Effect of Trade Openness on Economic Growth in Nigeria

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Abstract

To empirically discuss the nexus between Nigeria's trade openness and economic growth, we utilized data from the World Bank. Several statistical tests such as descriptive analysis, Johansen co-integration, VECM, and Granger causality were employed. The study discovered that trade openness has a negligible negative influence on economic growth. Empirical result displayed compelling evidence that FDI exerts substantial and favourable impact on Nigeria's economic growth. The estimated result showed that, although to a minimal extent, the exchange rate positively impacted the Nigeria's GDP growth. The granger causality outcome did not display statistical significance. This made the researchers to conclude that trade openness and its expansion has not significantly imparted economic growth in Nigeria. Therefore, from the findings, we recommended the following: Government authority in Nigeria should initiate comprehensive trade liberalization strategies to facilitate expeditious and enduring economy growth; government and policy makers should put in place measures to check balances and utilization of funds invested by foreign investors. Lastly, the Nigerian government should control exchange rate in such a way that it will fit the economic productivity and strength of the export sector of the economy.

***Keywords*:** trade openness, economic growth, exchange rate, foreign direct investment.

JEL Classification: F14, O47, F35, D51

1. Introduction

Trade openness, which means that goods and services can move freely across national borders, is made easier when the countries' economies are more integrated. These countries are joined together by the free flow of capital and labour as well as foreign trade and finance. The essence of trade liberalization is to improve free trade through lowering or getting rid of trade hurdles. This is thought to help the economy grow by taking advantage of inherent benefits of trade in the long and short run. These include more technological progress, capital accumulation, better and more efficient use of resources, more competition between countries, more investment and technological progress flowing back and forth.

Scholars and economists alike are very interested in the debate over whether or not more open trade leads to faster economic growth. Some academics say that free trade policies are important for long-term national success. A common view is that countries will trade more goods and services with each other if their trade policies are more open. If a country increases the amount of goods it sells, it also increases the amount of money it gets. When a country imports things, it benefits from technical progress, human and non-human resources via the exchange. This makes production go up, which leads to higher growth rates. People's standard of living goes up when there is open trade policy because it makes a wider variety (and high-quality) of goods available, more jobs for people who work on production, and more money for everyone. In fact, the World Bank Report from 2012 found that economies that got connected globally through trade grew faster than countries that were less connected. The Bank also came to the conclusion that open countries had done a better job of reducing poverty than closed ones. More market entry leads to more GDP growth, as shown by Arshad et al (2023). As Arshad et al. (2023) say, a country that is more open can use innovations made in advanced economies better, which makes its economy grow faster than a country that is less open. On the contrary, other researchers are opposed to complete trade openness because they believe that it creates imbalance between developed and developing/underdeveloped economies. For instance, developing countries, including Nigeria, produce and export primary and/or agricultural products. This group of countries not only receive lower prices for their products but also experience fluctuations in their prices (Nurudeen et al., 2012). Besides, they face stiff competition from foreign firms that produce and export similar (but high quality) products that are sold at relatively lower prices.

In 1986, Nigeria implemented the Structural Adjustment Program (SAP) of the International Monetary Fund (IMF) as a policy measure aimed at stimulating economic growth by means of trade liberalization. The creation of the SAP program was motivated by the objective of restructuring and broadening the economy's production foundation. The objectives of the program encompassed the establishment and enhancement of a pragmatic and enduring framework for determining exchange rates, the restructuring of tariffs, and the promotion of liberalization, commercialization, and privatization of state-owned enterprises. One of the components of SAP is trade openness. The rationale behind its inclusion is that it confers advantages on consumers and contributes to poverty reduction by facilitating the availability of a wider array of imported goods that are both of superior quality and offered at lower prices. The Nigerian government implemented a policy change that eliminated licensing requirements for the import and export of goods (Meroyi, 2016). This policy revision resulted in a reduction

