

# Economic Globalization: Its Impact on the Growth of Non-Oil Supply in Nigeria

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## Abstract

The study examined the impact of economic globalization on the growth of non oil supply in Nigeria. Specifically, it sought to find out how economic globalization has impacted on changing the structure of domestic production in favour of non oil supply in Nigeria in the period 1970-2011. The study employed ordinary least square (OLS) and Vector Error Correction Model (VEC) in a bid to delineate the long run relationship between growth of non-oil supply (NOX), economic globalization (proxied by index of openness) (OPN), relative prices (RP), gross domestic product (GDP), capital goods import (CG), world income (WI), exchange rate (EXR) and oil export (OX). The results show that a 1% increase in economic globalization will grow non-oil supply by 36% but t-statistics of 1.115 is indicative of an insignificant impact both in the long run and short run. Equally, a 1% increase each in GDP, RP, CG, and EXR will grow NOX by 108%, 012%, 004% and 08% respectively, while a 1% increase in WI and OX will depress the NOX by 149% and 02% respectively. The depressing effect of WI on NOX is indicative that WI elasticity for Nigerian NOX is negative, that is, as WI grows tastes and preferences change in favour of non Nigerian NOX. The weak impact of CG in explaining the contemporaneous changes in the growth of NOX implies that the latter may increase in the short run without necessarily increasing the importation of the former – a good case for dependency driven Nigerian economy. Though diversification and increased openness are recommended, improving on the quality, packaging and marketing of Nigeria's NOX is imperative in order to reverse the WI growth-Nigerian NOX demand relation and so gain from greater integration and trade.

**Keywords:** Globalization, Non-oil supply, oil export, openness, GDP

## 1 Introduction

The growth and advancement in technology shrunk and made the world a global village and reduced the cost of transportation and communication which are the two major barriers to trade. As a result, world output has been expanding and many countries are benefiting from increased cross-border trade and investments. On the other hand, many other countries are not enjoying these benefits because of inefficient policy management which sometimes result in unintended policy outcomes. Deregulation of domestic markets, removal of subsidies on public goods and services and their opening to competition, are also features of the current global order.

However, this same process encourages rising inequality among and within nations. The liberalization of the world economy, for instance, has proceeded in such a way that growth prospects of developing countries are being undermined. World Bank (2002) concedes that globalization produces winners and losers, both between and within countries. Hence, while economies of seven East Asian countries are among the fastest growing economies in this decade due largely to policies of liberalization and openness, most countries in Sub Saharan Africa (SSA) have witnessed declining economy after increased openness of their economies. Both are products of economic globalization.

One of the thrusts in the economic policies of Nigeria is the augmentation in share of the country's economy and improving her situation in international trade and world economy. The sale of oil and its products and government revenue from crude oil were not sustainable during the past years, and because crude oil is an exhaustible asset, it is unreliable for sustainable development of the nation's economy. Diversification of the economy away from its heavy reliance on oil revenues and improving the economy's future growth is an important goal, and policies to expand non-oil revenue and reduce the over dependence on oil export are desirable. Having a competitive environment is crucial for improving non-oil supply and so increased openness of the economy is important.

The wholesale adoption of the Structural Adjustment Programme (SAP) in the second half of 1986 and other subsequent policies were aimed at deregulation, liberalization, diversification and restructuring of the productive

base with positive bias for the production of agricultural exports. The adoption was predicated on the assumption that the weaknesses of the economies of control trade will prevent the enjoyment of the benefits of openness (Yusuf 2000).

