

International Trade and Export Dynamics in Nigeria: An ARDL Vector Error Correction Analysis

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Abstract

Production patterns around the world have been significantly affected by international trade. Hence, countries have taken advantage of trade to produce for export what is not required by the domestic economy. This explains the large export dependence nature of some economies around the world. Global trade is associated with increase in worldwide standards of living because it sets in motion a worldwide division of labour and materials. This paper measures the factors that influence export in Nigeria. It measures the influence of factors such as exchange rate, inflation, interest, domestic saving, financial development, domestic credit to private sector, trade openness, per capita income, Foreign Direct Investment (FDI), gross capital formation, national debt, agricultural output, manufacturing, electricity supply, physical capital and government expenditure. The paper used ARDL Error Correction Model for the analysis of the data. Data was collected for the period 1989 to 2019. The results of the analysis show that saving, interest rate, domestic credit, trade openness, per capita income, agriculture and manufacturing are favorable to export in Nigeria. But, inflation, exchange rate, FDI and government expenditure are not favorable to export. The negative relationship with FDI may be as a result of the fact that most FDI coming to Nigeria are not going to the export sector. Government expenditure also may not be targeting the export sector, instead focusing on the domestic economy. The paper recommends that Nigerian government shall further support domestic saving to private sector, provide more credit to the export sector and adopt policies that boost trade openness. In addition, government shall further develop agricultural and manufacturing sectors that serve as the core of Nigerian export sector. Nigeria government shall very well manage such macroeconomic variables as interest rate, inflation and exchange rate to ensure that they are not harmful to export.

Keywords

Export, Nigeria, Foreign Exchange, trade openness, international trade, ARDL

1. Introduction

The relationships between macroeconomic indicators and export performance have for long been established in the international economics literature. Trade openness has been an important factor in boosting export growth

around the world. Classical economists such as Adam Smith, Mill and David Ricardo have written extensively about the benefits of international trade and openness. The increasing interdependence between countries has made the world economy open with countries engaging in trade with one another through exporting and importing. In the developing part of the world, most African countries have neglected to develop their export sector; hence, not learning from the successes of the East Asian economies. Many forces are driving companies around the globe to push for export market by expanding their participation in foreign markets (Yip, 1989). Export is linked with stimulating growth and economic performance including production and demand linkages, economies of scale caused by availability of larger international markets, increased efficiency, adoption of superior technologies, improvement in human capital development as well as increased productivity by means of specialization and creation of employment (Basu 2000; Giles & Williams, 2000). For domestic firms, having worldwide operations not only provides a firm access to new markets and specialized resources, it also opens up new sources of information to stimulate innovation (Mintzberg, Quinn, & Ghoshal, 1998). Some of the factors responsible for slow export growth mentioned in the literature include distorted and inconsistent policies, infrastructural deficiencies, low and poor management and technology, and an unstable policy environment. According to Mankiw (2007), to some extent, the behaviour of an economy depends on the exchange rate system it has adopted. One of the benefits of export growth is that it helps reduce some of the constraints inherent in foreign exchange market. Export provides the most needed foreign exchange required for sustenance and growth of domestic industry.

The famous Export-led Growth (ELG) hypothesis underscores the importance of export to economic growth. It is widely agreed that countries with large export base grow higher than those with low export base. But, export is even more important when it is diversified, with contributions from different sectors of the economy. Huge export base engenders growth and rapid development of an economy. A nation's export performances can be influenced by different types of variables including government policy, human resources, natural resources, population growth, foreign direct investment, inflation, interest rate, foreign exchange and modern technology. A major economic consequence of an overvalued currency is discouragement of exports and increase in import leading to balance of payments disequilibrium.

Macroeconomic stability has been an important factor in East Asian export growth (World Bank, 1993). According to Caves and Jones (1977), production patterns around the world have been significantly affected by international trade. Hence, countries have taken advantage of trade to produce for export what is not required by the domestic economy. This explains the large export dependence nature of some economies around the world. Global trade is associated with increase in worldwide standards of living because it sets in motion a worldwide division of labour and materials (Lindholm & Driscoll, 1967). Export provides opportunities for enjoying economies of scale to large firms. Scholars such as Jenkins and Katircoioglu have investigated the long run relationship between financial development and international trade, their findings show that they are co-integrated and the Granger causality test shows that real income contributes to the growth of financial development and international trade.

Nigeria's desire to boost its export has been motivated by different underlying factors. Nigeria started its economy wide liberalization in the late 1980s with Structural adjustment program (SAP). The key objective of Nigeria's structural adjustment program in 1986 was to restructure and diversify the production and export base of the Nigerian economy (Adenikinju & Alabi, 1997). Before the 1970s, exports of agricultural products were the major source of foreign earnings for Nigeria. Nigeria's main exports were animals, cocoa, cotton, palm oil, palm kernel, groundnuts and rubber. Between 1950s and 1960s, 3%-4% annual output growth rates for agricultural and food crops were achieved (Osuntogun, Edordu, & Oramah, 1997). The oil boom of the 1970s was the major culprit in the decline of agriculture as major earner for Nigerian economy (Abdullahi, 2018). But, from the early 1980s, the price of oil began to fall leading to various economic crises for Nigeria. Thus, from there onward Nigeria's quest for alternatives to oil export began in earnest. Looking at Nigeria's effort to diversify her export base and the current export drive of the present government, this study seeks to identify factors that drive Nigeria's export and ways in which Nigeria can improve her export performance. In addition, the study will also try to make some practicable inferences for policy consideration based on the findings of the study. The paper is divided into introductions, literature review, data and methodology, results and discussions and finally conclusion and recommendations.

