Growth
Vol. 8, No. 1, 39-47, 2021
ISSN(E) 2412-2068 / ISSN(P) 2518-0185
DOI: 10.20448/journal.511.2021.81.39.47

Non-Oil Export and Exchange Rate Nexus in Nigeria: Another Empirical Verification

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Abstract

This study examined the nexus between Exchange Rate and Non-Oil Export in Nigeria using time series data from 1985 to 2018. Secondary data were sourced from the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS) and World Bank Development Indicators (WDI). The study adopted Autoregressive Distributed Lag (ARDL) model and it was fitted with Seven variables; namely, Non-oil Export (NOE), Exchange Rate (EXR), Credit to Private Sector (CPS), Trade Openness (OPN), Inflation (INF), Interest Rate (INT) and Foreign Direct Investment (FDI). The results showed that the exchange rate has a positive and significant impact on non-oil export in Nigeria. Therefore, the study recommended that the Government should encourage international trade to boost non-oil export and increase foreign exchange earnings. Also, there is a need for the government to improve the financial institutions to make investment funds available. Lastly, there is a need to revisit the export-oriented policy to ensure that the non-oil sector is well catered for.

Keywords: Exchange rate, Nonoil exports, Economic growth, Empirical, Nigeria
JEL Classification: D51; F31; F43; O24.

Citation | Anthony Orji; Mohammed Abubakar; Jonathan E.Ogbuabor; Onyinye I. Anthony-Orji; Obed I. Ojonta (2021). Non-Oil Export and Exchange Rate Nexus in Nigeria: Another Empirical Verification. Growth, 8(1): 39-47.
History:
Received: 4 August 2021
Revised: 30 August 2021
Accepted: 17 September 2021
Published: 14 October 2021

Publisher: Asian Online Journal Publishing Group

Acknowledgement: All authors contributed to the conception and design of the study.
Funding: This study received no specific financial support.
Competing Interests: The authors declare that they have no conflict of interests.
Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study was reported; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained.
Ethical: This study follows all ethical practices during writing.

Contents

Contribution of this paper to the literature

This paper contributes to the literature by examining the nexus between Exchange Rate and Non-Oil Export in Nigeria using very recent time series data and novel ARDL model. The policy recommendations are quite useful for policy making in Nigeria if adopted.

1. Introduction

It is the primary objective of any developing country like Nigeria to be prosperous in international trade. Positive trade relations tend to promote economic growth and development of the country. However, the performance of the economy in terms of international exchange in diverse goods and services has not been quite impressive for over three decades. Despite the amount of foreign exchange generated from its oil and gas resources, economic growth has been very slow, and the incidences of poverty have increased. This can be attributed to the low level of non-oil export, which makes oil-producing countries like Nigeria fragile.

Imoughele and Ismaila (2015) in their study noted that the expansion of non-oil export to get rid of one product economy has been known as a contributor to economic development in oil-producing countries like Nigeria. The oil sector produces about 90% of export earnings but employs less than 6% of the teeming population (National Bureau of Statistics, 2017). Therefore, the growth recorded is in the possession of fewer than 10% of the Nigerian populace overwhelmed by expatriates and members of the political class who control production and revenue. More so, the oil sector by all accounts disengaged from different sectors of the economy and thus offers little or no linkage multiplier effect on the economy in general.

Enoma and Isedu (2011) argue that the reason why growth in Nigeria has no impact on poverty reduction and job creation is simply that the growth is not emanating from non-oil sectors like agriculture that employ more than 75% of the teeming population. Since the discovery of crude oil, non-oil exports have not been encouraging. For example, non-oil export decreased from 48% in 1970 to 20.6% in 1980 and a slight increase to 23.3% in 2005. The non-oil export later reduced to 19.9% in 2007 and recorded 25.9% in 2015 (Central Bank of Nigeria, 2017). This is much lower than the percentage it accounted for before the crude oil discovery when it was 90%. To cure this over-dependence on mono-cultured crude oil economy, there is a need to look inward and find a possible solution to diversify the Nigerian economy away from oil led-export towards the direction of non-oil-led export trade.

Promoters of this speculation accept that the non-oil-led export has extraordinary possibilities to push the Nigerian economy to the ideal growth and development. Onwualu (2012) maintained that the value chain approach to non-oil export can open up the economy and produce different activities which are capable of creating jobs, stabilizing the exchange rate, and improving industrialization. This means that the non-oil sector can contribute meaningfully to good economic performance if well managed. These potential gains may not be realized if the exchange rate of the domestic economy is highly volatile. Thus, the management of the exchange rate is seen as vital in determining the performance of non-oil export in Nigeria.

