TRADE LIBERALIZATION AND ECONOMIC GROWTH IN NIGERIA: A COINTEGRATION ANALYSIS (1980-2015)

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ABSTRACT

This study examined the effect of trade liberalization on economic growth in Nigeria, using the Gross domestic product (GDP) as proxy for economic growth. The study made use of set of data that spanned (1980 – 2015). Ordinary Least Squares (OLS) was used in estimating the effect of trade liberalization on economic growth in Nigeria with a view to ascertaining whether long-run relationship exists between the two and also used in verifying for structural change that may have occurred within the implementation period of a free trade regime that started in 1986. Data for the study were sourced from World Development Indicators (WDI) of the World Bank and Statistical Bulletin of the Central Bank of Nigeria (CBN) various issues. Results indicate that liberalization has positive and significant effect on economic growth in Nigeria, with an evidence of a long-run relationship. Similarly, strong evidence was found to support structural change that took place in 1986 when free trade policy was adopted. The results also presented a violation of the *a priori* in the case of export and import which showed negative and positive signs respectively. In the light of the above, it was recommended among others that an enabling environment should be provided by the government in the areas of infrastructural facilities to boost domestic production, revitalize ailing industries to enable them produce goods that can compete favourably with their foreign counterparts in the international market to enhance further growth in Nigerian economy.

Keywords: Trade liberalization, openness, structural change and economic growth.

1. INTRODUCTION

The principal and primary intention of trade liberalization is to promote free trade by eliminating all restrictions and barriers to trade. This, it is believed, will ultimately enhance economic growth by capturing the static and dynamic gains from trade through a more effective allocation of resources; greater competition; an increment in the flow of knowledge and investment and of course, a faster pace of capital accumulation and technological progress (Babatunde, 2009). The outward-oriented strategy adopted by Nigeria was chiefly to boost exports by cutting down all

restrictions, exchange rate control and breaking apart of some of the marketing boards (Ayorinde and Olayinka, 2012).

Besides, the country had undergone foreign trade liberalization through the decrease in both duties and non-tariff barriers. The aim this time was to promote economic growth by increasing her export of goods and compete with other nations globally. In the opinions of Yakubu and Akanegbu (2015), trade exposes domestic firms to best practices of foreign firms and to the demand of discerning customers and encouraging greater efficiency. Trade, to them, gives firms in the domestic economy access to improved capital inputs such as machine tools, boosting productivity and providing new opportunities for growth to developing countries. International trade, generally deals with economic and financial interdependence among nations: it is part of our daily life and it plays a vital role in the shaping of economic and social performance and prospects of countries around the world, especially those of developing countries (Sakyi, 2011). He reiterated however that no country has grown without trade but the contribution of international trade to any economy depends to a great extent on the context in which it works and the objective it serves.

The relationship between free trade and growth has been the subject of numerous theoretical and empirical debate and studies (Effiom et al, 2011; Chaudry et al, 2010; Ersory and Deniz, 2011; Sakyi, 2010). This is because, in a competitive environment, prices get lower and products become diversified through which increased welfare emerges for the people. Gains from specialization and efficiency are also further advantages of economic of openness. It is therefore quite reasonable that economies generally desire to be open to foreign trade.

The purpose of the study is to empirically investigate the effect of trade liberalization on economic growth using Nigerian data. Also carried out, was a test for its impact on the growth trajectory via a structural change test which is an area often not considered very important by most researchers. The study is therefore structured as follows: section one, introduction; section two, literature review; section three, methodology of the study; section four, presentation of data and analysis as well as results discussion; while section five concludes and offers some policy dialogue (recommendations).

2. REVIEW OF RELATED LITERATURE

2.1   Conceptual Framework/Clarifications

Trade openness has been defined as the ratio of foreign trade (export + import) to the gross domestic product (GDP) of the domestic economy of any country (Okpoko, 2005). He states that the higher the index of openness, the larger the impact of trade on the domestic economy. In the opinions of Atoyebi et al (2012), the removal of obstacles to trade (openness); is closely and positively associated with GDP-growth. However, to Utkulu and Ozdemir (2004), openness and trade can raise economic growth in some countries but it may also reduce it in other countries depending on the level of development of the country.

