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EXPORT EXPANSION, DOMESTIC INVESTMENT, AND ECONOMIC GROWTH IN NIGERIA

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Abstract

This paper seeks to investigate the nexus between export expansion, investment and output growth in Nigeria. In doing this, annual time series data, covering the periods from 1981 to 2019 were analysed using the "Johansen co-integration test", VECM, and the "Granger-Causality test". The study revealed an insignificant relationship between domestic investment and export expansion. Based on the Granger-Causality test, the result shows a bi-directional relationship between domestic investment and economic growth. These findings give evidence that domestic investment and economic growth are not viewed as sources of export expansion in Nigeria during the period under review. Therefore, changes in policies and regulations to speed up the export expansion of Nigeria will ultimately yield positive results to achieve high rates of stable economic growth. Policymakers in Nigeria should search for the alternative catalyst to stimulate domestic investment and economic growth geared towards promoting long-term export expansion in Nigeria effectively.

Keywords: *Domestic Investment, Export, Economic Growth, Vector Error Correction Model (VECM).*

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1. Introduction

The Nigerian economy has been bedeviled with a series of turbulence in recent years. A nation that recorded average GDP growth of 6.5%, one of the highest in the world just a decade ago, is now projecting a growth rate of 2.5% for 2021. It is no longer news that the Nigerian economy is facing several challenges and could completely collapse if a serious attempt is not made to address some of the underlying issues. The economy, which depends predominantly on revenue from oil exports, has suffered because of oil price gyration in the international market. Following the collapse of oil price in 2014-2016, coupled with adverse production and supply shocks, the economic growth rate declined to 2.7% in 2015. The country slipped into recession in 2016, the first in 25 years, with an output contraction of 1.58%. Although the economy recovered subsequently, growth rate had remained weak since then, estimated at 0.58%, 1.91% and 2.27%, respectively in 2017, 2018 and 2019.

High inflation has also continued to erode consumer purchasing power. From 11.98% in December 2019, the aggregate price level was on the upward trajectory throughout 2020, closing the year at 15.75%, partly reflecting the impact of the COVID-19 Pandemic. Economic growth over the past few years continued to be driven by the services sector, especially telecoms. Growth in the agricultural sector has remained insignificant and below potential, owing to the continued insurgency in the Northeast and the lingering farmer-herdsmen clashes. The performance of the industrial sector has been mixed. Oil GDP growth has remained relatively stable while manufacturing output slowed down in the second half of 2019 and became much slower from the second quarter of 2020 because of the effects of COVID-19 Pandemic. Also, food and drink production declined because of the adverse effects of national lockdown. The situation, however, improved in 2021, owing to ease of economic lockdown and gradual restoration of the global supply chain. The construction sector, has also continued to record positive performance, supported by ongoing megaprojects and higher public investments in that sector.

The current quagmire facing the Nigerian economy can be mitigated by massive public and private investments in critical sectors that would drive productivity; accelerate export promotion and expansion which will, directly and indirectly, midwife the required growth rate that would ensure sustainable development. Several studies have investigated the nexus between domestic investment and economic growth (Ade, 2016; Ali & Mna, 2019; Bakari, 2017; Nguyen, 2017) and the nexus between exports and economic growth (Gözgör & Can,

2017; Kalaitzi & Cleeve, 2018; Keho, 2017; Usman *et al.,* 2017) in different regions of the world. However, there is a paucity of studies that have integrated and examined the relationship between domestic investments, export expansion and its effects on economic growth. In Nigeria, studies such as (Emmanuel & Kehinde, 2018; Nwakoby & Bernard, 2016; Okoroafor, 2020) investigated the relationship between domestic investment and economic growth, while (Osabohien *et al.,* 2019; Verter & Bečvářová, 2016; Zoramawa *et al.,* 2020; Salik & Aras, 2022; Oyegoke & Aras, 2021b) investigated the nexus between various dimensions of exports and economic growth. To the best of the authors' knowledge, none of these studies looked at the effects of domestic investment and export expansion on the growth of the Nigerian economy. This inquiry is motivated by the apparent paucity of studies that have investigated this research space. Therefore, this study uses the Barro (1990) endogenous growth theory to empirically investigate the effects of domestic investments and exports on the growth of the Nigerian economy. The Endogenous Growth Model developed by (Romer, 1986; Lucas, 1988; Barro, 1990; Rebelo, 1991) as a reaction to these omissions and deficiencies to attain long-run growth. This theory enumerates the policy variables that can have a remarkable impact on the economy on a long-term basis. Unlike the Solow model that considers technical progress as an exogenous factor, the new growth model asserts that technical progress has not been equal, nor has it been exogenously transmitted to long-run growth in most developing countries (World Bank, 2017).

