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The Relationship between Import, Export, Domestic Investment and Economic Growth in Nigeria

Adekunle O. Ahmed¹, Ebere, Chuks², Fakunmoju S. Kamaldeen³, Yunus A. Bolaji⁴

Abstract: This paper examines the relationship between imports, exports, domestic investment and economic growth in Nigeria. The study make used of annual time series data which span from 1981 to 2016, which is sourced from World Development Indicator (WDI) and Central Bank of Nigeria Statistical Bulletin. The study employed ARDL Model and VEC Granger Causality Test to explore the relationship among the variables. The empirical results show that there is long run relationship among the variables. In the short run, empirical results show that only imports have negative effect on economic growth in Nigeria. The VEC Granger Causality Test indicates that there is relationship among the variables. This negativity effect of imports on economic growth in Nigeria requires stringent economic reforms.

Keywords: Domestic investment; Export; Import; Economic growth

JEL Classification: E22; E58; E20; E00

1. Introduction

Trade, especially import and export are powerful tool in the movement of accelerating and boosting economic growth in present-day economies as a result of economic globalisation (Ogbokor, 2002). Hysterically, trade has remained a vital driver of economic progression. The success and good organization of allocation of resources, and transmitting growth from one part of the world to another is influence by trade significantly (Thirwall, 2000).

Generally, import and export of goods and services are important element in computation of balance of payment of any economy. Domestic investment, export and import are seen as the tools used to manipulating economic growth and development. Export of goods and services. Export of goods and services serves as a way in which an economy generates foreign exchange. Contrarily, import is a source of outflows of foreign exchange. The manipulation of both export and export affect domestic investment and also has implication on economic growth.

Most countries of the world regulate trade across border by using tariff, quotas and other quantitative regulation. They do this to protect infant industries and to improve the size of domestic investment in the country. In order to achieve a reliable trading connection between nations and easy drive of goods and services, labour, restriction on trade are minimized or discarded (Edwards, 1998). Essentially, Nigeria has not satisfactorily gain from export relatively to it economic natural endowment, with about 38 firm minerals types and a populace approximated to be over 180 million persons, one of the main gas and oil reserves in the sphere. Export, domestic investment and economic growth of the countries are weak when linked to the incipient Asian nations such as Malaysia, Indian and Thailand. These nations have surpassed Nigeria in term of growth. Meanwhile, many of these nations by far dawdled behind or strive to be equal with Nigeria in term of per capital income in 1960s, nonetheless, transform their countries to be a key trouper on the international economic platform. Considerably, Nigeria in 1970s had a GDP per capital of US\$233.35 and was ranked as 88th in the world when China was rated 114th with a GDP per capital of US\$111.82 (Sanusi, 2010). China is at vintage position even

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as the second largest economy after the United State of America, largely, due to her lucrative trade position.

The debate on the link concerning import, export and domestic investment on Nigeria economic growth has not been satisfactorily tackled by previous studies in Nigeria. Hence, this paper attempts to tackle Nigeria economic growth in relation to export, import and domestic investment since they are crucial elements in geometrically snowball any economy to accelerated level of growth.

2. Literature Review

Series of studies steered over the years concerning to the connection between foreign trade and economic growth for various nations shown that an expansion of import and export have a significant direct effect on economic growth Balassa, (1978, 1989 & 1995); Edward, (1998); Rahman, (1993); Ram, (1987); Michaely, (1977); Savvides, (1995). Contrarily, others have concluded that there is no positive relationship between export, import and economic growth Helleiner (1986); Ahmad and Kwan (1991); Tyler; (1981).

Reviewed literature, including later extensions of the neo-classical growth model and the theories of endogenous growth has accentuated the role of domestic investment in economic growth.

Around these investigations are Barro (1991); Lucas (1988); Romer (1986); Rebelo (1991). Other studies prove that domestic investment may not automatically have a positive impact on growth of the economy Khan (1996); Devarajan (1996) and among others.

Ogbokor & Meyer (2016) used co-integration and causality method to examine the connection between foreign trade and growth of the economy. The findings show a direct connection among the variables used in the study. This direct link means that Namibia as a country can possibly expanded by means of international trade.

