



RESEARCH ARTICLE

EMPIRICAL ANALYSIS OF INTERNATIONAL TRADE AND ECONOMIC GROWTH IN NIGERIA

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ABSTRACT

This paper empirically examined the impact of International trade on Economic Growth in Nigeria from 1980 to 2015. Nigeria is still experiencing macroeconomic instability and the benefits of International trade are not yet felt. The aim of the study is to investigate the effect of International Trade on Economic Growth using Foreign Direct Investment, Balance of Payments, Exchange rate, Trade Openness and Interest rate as International Trade Variables, while Gross Domestic product served as Economic Growth Variable. Cointegration and Error Correction Technique was employed to establish the long term relationship among the variables. The Findings showed that BOP and exchange rate are not significant, Interest rate showed a direct relationship with GDP while Degree of openness appears to be positively related to GDP. FDI has an inverse relationship with GDP. The study concludes that International Trade has not contributed maximally to economic growth in Nigeria and recommends amongst others that Government should promote local industries and diversify the export base of the nation.

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INTRODUCTION

In the face of increasing globalisation, the arguments in favour of closed economies are limited (Ogbokor, 2001). Trade has contributed significantly to the effectiveness and efficiency of allocation of resources, as well as, transmitting growth from one part of the world to another (Thirwall, 2000). International trade plays a vital role in reforming economic and social attributes of countries around the world, because no country can engage in trade alone. International trade is the exchange of goods and services between nations of the world. It plays a vital role in reorganization of economic and social attributes of countries around the world, particularly, the less developed countries. International trade enables nations to sell their domestically produced goods to other countries of the world (Adewuyi, 2002). International trade is achieved when it facilitates the national and international mobility of factors of production, the exchange of ideas and improved technology which leads to international allocation and distribution of resources. It also leads to steady improvement in human status by expanding the range of people's standard of living and preference. The growth performance of the Nigeria economy has been less satisfactory during the past three decades until recently when statistics shows steady growth in the nation's economy. Nigeria is often on the wrong end of unbalanced trade environment that favours developed countries.

Nigeria with the abundant human and natural resources is still not regarded as a rich country. Nigeria produced and exported crude oil in its natural state with minimal processing into higher stages of product development. Nigeria is still locked essentially in the primary stages of petroleum development (Akano, 1995). Nigeria which used to be a large net exporter of food now imports some of its food product as the agricultural sector could not cope with the increasing population growth. The overdependence on the oil sector has not only led to unbalanced trade but has resulted to economic fluctuations and this has been a major challenge for Nigeria. Even the Structural Adjustment Programme of 1986 whose major aim was to diversify the productive base of the economy could not achieve this till date as we are still dependent on the revenue accruing from oil produce. Nigeria's volume of trade has increased significantly over the years without a corresponding and major increase in growth and development. The attainment of economic growth is one of the objectives of international trade but in recent times, this has not been the case because the Nigerian economy still experience some elements of economic instability such as high level of unemployment, exchange rate instability and adverse balances of payment to mention a few. International trade has a drawback to economic growth because some of the goods imported into the country were those that caused damage to local industries by making their product inferior and being neglected by the consumers of such goods or services, this has reduced the growth rate of output of such industries. The empirical finding on the effect of international trade on

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economic growth is a concern for developing countries. To this end, this study aims to find out, to what extent does international trade stimulate growth in Nigeria?

The aim of this research is to investigate the impact of international trade on Economic Growth in Nigeria from 1980-2015.

#### **The specific objectives are to:**

- Determine the effect of Foreign Direct Investment on Gross Domestic Product in Nigeria during the period of the study;
- Evaluate the impact of Balance of Payment on Gross Domestic Period within the study period and;
- Examine the relationship between Exchange Rate and Gross Domestic Period during the study period.
- Investigate the effect of Trade openness on Gross Domestic Product during the period of study.
- Determine the impact of interest rate on Gross Domestic Product within the period under review.

