

## EXCHANGE RATE REFORM AND THE DYNAMICS OF NET-EXPORT IN NIGERIA

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**ABSTRACT:** *In this paper, the short- and long-term empirical relationship between net-export and exchange rate variation in Nigeria was estimated using error correction model (ECM) and Fully-Modified least squares (FM-OLS) for the period, 1986-2017. The impacts of degree of openness and tariff on net-export were equally examined over the study period. Prior to the actual estimation of the model, the series were subjected to unit root test using Phillips-Perron method and the results that they are all first difference stationary. Additionally, the cointegration test result revealed that the linear combinations of the of the nonstationary series leads to long run relationship amongst them. The parsimonious ECM shows that the variables jointly exert significant impact on net-export in the short run. It was also observed from the error correction coefficient that any short run disequilibrium in the system can be reconciled at 53.47 percent to achieve long run equilibrium position. The estimated cointegrating regression model shows that nominal effective exchange rate exerts significant positive impact on net-export in the long run. Overall, the F-test result for joint significant of the series reveal that the all the variables are collectively important in influencing changes in net-export. On the basis of the findings, it is recommended that policy makers should ensure that exchange rate policy prevalent in the Nigeria economy is tailored towards making exports more competitive in the international market in order to boost net-export growth and maintain stability in the domestic economy.*

**KEYWORDS:** Net-export, Exchange rate, degree of openness, tariff, ECM and FM-OLS

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### INTRODUCTION

Generally, the exchange rate policy embodies two types of exchange rate regime. The first one is the fixed exchange rate regime in which the government controls the rate of exchange and adopts necessary changes to maintain the existing rates. This is anchored on the Bretton Woods system. The second system is the flexible exchange rate regime which emerged following the collapse of the Bretton Woods system of fixed exchange rate regime. The flexible exchange rate has been described as a reliable exchange rate system given that it is driven by the interplay of market forces.

The proponents of fixed exchange rate system argue that flexible exchange rate regime is associated with negative spill-overs on the economy wide aggregate, especially net exports with constitute large components of aggregate demand. Generally, it is believed that misaligned exchange rate seems to generate undesired effects on economic efficiency, resource allocation and capital inflows. It is a popular view in economics literature that exchange rate plays important in predicting the extent and dimension of aggregate demand given its considerable impact on the net-exports component of aggregate demand. Thus, exchange rate variations seem to translate to changes in the relative prices of imports and exports and as such trigger changes in net export.

The credibility of exchange rate in boosting net exports is largely predicated on the capacity of the domestic economy to meet the growing demand by expanding the supply of tradable goods. Ricci & MacDonald (2005) argue that increase in productivity and competitiveness of the tradable sector compared to foreign industries reduces pressure on real exchange rates. In view of its role in overall economic outlook and performance of net export in particular, many developing economies have adopted reform measures target at improving the value and competitiveness of their currencies at the global market. Prominent among these measures is shift from fixed to flexible exchange rate system. This is considered necessary in order to keep pace with the dynamics of financial development and net export growth.

Like other developing countries, policy makers in Nigeria have continued to initiate key reforms in the management of exchange rate with a view to promoting the competitiveness of the domestic economy. Dada & Oyeranti (2012) assert that the exchange rate policy in Nigeria has passed through significant transformations from the post-independence era, through the 1970s period of oil boom, to the floating system in 1986. As the apex monetary authority in Nigeria, the Central Bank of Nigeria (CBN) is saddled with the responsibility of exchange rate management and has periodically intervened in the foreign exchange market to achieve specific objectives. One of the strategic reforms in the exchange rate regime was initiated by the Structural Adjustment Programme (SAP) of 1986 which allowed market forces to play a determinant role in the rate of exchange. Iyoboyi & Muftau (2014) observed that the adoption of SAP prompted the depreciation of the naira in order to achieve a realistic exchange rate capable of enhancing macroeconomic performance.

