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RESEARCH ARTICLE

# Foreign Direct Investment, Export Volume and Economic Growth Nexus under the Structural Adjustment Programme in Nigeria

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ABSTRACT

*This study looked at the interlinkages between foreign direct investment, volume of exports and Nigeria's economic growth under the Structural Adjustment Programme (SAP) period. However, the study spanned from 1986 to 2021 and employed annual time series secondary data taken from the 2021 statistical bulletin of the Central Bank of Nigeria (CBN). Ex-post facto research design was the approach adopted, and paired granger causality test and Autoregressive Distributed Lag (ARDL) multiple regression were the analytical methods used. The results showed that Foreign Direct Investment (FDI) and export volume (EXPT) have a considerable favorable impact on Nigeria's economic growth. The results of the causality test showed that export and Foreign Direct Investment (FDI) provide a feedback mechanism that propels the Nigerian economy. Based on the above findings, the study recommended that Nigeria's federal government should increase its investment in the export sector, encourage the economy's diversification away from its excessive reliance on crude oil, facilitate the provision of appropriate machinery and infrastructure to support and encourage export activities, which will ultimately result in economic growth in Nigeria through a multiplier effect.*

***Keywords:*** *Foreign Direct Investment; Export Volume; Economic Growth; Structural Adjustment Programme; Nigeria*

## Introduction

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One of the economies with a high demand for goods and services is Nigeria. Since the discovery of crude oil, the nation has drawn a lot of FDI. In most of the developing, under-developed or low-income countries, the domestic savings are usually inadequate to finance the required investment. As a result, these countries are entrapped by the vicious circle of poverty which makes it difficult for the country to furnish the economy with necessary capital and technology that are of essence to harness their local resources (Chigbu et al., 2015). In Nigeria, the Structural Adjustment Programme (SAP) was introduced in 1986 as a macroeconomic policy aimed at halting the worsening economic fortune of the country. The general aim of structural adjustment is to more effectively and efficiently achieve the objectives of economic development, which includes economic growth, poverty alleviation, productive employment, social services provision (housing, health, education, transport) and environmental protection. Foreign direct investments and volume of exports are pivotal to growth process of the Nigerian economy. For instance, Foreign Direct Investment (FDI) is very useful for at least three developmental goals: (i) saving investment gap by providing the much-needed capital for domestic investment; (ii) foreign exchange gap by providing foreign currency through initial investments and subsequent export earnings; and (ii) tax-revenue gap by generating tax revenues through additional economic activities (Pradhan, 2010). In the work of John (2016), FDI is a way of transferring technology and capital from other developed and even developing countries to the domestic economy. The term "foreign direct investment" (FDI) refers to a direct investment into the production or business of a nation by a person or organization from another nation, either through the acquisition of a company in the target nation or the expansion of operations of an already established company there. While in a restricted sense, foreign direct investment refers to the construction of new facilities, it more widely comprises mergers and acquisitions, the construction of new facilities, reinvesting profits from abroad activities, and intra-company loans. By supplying the local economy with a source of foreign know-how, technology, management knowledge, and human resource development through international training and collaboration, foreign direct investment has benefited the countries (Onu, 2012). Foreign direct investment (FDI) has an extraordinary and expanding impact on international trade and economics, according to Alejandro (2010). A source of new technologies, capital processes products, organization technologies, management skills, and other positive externalities and spillover, it can provide a firm with new markets and marketing channels, more affordable production facilities, access to new technology products, skills, and financing for a host country or the foreign firms that invest. Additionally, it can provide a source of new technologies, capital processes products, organization technologies, and management skills. Foreign direct investment is viewed as a means of moving capital and technology from other developed and even emerging countries to the domestic economy for a developing nation like Nigeria. It makes a substantial contribution to the growth of an economy's human resources, capital, and organizational and managerial abilities of its citizens (Muntah et al., 2015). According to Macaulay (2012), foreign investment in Nigeria dates back to the colonial era, when the colonial masters intended to use our resources for the growth of their economy. Additionally, FDI bridges the gap between domestically available funds, foreign exchange, and tax income. It also promotes the entry of technology and talents. The significance of this study depends on how FDI and export relate with the economic growth of Nigeria.