#### **Research Hypothesis**

Ho: there is no significant relationship between the selected variables and Gross Domestic Product

#### **Theoretical Review**

##### **Absolute Advantage Trade Theory**

The theory of absolute cost advantage was propounded by Adam Smith in his famous book (*Wealth of Nations* 1776). He advocated free trade as the best policy for the nations of the world. Smith argued that with free trade each nation could specialize in the production of those commodities in which it could produce more efficiency than the other nations, and import those commodities in which it could produce less efficiently. This international specialization of factors in production would result in increase in world output, which would be shared by the trading nations. Thus, a nation need not gain at the expense of other nations, all nations could gain simultaneously. In other words, according to the theory, a nation should specialize in the production of export of commodities in which it has lower cost or absolute cost advantages over others. On the other hand, the same country should import a commodity in which it has higher cost or absolute cost disadvantage.

##### **Comparative Advantage Trade Theory**

Absolute advantage failed to analyze where a country has comparative advantage in the production of two goods, will trade still be necessary or beneficial to the country in question? David Ricardo tackled this question. Ricardo was the first to demonstrate that external trade arises not from difference in absolute advantage but from difference in comparative advantage. By "comparative advantage" is meant by "greater advantage". Thus in the context of two countries and two commodities, trade would still take place even if one country was more efficient in the production of both commodities, provided the degree of its superiority over the other country was not identical for both commodities. Ricardo assumed the existence of two countries, two commodities, and one factor of production, labor. He assumed that labor was fully employed

and internationally immobile and that the product and factor of prices were perfectly competitive. There are no transport costs or any other impediments to trade. In context of a model of two countries, two commodities and one factor of production, Ricardo obtained the result that a country will tend to export the commodity in which it has a comparative disadvantage. Since comparative costs are the other side of comparative advantage, the theory could be expressed in terms of comparative costs. Specifically, the theory now states that a country will tend to export the commodity whose comparative cost is lower in production and comparative cost is higher in pre-trade isolation.

##### **Heckscher-Ohlin Trade Theory**

Berth Ohlin in his famous book *Interregional and international trade* (1933) criticized the classical theory of international trade and formulated the general Equilibrium or factor proportions theory of international trade. It is also known as the Modern Theory of International Trade or the Heckscher-Ohlin's (H-O) theory. The theory focuses on the differences in relative factor endowments and factor prices between nations on the assumption of equal technology and tastes. The Model was based on two main propositions; namely; a country will specialize in the production and export of commodity whose production requires intensive use of abundant resources. Again, countries differ in factor endowment. Some countries are capital intensive while some are labour intensive. He identified the difference in pre-trade product prices between nations as the immediate basis of trade, the prices depends on production possibility curve (supply side) as well as the taste and preference (demand side). But the production possibility curve depends on factor endowment and technology. According to him, a nation should produce and export a product for which abundant resources is used be it capital or labour. The model suggests that developing countries are labour abundant and therefore they should concentrate in the production of primary product such as agricultural product and they should import capital intensive product i.e manufactured goods from the developed countries. The model also assumes two countries, two commodities and two factor and that two factors inputs labour and capital are homogenous. The production function is assumed to exhibit constant return to scale.

##### **New trade theory**

Prior to Krugman's work, trade theory (Ricardo and Heckscher-Ohlin) emphasized trade based on the comparative advantage of countries with very different characteristics, such as a poor country exporting agricultural goods to a rich country in exchange for industrial products. However, in the 20th century, an ever larger share of trade occurred between countries with very similar characteristics, which is difficult to explain by comparative advantage. Krugman's explanation of trade between similar countries was proposed in a 1979 paper in the *Journal of International Economics*, and involves two key assumptions: that consumers prefer a diverse choice of brands, and that production favours economies of scale. Each country may specialize in producing a few brands of any given type of product, instead of specializing in different types of products. According to Paul Krugman, the continual application of economies of scale by global producers using new technology means that many countries, including China, can produce very cheaply, and export

surpluses. This, along with an insatiable demand for choice and variety, means that countries typically produce a variety of products for the global market, rather than specialise in a narrow range of products, rendering the traditional theory of comparative advantage almost obsolete.