The connection between export, import, domestic investment and economic growth in Egypt was also done by Sayef, 2017 employing Vector Error Correction Model (VECM) to explain the connection among the variables. Domestic investment and exports impacted negatively on economic growth. However, import impaired positively on growth of the economy in the long run as it revealed by the findings. Adesoye (2017) evaluated the effects of export demand in Nigeria by using macroeconomic analysis. The outcomes indorsed a distinctive and momentous long-run equilibrium connection among globe income, crude oil price, export volume and exchange rate.

Timmer and Vries (2015) examined the impact of imported demand on Chinese job creation from 1995 to 2012 using methodology based on input-output globally. The outcomes indicate that profligate progression in imported demand was balanced by robust rises in labour output and the net effect on employment has no effect.

Yang (2008) examines the connection between exports and growth of the economy over the period 1958 to 2004 based on 44countries. The outcomes of the study presented credence to the export-oriented growth hypothesis. Empirical observation show that data availability issues in the developing countries, the real exchange rate can function as a noble instrument for segregating between the settings of exports-stimulated growth and exports driving growth situations.

Arodoye and Iyoha (2014) evaluated the link between international trade and growth Nigerian economy using quarterly data covering the period 1981 to 2010. The result indorses that the major causes of Nigeria's economic growth disparity are basically driven by international trade innovations and own shocks. The study, therefore, considers the adoption of trade as a potent policy instrument for catalysing the process of economic growth in Nigeria.

In sum, having revealed the existing literature, it is discovered most of the previous studies based their study on either foreign trade and economic growth or export and economic growth. There is scanty

literature on relationship among import, export, domestic investment and economic growth in Nigeria, which necessitate the need for this current study in Nigeria.

3. Research Method

3.1. Sources of Data

The data employed in the study covered 1981 to 2016 is adequate to show the link between Export, Import, domestic investment and economic growth in Nigeria. The data are sourced from World Development Indicators, 2016 and Central Bank of Nigeria Statistical Bulletin.

3.2. Model Specification

The study employed ARDL method as a result of the order of the integration of the variable I(0) and I(1). The augmented production function including domestic investment, exports and imports is expressed as:

$$GDP = f(X, M, DOI)$$

Where:

DOI = Domestic Investment

X = Export

M = Import

GDP = Gross Domestic Product

$$GDP = \alpha + \beta_1 X + \beta_2 M + \beta_3 DOI + u_t \quad (ii)$$

The ARDL model specification is;

$$GDP = \alpha + \sum_{i=1}^n \beta_i GDP_{t-i} + \sum_{i=0}^{b_1} \theta_i X_{t-1} + \sum_{i=0}^{b_2} \mu_i M_{t-1} + \sum_{i=0}^{b_3} \Omega_i DOI_{t-1} + u_t \quad (iii)$$

$$GDP = \alpha + \sum_{i=1}^n \beta_i GDP_{t-i} + \sum_{i=0}^{b_1} \theta_i X_{t-1} + \sum_{i=0}^{b_2} \mu_i M_{t-1} + \sum_{i=0}^{b_3} \Omega_i DOI_{t-1} + u_t \quad (iv)$$

$$GDP = \sum_{i=1}^n \beta_i \Delta GDP_{t-1} + \sum_{i=0}^{b_1} \theta_i \Delta X_{t-1} + \sum_{i=0}^{b_2} \mu_i \Delta M_{t-1} + \sum_{i=0}^{b_3} \Omega_i \Delta DOI_{t-1} + u_t \quad (v)$$

Obtain the error term as

$$W_t = GDP_t - (\beta_1 X_{t-1} + \beta_2 M_{t-1} + \beta_3 DOI_{t-1}) \quad (vi)$$

3.3. A Priori Expectation

Independent Variable	Full Name	Expected Sign
X	Export	-/+
M	Import	-/+
DOI	Domestic investment	+

4. Data Analysis and Interpretation

4.1. Empirical Result

Table 1. Unit Root Test on Variables with Intercept (1981-2016)

