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Evaluating the Asymmetric Effects of External Trade on Poverty in Nigeria

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Abstract: *Integrating into global economy through cross-border movement of goods and services has been identified as an important precondition for development. This paper, therefore, investigates the trade-poverty nexus in Nigeria between 1980 and 2019. Specifically, the asymmetric effects of net exports, trade openness and real effective exchange rate on poverty headcount was explored using non-linear autoregressive distributed (NARDL) method. The Phillips-Perron unit root test results reveal that all the series are mixed integrated in an order that is less than two. The bounds cointegration test result reveals that there is an asymmetric long run relationship between external trade indicators and poverty headcount. As observed from the NARDL estimates, partial sums of net exports are not significant in reducing poverty headcount in both short and long run. This finding could be linked to high propensity to import and poor exports prices in Nigeria which undermine the effectiveness of net export to meaningfully reduce poverty. On other hand, the response of poverty headcount to positive and negative changes in trade openness is positive and significant in the long run. This suggests that the benefits associated with openness to trade seem not to trickle down to the poor. Similarly, increase in real effective exchange rate triggers long term increase in poverty headcount. Owing to the findings, this paper recommends that trade policies should be consistent with the development goal of poverty reduction to ensure that the associated benefits trickle down to those living below the poverty line.*

Keywords*: External trade, net exports, trade openness, exchange rate and poverty headcount*

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I. Introduction

Integrating into global economy through cross-border movement of goods and services has been identified as an important precondition for development. This follows the predictions of the conventional trade theories that external trade is associated with pro-poor growth, expanding market opportunities, technology transfer, increased productivity and innovation. In recognition of the trade-development nexus, Egbuche (2020) posits that more exports for developing economies can translate into poverty reduction. There is also a growing consensus that economic growth triggered by an open and transparent trade environment is essential for sustained poverty reduction in developing countries. According to Yameogo & Omojolaibi (2020), external trade promotes income growth and reduces poverty and income inequality in sub-Saharan Africa. This is imperative for the competitiveness of the economies and building resistance to economic shocks. Menon & Melendez (2020) describe the channel through which trade affect poverty as a dynamic and indirect one which operates through trade's impact on growth. In other words, they explain that trade drives growth and which in turn, reduces poverty.

As documented in Asian Development Bank Institute (2017) and World Trade Organization (2018) reports, external trade plays a key role in the achievement of Sustainable Development Goals (SDG). This could be traced to its contributions to employment, income and poverty reduction among others. Balogu & Dauda (2012) argue that trade integration promotes job creation and business opportunities for the poor to raise their income level. This enhances broad-based income generating capacity of the economy while providing pathway for sustainable reduction in poverty. Despite the gains of trade as documented in extant literature, the trade-poverty nexus is far more complex and fraught with controversy. Thus, there is opposing view that international trade is detrimental to equitable income distribution, employment, growth, environmental sustainability and poverty reduction in Nigeria and other developing economies. For instance, it is argued that trade integration that allows for reduction in tariffs and gradual removal of other restrictions to trade may lower government revenue. The reduction in government revenue can undermine public investments in critical infrastructure and support for pro-poor growth.

Furthermore, Yameogo & Omojolaibi (2020) are of the view that growth associated with trade in import driven economies is insufficient to lift the poor out of poverty line. Additionally, trade integration can also make an economy more vulnerable to external shocks with adverse effects on the poor. Williamson (2002)

argues that the poor tends to be more vulnerable to the spill-over effects of international trade, especially changes in absolute and relative prices of wage goods. This could be linked to the adverse effect of trade on growth, especially in regions with dominant unskilled workers. As controversy on trade poverty-nexus continues to grow, this paper deepens understanding of the asymmetric effect of international trade on poverty in Nigeria. This study is structured into five sections. The first section which embodies the introduction is followed by section 2 which is devoted to the review of what theory and empirical studies say about the nexus between international trade and poverty. Section 3 articulates the research methodology while results and discussion are provided in section 4. Lastly, section 5 is devoted to conclusion and recommendations.