### Gravity Theory

Modern approaches to explaining trade patterns and trade flows tend to use gravity theory - which explains trade in terms of the positive attractiveness between two national economies - based on economic size (in a similar fashion as planets attracting each other based on their mass) - and the 'economic distance' between two economies. Economic size attracts countries to trade, and economic distance makes trade harder. Economic distance is increased by barriers to trade, and cultural, political and linguistic differences. One advantage of gravity theory is that it can help economists predict the likely effect of changes in government policy on trade patterns, including decisions regarding joining (or leaving) trading blocs.

believes that to raise an economy long term trend rate of growth requires an increase in labour supply and also a higher level of productivity of labour and capital. Differences in the rate of technological change between countries are said to explain much of the variation in growth rates. The neo-classical models treats productivity improvements as an exogenous variable which means that productivity improvements are assumed to be independent of the amount of capital investment.

### Endogenous Growth Theory

To them, they believe that improvements in productivity can be attributed directly to a faster pace of innovation and extra investment in human capital. They stress the need for government and private sector institutions to encourage innovation and provide incentives for individual and business to be inventive. There is also central role of the accumulation of knowledge as a determinant of growth i.e knowledge industries such as telecommunication, electronics, software or

Variable	ADF Test @ Level	Critical Value			ADF Test @ 1 <sup>ST</sup> Diff	Critical Value			Order of Integration
		1%	5%	10%		1%	5%	10%	
GDP	-1.464364	-3.6702	-2.9640	-2.6210	-3.368497*	-3.6892	-2.9719	-2.2651	1(1)
EXCH	-0.059854	-3.6702	-2.9640	-2.6210	-5.62529**	-3.6793	-2.9678	-2.6230	1(1)
BOP	-5.97522**	-3.6892	-2.9719	-2.6251	-7.02389**	-3.6892	-2.9719	-2.2651	1(1)
INTR	-3.150357*	-3.6702	-2.9640	-2.6210	-5.79097	-3.6892	-2.9719	-2.2651	1(1)
OPN	-3.30309	-3.6702	-2.9640	-2.6210	-5.56769**	-3.6892	-2.9719	-2.2651	1(1)
FDI	-0.682741	-3.6702	-2.9640	-2.6210	-5.421791	-3.6892	-2.9719	-2.2651	1(1)

Source; Author's Computation and extracts from E-views print out

Variable	PP Test @ Level	Critical Value			PP Test @ 1 <sup>ST</sup> Diff	Critical Value			Order of Integration
		1%	5%	10%		1%	5%	10%	
GDP	-1.695153	-3.6702	-2.9640	-2.6210	-5.88164**	-3.6892	-2.9719	-2.2651	1(1)
EXCH	-0.059854	-3.6702	-2.9640	-2.6210	-5.62529**	-3.6793	-2.9678	-2.6230	1(1)
BOP	-5.73220**	-3.6892	-2.9719	-2.6251	-17.3359**	-3.6892	-2.9719	-2.2651	1(1)
INTR	-3.083724*	-3.6702	-2.9640	-2.6210	-9.30739**	-3.6892	-2.9719	-2.2651	1(1)
OPN	-0.362976	-3.6702	-2.9640	-2.6210	-4.92078**	-3.6892	-2.9719	-2.2651	1(1)
FDI	-0.682741	-3.6702	-2.9640	-2.6210	-5.42112**	-3.6892	-2.9719	-2.2651	1(1)

Source; Author's Computation and extracts from E-views print out

### Johansen Co-integration Test Result

Eigen value K=5, r-3	Trace Statistics	5% critical value	Prob. **	Hypothesis of CE(s)
0.967597	227.8043	95.75366	0.0000	None *
0.852076	114.6312	69.81889	0.0000	Atmost 1 *
0.504991	51.56631	47.85613	0.0215	Atmost 2 *
0.362724	28.36139	29.79707	0.0725	Atmost 3
0.247466	13.49316	15.49471	0.0979	Atmost 4
0.117128	4.110970	3.841466	0.0426	Atmost 5 *

Note: r= number of cointegrating vectors and k = number of lags in model. \* rejection of the H0

Source: Author's Computed Result Using (E-Views 9.0)