2. Literature Review and Theoretical Framework

Oluwafemi and Olusegun (2020) examined through comparative analysis the export performance of Nigeria and China from 1980-2017. The study used Vector Autoregressive model (VAR) for the analysis. The result showed that in both Nigeria and China, gross domestic product stimulated export performance with 2.5% and 0.9% respectively. They also find that gross fixed capital formation contributed 2.9% to Nigerian economy performance. On the

other hand, exchange rate contributed 1.9% to Chinese economy performance. But, consumer price index had no significance influence on export performance. Eboime and Umoru (2016) estimated Nigeria's exports competitiveness in the global market. They utilized ARDL Bound Testing approach in estimating the model. The results show that Nigeria's exports are less competitive in United Kingdom but more competitive in United States, Japan and Canada. The results also show that Nigeria's exports are influenced by foreign income and exchange rate. Nwosa, Tosin, and Ikechukwu (2019), examines link between export diversification and economic growth in Nigeria from 1962 to 2016. They used Auto-regressive Distributed Lag (ARDL) technique for the analysis. The result indicates that diversification of export has a positive but insignificant influence on economic growth in Nigeria. This implies that Nigerian oil sector dominated the economy. Sajo and Li (2017) examine relationship between Financial Development, Export and Economic growth in Nigeria. Johansen co-integration methodology, Granger causality test and Ordinary least square (OLS) were employed to investigate both long and short run relationships between variables. Results from the study show that exports and transportation development have positive significant effect on economic growth. But, financial development, international trade structure and energy sector has negative effect on economic growth. Osabohien *et al.* (2019) examine the impact of agricultural export on economic growth in Nigeria. The paper used Autoregressive Distribution Lag (ARDL) technique to analyze long run relationship and impact of agricultural exports on economic growth. Explanatory variables include: agricultural export, foreign direct investment, inflation rate and labour force. Results from the ARDL technique revealed that agricultural exports significantly affect economic growth in Nigeria. Abubakar, Magaji, Bawuro and Wajiga (2018) employed Error Correction Modelling Approach and Ordinary Least Square Regression Analysis to study the export performance of Agriculture in relation to economic growth in Nigeria between 1980 and 2016. The results of the analysis show that, export performance of the Nigeria's agriculture sector, had positive and significant effects on Nigeria's economic growth. They therefore suggested the authorization of the policies that would empower both public as well as private performance, so as to enlarge the volume of the agricultural export.

Aigheyisi (n.d.) investigates the effects of import and FDI on the performance of Nigeria's non-oil exports in the period from 1981-2012. The paper uses ARDL approach to cointegration and error correction for the analysis. The result shows that import impacted positively on the performance of Nigeria's non-oil export in the short run, but its long run impact was found to be negative. While the impacts of FDI on non-oil export performance were not significant. Currency depreciation was found to have positive impacted on the performance of Nigeria's non-oil export in the long run. Because of the transfer of highly needed skills, entrepreneurship, technology, capital, knowledge, etc., FDI plays an important role in boosting export capacity (Caves & Jones, 1977). Obinwata, Owuru, and Farayibi (2016) examined exchange rate trends and export performance in Nigeria from 1970 to 2015 using a descriptive approach. The study emphasizes the impacts of exchange rate volatility on export. The results show that exchange rate volatility greatly affected export performance in Nigeria. Shawon, Anande, Iortile, and Mzamber (2018) examined the impact of exchange rate variation on competitiveness of Nigerian non-oil exports using Autoregressive Distributed Lag (ARDL) model. The results show presence of a long run relationship between variables. The results further revealed that a 1% increase in exchange rate variation, degree of openness and bilateral exchange rate (RER) which measured the competitiveness of the nation's exports cause a 14.67%, 63.21% and 7.49% reductions in non-oil exports in the long run, respectively. But, the short run dynamics revealed that the variables exerted negative effect on non-oil exports. GDP show positive effect on trade. Aladejare and Saidi (2014) examined impacts of non-oil sector on economic growth in Nigeria. They used ARDL bound testing approach to examine long and short run effects of non-oil export. Result from the analysis reveals strong effect of non-oil export on economic growth in both the long and short run. A research work was carried out by Ogunjimi, Aderinto, and Ogunro (2015) to analyze the nature of the relationship between non-oil exports and economic growth in Nigeria in the period 1980 to 2012. Error Correction Model (ECM) was used for the analysis. They discovered that the non-oil export variable was negative but significant.