Basically, economic theory recognizes that depreciation is expected to impact positively on export given that it is believed to attract foreign demand. Again, the Marshall-Lerner condition supports the hypothesis that depreciation boost net exports. Undoubtedly, fluctuations in net export have been largely linked to unstable exchange rates in Nigeria. This has often necessitated the interventions of the CBN in the foreign exchange market with a view to reducing the extent of fluctuations and stimulates aggregate demand. The actualization of a realistic exchange rate to stimulate aggregate demand has remained a major concern in the Nigerian economy. Chang & Tan (2008) posit that the availability of sound and appropriate exchange rate policy is the prerequisites for improved macroeconomic performance. Thus, deviation from the rates of exchange considered appropriate or realistic tend to generate costs on the economy in terms of decline in aggregate demand and drastic fall in overall economic performance.

The second tier foreign exchange market introduced by the SAP in 1986 heralded the depreciation in the exchange rate with attendant implications on the net-export. This heightened the variations in exchange rates with greater uncertainty and risks in the foreign exchange market. Iyoboyi & Muftau (2013) posit that the guided regulation introduced in 1994 caused exchange rate in Nigeria to depreciate to 21.886 naira against the US dollar. Again, Aliyu (2009) opines that the exchange rate depreciated further to 150.01 naira to a dollar at the end of 2009 due to the adverse implications of the global financial crisis in 2008. The controversies that abound in the Nigerian policy environment with regard to the link between exchange rate variations and exchange rate have remained a source of worry to relevant stakeholders in the economy. It is against this backdrop that this paper evaluated the impact of exchange rate variations on aggregate demand through changes in net exports.

## REVIEW OF RELATED LITERATURE

### Theoretical Literature

The purchasing Power Parity (PPP) developed by Cassel (1918) assumes that exchange rate variations are key aspect of the exchange rate policy. This is because in a fixed exchange rate regime, regulatory authorities need to forecast the equilibrium exchange rate while flexible exchange rate requires the operating country to know the level and expected variation in nominal and real exchange rates. Taylor & Taylor (2004) opined that the rationale for the PPP theory is that parity exists in purchasing power when a unit of currency is able to purchase the same basket of commodities in a given country at the equivalent amount of international currency in a foreign country. However, the PPP theory has been criticized for overlooking other key drivers of exchange rate between two trading countries. Unlike the PPP, the interest rate parity (IRP) theory assumes that exchange rate between two countries are determined by the interest rate prevailing in these countries.

It is worthy of note that the interest rate parity theory is a popular technique used in forecasting exchange rates. The forecast is often made by inputting the spot rate of exchange and the interest rates in the domestic and international currencies respectively. However, the reliability of this technique is predicated on the extent these two rates of interest (domestic and foreign interest rates) are linked. The variations in exchange rate between two countries are better understood from the perspective of interest rate parity hypothesis. Furthermore, the monetarist approach to exchange rate determination is based on the assumption that the monetary management in any economy drives the rate of exchange. Thus, changes in monetary policy operations directly or indirectly influence exchange rate. According to the monetarists, demand and supply of money in an economy determine the rate of exchange. Garces-Diaz (2004) describes the monetary model of exchange rate determination as a dominant topic in international economics since the collapse of the Bretton Wood system. This stems from his view of the credibility of the monetary model in outlining the existence of a long-run equilibrium among relative money supplies, nominal exchange rates and other macroeconomic variables.

Another source of exchange rate variations from the perspective of the monetary model is poor policy coordination in monetary policy management among countries. Evidence of poor policy coordination among countries across the globe tends to reflect in discrepancies in the growth of monetary aggregates. For the monetarists, the persistent poor policy coordination generates cost in the form of global inflation rate differential which are key drivers of exchange rate variations. It follows, therefore, that policy coordination or the lack of it has the capacity of causing exchange rate to fluctuate.