The exchange rate of a currency is required in the flow of goods and services in any nation. In Nigeria, there were a lot of policies measures put in place to control excessive demand for foreign exchange due to experiences in the late 1970s and early 1980s; this led to the introduction of the Structural Adjustment Programme in 1986. The objectives were to protect the value of the domestic currency, maintain a favorable external reserve, and ensure external balance without compromising the need for internal balance and the overall goal of macroeconomic stability (Central Bank of Nigeria, 2017). Exchange rates evolve naturally with the development of international trade and exchange. The United Kingdom was the first country to fix the value of its currency (pound sterling) in terms of gold. The bank of England, which is their central bank, was run mainly by goldsmiths in the 17th century before the conversion. In the bank, the notes (pound shillings e.t.c.) deposited in the bank could be converted back to gold within its subterranean vault; it safeguards the country's reserve. This made gold widely acceptable both in the country and the other countries as a means of exchange. Under the regime of a gold standard, the value of one country's currency relative to another was determined by the weight of gold (ounce), making it a means of exchange (Olisadebe, 1995).

Promoting non-oil exports has been one of the policy issues facing policymakers in Nigeria. Nigeria's export used to be primarily non-oil commodities with agricultural products representing the vast majority and has been contributing to the employment of more than 65% of the population around 1960. However, it fell from 48% in 1970 to 20.6% in 1980 and slightly increases to 23.3% in 2015 and a low record of 21.1% in 2016 (Central Bank of Nigeria, 2017).

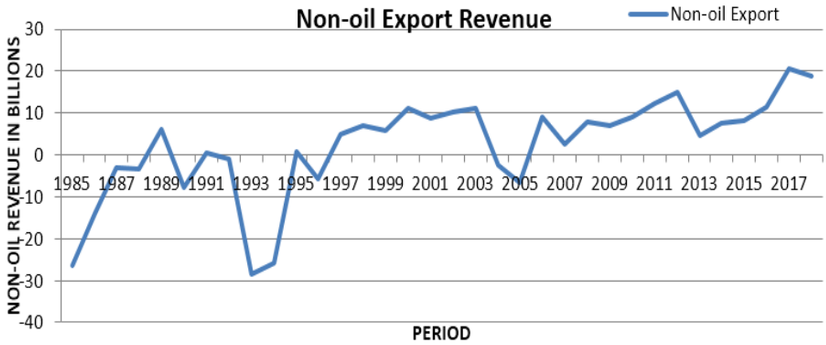

Figure-1. Non-oil export value in billions.

Source: World Bank (2019).

Figure 1 shows that between 1985 and 1988 the non-oil revenue recorded a negative value but this increased to a positive value in 1989 from then it continues to fluctuate where it records an all-time high of ₦20.52 billion in 2017. Evidently, from the graph, we can see that the non-oil export is not stable for over decades. It's against this background; this paper seeks to investigate the impact of the exchange rate on non-oil export in Nigeria. The

subsequent sections are organized as follows; section 2 reviews some related literature, while the methodology is presented in section 3, section 4 presents the results and analysis, and lastly, the paper concludes with section 6.

2. Brief Review of Literature

Several studies have been conducted to investigate the impact of the exchange rate on non-oil export. However, the result of the studies varies significantly from one to the other; this is as a result of the difference in methodologies. For example, Tchokote, Uche, and Agboola (2015) analyzed the impact of exchange rate fluctuations on net exports in some selected West African countries specifically on Nigeria, Cote d'Ivoire, Gambia, Ghana, and Togo. They employed the Johansen co-integration method to ascertain whether the variables have any long-run relationship. It was evident from the finding that the variables under investigation net-exports, exchange rate volatility, foreign income, relative price, and openness to trade for all the countries have a long-run relationship. It was also discovered that exchange rate variation negatively affected net exports in Cote d'Ivoire while its impact in Nigeria, Gambia, Ghana and Togo tends to be growth-stimulating. Therefore, the study recommended the effectiveness of a stable exchange rate system to boost exports. Aljebrin (2017) determines the impact of exchange rate on non-oil real GDP using Ordinary Least Squares and Error Correction Model for analysis. The result shows a positive and significant effect of the exchange rate on non-oil exports. Imoughele and Ismaila (2015) examine the impact of the exchange rate on non-oil export in Nigeria. Ordinary Least Square statistical technique was used. The result shows that the appreciation of the exchange rate has a negative effect on non-oil export. Adenugba and Dipo (2013) study the impact of exchange rate on non-oil export in Nigeria using Ordinary Least Squares (OLS). Findings from the study reveal that the exchange rate has a negative impact on non-oil export in Nigeria.

