

## **Economic Growth Factor in Nigeria: The Role of Global Trade**

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The paper examines the contributions of international trade (proxied with export and import values) to economic growth in Nigeria measured by real gross domestic product (RGDP). We used time series data obtained from CBN for a period of 27 years. Augmented Dickey-Fuller (ADF) test was used for the unit root test and the variables were stationary at levels I(0). Johansen's co-integration test was also conducted to establish short and long run relationships between the two variables. The result shows two co-integrating equations which establish the existence of long run relationship among the variables. Ordinary Least Square statistical technique was used to assess the degree of influence the variables have on each other. The results show that positive relationship exists between the variables, RGDP, export and import. The export parameter is insignificant at 5 percent. The overall model is significant at 5 percent. Finally, we used Granger causality test to study the causality between the variables and realized a uni-directional relationship. Real GDP Granger cause export and import Granger cause RGDP and export. Nigeria needs to increase or diversify her export goods to enjoy more of the benefits of international trade.

Keywords: International trade, economic growth, export, import, mercantilism

### **Introduction**

Most economists especially development and international economists have argued in favour of international trade as it relates to global and domestic economic growth and development. They believed that international trade leads to specialization, increase in resource productivity, large total output, creation of employment, generation of income and relaxation of foreign exchange restraints (Nnadozie, 2003). The positive relationship that exists between global trade and economic growth may be as a result of the likely positive externalities due to the involvement of different countries in the international trade. Many empirical studies have argued in favour of the importance of global trade on economic growth using the degree of trade openness, terms of trade, tariff and exchange rate as variables to explain the claim that open economies grow faster than closed economies (Edwards, 1998).

On the contrary, some economists have argued that the practice of protectionism is better means for domestic economic growth because in some instances the domestic economy may have comparative advantage over the foreign economy (Nnadozie, 2003). Nevertheless, the overwhelming evidence of positive impact of international trade on economic growth cannot be overemphasized. However, there are some questions to ask: what relationship exists between Nigeria's involvement in international trade and her economic growth?

Does international trade cause economic growth in Nigeria? Answers to these questions are the major concern of this paper.

### **Theoretical Framework/Literature Review**

Mercantalism to classicism and modern trade theories as found in the history of economic thought have argued in favour of global trade. To them, trade is a sine-qua-non to the improvement of welfare through the efficient allocation of resource factors across various sectors and countries. The theoretical underpin is the Heckscher Ohlin theory of international trade. This theory as argued by many international economists is an improvement of David Ricardo's theory of comparative advantage because trade occurs as a result of differences in comparative cost which is also due to inter-country differences in relative factor endowment. Heckscher Ohlin theory is relevant because it began with the comparative advantage and link the pattern of global trade to the economic structure of trading nations. This provides the model to explaining a change in global trade on the growth of economies. Many econometric studies as argued by Nnadozie, 2003, have confirmed that positive relationship exist between global trade and economic growth. Such scholars include: Bhagwati, 1978; Balassa, 1982; Krueger, 1990; Edwards, 1993; McCarville and Nnadozie, 1995; Harrison, 1996; Frankel and others 1996; and Frankel and Romer, 1999. However, some economists notably Krugman, 1987 argued that it is possible for protectionism to be favourable to a country that has a comparative

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advantage in terms of productivity growth especially in a labour abundant economy.

**Methodology**

The objective of this study is to examine the contributions of international trade to economic growth in Nigeria. This is an impact study therefore the method adopted is a multiple regression analysis with Ordinary Least Square (OLS) econometric technique and a time series secondary data from 1981 to 2008 obtained from CBN Statistical Bulletin, Volume 19, 2008. Difficulties may arise while performing regression with clearly non-stationary series thus leading to the so called spurious results (Granger & Newbold, 1974). In view of the above, this study adopted Augmented Dicky Fuller (ADF) test for our unit root in order to attain stationarity. The study also conducted a Granger causality test to trace the direction of causality between RGDP, Export and Import.

We also used descriptive statistics specifically figures to show the trend of export, import and RGDP growth from 1981 to 2008.