However, despite these policies, the expected surge in the supply of non-oil export as proportion of total export has remained a far cry. Specifically, in 1970 non-oil export as proportion of total export was 42.4 %, but fell drastically to 6.2% in 1989 and further to 2.4 % in 2008. As annual average of total export, it fell from 10.6% in the control period of 1970-1985 to 3.3% in the 1986-2011 pro-deregulation era. So, contrary to the expectation of increased non-oil export, there was instead an overall decline in non-oil merchandise export. The objective of the paper is therefore to examine how globalization has impacted on changing the structure of domestic production in favour of non-oil export in Nigeria in the period 1970 to 2011. The foregoing introduces the subject matter. The remainder of the work is structured as follows: section two briefly reviews related literature; section three presents the methodology, section four analyzes and discusses the results while conclusion is presented in section five.

### 2.1 *Theoretical Literature*

Several trade theories were propounded to show how international trade benefits nations. Some of such theories are the absolute and comparative costs advantage by Adam Smith and David Ricardo respectively. While Adam Smith argued that world output will increase if given two goods and two countries each country should specialize in the production of the good or service which it has absolute advantage, Ricardo further argued that even if one country has absolute advantage in the production of 'the two goods' against another country, both may still benefit if each of them specialize in the production of the good it has comparative advantage or least comparative disadvantage. With this, the two countries will enjoy the benefits of comparative advantage (increased production) and enhance the process of exchange between them. Thus the underlining tenets of the classical theory is that a country should produce and export the good whose comparative cost (opposite of comparative advantage) is lower in autarky and import the goods of which the comparative cost is higher in pre-trade isolation (Iyoha, 1995). The classical theory assumes constant costs, only one factor of production, and perfect competition both in factor and product markets. These assumptions are said to be unrealistic.

The need to modify the unrealistic assumption of the classical theory led to the neoclassical factor endowment theory of external trade developed by Eli Heckscher and Bertil Ohlin in 1933. Factor endowment theory allowed for the capital as the second factor of production and it provided more realistic information for the existence of difference in comparative costs between countries and in the pattern of demand. According to them, differences in comparative costs arise because of differences in relative factor endowment among countries and countries should specialize in the production and export of those goods in which they have greatest endowment. Other theories include the Linder theory of external trade, the size and distant theory of external trade by Linnerman and Tinbergen (Iyoha 1995), and the vent-for-surplus theory as modified and applied to third world nations by Hla Myint. The vent-for-surplus is said to provide a more realistic analytical scenario of the historical trading experience of many developing countries than either the classical or neoclassical models (Iyoha 1995). Thus, trade involves co-operation and integration among nations for the benefits of all concerned. Though an uneven process, one major implication of this is that no single nation can survive on its own without collaborating with other nations of the world. This necessitated the growing integration of national economies, through trade in goods and services, financial transactions and movement of human capital (Alege and Ogun, 2004). This is aptly termed economic globalization.

Openness does not come without costs. It tends to reduce the market power of domestic firms and increase competitive pressure on them, eventually forcing some of them out of business. In the longer run, the country may become more efficient and thus enjoy higher growth rates and lower poverty. But in the short run, the inability to compete and the presence of labour market rigidities (segmentation due to minimum wage legislation or wage setting behaviours by firms or trade unions, as well as imperfect mobility across sectors), may hamper the reallocation of labour between non-tradable and tradable sectors that a reduction in tariff normally entails. As a result both unemployment and poverty may increase and persist over time (Ebo, 2005).

Another cost of openness recognized by McCulloch (2000) is it may increase volatility of terms-of-trade and consequently the volatility of GDP. It could make countries more vulnerable to changes in world prices. It may also bring greater volatility in domestic financial markets, particularly in countries whose financial systems were weak to begin with and economic policies lacked credibility.

Some studies have found no significant relationship between openness and economic performance. Elbadawi (1992) contends that efficiency gain from trade reforms may be small since domestic producers cannot reallocate resources sufficiently due to weakness in the human resource base as well as inadequate infrastructures and institutions. In a similar vein, Helleiner (1986) shows no significant relationship between

openness and economic performance.

