international trade has persistently been negatively skewed? Why has our own type of globalization remained backward and at the mercy of world economies? Why has our international trade been underdeveloped? These and more are the focus of this paper.

Although the link between commerce and growth has already been recognized theoretically in economic literature, Nigeria's growth rate inconsistencies call for empirical examination. For example, Nigeria's economy is highly import-dependent alongside a high inflation rate, persistent depreciation in the exchange rate, low rates of investment, low productivity, high rates of unemployment, high poverty levels, criminality, balance of trade imbalances, and low economic growth. The facts above suggest that international trade in the Nigerian context appears to have deviated from economic postulation, which opined that an increase in exports and a decrease in imports bring about improvement in economic activities by stimulating investment, aggregate demand, employment, output growth, balance of payments, and economic growth. Nevertheless, these postulations are not completely backed by empirical findings, thus the need for more research.

## **Research Questions**

- a) Do export trade and import trade significantly influence Nigeria's economic growth?
- b) What is the combined effect of export and import trade on Nigeria's economic growth?

- c) Does foreign direct investment (FDI) significantly affect Nigeria's GDP?

## **Research Objectives**

- a) To examine the individual impact of export trade and import trade on Nigeria's economic growth.
- b) To determine the combined effect of export and import trade on Nigeria's economic
- c) growth.
- d) To assess the influence of foreign direct investment (FDI) on Nigeria's GDP.

## **2.0. Literature Review**

### **2.1. The Conceptual Literature**

The traditional view of the relationship between trade and growth is not equivocal. The early proponents of economic theory – Adam Smith, David Ricardo, James Mill, etc. - hold the view that the wealth of nations is positively related to trade (von Neumann, John (1945); Blaug, M. (1978); Harbeler, 1988) and maintain that trade acts as an engine of growth. The theoretical concept is anchored on three identifiable facts: 1. That trade provides material means (capital goods, machinery, raw materials, and semi-finished materials) which are indispensable for economic development. 2. That trade is the means and vehicle for the dissemination of technological knowledge, the transmission of ideas, the importation of know-how, skills, and managerial talent, and entrepreneurship. 3. Thirdly, trade is also a vehicle for the international movement of capital, especially from the developed to the underdeveloped countries (Harbeler, 1988: p. 335).

There is a link between growth and international trade. International trade brings about the integration of peoples and cultures facilitates the flow of ideas between national borders (Grossman and Helpman, 2015). Foreign ideas can be useful for considering new products, improving existing products, or producing goods at a lower cost. Secondly, it enhances the integration of product markets through international trade allows those who invent or improve the products to move to a market with more potential where they can collect returns even if it subjects them to additional competition from foreign rivals. Thirdly, it promotes international interactions not only improve incentives for creating new knowledge, but also those of technological diffusion, with analogical implications for productivity growth (Grossman and Helpman, 2015; Robertson, 1993).

### **2.2 Theoretical Literature**

There are a lot of theories of international trade, including the import-led theory. The import-led growth (ILG) hypothesis argues that imports positively affect economic growth by expanding production capacity and improving the productivity levels of local units (Seabra and Galimberti, 2012; Abreha, 2019; Ahn and

Duval, 2017; Rani and Kumar, 2018). It can also improve consumers' welfare through access to cheaper goods, induce learning processes, and drive innovation in production units, cheaper goods, etc.

This study is anchored on the export-led growth hypothesis, which is traceable to David Ricardo's and Smith's classical theories of trade (Ram, 1987). In this view, among modern economists, Beckerman, in his postulation in 1965, opined that favourable exports contribute to gains resulting from efficient production that stem from improved allocation of resources. Haberlar (1959), in his own argument, conceived the importance of dynamic benefits, which include an increase in foreign capital availability and technology by loosening constraints to the balance of payments in the economy.

Vernon (1966), on the other hand, dealt with the opposite causality direction, for which he postulated that self-induced growth in any economy brings about an increase in competitiveness and hence, expansion in the exports of the nations. In a follow-up, endogenous theories of growth analyses stem from export activities, using a model that is dominated by managerial increasing returns to scale and effects of technological spill-over across all sectors of the economy (Rabanal et al., 2016). Similarly, Olarreaga, M. et al. (2020) opined that the initial growth accelerates in expansion in the level of exports through allocation and efficiency effects; fosters export growth, stimulates international competitiveness, and development processes in the economy.

