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## Article

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## Globalization and Non-Oil Export Performance in Nigeria: A Bound Cointegration Approach

Alimi Olorunfemi Yasiru<sup>1</sup>

**Abstract:** This study investigates the impact of globalization on non-oil export performance in Nigeria. Using time series data, the paper employed the Autoregressive Distributed Lag (ARDL) approach to analyse the relationship between globalization and non-oil export performance within the periods of 1970 to 2014. The results revealed that there is a long-run relationship between globalization and non-oil export performance in Nigeria. The parameter estimates showed that globalization, official development assistance, investment and exchange rate have positive impact on non-oil sector export in Nigeria. In addition, gross domestic product and foreign direct investment have negative impact on non-oil sector export performance in Nigeria. The study concludes that the impact of globalization on non-oil export performance is a long-run phenomenon. Thus, the government should adopt and implement trade policies that are capable of sustaining non-oil sector growth in Nigeria.

**Keywords:** Trade openness; investment; non-oil exports; output; exchange rate; Nigeria

**JEL Classification:** C32; F14; F63

### 1. Introduction

The role of international trade on the economic growth and development of a nation cannot be over emphasized. This can be traced back to the theories of the classical economists (Adam Smith and David Ricardo) who posit that international trade has a major role to play in the growth of an economy and there are economic gains from specialization. Fouad (2005) noted that export provides the economy with the foreign exchange needed for imports of goods and services that cannot be produced domestically. The author also opined that export encourages the overall development of an economy through the provision of employment opportunities for the people (Fouad, 2005).

A review of the Federal Government revenue profile in the last decade shows that oil earnings accounted for over 90% of the foreign exchange earnings, while the non-oil sector, despite its improved performance, contributed below 10% (CBN 2010), thus revealing the extent of the vulnerability of the economy to swings in the price of oil in the international market. The performance of the non-oil export sector in the past three decades leaves little or nothing to be desired, in spite of the efforts to promote non-oil exports in Nigeria. The assessment of the trend and patterns of activities in the non-oil sector of Nigeria revealed that despite the various policies, strategies and reform programmes, the contributions of the sub-sectors of this sector have been dismal, disheartening and below its full potential and the share of non-oil export in the country's total export earnings has remained very low (Abogan, Akinola & Baruwa, 2014).

Nigeria's export used to be predominantly non-oil commodities with agricultural commodities accounting for the lion's share and has been contributing greatly to the growth of the economy since independence. However, it fell from 48% in 1970 to 20.6% in 1980 and a slight increase to 23.3% in

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2005 (CBN, 2009). The reason for the large differences is that Nigeria's exports are dominated majorly by oil (crude-petroleum) export and little on primary agricultural products. More so, most of the agricultural products are exported in primary form and low linkage with the manufacturing sector.

Literature had shown that a litany of studies has examined the economic determinants of non-oil export performance using time series, cross-sectional and panel studies data model. Economic factors identified were income, investment (public and private), exchange rate, terms of trade, trade openness and other sectoral growth factors. In addition, a perusal of these empirical literatures indicated that there is a dearth of studies examining how globalization has influenced non-oil export growth in developing countries, including Nigeria despite the policy thrust to widen the non-oil export base. Thus, this study examines the effects of globalization on non-oil export performance in Nigeria as the country has been trying to shift from import dependent economy to export promotion economy. This study is divided into five sections including the introductory section. Section two discusses the literature review, while section three presents the methodology of the study. The fourth section presents the data analysis, results and discussion. The last section discusses the conclusion and policy options.

## 2. Literature Review

The absolute and comparative advantage postulated by Adam Smith and David Ricardo respectively laid the foundation for the practice of opening up economy so as to facilitate trade and cooperation amongst countries in the world. However, the argument of David Ricardo was intellectually accepted and seen as the driving force of international trade. For instance, if countries move out of autarky, and embrace open economy, it is indicative of specialization and exchange (Usman, 2011). The author explained further that these countries export commodities in which they have a competitive edge over all others i.e. comparative advantage and import commodities that they possess comparative disadvantage in. In doing this, they tap into the international market and realize foreign exchange. Additionally, they avail themselves to international specialization. Central Bank of Nigeria and NEXIM (1999) asserted that a country can procure the desired goods and services at considerable savings especially capital and intermediate goods that are needed to support efficient productive activities in the export sector.