## 2.2 Empirical Literature

Empirical studies have been conducted at the international level to establish a strong link between export and the GDP (Krueger, 1992; World Bank, 1992). Krueger (1992) examined the relationship between the growth of exports and the growth of GDP for ten developing countries and found that an increase in the growth rate of export earnings of 1 percent point annually was associated with an increase in the rate of GDP growth of about 0.1 percent point. The World Bank's study examined 41 developing countries under four trade policy regimes: strongly outward oriented, moderately outward oriented, moderately inward oriented and strongly inward oriented. The study found that countries with outward oriented trade policy performed better than those with inward oriented trade policy. Outward oriented policies (liberalization policies) have been adopted in Nigeria since 1986.

For Nigeria, export-growth nexus have been investigated extensively using different methodologies and specifications. Deme (2002) using cointegration and causality approach found that there was no long-run link between trade openness and economic growth but a short run causal link between some measures of trade openness and economic growth. The study by Ozughalu (2012) had similar finding that in the short run, the export-led growth hypothesis was valid with respect to oil exports but not non-oil exports. Also Ogujiuba *et al* (2002) found that there is no significant relationship between openness and economic growth.

Ekpo and Egwaikhide (1994) examined the link between exports and economic growth in Nigeria between 1959 and 1989 using error-correction method. The study confirmed that export growth affects income growth. Using an error-correction model for 1970-1996 in another study, Oladipo (1998) found that when export/GDP ratio was used as a measure of the degree of openness, it correlates positively with GDP growth. But the conventional measure of export plus import divided by GDP ( $X+M/GDP$ ) reports a negative relationship, perhaps owing to the depression effects of import dependence. Olomola (1998) using Ordinary Least Square for 1960-1998 data confirmed a positive relationship. A study by Feridun *et al* (2006) using error correction modeling found that trade openness had significant positive effect on economic growth in Nigeria but the impact of financial integration on the economy is, however, negative and insignificant at 10 per cent level of significance.

Empirical studies on openness-non-oil growth dynamics for Nigeria are hard to come by. A study by Okoh (2004) using the vector error correction model, found that global integration is not significant both in the long run and short run in explaining growth of non-oil exports in Nigeria. The results also show that the Nigeria non-oil export is price and income inelastic in the short run. The study found that growth in importation of capital inputs was highly significant in explaining contemporaneous changes in the growth of non-oil exports. The study recommended that Nigeria should protect her domestic producers and impose higher tariffs and quotas since openness will not contribute to the growth of non-oil exports. However, the use of non-oil export + non-oil import/GDP as openness measure might have affected the result since the measure masks the real index of openness which determines the degree of openness.

Ezike and Ogege (2012) studied the impact of Nigerian foreign trade policy on non oil exports for the period 1970-2010 using both correlation analysis and least square techniques found a negative and insignificant relationship between openness (proxy for trade policy) and non oil export. They conclude that trade liberalization adopted in the country has not promoted the performance of non oil exports. However, the inclusion of oil export variable to test for Dutch disease hypothesis in their model was proposed but never discussed, thereby masking the real effect of this variable on non-oil supply. Bakare and Fawehinmi (2011) in modeling for the impact of trade openness on Nigeria non oil industrial performance for the period 1988-2010 found a positive and significant impact of openness on industrial performance. Using ordinary least square regression analysis, they found that a 1% increase in trade openness leads to about 24% increase in industrial performance. The fact, however, is that none of these studies carried an indebt work on the linkage and impact of economic globalization on non-oil supply in Nigeria and this is what this work intends to achieve.