Uduakobong and Williams (2018) study the relationship between exchange rate volatility and non-oil exports in Nigeria using time series data from 1970 to 2015. The study employed the Johansen test of co-integration, the Error Correction Model (ECM), and the Granger Causality test to achieve the objectives. The results show that there exists a long-run relationship between the exchange rate and non-oil exports in Nigeria. The result also shows that it will take non-oil exports four years to return to their original equilibrium value when displaced by the volatility in the exchange rate. Also, the Granger Causality test indicates that there is a unidirectional causality between the exchange rate system and non-oil exports in Nigeria with the direction of causality test running from Exchange rate to non-oil exports. Ajinaja, Popoola, and Ogunlade (2017) in their study examined the effect of variables like gross domestic product (GDP), exchange rate fluctuation (EXC) and foreign direct investment (FDI) on export performance (Xt) in Nigeria. Secondary data were sourced from the Central Bank of Nigeria Statistical Bulletin from 1982 to 2015. They adopted the Ordinary Least Square (OLS) method to estimate the data, and it was concluded that gross domestic product (GDP), exchange rate volatility (EXCt), and foreign direct investment have a positive impact on export performance (Xt) in Nigeria.

Similarly, Akanbi, Alagbeb, Yusuf, and Oluwaseyi (2017) examined the impact of exchange rate volatility using the ARCH model and its different augmentations (GARCH, TGARCH, and EGARCH) utilizing quarterly exchange rate series from 1986-Q1 to 2014-Q4. Error Correction Model (ECM) was employed to determine the exchange rate volatility on non-oil exports. Base on the results obtained, there exists exchange rate volatility and also found a significant negative effect on non-oil export in Nigeria. The ARCH and GARCH model indicate that the exchange rate was volatile. The results deduced that the real exchange rate fluctuation had a significant and positive impact on the volume of trade in the Nigerian economy. Falana (2018) examined the relationship between exchange rate and the performance of Nigeria's real sector from 1961-2015, using the modified Mundell-Fleming IS-LM framework. The study reveals that the five different components of Nigeria's real sector responded differently to a change of exchange rate under the two different exchange regimes and that exchange rate accounted for greater shocks in output in regulated exchange regimes than guided the deregulated exchange regime.

From the studies reviewed above, we have seen that a various number of literature have investigated the impact of exchange rate and non-oil export. However, this study adopts a relatively new methodology using the ARDL modeling technique.

3. Methodology

3.1. Theoretical Framework

Export-led Growth theory is adopted as the theoretical framework underpinning this study. The theory explains how the real Gross Domestic Product and per capita income will expand as a result of the successful export of goods and services from one country to another.

Export-led-growth (ELG) theory requires the extension and advancement of export as a significant factor in ensuring a long-time economic growth (Idowu, 2005). The speculation has been advanced as the reason for a choice to import substitution, which is an internal direction strategy of development. Previously, agricultural export nations had embraced internal situated improvement methodologies for industrial advancement that would convert into the development of non-oil export, which is signed to change the imported goods and merchandise with domestically produced commodities to preserve the foreign exchange and generate employment. This methodology was pervasive in developing countries (DCs) that have an enormous homegrown market, because of the huge populace size that characterizes them, and that the strong measures and motivating forces are not accessible to encourage producers to explore the export market. This approach was adopted by non-industrial nations with regards to the declining world market for their essential products, the rising balance of payments deficits on current account (Olorunshola, 1996). The infant industries are protected so that they can produce at a cheaper rate and import is associated with high tariffs and quotas, this is to enable the local infant industries to increase their output.

It ought to be noticed that the degree to which a nation pursues after this strategy can slow down towards an outward direction, particularly where a huge homegrown market exists on account of Nigeria. This makes homegrown makers happy with selling their items in the homegrown market instead of the export market. Since to

them, it is an option in contrast to the international market. Though an enormous home market might help development, it in the side counters the achievement of international (Omotola, 2016). Notwithstanding, in current strict economic reasoning, an outward direction way towards economic growth and development is supported for developing nations like Nigeria to embrace. Since this is valid for developed nations that are themselves outward-oriented, that is the reason western countries support deregulation and globalization (Olorunshola, 1996). It is currently and broadly perceived that export-oriented is more viable than import substitution in accomplishing faster development and structural upgrade an economy. Presently many developing nations once enamored on import substitution under the way of thinking of economic patriotism, are switching to export promotion strategy.