**Statement of the Problem**

The interaction between Foreign Direct Investment (FDI), volume of export and economic growth is of worth researching, especially in a developing country like Nigeria. Researchers argue that as foreign direct investment flow increases in an economy, export volume of that economy increases (Pulatova., 2016). Also, the practical impact of foreign direct investment and export volume to economic growth have not adequately materialized and this had continued to question the place of foreign capital inflows in developing countries. Consequently, previous studies on the relationships between FDI and export, particularly those conducted in Nigeria, have not attempted to establish causation, that is, to ascertain, for instance, whether DFI inflows cause export to be greater than what should be expected or whether growing exports attract more DFI. This study is set out to close this gap in the literature. Moreover, because of low incomes, the savings ratios also remain low, resulting in low investment levels, low taxable capacity, and low government earnings, which therefore subject the country to savings-investment deficit as well as Balance of Payment (BOP) deficit. These gaps can be filled by foreign capital inflows in the form of direct and portfolio investment, aid, foreign borrowing, and so on. Since developing, under-developed and low-income countries require foreign aid in the form of capital to bridge the imbalances in their international trade, this

study is focused at determining the interlinkages between foreign direct investment, volume of exports and Nigeria's economic growth under the Structural Adjustment Programme (SAP) period.

**Objectives of the Study**

This study aims to assess the effects of export and foreign direct investment (FDI) on economic growth in Nigeria. To achieve this goal, the study carved out the following specific objectives:

1. To analyze the effect of foreign direct investment (FDI) on economic growth in Nigeria.
2. To assess the effect of volume of exports on Nigeria's sustainable economic growth.
3. To establish a causal relationship between foreign direct investment (FDI), export (EXPT), and economic growth in Nigeria as measured by real GDP.

**Hypotheses**

1. Foreign Direct Investment (FDI) does not significantly affect economic growth (LnRGDP) of Nigeria.
2. Volume of exports (LnEXPT) has no significant effect on the sustainable economic growth (LnRGDP) of Nigeria.
3. There is no causal relationship between foreign direct investment (FDI), export (EXPT), and economic growth (LnRGDP) in Nigeria.

**Review of Related Studies**

**Conceptual Issues**

**Foreign Direct Investment**

Foreign direct investment refers to an investment made by a person or a firm (investor) in a nation that is not the investor's country of origin, either through the establishment of a business there or the purchase of business assets there. It is an investment in the form of a controlling ownership in a business enterprise in one country by an entity based in another country (Ogu, 2019). Foreign Direct Investment (FDI) occurs when an investor in one country acquires an asset in another country with the intent to manage the asset. This investment involves not only the transfer of funds but also the transfer of physical capital, technique of production and making expertise product, advertising and business practices with the aim to make profit. According to the World Bank (2017), Foreign Direct Investment (FDI) is an investment made to acquire a lasting management interest in a business enterprise operating in a country other than that of the investor. Foreign Direct Investment (FDI) is a crucial component of global economic integration because it establishes direct, enduring, and stable ties between economies. FDI promotes knowledge and technology exchange between nations and enables the host economy to market its goods more extensively abroad. Additionally, it provides additional funds for investments, and in the appropriate political atmosphere, it may be a crucial tool for development (OECD Factbook, 2012). The phrase "foreign direct investment" (FDI) describes a cross-border investment made by a resident entity in one economy with the aim of acquiring a long-term stake in a firm located in another country. In order to achieve economic growth and development, emerging countries like Nigeria receive critical capital investments from foreign direct investment (FDI). Due to the widespread financial, economic, and political transformation affecting developing and low-income nations, foreign direct investment has increased dramatically. The majority of developing nations have attempted to loosen limitations on foreign direct investment because of the significance attributed to FDI.

**Export**

The concept of shipping goods and services out of a country's port is where the name "export" originates. As used in this study, export (EXPT) refers to the volume and value of items that leave a nation. It is a feature of international trade when products made in one nation are transported to another nation for potential future sales or trade. The

sale of such commodities raises the gross national product of the producing country. In general, it may be stated that export is a catalyst for growth, a strong plan for international interdependence, and a tool for achieving economic and technological emancipation (Adedokun., 2012). Export is a catalyst required for an economy's total growth (Abou-Stait, 2005). If a country wants to become developed, it cannot afford to be in an autarky posture (a state of self-sufficiency) in a world where globalization and economic integration are quickly eradicating distance and boundaries. Through their multiplier effects on the level of national income, exports contribute to boosting the level of overall economic activity (Oyatoye et al., 2011; Olusola et al., 2015). Exports have also been referred to as the cornerstone of every economic growth (Bright, 2010). Additionally, a strong export industry will give individuals job opportunities, lowering the associated societal costs of unemployment. Export revenue will ease the strain on the balance of payments and even strengthen it (Verter & Bečvářová, 2016). A successful export push can transform a previously underdeveloped economy into a thriving one. As a result, one of the subjects that has received increased attention in recent years is the importance that exports play in the economic performance of developing nations like Nigeria.