## 2.3 Non-Oil Export Performance Vis-à-vis Trade Intensity Index in Nigeria: 1970-2011

Non-oil supply consists traditionally of agricultural products both processed and unprocessed. From table 2.1, the nominal value of non-oil supply in 1970 was N375.4 million. It rose to N554.4 million in 1980 but fell to N497.1 million in 1985. In 1991, the value of non-oil supply was N4,677.3 million, but rose to N133,595 million in 2006. As percent share in total export, it was 42.4% in 1970, but fell to 4.2% in 1985. However, SAP and subsequent policies of deregulation and trade liberalization from 1986 failed to elicit the expected surge in the production of processed and unprocessed agricultural products as percent share in total export stood at 6.2% in 1986, fell to 3.8% in 1991 and further to 2.1% in 2011. In all, while the average annual percent in the period 1970-1985 was 10.6%, it fell to 3.3% in the period 1986-2011.

**Table 2.1: Nominal values of non-oil and oil exports, and percent shares in total export (1970-2011)**

Year	Trade Intensity Index (EXP+IMP/GDP)	Non Oil Export (Nm)	Oil Export (Nm)	Total Export (Nm)	% Share in Total Export		Average Annual Percentage Share in Total Export	
					Non oil	Oil	Non-Oil Export	Oil Export
1970	19.6	375.4	510.0	885.4	42.4	57.6	1970-1985 = 10.58%	1970-1985 = 89.42%
1975	41.2	362.4	4,563.1	4,925.5	7.3	92.7		
1980	48.6	554.4	13,632.3	14,186.7	3.9	96.1		
1985	27.6	497.1	11,223.7	11,720.8	4.2	95.8		
1986	21.5	552.1	8,368.5	8,920.6	6.2	93.8	1986-2011 = 3.32%	1986-2011 = 96.68
1991	68.0	4,677.3	116,858.1	121,535.4	3.8	96.2		
1996	69.2	23,327.5	1,286,215.9	1,309,543.4	1.9	98.1		
2001	68.8	28,008.6	1,839,945.3	1,867,953.9	1.5	98.5		
2006	56.4	133,595.0	7,191,085.6	7,324,680.6	2.3	97.7		
2011	66.3	134,600.3	12,639,511.1	12,774,111.4	2.1	97.9		

Source: CBN Statistical bulletin various years, authors' computations

Above analysis is in contrast with the performance of trade intensity index (our proxy for globalization). In table 2.1 for instance, given the index of 19.6 in 1970, non-oil supply as share in total export was 42.4%. With index of 41.2 in 1975, non-oil supply fell to 7.3%. After deregulation and trade liberalization of 1986, index rose to 68 in 1991, but non-oil export fell to 3.8%. With a fall in index to 56.4 in 2006, non-oil export expectedly fell marginally to 2.3%. In contrast, and following Dutch disease hypothesis, oil export both as value and percent share in total export was impressive throughout the analysis period. For instance, while oil export nominal value in 1970 was N510 million, it rose to N13,632.3 million in 1980. In 1991, it rose to N116,858.1 million and further to N7,191,085.6 million in 2006. As percent share in total export, it was 57.6% in 1970, rose to 95.8% in 1985 and further to 97.7% in 2006. On the whole, while the average annual percent during the control period 1970-1985 was 89.4%, it rose to 96.7% in the period 1986-2011.

### 3.1 Methodology and Data

Data set for the estimation of the equation of this study is mainly secondary data and comprises annual time series spanning 1970-2011 on NOX, OX, GDP, RP, CG, EXR, sourced from CBN statistical bulletin for various years, while WI was sourced from www.bls.com (see description after equation 2).

### 3.2 Model Specification

To establish the link between growth of non-oil supply and globalization variables, it is conventional to specify the export demand function as a multiplicative or constant elasticity function of relative prices measured in a common currency and foreign income as follows (Thirlwall, 1999 in Okoh 2004).

$$NOX = (RP)^{\alpha} WI^{\beta} \dots \dots \dots (1)$$

Where: NOX = value of exports, RP =  $P_d/P_f$  ( $P_d$  = the domestic price,  $P_f$  = the foreign price), WI = world income,  $\alpha$  = price elasticity of world demand for export ( $< 0$ ),  $\beta$  = Income elasticity of world demand for export ( $> 0$ ).