of forbidden commodities from seventy-four to sixteen. During the period of 1986 to 1987, there was a substantial reduction in tariffs, with the average rate declining from 33% to 23%. Additionally, there was a notable decrease in tariff dispersion. Despite the implementation of trade liberalization policies, the Nigerian economy continues to display certain characteristic traits commonly associated with less developed nations, including instability and frequent crises. The export performance of Nigeria has been unsatisfactory, resulting in constraint economic progress. Consequently, the country has exhibited a slower pace in diversifying its exports compared to other nations involved in oil production, namely, United Arab Emirates, Russia and Saudi Arabia. Due to the persistent dominance of the oil industry in terms of export commodities constituting over 70 percent of the country's total revenue, the nation has encountered challenges in fully capitalizing on the advantages of trade liberalization. Over the years, Nigeria has recorded persistent trade deficits resulting from continued increase in the volume of import over export which has continued to crowd out local industries, reducing local demand, deteriorating the currency exchange value and hence, impacting negatively on the overall economy. Statistics reveals a continuous falling of manufacturing value addition in Nigeria. With an all-time high of 20.9% in 1994, manufacturing value addition fell to 12% in 2003 and 11.5% in 2019, (IMF, 2020). With the advent of COVID-19, production problems are even worse and the expected theoretical positive impact of trade openness is even cloudier. On these bases, this study seeks to analyze the effect of import-export relationship (trade openness) on Nigeria's economic growth within the period of 1990 to 2021. Specifically, this study will evaluate how trade openness, FDI, and exchange rates affect the GDP. Additionally, it will examine the causality between openness of trade and economic growth in Nigeria.

2.0 Literature Review

2.1 Conceptual Review

2.1.1 Trade Openness

Trade openness is the amount of a country's GDP that comes from exports and imports. This reflects in the higher trade index indicated in a country's economy. Market liberalization, achieved through the elimination of tariffs and quotas, is said to have a major impact on GDP growth (Atoyebi, 2012). A country's degree of development determines whether trade openness aids or hinders economic progress (Utkulu & Ozdemir, 2014). Trade openness is calculated by adding imports to exports. What constitutes import for a country is summing up all products and services obtained from outside within a particular year. If imports are high, GDP growth is expected to be slow. Reduced economic activity has a negligible effect on economic growth,

hence this variable is a drag on development (Nwosa et al., 2012). Likewise, exports equal the value of all goods and services sold outside of a nation. It is assumed that the economy will grow as a result of higher levels of commerce, production, and income (Manni & Afzai, 2012)

2.1.2 Economic Growth

The phrase "economic growth" describes the increment in a nation's standard of living as reflected in the rising worth of its commodities and services globally. The Organization for Economic Cooperation and Development (OECD) calculates GDP (proxy for economic growth) by adding up the gross values of all its resident institutional units that are producing goods and services. This includes any taxes and benefits that are not included in the value of those units' outputs. Economic growth is often replaced or interchanged with gross domestic product.

2.2 Theoretical Review

2.2.1 The Classical Theories

Adam Smith first thought of the idea of absolute advantage in terms of trade, focused only on labour as an input. When you directly compare the productivity of labour, you can find the absolute advantage. The idea of absolute advantage says that two parties cannot trade with each other if one party does not have an absolute advantage in any way. Anybody, whether they are a person, a business, or a country, can have absolute advantage if they can make more of certain goods, a service, or product than their competitors while using the same resources. The principle of absolute advantage put out by Adam Smith states that nations ought to prioritise making things and providing the services that they are clearly better at, while importing the ones that they are not as good at. David Ricardo was famous for strongly opposing taxes and other trade barriers. The theory of comparative advantage, which Ricardo came up with, is a well-known idea. According to Ricardo, the concept of comparative advantage pertains to a method of specialization aimed at enhancing production efficiency. Ricardo further explains that in the context of perfect competition and undistorted markets, producers incur opportunity costs while engaging in trade. In addition, nations often prioritize exporting goods in which they have a distinct edge.