### Empirical Literature

Tchokote, Uche & Agboola (2015) analyzed the impact of exchange rate fluctuations on net-exports in some selected West African countries focusing on Nigeria, Cote d'Ivoire, Gambia, Ghana and Togo. The Johansen (1988) co-integration approach was employed to determine whether the variables have any long-run relationship. It was evident from the finding that the variables under investigation-net-exports, exchange rate fluctuations, foreign income, relative price and openness to trade for all the countries have long-run relationship. It was equally found 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. Thus, the study recommended for the maintenance of a stable exchange rate system in order to boost exports.

Aghion (2008) explored the effect of real exchange volatility on long-term rate of productivity growth in 83 countries over the period 1960-2000. The panel data collected for the selected countries were analyzed using multiple regression approach. The results indicate that exchange rate volatility contracts growth with relatively low level of financial development while countries with advanced financial development seem to experience long-term growth following exchange rate variations. The study suggested for the adoption of more fully articulated structural models in measuring the trade-offs between exchange rate variations and productivity growth.

Iyoboyi & Muftau (2013) evaluated the impact of exchange rate depreciation on balance of payment (BOP) in Nigeria between 1961 and 2012. A multivariate vector error correction mechanism was employed as the estimation technique. The findings show evidence of long-term relationship and exchange rate depreciation, BOP and other variables included in the model. It was equally found that a bidirectional relationship exist between exchange rate depreciation and BOP. However, the variance decomposition indicates that exchange rate variations only account for insignificant variation in the BOP in the first ten periods. The study however, recommend for the adoption of well-coordinated macroeconomic policies that promotes stability in exchange rate and reduces inflationary pressures.

Alam & Ahmad (2011) assessed the long-run and short-run impacts of real exchange rate volatility on aggregate exports demand for exports in Pakistan using quarterly data from 1981Q<sub>1</sub> to 2008Q<sub>2</sub>. The estimation technique adopted by the study is the Autoregressive Distributed Lag (ARDL) model. The empirical result indicates that demand for exports has a long-run relationship with variations in real effective exchange rate. The result equally shows that the changes in real effective exchange rate have significant negative effect on demand for exports.

Rey (2006) explored the effect of nominal and real effective exchange rate on aggregate exports growth in six Middle Eastern and North African (MENA) countries and fifteen member states of European Union (EU). Quarterly time series data which spanned through 1970Q<sub>1</sub> to 2002Q<sub>4</sub> were utilized for the study. An autoregressive conditionality heteroscedasticity (ARCH) model was used for analyzing the quarterly data and the findings indicate that exchange rate variations have a significant negative effect on aggregate export growth in four MENA countries (Egypt, Algeria, Turkey and Tunisia) while their effect on the remaining two countries (Israel and Morocco) are positive. It was equally found that changes in exchange contracted aggregate export growth in the fifteen EU states. The study concluded that appropriate exchange policy is the one that prevents erratic moments in real exchange rates.

Skott, Rapetti & Razmi (2012) evaluated the link between real exchange rate and aggregate demand in economies with underdevelopment. The study utilized a multivariate approach and found that real exchange rate exerted a positive influence on aggregate demand through improvement in the balance of payment position. The study recommended for a combination of investment promotion and intervention in the foreign exchange market in order to boost investment in the modern sector.

Jonathan & Ugochukwu (2016) appraised the implications of exchange rate variations on economic performance of countries in West Africa Monetary Zone (WAMZ) between 1980

and 2013. The study focused on Nigeria and Ghana using generalized autoregressive conditional heteroscedasticity (GARCH) approach to analyze the data. The result reveals that exchange rate volatility generated a significant negative effect on growth during the study period. Thus, the study recommended for the adoption of policies capable of engendering stability in exchange in order to stimulate rapid growth of the economy.

## METHODOLOGY

### Research Design/Nature of Data

This paper adopts ex post research design following the use existing data for the empirical analysis. The data on the both forecast and explanatory variables are secondary in nature and they are sourced from documentary sources, especially the Central Bank of Nigeria (CBN) and the World Bank.