An empirical analysis by Lazarov (2019) investigated the Macedonian export structure at product level, and further detected the behavior of economic growth due to the change in export sophistication. The study employed Vector Autoregression (VAR) Model and Granger Causality Test, and found out that, the estimated results showed positive and statistically significant causal relationship between export sophistication and economic growth within the time frame of 1995 to 2017. Yasiru, Ganiyu, and Muzliu (2016) investigated the causality links in the validity of Export-Led Growth (ELG) Hypothesis that covered the time frame of 1960-2013 for Nigeria. They employed Augmented Vector Autoregressive (VAR) and Vector Error Correction (VER) Model for the estimation. The re-

sults show that, in the short run, the relationship between growth and export is one-way causality, unlike in the long run. This justified that, the export-led growth hypothesis existed in the long run only, but, growth-driven in the short run was export. In a paper by Fugazza (2008), a Quantile Regression Techniques was employed to analyse the contribution of internal supply-side conditions to the external sector linkages' performance in the international market. It was found that with trade barriers on one side, more powerful constraints on the export performance in many regions of Middle East and Africa has always been the supply-side conditions, even with the overwhelming international trade integration in place. However, good transportation facilities, strong connections with foreign markets, good macroeconomic conditions and empowered domestic institutions serve as pillars for external sector development strategy. Eden, Obodoechi, and Ramos-Hidalgo (2020) used lower-middle income country's (Nigeria) firm-level data to fill their research gap. They explored both individual as well as joint impacts of technological and non-technological innovations on the export performance of Small and Medium Enterprises (SMEs). They discovered that product innovation has negative impact, while export performance got increased by the process innovation, and marketing innovation has a positive effect on performance of export.

Bandyopadhyay, Basistha, and Munemo (2007) studied a long-term association between foreign aid and export performance in developing economies using Pooled OLS. They discovered that quadratic term's effect of foreign aid on export variable is negative, the foreign aid's direct effect on exports are uncertain. Okpara (2009) employed t-test and correlation test in order to study export orientation that is conservative in nature and proactive export orientation and export performance to examine if there are some difference between the study variables. The result of the research showed that, firms that adopted conservative approach were financially less engaged in comparison with proactive oriented firms in the activities of export market. Therefore, to achieve growth and market profitability with higher performance, small and medium enterprises should embark on the proactive export strategies. Musty and Mallum (2020) used Autoregressive and Distributive Lag (ARDL) Model to investigate the degree of association between Foreign Direct Investment (FDI), and performance of the Nigeria's export from 1970 to 2017. The results affirmed the impact of Foreign Direct Investment on Nigeria's export performance, though negatively related. Shuaibu, Yusufu, Abdullahi, Shehu, and Adamu (2021) found out factors that explained economic growth in Nigeria. They explore how foreign direct investment, physical capital, export, saving, natural resources, financial development, population, government size, and foreign exchange affect economic growth. They use ARDL and GMM methods of analysis to analyze the data. The findings indicate that physical capital, agriculture, saving, population growth and government size have positive and statistically significant effects on economic growth in Nigeria.

The most well known theory that explains the working of international trade, the theory of comparative cost advantage, was put forward by David Ricardo. The theory of comparative cost is based on the assumption that there is different cost of production in difference countries. Hence, each country specializes in commodities or services in which it has comparative cost advantage. Thus, a country export those goods or services in which it comparative cost is less and import those goods and services in which it comparative cost is high. But, the hypothesis has the following weaknesses, the weak assumption that all factors of production are perfectly mobile and the other weak assumption of free and perfect world trade. The Heckscher-Ohlin (HO) modern theory of international trade is based on the differences in factor endowments between countries. HO theory promulgates that the determination of pattern of production and trade among regions is the relative availabilities of factor endowments and factor prices (Jhingan, 2013; Caves & Jones, 1977). According to the theory, difference regions or countries have different factor endowments and factor prices. Because of this difference in factor endowment and price, countries do trade with one another. Hence, the major cause of trade between regions is the difference in price of commodities. HO hypotheses is better explained in two ways: in term of abundance or scarcity (in term of price criterion) or in term of physical criterion. HO is considered an improvement over classical comparative cost theory. But, it has the following weaknesses: transport costs influence trade and factor prices do not determine commodity prices. Mill's theory of reciprocal demand is another theory in international trade. It explains the determination of the equilibrium terms of trade. It is described as reciprocal demand that determines the terms of trade which in turn determine the relative share of each country. Mill's formulation is based on comparative advantage or comparative effectiveness of labour, as contrasted with Ricardo's comparative labour cost. But, it has the following weaknesses: does not pay attention to domestic demand, it neglected the supply side and does not pay attention to fluctuation in income.

Haberler's opportunity cost theory explains comparative costs in term of substitution curve. It is also called production possibility curve, transformation curve and production indifference curve (Jhingan, 2013; Caves & Jones, 1977). Exchange rate here is based on the concept of opportunity cost. Opportunity cost theory is seen as superior

to comparative cost theory because it is based on a better analytical ground. This paper is tilted in favour of opportunity cost approach, for reasons that include its wide application in this field. The approach can equally be extended to the general equilibrium system. Another model that explains export production performance of an economy is the Cobb-Douglas production function:

$$F(K, L) = AK^\alpha L^{1-\alpha} \quad (1)$$

Where K = capital

L = labour

A = variable representing the state of technology

α = parameter determining capital share of total output

Production capacity represented by A may be a game changer in explaining the growth of output.