### Theories of Economic Growth

#### Neo-Classical Growth

This was first propounded by Robert Solow over 40 years ago. The model believes that a sustained increase in capital investments increased the growth rate only temporarily, because the ratio of capital to labour goes up. The marginal product of additional units is assumed to decline and thus an economy eventually moves back to a long term growth-path with the real GDP growing at the same rate as the growth of the workforce plus factor to reflect improving productivity. Neo-classical economists who subscribe to the Solow model

biotechnology are becoming increasingly important in developed countries. The proponent of endogenous growth theory believes that there are positive externalities to be exploited from the development of a high value added knowledge economy which is able to develop and maintain a competitive advantage in fact growth within the global economy. They are of the opinion that the rate of technological progress should not be taken as a constant in a growth model- government policies can permanently raise a country growth rate if they lead to move intense competition in markets and help to stimulate product and process innovation. That they are increasing returns to scale from new capital investment and also private sector investment is a key source of technical

progress and that investment in human capital is an essential ingredient of long term growth.

### Harrod – Domar Growth Model

Harrod-Domar opined that economic growth is achieved when more investment leads to more growth. Their theory is based on linear production function with output given by capital stock (K) times a constant. Investment according to the theory generates income and also augments the productive capacity of the economy by increasing the capital stock. In as much as there is net investment, real income and output continue to expand. And, for full employment equilibrium level of income and output to be maintained, both real income and output should expand at the same rate with the productive capacity of the capital stock. The theory maintained that for the economy to maintain a full employment, in the long run, net investment must increase continuously as well as growth in the real income at a rate sufficient enough to maintain full capacity use of a growing stock of capital. This implies that a net addition to the capital stock in the form of new investment will go along way to increase the flow of national income. From the theory, the national savings ratio is assumed to be a fixed proportions of national output and that total investment is determined by the level of total savings i.e  $S = SY$  which must be equal to net investment  $I$ . The net investment which is  $I = \Delta K = K\Delta Y$  because  $K$  has a direct relationship to total national income. And, therefore  $SY = K\Delta Y$  which simply means  $\Delta Y/Y$  is growth rate of GDP that is determined by the net national savings ratio,  $s$  and the national capital output,  $K$  in the absence of government, the growth rate of national income will be positively related to the saving ratio i.e the more an economy is able to save and invest out of a given GDP, the greater the growth of GDP and which will be inversely related to capital output ratio.

### Empirical Review

Love and Chandra (2004) investigated the relationship between exports and economic growth over the periods 1950 to 1998, 1970 to 2000 and 1965 to 1997 for India, Pakistan and Sri Lanka respectively. They use Johansen's multivariate co-integration framework for testing the causality. Their findings conclude that export growth effects economic growth positively in the case of India and Pakistan, and that; there is bidirectional causality between exports and growth in the case of India. However, there is no evidence of causality in the case of Sri Lanka, since the terms-of-trade coefficient has a negative sign, indicating that any increase in exports and income will affect the terms-of-trade negatively. Yang (2008) examined the relationship between exports and economic growth over the period 1958 to 2004 based on 44 countries. The results from most of the countries used in the study gave credence to the export-led growth hypothesis, while a few of them proved otherwise. The author also observed that, due to the problem of data availability in the developing countries, the real exchange rate can serve as a good tool for distinguishing between situations of exports-driving growth and growth-driving exports' situations. Arodoye and Iyoha (2014) econometrically assessed the relationship between foreign trade and economic growth in Nigeria by employing quarterly time-series data-sets for the period 1981 to 2010. A vector autoregressive model was used, in order, to account for feedbacks. The result of the study confirms a stable, long-run connection between foreign trade and economic growth. The

result also confirms that the principal sources of Nigeria's economic growth variation are largely propelled by foreign trade innovations and "own shocks". The study, therefore, considers the adoption of trade as a potent policy instrument for catalyzing the process of economic growth in Nigeria. The technical procedures used by the authors of this study are highly penetrating, and therefore, commendable. Oviemuno (2007), looks at international trade as an engine of growth in developing countries taking Nigeria (1960-2003) as case study, he uses four important variables which are export/import, inflation and exchange rate. The results shows that Nigeria exports value does not act as an engine of growth in Nigeria.