II. Review Of Related Literature

2.1 Theoretical Framework

The theory of comparative advantage assumes that international trade provides basis for countries to completely specialize in the production of goods in which they enjoy comparative cost advantage. This specialization leads to increase in global output of goods and services which consequently reduces prices. The reduction in prices increases the real income of poor and their purchasing power. However, this theory was criticized for its failure to explain the differences in comparative costs between countries. The Heckscher-Ohlin (H-O) theory offers a better insight into the sources of comparative advantage in the production of several commodities across the world. It explains that countries enjoy comparative cost advantage because they have different factor endowments. In other words, there are differences in the trade-driving factor endowments between countries. Thus, the growth in trade is associated with growing level of output and welfare, which decreases the level of poverty. Accordingly, Yameogo & Omojolaibi (2020) opine that trade openness is an essential precondition for economic growth and poverty reduction. Overall, Heckscher-Ohlin model provides a simple and popular way of analyzing relations between supplies of factor input and the composition of trade which provides a better understanding of international trade activities.

On its part, Stolper-Samuelson theorem credited to Stolper & Samuelson (1941) assumes that countries concentrate on the production of goods and services for which they have an abundant factor of production. This plays an important role in driving broad-based growth, which in turn reduces poverty. Additionally, Mitra & Hossain (2018) argue that greater openness to international trade in developing countries will translate into poverty reduction and equitable distribution of income. The proponents of pro-poor growth are of the view that poverty reduction is possible through the expansion of trade liberalization. They argue that the reduction in trade barriers increases size of international trade that not only stabilize domestic economies of the world but also eliminate poverty from the countries of the world. Thus, international trade is advocated as a tool to lift people out of poverty in low income countries.

2.2 Empirical Literature

In recent years, trade-poverty nexus has remained the focus of empirical studies with results varying across countries and economic regions. While some studies believe found that trade is beneficial for poverty reduction, others showed contrary empirical evidences. The review of some of these previous studies is provided in this section.

Using Panel ARDLmodel, Panel Vector Auto-regression (VAR) and System of Generalised Method of Moments (SYS-GMM), Yameogo & Omojolaibi (2020) investigated the relationship among trade openness, economic growth and poverty level in 40 sub-Saharan Africa countries from 1990 to 2017. The results revealed that trade openness; foreign direct investment and institutional quality significantly increase economic growth in the long term, while institutional quality reduces economic growth in the short run. The study further showed that trade liberalisation, institutional quality and population growth rate reduced poverty in the long run, while trade openness has adverse effects in the short run. The causality test results showed evidence of feedback effects among trade, economic growth and poverty level in the region. To this end, the study recommends that African governments should review their poverty reduction programmes in order to move towards achieving the sustainable development goals.

Togo (2020) examined the impact of trade liberalization on poverty reduction in Mali over the period 1986-2018. The study applied ARDL bounds testing approach and found that there is a negative relationship between trade liberalization and three proxies of poverty reduction in the long-run. The study revealed that, in the short-run, trade liberalization has a positive and significant effect on per capita consumption and life expectancy. In contrast, the study revealed that trade liberalization has a negative and significant impact on the infant mortality rate. Based on the findings, the study concludes that the effect of trade liberalization on poverty reduction is not sensitive to poverty proxies but depends on complementary policies

Applying ARDL method on annual time series data, Egbuche (2020) examined the aftermath effect of foreign trade on poverty in Nigeria. The bounds test result revealed that long run relationship exists among the variables. It was found that net export has a positive sign, but statistically insignificant in explaining changes in

poverty in both short and long run. However, trade liberalization significantly influenced poverty in the short and long run. The effect of exchange rate on poverty in the long run was significant and negative. Similarly, Jelilov, Çelik & Abdallah (2020) explored the effects of international trade on poverty reduction in Nigeria from 1995 to 2018. The study utilized secondary data collected from CBN statistical bulletin and found that international trade had some level of impact on poverty reduction. Specifically, exchange rate had little impact on poverty as opposed to other variables which showed some level of significance. The result further showed that international trade, inflation and unemployment have significant positive impact on poverty in Nigeria. Owing to the findings, the study recommend that government should create an enabling environment that would facilitate trade and generate employment through the support of small and medium scale enterprise.