3.2. The Model Specification

3.2.1. Model Specification

To achieve the objectives of the study, the following models will be specified below:

Equation 1 is specified as a functional form to determine the impact of the exchange rate on non-oil export in Nigeria.

$$NOE = f(EXR, CPS, OPN, INF, INT, FDI,) \quad (1)$$

Where NOE represents Non-oil Export, f is a function, EXR stands for real Exchange Rate, CPS means Credit to Private Sector, OPN means Trade Openness, INF means Inflation, INT means Interest Rate, and FDI means Foreign Direct Investment in equation 1.

Equation 2 is specified as a mathematical form to determine the impact of exchange rate on non-oil export in Nigeria

$$LNOE_t = \beta_0 + \beta_1 EXR_t + \beta_2 LCPS_t + \beta_3 LOPN_t + \beta_4 INF_t + \beta_5 INT_t + \beta_6 FDI_t \quad (2)$$

Where: LNOE (Non-oil Export) as a dependent variable and the independent variables are:$\beta_1 =$ Exchange Rate, $\beta_2 =$ Credit to Private Sector,$\beta_3 =$ Trade Openness, $\beta_4 =$ Inflation Rate, $\beta_5 =$ Interest Rate, $\beta_6 =$ Foreign Direct Investment, and Subscript's = time series data in equation 2.

ARDL Unrestricted Error Correction Model is as follows:

$$\Delta NOE_t = \beta_0 + \beta_1 NOE_{t-1} + \beta_2 EXR_{t-1} + \beta_3 CPS_{t-1} + \beta_4 OPN_{t-1} + \beta_5 INF_{t-1} + \beta_6 INT_{t-1} + \beta_7 LFDI_{t-1} + \sum_{j=0}^{q} \alpha_i \Delta \,\mathrm{NOE}_{t-i} + \sum_{i=1}^{p} \gamma_i \Delta \,\mathrm{EXR}_{t-i} + \sum_{i=1}^{p} \delta_i \Delta\, CPS_{t-i} + \sum_{i=1}^{p} \theta_i \Delta\, OPN_{t-i} + \sum_{i=1}^{p} \vartheta_i \Delta\, INF_{t-i} + \sum_{i=1}^{p} \pi_i \Delta\, INT_{t-i} + \sum_{i=1}^{p} \lambda_i \Delta\, LFDI_{t-i} + \varepsilon_t \quad (3)$$

In Equation 3, B_0 is the drift components, Δ is the First difference operator, β_i, are parameter coefficients of the variables. E_t is white noise with zero means. All the variables are transformed into logarithmic forms. The terms with the summation signs ($\sum$) above represent the error correction dynamics while the parts of the equation with β_i correspond to the long-run relationship. The covariance of the coefficient estimate can only be asymptotically uncorrelated in a situation where the regressors are known to be integrated of order one without co-integration in the long run. The dynamism is explained by the error correction term, which further proves the existence of a long-run relationship with its significant negative value. The short-run behavior, on the other hand, is described by the lagged terms of the coefficients of the estimate.

3.2.2. Model Justification

The justification for the selection of the Autoregressive Distributed Lag Model is based on the fact that ARDL has more advantages for testing the existence of a co-integrating relationship both in the short-run and long-run relationship. The ARDL bound test was propounded by Pesaran, Shin, and Smith (2001) and has more econometric advantage over the traditional co-integration procedures i.e. (Engle & Granger, 1987; Johansen, 1988). The ARDL model eliminates the problem of endogeneity and the inability to test hypotheses on the estimated coefficients. Also, both the long-run and the short-run are estimated simultaneously unlike in the traditional co-integration.

3.2.3. Estimation Procedure

The ARDL bound test assumed that all the variables must be stationary either at level or at first difference. Subsequently, before applying the bound test we should check the degree of stationarity of the data. The reason is to ensure that none of the variables are stationary at the second difference to avoid the problem of spurious results. Notwithstanding; when the variables are integrated at the second difference, the bound test will crash.

The short-run and the long-run relationship among non-oil export and the other variables are analyzed utilizing Autoregressive Distributed Lag (ARDL) model. We cannot use our model without conducting a unit root test to decide the stationarity of the data. The optimum lag for the ADF test will be dictated by Schwarz Information Criteria (SIC). The time-series data will be considered as non-stationary when there is no unit root. Augmented Dickey-Fuller (ADF) test as stated in Dickey and Fuller (1979) is utilized to determine the order of integration of the series. If the model is observed to be non-stationary at level, the model will be switch over to the first difference to ensure that the variables are stationary either at level or at first difference. The null hypothesis will be tested at 1%, 5% and 10% levels of significance.