The contribution of this study to knowledge is threefold. First, it extended earlier studies on effects of domestic investment on economic growth (Ade, 2016; Ali & Mna, 2019; Bakari, 2017; Kim & Nguyen, 2017) by incorporating the role of export expansion in this relationship.

Second, the study validates the propositions of Barro (1990) endogenous growth theory with data from Nigeria. Thirdly, the outcomes of the study are relevant to policymakers in government and state regulatory authorities as the recommendations would help to shape policies and guidelines that could drive domestic investment and export expansion which will invariably propel economic growth in Nigeria.

The paper has been organized into different parts. Part two presents the key highlights of previous studies, while part three contains the research method. Section four covers the details analysis, while section five discusses the findings. The concluding remarks and implications for policy is presented in section six.

2. Literature Review

2.1. Theoretical Framework

Previous research and recent expansion of the neoclassical growth model and the "Endogenous Growth" theories have emphasised the role of investment in output increase. Among these studies, we can cite Romer (1986); Lucas (1988); Barro (1990); Tang et al. (2008); Adams (2009); Ghazali (2010); Ilegbinosa *et al.* (2015); Darwanti (2021); Rahman and Ferdaus (2021); Ogunjinmi (2022). Other studies proved that domestic investment may not have a favourable impact on economic growth: Devarajan (1996), Oluwatobi *et al*. (2018); Shabbir et al. (2021) among others. As such, the present work is anchored on the endogenous growth theory that emphasises the role of domestic investment and other variables such as exports on the growth of an economy.

The endogenous growth model developed by Arrow (1962), Romer (1986), Lucas (1988) and other economists did not merely criticise the neoclassical economic growth model. Instead, it extends the latter by bringing technical progress into the growth model (Park & Ryu, 2006). The key addition relates to the assumption that private and public investments in critical sectors raise external economies and improve productivity that mitigates the propensity for an economy to experience diminishing returns. The endogenous growth model explains the presence of increasing returns to scale and the rate of divergence in the long-term growth regime of the concerned economies. The "Endogenous Growth" theory postulates that technical progress is determined by the generation of ideas. In this regard, new ideas lead to better production techniques as well as higher quality of goods and services than what existed before (Oyegoke & Aras, 2021a). One way to increase technical progress is by granting monopoly powers and to accelerate innovation using patents and copyrights. Deliberate and targeted investment in human capital can also help to bring about technical change, which is often a reflection of the total knowledge base a country possess. Labor productivity of a country can be improved not only through quality investment in education, particularly science and technology, but also through adequate health care system as well as increased capacity for research and development, which will ultimately lead to economic growth. A key assumption of the endogenous growth model is that the output arising from investment in value-added products and knowledge will itself be a component of technical progress and lead to further increase in growth. Therefore, domestic investment and export expansion is an essential approach to achieving desired growth.

2.2. Empirical Review

This section entails the review of extant empirical studies that analysed interrelationship among domestic investment, exports and economic growth in different regions of the world. This review revealed that most studies in this research space are based on time series analysis.

2.3. Domestic Investment and Economic Growth Nexus

Adams et al. (2017) employed "autoregressive distributed lag" (ARDL) model to examine the impact of capital flows on output growth in Senegal from 1970-2014. The study revealed that domestic investment has a long-term positive impact on the economy. Bakari (2017) deployed a cointegration and error correction model to study the short-term and long-term effects of exports on the growth of the Gabonese economy from 1980 to 2015. The study found that domestic investment speeds up growth rate in the short-term. Nevertheless, it has an adverse impact on the long-term growth of the economy. Bakari (2017) examined the connection between domestic investment and economic growth in that country to find out if domestic investment bears significant impact on RGDP. The study investigated annual data for the periods between 1960 and 2015 using "Correlation Analysis", "Johansen Cointegration Analysis" of "Vector Error Correction Model" and the "Granger-Causality Tests". The outcome indicated a positive effect of domestic investment, exports and labours on economic growth in the long run. However, no relationship was observed between domestic investment and economic growth over a short-term period. A key outcome of the study was that, aside domestic investment, exports and labour were also significant sources of output expansion in Malaysia.

In the Nigerian context, Onochie et al. (2019) used the auto-regressive distributed lag model (ARDL) to investigate the impact of domestic investment on the growth of the Nigerian economy from 1981 to 2017. The study showed that domestic investment has a positive impact on Nigeria's economic growth both in the short term and long-term over the period of the study. The impact was, however, not quite significant. Obayori et al. (2018) examined how private investment and private sector credit from financial institutions affect economic growth. The study conducted Johansen cointegration test and used error correction mechanism to analyse the time series data covering from 1980 to 2016. The result shows that an increase of private domestic investment by 10% will lead to an increase in output expansion by an average of

2.08%. Similarly, the value of financial sector credit to the private sector is positively related to economic growth in Nigeria.