### **2.3 Empirical Literature**

Amos and Idris (2024) researched the effect of export trading on economic growth in Nigeria. The objectives of the study were to investigate the impact of oil export activities and import activities on the gross domestic product covering the period 1996 to 2021. Nigeria was the location of the study, and the independent variables were export and import, while the dependent variable was the economic growth proxy by the gross domestic product; these were time series data covering the period reviewed. The method of analysis adopted was the multiple regression and the Granger Causality test, which were used to determine the level of impact. The findings of the study revealed that oil export positively and significantly impacted the growth of Nigeria's economy. It was also revealed that non-oil export has a positive and significant impact on GDP, while the Granger causality test indicated that there is unidirectional causality between oil exports and GDP. The study concluded that the growth-led-export hypothesis is evident in the Nigerian context. They recommended that to improve the living standard of the populace, emphasis should not be directed only to the export sector of the economy, but should be far-reaching, as the growth in the economy also has the potential to drive the export sector of the economy.

Another study by Odusola and Akinlo cited by Uche (2019) investigated the validity of the export-led growth hypothesis in Nigeria. The specific objective of the study was to find evidence of export led hypothesis in Nigeria. The study location was Nigeria and covered the period 1981 to 2018. The variables of the study were export and gross domestic product, while the data were time series data. The study adopted ex post facto and employed the ordinary least squares (OLS) regression analysis. The findings of the study revealed that a bidirectional (or feedback effect) relationship between exports and economic

growth exists in Nigeria. The study concluded that the export-led growth hypothesis is evident in the case of Nigeria. They recommended that an aggressive export policy be implemented by the government to achieve rapid economic growth.

Mohammed and Amirahi (2018) examine whether factors such as oil price, world oil supply and demand, production capacities, and enhanced export growth in Iran using the Error Correction Version of ARDL. It was found that there is an inverse relationship between oil product consumption and oil export revenues. Iran had a significant positive growth in its oil revenues.

Rahmaddi (2018) examines the exports and economic growth nexus in Indonesia employing a vector autoregressive (VAR) model. The findings indicate the significance of both exports and economic growth to economy of Indonesia as indicated in GIRF analysis. It was concluded that exports and economic growth exhibit a bidirectional causal structure, which is Export-Led Growth in the long run and Growth-Led Export in the short run.

Igwebuike and Agu (2018) carried out research to evaluate the impact of international trade on Nigeria's economic growth. The objectives of this study were to ascertain the impact of export trade on the Nigerian economy and to determine the impact of import trade on the Nigerian economy. The variables were export and import (treatment variables) and gross domestic product (response variable). The data used for the study were time series data extracted from the 2019 edition of the CBN statistical bulletin, covering the period from 1980 – 2018. The method of analysis was the Multiple regression analysis technique used to estimate the model. The findings showed that there is a significant impact of export trade on the Nigerian economic growth. The study concluded that there is no significant impact of import trade on the Nigerian economic growth. Thus, it was recommended that conscious efforts should be made by the government to fine-tune the various macroeconomic variables in order to provide an enabling environment to stimulate foreign trade by engaging in more export trade and curtail import trade, which has a negative effect or strains the economy.

Akeem (2017) undertook a study titled Non-oil export determinant and economic growth in Nigeria. Akeem employed data from CBN for the period 1989 to 2008. He used multi linear regression method and found that non-oil exports for the previous year and the consumer price index positively affect GDP. Multilinear regression was used in this study without carrying out a unit root test. Not carrying out a unit root test may lead to a spurious result.

Adenugba and Dipo (2017) studied Non-oil exports and the economic growth of Nigeria: A study of agricultural and mineral resources. The study evaluated the performance of Nigeria's export promotion strategies as to whether they have been effective in diversifying the productive base of the Nigerian Economy from Crude oil as the major source of foreign exchange. The study was carried out for the period 1981 to 2010. Findings from the study revealed that non-oil exports have performed below expectations. Samad (2017) tested the hypothesis that there exists a relationship between exports and economic growth in Algeria, using VEC Granger causality and the block exogeneity Wald test. The Augmented Dickey-

Fuller test was used to run the regression. The result shows that the variables are non-stationary. It was concluded that there is a causal relationship between economic growth, exports, and imports.

Akanni (2017) examined whether oil-exporting countries grow as their earnings on oil rents increase, using PCGIVE10 (ordinary least squares regression). The result shows that there is a positive and significant relationship between investment and economic growth, and also between oil rents. In conclusion, oil rents in most rich oil-producing countries in Africa do not promote economic growth.

### 3. Methodology

#### Research Design and Sources of Data

The researcher adopted the ex-post facto research design. In this design, the use of past values (data) to explain future outcomes is made possible. Time series data on the independent variables (exports and imports as components of international trade) and the dependent variable (economic growth proxy by GDP) were collected from various sources, such as the Central Bank of Nigeria (CBN) statistical bulletin and World Development Indicators. All data are for the period 1981 to 2024.