Another important theory is the export-growth hypothesis that stipulates the expansion and promotion of exports as an important factor in nurturing long run economic growth. This hypothesis has been put forward as the rationale for an efficient alternative to import substitution, which is an inward orientation strategy of development (Usman, 2011). In the past, developing countries had adapted inward oriented development strategies for enhancing industrial development that would translate into growth and development, which is designed to replace imported manufactures and merchandise with domestically produced merchandise in order to conserve foreign exchange and promote employment. Nonetheless, this strategy was prevalent in Developing Countries (DCs) that possess large domestic market, due to the large population size that characterize them, and that the supportive measures and incentives are not available to encourage producers to explore the export market. Olorunshola (1996) stated that this policy strategy was resorted to by Developing Countries in the context of declining world markets for their primary commodities, rising balance of payments deficits on current account.

Numerous studies have investigated various factor determinants of non-oil export performance but only some selected studies were reviewed. Fouad (2005) examines the Export Led Growth (ELG) Paradigm for Egypt between 1977 and 2003 using the Augmented Dickey-Fuller unit root test, Granger causality test, vector auto regression (VAR) and the impulse response function (IRF). The study found out that exports, imports and GDP are not cointegrated but export growth granger cause



GDP growth with shock to exports leading to significant response in GDP growth. Titus (2007) employed the multivariate cointegrated vector autoregressive method to examine the impact of export and import expansion on growth in three transition economies namely Bulgaria, Czech Republic and Poland. The study found that the exclusion of imports and the singular focus of many past studies on just the role of export as the engine of growth may be misleading. Hence, the author concludes that the role of imports to growth has to be emphasized in these countries.

Mahdavi and Fatemi (2007) employed the ordinary least squares method to investigate the impact of non-oil exports on economic growth in Iran from 1959 to 2003. The study found a weak impact of non-oil export on gross domestic product (GDP) and also low factor productivity in export sector relative to non-export sector and hereby recommended that government should not depend largely on oil and there should be a reasonable plan towards non-oil export promotion. Laszlo (2007) employs the Granger Causality test and the Seemingly Unrelated Regression (SUR) estimator to investigate the possibility of granger causality between the logarithm of real export and real GDP in 24 OECD countries from 1960 to 1997. The findings indicate uni-directional causality from export to GDP in Belgium, Demark, Iceland, Ireland, New-Zealand, Italy, Spain and Sweden.

Awokuse (2007) uses the multivariate cointegrated Vector Auto-Regression method to examine the impact of export and import expansion on growth in three transition economies, Bulgaria, Czech Republic and Poland. The study concludes that the exclusion of imports and the singular focus of many past studies on just the role of export as the engine of growth may be misleading. Using the Cointegration Analysis and the Causality test, Barbara and Alberto (2011) investigate the relationship between real export, imports and GDP in Italy from 1863 to 2004. The result shows that the variables considered move together in the long run but the direction of causality varies over time. This indicates that exports alone are not the only driver of economic growth.

Ewetan and Okodua (2012) employed Cointegration test, Grange Causality test and the Vector Autoregressive model to examine the applicability of the Export-Led Growth hypothesis for Nigeria in 1970 to 2010. The result indicates a uni-directional causality running from economic growth to export in Nigeria, rejecting the export-led growth hypothesis. Abogan, Akinola and Baruwa (2014) employed the Johansen Cointegration test, the Error Correction Mechanism and the Ordinary Least Squares (OLS) techniques to investigate the impact of non-oil export and economic growth in Nigeria between 1980 and 2010. The study found that the impact of non-oil export on the economic growth was moderate i.e. 26% for the years of study. Nwachuckwu (2014) used the Ordinary Least Squares (OLS) technique to investigate the impact of non-oil export strategies on economic growth in Nigeria between 1970 and 2010. The result indicated that infrastructure has a negative relationship with GDP while credits from commercial banks and tariffs have a positive relationship with GDP.