3. Data and Methodology:

3.1. Data

Data for this work is a secondary data sourced from World Bank and National Bureau of Statistics (NBS) for the period 1989 to 2019. It comprises the following variables: export, exchange rate, inflation, interest, saving, financial development domestic credit to private sector, trade openness, per capita income, Foreign Direct Investment (FDI), gross capital formation, national debt, agricultural output, manufacturing, electricity, physical capital and government expenditure.

3.2. Empirical Model

Empirical model is necessary for conducting of evidence and data base research in modern era. Hence, one of the first things researchers do after acknowledgement of the theoretical underpinnings of a work is to formulate empirical model. Our empirical models are thus:

Model 1:

$$\text{Export} = f(\text{foreign exchange, savings, inflation, interest rate, financial development, credit level}) \quad (2)$$

Model 2:

$$\text{Export} = f(\text{trade openness, per capita income, FDI, capital, national debt}) \quad (3)$$

Model 3:

$$\text{Export} = f(\text{agricultural output, manufacturing, electricity, physical capital, government expenditure}) \quad (4)$$

The log linear forms of the models are:

Model 1:

$$\text{Lnexp} = \beta_1 + \beta_2 \text{Infor} + \beta_3 \text{Insav} + \beta_4 \text{Lninf} + \beta_5 \text{Lnint} + \beta_6 \text{Infd} + \beta_7 \text{Incre} + \mu \quad (5)$$

Model 2:

$$\text{Lnexp} = \alpha_1 + \alpha_2 \text{Intra} + \alpha_3 \text{Inperc} + \alpha_4 \text{Infdi} + \alpha_5 \text{Incap} + \alpha_6 \text{Indebt} + \epsilon \quad (6)$$

Model 3:

$$\text{Lnexp} = \varphi_1 + \varphi_2 \text{Inagr} + \varphi_3 \text{Inmanu} + \varphi_4 \text{Inelec} + \varphi_5 \text{Inphyc} + \varphi_6 \text{Ingove} + \gamma \quad (7)$$

3.3. Method of analysis

3.3.1. Stationarity Test:

A Stationarity test is one of the preliminary tests usually conducted before any time series analysis of this nature. A unit root tests is conducted after presentation of descriptive statistics of time series (mean, median, minimum and maximum values, skewness, kurtosis, as well as the standard deviation, Bera-Jacque normality test and pairwise correlation). The presence of a unit root means that a time series is non-stationary while it absences implies that a time series is stationary (Asteriou & Hall, 2007). Some time series variables are stationary only after first or second differencing. To satisfy the requirements of using an ARDL model, series variable must be I(0) or I(1); a series of

I(2) is not acceptable.

3.3.2. ARDL model:

The main method of analysis employed for this work is Autoregressive distributive lag model (ARDL) error correction model. It is adopted because of its ability to analyze both short run and long run dynamisms at the same time. Autoregressive distributed lag (ARDL) error correction approach to cointegration and error correction was first advanced by Pesaran, Shin and Smith (2001). For ARDL, the long and short-run parameters are estimated simultaneously. In addition, the model is relieved of the need to establish order of integration between variables. The Error Correction Model (EMC) measures the speed of return to equilibrium after a deviation. The advantage of ARDL, unlike simple cointegration model, is that it is applicable in cases of variables that are integrated of different orders. The literatures on re-parameterizing an ARDL model to an ECM have become an important solution to solving the problem of long run relationship between series with different order of integration. The analyzed re-parameterized result produces the short-run dynamics and long run relationship of the model. The general ARDL (p, q_1, q_2, \dots, q_k) model is of the form:

$$\Phi(L)y_t = \varphi + \theta_1(L)x_{1t} + \theta_2(L)x_{2t} + \theta_k(L)x_{kt} + \mu_t \tag{8}$$

Applying the lag operator L to each component of a vector, $L^k y = y_{t-k}$, hence it is better to describe the lag polynomial $\Phi(L, p)$ and the vector polynomial $\beta(L, q)$. An EC_t is the error correction term of the form:

$$EC_t = \varepsilon_t = y_t - \sum_{i=1}^k \theta_i x_{it} - \omega' W_t \tag{9}$$

3.4. Results and analysis

3.4.1. Summary statistics:

Tables 1, 2, and 3 show the summary statistics of the variables used in the study in accordance with the models groupings.

Table 1. Model 1

	EXPORT	INFLA	EXCHR	SAV	INTERS	FD	CRED
Mean	45,291.09	19.30258	117.9877	5.87E+10	19.40355	0.187742	9.941290
Median	28,065.41	12.56000	125.8100	4.92E+10	18.18000	0.190000	8.460000
Maximum	144,917.4	72.84000	306.9200	1.49E+11	31.65000	0.270000	19.63000
Minimum	6,704.910	5.390000	7.360000	2.21E+10	15.14000	0.120000	4.960000
Std. Dev.	37,836.60	17.59917	89.71435	3.42E+10	3.562424	0.039892	3.641084
Skewness	1.052334	1.805065	0.606559	0.824903	1.563201	-0.071110	0.933335
Kurtosis	3.199164	4.990633	2.762328	2.766646	5.723523	2.168569	3.511839
Jarque-Bera	5.772837	21.95272	1.973850	3.586075	22.20629	0.919026	4.839141
Probability	0.055776	0.000017	0.372721	0.166454	0.000015	0.631591	0.088960
Sum	1404024.	598.3800	3,657.620	1.82E+12	601.5100	5.820000	308.1800
Sum Sq. Dev.	4.29E+10	9,291.921	241,459.9	3.51E+22	380.7259	0.047742	397.7247
Observations	31	31	31	31	31	31	31