#### Model Specification

In the attempt by this study to determine the impact of international trade on economic growth in Nigeria, the study will specify the following model:

$$GDP = f(IMPT, EXPT) \quad 1$$

Where: GDP = economic growth measured by the gross domestic product, IMPT, = import trade, EXPT = export trade

The econometric form of the model is:

$$GDP_t = \beta_0 + \beta_1 IMPT_t + \beta_2 EXPT_t + \beta_3 FDI + \beta_4 EXR_t + \mu_t \quad 2$$

Where

FDI = foreign direct investment acting as a control variable

EXR = exchange rate acting as a control variable

$U_t$  = the error term

#### Analytical techniques

This stage involves the application of appropriate econometric research methods to obtain the numerical values or coefficients for the model. The model specified above is estimated using the autoregressive distributed lag techniques. The use of the ARDL, which is an advanced OLS technique, draws from a number of strengths that it possesses over other methods. It has such optimal properties as least variance, efficiency, best linear unbiasedness, least mean square error, and it is best suited for I(0) and I(1) stationary

variables, as in this study, and this method has been used in a wide range of economic relationship empirical observations with satisfactory results. The ARDL, in addition, can estimate time lags, short-run, and long-run results. The ARDL specification is shown below:

$$\Delta GDP_t = \beta_0 + \beta_1 GDP_{t-1} + \beta_2 IMPT_{t-1} + \beta_3 EXPT_{t-1} + \beta_4 FDI_{t-1} + \beta_5 EXR_{t-1} + \sum_{j=1}^k \alpha_{1j} \Delta GDP_{t-j} + \sum_{j=0}^k \alpha_{2j} \Delta IMPT_{t-j} + \sum_{j=0}^k \alpha_{3j} \Delta EXPT_{t-j} + \sum_{j=0}^k \alpha_{4j} \Delta FDI_{t-j} + \sum_{j=0}^k \alpha_{5j} \Delta EXR_{t-j} + \mu_t \quad 3$$

where  $\alpha_1$  to  $\alpha_5$  are the coefficients of the short-run parameters,  $\beta_1$  to  $\beta_5$  are the coefficients of the long-run parameters,  $\Delta$  = first difference operator,  $\ln$  denotes variables in their natural log form,  $K$  is the lag order selected by Akaike information criterion (AIC), while  $\mu_t$  is the white noise assumed to be normally distributed,  $t$  is a subscript denoting time, the variables are as itemized above.

## 4. Result and Discussion

### 4.1 Result

#### Descriptive Statistics

The descriptive statistics of the variables of the study investigated the characteristics of the data used for the analysis of the objectives of the study. The descriptive statistics verified whether there exists sufficient variation in the values of the variable by looking at the mean, median, and standard deviation, and the minimum and maximum values of these variables. It also verified the normality properties of the data using skewness and kurtosis values and the Jarque-Bera probability values of the variables as presented in Table 4.1.

**Table 4.1: Summary of Descriptive Statistics**

|              | GDP      | EXPT     | IMPT     | FDI       | EXR      |
|--------------|----------|----------|----------|-----------|----------|
| Mean         | 41034.05 | 7617038. | 6521011. | 1.208795  | 140.9213 |
| Median       | 32205.45 | 2516805. | 1749870. | 0.961468  | 119.7685 |
| Maximum      | 89689.23 | 37330192 | 36120165 | 4.282088  | 694.2180 |
| Minimum      | 16211.49 | 7502.500 | 5983.600 | -0.039127 | 0.610025 |
| Std. Dev.    | 22676.53 | 9565709. | 9281638. | 0.938397  | 164.8845 |
| Skewness     | 0.509649 | 1.502666 | 1.696290 | 0.982296  | 1.694822 |
| Kurtosis     | 1.726026 | 4.910780 | 5.128534 | 3.843403  | 5.780540 |
| Jarque-Bera  | 4.880293 | 23.25236 | 29.40714 | 8.380074  | 35.23866 |
| Probability  | 0.087148 | 0.000009 | 0.000000 | 0.015146  | 0.000000 |
| Sum          | 1805498. | 3.35E+08 | 2.87E+08 | 53.18698  | 6200.536 |
| Sum Sq. Dev. | 2.21E+10 | 3.93E+15 | 3.70E+15 | 37.86536  | 1169037. |
| Observations | 44       | 44       | 44       | 44        | 44       |

*Source: Researcher's computation using Eviews;*

The high spread of the mean and median, as well as large values of the standard deviation of gross domestic product, import trade, export trade, foreign direct investment, and exchange rate implies that their data are unevenly spread around their sample means. The skewness, which is a measure of asymmetry of the distribution, indicates that all the variables are positively skewed. On the other hand, the kurtosis, which is a measure of the peakedness or the flatness of the distribution, shows that GDP is thin-tailed since its kurtosis values are less than 3; FDI is medium-tailed because its kurtosis value is around 3; while IMPT, EXPT, and EXR are fat-tailed because their kurtosis values are above 3. There are 44 observations for each variable of the model.