**Economic Growth**

Economic growth is the rise in an economy's ability to generate goods and services when contrasted between two points in time. It is a method via which a country's wealth develops over time. Economic growth is the gradual rise in the volume of products and services an economy produces. Typically, it is expressed as the rate of growth in real gross domestic output, or real GDP Economic growth, also known as economic growth theory, is the term used to describe the increase in potential output, or production at full employment, which is brought on by an increase in aggregate demand or actual output (Uwubanmwen & Ogiemudia., 2016). Development economics and economic growth are typically distinguished from one another. The former focuses mostly on how nations can develop their economies. The latter involves the analysis of the economic aspects of the process of development in low-income nations. The rate of growth of a country's total output of goods and services, measured by the gross domestic product, is one of the most commonly cited indicators of economic growth (Asogwa & Manasseh, 2014). The rise in per capita GDP or other measures of total income, which are commonly expressed as the yearly rate of change in real GDP, can also be referred to as economic growth. Improvement in productivity, which entails creating more products and services with the same inputs of labor, capital, energy, and materials, is the main driving force behind it.

**Theoretical Back-up**

This research work is anchored on endogenous growth theory credited to Romer (1986) and MacDougall-Kemp (1958) Hypothesis.

**Endogenous Growth Theory**

The endogenous growth theory emphasized two critical channels for which investment affects economic growth: Firstly, through the impact on the range of available products, and secondly, through the impact on the stock of knowledge accessible for research and development. Economic models of endogenous growth have been applied to examine the effect of FDI on economic growth through the diffusion of technology (Khaliq & Noy, 2007; Barro, 1990; Barrel & Pain, 1997). FDI can also promote economic growth through creation of dynamic comparative advantages that leads to technological progress. Romer (1990) and Grossman and Helpman (1991) have worked on Romer's (1986) model and assume that endogenous technological progress is the main engine of economic growth. Romer (1990) argued that FDI accelerates economic growth through strengthening human capital, the most essential factor in research and development effort. Grossman and Helpman (1991) emphasized that an increase in competition and innovation will result in technological progress and increase in productivity and, thus, promote economic growth in long run. In contrast to all these positive conclusions, Reis (2001) formulated a model that investigates the effects of Foreign Direct Investment on economic growth when investment returns may be repatriated. The study exposed that after the opening up to FDI, domestic firms will be replaced by foreign firm in the research and development sector which may decrease domestic welfare due to the transfer of capital returns to foreign firms. Furthermore, Firebaugh (1992) listed several additional reasons why FDI inflows may be less profitable than domestic investment and may even be detrimental. According to the study, the country may gain less from FDI inflows than domestic

investment, because of multinationals are less likely to contribute to government revenue; FDI is less likely to encourage local entrepreneurship; multinationals are less likely to reinvest profits; develop linkages with domestic firms; and are more likely to use inappropriately capital-intensive techniques. FDI may be detrimental if it crowds out domestic businesses and stimulates inappropriate consumption pattern.

**MacDougall-Kemp Hypothesis**

This MacDougall-Kemp Hypothesis is one of the earliest theories of capital inflows propounded by MacDougall (1958) and later expanded by Kemp (1964). The theory states that in a two-country model in which one is the investing country while the other is a host country, and the price of capital being equal to its marginal productivity, capital moves freely from a capital abundant country to a capital scarce country. In such way, the marginal productivity of capital tends to equalize between the two countries. This leads to improvement in efficiency in the use of resources that leads ultimately to an increase in welfare. Despite the fact that the output in the investing country decreases in the wake of foreign investment outflow, national income does not fall in so far as the country receives returns on capital invested abroad, which is equivalent to marginal productivity of capital times the amount of foreign investment. So long as the income from foreign investment is greater than the loss of output, the investing country continues to invest abroad because it enjoys greater national income than prior to foreign investment. The host country too witnesses increase in national income as a sequel to greater magnitude of investment, which is not possible in the absence of foreign investment inflow.

**Empirical Review**

**FDI and GDP Growth**

Danja (2012) looked at the applicability of FDI and its effects on the economy of Nigeria. The author used a 30-year sample span. Over the course of more than 30 years, data were gathered. Both econometric and statistical methods were used to analyze the data. IIP and GFCF ordinary least square were used to analyze the link between FDI and important economic variables like GDP. The model showed a favorable correlation between FDI and those variables, however the Nigerian economy has not benefited significantly from FDI as seen by the repatriation of earnings, contract fees, and interest payments on foreign loans. Therefore, the report suggests developing human capability, creating infrastructure, and implementing strategic policies to draw in FDI. Empirically, Nkoro and Uko (2012) explored the nature of causality between foreign capital inflows components and real GDP (economic growth) and also, the impact of foreign capital inflows on economic growth in Nigeria. Specifically, the study examined the interaction among aid, remittance, FDI, external debt and growth of the Nigerian economy. Analytical mechanisms utilized were cointegration, variance decomposition and impulse response analysis, block exogeneity, Pairwise Granger causality and error correction tests. The analysis provided enough evidence that causal relationship runs from foreign aid, remittance (RMC), external debt (TED) and foreign direct investment (FDI) to real GDP (growth). However, result of the error correction model shows a significant positive, negative, positive and negative effect of foreign aid, remittance (RMC), FDI and external debt (TED) on real GDP respectively.