Somaya, Rasul and Reza (2014) estimate the effect of increase in Iran's non-oil exports on its economic growth as well as sectoral outputs. Using the Computable General Equilibrium (CGE) model, they found that 20.3% of targeted economic growth rate would be achieved by encouraging a 6% growth in exports, i.e. there is a positive and notable impact of increase in exports on sectoral outputs as well as economic growth. Barine (2014) employed the Kendall's tau Correlation Coefficient to examine the performance of non-oil export on the growth of the Nigerian economy. The study found a positive statistically insignificant relationship (0.025) between changes in both variables necessitating an inquiry into non-oil export financing. Victor (2015) employed the Johansen Cointegration test and the Error Correction Mechanism (ECM) to analyze the effect of agricultural exports on economic growth in Nigeria. The study found that agricultural export contributes positively to the Nigerian economy.

Anthony, Chukwudi and Wilfred (2015) adopted the Export-Led Hypothesis and employed the Johansen Cointegration, Vector Error Correction model Granger Causality test to examine the impact of non-oil export on economic growth in Nigeria between 1981 and 2012. The Vector Error Correction analysis reveals that in both short and long-run, non-oil export determines economic growth. The Granger Causality test shows that there is no causality relationship between non-oil export and economic growth. Usman (2011) examines whether or not there is a linear relationship between the non-oil export and GDP in Nigeria between 1989 and 2008. The findings identified factors that affect GDP positively to be non-oil export for previous year and consumer price index and as such the government has an important role to play if sustainable development is to be achieved since an insignificant non-oil export and exchange rate would slow down the economic growth.

### 3. Analytical Framework, Model Specification and Estimation Approach

This study adopts the Cobb-Douglas production function model to determine the determinants of non-oil export growth with emphasis on trade globalization. If we consider that the Solow growth model is based on Cobb-Douglas type of production function with constant returns to scale:

$$Y = K^{\alpha} (AL)^{1-\alpha} \quad (3.1)$$

Where  $Y$  = output,  $K$  = capital,  $L$  = labour,  $A$  = Total Factor Productivity.

The steady state level of per capita income  $y^*$  is given by:

$$y^* = A^{e^{gt}} [s/(n + g + \delta)]^{\alpha/(1-\alpha)} \quad (3.2)$$

Where  $s$  is the investment rate,  $\delta$  is consumption of fixed capital,  $n$  and  $g$  are exponential growth rates of  $A_t$  and  $L_t$  respectively (Islam, 2003).

The model states that a country's steady state growth levels depend on a number of factors:  $A_0$ ,  $s$ ,  $n$ ,  $g$ ,  $\delta$ , and  $\alpha$ . Unconditional convergence occurs when all these factors are the same for countries. This may occur in countries at similar initial levels of income and with similar economic, political and social structures leading to  $\sigma$ -convergence or club-convergence (Varblane & Vahter, 2005).

For the purpose of this study, we consider the output as the non-oil export output and also incorporating trade openness as a measure of globalization. In doing this however, we determine the possible links between trade openness on non-oil export growth and emphasizes the trade policy measurement parameter denoted by  $A_t$ . Using the trade policy efficiency parameter from equation 3.1, we can specify that non-oil export growth depends on trade openness efficiency parameter  $Ait(\tau)$  i.e.

$$NOSE_t = \beta_0 + \beta_1 GLO_t \quad (3.3)$$

Where:  $\beta_1 GLO$ , is the trade openness index measuring globalization rate which is equivalent to trade policy efficiency parameter  $A_t$ . Trade openness reduces the prices of import competition and thus can lead to an improvement in efficiency of firms and hence greater productivity (Bakare & Fawehinmi, 2011). Thus, we can hypothesize that  $\beta_1$  is positive. Reducing input tariffs that arise from trade openness, could offset some of the import competition effects since many firms are affected by both output and input tariffs.