Focusing on 12 selected developing countries between 1980 and 2017, Rezazadeh & Ghasemnejad (2020) examined the effects of the asymmetric threshold of real exchange rate on poverty through the channel of remittances. The study applied Panel Smooth Transition Regression (PSTR) model and found that strong nonlinear relationship exists among the variables under consideration. The results further revealed that remittances, GDP per capita and real exchange rate in both the first and second regimes have inconsistent effects on poverty. Specifically, remittances and exchange rate have positive effect on poverty in first regime and negative effect in the second regime. On the other hand, GDP per capita has negative effect on poverty in both of the regimes, but its effect was less in the second regime. Based on the findings, the study concludes that changes in exchange rate are important determinant of poverty in developing economies.

Yusuf, Malarvizhi & Khin (2013) explored the causal links between trade liberalization and poverty in Nigeria over the period 1980-2011. The study employed Pesaran, Shin & Smith (2001) ARDL method for the analysis of time series data. The result showed that trade liberalization does not contribute to poverty reduction, indicating that the benefit of trade liberalization does not trickle down to the poor in Nigeria. In a like manner, Moses *el al.* (2020) applied cointegration test and error correction model (ECM) to investigate the link between exchange rate and economic growth in Nigeria between 1980 and 2019. The results revealed that exchange has a positive and statistically significant impact on economic growth at 5 percent level. The result further revealed that economic openness impacted negatively on economic growth. Similarly, the study revealed that economic openness adversely affects economic growth. To this end, the study recommends that government should sustain its current efforts in diversifying the economy in the country and disregard the notion that openness generates economic growth in the country.

III. Research Methodology

3.1 Research Design

Considering the nature of this paper, an ex post facto research design was followed. The choice of this research design resonates from the fact that the data required for the empirical investigation were sourced from secondary sources, which cannot be manipulated.

3.2 Model Specification

The model set up for this paper follows the work of Yusuf, Malarvizhi & Khin (2013) with an improving due to improvement in poverty and foreign trade measures, and adoption of asymmetric empirical methodology of non-linear autoregressive distributed lag (NARDL) approach. In this case, the empirical model distinguishes the effect of increasing and decreasing external trade indicators on poverty headcount. The general form of the model is as follows:

$$POVT_t = \alpha_0 + \alpha_1 NEXP_t + \alpha_2 TOP_t + \alpha_3 RECR_t + U_t \quad (1)$$

Where: POVT = poverty headcount, NEXP = net export, TOP = trade openness and RECR = real effective exchange rate, α_0 and $\alpha_1 - \alpha_3$ are constant parameter and estimates of the regressors respectively.

In accordance with Shin, Yu & Greenwood-Nimmo (2014), the NARDL model for this paper which involves the decomposition of the independent variables in equation (1) into partial sums of positive and negative changes in the underlying measures of external trade is specified as follows:

$$\begin{aligned}\Delta POVT_t = {} & \alpha_0 + \alpha_1 POVT_{t-1} + \beta_1^{+} NEXP_{t-1}^{+} + \beta_2^{-} NEXP_{t-1}^{-} + \beta_1^{+} TOP_{t-1}^{+} + \beta_2^{-} TOP_{t-1}^{-} + \beta_1^{+} RECR_{t-1}^{+} \\ & + \beta_2^{-} RECR_{t-1}^{-} + \sum_{j=1}^{p} \lambda_1 \Delta POVT_{t-j} + \sum_{j=1}^{q} \left(W_1^{+} \Delta NEXP_{t-j}^{+} + W_1^{+} \Delta NEXP_{t-j}^{-} \right) \\ & + \sum_{j-1}^{q} \left(W_1^{+} \Delta TOP_{t-j}^{+} + W_2^{-} \Delta TOP_{t-j}^{-} \right) + \sum_{j=1}^{q} \left(W_1^{+} \Delta RECR_{t-i}^{+} + W_2^{-} \Delta RECR_{t-i}^{-} \right) + U_t \end{aligned} \quad (2)$$