In a related development, foreign direct investment (FDI) has an agreed framework definition by scholars which is an investment made to acquire a lasting management interest (normally 10% of voting stock) in a business enterprise operating in a country other than that of the investor's defined according to residence (World Bank, 1996). Such investment, in the opinions of the group, may take the form of either "green field" investment (also called "mortar and brick" investment) or merger and acquisition (M&A), which entails the acquisition of existing interest rather than new investment.

Similarly, import has been defined as the amount of goods and services bought from other countries. It is expected that higher imports will lead to lower economic growth. The variable is a leakage or withdrawal in the equilibrium equation of an economy and as such, it contributes negatively to economic growth (Nwosa, Saibu and Fakunle, 2012). In the same vein, Manni and Afzai (2012) define exports as the amount of goods and services sold to other countries. It is expected to induce economic growth as more volume of it means more trade, more production and more income. Besides, it is an injection in the equilibrium equation of the economy. Also, they define GDP as the total value of all final goods and services produced within a country in a given period of time usually in a year. Growth in GDP entails growth of the economy. This, according to them, is the reason that GDP is often used as proxy for economic growth.

2.2   Theoretical Framework

The theory upon which the study is anchored is the Export led Growth Hypothesis. The theory postulates a relationship between the growth of exports and the economy such that export expansion becomes one of the main determinants of economic growth. The hypothesis holds that overall growth of different economies could be generated not by increasing the amounts of labour and capital, but also by expanding exports. The theoretical rationale for this hypothesis lies on a number of assumptions which include but not limited to the following: one, that the export sector will generate positive externalities on non-export sectors through more efficient management styles and improved production techniques (Feder, 1983). Two, export expansion will increase productivity by offering potential for scale economies (Helpman and Krugman, 1985; Krugman, 1994). Three, exports are likely to alleviate foreign exchange constraints and can provide greater access to international markets (Esfahani, 1991). Evidence from literature indicates that the arguments have recently been extended by the literature on endogenous growth theory which emphasizes the role of exports on long-run growth via a high rate of technological innovation and dynamic learning from abroad (Lucas, 1998; Alisna and Rodrick, 1999).

2.3   The Policy of Trade Liberalization in Nigeria

The earliest form of liberalizing trade prior to the Structural Adjustment Programme (SAP) was the import substitution policies in the 1970s (Olaifa, Subair and Biala, 2013). They observe that the policy did not record much success as a result of unconducive macroeconomic environment. The adoption of SAP in 1986, to them, however, brought about the emergence of trade liberalization which was accompanied by the elimination of foreign exchange control to reflect economic realities, removal of price control and disbandment of commodity boards. They policy thrust of SAP in Nigeria was to create an environment conducive for enhanced increase in capital flows, transfers, adoption of appropriate technologies and increase the share of trade revenue to government as another means of reducing the total dependence of the economy on oil revenue.

The economic indicators as reported by World Development Indicators (2013) showed that trade as a percentage of GDP per capita rose from the pre-liberalization period but increased

significantly in the post-liberalization period. Inflows of foreign direct investment also revealed a similar trend. Virtually all indicators showed increases from the pre-liberalization to post-liberalization period. Of particular concern is the behaviour of the interest rate which continue to rise significantly even in the post-liberalization period. It is a negation of the expectation that the availability of cheaper imported products ought to lower prices, the report concluded.