The outward oriented model sees export as being dependent on foreign demand and not supply constrained. Hence, the capacity of the economy to produce for export, proxied by GDP is an important determinant of export growth. It is claimed by the proponents of global integration that it enhances capacity to produce for export via imported technology (Yusuf, 2000). Hence, the inclusion of the growth rate of imported capital goods (CG) in the model as determinant of export. Assuming a linear relationship between the variables, equation (1) may thus be expanded to include other variables considered important determinants of Nigeria's export growth as we model:

$$NOX = f(OPN, GDP, RP, CG, WI, OX, EXR) \dots \dots \dots (2)$$

The econometric form of the model specified is thus:

$$NOX = a_0 + a_1 OPN + a_2 GDP + a_3 RP + a_4 CG + a_5 WI + a_6 EXR + a_7 OX + u \dots \dots \dots (3)$$

Where: NOX is the value of Non-oil export; OPN is trade intensity index (export + import/GDP) – Openness; GDP is gross domestic product; RP stands for relative prices ( $P_d/P_f$ ) of selected agricultural products proxied by agricultural production –  $P_d$  is the domestic price of selected agricultural products, while  $P_f$  is the foreign price of selected agricultural products; CG is growth rate of capital goods proxied by growth of fixed assets at cost for agriculture, WI is world income proxied by U.S foreign income, OX is for oil export (to gauge the Dutch disease model), EXR is nominal effective exchange rate (N/\$), while u is the error term.  $a_0$  is autonomous intercept (the value of NOX (explained variable) without the effect of explanatory variables). The a priori expectations of



the coefficients are:  $a_1, a_2, a_4, a_5 > 0$ ;  $a_3, a_7 < 0$ ;  $a_6 < 0$ .

### 3.3 Definition and Justification of the Variables

A globalized economy is indicative of an economy open to international trade. Such economy permits trade in the tradable goods/services sector. The degree of openness is measured as a ratio of the sum of exports and imports to GDP. The index has also been used as a proxy for outward orientation in trade relations (Greenaway and Sapsford, 1987). The larger the index of openness, the higher the degree of openness (Okoh, 2004). According to Olaniyi (2005), the trade openness implemented in the post 1986 structural adjustment period contributed to Nigeria's export performance. Thus, it is expected that openness relates positively with the growth of non-oil supply in Nigeria.

The outward oriented hypothesis sees export as being foreign demand dependent and not supply constrained (Okoh, 2004). Hence, the capacity of the economy to produce for export, proxied by GDP, and foreign demand driven by foreign income are important determinants of export growth. Following Oyejide (2002), foreign demand for Nigeria's export is proxied by U.S real gross domestic product. It is claimed by the proponents of global integration that GDP enhances capacity to produce for export via imported technology (Yusuf, 2000). Hence, the growth rate of capital goods was also included in the model as determinant of export. Thus, the variables, GDP, WI, and CG are expected to relate positively with non-oil export growth in Nigeria.

Exchange rate refers to the rate Nigeria's currency (Naira) is exchanged for other currencies. The study used the nominal effective exchange rate of naira per dollar (N/\$) to capture the effect of exchange rate on the performance of the agricultural sector. The theoretical literature is ambiguous about the direction of the effect of real exchange rate on the rate of investment. While a real depreciation raises the cost of imported capital goods and since a large chunk of investment goods in developing countries is imported, domestic investment would be expected to fall on account of significant depreciation. On the other hand, a significant depreciation by raising the profitability of activity in the tradable goods sector would be expected to stimulate private investment in the sector but it depresses investment in the non tradable goods sector. For low income African countries, Nigeria inclusive, therefore, the relationship between exchange rate and the performance of the economy is inconclusive (Ezike and Ogege, 2012).