An empirical study on the impact of FDI on specific macroeconomic indicators, including GDP, inflation, and exchange rate, was conducted by Umeora (2013). The author employed Ordinary Least Squares (OLS) regression; among other things, the results showed that FDI has a negative impact on exchange rates, increases inflation, and does not cause the GDP to rise. Using the Engle-Granger 2-Step procedure of Pairwise Granger causality test, Obiechina and Ukeje (2013) examined the impact of capital flows (foreign direct investment), exchange rate, export and trade openness on economic growth of Nigeria. The study used a sample period and secondary data covering from 1970 – 2010. Findings uncovered that all the variables, except the FDI exert statistically significant influence on economic growth in Nigeria. However, the Pairwise Granger causality revealed the existence of uni-directional causality running from economic growth to FDI in Nigeria. In a 2014 study, Adeleke et al. examined the effects of FDI on Nigeria's economic growth between 1999 and 2013. The authors discovered that economic growth in Nigeria has a direct and substantial association with the inflow of foreign direct investment using ordinary least square (OLS) regression estimation

approaches. This suggests that strong economic growth is a favourable sign for the influx of foreign direct investment.

Empirical investigation by Chigbu et al. (2015) was focused on the impact of capital inflows on economic growth of developing economies with reference to Nigeria, Ghana and India. The study covered the period from 1986-2012. Analytical techniques utilized were pairwise Granger causality and Ordinary Least Square method of estimation. Findings revealed that capital inflows have significant impact on the economic growth of the three countries. For the years 1981 to 2015, Emmanuel (2016) empirically studied the impact of foreign direct investment on economic growth in Nigeria. The study used the multiple regression technique and discovered that the gross domestic product in Nigeria is positively and significantly impacted by foreign direct investment. Using annual time series data spanning the years 1979 to 2013, Uwubanmwen and Ogiemudia (2016) empirically investigated the effects of Foreign Direct Investment (FDI) on economic growth in Nigeria. The study used Granger causality test analysis and Error Correction Model (ECM) methodologies. The results showed that Foreign Direct Investment (FDI) had a non-significant negative impact on the Nigerian economy over the long term, with both direct and time lag effects on the economy in the short run. According to the causality test, FDI Granger causes RGDP, not the other way around. Thus, for the time period under examination, FDI only has a considerable short-term beneficial impact on the growth and development of the Nigerian economy.

**Export Volume and GDP Growth**

Ehinomen and Oguntona (2012) used annual time series data from 1970 to 2010 to evaluate the relationship between exports and economic growth in Nigeria. Real gross domestic product (y), export values (expo), exchange rate (exr), imports value (imp), gross capital formation (cap), and labor force population are the variables taken into account (lbr). Pairwise Granger causality testing and the Autoregressive Distributed Lag (ARDL) model were the methods used. While the ARDL results demonstrated a co-integration (long-run link) between export and economic growth in Nigeria, the findings suggested a unidirectional relationship between export and economic growth. The effects of oil and non-oil export on economic growth in Nigeria from 1986 to 2011 were examined by Ugwuegbe and Uruakpa (2013). The Granger causality test, OLS, and Pearson correlation analysis were used by the authors. According to the findings, both oil and non-oil exports, as measured by GDP, have a positive and significant impact on economic growth in Nigeria, and foreign reserves also have a positive and significant impact. Additionally, it was discovered that OEXP granger causes NOEXP, while NOEXP granger also causes FRESV, and that OEXP granger causes both FRESV and OEXP. The growth-led export theory is therefore applicable to Nigeria. Using annual time series data from 1981 to 2012, Onodugo et al. (2013) examined the specific contribution of non-oil exports to the expansion of the Nigerian economy. The investigation used the Endogenous Growth Model (EGM) and the Augmented Production Function (APF). The standard mean reversion and co-integration tests were used. Results show that non-oil exports have a very little and negligible impact on Nigeria's rate of economic growth. For the years 1983–2007, Gbadamosi (2016) used a log linear model to examine the relative effects of oil and non-oil exports on economic growth in Nigeria. The results among other things showed that non-oil export have not contributed much to economic growth in Nigeria but other indicators impose adequate pressure on the health of the economy; Oil export exerts a negative and non-significant effect on the growth of investment in Nigeria.