2.2.2 Heckscher-Ohlin Theory

This theory was originally proposed by Heckscher in 1919 and subsequently expanded upon by Ohlin in 1933. It postulates that countries need to specialize in and export commodities that they can produce with the greatest degree of efficiency and abundance. The Heckscher-Ohlin hypothesis posits that a nation's export composition is influenced by its relative resource endowments, namely the presence of either an abundance of capital or labour. If she has an

excess of financial resources, she will undertake the manufacturing and international trade of goods that need substantial capital, leading to their comparatively lower prices in one or multiple nations. In a similar vein, a nation endowed with a surplus of labour will partake in the manufacturing and trade of goods that necessitate a substantial labour input, hence leading to their comparative affordability in relation to one or more other nations (Lam, 2015). The Heckscher-Ohlin theory of trade is commonly predicated upon six underlying assumptions. Firstly, the assertion assumes the exclusion of transportation expenses or trade impediments, so suggesting that commodity prices are uniform across all nations in the context of unrestricted commerce. Furthermore, the assumption of perfect competition is made in both commodity and factor markets. In addition, it is assumed that all production functions demonstrate first-degree homogeneity, implying constant returns to scale. In addition, the assumption is made that the factor intensities of the two commodities consistently vary within production functions. Furthermore, this assumption posits that there are variations in production functions among different commodities, while remaining consistent between countries. Finally, it is assumed that the preferences in both countries are same, as indicated by the presence of identical homothetic community indifference maps (Lam, 2015). The method prioritizes the exportation of goods that require inputs of production that are plentiful inside a given country. Moreover, it highlights the necessity of importing goods that a country lacks the ability to create with maximum efficiency. The position argues that it is advantageous for countries to primarily focus on exporting commodities and resources that surpass their domestic need, while simultaneously importing resources that are required in equivalent amounts. The proposition posits that developing countries, such as Nigeria, will prioritize the production of essential items in which they hold a comparative advantage. This advantage is derived from the ample availability of land and a surplus of unskilled labour in Nigeria.

2.3 Empirical Review

In a novel research study, Abinabo and Abubakar (2023) examined the association between Nigeria's trade openness and GDP growth from 1990 to 2021. The study employed Error Correction Mechanism (ECM) model. Their research uncovered a robust correlation between the degree of trade openness and the rate of GDP development in Nigeria. Additionally, they provided empirical evidence indicating that imports had a statistically significant detrimental effect on the economic growth of Nigeria. Conversely, they discovered that a greater level of receptiveness to global trade had a positive and beneficial impact on economic expansion. In a separate investigation conducted by Sule and Mansur (2023), the objective was to analyze the influence of foreign commerce on the rise of Nigeria's GDP. The researchers employed the

granger causality test and discovered no substantiation to corroborate the assertion that trade openness exerts a causal influence on real GDP. In addition, their regression study revealed that there was no statistically significant association between trade and GDP growth. Furthermore, Malefane and Odhiambo (2019) conducted an analysis to examine the influence of trade openness on the growth of Lesotho economy from 1979 to 2013. The researchers utilized the ARDL approach and discovered that the degree of trade openness does not exert a substantial impact on the economic growth of Lesotho, as measured by its GDP. Lawal, Nwanji, Asaleye and Ahmed (2016) employed the ARDL estimate technique to examine the possible long-term association between GDP growth, financial development, and trade openness. The study found a statistically significant correlation between economic growth and trade openness in Nigeria. The researchers specifically noted a distinct inverse relationship over a prolonged duration, while a shorter duration showed a notable and meaningful positive relationship. Employing statistics spanning 1970–2010, Afaha and Njogo (2012) examined the effects of trade liberalisation on Nigeria's economy. The study employed OLS approach. The study revealed a statistically significant and favourable impact of trade openness on economic growth. In a study conducted by Ohwofasa and Ekaruwe (2023), the impact of trade openness on economic growth of Nigeria was investigated by disaggregating trade openness into solid mineral export earnings, manufacturing export earnings, agricultural export earnings and oil export earnings. The study employed ARDL model covering data period from 1986 to 2020. Accordingly, the bound test result revealed that all four sectoral exports variables had long-run equilibrium relations with economic growth in Nigeria. In the short run, the study found that economic growth was significant and positively responsive to changes in agriculture and crude oil exports contrary to its significant and negative response to changes in solid mineral exports. However, manufacturing exports was found to be statistically insignificant in exerting impact on economic growth in the short run. In the long run, the study also found that agriculture and manufacturing exports had significant positive impact on growth while the effect of solid minerals and oil exports was negative and statistically significant. To further find out how trade openness affected Nigeria's GDP growth, Ajayi and Araoye (2019) conducted a research study using the VECM. The researchers found a long-term correlation between trade openness and economic progress by examining data from 1970 to 2016. Nevertheless, research in Nigeria indicated that trade openness stunted economic growth. Omoke and Opuala–Charles (2021) investigated the correlation between trade openness and economic growth in Nigeria. The study covered the period from 1984 to 2017. The study used ARDL bounds testing approach. According to the authors' estimates, export trade has a significant and beneficial impact on