### Variables of Interest

In this paper, net export is measured by the difference between the total exports value and total imports value of an economy in particular period of time. It equally entails the amount by which foreign expenditure on domestic commodities exceeds domestic spending on foreign commodities. The year-end value of net-exports as published in the CBN statistical bulletin is used for this study. The exchange rate variation is captured by the nominal effective exchange rate which is a measure of a country's international competitiveness in terms of the international foreign exchange market. Other variables of interest introduced to this paper include the degree of openness and tariff. Specifically, the degree of openness measures ratio of export to GDP while tariff defines tax imposed by a government on goods and services imported from other countries. It is often intended to increase the price and make imports less desirable, or at least less competitive relative to the domestically produced goods and services.

### Model Specification

In the model set up for this paper, net-export (NEXP) is the forecast variable while nominal effective exchange rate (NOE), degree of openness (DOP) and tariff (TRF) were introduced into the model as explanatory variables. The model adapt to earlier study by Tchokote, Uche & Agboola (2015) which explored the link between exchange rate fluctuations and net-exports in selected West African countries. However, this paper improves on this study by introducing tariff as part of the explanatory variable and focusing only on Nigeria in order to proffer country-specific solution. The formal specification of the mode using the notations for each of the variables is of the form:

$$NEXP_t = a_0 + a_1NOE_t + a_2DOP_t + a_3TRF_t + U_t \quad (1)$$

In equation (1), NEXP, NOE, DOP and TRF are as expressed in sub-section (3.3),  $a_0$  denotes constant term,  $a_1$ -  $a_3$  represent the slope parameters while  $U_t$  stands for the stochastic term. The error correction model is expressed as:

$$\Delta NEXP = b_0 + \sum_{i=1}^m b_1 \Delta NEXP_{t-i} + \sum_{i=1}^m b_2 \Delta NOE_{t-i} + \sum_{i=1}^m b_3 \Delta DOP_{t-i} + \sum_{i=1}^m b_4 \Delta TRF_{t-i} + \psi ECM_{t-1} + U_t \quad (2)$$



Where:  $b_0$  is the constant term,  $b_1$ -  $b_4$  denote the short run coefficients of the lagged explanatory variables,  $\Delta$  = first difference operator,  $n$ = optimal lag order,  $\psi$  = error correction estimate.

### Data Analysis Techniques

This paper relied on Fully-Modified Least Squares (FM-OLS) for estimating the impact of exchange and other explanatory variables in the model on net-export. In addition to the FM-OLS, this paper employed ECM to capture the short run dynamic relationship between the variables under investigation and determine the speed of convergence. Prior to the model estimation, the pre-estimated tests conducted are explained hereunder.

**i. Unit root test:** The stationarity characteristics of the underlying economic time series are examined using Phillips & Perron (1988) methodology. Ozigbu and Ubani (2017) argue that the unit root test provides the framework for checking whether or not the assumptions of the Ordinary Least Squares are undermined. This procedure provides better insight into the order of integration of each of the variables in the model. The model for unit root which includes both intercept and trend is expressed as:

$$\Delta W_t = \mu_0 + \mu_1 W_{t-1} + \sum_{i=1}^K \phi_i \Delta W_{t-i} + e_t \quad (3)$$

Where:  $W_t$  = variable being investigated,  $\mu_1$  and  $\phi_i$  = parameter estimates of the variables,  $k$  = lag length  $\Delta$  = First difference operator,  $e_t$  = white noise