Furthermore, to grasp the relevance of this specification to the objective proposed in this study, we incorporate some other variables that determine industrial performance such as: output, foreign direct investment, official development assistance, exchange rate, and investment.

$$NOSE_t = f(GLO_t, GDP_t, FDI_t, ODA_t, EXR_t, INV_t) \quad (3.4)$$

In linear form, equation (3.4) can be re-written as:

$$NOSE_t = \beta_0 + \beta_1 GLO_t + \beta_2 GDP_t + \beta_3 FDI_t + \beta_4 ODA_t + \beta_5 EXR_t + \beta_6 INV_t + \mu_t \quad (3.5)$$

Where; Non-oil sector export as a ratio of GDP (NOSE), globalization measured by total trade as a ratio of GDP (GLO), gross domestic product growth (GDP), foreign direct investment as a ratio of GDP (FDI), official development assistance as a ratio of GNI (ODA), exchange rate (Naira per US\$, period average) (EXR), and investment as a ratio of GDP (INV).

The a priori expectation provides expected signs and significance of the values of the coefficient of the parameters under review on the part of the empirical evidence and theoretical assertions. All, the incorporated variables in the modified model are expected to contribute to non-oil export growth positively.

### 3.1. ARDL Bounds Cointegration Test

The study employs the Autoregressive Distributed Lag (ARDL) bounds test by Pesarran, Shin and Smith (2001) to examine the effects of globalization on non-oil export growth in the long and the short run periods in Nigeria. With this approach, non-oil export growth is expressed as a function of the lagged value of itself and the current and the lagged values of the explanatory variables.

$$\begin{aligned} \Delta nose_t = & a_{0nose} + \sum_{p=1}^n b_{pnose} \Delta nose_{t-p} + \sum_{p=1}^n c_{pnose} \Delta glo_{t-p} + \sum_{p=1}^n d_{pnose} \Delta gdp_{t-p} + \sum_{p=1}^n e_{pnose} \Delta fdi_{t-p} \\ & + \sum_{p=1}^n f_{pnose} \Delta oda_{t-p} + \sum_{p=1}^n g_{pnose} \Delta exr_{t-p} + \sum_{p=1}^n h_{pnose} \Delta inv_{t-p} + \rho_{1nose} nose_t + \rho_{2nose} glo_t + \rho_{3nose} gdp_t \\ & + \rho_{4nose} fdi_t + \rho_{5nose} oda_t + \rho_{6nose} exr_t + \rho_{7nose} inv_t + \varepsilon_t \end{aligned} \quad (3.6)$$

$\Delta$  is the first difference operator. The parameters  $\rho_i$ , where  $i = 1, 2, 3, 4, 5, 6, 7$  are the respective long run multipliers while the parameters  $b, c, d, e, f, g, h$  are the short run dynamic coefficients of the underlying ARDL model in the equation.  $E_t$  denotes the white noise error term. The Bounds cointegration test will involve estimating equation (3.3) and restricting the parameters of the lag level variables to zero. Based on this equation, we tested the following null and alternative hypotheses:

$$\begin{aligned} H_0 = & \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0 \text{ (i.e. no cointegration or level relationship) as against} \\ H_1 = & \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 \neq 0. \end{aligned}$$

The existence of cointegrating relationship among the variables is determined by testing the significance of the lag levels of the variables using the F-test. The calculated F-statistic is compared with the two critical values for the upper and lower bounds tabulated by Narayan (2004). Owing to the fact that the direction of cointegration is not a priori established, then each variable is normalized as dependent variable while the existence of level relationship is tested. Then, the study estimates the long run equation in (3.5) above.