economic growth, but import trade has a detrimental and noteworthy impact. Using data from 1970 to 2011, Nwadike et al. (2020) looked at how trade openness and GDP growth were related in Nigeria. The analysis in the study was done using the OLS method and co-integration. In particular, they found that trade openness significantly affects Nigeria's GDP growth. Using ECM, Elijah and Musa (2019) examined the influence of trade openness on GDP growth in Nigeria from 1980 to 2016. The research concluded that trade openness hindered the short- and long-term growth of Nigeria's economy. Using data from 1986 to 2019, Salik and Aras (2022) examined the impact of trade openness, FDI, and exchange rate on Nigeria's non-oil GDP. Both the ARDL model and the Vector Error Correction Mechanism were utilised. A higher level of trade openness has a negative impact on Nigeria's non-oil GDP (NOG) in the present year, but this effect turns positive by the end of the first year, according to the study, which found that trade openness was non-linearly connected to NOG. However, foreign direct investment (FDI) showed a positive but statistically insignificant short-term link with Nigeria's net investment growth (NIG), and variations in the exchange rate have a negative short-term effect on NOG. The study concluded that non-oil GDP in Nigeria was unaffected by trade openness, FDI, and exchange rate over the long term.

A close look at the avalanche of literature reviewed gave a lot of insights such as the nature of variables employed, the scope (that is, the years covered) and the methods of analysis. Considering the importance of trade openness to growth, this study aims to bridge the gap in empirical consensus regarding the impact of trade openness on economic growth using current data. This research seeks to fill that void by investigating the phenomena in light of the most recent evidence, taking into account all relevant factors, revising the data utilised to estimate the regression model, and making use of VECM.

3. Methodology

3.1 Theoretical Framework

This investigation will utilize the Heckscher-Ohlin theory because it captures modern changes in trade openness. The theory removes some of the stringent assumptions made by classical models of trade openness, like absolute and comparative advantages. It also takes into account the crucial role of factor endowments in deciding a country's position in international trade and comparative advantage.

Two fundamental characteristics of countries and products served as the foundation for Heckscher and Ohlin's theory. The factors of production that a country possesses are what differentiate it from other countries. When it comes to the ingredients that are necessary for their manufacture, different goods are distinguished from one another. The claim put forth by

Heckscher and Ohlin is that countries with abundant supplies of certain factors of production, such as labour, land, capital, and natural resources, will have an advantage in producing certain goods at lower costs. This is called a comparative advantage (Sule & Magaji, 2023). The reason being that the nation will be able to produce factors of production at a lower cost than its competitors.

Research into the model by economists has led them to believe that it can shed light on how factors like GDP growth affect trade openness patterns and how international trade affects wages and other factor prices (Chima, 2013). It explains the political actions of different economic interest groups as well. Because it offers a strong theoretical foundation for connecting trade openness to economic growth, the Heckscher-Ohlin theory is critically important to this research. This concept states that trade openness is a tool for economic growth that may be used to leverage a country's factor endowments.

The research approach of this study was known as "ex-post facto." The study relied on World Bank data spanning 1990–2021.

3.2 Model Specification

Drawing from the research of Sule and Mansur (2023), Salik and Aras (2022), and Elias, Agu, and Eze (2018), this study employs a Multivariate Regression Model. This model is based on the Heckscher-Ohlin theory's theoretical tenets, which state, among other things, that trade openness determines economic growth. Here is how this model can be described in terms of its functionality:

$$GDP = F(TOP, FDI, EXR) \quad (1)$$

This study transformed equation 1 to a linear form while capturing the influence of the stochastic or random variable in equation 2 as:

$$GDP = \beta_0 + \beta_1 TOP + \beta_2 FDI + \beta_3 EXR + U_t \quad (2)$$

The time series are observed not to be normally distributed; therefore, they are converted into their log forms as follows:

$$LogGDP = \beta_0 + \beta_1 \log TOP + \beta_2 \log FDI + \beta_3 \log EXR + U_t \quad (3)$$

Where: β_1- β_3 represents the coefficients of the parameters to be estimated.