**Methodology**

**Data Sources and Methods**

As the study made use of historical data, ex-post facto research design was adopted. The data sources were secondary, and obtained from the Central Bank of Nigeria's (CBN) statistical bulletin of year 2021. For the study period, 1986-2021, the annual time series data on foreign direct investment (FDI), volume of exports (EXPT), Gross Domestic Product (GDP) and exchange rate (REXR) which stood as moderating variable were gathered. Methods of data analysis employed were Ordinary Least Squares (OLS) regression, Pearson’s correlation and Pairwise Granger Causality mechanisms. The OLS was used to ascertain the direction and level of effect of FDI and EXPT on GDP; the Pearson’s correlation was used to determine the degree of association among FDI, EXPT and GDP; while the Pairwise Granger causality test was used to measure the directional relationship (or causal connection) across the study variables. Econometric software used was reviews 10.0.

**Model Specification**

The regression model used for this study is the Autoregressive Distributed Lag (ARDL) model. The ARDL model is as specified below:

$$Y_t = \alpha + \alpha_1 Y_{t-1} + \ldots + \alpha_p Y_{t-p} + \beta_1 X_{t-1} \ldots + \beta_m X_{t-m} + \mu_t \quad - \quad - \quad - \quad (1)$$

Were,

| | | |
|---|---|---|
| $Y_t$ | = | *Dependent variable at time t,* |
| $Y_{t-1}$ | = | *Dependent variable at time lag 1,* |
| $X_{t-1}$ | = | *Independent variable at time lag 1,* |
| $\alpha_O$ | = | *Constant* |
| $\alpha_1, \ldots, \alpha_p, \ \& \ \beta_1, \ldots \beta_k$ | = | *Regression coefficients.* |
| $\mu_t$ | = | *Stochastic error estimate* |

However, in econometric form and in line with the study variables and specific objectives, we have:

**For Hypothesis One**:

$$\text{LnRGDP} = \text{f(LnFDI, REXR, } \mu) \quad (2)$$

Such that:

$$\text{Ln}RGDP_t = \alpha_0 + \alpha_i \sum LnRGDP_{t-i} + \beta_i \sum LnFDI_{t-i} + \pi_i \sum REXR_{t-i} + \mu_t \quad (3)$$

**For Hypothesis Two:**

$$\text{LnRGDP} = \text{f(LnEXPT, REXR, } \mu) \quad (4)$$

Such that:

$$\text{Ln}RGDP_t = \alpha_0 + \alpha_i \sum LnRGDP_{t-i} + \beta_i \sum LnEXPT_{t-i} + \pi_i \sum REXR_{t-i} + \mu_t \quad (5)$$

**For Hypothesis Three:**

$$LnFDI_t = \sum_{i=1}^{n} \tau_{ci} LnRGDP_{t-i} + \sum_{i=1}^{m} \lambda_{ci} LnFDI_{t-i} + \varepsilon_{1t} \quad (6a)$$

$$LnRGDP_t = \sum_{i=1}^{n} \tau_{ci} LnFDI_{t-i} + \sum_{i=1}^{m} \lambda_{ci} LnRGDP_{t-i} + \varepsilon_{2t} \quad (6b)$$

$$LnEXPT_t = \sum_{i=1}^{n} \tau_{ci} LnRGDP_{t-i} + \sum_{i=1}^{m} \lambda_{ci} LnEXPT_{t-i} + \varepsilon_{3t} \quad (6c)$$

$$LnRGDP_t = \sum_{i=1}^{n} \tau_{ci} LnEXPT_{t-i} + \sum_{i=1}^{m} \lambda_{ci} LnRGDP_{t-i} + \varepsilon_{4t} \quad (6d)$$

In the model equations (6a) through (6d), $LnFDI_t$ and $LnFDI_{t-i}$ represents Log value of Foreign Direct Investment at time t and t-i respectively; $LnRGDP_t$ and $LnRGDP_{t-i}$ represents Log value of Real Gross Domestic Product at time t and t-i respectively; $LnEXPT_t$ and $LnEXPT_{t-i}$ represents Log value of Export Volume at time t and t-i respectively; $\tau_{ci}$ and $\lambda_{ci}$ are coefficients of the causality estimates, while $\varepsilon_{1t}$ through $\varepsilon_{4t}$ stood for the random disturbances associated with the models.