The study also obtains the short-run dynamics by estimating an Error Correction Model associated with the long-run estimates. This is specified as follows:

$$\Delta NOE_t = \beta_0 + \sum_{j=0}^{q} \alpha_i \Delta \,\mathrm{NOE}_{t-i} + \sum_{i=1}^{p} \gamma_i \Delta \,\mathrm{EXR}_{t-i} + \sum_{i=1}^{p} \delta_i \Delta\, CPS_{t-i} + \sum_{i=1}^{p} \theta_i \Delta\, OPN_{t-i} + \sum_{i=1}^{p} \vartheta_i \Delta\, INF_{t-i} + \sum_{i=1}^{p} \pi_i \Delta\, INT_{t-i} + \sum_{i=1}^{p} \lambda_i \Delta\, LFDI_{t-i} + \varphi ECM_{t-i} + \varepsilon_t \quad (4)$$

ECM_{t-i} Is the error correction term resulting from the verified long-run equilibrium relationship while φ is a parameter showing the speed of adjustment to the equilibrium level after a shock in Equation 4.

3.2.4. Diagnostic Test

Augmented Dickey-Fuller (ADF) root test was done to determine the order of integration for each series, with some stability and serial correlation tests such as; Breush – Godfery LM test and cumulative sum of squares (CUSUMQ) tests respectively.

4. Presentation and Analysis of Results

4.1. Pre-Diagnostics Test

4.1.1. Unit Root Test Results

The Augmented Dickey-Fuller (ADF) unit root is utilized to ensure the stationarity of the variables being used. This is important to be certain that the time series variables have consistent mean and variance. The unit root test is done by testing the unit root at a level and afterward at a second difference. The null hypothesis for this test is given as:

H_0: $\alpha=0$ Implies that the variables have unit root or are non-stationary.

H_1: $\alpha\neq0$ Implies that the variables have no unit root or are stationary.

The decision rule for the test is given as; Reject H_0 if the ADF's P-value is greater than 5% level of significance, in other words, we do not reject. The test result is presented in the table below:

Table-1. Augmented dickey-fuller unit root test results.

Variables	ADF Test Statistic	t-Statistic	P-value	Order of Integration	Decision
NOE	-4.385685	-2.954021	0.0015	I(1)	Stationary
EXR	-4.036236	-2.957110	0.0038	I(1)	Stationary
CPS	-5.182540	-2.963972	0.0002	I(1)	Stationary
OPN	-3.099679	-2.954021	0.0362	I(1)	Stationary
INF	-3.062775	-2.991878	0.0433	I(1)	Stationary
INT	-3.082685	-2.954021	0.0377	I(0)	Stationary
FDI	-6.686706	-2.957110	0.0000	I(1)	Stationary

Table 1 above shows that all the variables are stationary and do not have unit root mostly after the First Difference, therefore it implies that none of the variables are stationary at Second Difference. This outcome is consistent with the ARDL model assumption and thus, the variables are good for use for the estimation.

4.1.2. Co-Integration Test

Co-integration refers to the existence of a long-run equilibrium between two or more time-series variables, which are individually non-stationary in their form. It is used to test for the long-run relationship among the variables (Gujarati, 2005).

Table-2. The Bounds Test for Co-integration.

Critical Value	Lower Bound Value	Upper Bound Value
10%	1.99	2.94
5%	2.27	3.28
1%	2.88	3.99

Note:
Computed F-statistic:3.68; K=6 (Significant at 10%, 5% and 1% significance level with critical values: 1.99, 2.27 and 2.88 as lower bound values, and 2.94, 3.28 and 3.99 as upper bound values). Critical Values are extracted from Narayan (2005) critical table.

Table 2 above projects the result of the ARDL bounds test for co-integration. To ascertain the existence of a long-run relationship among the variables, the study resorts to the bounds test as reported above. The table reports the critical values in the first column, lower bound values in the second column, and the upper bound values in the third column. The lower and upper bounds values are extracted from the Narayan (2005) critical table. The F-static value is given as 3.68 while k represents the number of parameters in this case is equal to 6. Since the F-statistic value, 3.68 is greater than both the lower bound (I0) and the upper bound (I1) critical values at 5% level of significance we conclude a long-run relationship exists. The existence of a long-run relationship is a precondition for estimating the short-run dynamic error correction model.

Table-3. Autocorrelation Test.

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.298233	Prob. F (1,43)	0.7454
Obs*R-squared	0.926710	Prob. Chi-Square (1)	0.6292

Table-4. Heteroskedasticity Test: Breusch-Pagan-Godfrey.