### Correlation matrix

The correlation matrix shows the level of association between the variables of the model. The result is shown in Table 4.2.

**Table 4.2: Correlation Matrix**

| Correlation | GDP       | EXPT      | IMPT      | FDI       | EXR      |
|-------------|-----------|-----------|-----------|-----------|----------|
| GDP         | 1.000000  |           |           |           |          |
| EXPT        | 0.608787  | 1.000000  |           |           |          |
| IMPT        | 0.492404  | 0.563425  | 1.000000  |           |          |
| FDI         | -0.154109 | -0.189627 | -0.278223 | 1.000000  |          |
| EXR         | 0.584180  | 0.647451  | 0.565306  | -0.201297 | 1.000000 |

*Source: Researcher's computation using Eviews*

Table 4.2 reveals that export trade, import trade, and exchange rate are positively correlated with GDP, whereas gross fixed capital formation and human development index are negatively correlated with gross domestic product, while foreign direct investment inflows are negatively correlated with gross domestic product. The correlation coefficients reveal that none of the independent variables are correlated at above 0.65. This implies that there is no multicollinearity among the independent variables as indicated by the correlation matrix.

### Unit root test

The unit root test of stationarity was carried out so as to avoid spurious regression. The study used the Augmented Dickey Fuller (ADF) unit root test, and the result is shown in Table 4.3.

**Table 4.3: ADF Unit Root Stationarity Test**

|          |                     |
|----------|---------------------|
| At Level | At First Difference |
|----------|---------------------|

| Variables | ADF<br>Statistics | 5% Critical<br>Value | ADF<br>Statistics | 5% Critical<br>Value | Conclusion |
|-----------|-------------------|----------------------|-------------------|----------------------|------------|
| LNGDP     | 0.416008          | -2.933158            | -3.760120         | -2.933158            | I(1)       |
| LNEXPT    | -1.294000         | -2.931404            | -6.806338         | -2.933158            | I(1)       |
| LNIMPT    | -1.134459         | -2.933158            | -7.462693         | -2.933158            | I(1)       |
| FDI       | -3.860514         | -2.931404            | -10.18603         | -2.933158            | I(0)       |
| EXR       | 3.949605          | -2.931404            | -4.782579         | -2.933158            | I(0)       |

**Source:** *Researcher's computation using Eviews*

Table 4.3 indicates that gross domestic product (GDP), import trade (IMPT), and export trade (EXPT) are stationary at first difference, while foreign direct investment inflows (FDI) and the exchange rate are stationary at levels because their ADF test statistics are greater than the critical values at a 5 percent significance level. This means that the variables have a mixture of I(1) and I(0) stationarity properties. We therefore accept the null hypothesis that there is no unit root in the model. Based on the mixture of I(1) and I(0) stationary properties of the variables, the ARDL estimation technique is therefore suitable for the data analysis of this study.

The study tests for cointegration among the variables, and the result is presented in Table 4.4.

**Table 4.4: ARDL Bounds Test to Cointegration Result**

| Test statistic        | Value    | K        |
|-----------------------|----------|----------|
| F-statistic           | 17.91363 | 4        |
| Critical Value Bounds |          |          |
| Significant           | I0 Bound | I1 Bound |
| 10%                   | 2.2      | 3.09     |
| 5%                    | 2.56     | 3.49     |
| 2.5%                  | 2.88     | 3.87     |
| 1%                    | 3.29     | 4.37     |

**Source:** *ARDL Cointegration Output using Eviews 10*

Table 4.4 indicates that there is cointegration between the LNGDP and explanatory variables because the F-statistic value of 17.91363 is greater than the upper bound critical value at 5%, which is 3.49. The detection of this long-run relationship necessitates the estimation of both the short-run and the long-run results. Figure 4.1 shows the ARDL model lag selection criteria applied in estimating these results.

The model chosen lag selection criterion is the Akaike information criterion (AIC) with ARDL (3, 3, 1, 0, 1), and the selection criterion ranges from 16.50 to 16.57 in absolute terms for the top 20 models.