GDP represents gross domestic product; TOP represents trade openness; FDI is foreign direct investment and EXR represents exchange rate.

3.3 Data Discussion

GDP is a comprehensive metric that quantifies the total value of production. It is calculated by summing the gross value added of all resident and institutional entities involved in production, while also accounting for any applicable taxes and deducting subsidies related to products not

encompassed within the value of their outputs. Trade openness refers to the aggregate value of imports and exports, which is then adjusted in relation to GDP. FDI constitutes a form of international investment whereby a corporation based in one nation gets at least 10% of another company's shares in another country, as per the 2010 United Nations Conference on Trade and Development report. The exchange rate, sometimes known as the forex rate, represents how much one currency is worth in relation to another. One may conceptualize it as the valuation of a particular currency in relation to another.

3.4 Estimation Procedures

i. Unit Root Test

The researchers began with conducting unit root test for the series used, to see the stationarity and avoid spurious regression as most economic variables are prone to having unit root problems. This research makes use of the Augmented Dickey-Fuller (ADF) test to test and compare series at 5% significant criterion. If the magnitudes of the (ADF) test statistics exceed the critical values, then the data at the tested order is considered to be stationary. Conversely, if the magnitudes of the test statistics do not surpass the critical values, the data is deemed to be non-stationary. If a unit root cannot be detected, it is necessary to adopt the alternative hypothesis and reject the null hypothesis.

ii. Co-integration

This methodology is utilized to evaluate the presence of a sustained correlation between the variables. The Johansen co-integration methodology was utilized by the researcher in the analysis, hence employing the Johansen co-integrating method. In order to ascertain the nature of the long-term relationship between the estimated variables, the coefficients were standardized. Engel and Granger (1987) emphasized that the identification of co-integration arises when a linear amalgamation of numerous non-stationary variables yields a stationary amalgamation. In instances of this nature, it is commonly acknowledged that the non-stationary time series exhibit co-integration.

iii. Vector Error Correction Model (VECM)

The method is employed in econometric estimation when the variables under consideration exhibit the same order of integration. Finding out whether these variables are related in the short and long term is its main goal. This test also assesses the rate at which a variable transition from a state of imbalance to a state of balance. One benefit of employing the VECM is its ability to facilitate the simultaneous evolution of variables throughout time.

4.0 Data Presentation and Analysis

4.1 Pre Estimation Test

Presented in Table 1 below are the descriptive statistics results:

Table 1: Descriptive Statistics

	GDP	TOP	FDI	EXR
Mean	4.320937	36.16438	1.628123	129.4600
Median	4.430000	36.54000	1.487050	128.6516
Maximum	15.33000	53.28000	5.790847	358.8000
Minimum	-2.040000	16.35000	0.183822	8.037800
Std. Dev.	4.017531	9.388251	1.198091	97.17614
Skewness	0.435393	-0.155884	1.867129	0.681626
Kurtosis	3.286278	2.465357	6.889065	2.834750
Jarque-Bera	1.120297	0.510724	38.75935	2.435777
Probability	0.571124	0.774636	0.000000	0.295854
Sum	138.2700	1157.260	52.09992	4013.260
Sum Sq. Dev.	500.3573	2732.317	44.49810	283296.1
Observations	32	32	32	31

Source: Authors' computation 2024

In terms of descriptive statistics in Table 1 above, the gross domestic product has a mean of 4.321, standard deviation of 4.018 and is normally distributed with a minimum of -2.04 and maximum of 15.33; trade openness has a mean of 36.164, standard deviation of 9.388 and is normally distributed with minimum of 16.35 and maximum of 53.28; foreign direct investment has a mean of 1.628 and standard deviation of 1.198 and is not normally distributed. Meanwhile, exchange rate has a mean of 129.460, standard deviation of 97.176 and is normally distributed with a minimum of 8.038 and maximum of 358.800.