Where: $NEXP^{+}$ and $NEXP^{-}$ = partial sums of positive and negative changes in net export.

TOP^{+} and TOP^{-} = partial sums of positive and negative changes in trade openness.

$RECR^{+}$ and $RECR^{-}$ = partial sums of positive and negative changes in real effective exchange rate.

β_1^+ *and* β_2^- = Long run parameters linked to the partial sums of positive and negative changes in the regressors.

W_1^+ *and* W_2^- = shot run parameters.

P and q = lag lengths for the regressors

U_t = serially uncorrelated error term with zero mean and constant variance and covariance.

Δ = first difference operator

3.3 Variable Description and Data Source

The description and measurement of the variables used in this paper and sources of data are summarized in table 1.

Table 1: Summary of variable description

Variable	Notation	Description/measurement	Data source
Poverty headcount	POVT	This refers to the percentage of the population living below the poverty line. As the most popular income poverty measure, headcount index is used in this paper as the dependent variable.	National Bureau of Statistics
Net export	NEXP	This defines the value of total exports minus the value of its total imports. A positive net export value implies a trade surplus, while a negative value suggests a trade deficit. The percentage of net exports to GDP is used in this paper.	Word Bank World Development Indicators (WDI)
Trade openness	TOP	This is measured by the sum of export and import divided by GDP (export +import/gross domestic product).	Word Bank WDI
Real effective exchange rate	RECR	This is the weighted average of a country's currency, relative to a group of other major currencies. It describes the strength of a currency relative to a basket of other currencies. It is used in this study because it provides a better indicator of the macroeconomic effects of exchange rates than any single bilateral rate and serves as a yardstick for foreign trade assessment	International Monetary Fund (IMF)

Source: Author's compilation

4.1 Estimation Techniques

This paper applies NARDL method popularized by Shin *et al.* (2014) to estimate the asymmetric effect of external trade on poverty. As an asymmetric extension of the conventional ARDL model of Peseran & Shin (1999), NARDL captures nonlinearity by means of partial sum decompositions in a coherent manner. In other words, it allows for capturing both the short-run and long-run asymmetries in a single equation set up. An empirical precondition for the application of the NARDL model requires that all variables should be stationary at levels and/ or first difference (Mihajlović & Mihajlović, 2020). The presence of the long run asymmetry relationship was examined by testing the null hypothesis of equality between the long-term coefficients of positive and negative changes using bounds cointegration test. Additionally, Phillips & Perron (1988) test was followed to check the stationarity status of the variables, while descriptive statistics and pairwise correlation form basis for analyzing the distribution of the variables and multicollinearity test respectively.

IV. Results And Discussion

4.1 Descriptive Statistics

The descriptive statistics deepened the understanding of the variable characteristics and distribution over the study period. The results are reported in table 2.