Series	ADF-Stat	5%	p-value
DOI	-1.226	-2.811	0.558
DOI(1)	-10.662	-3.591	0.000
Export	-2.356	2.9481	0.161
Export(1)	-8.533	-1.932	0.000
Import	-2.747	-2.948	0.079
Import(1)	-8.171	-3.583	0.000
GDP	-4.514	-2.948	0.000

Source: Author's Computation, (2017)

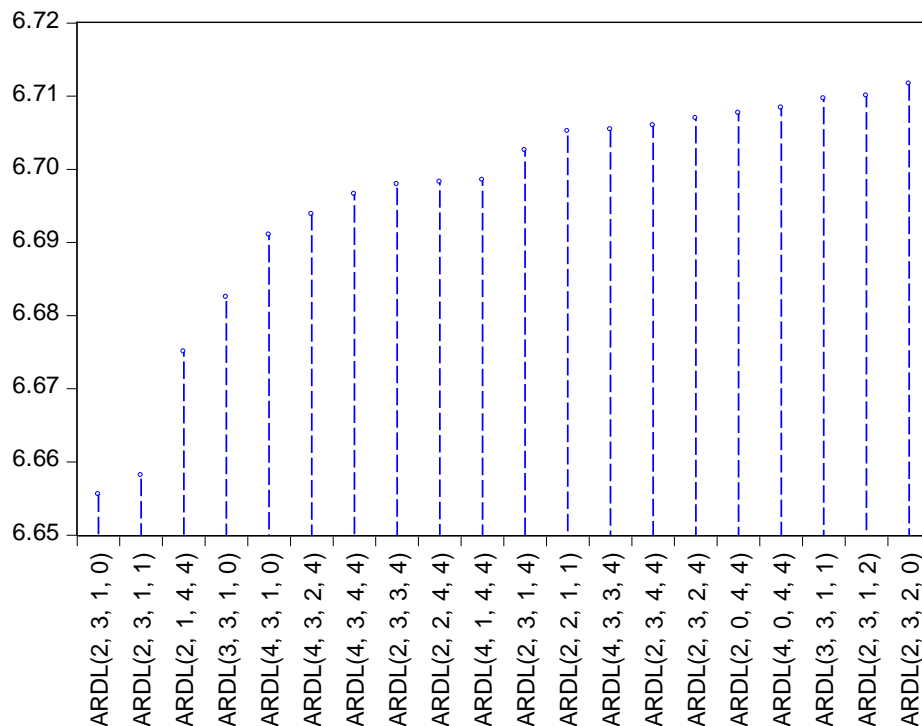
The ADF test in Table 1 shows that DOI, Export and Import were found to be I(1) series, while GDP is I(0). The variables have difference level of integration, hence, the use of Johansen co-integration technique to determine their long run equilibrium becomes inappropriate. Thus, the study adopts the Autoregressive Distributive Lag (ARDL) approach to determine the relationship between the variables.

Table 2. ARDL Bounds Test (1981-2016)

Nul- Hypotesis: No long-run relationship exist		
Test Statistic	Value	K
F-statistic	4.609343	3
Critical Value Bounds		
Significance	I0Bound	I1Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

Source: Author's Computation, (2017)

Akaike Information Criteria (top 20 models)



From the Bounds testing (ARDL) in table 2 above, it is cleared that the F-Statistic is higher than the lower and upper bound limits. It is concluded that there is long-run co-integration among the variables and the Akaike information shows the automatic selection is 4 and shows the combination of the lag period and the effects on each variables. This means that jointly the exogenous variables are significant. Therefore, the study proceeds to short run relationship of the variables.

Table 3. Short run Error Correction Model Result using ARDL Approach (1981-2016)

Variable	Cointegrating Form		t-Statistic	Prob.
	Coefficient	Std. Error		
D(GDP(-1))	0.230441	0.173829	1.325674	0.1980
D(EXPORT)	0.239113	0.161093	1.484314	0.1513
D(EXPORT(-1))	0.395442	0.210735	1.876490	0.0533
D(EXPORT(-2))	0.265380	0.162127	1.636868	0.1153
D(IMPORT)	-0.419497	0.226751	-1.850035	0.0772
D(DOI)	0.661119	0.371145	1.781295	0.0531
CointEq(-1)	-0.931301	0.241381	-3.858219	0.0003

$$\text{Cointeq} = \text{GDP} - (0.4671 * \text{EXPORT} - 0.0714 * \text{IMPORT} + 0.6411 * \text{DOI} - 14.5816)$$