F-statistic	0.844669	Prob. F (14,45)	0.5847
Obs*R-squared	8.217837	Prob. Chi-Square (14)	0.5498
Scaled explained SS	2.100160	Prob. Chi-Square (14)	0.9898

4.1.3. Serial Correlation, Heteroskedasticity and Normality Test

Table 3 and Table 4 present the Post Estimation Diagnostic Tests of Serial Correlation, and Heteroskedasticity. The null hypothesis of serial correlation and Heteroscedasticity states that 'reject if the probability value is less than 5%'. Thus the probability value of the F-statistics for each test must be greater than a

5% level of significance. Based on the analysis made, the probability values of 62% and 54% for the F-statistics respectively are greater than 5% level of significance; therefore, accept the null hypotheses and conclude that there is no problem of Autocorrelation and Heteroscedasticity. Thus our models are reliable for economic analyses and forecasting.

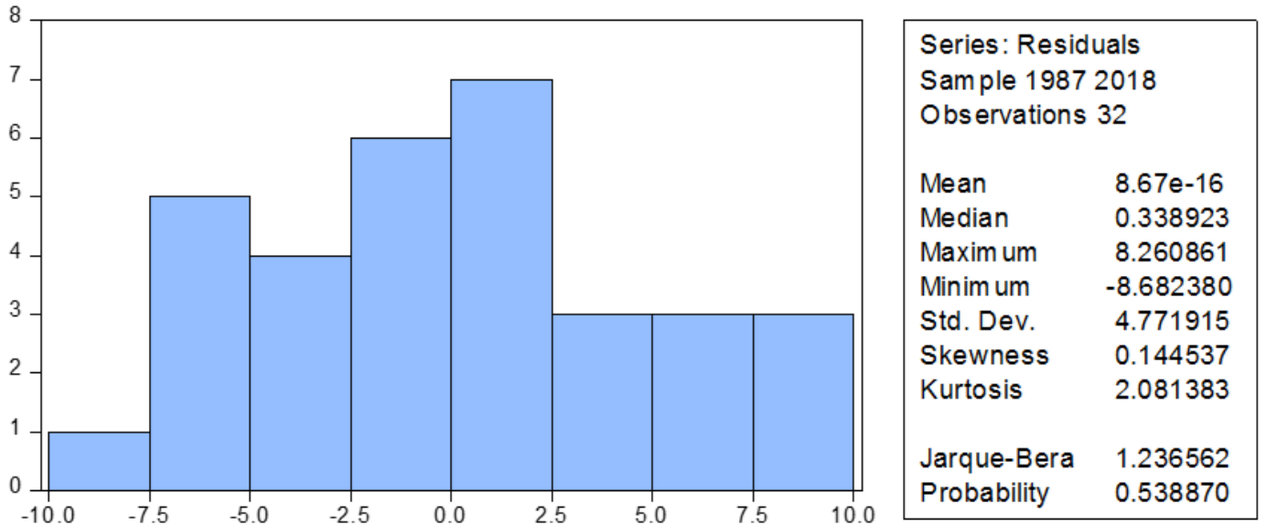

Figure-2. Normality test.

Figure 2 above presents a Normality test. The null hypothesis for this test is stated as H_0: residuals/errors are normally distributed. Based on the analysis made, to accept the null hypothesis the probability value of the Jarque-Bera (JB) statistic must be greater than 5% level of significance. Therefore, since the probability value of 53.8% for the JB statistic is greater than 5% level of significance, we can conclude that the residuals are normally distributed.

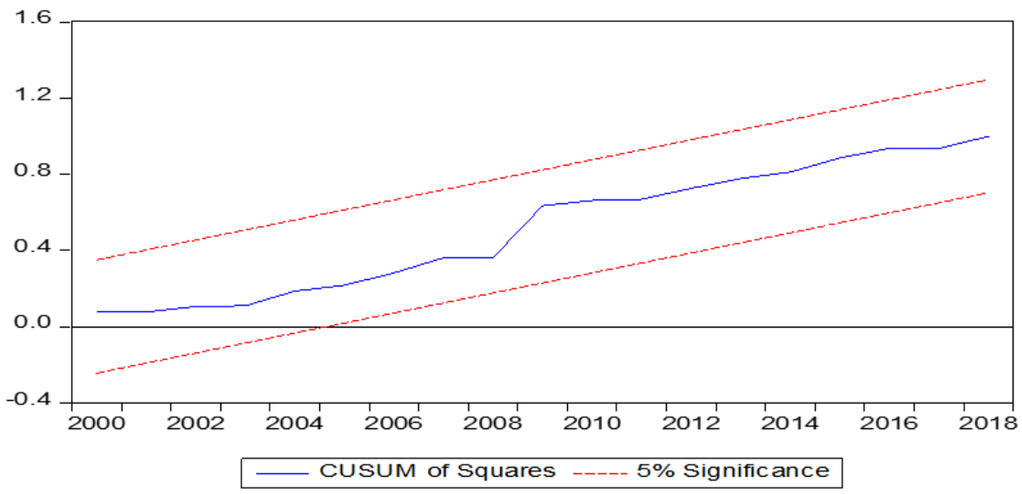

Figure-3. CUSUM of squares test of model stability.