**Results**

**Data Presentation**

**Table 1:** Annualized time series data of Real Gross Domestic Product (RGDP) in ₦' billions, Foreign Direct Investment (FDI) in billions of US Dollars, Export Volume (EXPT) in millions, and Exchange rate (REXR) in ₦/USD for the period of 1986-2021.

| *YEARS* | *RGDP (₦'B)* | *FDI (Inflows) (B'US$)* | *EXPT (₦'M)* | *REXR (₦/US$1.00)* |
|---|---|---|---|---|
| *1986* | 196.17 | 0.19 | 8,920.60 | 2.0206 |
| *1987* | 242.26 | 0.61 | 30,360.60 | 4.0179 |
| *1988* | 312.50 | 0.38 | 31,192.80 | 4.5367 |
| *1989* | 410.77 | 1.88 | 57,971.20 | 7.3916 |
| *1990* | 489.77 | 0.59 | 109,886.10 | 8.0378 |
| *1991* | 584.25 | 0.71 | 121,535.40 | 9.9095 |
| *1992* | 897.12 | 0.90 | 205,611.70 | 17.2984 |
| *1993* | 1244.80 | 1.35 | 218,770.10 | 22.0511 |
| *1994* | 1751.28 | 1.96 | 206,059.20 | 21.8861 |
| *1995* | 3069.43 | 0.34 | 950,661.40 | 21.8861 |
| *1996* | 4045.32 | 0.50 | 1,309,543.40 | 21.8861 |
| *1997* | 4374.50 | 0.47 | 1,241,662.70 | 21.8861 |
| *1998* | 4756.71 | 0.30 | 751,856.70 | 21.8861 |
| *1999* | 5426.47 | 1.00 | 1,188,969.80 | 92.6934 |
| *2000* | 6990.62 | 1.14 | 1,945,723.30 | 102.1052 |
| *2001* | 8150.02 | 1.19 | 1,867,953.85 | 111.9433 |
| *2002* | 11383.66 | 1.87 | 1,744,177.68 | 120.9702 |
| *2003* | 13418.01 | 2.01 | 3,087,886.39 | 129.3565 |
| *2004* | 17938.38 | 1.87 | 4,602,781.54 | 133.5004 |
| *2005* | 22884.90 | 4.98 | 7,246,534.80 | 132.1470 |
| *2006* | 30063.96 | 4.85 | 7,324,680.63 | 128.6516 |
| *2007* | 34318.67 | 6.04 | 8,309,758.32 | 125.8331 |
| *2008* | 39542.43 | 8.19 | 10,387,693.62 | 118.5669 |
| *2009* | 43012.51 | 8.56 | 8,606,319.72 | 148.8802 |
| *2010* | 54612.26 | 6.03 | 12,011,475.87 | 150.2980 |
| *2011* | 62980.40 | 8.84 | 15,236,665.99 | 153.8616 |
| *2012* | 71713.94 | 7.07 | 15,139,326.13 | 157.4994 |
| *2013* | 80092.56 | 5.56 | 15,262,013.61 | 157.3112 |
| *2014* | 89043.62 | 4.69 | 12,962,026.84 | 158.5526 |
| *2015* | 94144.96 | 3.06 | 8,845,158.81 | 193.2792 |
| *2016* | 101489.49 | 3.45 | 8,835,611.91 | 253.4923 |
| *2017* | 113711.63 | 2.41 | 13,988,143.19 | 305.7901 |
| *2018* | 127736.83 | 0.78 | 18,707,327.43 | 306.0802 |
| *2019* | 144210.49 | 2.31 | 19,910,533.80 | 306.9206 |
| *2020* | 152324.07 | 2.39 | 12,613,592.70 | 358.8108 |
| *2021* | 173527.66 | 4.84 | 19,204,170.87 | 399.9636 |

***Source:*** CBN statistical bulletin, 2021

**Stationarity Test**

**Table 2: Summary of ADF unit root test**

| *Variable* | *ADF-Stat.* | *Levels of Critical Values* | | | *p-value* | *Stationarity O(I)* |
|---|---|---|---|---|---|---|
| | | **1%** | **5%** | **10%** | | |
| *LnRGDP* | -3.992 | -3.633* | -2.948** | -2.613*** | 0.0040 | I(0) |
| *LnFDI* | -8.652 | -4.253* | -3.548** | -3.207*** | 0.0000 | I(1) |
| *LnEXPT* | -4.919 | -4.273* | -3.558** | -3.212*** | 0.0020 | I(1) |
| *REXR* | -4.455 | -4.253* | -3.548** | -3.207*** | 0.0061 | I(1) |

*, **, *** Indicates stationary at 1%, 5%, and 10% level of significance

***Source:*** Author's Extract from E-views 10 output

The stationarity test result (table 2) uncovered that the ADF-stats with various possible models: constant and trend, constant only, and no constant and no trend, were not stationary at same level. The LnRGDP is stationary at level form [I(0)]; hence, the ADF-statistic value is more negative than the critical values at order zero. The LnFDI, LnEXPT and REXR were stationary at first differencing [I(1)]; hence, the ADF-statistic values were more negative than the critical values at first differencing.