**Model Specification**

In this study we used export and import as our independent variable which are regressed against economic growth measured with RGDP. The functional form on which our econometric model is given thus:  $RGDP = f(EX, IMP) \dots \dots \dots 1$  where;

RGDP = real gross domestic product (proxy for economic growth)

$f$  = functional notation

EX = export

IMP = import

The OLS linear regression equation based on the above functional relation is:

$$RGDP = \alpha + \beta EX + \gamma IMP + \mu \dots \dots \dots 2$$

Transforming equation (2) to the natural logarithm, we have:

$$\log RGDP = \alpha + \beta \log EX + \gamma \log IMP \dots \dots \dots 3$$

The apriori expectation of the coefficient of the model ( $\beta$ ) is positive. This means that ( $\beta > 0$ ) and import,  $\gamma$  negative ( $\gamma < 0$ ).

**Unit Root Model**

$$RGDP_t = aRGDP_{t-1} + \mu_{1t} \dots \dots \dots 4$$

If we subtract  $RGDP_{t-1}$  from both sides of equation (4), we have:

$$\Delta RGDP_t = (a - 1)RGDP_{t-1} + \mu_{1t} \dots \dots \dots 5$$

In the same vein,  $EX_t = bEX_{t-1} + \mu_{2t}$

$$\Delta EX_t = (b - 1)EX_{t-1} + \mu_{2t} \dots \dots \dots 6$$

$IMP_t = cIMP_{t-1} + \mu_{3t}$

$$\Delta IMP_t = (c - 1)IMP_{t-1} + \mu_{3t} \dots \dots \dots 7$$

We also present our *causality model* as follows:

$$RGDP_t = \sum_{i=1}^n \phi_i EX_{t-i} + \sum_{j=1}^n \gamma_j RGDP_{t-j} + \mu_{4t} \dots \dots \dots 8$$

$$EX_t = \sum_{i=1}^n \rho_i EX_{t-i} + \sum_{j=1}^n \theta_j RGDP_{t-j} + \mu_{5t} \dots \dots \dots 9$$

$$IMP_t = \sum_{i=1}^n \pi_i IMP_{t-i} + \sum_{j=1}^n \alpha_j RGDP_{t-j} + \mu_{6t} \dots \dots \dots 10$$

where;

i and j= lag period

$\pi, \alpha, c, a, b, \theta, \phi, \gamma$  and  $\rho$  =parameters

t = time period

RGDP, EX and IMP are as defined above.

**Data Analysis and Discussion of Results**

We observe that RGDP at 1990 constant price for the period 1981 to 2008 showed a steady increase except from 1982 to 1984 and 1987 that recorded some fluctuations as seen in figure 1, 2 and 3. We also observe that export and import grew steadily until 2008 where it fell. This fall may be as a result of financial crash and global economic melt-down.

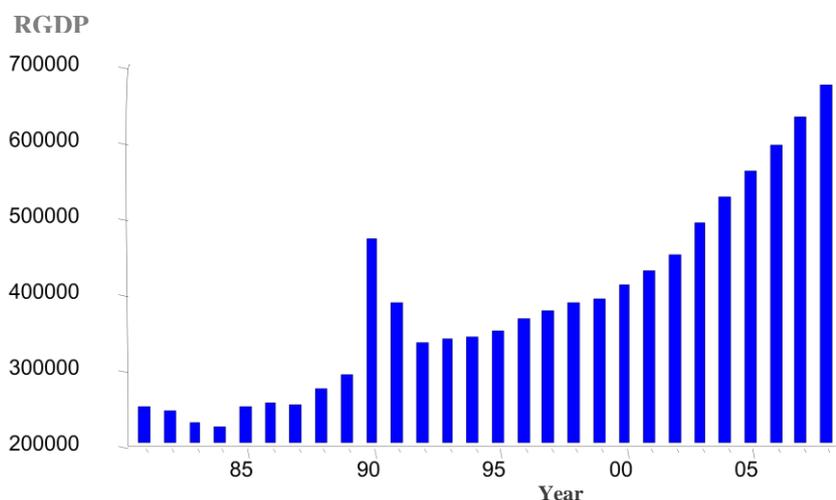


Figure 1. RGDP trend from 1981 to 2008.