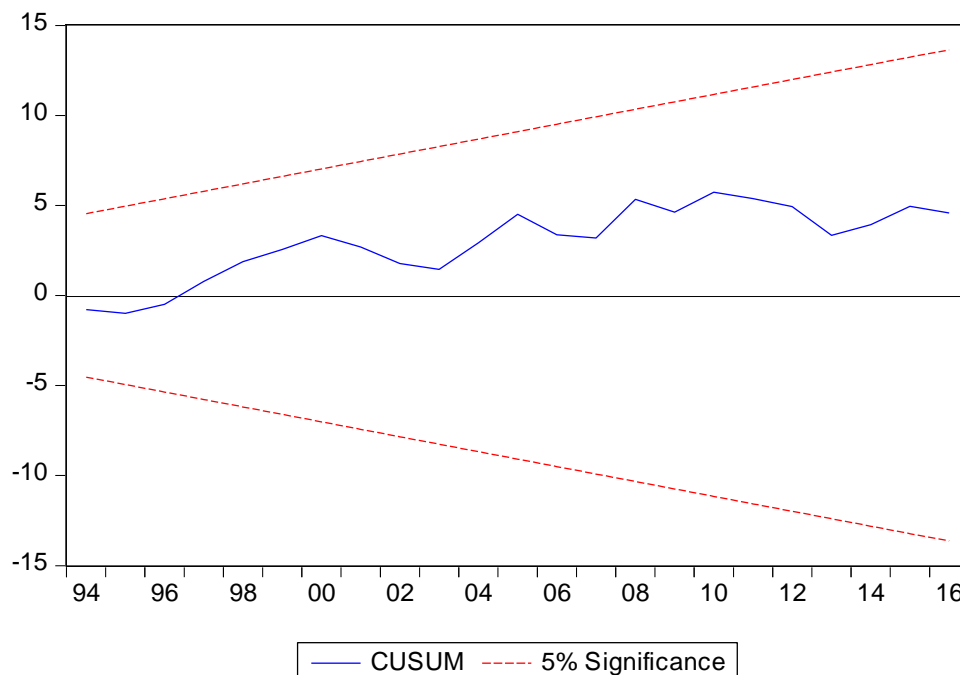
Source: Author's Computation, (2017)

The result of the table 3 indicates that there are direct effects of the lags of the EXPORT, DOI while IMPORT shows a negative effect on Nigeria economy. The export (X) shows a positive effect on GDP which implies that a rise in X will lead to a corresponding increase in GDP in Nigeria. Domestic investment (DOI) also indicates a positive effect on Nigerian economy and is significant at 5%. The import (M) shows a negative effect on domestic investment which implies that a change in M will lead to decrease in GDP but non-significant at 5%.