Table 2. Model 2

	EXPORT	TRADOP	PERCAP	FDI	CAPFOR	DEBT
Mean	45,291.09	37.17774	1,408.747	3,324.705	4.77E+10	31,226,711
Median	28,065.41	37.02000	1,007.870	2,190.680	3.70E+10	30,699,264
Maximum	144,917.4	53.28000	3,222.690	8,914.890	1.24E+11	60,006,209
Minimum	6,704.910	20.72000	467.6900	775.2500	1.88E+10	12,961,871
Std. Dev.	37,836.60	8.420759	927.6856	2,480.922	2.67E+10	10,474,651
Skewness	1.052334	-0.008899	0.434030	0.998735	0.811821	0.691134
Kurtosis	3.199164	2.565328	1.662721	2.706714	3.112024	3.825812
Jarque-Bera	5.772837	0.244456	3.283216	5.264713	3.421322	3.348811
Probability	0.055776	0.884947	0.193668	0.071909	0.180746	0.187420
Sum	1,404,024	1,152.510	43,671.17	103,065.9	1.48E+12	9.68E+08

Sum Sq. Dev.	4.29E+10	2,127.276	25,818,015	1.85E+08	2.14E+22	3.29E+15
Observations	31	31	31	31	31	31

Table 3. Model 3

	EXPORT	AGRIC	MANUF	ELECTR	FIXCAP	GOVEXP
Mean	45,291.09	5.10E+10	2.21E+10	21.70800	4.61E+10	1.37E+10
Median	28,065.41	3.71E+10	1.48E+10	20.64500	3.55E+10	6.53E+09
Maximum	144,917.4	1.14E+11	5.48E+10	36.28000	1.21E+11	3.78E+10
Minimum	6,704.910	1.06E+10	9.25E+09	12.81000	1.88E+10	4.88E+08
Std. Dev.	37,836.60	3.74E+10	1.45E+10	7.216732	2.53E+10	1.45E+10
Skewness	1.052334	0.280091	0.970964	0.560115	0.897718	0.479933
Kurtosis	3.199164	1.425931	2.692847	2.020391	3.427054	1.523365
Jarque-Bera	5.772837	3.605682	4.992843	2.768186	4.399369	4.006486
Probability	0.055776	0.164830	0.082379	0.250551	0.110838	0.134897
Sum	1,404,024	1.58E+12	6.84E+11	651.2400	1.43E+12	4.25E+11
Sum Sq. Dev.	4.29E+10	4.21E+22	6.29E+21	1,510.355	1.92E+22	6.35E+21
Observations	31	31	31	30	31	31

3.4.2. Correlation analysis

Table 4. Model 1

Covariance Analysis: Ordinary

Date: 11/14/21 Time: 19:52

Sample: 1989 2019

Included observations: 31

Correlation							
Probability	EXPORT	INFLA	EXCHR	INTERS	SAV	FD	CRED
EXPORT	1.000000						

INFLA	-0.425716	1.000000					
	0.0170	-----					
EXCHR	0.544750	-0.459918	1.000000				
	0.0015	0.0092	-----				
INTERS	-0.611506	0.482433	-0.547729	1.000000			
	0.0003	0.0060	0.0014	-----			
SAV	0.952241	-0.439573	0.567414	-0.623235	1.000000		
	0.0000	0.0134	0.0009	0.0002	-----		
FD	0.706203	-0.565351	0.747803	-0.721103	0.718938	1.000000	
	0.0000	0.0009	0.0000	0.0000	0.0000	-----	
CRED	0.573598	-0.369971	0.595245	-0.508532	0.560041	0.831522	1.000000
	0.0007	0.0405	0.0004	0.0035	0.0011	0.0000	-----

In model 1, the results of the correlation analysis show that export has negative relationship with inflation and interest rate but positive relationship with exchange rate, saving, financial development and domestic credit to private sector.

Table 5. Model 2

Covariance Analysis: Ordinary

Date: 11/14/21 Time: 20:08

Sample: 1989 2019

Included observations: 31

Correlation						
Probability	EXPORT	TRADOP	PERCAP	FDI	CAPFOR	DEBT
EXPORT	1.000000 -----					
TRADOP	0.155830 0.4025	1.000000 -----				
PERCAP	0.888584 0.0000	-0.215714 0.2438	1.000000 -----			
FDI	0.786087 0.0000	0.163505 0.3795	0.680872 0.0000	1.000000 -----		
CAPFOR	0.762679 0.0000	-0.241086 0.1914	0.906843 0.0000	0.517437 0.0029	1.000000 -----	
DEBT	-0.316261 0.0830	-0.302192 0.0985	-0.140878 0.4497	-0.646105 0.0001	0.103516 0.5795	1.000000 -----

In model 2, export has negative relationship with only debt, but positive relationship with trade openness, per capital income, FDI and capital.