Imoisi et al. (2015) used multiple regression and cointegration approach to examine the impact of domestic investment on economic growth in Nigeria, employing annual time-series data from 1970 to 2013. The study found that private investment bears positive correlation with economic growth, but the impact was insignificant. It was also observed that government's protective investment hurts economic growth.

$H0_1$: Domestic investment does not have impact on Nigeria's economic growth.

2.4. Exports and Economic Growth

Shah et al. (2015) used time series data from 1972 to 2012 to investigate agriculture export and economic growth in Pakistan. In the study, the cointegration test and Granger Causality test were applied. The finding points out the insignificant impact of agricultural exports based on raw material rather than the manufactured products. Yaqub (2016) evaluated how economic growth is impacted by exports and foreign direct investment in Pakistan using the data from 1990 to 2010. The study employed the "Unit Root Test" and "Ordinary Least Square" (OLS) regression model for the empirical analysis. The findings show that FDI and exports both had a positive effect on economic growth. Saleem and Sial (2015) employed the use of the ARDL approach to find long-run positive effects of exports, human capital and capital formation on GDP in Pakistan for the period 1973-2013. Analysis using "Granger causality" test indicates two-directional connection between exports and GDP both in the short and over a longer-term period. Hassan and Murtala (2016) applied the Toda and Yamamoto augmented causality test to provide evidence confirming the export-led growth hypothesis for Malaysia (1970-2012).

There are relatively few empirical evidence on African economies, and even then the outcomes are mixed. Fosu (1990) investigated the impact of exports on economic growth in 28 African countries using an augmented production function, including labour, capital formation, and exports. Analysis of pooled cross-sectional and time-series data for the period 1960-1970 and 1970-1980 revealed that exports exert a positive impact on economic growth. Foster (2006) applied th threshold regression techniques to examine the relationship between exports and per capita income growth in a sample of 43 African countries over the period 1960-1999. He found a positive relationship between the two variables. Jordaan and Eita (2007) used cointegration

techniques to provide support for the export-led growth hypothesis in Namibia for the period 1970-2005.

In Nigeria, Sannassee et al. (2014) examined the impact of key variables on GDP growth in Nigeria over the period of 1970-2012. The variables include exports, imports, gross domestic investment and labour force. The study used the "Johansen methodology and Granger causality Test" and did not find evidence supporting the export-led growth model. The results, however, revealed causality running from imports to exports and from economic growth to imports. Awomuse et al. (2013) used the Johansen approach in a two-variable framework and found supportive evidence of the growth-led export in Nigeria for the period 1970-2009.

$H0_2$: Exports does not have impact on Nigeria's economic growth.

3. Methodology

This study adopted descriptive research method and Ex Post Facto Research Design. The Real Gross Domestic Product (RGDP) was used as the dependent variable in the model, while the independent variables include domestic investment (DINV) and total export (TEXP). To test for stationarity, the variables were subjected to unit root test. Data collected were secondary, annual time series data obtained from sources such as the Central Bank of Nigeria (CBN) statistical Bulletins, Nigeria Stock Exchange (NSE), and World Bank Data Base.

3.1. Model Specification

The neoclassical model starting point was adopted to establish a simple and explicit model for this study, towards determining the connection between economic growth, domestic investment and total export. This model constitutes total exports and domestic investment which formed the augmented production function, depicted below:

$$\mathbf{Y} = f(\mathbf{K}, \mathbf{X}, M) \quad \textbf{(1)}$$

The augmented production function comprising all these variables can be further expressed as:

$$\mathbf{Y}=\mathbf{A}\mathbf{K}^{\alpha 1}\mathbf{X}^{\alpha 2}\mathbf{M}^{\alpha 3} \quad \textbf{(2)}$$

In equation (2), Y is RGDP, K is Domestic Investment, (DI) proxy of government fixed capital formation, X, Total Exports; M, Total Imports, while A shows a measure of technology engaged in the economy, taken as constant. The notations $\alpha 1$, $\alpha 2$ and $\alpha 3$ represents the returns

to scale connected with domestic investment, total exports and imports respectively. Equation (2) can be further transformed from the nonlinear form to linear. The Cobb-Douglas production function of the linear form can be expressed as:

$$\mathbf{Log\ (Yt)} = \mathbf{L(A)} + \boldsymbol{\alpha}\mathbf{1Log(Kt)} + \boldsymbol{\alpha}\mathbf{2Log(Xt)} + \boldsymbol{\alpha}3\mathbf{Log}(\mathrm{M}\mathbf{t}) + \boldsymbol{\varepsilon}\mathbf{t} \quad \mathbf{(3)}$$