**ii. Cointegration test:** This cointegration test is used to ascertain whether or not long run equilibrium relationship exist between the variables. Specifically, the cointegration test for multivariate model proposed by Johansen and Juselius (1990) is utilized in this paper to test the null hypothesis of no cointegration against the alternative hypothesis of cointegration at 5 percent level. The formalization of the log-likelihood ratio based on Trace and Max-Eigen statistics are as follows:

$$\lambda_{trace}(r) = -T \sum_{i=r+1}^n \ln(1 - \hat{\lambda}_i) \quad (4.1)$$

$$\lambda_{max}(r, r+1) = -T \ln(1 - \hat{\lambda}_{r+1}) \quad (4.2)$$

where  $\hat{\lambda}$  denotes the estimated values of the characteristic roots and  $T$  is the sample size. Basically, the Trace statistic tests the restriction  $r < q$  ( $q < n$ ) against the completely unrestricted model  $r < n$  and the maximum Eigen value statistic makes the alternative more precise by specifying that only one additional cointegrating vector exists ( $r \leq q + 1$ ). Notably, the critical values for both trace and Max-Eigen statistics have been calculated by Johansen and Juselius (1990). Evidence of atleast one cointegrating vector at 5 percent indicates that the series have long run relationship.

## RESULTS AND DISCUSSION

### Descriptive Statistics

The descriptive statistics for the series are showed in Table 1.

**Table 1: Basic statistics**

	NEXP	NOE	DOP	TRF
Mean	1843.988	65.93281	51.41438	31.96844
Median	853.8000	80.66500	54.32000	24.26500
Maximum	5822.600	158.0700	81.81000	86.93000
Minimum	2.900000	0.740000	20.72000	12.40000
Std. Dev.	1944.540	45.90840	16.80348	20.79802
Jarque-Bera	3.683294	2.231117	1.278407	15.83848
Probability	0.158556	0.327732	0.527712	0.000364
Observations	32	32	32	32

**Source: Author's computation based on data adapted from the CBN Statistical Bulletin and the World Bank.**

The results in Table 1 show that during the study period (1986-2017) net-export averaged ₦1843.98 billion while the average values of nominal effective exchange rate, degree of openness and tariff are ₦65.93 per dollar, 51.41 percent and 31.96 percent respectively. As observed from the standard deviation, all the variables except net-export clustered around their respective mean values. The Jarque Bera statistics further revealed that all the series except tariff are normally distributed over the study period. The trends of the series over time could be linked to the realities of economic uncertainties which shape the overall economic outlook.

### Unit Root Test

The test for unit root followed the Phillips-Perron methodology and the results are summarized in Table 2.

**Table 2: Results of unit root test**

Series in the model	Levels test result	First difference test result	Order of integration
	Adjusted t-statistic	Adjusted t-statistic	
NEXP	-2.140 (0.504)	-5.108 (0.001)	I (1)
NOE	-2.946 (0.163)	-5.534 (0.001)	I (1)
DOP	-3.501 (0.057)	-11.486 (0.000)	I (1)
TRF	-2.329 (0.407)	-10.025 (0.000)	I (1)

**Source: Author's computation based on data adapted from the CBN Statistical Bulletin and the World Bank.**

**Note: Figures in parenthesis are the MacKinnon (1996) one-sided p-values.**

The results in Table 2 show that all the series contain unit at 5 percent level of significance. Put differently, the series are found to be nonstationary at levels and as such the null hypothesis of unit root in each of the series cannot be rejected. However, the first difference test result revealed that the series become stationary after being differenced only once. Hence, they all integrated of order one. For this reason, the Johansen system of cointegration was applied to determine whether long run relationship can be achieved from the linear combinations of the series.

### Johansen Cointegration Test Results

The results of the Johansen multivariate cointegration test conducted at 5 percent level of significance are reported in Table 3.