Table 6. Model 3

Covariance Analysis: Ordinary

Date: 11/14/21 Time: 20:18

Sample: 1989 2018

Included observations: 30

Balanced sample (listwise missing value deletion)

Correlation						
Probability	EXPORT	AGRIC	MANUF	ELECTR	FIXCAP	GOVEXP
EXPORT	1.000000 -----					
AGRIC	0.870289 0.0000	1.000000 -----				
MANUF	0.752853 0.0000	0.939064 0.0000	1.000000 -----			
ELECTR	0.670309 0.0001	0.887993 0.0000	0.890610 0.0000	1.000000 -----		
FIXCAP	0.833634 0.0000	0.965311 0.0000	0.934931 0.0000	0.854175 0.0000	1.000000 -----	

GOVEXP	0.912471	0.965935	0.888186	0.771701	0.930605	1.000000
	0.0000	0.0000	0.0000	0.0000	0.0000	----

In model 3, export has positive relationship with agriculture, manufacturing, electricity, physical capital and government expenditure.

3.4.3. Stationarity tests:

The results of the unit root tests show a mixture of stationarity at level and at first difference. This satisfies the condition of using ARDL method. Therefore, with those results, we subsequently proceed into testing our ARDL model.

3.4.4. ARDL results:

In model 1, the ARDL long run equilibrium results show positive and statistically significant relationship between export and domestic saving, interest and domestic credit to private sector. It shows negative relationship between export and inflation and exchange rate. Model 2 show positive and statistically significant relationship between export, in one hand, and trade openness and per capital income, on the other hand. But, FDI has negative relationship with export. Model 3 shows negative and statistically significant relationship between export and government expenditure. On the other hand, it shows positive relationship with agriculture and manufacturing. The results of the Error correction regression show that there is 151% adjustment to restore equilibrium for model 1, 135% for model 2 and 102% for model 3. The results of the ARDL bound testing show that for model 1 there is cointegration at 10%; while for model 2 there is cointegration at 2.5%, 5% and 10%. For model 3, there is cointegration at 1%, 2.5%, 5% and 10%.

Table 7. ARDL results for model 1

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(EXPORT(-1))	-0.464854	0.108867	-4.269913	0.0507
DLOG(INFLA)	-0.617826	0.058990	-10.47336	0.0090
DLOG(INFLA(-1))	-0.520959	0.056243	-9.262635	0.0115
DLOG(INFLA(-2))	-0.467465	0.072243	-6.470737	0.0231
DLOG(EXCHR)	-0.549884	0.099839	-5.507704	0.0314
DLOG(EXCHR(-1))	-0.148343	0.067725	-2.190368	0.1599
DLOG(EXCHR(-2))	0.538252	0.077574	6.938597	0.0201
DLOG(INTERS)	2.522997	0.315574	7.994941	0.0153
DLOG(INTERS(-1))	-0.461052	0.173566	-2.656355	0.1173
DLOG(INTERS(-2))	-0.687828	0.157626	-4.363666	0.0487
DLOG(SAV)	1.636993	0.095187	17.19765	0.0034
DLOG(SAV(-1))	0.106015	0.109666	0.966709	0.4357
DLOG(SAV(-2))	-0.259214	0.085963	-3.015417	0.0946
DLOG(FD)	0.479829	0.294190	1.631019	0.2445
DLOG(FD(-1))	1.227494	0.395761	3.101607	0.0901
DLOG(FD(-2))	-0.533569	0.256697	-2.078596	0.1732
DLOG(CRED)	0.724207	0.165711	4.370291	0.0486
DLOG(CRED(-1))	-1.400549	0.249702	-5.608889	0.0303
CointEq(-1)*	-1.511616	0.140240	-10.77875	0.0085
R-squared	0.988203	Mean dependent var		0.055071
Adjusted R-squared	0.964608	S.D. dependent var		0.369113
S.E. of regression	0.069440	Akaike info criterion		-2.274535
Sum squared resid	0.043398	Schwarz criterion		-1.370539
Log likelihood	50.84349	Hannan-Quinn criter.		-1.998174
Durbin-Watson stat	2.216299			

* p-value incompatible with t-Bounds distribution.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	3.227260	10%	1.99	2.94
K	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99

Table 8. ARDL results for model 2

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(EXPORT(-1))	0.387238	0.138886	2.788166	0.0236
DLOG(TRADOP)	0.874103	0.061478	14.21811	0.0000
DLOG(TRADOP(-1))	-0.498916	0.147456	-3.383484	0.0096
DLOG(TRADOP(-2))	-0.108180	0.051196	-2.113051	0.0676
DLOG(PERCAP)	2.477249	0.182809	13.55106	0.0000
DLOG(PERCAP(-1))	0.097975	0.233683	0.419262	0.6861
DLOG(PERCAP(-2))	0.591215	0.222277	2.659818	0.0288
DLOG(FDI)	-0.090930	0.033246	-2.735105	0.0256
DLOG(FDI(-1))	-0.113173	0.050171	-2.255738	0.0541
DLOG(FDI(-2))	-0.245972	0.038367	-6.411038	0.0002
DLOG(CAPFOR)	-0.447937	0.130132	-3.442179	0.0088
DLOG(CAPFOR(-1))	-0.327549	0.131252	-2.495579	0.0372
DLOG(CAPFOR(-2))	-0.566607	0.198354	-2.856542	0.0213
CointEq(-1)*	-1.354026	0.193450	-6.999350	0.0001
R-squared	0.987921	Mean dependent var		0.055071
Adjusted R-squared	0.976704	S.D. dependent var		0.369113
S.E. of regression	0.056338	Akaike info criterion		-2.608057
Sum squared resid	0.044435	Schwarz criterion		-1.941954
Log likelihood	50.51279	Hannan-Quinn criter.		-2.404423
Durbin-Watson stat	1.645286			