4.2 Unit Root Test

The study employed the ADF test to ascertain the presence or absence of a unit root in the series. The results are presented below.

Table 2: Augmented Dickey-Fuller Unit Root Test

	@ level		@ first difference			
Variables	**ADF**	**5% CV**	**ADF**	**5% CV**	**Order of Integration**	**Remark**
GDP	-3.542136	-3.562882	-8.880682	-3.568379	I(I)	Stationary
TOP	-3.343019	-3.562882	-5.443873	-3.574244	I(I)	Stationary
FDI	-3.076784	-3.580623	-5.881524	-3.568379	I(I)	Stationary
LnEXR	-2.229734	-3.568379	-5.156122	-3.574244	I(I)	Stationary

Source: Authors' Computation 2024

Unit root analysis revealed that none of the variables in the study exhibited level-stationarity. All of the variables demonstrated a unit root at the level, as evidenced by the fact that their respective critical values at a significance level of 5% were higher than the absolute value of

the Dickey-Fuller (ADF) test results. However, at first difference, it was observed that all the variables exhibited stationarity. Hence, it can be observed that all the variables in the study exhibit stationarity and integration of the first order, denoted as I (I). The utilization of Johansen co-integration is justified in order to assess the potential existence of a long-term link among the variables.

4.3 Co-integration

In order to verify the existence of any potential long-term relationships in the model, the Johansen Co-integration was performed. To find out if co-integration is present, the researcher used the Trace and Maximum Eigenvalue statistics. If the maximum or trace eigenvalue statistics are larger than the critical values at the 5% level of significance, then co-integration is considered to exist.

Table 3: Unrestricted Co-integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.
None*	0.645897	55.44989	47.85613	0.0082
At most 1	0.550193	26.38120	29.79707	0.1177
At most 2	0.131846	4.010969	15.49471	0.9027
At most 3	0.001861	0.052160	3.841466	0.8193

Unrestricted Co-integration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.
None*	0.645897	29.06869	27.58434	0.0320
At most 1*	0.550193	22.37023	21.13162	0.0333
At most 2	0.131846	3.958808	14.26460	0.8637
At most 3	0.001861	0.052160	3.841466	0.8193

Source: Authors' Computation 2024

The preceding table 3's co-integration result indicates that the variables are co-integrated. That is to say, for the time periods considered, trade openness correlates substantially with GDP growth in Nigeria.

4.4 Vector Error Correction Model (VECM)

Since co-integration does exist, vector error correction model will be conducted to model out the short run impact of the explanatory variables on the explained variable. The VECM result is presented below.

Table 4: Vector Error Correction Model

Variables	Coefficient	Standard Error	T-statistics	Remarks

GDP (-1)	0.003330	0.22104	0.01507	Insignificant
GDP (-2)	0.295724	0.17371	1.70239	Insignificant
TOP (-1)	-0.066870	0.08503	-0.78644	Insignificant
TOP (-2)	0.058946	0.07314	0.80598	Insignificant
FDI (-1)	-2.021039	0.66815	-3.02485	Significant
FDI (-2)	-0.416029	0.60883	-0.68333	Insignificant
LnEXR (-1)	3.991478	2.12216	1.88086	Insignificant
LnEXR (-2)	1.065383	2.35548	0.45230	Insignificant
C	-0.845779	0.67529	-1.25246	Insignificant

Source: Authors' Computation 2024

Decision rule: Statistically, the values are considered significant if the t-statistic is greater than 2.

The VECM result above showed that trade openness has insignificant impact on economic growth. Specifically, a percentage change in trade openness will result to an inverse impact of 6.7% on GDP. This implies that trade condition in Nigeria is unfavourable to the growth of the Nigerian economy. In theory, it is widely believed that trade openness facilitates economic growth by harnessing the static and dynamic advantages of trade through a more resilient and effective allocation of resources, fostering healthy competition among nations, facilitating the flow and exchange of technological advancements and investments, and ultimately accelerating the pace of technological progress with accumulation of capital (Ejike et al, 2015). However, given that trade openness is measured by how much imports and exports add up to GDP, the observed negative impact confirms persistent trade deficit in Nigeria where imports have continued to outweigh exports.