By keeping the level of technology constant, the impact of the domestic investment, total export and the total import on economic growth can be determined. Having assumed a constant level of technology, the linear relationship generating the impact of domestic investment, total exports and the total imports on output increase is specified thus:

$$\mathbf{Log\ (Yt)} = \boldsymbol{\alpha}\mathbf{0} + \boldsymbol{\alpha}\mathbf{1L(Kt)} + \boldsymbol{\alpha}\mathbf{2Log(Xt)} + \boldsymbol{\alpha}3\mathbf{Log}(\mathrm{M}\mathbf{t}) + \boldsymbol{\varepsilon}\mathbf{t} \quad \mathbf{(4)}$$

4. Empirical Analysis

4.1. Result of Descriptive Analysis

Table 1: Result of Descriptive Analysis

	RGDP	DI	X	M
Mean	27568.69	5.02E+12	4820.078	16226.66
Median	6102.422	2.25E+12	1526.861	7115.503
Maximum	127736.8	2.46E+13	19280.04	146740.7
Minimum	144.8312	8.71E+10	7.5025	144.7233
Std. Dev.	37733.05	5.98E+12	5816.793	31753.64
Skewness	1.279753	1.343021	0.926652	3.146605
Kurtosis	3.322305	4.340234	2.499966	12.08884
Jarque-Bera	10.53701	14.26749	5.83422	193.5016
Probability	0.005151	7.98E-04	0.05409	0
Sum	1047610	1.91E+14	183163	616613.1
Sum Sq. Dev.	5.27E+10	1.32E+27	1.25E+09	3.73E+10
Observations	38	38	38	38

Source*: Authors' computation using E-views, 2022.*

List of Variables

RGDP= Real Gross Domestic Product; DI =Direct Investment; X= Export and M=Import

4.2. Unit Root Test

Table 2: Summary of "Unit Root Test using ADF"

Varable		*ADF Statistics*	*Critical Values*		*Order of Integration*
			1%	5%	
LRGDP *	Level	-1.047445	-3.6155	-2.9411	Order 1
	1st Diff	-3.208559	-3.6210	-2.9434	
LDI *	Level	0.004837	-3.6210	-2.9434	Order 1
	1st Diff	-3.737417	-3.6267	-2.9458	
LX *	Level	-1.989667	-3.6329	-2.9484	Order 1
	1st Diff	-6.2841	-3.6267	-2.9458	
M *	Level	-2.720330	-3.6210	-2.9434	Order 1
	1st Diff	-5.799336	-3.6267	-2.9458	

* and 1st Diff denote intercept and First Differences respectively.

From Table 2, all the variables used in the model were stationary at first difference, thus suggesting cointegration relation. To establish the cointegration relation, two stages are involved. First is the need to determine the optimal number of lag for the model and second, the conduct of "Johanson Test" which will indicate the quantum of cointegration relationships that exist between the variables.

4.3. Determination of Optimal Lag

Table 3: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-434.9859	N	9676328.	27.43662	27.61984	27.49735
1	-298.3811	230.520*	5206.342	19.89882	20.8149*	20.20247
2	-282.4989	22.83064	5524.695	19.90618	21.55513	20.45276
3	-273.9489	10.15311	10088.91	20.37181	22.75363	21.16131
4	-258.5080	14.47584	13909.43	20.40675	23.52144	21.43918
5	-222.1732	24.98015	6794.749	19.13583	22.98338	20.41118
6	-181.7500	17.68518	4431.21*	17.6093*	22.18980	19.1276*

* Shows lagged order selected
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information

The results of VAR lag order selection criteria presented in Table 3 revealed 1 lag, which is selected by SC: Schwarz information criterion.

4.4. Cointegration Analysis

In this analysis the Johanson test is used to determine the level of cointegration among the variables.