Table 2: Summary statistics for the variables

	POVT	RECR	TOP	NEXP
Mean	57.17050	153.2668	32.70025	6.041047
Median	61.05500	100.6650	34.11000	5.911778
Maximum	78.60000	541.4600	53.28000	23.05093
Minimum	29.00000	50.17000	9.140000	-5.582024
Std. Dev.	13.29662	120.2518	12.52344	6.032250
Jarque-Bera	2.853676	28.85812	2.002320	2.521142
Probability	0.240067	0.000001	0.367453	0.283492
Observations	40	40	40	40

Source: Author's computation based on data sourced from NBS and WDI

As observed from the descriptive statistics, poverty headcount and real effective exchange rate averaged 57.17 percent and 153.27 respectively during the study period. This implies that more than half of the Nigerian populations are trapped in absolute poverty as their daily spending falls below the World Bank recommended threshold of US$1.9. The averaged values of trade openness and net export (measured as a percentage of GDP) are 32.7 percent and 6.04 percent respectively. This suggests that Nigeria is gradually relaxing restrictions to flow of goods and services as evidenced in nearly average openness to trade. However, the less than 10 percent share of net export to GDP is not impressive. This could be linked to the high import-dependent nature of the Nigerian economy which undermines the net export growth and its contribution to GDP growth. The standard deviations for all the variables are less than their corresponding mean values. It therefore, follows that the observations for each of the variables clustered around their respective mean values. It was further found from the probability values of the Jarque-Bera statistics that all the variables except real effective exchange rate are normally distributed. The non-normal distribution of real effective exchange rate is not surprising as it could be traced to the high volatility of exchange rate in Nigeria.

4.2 Pairwise Correlation Test

The explanatory variables were subjected to pairwise correlation test to determine if they can be regressed together or not. The correlation matrix is presented in table 3.

Table 3: Pairwise correlation test results

	POVT	TOP	RECR	NEXP
POVT	1			
TOP	0.6128	1		
RECR	-0.5035	-0.5278	1	
NEXP	0.1242	0.4962	-0.3498	1
OEXR	0.5386	0.2266	-0.4216	-0.232

Source: Author's computation based on data sourced from NBS and WDI

A cursory look at the correlation coefficients shows no evidence of near perfect or perfect correlation between any pair of regressors. This finding provides appreciable empirical evidence for regressing the explanatory variables together as they seem not to pose any threat of multicollinearity.

4.3 Unit Root Test

To ascertain the stationarity properties of the variables, a unit root test was conducted using Phillips-Perron method. The results are reported in table 4.

Table 4: Phillips-Perron (PP) unit root test results

Variable	PP test statistic	Probability value	Order of Integration
POVT	-2.101	0.5289	I(1)
D(POVT)	-8.285	0.0000	
TOP	-3.554	0.0474	I(0)
RECR	-2.2747	0.4371	I(1)
D(RECR)	-5.0597	0.0011	
NEXP	-3.9884	0.0174	I(0)

Source: Author's computation based on data sourced from NBS and WDI

The results of the unit root test reveal that the variables are mixed integrated. Trade openness and net exports are stationary at levels. This necessitates the rejection of the null hypothesis of unit root for the two variables. However, poverty headcount and real effective exchange rate are stationary at first difference. In other words, they are integrated of order one [I(1)]. Overall, the evidence of mixed integration in the series satisfies the empirical precondition for the application of bounds cointegtaion method.

4.4 Bounds Cointegration Test

Following the evidence of mixed integration in the series, a bounds cointeration test method was followed to test the null hypothesis that no cointegration exists among the variables. The result is reported in table 5.

Table 5: Bounds cointegration test result

Variables: POVT TOP RECR NEXP		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	k
F-statistic	7.985	3

Critical Value Bounds		
Significance	Lower I(0) Bound	Upper I(1) Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

Source: Author's computation based on data sourced from NBS and WDI

The cointegration test result reported in table 4 reveals that the computed F-statistic (7.985) is greater than the 5 percent upper bound critical value (4.35). This provides enough evidence for rejecting the null hypothesis that no long-run asymmetric relationship exists among the variables. It therefore, follows from the result that poverty headcount has long run asymmetric relationship with the underlying measures of international trade. This satisfies the precondition for the use of ARDL to estimate the short and long term effects of external trade indicators on poverty in Nigeria.

4.5 Asymmetric Short and Long run Estimates

The asymmetric effect of external trade on poverty headcount was captured by the NARDL estimates. The results are summarized in table 6.