* p-value incompatible with t-Bounds distribution.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	3.999257	10%	2.08	3
K	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

Table 9. ARDL results for model 3

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(AGRIC)	1.536187	0.410985	3.737814	0.0046
DLOG(AGRIC(-1))	-3.520727	0.570572	-6.170525	0.0002
DLOG(AGRIC(-2))	-1.342687	0.385658	-3.481549	0.0069
DLOG(MANUF)	1.443505	0.368942	3.912552	0.0036
DLOG(MANUF(-1))	2.639406	0.608803	4.335406	0.0019
DLOG(ELECTR)	-2.172596	0.532062	-4.083353	0.0027
DLOG(FIXCAP)	0.330105	0.354997	0.929880	0.3767
DLOG(FIXCAP(-1))	-0.784419	0.416649	-1.882687	0.0924
DLOG(FIXCAP(-2))	0.916934	0.335865	2.730064	0.0232
DLOG(GOVEXP)	-0.962947	0.160906	-5.984532	0.0002
DLOG(GOVEXP(-1))	-0.376291	0.101530	-3.706206	0.0049
CointEq(-1)*	-1.021671	0.131949	-7.742933	0.0000
R-squared	0.898580	Mean dependent var		0.055926
Adjusted R-squared	0.824205	S.D. dependent var		0.376116
S.E. of regression	0.157698	Akaike info criterion		-0.555171
Sum squared resid	0.373029	Schwarz criterion		0.020757
Log likelihood	19.49480	Hannan-Quinn criter.		-0.383917
Durbin-Watson stat	2.232193			

* p-value incompatible with t-Bounds distribution.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	5.138830	10%	2.08	3
K	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

Thus, base on the results, we can say that saving, interest rate, domestic credit, trade openness, per capital income, agriculture and manufacturing are favorable towards export in Nigeria. But, inflation, exchange rate, FDI and government expenditure are not favorable to export. The negative relationship with FDI may be as a result of the likely fact that most FDI coming to Nigeria is not going to the export sector. Government expenditure also may not be targeting the export sector, instead focus on the domestic economy.

4. Conclusion and Recommendations

The results of the analysis have clearly showed some of the factors that are favorable to the export sector in Nigeria. They also show factors that are not favorable to export or may follow different pass from that of export. Nigerian government shall further support domestic saving, provide more credit to the export sector and adopt policies that boost trade openness. In addition, government shall further develop agricultural and manufacturing sectors that serve as the core of Nigerian export sector. Nigeria government shall very well manage such factors as interest rate, inflation and exchange rate to ensure that they are not harmful to export. Nigerian companies shall fully utilize free trade zones and agreements such as found under ECOWAS, D-8 and the World Trade Organization to expand their export base. Export promotion agencies also exist in Nigeria that aims to help boost export. Nigerian Import-Export bank was established to help those engage in trade across borders. Domestic capital and credit has been recognized as an important source of financing export.

References

- Abdullahi, S. I. (2018). *Nigerian economy: business, governance and investment in period of crisis*. Available at: <https://ssrn.com/abstract=3310120>.
- Abubakar, M. B., Magaji, Y. B., Bawuro, A. F., and Wajiga, H. (2018). Agricultural Export Performance and Economic Growth in Nigeria: Error Correction Modelling Approach. *Journal of Emerging Trends in Economics and Management Sciences*, 9(1), 45.
- Adenikinju, A. F. and Alabi, G. A. (1997). "The impact of exchange rate instability on Nigerian non-oil export". *BUK Journal of social and management studies*, vol. 3&4, pp. 1-21.
- Aigheyisi, O. S. (n.d.). "Import Penetration, FDI Inflows and Non-Oil Export Performance in Nigeria (1981-2012): A Cointegration and Error Correction Analysis". *BOJE: Botswana Journal of Economics*, pp. 40-68.
- Aladejare, S. A. and Saidi, A. (2014). "Determinants of Non-Oil Export and Economic Growth in Nigeria: An Application of the Bound Test Approach". *Journal for the Advancement of Developing Economies*, 2014, Vol. 3, Issue 1, p. 60-71.
- Asteriou, D. and Hall, S. G. (2007). *Applied Econometrics: A Modern Approach*. Palgrave Macmillan, New York.
- Bandyopadhyay, S., Basistha, A., and Munemo, J. (2007). *Foreign Aid and Export Performance: A Panel Data Analysis of Developing Countries*, Federal Reserve Bank of St. Louis Working Paper 2007-023. <https://do.org/10.20955/wp.2007.023>
- Basu S. R. (2009). Comparing China and India: Is the dividend of economic reforms polarized. *European Journal of Comparative Economics*, 1, 57-99.
- Caves, R. E. and Jones, R. W. (1977). "World trade and payments: an introduction". Boston, Little, Brown and Company.
- Eboreime, O. F. and Umoru, D. (2016). "An Econometric Estimation of Nigeria's Export Competitiveness in the Global Market". *European Scientific Journal*, vol. 12, No. 7, pp. 396-417.
- Eden, J. N., Obodochi, D. N., and Ramos-Hidalgo, E. (2020). Effects of Innovation Strategies on Export Performance:

- New Empirical Evidence from Developing Market Firms. *Technological Forecasting and Social Change*, 158, 120167.
- Fugazza, M. (2008). Export Performance and its Determinants: Supply and Demand Constraints. *Policy Issues in International Trade and Commodities Study Series*, No. 26.
- Giles, J. A. and Williams, C. L. (2000). Export-led growth: A survey of the empirical Literature and some causality results. *Journal of International Trade and Economic Development*, 9(1), 261-337.
- Jenkins, H. P. and Katircioglu, S. T. (2010). The Bounds Test Approach for Co-Integration and Causality between Financial Development, International Trade and Economic Growth: The Case of Cyprus. *Applied Economics*, 43, 1699-1707. <https://doi.org/10.1080/00036840701721661>.
- Jhingan, M. L. (2013). “*Money, Banking, International trade and public finance*”. Delhi, Vrinda Publication.
- Lazarov, D. (2019). Empirical Analyses of Export Performance and Economic Growth: The Case Study of Macedonia. *International Journal of Trade and Global Markets*, 12(3-4), 381-393.
- Lindholm, R.W. and Driscoll, P. (1967). *Our American Economy*. Harcourt Brace and World Inc., New York.
- Mintzberg, H., Quinn, J. B., and Ghoshal, S. (1998). “*The strategy process*”, London, Prentice Hall.
- Musti, B. M. and Mallum, A. (2020). Impact of Foreign Direct Investment (FDI) on Export Performance in Nigeria (1970-2018). *International Journal of Advanced Academic Research -Social and Management Sciences*, 6(4), 22-38.
- Nwosa, P. I., Tosin, F. O., and Ikechukwu, O. M. (2019). Export Diversification and Economic Growth in Nigeria. *Signifikan: Jurnal Ilmu Ekonomi*, Vol. 8(2), 227-234. doi: <http://dx.doi.org/10.15408/sjie.v8i2.9861>.
- Obinwata, B., Owuru, J., and Farayibi, A. (2016). “Exchange Rate Trends and Export Performance in Nigeria: A Descriptive Approach”. Online at <https://mpa.ub.uni-muenchen.de/75526/> MPRA Paper No. 75526.
- Ogunjimi, O., Aderinto, E., and Ogunro, T. (2015). An Empirical Analysis on the Relationship Between Non-oil Exports and Economic Growth in Nigeria. *International Journal of Academic Research in Business and Social Sciences*, 5(12), 68-78.
- Okpara, J. O. (2009). Strategic Choices, Export Orientation and Export Performance of SMEs in Nigeria. *Home/Journals/Management Decision/*, Volume 47, issue 8.
- Oluwafemi, M. and Olusegun, A. O. (2020). “Export Performance in Nigeria and China: A Comparative Study”. *International Journal of Research and Innovation in Social Science*, Vol. 4, Issue 9, pp. 531-536.
- Osabohien, R., et al. (2019). “Agricultural Exports and Economic Growth in Nigeria: An Econometric Analysis”. *IOP Conf. Ser.: Earth Environ. Sci.*, 331 012002.
- Osuntogun, A., Edordu, C. C., and Oramah, B. O. (1997). “Potentials for diversifying Nigeria’s non-oil exports to non-traditional markets”. African Economic Research Consortium, AERC Research Paper 68.
- Pesaran, M. H. Shin, Y., and Smith, R. J. (2001). Bound Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics*, 16, 289-326.
- Sajo, I. A. and Li, B. (2017). Financial Development, Export and Economic Growth in Nigeria. *Theoretical Economics Letters*, 7, 2239-2254. <https://doi.org/10.4236/tel.2017.77153>.
- Shawon, H. S., Anande, A. J., Iortile, I. B., and Mzamber, A. M. (2018). “Exchange rate variation and non-oil exports in Nigeria: an Autoregressive Distributed Lag Approach”. *International Journal of Development and Economic Sustainability*, Vol. 6, No. 5, pp. 48-59.
- Shuaibu, M., Yusufu, M., Abdullahi, S. I., Shehu, K. K., and Adamu, M. B. (2021). “What explains economic growth in Nigeria in the last three decades?—A dynamic modelling approach”. *East African Scholars Multidiscip Bull.*, Vol-4, Iss-7 (Aug, 2021): 75-84.
- The World Bank. (1993). *The East Asian miracle: economic growth and public policy*. Oxford, Oxford University Press.
- Yasiru, A. O., Ganiyu, Y. O., and Muzliu, I. B. (2016). Validity of Export-Led Growth Hypothesis for Nigeria: Further Evidence. *Yobe Journal of Economics (YOJE)*, Volume 3.
- Yip, G. S. (1989). “Global strategy... in a world of nations”. *Sloan Management Review*.