Table 4: Johanson Cointegration Test

"Unrestricted Cointegration Rank Test (Trace)"

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.564978	57.20957	47.85613	0.0052
At most 1	0.309620	27.24465	29.79707	0.0958
At most 2	0.254982	13.90620	15.49471	0.0856
At most 3	0.087837	3.309711	3.841466	0.0689

"Trace test indicates 1 cointegrating eqn(s) at the 0.05 level"
* indicates we reject the hypothesis at the "0.05 level"
**"MacKinnon-Haug-Michelis (1999) p-values"

"Unrestricted Cointegration Rank Test (Maximum Eigenvalue)"

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.564978	29.96492	27.58434	0.0243
At most 1	0.309620	13.33845	21.13162	0.4216
At most 2	0.254982	10.59649	14.26460	0.1756
At most 3	0.087837	3.309711	3.841466	0.0689

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

Normalized cointegrating coefficients (standard error in parentheses)

LRGDP	LDI	LX	M
1.000000	-0.184173	-0.789957	-1.42E-05
	(0.32465)	(0.21932)	(2.9E-06)

From table 4, the Johanson cointegration test shows that the trace test and Max-eigenvalue test indicates 1 cointegrating equation(s) at the 0.05 level respectively. Therefore, the Vector Error Correction Model (VECM) can be held. The normalized test result shows that in the long run, *LDI, LX* and *M has* a positive impact on *LRGDP* respectively, on average, ceteris paribus based on the assumption of ordinary least square (OLS).

4.5. The Vector Error Correction Model (VECM)

The "Error Correction Model" was used towards isolating the impact of independent variables on the dependent variable which is explained from the short term and the long-term perspective. Since the variables exhibited cointegration, the error correction model could be specified as follows:

$$\mathbf{\Delta Y_t} = \sum_{i-1}^{k} \alpha_0 \mathbf{\Delta} Y_{t-1} + \sum_{i-1}^{k} \alpha_1 \mathbf{\Delta} K_{t-2} + \sum_{i-1}^{k} \alpha_2 \mathbf{\Delta} X_{t-3} + \sum_{i-1}^{k} \alpha_3 \mathbf{\Delta} M_{t-4} + Z_1 EC1_{\mathbf{t-1}} + \boldsymbol{\varepsilon_{1t}} \quad (5).$$

Where Δ is defined as "difference operator", "k" measures the lags, α_0, α_1, α_2, α_3 *and* α_4 represent the "short run coefficients", $EC1_{t-1}$ is the "error correction term" derived from the long-run co integration relationship. Z_1 is the "error correction coefficients" of $EC1_{t-1}$ and $\boldsymbol{\varepsilon_{1t}}$ is the "serially uncorrelated error terms" in equation

4.6. Long Term Equilibrium Determination

Table 5: Vector Error Correction Estimates

Cointegrating Equation:	**CointEq1**
LRGDP(-1)	1.000000
LDI(-1)	-0.184173
	(0.32465)
	[-0.56730]
LX(-1)	-0.789957
	(0.21932)
	[-3.60190]
M(-1)	-1.42E-05
	(2.9E-06)
	[-4.86234]
C	2.174858

Source*: Authors' computation using E-views, 2022.*

Table 5 presents the vector error correction estimates. After the estimation**,** the long-run equilibrium relationship is presented as follows:

$$\mathbf{Log(Y) = 1.000 - 0.184173Log\,(DI) - 0.789957Log(X) - 1.42E\text{-}05Log\,(M)} \quad \mathbf{(6)}$$

Equation (6) is the long run equilibrium equation, which indicates inverse relationship between direct investment and output increase (a 1% rise in direct investment leads to a decrease of 0.184173% in RGDP); a negative relationship between total export and growth in real GDP

(1% rise in total export results in fall of 0.789957% in RGDP) and a negative relationship between import and output growth (1% increase in import leads to a decrease of 1.42E-05% in RGDP)

To establish the strength of the observed outcome as well as affirm whether the long-term relationship can be regarded as fair, there is a need to test the significance of these variables. Thus, the "Error Correction Model" (ECM) will be adopted. Following estimation of the long-run equilibrium relationship, the equation will be estimated as an error correction model.

D(LRGDP) = Cr(1)*(LRGDP(-1) - 0.18417283696*LDI(-1) - 0.789957106909*LX(-1) - 1.41510725546e-05*M(-1) + 2.17485828137) + Cr(2)*D(LRGDP(-1)) + Cr(3)*D(LDI(-1)) + Cr(4)*D(LX(-1)) + Cr(5)*D(M(-1)) + C(6)

D(LDI) = Cr(7)*(LRGDP(-1) - 0.18417283696*LDI(-1) - 0.789957106909*LX(-1) - 1.41510725546e-05*M(-1) + 2.17485828137) + Cr(8)*D(LRGDP(-1)) + Cr(9)*D(LDI(-1)) + Cr(10)*D(LX(-1)) + Cr(11)*D(M(-1)) + Cr(12)

D(LX) = Cr(13)*(LRGDP(-1) - 0.18417283696*LDI(-1) - 0.789957106909*LX(-1) - 1.41510725546e-05*M(-1) + 2.17485828137) + Cr(14)*D(LRGDP(-1)) + Cr(15)*D(LDI(-1)) + Cr(16)*D(LX(-1)) + Cr(17)*D(M(-1)) + Cr(18)