4.1.4. Stability Test Summary

Figure 3 presents a Post Estimation Diagnostic test of model stability. The estimated model is said to be stable if the CUSUM of Squares line does not cross the 5% boundary line. From the figure above, we can see that the CUSUM of Squares line remains within the 5% boundary line thus; we conclude that the coefficients of the estimated model are stable.

Table 5. ARDL Long Run Model.

Dependent Variable: NOE				
Regressors	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
NOE (-1)	0.307932	0.173159	1.778318	0.0892
(EXR)	3.213105	1.557181	2.0634**	0.0511
CPS	0.205590	0.482689	0.425926	0.6743
OPN	12.95237	13.45187	0.962867	0.3461
INF	0.177359	0.084428	2.1007**	0.0473
INT	0.603148	0.424207	1.421825	0.1691
INT (-1)	1.062212	0.446487	2.3790**	0.0265
INT (-2)	-1.546176	0.414937	-3.726***	0.0012
LOG(FDI)	-0.730556	1.890077	-0.386522	0.7028
CONSTANT	-4.852723	37.16908	-0.130558	0.8973
R-squared	0.585095	Durbin-Watson stat		2.022327
Adjusted R-squared	0.415361			
F-statistic	3.447134			
Prob(F-statistic)	0.008575			

Note: *** significant at 1%, **5%, *10%

4.2. Model Estimation and Interpretation

Table 5 above presents the long-run results of the estimated ARDL model of the Impact of Exchange Rate on Non-oil Exports in Nigeria. Non-oil export (NOE) is the dependent variable. From the estimated ARDL, it was discovered that the coefficient of determination (R^2) is given as 0.585095 while the F-statistic is 3.447134 with a probability value of 0.008575 implies that about 60% of the variation in the dependent variable is accounted for by the independent variables and that overall model is statistically significant at 5% level of significance. The result indicates that the coefficient of the previous value of non-oil export (NOE) is 0.307932 but not statistically significant in the long run. The foregoing result is not consistent with the findings of Aljebrin (2020) among others who found that non-oil export is a significant factor and as well contributes positively to non-oil economic growth in Saudi Arabia.

The result also revealed that the coefficient of Exchange Rate (EXR) is 3.213105 with 5% level of significance implies, that in the long run, holding other variables constant and on average, an increase in EXR will lead to an increase in non-oil export by 3.2%. However, the result is not in line with the findings of Musibau, Babatunde, Halimah, and Hammed (2017); Hasanov and Samadova (2010) among others who found that increase in exchange rate negatively affects non-oil export in Nigeria and Azerbaijan. Again, the result indicates that the coefficient of Credit Private Sector (CPS) is 0.205590 but not statistically significant in the long run implying that this indicator is not yet one of the major contributors to the growth of non-oil export in Nigeria. This result does not agree with the findings of Fagbemi and Ajibike (2019), Shahriyar, Sugra, Ilgar, and Yashar (2020) among others who found that credit to the private sector has a strong and direct relationship with non-oil export in Nigeria and Azerbaijan.

Likewise, the result shows that the coefficient of Trade Openness (OPN) is 12.95237 but not statistically significant in the long run at a 5% level of significance implying that trade openness is not yet a major factor in the growth of non-oil output in Nigeria. The insignificant nature of the variable may likely be because the Nigerian economy relies so much on oil to the detriment of the non-oil sector. The demand for crude oil in the global market in recent years has declined. Other oil-rich countries especially those of the Asian region have taken to the diversification of their economy and are benefitting from international trade. It has been argued that countries that have varieties to trade with the rest of the world benefit more from trade. Unfortunately, Nigeria is a single-commodity economy and that might be the reason why trade has not played a significant role in the progress of its non-oil sector. The foregoing result is not in agreement with Sidi and Osunaiye (2019) who found that trade liberalization has a negative effect on non-oil export in Nigeria. However, the result in terms of its sign is consistent with the findings of Ikpe, Ojike, and Ahamba (2020) for Nigeria that trade openness positively impacts the non-oil sector.