Relative prices (RP), that is, domestic price index divided by foreign price index of selected agricultural products measures the price elasticity of demand for exports. It is expected to relate negatively with non-oil supply as higher index depresses its competitiveness in the international market. Oil export is introduced in the model to test the 'Dutch disease hypothesis'. Since increases in the demand for Nigeria's oil have contributed to the neglect of the non oil export, the inclusion of oil export variable in the export function will enable us verify the hypothesis. The variable is expected to relate negatively with non-oil growth given the Dutch disease postulation.

### 4.1 Results

The summary statistics of the variables presented in table 4.1 shows that all the variables signed correctly except the OX variable. In particular, with the coefficient of 0.38, OPN variable (our proxy for globalization) correlated positively but weakly with NOX and the positive correlation is in tandem with globalization-growth hypothesis. The variables explain the extent of positive relationship and how closely they move in the same direction with NOX.

**Table 4.1: Correlation Matrix**

Correlation	NOX	OPN	GDP	RP	CG	WI	EXR	OX
Probability								
NOX	1.000000	0.383937	0.977722	-0.086066	0.702716	0.764023	0.811174	0.748705

Table 4.2 shows unit root test and order of integration of the variables – dependent and independent based on the Augmented Dickey-Fuller (ADF) test equation. The ADF tests the null hypothesis that the variables of interest are non-stationary (have unit root) and ascertain the number of times variables need to be differenced to achieve stationarity. As shown in table 2, the ADF statistics strongly support the hypothesis that NOX, OPN, GDP and RP are stationary at levels, that is I(0), while the CG, WI, EXR, and OX are stationary at first difference, that is I(1), judging by the fact that ADF statistic is more negative at 1% level of significance than the McKinnon critical values of rejection of the hypothesis of unit root.. The support of hypothesis of stationarity is the rejection of null hypothesis of a unit root.

**Table 4.2: ADF Unit Root Test Results**

Variable	NOX	OPN	GDP	RP	CG	WI	EXR	OX
ADF Statistic	-4.664	-5.483	-4.338	-4.289	-4.451	-4.456	-3.851	-3.644
Critical Value*	-3.602	-4.209	-3.602	-3.602	-3.602	-3.607	-3.607	-3.607
Order of Integration	I(0)	I(0)	I(0)	I(0)	I(I)	I(I)	I(I)	I(I)

\*McKinnon critical value for rejection of unit root at 1% level

As can be seen from table 4.3, the results of Johansen co-integration test show that the variables are co-integrated, that is, there exists a long-run or equilibrium relationship between NOX and the independent variables. The null hypothesis of unit root is rejected for 3 and 2 of the variables at 95% and 99% confidence level since the likelihood ratio is higher than the critical values at 5% and 1% respectively.

**Table 4.3: Results from Johansen Co-integration Test (maximum Eigen Value)**

Eigen Value	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.905547	209.5806	124.24	133.57	None **
0.676117	115.1944	94.15	103.18	At most 1 **
0.512332	70.09946	68.52	76.07	At most 2 *
0.428116	41.37465	47.21	54.46	At most 3
0.285146	19.02186	29.68	35.65	At most 4
0.120565	5.594768	15.41	20.04	At most 5
0.011328	0.455722	3.76	6.65	At most 6

\*\*denotes rejection of the hypothesis at 5% and 1% significance levels, or \*denotes rejection of the hypothesis at 5% level of significance.

Given the presence of co-integrating relationship among the variables, we then estimated the short-run dynamics within a vector error correction model (VEC) to help capture the speed of adjustment to equilibrium in the case of any shock to any of the independent variables. ECM is presented in Table 4.4.