Foreign direct investment on the other hand indicated negative and significant impact at the first lag. The outcome demonstrates that an uptick in FDI will lead to decrease in GDP. This outcome is not consistent with economic theories. Thus, this means that the funds invested by foreign investors into an existing company or a new company in Nigeria has not been properly utilized, perhaps due to mismanagement of funds or corruptness of the fund handlers.

Likewise, at lag one, exchange rate was revealed to have positive and insignificant impact on economic growth. This implies that an increase in exchange rate will result in an increase in GDP. Exchange rate reflects the competitiveness of a national economy to the global economy. The rate at which a currency is exchanged for another or a basket of currencies in the foreign

exchange market is inversely related to the demand for such a current, all things being equal. Hence, the exchange rate should be controlled to fit the economic productivity and the strength of the export sector of any economy.

4.5 Granger Causality Test

The direction of causality in the model was tested using the Engle-Granger causality test, and the findings are shown below.

Table 5: Engle-Granger Causality Test

GDP as Dependent	Causality	TOP as Dependent Variable	Causality	FDI as Dependent Variable	Causality	EXR As Dependent	Causality
TOP	No	GDP	Yes	GDP	No	GDP	No
FDI	Yes	FDI	No	TOP	Yes	TOP	No
EXR	No	EXR	No	EXR	No	FDI	No

Source: Authors' Computation 2024

From the causality test above, no significant causal relationship exists between trade openness and economic growth in Nigeria. However, a unidirectional causality runs from foreign direct investment to economic growth.

4.6 Post Estimation Test.

The results' reliability and usability were assessed with a post estimation test. As part of this process, researchers performed serial correlation and heteroscedasticity tests.

4.6.1 Serial Correlation Test

This test is done to confirm that the current value of the noise term is not determined by its previous values. The result is as given below:

Table 6: Serial Correlation Test Result

Lags	LM-Stat	Prob
1	19.09302	0.2639

Source: Authors' Computation 2024

Null hypothesis: There is an absence of serial correlation.

Decision rule: If the LM-stat probability values exceed 5%, then the null hypothesis is accepted.

The result of the serial correlation test indicates that the current value of the error term is independent of previous values. As shown above, the probability values at lag one is greater than 5%, hence, the null hypothesis is accepted. Likewise, the heteroscedasticity test (see Table 7) also revealed that the mean, variance and co-variance are time invariant. Given these outcomes, research outcome can be confidently used for policy making and forecasting.

4.6.2 Test of Heteroscedasticity

The Breusch-Pagan Godfrey test of heteroscedasticity was used to check the nature of the variance and covariance of the error term, that is, whether the variance and covariance are time variant or invariant.

Table 7: Heteroscedasticity test

Chi-sq	Df	Prob.
175.9865	180	0.5706

Source: Authors' Computation 2024

Given that the probability values of the F-statistics and Chi-square are significantly greater than 5%, we can accept the Null hypothesis of the presence of homoscedasticity and reject the alternative hypothesis of heteroscedasticity. By accepting the assumption that the error term is homoscedastic, we simply mean that the variance and covariance are constant even at different values of the explanatory variables whether higher or lower. From the post estimation test in table 6 & 7 above, we can see that the research results are good and can be used for forecast of future values of the dependent variable.

4.7 Implications of the Study

Citing inference from the study, it is shown that trade openness exhibits a slight adverse impact on GDP, with a coefficient of -0.066870. This implies that a 1% rise in trade openness is associated with a 6.7% decrease in GDP. The prevailing economic theories fail to anticipate or forecast this particular outcome. The World Bank (2012) had observed that economies with higher levels of globalization experienced greater rates of economic growth when compared to those with lower levels of globalization. Nevertheless, the augmentation of trade openness may exert an adverse influence on a domestic economy, particularly when a substantial portion of commerce comprises imports. Utkulu and Ozdemir (2014) propose that the level of development in a country plays a significant role in assessing the influence of trade liberalization on the expansion of the economy. Nigeria has over the years depended heavily on import such that import has continued to outweigh export, thus, reflecting on the balance of payment. More so, given to the high import ratio, there is a potential risk of imported inflation which will trigger domestic inflation especially if the affected goods are intermediate goods. Domestic inflation will further result to exchange rate depreciation as the export demand for domestic goods fall due to price hikes thus, creating both domestic and external economic imbalances.