**Table 3: Johansen cointegration results for the series**

Series: NEXP NOE DOP TRF				
Lags interval (in first differences): 1 to 3				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.686169	65.65765	47.85613	0.0005
At most 1 *	0.516947	33.20845	29.79707	0.0195
At most 2	0.353853	12.83482	15.49471	0.1210
At most 3	0.021426	0.606442	3.841466	0.4361
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.686169	32.44920	27.58434	0.0109
At most 1	0.516947	20.37363	21.13162	0.0636
At most 2	0.353853	12.22838	14.26460	0.1024
At most 3	0.021426	0.606442	3.841466	0.4361

**Source: Author's computation based on data adapted from the CBN Statistical Bulletin and the World Bank.**

**Note: \* denotes rejection of the hypothesis at the 0.05 level**

The cointegration test results in Table 3 showed that series have long run relationship. It was observed from the trace test result that two cointegrating vectors exist in the model. In addition to the trace test result, the maximum eigenvalue result only shows evidence of one cointegrating vector. Owing to the findings, the null hypothesis of no cointegration among the series is rejected at 5 percent level. Thus, the variables have long run relationship.

### Estimation of Cointegrating Regression Model

The cointegrating regression result which depicts the long run impact of exchange rate and other explanatory variables on net-export was estimated using FM-OLS. The results are reported in Table 4.



**Table 4: Cointegrating regression result**

Dependent Variable: NEXP				
Method: Fully Modified Least Squares (FMOLS)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
NOE	27.42885	7.724022	3.551110	0.0014
DOP	-13.93493	18.67193	-0.746303	0.4619
TRF	-26.26689	17.69060	-1.484794	0.1492
C	1846.702	1605.315	1.150367	0.2601
R-squared	0.518671	Mean dependent var		1903.377
Adjusted R-squared	0.465190	S.D. dependent var		1946.958
S.E. of regression	1423.825	Sum squared resid		54736467
F-statistic	12.005	Prob(F-stat.)		0.0000

**Source: Author's computation based on data adapted from the CBN Statistical Bulletin and the World Bank.**

The result in Table 4 shows that nominal effective exchange rate exerts significant positive impact on net-export in the long run. This finding aligns with the result of Tchokote, Uche & Agboola (2015) for Nigeria, the Gambia, Ghana and Togo and further suggests that variations in the effective exchange rate do not seem to significantly contract the export volume over time. On the contrary, the degree of openness and tariff has insignificant negative impact on net-export. Overall, the F-test result for joint significant of the series reveal that the all the variables are collectively important in influencing changes in net-export. More so, the coefficient of multiple determinations (0.5186) shows that the regressors with high explanatory power to the tune of 51.86 percent. Hence, they account for 51.86 percent of the overall changes in net-export.

### Estimation of the Error Correction Model (ECM)

The ECM was estimated using the OLS technique after differencing each of the series to ensure that they are not introduced into the model in their explosive nature. The parsimonious ECM is showed in Table 5.

**Table 5: Parsimonious ECM**

Dependent Variable: D(NEXP)				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(NEXP(-1))	0.337639	0.194791	1.733342	0.0992
D(NEXP(-2))	-0.241956	0.190277	-1.271600	0.2189
D(NOEX)	-27.87796	13.82581	-2.016371	0.0581
D(NOEX(-2))	-28.00309	14.30443	-1.957652	0.0651
D(DOP)	-25.46097	12.97198	-1.962767	0.0645
D(DOP(-2))	-4.923185	11.12152	-0.442672	0.6630
D(TRF)	-20.04176	15.91731	-1.259118	0.2232
D(TRF(-2))	24.04600	15.31610	1.569982	0.1329
ECM(-1)	-0.534704	0.155677	-3.434690	0.0028
C	322.8653	180.3035	1.790677	0.0893
R-squared	0.493459	Mean dependent var		93.26552
Adjusted R-squared	0.423518	S.D. dependent var		975.8349
S.E. of regression	843.1132	Akaike info criterion		16.57888
F-statistic	12.056589	Durbin-Watson stat		1.926022
Prob(F-statistic)	0.008988			