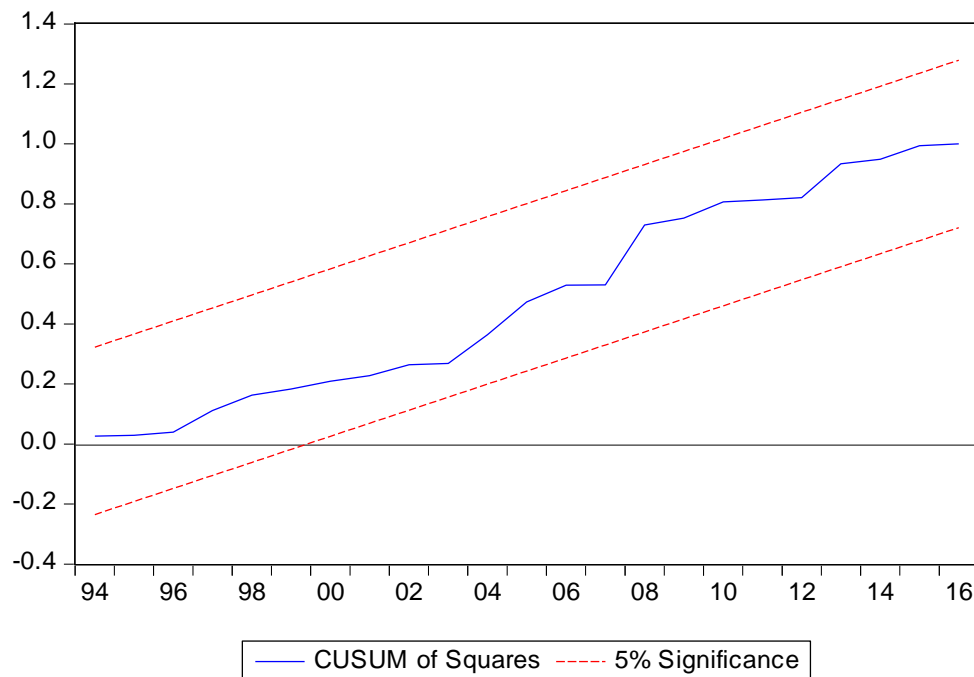
From this result it is cleared that export, domestic investment and import affect Nigerian economy. Import has a negative effect but non-significant, which has serious economic implication on Nigerian economy. The Error Correction Mechanism (ECM) is used to determine the short run dynamics of the variables. The ECM coefficient must be negative, less than one and significant at 5%. Our results validate these properties because the coefficient of the ECM is -0.93, less than one and using probability value of the ECM, the study affirms that it is highly significant with $p = 0.0001$.

4.5. Stability Test

This study adopts stability test in order to confirm the stability of the econometric model employed in the study. In this regard, the study used CUSUM and CUSUM sum of Square which confirm that our model is reliable and good for policy implications as result that the blue line fall within the red line.



Source: Author's Eview Output, 2017



Source: Author's Eview Output, 2017

4.6. VEC Granger Causality/Block Exogeneity Wald Test

Since the estimations concerns export, import, domestic investment and economic growth are carried out within a dynamic estimation, it is important to establish whether these variables can predict one another using the VEC Granger-causality test. In particular, the VEC Granger-causality statistics are examined to determine whether lagged values of one variable do help to predict another variable. Table 4 summarizes the results of the VEC Granger-causality tests for the four-variable used. Notably, the probability-values related with the chi-squ statistic helps to determine whether the relevant sets of coefficients equals to zero. The results show that exports, import and domestic investment indeed, assist in predicting economic growth. This suggests Granger-causality running from exports, import, and domestic investment to economic growth. In sum, Nigeria government, through amended policy implementation, would need to increase its export activities in order to experience more economic growth.

Table 4

Dependent variable: D(GDP)			
Excluded	Chi-sq	Df	Prob.
D(EXPORT)	2.130915	4	0.0217
D(IMPORT)	12.94430	4	0.0116
D(DOI)	14.23570	4	0.0066
All	32.05025	12	0.0014
Dependent variable: D(EXPORT)			
Excluded	Chi-sq	Df	Prob.
D(GDP)	4.315951	4	0.3649
D(IMPORT)	11.20071	4	0.0244
D(DOI)	1.442682	4	0.8367
All	14.51662	12	0.2689
Dependent variable: D(IMPORT)			
Excluded	Chi-sq	Df	Prob.
D(GDP)	5.642085	4	0.2275
D(EXPORT)	4.180979	4	0.3821
D(DOI)	10.03717	4	0.0398
All	14.75194	12	0.2553
Dependent variable: D(DOI)			

Excluded	Chi-sq	Df	Prob.
D(GDP)	8.232240	4	0.0834
D(EXPORT)	3.126304	4	0.5369
D(IMPORT)	3.640198	4	0.4569
All	19.47167	12	0.0778

Source: Eview Output, (2017)

5. Concluding Remarks

This paper addressed the relationship between exports, imports, domestic investment on Nigerian economy. The ARDL results obtained show that there is positive relationship between export DOI and GDP in the short run and this result is in line with apriori expectation. It technically means that an increase in export will lead to increase in GDP. The import has expected sign but it is non-significant which indicate most of the imports to the country are not capital intensive, it is majorly consumable goods which affect Nigeria economic growth. The study established that export and domestic investment need more adequate attention and supervision by government since Nigeria has propensity to grow it GDP.

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