D(M) = Cr(19)*(LRGDP(-1) - 0.18417283696*LDI(-1) - 0.789957106909*LX(-1) - 1.41510725546e-05*M(-1) + 2.17485828137) + Cr(20)*D(LRGDP(-1)) + Cr(21)*D(LDI(-1)) + Cr(22)*D(LX(-1)) + Cr(23)*D(M(-1)) + Cr(24)

4.7. Short Term Coefficient Determination

Table 6: Short Term Coefficient Determination

Error Correcn.:	**D(LRGDP)**	**D(LDI)**	**D(LX)**	**D(M)**
CointEq1	-0.10099	-0.05632	0.178297	15118.73
	-0.03135	-0.0533	-0.13829	-10819.7
	[-3.22140]	[-1.05672]	[1.28925]	[1.39734]
D(LRGDP(-1))	0.131672	0.499801	0.759821	-10178.1
	-0.24255	-0.41238	-1.06998	-83711.3
	[0.54286]	[1.21200]	[0.71013]	[-0.12159]
D(LDI(-1))	-0.02766	-0.00816	0.788616	-2501.18
	-0.13069	-0.2222	-0.57652	-45104.9
	[-0.21163]	[-0.03674]	[1.36789]	[-0.05545]
D(LX(-1))	0.013452	0.002665	-0.09754	16027.52
	-0.04167	-0.07085	-0.18384	-14383.2

	[0.32278]	[0.03761]	[-0.53058]	[1.11432]
D(M(-1))	-1.97E-06	-1.27E-06	-5.15E-06	0.106108
	-6.20E-07	-1.10E-06	-2.70E-06	-0.21496
	[-3.17061]	[-1.20075]	[-1.87359]	[0.49361]
Cr	0.163138	0.05397	-0.01355	-882.784
	-0.03754	-0.06382	-0.16559	-12954.8
	[4.34619]	[0.84568]	[-0.08184]	[-0.06814]

***Source**: Authors' computation using E-views, 2022.*

Table 6 shows the short-term coefficient of the variables, the table revealed that direct investment and import exact negative relationship with economic growth in the short run while total export exacts positive relationship with economic growth in the short run. The coefficient of the error correction terms is negative and significant.

Table 7: "Gauss-Newton / Marquardt steps"

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.101202	0.030840	-3.281551	0.0026
C(2)	0.146883	0.225819	0.650443	0.5202
C(3)	-0.038973	0.114996	-0.338905	0.7370
C(4)	0.012118	0.040456	0.299543	0.7665
C(5)	-1.97E-06	6.13E-07	-3.219739	0.0030
C(6)	0.161761	0.036275	4.459230	0.0001
R^2	0.610071	Mean dependent va	0.184750	
Adjusted R^2	0.554276	S.D. dependent var	0.105579	
S.E. of regression	0.077994	Akaike info criterion	-2.116963	
Sum squared resid	0.188577	Schwarz criterion	-1.855734	
Log likelihood	45.16382	Hannan-Quinn crite	-2.024868	
F-stat.	6.993487	Durbin-Watson stat	1.879043	
Prob(F-statistic)	0.000178			

***Source**: Computation by Authors using E-views, 2022.*

Table 7 shows that the "correction error term" is significant with a negative coefficient. Thus, there is a long run causality running from direct investment, total export and import to RGDP. The R-squared of 61% and Prob (F-statistics) of 0.000178 shows that the model is fitted.

Table 8: Summary of Wald Test

Direct Investment (DI)			
Test Statistic	Value	Df	Probability
t-statistic	-0.338905	31	0.7370
F-statistic	0.114857	(1, 31)	0.7370
Chi-square	0.114857	1	0.7347
Total Export (X)			
t-stat.	0.299543	31	0.7665
F-stat.	0.089726	(1, 31)	0.7665
Chi-square	0.089726	1	0.7645
Import (M)			
t-stat.	-3.219739	31	0.0030
F-stat.	10.36672	(1, 31)	0.0030
Chi-square	10.36672	1	0.0013

***Source**: Authors' computation using E-views, 2022.*

Table 8 presents the summary of Wald test between the variables. The table shows that there is no short run causality running from direct investment and total export to RGDP but there is short run causality running from import to RGDP.