**Table 4.4: Parsimonious Error Correction Model**

Dependent Variable	Independent Variables								Summary of Results
	Constant	Log OPN	Log GDP	Log RP	Log CG	Log WI	Log EXR	Log OX	ECM
NOX	0.008 (0.34)	2.647 (1.39)	-2.389 (-0.81)	-0.170 (-0.21)	0.197 (1.28)	0.249 (0.16)	-0.010 (-1.06)	0.181 (1.02)	-1.633 (-0.30)

The magnitude of the ECM (term) reveals the variations in the dependent variable per period that is attributable to the disequilibrium between the natural and equilibrium levels (see table 4.4). The results show that in the short-run, OPN, CG, WI, and OX variables maintained positive but insignificant relationship with NOX while RP, GDP, and EXR are negative. ECM which measures the speed of adjustment back to equilibrium has coefficient of -1.633 indicative of feedback effect of approximately 163% of the previous years' disequilibrium. However the negative sign indicates that an increase is required through the independent variables (Patterson, 2000). The calculated t-statistics of -0.30 is insignificant indicating that past equilibrium errors do not play any role in determining the current outcome.

After converting the variables into their logarithmic form based on equation 3, the log linear regression results are presented in table 4.5:

**Table 4.5: OLS Regression Results**

From table 4.5, the regression coefficients of OPN, GDP, RP, CG, WI, EXR and OX are 0.358, 1.080, 0.012, 0.004, -1.492, 0.078 and -0.019 respectively.

Dependent Variable	Independent Variables								Summary of Results		
	Constant	Log OPN	Log GDP	Log RP	Log CG	Log WI	Log EXR	Log OX	R <sup>2</sup> /Adj R <sup>2</sup>	F-C	DW
NOX	8.091 (0.863)	0.358 (1.115)	1.080 (5.568)	0.012 (0.506)	0.004 (0.046)	1.492 (-1.269)	0.078 (0.423)	-0.019 (-0.369)	0.97 1/5	163.2 60*	0.831

0.004, -1.492, 0.078 and -0.019 respectively. These imply that 36%, 108%, 01%, 0.004%, -149%, 0.08% and -0.02% of variations in NOX are explained by these variables respectively.

Given the calculated t-statistics in the above regression equation, only GDP exhibits a value significantly different from zero, hence, we accept the null hypothesis that the coefficient of each of the regressors is not significantly different from zero and reject the null hypothesis for GDP variable. We therefore conclude that only GDP variable significantly determine the performance of NOX in Nigeria.

#### 4.2 Discussion

The economic implications of the above results are as follows: The positive relationship between openness (OPN) and non-oil export is indicative that openness (globalization) promotes growth of non-oil supply. A 1% increase in openness will lead to about 36% increase in non-oil supply – an indication that the trade liberalization adopted in the country promoted the performance of non-oil export. However, the insignificant impact both in the short-run and long-run given the t-statistic is indicative that globalization is not significant in explaining non-oil export growth due to the depression effect of imports. This affirms the findings of Okoh (2004), Olaniyi (2005), and Olomola (1998). The insignificant impact underscores the imperative to further improve the institutional framework to support the market economy. More incentives to agricultural producers in the form of tax rebate, improved access to production sites are desirable in order to improve the sector's performance, reduce over-dependence on oil export and counter-balance rising imports. Only then, will a larger index of openness which is required to improve the degree of openness impact significantly on non-oil supply. Average annual degree of openness for the period 1970-2011 is 49.98 indicative of the need to further deregulate and liberalize the economy. Ezike and Ogege (2012) result finds a negative but insignificant relationship between non-oil export and openness.

The coefficient of GDP variable is 1.080 while the t-statistic is 5.569. The positive and significant relationship between GDP and non-oil export shows that growth of the economy will improve the latter's supply in Nigeria. This affirms the proposition that GDP growth improves the capacity of the economy to produce for export via imported technology (Yusuf, 2000). Policies to improve the macro-economy will raise investment in imported inputs and stimulate growth of non-oil supply.