The short-run result is shown in Table 4.5, while the long-run result is presented in Table 4.6.

## ARDL Short Run Results

**Table 4.5: ARDL Short Run Result (Dependent Variable: GDP)**

| Variable           | Coefficient | Std. Error | t-Statistic             | Prob.    |
|--------------------|-------------|------------|-------------------------|----------|
| GDP(-1)*           | -0.247920   | 0.029393   | -8.434676               | 0.0000   |
| EXPT(-1)           | 0.001051    | 0.000145   | 7.251822                | 0.0000   |
| IMPT(-1)           | -0.000647   | 0.000114   | -5.685065               | 0.0000   |
| FDI**              | -205.0305   | 179.2725   | -1.143681               | 0.2624   |
| EXR(-1)            | 25.20559    | 3.968209   | 6.351881                | 0.0000   |
| D(GDP(-1))         | 0.149115    | 0.135011   | 1.104461                | 0.2788   |
| D(GDP(-2))         | 0.318666    | 0.148273   | 2.149189                | 0.0404   |
| D(EXPT)            | 0.000207    | 7.98E-05   | 2.594514                | 0.0149   |
| D(EXPT(-1))        | -0.000656   | 0.000107   | -6.109554               | 0.0000   |
| D(EXPT(-2))        | -0.000312   | 0.000109   | -2.879253               | 0.0076   |
| D(IMPT)            | -5.63E-05   | 0.000149   | -0.377051               | 0.7090   |
| D(EXR)             | -1.375431   | 5.516354   | -0.249337               | 0.8049   |
| CointEq(-1)*       | -0.247920   | 0.022028   | -11.25500               | 0.0000   |
| R-squared          |             | 0.901345   | Mean dependent var      | 1787.679 |
| Adjusted R-squared |             | 0.880418   | S.D. dependent var      | 2175.363 |
| S.E. of regression |             | 752.2547   | Akaike info criterion   | 16.25721 |
| Sum squared resid  |             | 18674273   | Schwarz criterion       | 16.59156 |
| Log likelihood     |             | -325.2727  | Hannan-Quinn criterion. | 16.37896 |
| F-statistic        |             | 2549.724   | Durbin-Watson stat      | 1.963891 |
| Prob(F-statistic)  |             | 0.000000   |                         |          |

**Source: Researcher's computation using Eviews**

The short-run result in Table 4.5 shows that the previous values of gross domestic product at lag 1 (GDP(-1)) significantly reduced GDP by 0.247920 units in the following period, while the differenced GDP at lags 1 and 2, D(GDP(-1)) and D(GDP(-2)), increased GDP by 0.149115 unit and 0.318666 unit respectively, in the following period. Export trade (D(EXPT)) and its lag 1 EXPT(-1) made a significant positive impact on gross domestic product, as a unit increase in EXPT and EXPT(-1) significantly increased GDP by 0.000207 unit and 0.001051 unit respectively, in the short run. However, its differenced lags 1 and 2, D(EXPT(-1)) and D(EXPT(-2)), made a significant negative impact on GDP as D(EXPT(-1)) and D(EXPT(-2)),

D(EXPT(-1)) significantly reduced GDP by -0.000656 unit and -0.000312unit respectively, in the short run. Import trade D(IMPT) made an insignificant negative impact on gross domestic product, as a unit increase in IMPT reduced GDP by 0.000563unit in the short run. However, its lag 1 (IMPT(-1)) made a significant negative impact on GDP as it significantly reduced GDP by 0.000647 units in the short run. Foreign direct investment made an insignificant negative impact on gross domestic product, as a unit increase in FDI reduced GDP by 205.0305 units in the short run. Exchange rate (D(EXR))made an insignificant negative impact on gross domestic product as a unit increase in EXR reduced GDP by -1.375431unit in the short run. Interestingly, its lag 1 (EXR(-1))made a significant positive impact on gross domestic product as it significantly increased GDP by 25.20559 units.

The result further indicates that the error correction mechanism, which shows the speed of adjust is correctly signed as it is negative and significant. The error correction coefficient of -0.247920indicates that about 24.79% of the errors are corrected annually. The coefficient of determination (R-squared) value of 0.901345implies that about 90.13% of the variation in GDP is jointly explained by the independent variables of the model, while the remaining 9.87% may be due to the error term. The overall model is significant as indicated by the F-statistic value of 2549.724and its corresponding probability value of 0.000000, which is less than 0.05. The Durbin-Watson statistic of 1.963891which is approximately 2, indicates the absence of autocorrelation in the model.