## 4. Data Analysis and Interpretation

### 4.1. Descriptive Analysis

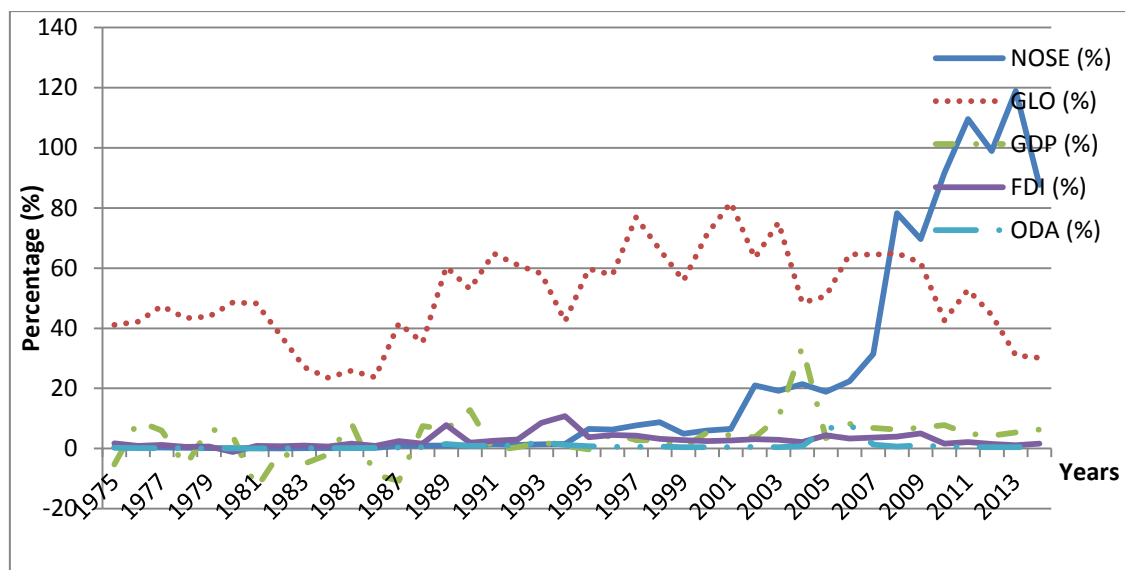
Table 1 presents the descriptive analysis of the time series properties of the variables included in the model. The descriptive statistics was carried out between globalization and non-oil sector export growth in Nigeria from 1975 to 2014.

The table shows that the mean value of non-oil sector export (NOSE), globalization (GLO), gross domestic product (GDP), foreign direct investment (FDI), official development assistance (ODA), exchange rate (EXR), and investment (INV) stood at 21.2%, 50.8%, 3.52%, 2.73%, 0.9%, 15.57% and ₦57.76/Dollar correspondingly. The standard deviation of non-oil sector export (NOSE), globalization (GLO), gross domestic product (GDP), foreign direct investment (FDI), official development assistance (ODA), exchange rate (EXR), and investment (INV) from their respective long term mean values every year point at 35.2%, 15.03%, 7.53%, 2.27%, 1.56%, 9.17% and ₦63.43/Dollar. The probability value of Jarque-Bera statistics for all variables shows their distribution level at mean zero and constant variance. This reveals that only globalization is normally distributed among all the variables of interest.

**Table 1. Descriptive Statistics**

	NOSE	GLO	GDP	FDI	ODA	INV	EXR
Mean	21.1956	50.8428	3.5219	2.7341	0.9039	15.5743	57.7635
Maximum	118.9510	81.8129	33.7358	10.8326	8.1172	35.2213	158.5526
Minimum	0.0824	23.6089	-13.1279	-1.1509	0.0548	5.4590	0.5468
Std. Dev.	35.2454	15.0316	7.5304	2.2729	1.5623	9.1661	63.4303
Skewness	1.6836	-0.0367	1.0632	1.6609	3.7069	1.0464	0.4901
Kurtosis	4.3076	2.2901	8.2427	6.3949	16.2582	2.6489	1.4261
Jarque-Bera	21.7473	0.8489	53.3466	37.5987	384.5742	7.5056	5.7299
Probability	0.0000	0.6541	0.0000	0.0000	0.0000	0.0235	0.0570
Obs.	40	40	40	40	40	40	40