**Correlation Analysis**

**Table 3: Summary of Pearson Correlation Test Result**

| *Coefficient* | *LnGDP* | *LnFDI* | *LnEXPT* | *REXR* |
|---|---|---|---|---|
| *LnGDP* | 1.0000<br>*------- | | | |
| *LnFDI* | 0.725<br>*0.0002 | 1.0000<br>*------ | | |
| *LnEXPT* | 0.979<br>*0.0000 | 0.737<br>*0.0000 | 1.0000<br>*------ | |
| *REXR* | 0.871<br>*0.0000 | 0.540<br>*0.0007 | 0.791<br>*0.0000 | 1.0000<br>*------ |

***Source**:* Author's extract from Reviews 10 output

The correlation test result in table 3 above shows that all the variables have high degrees of linear association among themselves ($p<0.05$). There is no negative or zero correlation which implies that all interactions are positive. The highest interaction among the response and explanatory variables is between volume of export (LnEXPT) and Real Gross Domestic Product (LnRGDP) with a coefficient value of 0.979 (97.9%); an indication that LnRGDP and LnEXPT interacts with each other more than every other pairwise relationship estimate in the study. However, the least interaction was between Foreign Direct Investment (LnFDI) and Real Exchange Rate (REXR). This is shown with a correlation coefficient value of 0.540 (54.0%) which is still significant as indicated by $p<0.05$.

**Test of Hypotheses**

***Hypothesis One****: Foreign Direct Investment (FDI) does not significantly affect economic growth (LnRGDP) of Nigeria.* Level of Significance ($\alpha$) = 0.05

**Table 4: Presentation of Result of Hypothesis One: ARDL(1, 0, 1); Dep. Var. = LnRGDP**

| *Variable* | *Coefficient* | *Std. Error* | *t-statistic* | *Prob.* |
|---|---|---|---|---|
| *C* | 0.526 | 0.142 | 3.703 | 0.0009 |
| *Ln(FDI)* | 0.594 | 0.195 | 3.055 | 0.0050 |
| *REXR* | -0.005 | 0.008 | -0.616 | 0.5425 |
| *ECM* | -0.037 | 0.003 | -12.772 | 0.0000 |

*$R^2$ = 0.998 (99.8%); DW-stat. = 1.486114; F-stat. = 3860.238; Prob(F-stat) = 0.0000*

***Source:*** Author's Extract from Reviews 10 Output

The ARDL result presented above revealed that with exchange rate as the moderating variable, foreign direct investment (LnFDI) with a coefficient value of 0.594; t-statistic value of 3.055 and associated probability value of $0.0050 < 0.05$ has a significant positive effect on the growth of Nigerian economy. The result also shows that controlling for the exchange rate (moderating variable) in the model, a 100% increase in volume of foreign direct investment will result to about 59.4% increases in GDP in Nigeria. Hence, the researcher rejects the statement of the null hypothesis and concludes that FDI has a significant long-run positive effect on the growth of Nigerian economy. The error correction estimate is $-0.037$ with p=0.000<0.05. This result appears with expected negative sign, indicating that about 3.7% of the disequilibrium between FDI and RGDP can be corrected in one year. So, without substantial changes in the macroeconomy, the equilibrium state can be achieved in the next 27 years from now. The R-square goodness of fit test result shows that about 99.8% of the total variations in Nigerian GDP can be attributed to foreign direct investment (LNFDI) in Nigeria. While the Fisher's statistics (F-stat. = 3860.238, p<0.001) shows a joint significant effect of foreign direct investment with the control variable. The Durbin-Watson statistic value of 1.486114 (which is closer to 2 than to zero) indicates that the model is free from autocorrelation problem.