Adenugba and Dipo (2013) evaluated the performance of non-oil exports in the economic growth of Nigeria from 1981 to 2010. Findings revealed that non-oil exports have performed below expectations; hence, giving reason to doubt the efficacy of the export promotion strategies that have been adopted. They pointed out that the economy is still far from diversifying from crude oil exports and as such the crude oil sub-sector continues to be the single most important sector of the economy. Edoumiekumo and Opukri (2013) examined the contributions of international trade (proxy with export and import values) to economic growth in Nigeria measured by real gross domestic product (RGDP). Time-series data obtained for a period of 27 years was analyzed using Augmented Dickey-Fuller (ADF) test, Ordinary Least Square (OLS) statistical technique, Johansen co-integration test and Granger Causality test. The results showed that positive relationship exists between the variables and there is co-integration among the variables. The Granger Causality test realized a uni-directional relationship showing that RGDP Granger cause export and import Granger cause RGDP and export. Evidence from empirical studies from other countries also reviewed. Li, Chen (2010) conducted a research on the relationship between foreign trade and the GDP growth of East China for a period 1981-2008. Adopting the unit root test, co-integration analysis and error correction model, they found out that foreign trade is the long-term and short-term reason of GDP growth, but no evidence proved that there exists long-term stationary causality between import trade and GDP. Sun and Heshmati (2010) evaluated the effects of international trade on China's economic growth through examining improvement in productivity. Both econometric and non-parametric approaches were applied based on a 6-year balanced panel data of 31 provinces of China from 2002-2007. The study demonstrated that increasing participation in the global trade helped China reap the static and dynamic benefits, stimulating rapid national economic growth. Also, it revealed that both international trade volume and trade structure towards high-tech exports resulted in positive effects on China's regional productivity.

### MATERIALS AND METHODS

Co-integration and error correction modeling technique was adopted to establish the long-run relationship between Economic Growth and International Trade in Nigeria.

The model is specified as follows:

$$GDP = \beta_0 + \beta_1 BOP + \beta_2 FDI + \beta_3 EXCH + \beta_4 OPN + \beta_5 INT + \mu$$

Where;

GDP = Gross Domestic Product

BOP = Balance of Payments  
 FDI = Foreign Direct Investment  
 EXCH = Exchange Rates  
 OPN = Trade Openness  
 INT = Interest Rate  
 $\beta_0$  = Intercept of the regression line  
 $\mu$  = Error term.

A priori expectation:

$$\beta_1 > 0, \beta_2 > 0, \beta_3 < 0, \beta_4 > 0, \beta_5 < 0$$

## Data Analysis and Interpretation

### Test of Stationarity

Macroeconomic data usually exhibit stochastic trend that can be removed through only differencing. We employed two approaches to test for the presence of unit roots in the variables - the Augmented Dickey Fuller (ADF) and Phillip-Perron- Z test (PP). Running ADF and PP Tests for the variables show that all the variables were found to be stationary at order 1. The variables were said to be stationary because each of their respective ADF and PP values at first difference were found to be greater than their critical values at 5% and 10%. The result for the stationary tests therefore calls for long-term relationship.

The result showed that the error correction term ECM(-1) is correctly specified. It satisfies a-priori expectations. The negative sign confirms our earlier conclusion that Gross domestic Product and the variables of international trade are cointegrated. The coefficient of the parameter of the error correction mechanism is (-1.105105) and statistically significant at 1 percent level. This shows that about 1.105 percent disequilibria in Gross Domestic Product in the previous year were corrected in the current year. This follows that the ECM could rightly correct any deviations from short run to long-run equilibrium relationship between the dependent and the explanatory variables. The Findings above showed that the coefficient of balance of payments (BOP) is positively signed but not statistically significant. This is an indication that the Balance of Payments have not been unfavourable over the years which means that the country's imports continuously exceed exports. Favourable BOP is expected to boost GDP. The coefficient of exchange rate is positively related to Gross Domestic Product (GDP), but not statistically significant at 5 percent level. The result also indicates that exchange rate has been unstable over the years. The coefficient of Interest rate (INTR) showed a positive relationship with GDP. This implies that a percentage increase in interest rate will increase the Gross Domestic Product in Nigeria by 0.185539% during the period of the study. The coefficient of degree of openness appears to be positively related to gross domestic product. The implication is that a percentage increase in degree of openness