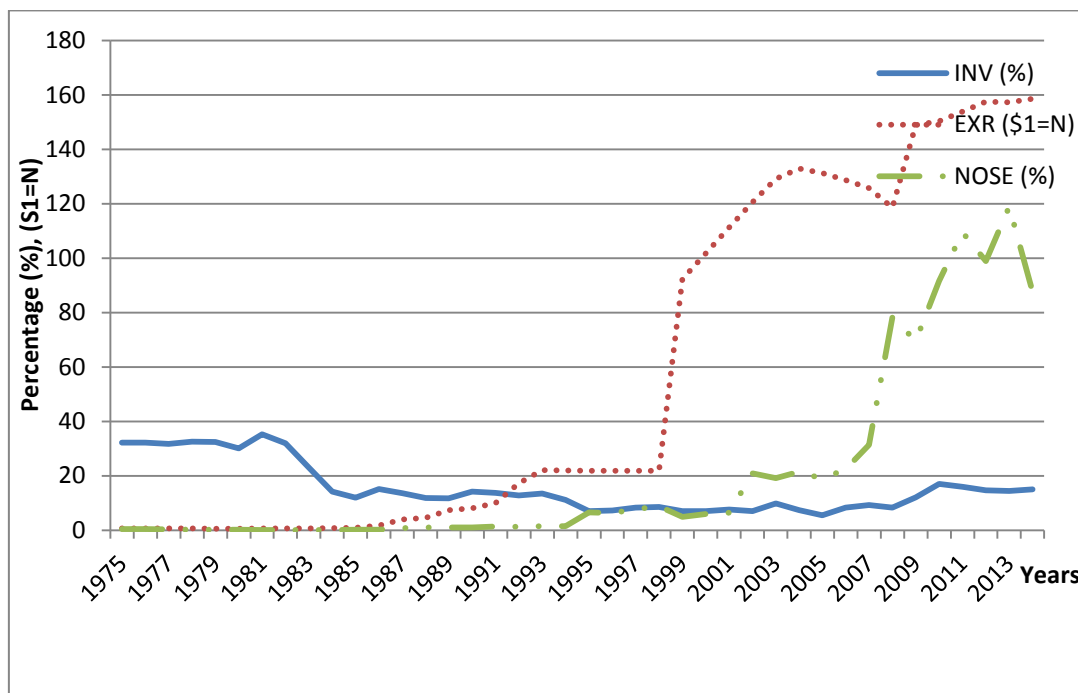
Source: Author's computation (2017)



**Figure 1. Non-oil sector Export, Globalization, GDP, FDI and ODA in Nigeria (1975-2014)**

Figures 1 and 2 illustrate the relationship among globalization, macroeconomic factors and non-oil sector export growth in Nigeria during the period of 1975 to 2014. The relationship between the variables is not clear enough to indicate whether it is positive or negative. To some extent, there is similar movement between globalization and non-oil sector output from 1992 to 2000. The growth in non-oil sector to GDP from the inception to 1994 fluctuates between 0-2%, but later improves after this period. However, globalization as a ratio of GDP fluctuates throughout the periods.

Thus, the inconclusiveness of the direction of our variables necessitates the need for an empirical analysis.



**Figure 2. Non-oil sector Export, Exchange Rate and Investment in Nigeria (1975-2014)**

#### 4.2. Unit Root Test Results

Table 2 presents the results of the time series properties of the variables included in the model. This pre-test was carried out before estimating the long-run and short-run relationship among globalization and non-oil sector growth in Nigeria (1975-2014).

The Augmented Dickey Fuller (ADF) unit root test results is presented in Table 2 indicate that gross domestic product (GDP) and foreign direct investment (FDI) are stationary at levels [I(0)]. However, non-oil sector export (NOSE), globalization (GLO), official development assistance (ODA), exchange rate (EXR), and investment (INV) were reported to be stationary at first difference [I(1)]. Thus, these series are non-mean reverting at levels and do not converge to their long-run equilibrium until they are first differenced.



**Table 2. ADF Unit Root Test Results**

Variables	ADF Tau Statistics		Order of Integration
	Intercept	Linear Trend	
NOSE	-7.0638 (0) [-3.6156]*	-7.5831 (0) [-4.2191]*	1
GLO	-8.5604 (0) [-3.6156]*	-8.6341 (0) [-4.2191]*	1
GDP	-5.1700 (0) [-3.6105]*	-5.800 (0) [-4.2119]*	0
FDI	-3.4480 (0) [-2.9390]**	-3.5057 (0) [-3.1964]***	0
ODA	-4.0307 (1) [-3.6156]*	-4.3487 (1) [-4.2191]*	0
INV	-4.9170 (1) [-3.6210]*	-5.4356 (1) [-4.2268]*	1
EXR	-5.7794 (0) [-3.6156]*	-5.8316 (0) [-4.2191]*	1

**Note:** \* significant at 1%; \*\* significant at 5%; \*\*\* significant at 10% Mackinnon critical values and are shown in parenthesis. The lagged numbers shown in brackets are selected using the minimum Schwarz and Akaike Information criteria.