4.8. Diagnostic Check

Table 9: "Breusch-Godfrey Serial Correlation LM Test":

F-statistic	0.337282	Prob. F(2,29)	0.7165
Obs*R-squared	0.841086	Prob. Chi-Square(2)	0.6567

***Source**: Author's computation using E-views, 2022.*

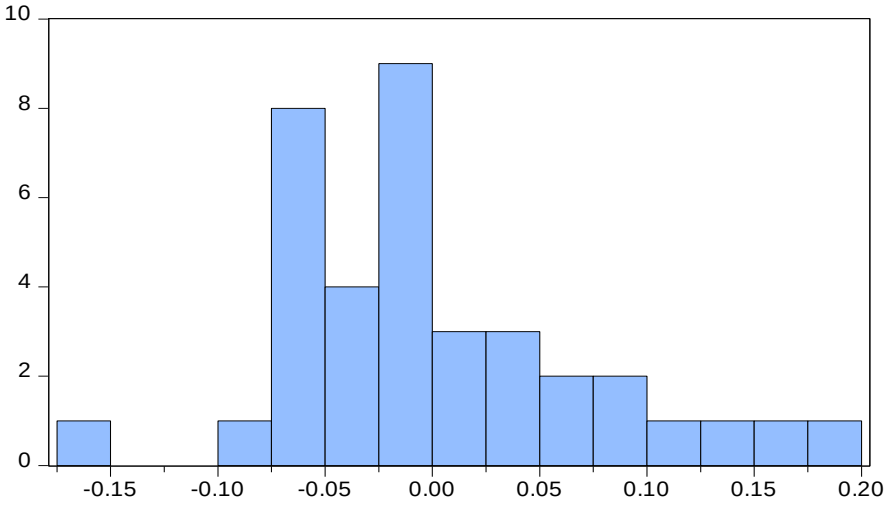
Table 10: "Heteroskedasticity Test": Breusch-Pagan-Godfrey

F-statistic	1.975366	Prob. F(8,28)	0.0875
Obs*R-squared	13.34861	Prob. Chi-Square(8)	0.1004
Scaled explained SS	11.29677	Prob. Chi-Square(8)	0.1854

***Source**: Author's computation using E-views, 2022.*

Table 9 and table 10 shows that there is absence of serial correlation and heteroskedasticity in the model