### ARDL Long Run Results

The long-run result of the study is presented in Table 4.6.

**Table 4.6: ARDL Long Run Result (Dependent Variable: GDP)**

| Variable | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------|-------------|------------|-------------|--------|
| EXPT     | 0.004239    | 0.000400   | 10.60027    | 0.0000 |
| IMPT     | -0.002608   | 0.000424   | -6.154991   | 0.0000 |
| FDI      | -827.0026   | 714.7215   | -1.157098   | 0.2570 |
| EXR      | 101.6682    | 15.76060   | 6.450785    | 0.0000 |
| C        | 20804.53    | 1167.802   | 17.81512    | 0.0000 |

*Source: Researcher's computation using Eviews*

The ARDL long run result in Table 4.6 shows that export trade made a significant positive impact on gross domestic product, as a unit increase in EXPT significantly increased GDP by 0.004239unit in the long run. Import made a significant negative impact on gross domestic product as a unit increase in IMPT significantly reduced GDP by 0.002608unit in the long run. Foreign direct investment made an insignificant negative impact on gross domestic product, as a unit increase in FDI reduced GDP by 827.0026unit in the long run. Exchange rate made a significant positive impact on gross domestic product as a unit increase in EXR significantly increased GDP by 101.6682unit in the long run.

### Diagnostic Test.

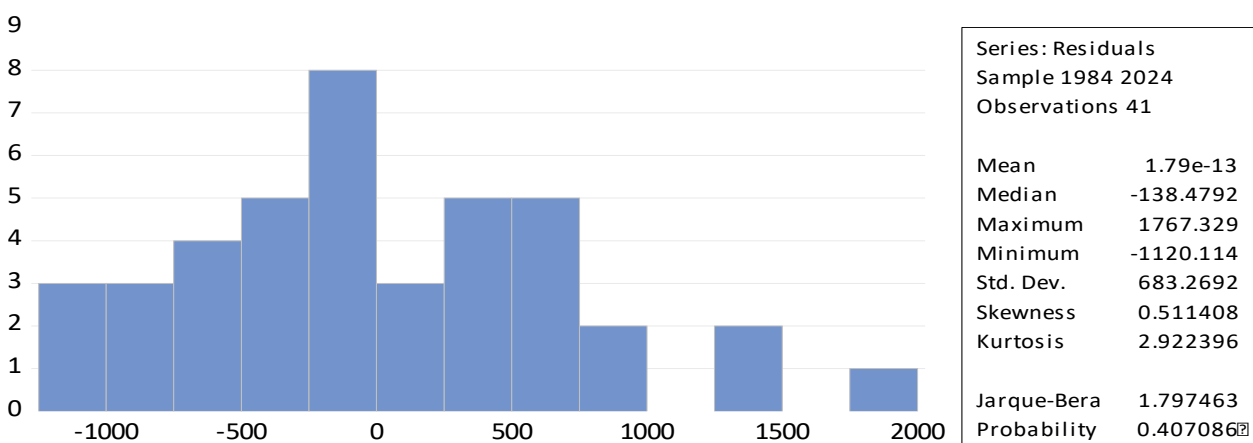
To further ensure the reliability of the model estimates for policy formulation, the study carried out econometrics and stability tests. The results of the test are presented in Table 4.8

**Table 4.8: Diagnostic Tests of Model Adequacy**

| Breusch-Godfrey Serial Correlation LM Test     |          |                      |             |
|------------------------------------------------|----------|----------------------|-------------|
| F-statistic                                    | 0.598447 | Prob. F(2,26)        | 0.5571      |
| Obs*R-squared                                  | 1.804348 | Prob. Chi-Square(2)  | 0.4057      |
| Heteroskedasticity Test: Breusch-Pagan-Godfrey |          |                      |             |
| F-statistic                                    | 0.433292 | Prob. F(12,28)       | 0.9358      |
| Obs*R-squared                                  | 6.421173 | Prob. Chi-Square(12) | 0.8934      |
| Scaled explained SS                            | 2.878562 | Prob. Chi-Square(12) | 0.9963      |
| Ramsey RESET Test                              |          |                      |             |
|                                                | Value    | Df                   | Probability |
| t-statistic                                    | 1.054454 | 27                   | 0.3010      |
| F-statistic                                    | 1.111872 | (1, 27)              | 0.3010      |
| Likelihood ratio                               | 1.654560 | 1                    | 0.1983      |

**Source: Diagnostic Tests Results using Eviews**

The results in Table 4.8 shows absence of serial correlation and heteroskedasticity as the p-values are above 0.05. The model was well specified, as shown by the Ramsey reset test values. The normality test result presented in Figure 4.1 shows that the data are normally distributed, as the p-value of 0.407086 is greater than 0.05.