This study found that FDI negatively impacts GDP growth statistically. The study found out that increase in FDI will lead to decrease in GDP. The effect of this FDI result on the host economy is that the funds invested by foreign investors into an existing company or a new company in Nigeria has not been properly utilized, perhaps due to mismanagement of funds or corruptness of the fund handlers.

Furthermore, it was noted that the exchange rate had a beneficial, albeit negligible effect, on economic growth. The analysis revealed a positive correlation between an upward movement in the exchange rate and a subsequent growth in GDP. The demand for foreign exchange is inversely correlated with the exchange rate. Therefore, an increase in the exchange rate indicates an improvement in either the export demand or capital inflow. Nevertheless, it is important to exercise prudence in order to prevent the overvaluation of currency. The granger causality test indicates that there is no statistically significant causal connection between trade openness and economic growth. However, it does demonstrate a one-way causality from foreign direct investment to GDP. The study's policy implication is that Nigeria has not experienced substantial advantages from trade liberalization. Hence, policies should be directed toward improving exchange rate and moderating foreign direct investment, as this can be leveraged for economic growth to take place.

5.0 Summary, Conclusion and Recommendations

5.1 Summary

This study used a variety of econometric techniques to analyze the impact of trade openness on Nigeria's GDP growth covering 1990 to 2021. This study answered several questions about observed relationship between trade openness and GDP growth in Nigeria, including:

a) how much of an impact trade openness has on GDP growth?
b) how much of an impact FDI has on GDP growth?
c) how much of an impact the exchange rate has on GDP growth? and
d) to determine if trade openness contributes to growing GDP in Nigeria.

The following results were gathered using cutting-edge econometrics methods, specifically the ADF test, the Johansen Co-integration test, the VECM and the Granger Causality Test:

i. According to the VECM, trade openness negatively and insignificantly affects Nigerian economic growth.
ii. Negligible but beneficial effects on economic growth were caused by the exchange rate in Nigeria.
iii. The empirical evidence suggests that foreign direct investment (FDI) has a detrimental and statistically significant effect on the economic growth of Nigeria.

iv. Nigeria's trade openness did not cause economic growth, according to Granger Causality.

5.2 Conclusion

Academics and economists alike have been interested in the question of whether or not a country's trade policies affect its overall economic growth. Some academics argue that trade liberalization is beneficial for the growth of the economy, whereas others have found the opposite to be true. For the period between 1990 and 2021, this research looks into how freer trade affected Nigeria's economy. This research found no evidence that trade openness hinders economic expansion. It is clear from the data that FDI has a significant and beneficial impact on Nigeria's economic growth. Moreover, it has been noted that the exchange rate has a minuscule beneficial effect on the expansion of the Nigerian economy. Additionally, this study found no statistically significant causal relationship between trade openness and GDP growth in Nigeria, according to the result of granger causality test. Based on these findings, it can be said that open trade and the increasing volume of international commerce over time have not had a major positive effect on the Nigerian economy.

5.3 Recommendations

From theses outcome, the following recommended are propose to improve the Nigerian economy:

i. It is imperative for the government to initiate a comprehensive set of trade liberalization policies and programs to facilitate the expeditious and enduring growth of the Nigerian economy. However, it is crucial to exercise caution when implementing such policies. This is due to the potential negative impact on the economy that can arise from excessive trade liberalization, particularly if it becomes a means to introduce substandard and counterfeit goods into the country.

ii. Full implementation of economic diversification policies and exploration of resources that will improve productive and revenue earning capacity of Nigeria is encouraged as such would hasten growth and development.

iii. Government and the policy makers should put in place measures to check and balance the utilization of funds invested by foreign investors. This will go a long way in ensuring efficient use of funds, more job opportunities, and increase productivity in the economy.

iv. The Nigerian government should control exchange rate to fit the economic productivity and the strength of the export sector of any economy.

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