2.3   Liberalization and Economic Growth

Whilst access to specific markets-judged by their size and growth is important, domestic market factors are predictability much less relevant in export-oriented foreign firms (Ademola, Oluseyi, Ibiyemi and Babatunde, 2013). A range of survey suggest a widespread perception that 'open' economies encourage more foreign investment which happens to be what the domestic economy needs grow. One good indicator of openness is the relative size of the export sector. As Singh and Jun (1995) study has indicated, exports, particularly manufacturing exports, are a significant determinant of FDI flows and the test's result showed that there is strong evidence that exports preceed FDI flows. They observe that China in particular has for this reason, attracted much foreign investment into the export sector. In Bangladesh on the other hand, foreign investors have been attracted to the manufacturing sector by its lack of quota for textiles and clothing exports to the European Union and the US markets, they reiterated.

2.4   Empirical Review

Arhan (2007) did a study on differential effects of trade liberalization on economic growth and the role of human capital accumulation. The method used was Schumpeterian growth model. It was found that in an economy in which more unskilled labour resources are abundantly available compared to its trading partners, in short-run, trade liberalization may have beneficial effects on the per capital income growth rate whereas in the long-run, it may decrease the equilibrium growth rate.

Sulaiman (2010) conducted a study on the effectiveness of financial development and openness on economic growth: case study of Pakistani economy, in order to determine the long-run association among financial liberalization, international trade openness, real interest rate and economic growth, with Pakistan as case study. The study utilized data for the period of 1975 –

2009 and used the error correction model. The study concluded empirically that both trade liberalization and financial development play significant and productive roles in Pakistani economy. Also, Chaudry et al (2010) in a research paper titled 'exploring the causality relationship between trade liberalization, human capital and economic growth with empirical evidence from Pakistan. The study sought to explore the relationship between trade liberalization, human capital development and economic growth in Pakistan. Cointegration and granger causality techniques of time series econometrics were employed for the time period of 1972 – 2007. The result showed there is short-run and long-run cointegration and causality relationship among the variables in the growth model.

Winter (2004) examined trade liberalization and economic performance using the method of ordinary least squares (OLS). He found that liberalization generally induces a temporary (but possible long-lived) increase in growth. A major component of this was an increase in productivity and economic bouyance.

3. METHODOLOGY AND DATA

Time series data covering the period between (1980-2015) were collected from the Central Bank of Nigeria (CBN) and the World Development Indicators (WDI). The following variables were covered in the data collection exercise: GDP, Openness, FDI, Exports and Imports. Using the Econometric (E-views 7.0), Ordinary Least Squares, Johansen Cointegration technique and Chows breakpoint test were the time series techniques employed for the analysis. The model to be estimated is specified as follows:

GDP = f(OPN, FDI, EXP, IMP)   -   -   -   -   (1)

Specifying econometrically we have:

$$GDP_t = \alpha_0 + \alpha_1 OPN_t + \alpha_2 FDI_t + \alpha_3 EXP_t + \alpha_4 IMP_t + \mu_t \text{- -} \qquad \text{-(2)}$$

Where:

α_0 = Intercept

α_i = the coefficients

μ_t = the error term

and;

GDP = Gross Domestic Product

OPN   = Trade Openness (Import+ Export/GDP)

FDI   = Foreign Direct Investment

EXP   = Export

IMP   = Import

The *a priori* expectations are:

$\alpha_1 > 0$, $\alpha_2 > 0$, $\alpha_3 > 0$ and $\alpha_4 < 0$

The cointegration relationship was estimated using Johansen co-integration presented below:

$$Z_t = \sum_{i=1}^{m} A_i Z_{t-i} + E_t - - - -(3)$$

Where:

Zₜ contains all n variables of the model and

E_t is a vector of random errors. This model can also be represented in the form:

$$\Delta Z_t = \sum_{i=1}^{m-1} \Gamma_i Z_{t-1} + \Pi Z_{t-m} + E_t - - - - - (4)$$

Where:

$$\Gamma_i = -1 + A_1 + \cdots + A_i (1 \ is \ a \ unit \ matrix)$$

$$\Pi = -(1 - A_1 - \cdots - A_m)$$

Matrix Π can be represented in the following form:

$\Pi = \alpha.\beta$, where:

α and β are both nxr matrices.