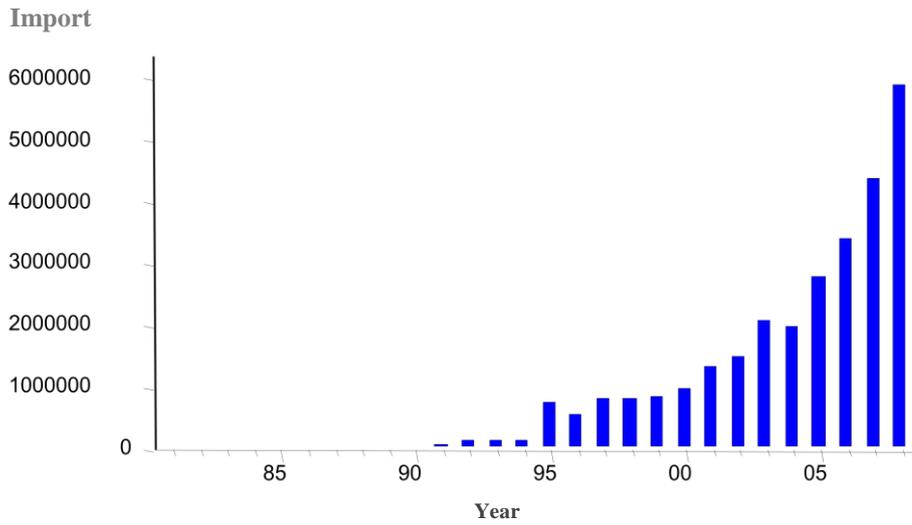


Figure 2. Import Trend from 1981 to 2008.

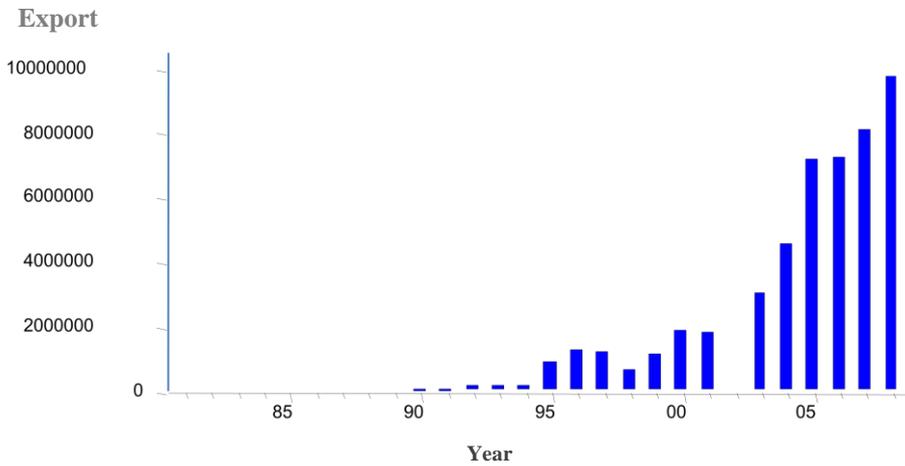


Figure 3. Export trend from 1981 to 2008.

**Unit Root Test**

Table 1 shows the result of the stationarity test in this study using Augmented Dickey-Fuller test. The lag length was selected in order to ensure that the residuals were white noise. The results show that all variables are stationary at levels, i.e. I(0). Thus, this evidence suggests that the differencing at levels is sufficient for modelling the time series in this study. The essence of testing for the

stationarity properties of the variables is founded in the assumption of Augmented Distributed Lag (ARDL) bounds testing approach to co-integration that the time series must be I(0) or I(1) variables (Olusegun, 2009). Thus, indicating that the assumption of bounds testing will collapse in the presence of I(2) variable. The result therefore, implies that the assumption of bounds testing approach is applicable in this study since the variables are stationary at levels that is I(0).

Table 1. Unit root test result using ADF procedure.

Variable	Level	1 <sup>st</sup>	2 <sup>nd</sup>	Lag	Order of Integration
RGDP	-4.134751	-4.134751	-6.072730	2	I(0)
EX	3.013746	-2.703211	-4.875364	2	I(0)
IMP	6.946293	1.941967	-4.036666	2	I(0)
Critical Values					
1%	-3.7204				
5%	-2.9850				
10%	-2.6318				

Following the results of table 1, we conducted Johansen co-integration test to establish the existence

or otherwise of the long-run relationships among the variables. The result is presented in Table 2.

Table 2. Johansen co-integration test result for international trade and economic growth.