### Error Correction Mechanism Result for the Estimated Model

Variables	Coefficient	T-Statistics	Probability
C	-1035963	-2.021849	0.0778
D(GDP(-1))	1.029034	15.83781	0.0000
D(GDP(-2))	0.323510	4.671962	0.0016
D(GDP(-3))	0.535161	9.728956	0.0000
D(BOP(-1))	0.667095	-0.118076	0.9089
D(EXCH(-1))	0.244983	-1.087291	0.3086
D(INTR(-1))	0.185539	-2.467739	0.0388
D(OPN(-1))	0.874664	12.53129	0.0000
D(FDI(-1))	-0.769402	-5.513869	0.0006
ECM(-1)	-1.105105	-13.78451	0.0000
R <sup>2</sup> = 0.989673	DW-Stat= 1.98214	F-Stat.= 34.84727	F-Prob=0.00001

Source: Author's Computed Result Using (E-view 9.0)

### Co integration Test Results

From the Johansen co-integration trace statistics test results reported above, there are three co-integrating equations at 5% level of significance. This is because three of the Trace Statistics values were found to be greater than the critical values at 5%. This therefore indicates that there exists a long-run equilibrium relationship among variables, thus the null hypothesis of no co-integration was rejected. The Error correction result above shows that the dynamic model is a good fit. The coefficient of determination is significantly high. The explanatory variables included in the model explained 98.9% change in GDP. The R<sup>2</sup> value of the 0.989673 indicated that the variation in Gross Domestic Product (GDP) explained by balance of payments, exchange rates, interest rates, degree of openness and foreign direct investment is 99%. This therefore means that the explanatory power of the model estimated is 99%. The good fit is further showed by the high value of the f-statistics of 3.4847. The Durbin Watson (DW) value of 1.98214 suggests a lesser degree of autocorrelation. This shows that the model is good for policy formulation and implementation.

contributed positively to 0.874664 percent increase in gross domestic product in Nigeria during the period of study. The coefficient of foreign direct investment is negatively signed. The implication of this result is that foreign direct investment contributed negatively to 0.769402 percent decrease in gross domestic product. This is an indication that the level of foreign direct investment in Nigeria is not optimal.

### Conclusion

Though the Nigeria GDP keeps increasing every year, the effect of international trade has not allowed the GDP to grow maximally. From the results obtained, Foreign Direct Investment, Balance of Payments, Exchange Rate, Trade Openness and Interest Rate which are the variables of international trade adopted in this study did not all appear as expected. This explains why the international trade has not contributed optimally to the growth of the economy. From the results obtained, international trade plays a role in economic growth of Nigeria but, amongst the variables which was adopted as proxies to international trade, only Trade Openness appears positive and significant, Balance of Payments and Exchange Rate remains insignificant, while Interest Rate and

Foreign Direct Investment did not conform to a-priori expectation. This indicates a major problem in the economy of the nation examined. The study concludes that International trade exerts positive effects on Nigeria's economic although the numerous benefits that accrue to nations as a result of trade is yet to be felt in the country.

### Recommendations

Based on the findings, the following recommendations are made;

- Export should be diversified and increased by promoting and encouraging the local industries and ensure the production of standard goods and services. This will improve the country's balance of payment position
- Nigeria should develop the financial market to benefit from openness. The government should also be moderate in trade liberalization policy since the economy is still weak to absorb the negative shocks from external trade.
- The naira has been cheaper compared to the dollar. The demand for dollar has remained so high, hence the increase in exchange rate and ultimately resulting to high cost of imported goods. Government should promote economic reforms to reduce pressure on imported goods which will reduce the demand for dollar and lead to favorable exchange rate for the country.
- The government should provide an investment friendly economy by ensuring political stability and security of lives to attract foreign investors to boost the nation's economy.
- The monetary authorities should regulate the interest rate and enhance its role to mobilize funds for investment purpose.

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