***Hypothesis Two****: Volume of exports (LnEXPT) has no significant effect on the sustainable economic growth (LnRGDP) of Nigeria.* Level of Significance ($\alpha$) = 0.05

**Table 5: Empirical Result of Hypothesis Two: ARDL (1, 1, 0); Dep. Var. = LnRGDP**

| *Variable* | *Coefficient* | *Std. Error* | *t-statistic* | *Prob.* |
|---|---|---|---|---|
| *C* | -1.150 | 1.144 | -1.005 | 0.3229 |
| *Ln (EXPT)* | 0.770 | 0.074 | 10.349 | 0.0000 |
| *REXR* | 0.002 | 0.002 | 1.370 | 0.1808 |
| *ECM* | -0.155 | 0.013 | -11.724 | 0.0000 |

*$R^2$ = 0.997 (99.7%); DW-stat. = 1.599447; F-stat. = 5530.772; Prob(F-stat) = 0.0000*

***Source:*** Author's Extract from Reviews 10 Output

The ARDL result above shows that with exchange rate as the moderating variable, volume of export (LNEXPT) with a coefficient value of 0.770; t-statistic value of 10.349 and associated probability value of $0.0000 < 0.05$ has a significant positive influence on the growth of Nigerian economy. The result also shows that controlling for the exchange rate (moderating variable) in the model, a 100% increase in volume of export will result to about 77.0% increases in GDP in Nigeria. Hence, the researcher rejects the statement of the null hypothesis and concludes that export (EXPT) has a long-run significant positive influence on the growth of Nigerian economy. The error correction estimate is $-0.155$ with p=0.000<0.05. This result appears with expected negative sign, indicating that about 15.5% of the disequilibrium can be corrected in one year. So, without substantial changes in the macroeconomy, the equilibrium state can be achieved in the next 6 years from now. The R-square goodness of fit test result shows that about 99.7% of the total variations in Nigerian GDP can be attributed to fluctuations in export (LNEXPT) in Nigeria. The F-statistics which estimates the joint influence of the target and control variables provided enough evidence

(with p<0.05) of a joint significant influence of export volume with the control variable. The Durbin-Watson statistic value of 1.599447, following the rule of thumb, confirmed that there is no problem of autocorrelation in the model.

***Hypothesis Three****: There is no causal relationship between foreign direct investment (FDI), export (EXPT), and economic growth (LnRGDP) in Nigeria.* Level of Significance ($\alpha$) = 0.05

**Table 6: Pairwise Granger Causality Tests result of the study variables at lag 2**

| Null Hypothesis: | Obs. | F-Statistic | Prob. |
|---|---|---|---|
| LnFDI does not Granger Cause LnRGDP | 34 | 10.1847 | 0.0007 |
| LnRGDP does not Granger Cause LnFDI | | 5.70295 | 0.0097 |
| LnEXPT does not Granger Cause LnRGDP | 34 | 8.89729 | 0.0014 |
| LnRGDP does not Granger Cause LnEXPT | | 9.80493 | 0.0008 |
| REXR does not Granger Cause LnRGDP | 34 | 2.84869 | 0.0785 |
| LnRGDP does not Granger Cause REXR | | 0.50066 | 0.6126 |
| LnEXPT does not Granger Cause LnFDI | 34 | 7.42587 | 0.0033 |
| LnFDI does not Granger Cause LnEXPT | | 9.23375 | 0.0011 |
| REXR does not Granger Cause LnFDI | 34 | 1.58100 | 0.2273 |
| LnFDI does not Granger Cause REXR | | 0.07882 | 0.9245 |
| REXR does not Granger Cause LnEXPT | 34 | 1.65606 | 0.2084 |

***Source:*** Reviews 10 output

The pairwise granger test result shows that foreign direct investment (FDI) and exports (EXPT) drives Nigerian economy with feedbacks. This is implying that there is a bi-directional relationship between FDI and GDP and between EXPT and GDP in Nigeria. The researcher therefore rejects the null hypothesis and accepts the alternative. Moreso, a wider look at the result shows that there is a good interaction between FDI and EXPT in Nigeria as both drives each other. Meanwhile, a uni-directional causality runs from export volume to exchange rate behavior in Nigeria.

**Conclusion and Recommendation**

This study looked at how exports and foreign direct investment affected Nigeria's economic expansion. The results showed that foreign direct investment and export have a considerable positive impact on Nigeria's economic growth, indicating that they are among the central wheels that drive Nigerian economy. It also shows that the both variables: FDI and export are strong movers in the growth process of the Nigerian economy, while at the same time signifying that the country utilizes their external borrowed funds wisely and productively. Based on the above findings, the following recommendations were made:

1. The Nigerian federal government should liberalize its foreign trade so that all trade restrictions, such as unreasonable tariffs, import and export charges, and other levies, are removed in order to attract investors.

2. The government should make more investments in the export sector, encourage the economy's diversification away from its excessive reliance on crude oil, facilitate the right machinery and infrastructures to support and encourage export activities, which will ultimately result in economic growth through a multiplier effect

3. Export policy should focus on the industry where an increase in economic growth will have a positive and significant influence.

4. Governments of Nigeria should make policies that will make local investments to thrive so as to complements foreign capital inflows.

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