**Source: Author's computation based on data adapted from the CBN Statistical Bulletin and the World Bank.**

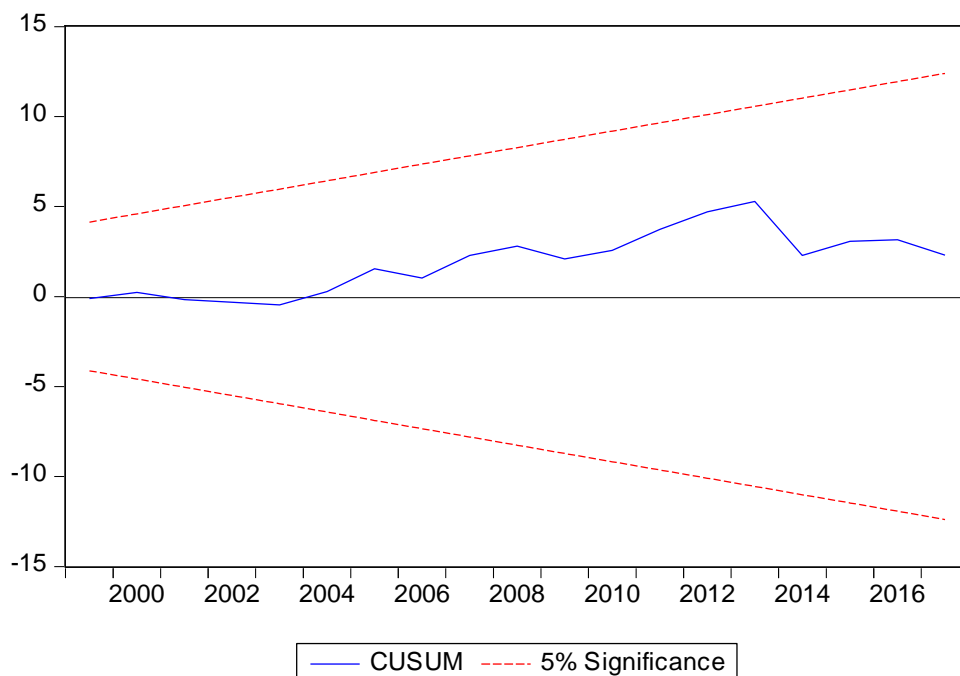
The parsimonious ECM shows that both the contemporaneous and lagged values of the underlying explanatory variables are statistically insignificant in influencing changes in the net-export in the short run. However, the F-statistic (12.0565) and its associated probability value (0.0089) indicate that the variables jointly exert significant impact on net-export. Therefore, exchange rate variations, degree of openness and tariff are collectively important in predicting changes in net-export in the short run. The error correction coefficient (-0.5347) is associated with the hypothesized negative sign and it is statistically significant at 5 percent level. This finding is very welcoming as it implies that any short run disequilibrium in the system can be reconciled at 53.47 percent to achieve long run equilibrium position. The diagnostics tests results for the series are showed in Table 6.

**Table 6: Diagnostics results for the parsimonious ECM**

Test type	Test statistic	Probability value
Breusch-Godfrey Serial Correlation LM test	Chi-square statistic	0.6335
Breusch-Pagan-Godfrey Heteroskedasticity Test	Chi-square statistic	0.3278

**Source: Author's computation from the parsimonious ECM**

The outcomes of the diagnostics tests as reported in Table 6 show that the residual is not serially correlated given that the probability value (0.6335) of the chi-square statistic is greater than 0.05. It was further observed from the Breusch-Pagan-Godfrey heteroscedasticity test that the variance of the residuals is constant over time. Hence, the null hypothesis of homoscedasticity is maintained at 5 percent level of significance. This is indicative that the model can be relied for prediction and policy purposes. The stability test is showed in Figure 1.



**Figure 1: Cumulative sum plot for stability test**

The stability test was undertaken in order to check if the coefficients of the explanatory variables are stable over time. It was observed from Figure 1 that the CUSUM plot lies within

the two critical bounds at 5 percent level. Thus, the estimated parameters are stable over the study period and as such authenticate the reliability of the model.