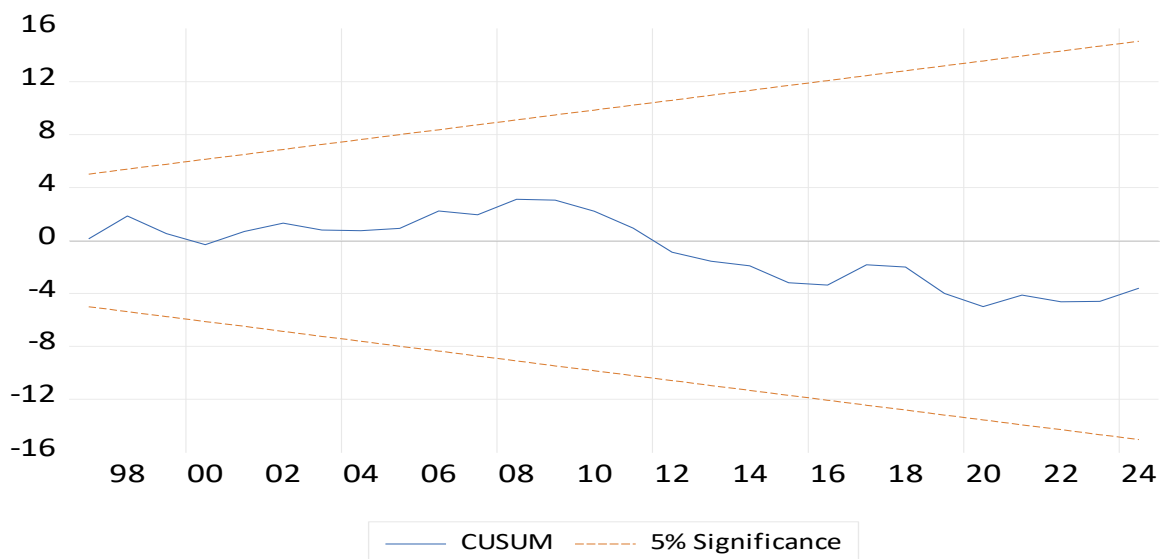
**Fig. 2: Jarque-Bera Test of Normality**

**Source: Researcher's computation using Eviews**

Since the Jarque-Bera probability value of 0.414857 is greater than or equal to 0.05, we reject the null hypothesis and conclude that the residuals are normally distributed, which implies that the error terms of the model are normally distributed at 5% level of significance.

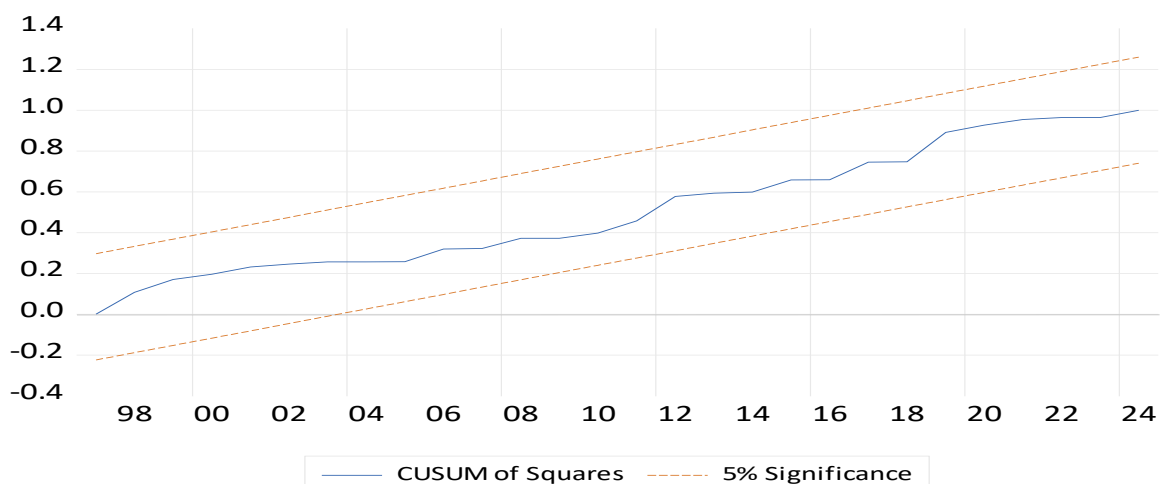
### Stability Test

The Cumulative Sum (CUSUM) and the Cumulative Sum of squares test in Figures 4.2 and 4.3 show that the model is stable as the plots of the Cumulative Sum and the Cumulative Sum of squares statistics lie within the critical bounds of a 5 percent significance level.