4.9. Normal Distribution Check

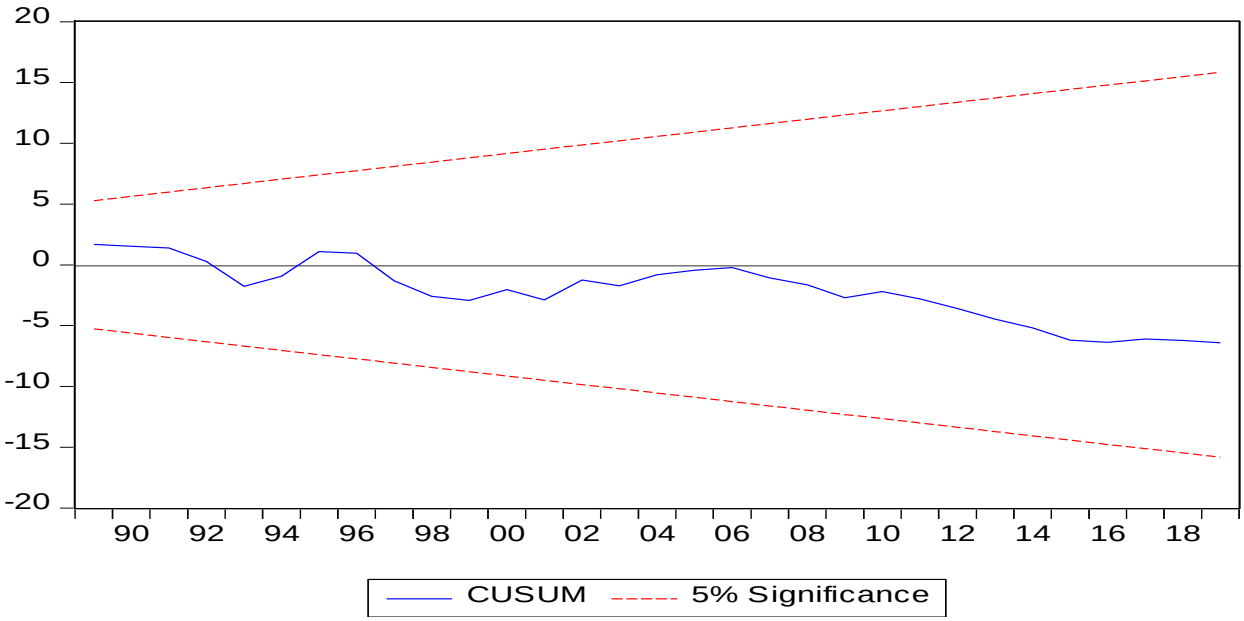


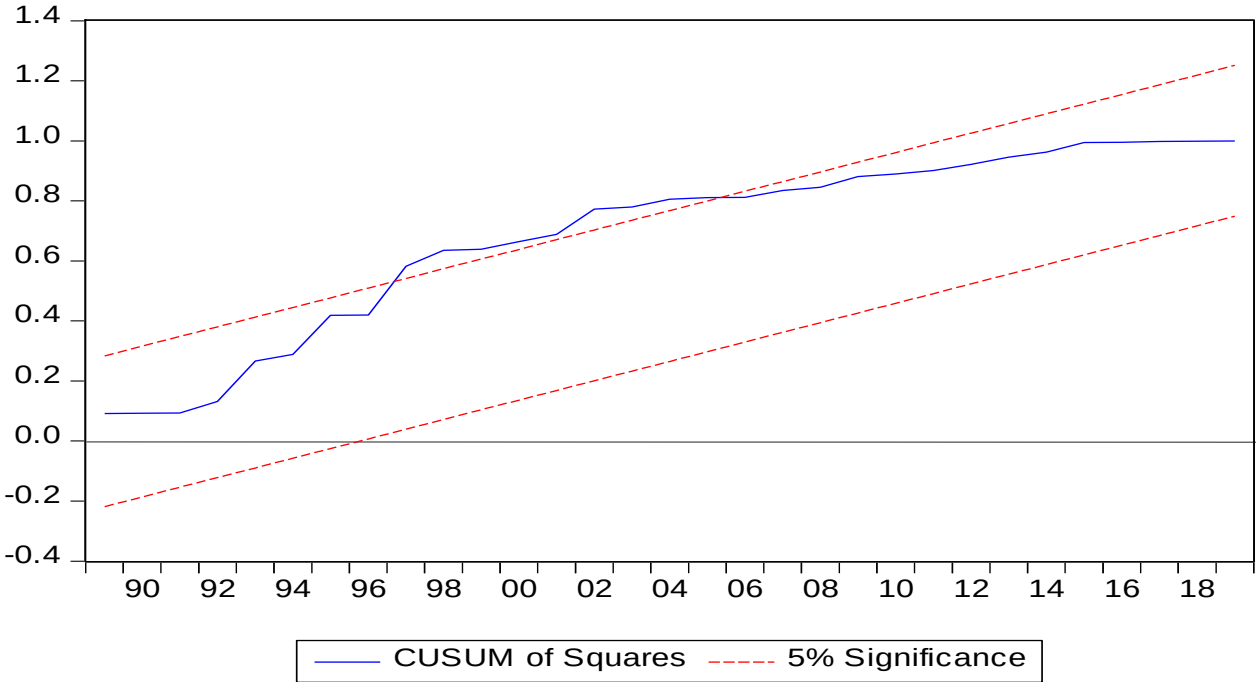
Series: Residuals	
Sample 1983 2019	
Observations 37	
Mean	-4.99e-17
Median	-0.013298
Maximum	0.191823
Minimum	-0.153820
Std. Dev.	0.072376
Skewness	0.699042
Kurtosis	3.411171
Jarque-Bera	3.274040
Probability	0.194559

The probability of 0.1945 indicates that we accept the null hypothesis that the residual is normally distributed.

4.10. VAR Stability

Finally the CUSUM test is checked to examine the stability of the estimated model.





The stability result "VAR (CUSUM Test)" shows that the Modulus of all roots is less than unity and lie within the unit circle. In view of this, it can be concluded that the estimated VAR is stable or stationary.

5. Conclusion

The findings from the study indicates that direct investment and import exact negative impacts, while total export exacts positive impact on Nigeria's economic growth in the short run. However, over a long run period, all the independent variables exact a negative impact on output growth. Furthermore, the findings revealed that there is cointegration among the variables.

The result of direct investment exacting negative impact on economic growth does not support the endogenous theory propounded by the classical theory that emphasised the importance of direct investment on the growth of the economy and the study also contradicts the findings of Adams et al. (2017); Bakari (2017) and Onochie et al. (2019) because the findings show that direct investment in Nigeria exact a negative impact in both the short run and long run. However, the result supports other studies which revealed that domestic investment may not have a favourable impact on economic growth (Afzal & Hussain, 2010; Quaicoe et al., 2017; Sharma et al., 2021).

The observation that total exports exact positive impact on economic growth in the short run indicates an export-led growth and this support the findings of (Foster 2006; Fosu 1990; Yaqub 2016; Hassan & Murtala 2016; Malefane, 2021). Therefore, it is recommended that the Nigeria government policy maker should adopt a policy that would promote inclusive direct investment that will have a positive impact on economic growth.

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