*Source: Author's computation (2017)*

### 4.3. Autoregressive Distributed Lag (ARDL) Results

Econometric literature argued that regressing a stationary series on non-stationary series has severe implications in drawing policy inference. The data series provides evidence for the use of Autoregressive Distributed Lag (ARDL) technique of analysis. As posited by Pesaran *et al.*, (2001), ARDL is more suitable for variables at different order of integration. The F-statistics estimate for testing the existence of long-run relationship between globalization and non-oil sector export growth in Nigeria are presented below in Table 3:

**Table 3. Existence of Long-Run Relationship between globalization and non-oil sector export**

Test Statistic	Value	k
F-statistics (NOSE  GLO, GDP, FDI, INV, ODA, EXR)	6.5787	6
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

*Source: Author's computation (2017)*

The estimated F-statistics of the normalized equations ( $F_{arb} = 6.58$ ) is greater than the lower and upper critical bound at 1% significance level. It implies that the null hypothesis of no long-run relationship is rejected at 1% significance level. The implication of the above estimation is that non-oil sector export (NOSE), globalization (GLO), gross domestic product (GDP), foreign direct investment (FDI), official development assistance (ODA), exchange rate (EXR), and investment (INV), all have equilibrium condition that keep them together in the long-run.

#### 4.3.1. Results of Long-run Estimates of Globalization and Non-oil Sector Export using the ARDL Approach

Table 4 reveals the long-run estimates between globalization and non-oil sector export growth in Nigeria.

**Table 4. Long Run Coefficients [ARDL: 4,0,3,0,2,0,2]**

<b>Dependent Variable: Non-oil sector export (NOSE)</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
<b>GLO</b>	0.281179	0.105717	2.659733	0.0039
<b>GDP</b>	-3.894895	1.931565	-2.016445	0.0222
<b>FDI</b>	-0.521280	1.927215	-0.270484	0.3936
<b>ODA</b>	17.139873	8.656391	1.980025	0.0239
<b>INV</b>	0.618564	0.666042	0.928716	0.1788
<b>EXR</b>	0.423648	0.114876	3.687880	0.0000
<b>C</b>	-30.032007	25.008024	-1.200895	0.1151

\*\*\*, \*\*, \* indicate 1%, 5% and 10% level of significance respectively

*Source: Author's computation (2017)*

The long-run estimates suggested that globalization (GLO), official development assistance (ODA), investment (INV) and exchange rate (EXR) have positive impact on non-oil sector export (NOSE) in Nigeria and all these conform with theoretical expectation. Specifically, a 1% point increase in globalization (GLO), official development assistance (ODA), investment (INV) and exchange rate (EXR) increase non-oil sector export (NOSE) by 0.28%, 17.1%, 0.62% and 0.42% respectively. However, gross domestic product (GDP) and foreign direct investment (FDI) suggest a negative impact on non-oil sector export (NOSE) in Nigeria. This does not conform with a priori expectation. Thus, if the gross domestic product (GDP) and foreign direct investment (FDI) increases by 1%, non-oil sector export (NOSE) is expected to reduce by 8.9% and 0.52% correspondingly. The table shows that globalization, exchange rate output growth and official development assistance were statistically significant at 0.05 critical values.

#### 4.3.2. Error Correction Models using the ARDL Approach

The short-run dynamic relationship between globalization and non-oil sector export growth in the Nigeria indicating the second part of the estimated ARDL model is reported in Table 5. The lag lengths were selected based on Akaike Information Criterion (AIC). The table below reveals the short-run dynamic estimates among variables of interest.