**Figure 4.2: Cumulative Sum Test**

Source: Researcher's computation using Eviews



**Figure 4.3: Cumulative Sum of Squares Test**

Source: Researcher's computation using Eviews

## 4.2 Discussion of Findings

The descriptive statistics show considerable variation in GDP, trade (exports and imports), FDI, and the exchange rate, with positive skewness and mixed kurtosis, reflecting asymmetry and potential non-normality in the distribution of macroeconomic variables. This underscores the heterogeneous nature of Nigeria's economic data and the influence of external shocks and policy changes over time (Gujarati & Porter, 2009).

The correlation matrix indicates that GDP is positively associated with export trade, import trade, and the exchange rate, but negatively correlated with FDI, with no evidence of severe multicollinearity, given that all coefficients are below 0.65. This suggests the independent variables contribute distinct information to the model (Gujarati & Porter, 2009).

Unit root results reveal that some variables are stationary only after differencing ( $I(1)$ ), while others are  $I(0)$ , supporting the use of the ARDL bounds testing approach (Pesaran et al., 2001). The significant ARDL cointegration result confirms a long-run relationship among GDP, trade, FDI, and the exchange rate.

In the short run, lagged GDP and exports significantly influence current GDP, while imports and FDI are generally insignificant or negative. The significant negative error correction term indicates a 24.79% annual adjustment toward equilibrium, consistent with findings in similar studies on Nigeria's external sector dynamics (Engle & Granger, 1987; Adekunle, 2025).

Long-run ARDL results show that exports and the exchange rate positively and significantly affect GDP, reflecting the importance of external demand and macroeconomic competitiveness. This aligns with recent evidence that trade openness plays a critical role in Nigeria's growth, especially when broader market access and export diversification improve (Adekunle, 2025; Ohwofasa & Ekaruwe, 2023). Imports negatively affect GDP, highlighting structural challenges in trade composition, while FDI remains insignificant, a result echoed in empirical literature suggesting that Nigeria's FDI inflows have yet to translate into broad-based growth due to sectoral allocation and policy inconsistencies.

Model diagnostics confirm no serial correlation, heteroskedasticity, or misspecification, and residuals are normally distributed, while stability tests show the model is stable over time. These findings affirm the reliability of the ARDL estimates and highlight the significance of trade policy and exchange rate management in enhancing economic growth in Nigeria.

It is very interesting to note that both export and import variables tested positive in our analysis. It would be recalled that Nigeria solely depends on the exportation of crude oil, natural gas, and other minerals for its foreign exchange earnings. This study shows that mineral export plays a highly significant role in our

economy. This result aligns with (Igwebuike and Agu, 2018; Akanni, 2017; Amos and Idris, 2024), and it also meets our a priori expectation. The question of whether export and import add value to our GDP is positive and significant. Nevertheless, the import variable had a negative coefficient and a significant p-value, which means more import reduces growth, all things being equal.

## **5. Conclusion and Recommendation**

### **5.1 Conclusion**

This research examined the impact of international trade on Nigeria's economic growth using annual time series data covering 1981 to 2024. The essay was aimed at determining the relationship between export/import trade (international trade) and Nigeria's economic growth. The work employed the autoregressive distributed lag (ARDL) model to analyse the data, and this was determined after it was found that the unit root test was mixed. Some of the variables came out stationary after the first difference order 1(1), while others were stationary at levels 1(0). The data used were sourced from the Central Bank of Nigeria Statistical Bulletin and World Development Indicators (WDI). The findings of the study reveal that export trade has a significant positive impact on gross domestic product in Nigeria in both the short-run and long-run, while import trade has a negative coefficient and a significant p-value impact on GDP in Nigeria in both the short-run and long-run. The control variable of foreign direct investment made an insignificant negative impact on GDP in both the short-run and long-run, whereas the exchange rate made an insignificant negative impact on GDP in the short-run and a significant positive impact on GDP in the long-run. The study concludes that international trade exerts a significant impact on economic growth in Nigeria.

### **5.2 Recommendation**

Based on the findings, the study made the following recommendations

- a. There is a need for the government to sustain and consolidate its export promotion policies, and further enhance the component of the policies that seek to boost export activities.
- b. Though the import variable is positive to GDP, the government should adopt an import substitution strategy in order to reduce the volume of imports and restrict imports only to the productive items, such as machinery and equipment.

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