Matrix β is called the Co-integrating matrix whereas matrix α is referred to as the adjustment matrix or the feedback matrix. The Johansen method does not only provide direct estimates of the cointegrating vectors but also enables us to construct tests for the order (or rank) of cointegration, r and there can be at most r = N – 1 cointegrating vectors. All time series data used were tested for unit root using the Augumented Dickey-Fuller (ADF) test.

4. EMPIRICAL RESULTS

The ADF test showed that all the variables were stationary at first differencing thus indicating that all are I(1) series. The results are as summarized in Table 1.

Table 1: Result of Unit Root Test for the Variables

	Augumented Dickey-Fuller test		
Variables	ADF at level	ADF at First Difference	Status
GDP	0.844583	6.883967*	I(1)
OPN	-2.037508	-8.720813*	I(1)
FDI	0.082381	-7.806034*	I(1)
EXP	0.093455	3.188923**	I(1)
IMP	0.063419	3.623548*	I(1)

* denotes stationarity at 1%; ** denotes stationarity at 5%

Source: Owner's Computation using Econometric-View 7.0

Looking at the broad objective of the study which is to examine the effect of trade liberalization on economic growth in Nigeria, detailed result is presented in appendix 1 while the linear representation of the estimated result using the OLS equation (2) is outlined as shown below:

$$GDP = 273438.7 + 997451.2OPN + 8.766712FDI - 2.7768EXP + 3.3468IMP$$

$$249866.7 \quad 465679.1 \qquad 2.766514 \quad 0.632430 \quad 0.46386$$

$$(1.1454) \quad (2.1132) \qquad (3.3873) \quad (-5.3426) \quad (9.3748)$$

$$R^2 = 0.8852 \qquad \overline{R}^2 = 0.8635 \qquad F = 167.13 \qquad D\text{-}W = 2.28$$

$$(t\text{-Statistic are in parentheses})$$

As could be seen from the regression equation, the F-Statistic is significant, good and fit. The R-Squared and the adjusted R-squared are high and statistically significant. Infact, the coefficient of determination R^2-adjusted which has a coefficient of 0.8635 shows that 86.4 percent of the changes in GDP can be explained by the chosen explanatory variables. Also, the Durbin-Watson Statistic of 2.26 shows there is no autocorrelation among the variables. The overall interpretation of the regression result is that liberalizing trade has enhanced economic growth. As could be seen also, only export though significant, has a negative effect on GDP. The negative relationship may not be totally unexpected because of the uncompetitive nature of Nigeria's manufacturing sector which is beset with inadequate infrastructural facilities coupled with unconducive

macroeconomic environment. Foreign direct investment turned out with expected sign but import did not as it showed positive sign instead of negative as a leakage. This could be due to the fact that Nigeria relies more on imports, especially in terms of productive technology and heavy equipment used in the production of more goods which generate income for Nigerians. Thus, the major import is usually productive assets that increase income and improve the economic position of the country.

The Pairwise Granger Causality test result presented in Table 2 below further lends credence to the direct effect of openness in causing growth. This is because the null hypothesis of OPN not causing GDP growth was rejected as informed by the probability value.

Table 2:   Pairwise Granger Causality Tests

Sample: 1980 – 2015

Null Hypothesis:	Lag	F-Statistic	Prob.	Decision
GDP does not Granger Cause OPN	1	0.02286	0.87453	Accept
OPN does not Granger Cause GDP		0.00360	0.00461	Reject

Next, the Johansen co-integration test was employed to investigate for possible long-run relationship between the variables especially between openness and growth. The choice of Johansen cointegration is informed by the fact that all the series are integrated of order one. Our result (see Appendix II) shows that three variables are cointegrated with GDP. This is because at one percent critical value, the likelihood ratio is greater. However, when compared to the 5 percent critical value, all the variables are cointegrated. This implies the existence of a long-run relationship between the variables. Finally, we employed the Chow's breakpoint test to investigate whether openness impact on the growth trajectory effective from 1986 as breakjoint date. The result is also as presented below in Table 3.