**Table 5. Estimated Short-run Error Correction Model [ARDL: 4,0,3,0,2,0,2]**

<b>Dependent Variable: Non-oil sector export (<math>\Delta</math>NOSE)</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
<b>Constant</b>	-7.512278	6.708077	-1.119885	0.2775
$\Delta(\text{NOSE}(-1))$	-0.210532	0.155976	-1.349770	0.1938
$\Delta(\text{NOSE}(-2))$	0.731156	0.148966	4.908200	0.0000
$\Delta(\text{NOSE}(-3))$	0.771315	0.151288	5.098315	0.0000
$\Delta(\text{GLO})$	0.084485	0.096657	0.874069	0.3936
$\Delta(\text{GDP})$	-0.170583	0.158752	-1.074526	0.2968
$\Delta(\text{GDP}(-1))$	0.062188	0.223184	0.278639	0.7837
$\Delta(\text{GDP}(-2))$	0.391686	0.196865	1.989614	0.0239
$\Delta(\text{FDI})$	-0.156628	0.572526	-0.273573	0.7875
$\Delta(\text{ODA})$	1.128235	1.250772	0.902031	0.3790
$\Delta(\text{ODA}(-1))$	-6.172837	0.925665	-6.668544	0.0000
$\Delta(\text{INV})$	0.185858	0.193248	0.961758	0.3489
$\Delta(\text{EXR})$	0.018173	0.090094	0.201716	0.8424
$\Delta(\text{EXR}(-1))$	-0.183171	0.099374	-1.843252	0.0329
<b>ECT(-1)</b>	-0.300467	0.080459	-3.734391	0.0000

\*\*\*, \*\*, \* indicate 1%, 5% and 10% level of significance respectively

*Source: Author's computation (2017)*

The short-run estimates suggested that the second and third lags of non-oil sector export (NOSE) exact positive impact on the current growth of non-oil sector export in Nigeria. Thus, the short-run estimate of globalization has positive effects on the non-oil sector export in Nigeria. The error correction term indicates the speed of adjustment to restores equilibrium in the model. The value is negative also significant at 1% significance level. Specifically, the lag of the error correction term (ECT) was found statistically significant at 1% level with the co-efficient of -0.3005. This indicates that 30.1% of the distortion in the short-run is corrected in the first year in attaining equilibrium or non-oil export growth on the basis of the changes in the globalization, investment, official development assistance, exchange rate and foreign direct investment in Nigeria.

#### 4.3.3. Diagnostic Tests

The estimated ARDL model is tested for heteroscedasticity, serial correlation, functional form misspecification, parameter stability and normality. The results from these tests are shown in Table 6.

**Table 6. Diagnostic Tests of Selected ARDL Model**

Results	
<b>Serial Correlation:</b> 1.3663 [0.2833]	<b>Normality Test:</b> 0.0550 [0.9729]
<b>Functional Form:</b> 6.3570 [0.0000]	<b>Heteroskedasticity Test:</b> 1.2304 [0.3329]

*Source: Author's computation (2017).*

The estimated ARDL model revealed that the model passed the serial correlation, normal test and heteroskedasticity tests. Moreover, the Ramsey RESET test was not satisfactory for the ARDL model.

## 5. Conclusion

This paper examines the impact of globalization on non-oil export growth in Nigeria within the periods of 1981 to 2014. A perusal of past studies revealed that few studies had examined the relationship between globalization and non-oil export performance and their results are best described as mixed and inconclusive. The study used the bound testing approach to evaluate the relationship that exist between globalization measured by trade openness, other factor determinants (such as output, official development assistance, investment, foreign direct investment, exchange rate) and non-oil export growth in Nigeria. The study found that a long-run relationship exist between globalization and non-oil export performance in Nigeria.

Based on the ARDL estimates, it was observed that in the long-run, globalization, official development assistance, investment and exchange rate had positive impact on non-oil export growth in Nigeria. In addition, gross domestic product and foreign direct investment had negative impact on non-oil sector export in Nigeria. The short-run estimates revealed that globalization has positive and insignificant impact on non-oil export performance. An important observation from the empirical estimate indicated that openness of trade expands the output growth of the non-oil sector in the long-run. Following these observations, government should adopt and implement trade policies that are capable of sustaining non-oil sector growth in Nigeria. Government should also ensure that foreign investments are channelled into real sector where proceeds and capital cannot be easily repatriated to host country.



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