	Likelihood	5 Percent	1 Percent	Hypothesized
Eigenvalue	Ratio	Critical Value	Critical Value	No. of CE(s)
0.854435	62.80094	29.68	35.65	None **
0.493926	18.47690	15.41	20.04	At most 1 *
0.115092	2.812245	3.76	6.65	At most 2

Test assumption: Linear deterministic trend in the data

Series: D(RGDP) D(EX,2) D(IMP)

Lags interval: 1 to 1

\*\* denotes rejection of the hypothesis at 5%(1%) significance level

L.R. test indicates 2 cointegrating equation(s) at 5% significance level

The existence of two co-integrating equation at 5 percent significance level indicates that long-run relationship exists between the variables. The co-integrating variables or vectors are real gross

domestic product (RGDP) and export (EX). Having established the existence of a long-run relationship between the variables, we run the regression using Ordinary Least Squares (OLS) as found in Table 3.

Table 3. Regression results: International trade and economic growth.

Regressors	Coefficient	Standard Error	t. Statistics	Prob. Values
C	11.26448	0.140766	80.02256	0.0000
Log (EX)	0.006390	0.009769	0.654140	0.5190
Log (IMP)	0.120746	0.014055	8.590889	0.0000
R <sup>2</sup>	0.834635	F-Statistics	63.09015	0.0000
$\bar{R}^2$	0.821405			
Durbin-Watson Stat.	1.868001			

From table 3 above, the result show a positive relationship between the dependent variable, real gross domestic product (RGDP) and the independent variable, export and import. The regression coefficient for export is 0.006390 which shows a positive correlation but it is insignificant. The import coefficient is 0.120746 is significant. The overall model is statistically significant judging with the results of F statistics. The coefficient of determination (R<sup>2</sup>) and the adjusted ( $\bar{R}^2$ ) are 83 and 82 percents respectively. This shows that 82 percent of the total variation is accounted for by the independent variables, export and import the remaining 16 percent is accounted for by other variables. The result shows that international trade has contributed to economic

growth in Nigeria. The value of the Durbin-Watson (1.87) statistics shows that there exist minimal serial or auto-correlation.

### Results of Granger causality Test

In causality relationship, the critical tests to be done include R<sup>2</sup>, t-test and F-test which are important in the process of making the decision rule concerning the direction of causality. All the diagnostic tests are based on Ordinary Least Squares (OLS) residuals which have been found to be correlated and heteroscedastic even when the true errors are uncorrelated and have common variance. The results of the Granger causality tests are presented in Table 4.

Table 4. Granger causality test result.

Movement of causality among the variables	Lag	F-values	P values	Included Observation	Decision
EX↔RGDP	1	2.57550	0.12161	27	Accept
RGDP→EX	1	3.62544	0.06986	27	Reject
IMP→RGDP	1	5.49770	0.02765	27	Reject
RGDP↔IMP	1	0.06162	0.80606	27	Accept
IMP→EX	1	8.69145	0.00702	27	Reject

From Table 4, we observe that RGDP Granger cause EX but EX does not Granger cause RGDP. Therefore, the Granger causality result shows a unidirectional relationship. The movement is from RGDP to EX. This result shows that growth in the economy would enhance the size of export. We also observed that import Granger cause RGDP and EX but RGDP and EX does not Granger cause IMP. This result also shows a unidirectional relationship.

### Conclusion and Recommendations

This study examines the contribution of international trade and economic growth in Nigeria. The study investigated the causal and dynamic nature of the relationship between international trade and economic growth by using annual time series data from 1981 to 2008. The variables used are real gross domestic product (RGDP) as economic growth and export and import as proxies for international trade. The result shows that positive relationships exist between export, import and economic growth. However, the export coefficient is insignificant therefore, Nigeria need to increase or diversify her export goods to enjoy more of the benefits of trade. Other developing countries based on the results should also embrace global trade in the area of export goods to enhance domestic economic growth. Contrary to our a priori expectation of import coefficient, the value of import is positive meaning it has positive relationship with economic growth. This is also confirmed in our Granger causality result. The unit root test indicates that the variables are all

stationary at levels, i.e. they are I(0) series. This study investigated the long run relationship among the variables and confirmed using Johansen cointegration test that long-run relationship exist between real gross domestic products (RGDP) and export (EX) as co-integrating vectors.

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