Null Hypothesis: No breaks at specified breakpoints

Varying regressors: All equation variables

Equation Sample: 1981 – 2014

Table 3: Chow Breakpoint Test: 1986

F-Statistic	2.631346	Prob. F(5,34)	0.02892
Log likelihood ratio	4.026251	Prob. Chi-square (5)	0.0030
Wald Statistic	3.205336	Prob. Chi-square (5)	0.6793

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusion

From the analysis of data and the findings thereafter in this study, it can be concluded that trade openness has positive and significant effect on economic growth in Nigeria. The negative relationship between export and economic growth in the result is contrary to the *a priori* because export is injection in the equilibrium equation. However, the development has been explained away as a function of the uncompetitive nature of the Nigerian manufacturing sector due largely to huge deficit of infrastructural facilities and weaknesses of the relevant institutions which ought to be promoting exports in Nigeria. In a similar development, import which ought to show negative sign turned out to be positive. This again was explained as a function of massive importation of productive technology and heavy equipment used in the production of more goods used in the domestic economy. Therefore, uncompetitiveness of the nation's manufacturing sector and the total reliance on importation of productive technology and heavy equipment used in production in the local economy are the reasons that the *a priori* expectation were respectively violated for export and import coefficients in the estimated equation. Nevertheless, overall, openness positively and significantly affect economic growth in Nigeria.

5.2 Recommendations

Based of the findings and the conclusion made from the findings, we made the following recommendations:

1. The performance of export sector is not encouraging. It calls for urgent measure in terms of policies targeted at boosting domestic production by revitalizing the ailing domestic industries to enable them produce goods that can compete favourably with foreign goods.

2. There is also the need to adhere to international best practices in export processing, export duties collection at the ports, financing support for exporters and so on.

3. Eventhough import is expected to be a leakage, it turned out to be positive and significant. This should be allowed. However, care must be exercised not to over-depend on the international sector as this would result in exploitation, dumping and shifting of the domestic industries.

4. The co-integrated behaviour of our explanatory variables suggests that in the long-run, movement in openness, foreign direct investment, export and import could be used to raise growth in Nigerian economy. For this reason, efforts must be made to ensure that there is efficiency in all areas that have something to do with the external sector so that full benefit may be reaped.

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Appendix I

Regression Result Outputs

Dependent Variable D(GDP)

Method: Ordinary Least Squares

Date: 05/18/04   Time 20:22

Sample: 1980 – 2015

Included Observations: 36

Variable	Coefficient	Standard Error	t-Statistic	Prob.
C	273438.7	249866.7	1.1454	0.2634
D(OPN)	997451.2	465677.1	2.112	0.0123
D(FDI)	8.766712	2.766514	3.3873	0.0012
D(EXP)	-2.776823	0.632430	-5.3426	0.000
D(IMP)	3.346817	0.463865	9.3748	0.001

R-Squared	0.885211	Mean dependent var.	5664255
Adjusted R-Squared	0.863521	S.D. dependent var.	8782108
S.E. of regression	725841.0	Akaike infor criterion	28.71146
Sum Squared resid	1.90E+12	Schwarz criterion	29.11734
Log. likelihood	-633.1478	Haman-Quinn criterion	28.89730
F-Statistic	167.132	Durbin-Watson Stat.	2.28
Prob (F-Statistic)	0.00000		

Appendix II

Ohansen Co-integration Test Result

Test Assumption: No deterministic trend in the data

Series: D(GDP) D(OPN) D(FDI) D(EXP) D(IMP)

Lags interval: 1 to 1

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.871819	125.56130	82.47	91.46	None**
0.748217	96.79941	57.48	65.53	At most 1**
0.688221	58.4206	38.87	46.57	At most 2**
0.420847	27.88260	24.21	28.76	At most 3**
0.138606	4.275615	3.83	6.52	At most 4**

* denotes rejection of the hypothesis at 5% significance level

** denotes rejection of the hypothesis at 1% significance level

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