## CONCLUSION

This paper focused on the empirical relationship between exchange rate variations and net export in Nigeria. In addition to exchange rate, variables such as degree of openness and tariff were introduced into the model as explanatory variables. The short run dynamic regression result showed that all the regressors are jointly significant in influencing net-export. Additionally, the cointegrating regression result reveals that exchange rate has significant positive impact on net-export in the long run. This suggests that contrary to theoretical expectation, increase in exchange does not impair net-export growth. Based on the findings, it is concluded that exchange policy plays important in the net-export growth in the long run. It is therefore, recommended that policy makers should ensure that exchange rate policy prevalent in the Nigeria economy is tailored towards making exports more competitive in the international market in order to boost net-export growth and maintain stability in the domestic economy.

## REFERENCES

- Alam, S., & Ahmad, Q. M. (2011). Exchange rate volatility and Pakistan's bilateral imports from major sources: an application of ARDL approach. *International Journal of Economics and Finance*, 3(2), 245.
- Aliyu, S.U.R (2009). Exchange Rate Volatility and Export Trade in Nigeria: An Empirical Investigation. MPRA Paper No. 1349. Retrieved from <http://mpa.ub.unimuenchen.de/13490/pdf>.
- Cassel, Gustav (1918), Abnormal deviations in international exchanges, *The Economic Journal*, 28, 413-415.
- Chang, L. L., & Tan, H. B. (2008). Exchange rate risk and macroeconomics fundamental, evidence from our neighbouring South East Asian economies. *International Research Journal of Finance and Economics*, 16, 88–99.
- Dada, E. A. and Oyeranti O. A. (2012). Exchange Rate and Macroeconomic Aggregates in Nigeria. *Journal of Economics and Sustainable Development*, 3(2), 93-101.
- Garces-Diaz, D. (2004). How Does the Monetary Model of Exchange Rate Determination Look When It Really Works?. In *Econometric Society North American Winter Meetings* (Vol. 60).
- Iyoboyi, M., & Muftau, O. (2014). Impact of exchange rate depreciation on the balance of payments: Empirical evidence from Nigeria. *Cogent Economics & Finance*, 2(1).
- Johansen, S., (1988). Statistical analysis of cointegrating vectors. *Journal of Economic Dynamics and Control* 12, 213–25
- Johansen, S., & Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration—with applications to the demand for money. *Oxford Bulletin of Economics and statistics*, 52(2), 169-210.
- Jonathan, D. D., & Ugochukwu, P. U. (2016). Does the Volatility of Exchange Rate Affect the Economic Performance of Countries in the West African Monetary Zone? A Case

- of Nigeria and Ghana. *British Journal of Economics, Management & Trade*, 11(3), 1-10.
- Ozigbu, J. C. and Ubani, D. G. (2017). A Vector Autoregressive Analysis of Policy and Non-Policy Predictors of Foreign Direct Investments in Nigeria. *International Journal Of Humanities & Social Studies*, 5(5), 230-239.
- Phillips, P. C., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika*, 335-346.
- Rey, S. (2006). Effective exchange rate Volatility and MENA countries' exports to the EU. *Journal of Economic Development*, 31(2), 23.
- Ricci, L. A; & MacDonald, R. (2005). PPP and the Balassa Samuelson Effect: The Role of the Distribution Sector. IMF Working Paper, 01/38, 1-40.
- Skott, P., Rapetti, M., & Razmi, A. (2012). Real exchange rates and the long-run effects of aggregate demand in economies with underemployment. [http://scholarworks.umass.edu/econ\\_workingpaper/146](http://scholarworks.umass.edu/econ_workingpaper/146).
- Taylor, A. M., & Taylor, M. P. (2004). The purchasing power parity debate. *The Journal of Economic Perspectives*, 18(4), 135-158.
- Tchokote, J., Uche, M. E. & Agboola, Y. H. (2015). Impact of Exchange Rate Volatility on Net-Export in Selected West African Countries. *AshEse Journal of Economics Vol. 1(4)*, 057-073.