Similarly, the result shows that the coefficient of Inflation Rate (INF) is 0.177359 and statistically significant at a 5% level of significance which implies that in the long run, holding other variables constant, a 1% increase in the inflation rate will lead to an increase on non-oil export by approximately 0.18%. The result is in line with the findings of Ismaila and Imoughele (2015) who found that the inflation rate contributes significantly to non-oil export growth in Nigeria. In the same vein, the result shows that the coefficient of Interest Rate (INT) is 1.062212, and statistically significant at a 5% level of significance implying that a 1% increase in interest rate in the long run, on average and holding other variables constant will increase non-oil export growth in Nigeria by 1.06% approximately. The result does not agree with the findings of Uzomba, Imoisi, and Somiari (2012) who found that increase in interest rate negatively affects non-oil export in Nigeria.

Lastly, the estimated result of the model shows that the coefficient of Foreign Direct Investment (FDI) is -0.730556 but not statistically significant at 5% which indicates that foreign direct investment is not yet a factor to be reckoned with in the non-oil sector. This result in terms of the sign is in line with the findings of Yola (2016) who found that foreign direct investment negatively affects non-oil export in Nigeria. Notwithstanding, the result is not consistent in terms of sign and significance with Aderemi, Amuzat, Olaronke, and Awomailo (2019) *who found that foreign direct investment is key to non-oil export growth in Nigeria.*

Table-6. Estimated Coefficients of the Short Run Dynamics Error Correction Model

Dependent variable: D(NOE)				
Regressors	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(INT)	0.603148	0.271961	2.2177**	0.0372
D (INT (-1))	1.546176	0.271092	5.703***	0.0000
ECT (-1)	-0.692068	0.111938	-6.182***	0.0000
R-squared	0.703176			
Adjusted R-squared	0.682706			
Durbin-Watson stat	2.022327			

Note: *** significant at 1%, **5%, *10%.

Table 6 above; present the estimated short-run results and the Error Correction Term (ECT) from the ARDL model of the Impact of Exchange Rate on Non-oil Exports in Nigeria. Non-oil Export (NOE) is the dependent variable. The R-squared of the Error Correction Model (ECM) is given as 0.703176, which implies that about 70% of the variation in the dependent variable is accounted for by the independent variables hence, the model is a good fit. The estimated Error Correction Model (ECM) shows that the coefficient of the Error Correction Term (ECT) is -0.692068 and statistically significant at 5% implies that the variables converge at their long-run equilibrium after the disequilibrium in the short run. Specifically, the ECT shows that about 69% of the disequilibrium among the variables is adjusted for in the short run annually. Furthermore, the result suggests that the effect of macroeconomic policies in this direction may be felt quickly in the economy due to the high speed of adjustment. According to economic theories, the effect of monetary policy in the economy tends to be swifter when compared with fiscal policy.

5. Policy Recommendations

Given that Nigeria has not taken the desirable advantage of fluctuations in the exchange rate, it is to the nation's wellbeing that the following recommendations are considered and possibly implemented; firstly the country has not improved its non-oil sector for over a decade; they have not been productive to boost export and import reduced. Government should revisit its so-called export-oriented policy to ensure that the non-oil sectors are well provided for. Secondly, adequate capital is one of the important determinants of investment. It is the role of the financial institutions to make investment funds available where it is needed. Most investments in the non-oil sectors are capital intensive and hence the financial institutions should increase the volume or quantity of credit to these sectors to raise investment. Thirdly, High-interest rates which leave the investors with little or no returns on investments can discourage investment thus, the monetary authorities and the financial institutions should revisit their lending policy to the non-oil sectors as the existing rate of interest has not contributed significantly to non-oil export. Finally, international trade can be very rewarding as it can serve as a channel for boosting non-oil export and increase foreign exchange earnings. But this is only possible if the country gets involved extensively in agriculture, manufacturing, construction, mining, etc. therefore, the government should raise and direct its efforts towards this direction for a greater benefit from international trade.

6. Conclusion

This research has provided reliable evidence of the impacts of exchange rate and non-oil export using the ARDL Bound Test developed by Pesaran and Shin (1999) and Pesaran et al. (2001). The study established both the long-run and short-run relationship between exchange rate and non-oil export in Nigeria. Base on the results we can conclude that the exchange rate has statistically and significantly impact non-oil export in Nigeria. Furthermore, there is a need for the government to ensure that the exchange rate is stable; this will improve the exportation of non-oil export.

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