The negative relationship between world income (WI) and non-oil export is contrary to a priori expectation and posits that increase in WI depresses non-oil supply. A 1% increase in WI depresses non-oil export by 149%. The implication of this is that as WI rises tastes and preferences change against non-oil export of Nigeria. This negates the outward oriented hypothesis which postulate foreign income-export growth dependent. This suggests that Nigeria non-oil export current state is not competitive and does not gain any reasonable share of the world market in the short run despite policies on globalization. The crude, poor packaging and hence inferior nature of Nigeria's non-oil supply may be attributable to this and because exports are both domestic and foreign price elastic, producers in Nigeria should be encouraged to improve on the quality, processing, packaging and marketing so as to reverse the WI growth-NOX relation.

The coefficient of exchange rate (EXR) is 0.078 while t-calculated is 0.423. This shows that a unit increase in EXR (depreciation) will bring about 0.08% increase in non-oil export supply, while a lower t-statistic depicts an insignificant relationship. Since depreciation raises the profitability in the tradable goods sector and hence stimulate private investment in non-oil export sector, monetary authorities should sustain the current rate of the naira so that non-oil export producers are able to harness the gain from the devaluation since they import a lot of intermediaries from abroad.

The result from the regression equation gives the coefficient of oil export (OX) as -0.0193 and the t-statistic as -0.369. This implies that on the average, a 1% increase in OX will decrease non-oil supply by 0.02%. However, the relationship is negatively insignificant. This result confirms the existence of Dutch disease syndrome in Nigerian economy and upholds the hypothesis that increase in oil supply leads to neglect of non-oil export. Furthermore, the scenario upholds the known neglect of non-oil export sector during the analysis period. As percent of total export, non-oil supply accounted for 42.4% in 1970, down to 4.2% in 1985. SAP and other deregulation policies failed to elicit the expected change in the structure of domestic production in favour of non-oil supply as its share in total export was 6.2% in 1986, fell to 1.9% in 1996 before rising marginally and insignificantly to 2.1% in 2011. Equivalently, as percent of total export, oil export was 57.6% in 1970, rose to 95.8% in 1985, further to 98.1% in 1996, before falling marginally and insignificantly to 97.9% in 2011. Nigeria is one of the largest exporters of crude oil to the US and has not benefitted immensely from the African Growth Opportunity Act (AGOA) because of the mono-cultural nature of production. Government should convincingly show commitment to improve incentives to agricultural producers (both processed and unprocessed) so as to diversify and improve the sector's performance, reduce over-dependence on oil export and fight Dutch disease syndrome. Only then, will a larger index of openness impact significantly on non-oil supply.

The  $R^2$  of 0.971 and the adjusted  $R^2$  of 0.965 are indicative that all the independent variables taken together explain about 97% of variations in dependent variable, the non-oil supply. The calculated F-statistic of 163.260 is significant and we therefore reject the null hypothesis that the joint influence of our regressors on the

regressand is not statistically significant.

## 5.1 Conclusion

This study has demonstrated an empirical explanation for the growth in non-oil supply as Nigeria gets more integrated into the global market through policies of deregulation and diversification. Employing error correction model and ordinary least square method, the study found that globalization (proxied by openness) is not significant both in the short and long run in explaining the growth in the supply of non-oil. While growth in GDP was positive and highly significant in explaining growth of non oil supply, the negative relationship between world income and non-oil supply underscores the inferior nature of the goods. The implication is that as world income grows, demand for Nigeria non-oil supply declines – a case of demand relation with inferior goods. Quality, packaging and marketing should be improved to make them more competitive and reverse the world income growth-non oil supply foreign demand relations. Growth of capital goods importation was weak and insignificant in explaining the contemporaneous changes in the growth of non-oil supply. The implication is that non-oil supply may increase in the short run without necessarily increasing the importation of capital inputs – a good case for dependency driven Nigerian economy. The negative relationship between oil export and non-oil supply confirms the existence of Dutch disease syndrome in Nigerian economy and upholds the hypothesis that increase in oil supply leads to neglect of non-oil export. Diversification of the economy is imperative to address this phenomenon.

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