Table 6: Summary of asymmetric results

Dependent Variable: POVT				
Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(POVT(-1))	0.260	0.183	1.422	0.167
D(NEXP_POS)	-0.280	0.224	-1.255	0.221
D(NEXP_NEG)	-0.177	0.229	-0.770	0.448
D(TOP_POS)	0.095	0.2166	0.438	0.664
D(TOP_POS(-1))	-0.467	0.198	-2.351	0.027
D(TOP_NEG)	0.572	0.207	2.752	0.011
D(RECR_POS)	0.104	0.035	2.984	0.006
D(RECR_NEG)	-0.005	0.010	-0.464	0.647
CointEq(-1)	-1.104	0.238	-4.626	0.000
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
NEXP_POS	-0.254	0.199	-1.273	0.214
NEXP_NEG	-0.160	0.208	-0.770	0.448
TOP_POS	0.409	0.160	2.554	0.017
TOP_NEG	0.518	0.181	2.866	0.008
RECR_POS	0.095	0.022	4.264	0.000
RECR_NEG	-0.004	0.009	-0.475	0.639
C	39.216	7.575	5.177	0.000

Source: Author's computation based on data sourced from NBS and WDI

The asymmetric short run results show that the response of poverty headcount to positive and negative changes in net export is negative and insignificant. It is argued from this finding that increase and decrease in net exports do not significantly reduce poverty headcount in the short run. The short run results further reveal that the effects of the partial sums the contemporaneous and one period lag of trade openness are mixed. While an increase in one period lag of trade openness leads to reduction in poverty headcount, a decrease in contemporaneous value of trade openness leads to an increase in poverty headcount. The reduction in poverty headcount associated with an increase in one period lag of trade openness is consistent with the findings of Yameogo & Omojolaibi (2020) and Egbuche (2020). On the other hand, the short run response of poverty headcount to positive changes in real effective exchange rate is positive and statistically significant at 5 percent level. The implication of this finding is that increase in real effective exchange rate intensifies poverty incidence in Nigeria. The error correction coefficient (-1.104) is negative and significant, indicating that the adjustment towards long run equilibrium per year is approximately 100 percent. In order words, the convergence to long run equilibrium position is instantaneous.

More importantly, the long run results reveal that the coefficients of the partial sums of positive and negative changes in net exports are negative and statistically insignificant. It therefore, follows that positive and negative changes in net exports have no significant effect on poverty headcount in the long run. This

corroborates with the finding of Egbuche (2020) and could be linked to high propensity to import and poor exports prices which undermine the effectiveness of net export to reduce absolute poverty in Nigeria. On other hand, the response of poverty headcount to positive and negative changes in trade openness is positive and significant in the long run. This finding aligns with the results of Yusuf, Malarvizhi & Khin (2013) and Jelilov, Çelik & Abdallah (2020), which revealed that benefits associated with openness to trade seem not to trickle down to the poor. This could be linked to poor infrastructure and adoption of inappropriate trade policies which undermine the effectiveness of trade to foster growth and translate it into sustainable reduction in poverty. Similarly, the long run response of poverty headcount to positive changes in real effective is positive and significant. This finding is accordance with the work of Rezazadeh & Ghasemnejad (2020) which indicates that an increase exchange rate tends to intensify poverty incidence.

4.5.1 Post-estimation Diagnostics Test Results

The results of the diagnostics tests are reported in table 6.1.

Table 6.1: Post-estimation diagnostics tests results

Test type/Null Hypothesis (H_0)	Test-statistic	Prob. value	Decision
Residual Normality test H_0: Residuals are normally distributed	Jarque-Bera stat. (0.229)	0.861	Accept H_0
Breusch-Godfrey Serial Correlation test H_0:No serial correlation in residuals	Chi-square stat. (6.561)	0.087	Accept H_0
White's heteroscedasticity test H_0:Residuals are homoscedastic	Chi-square stat. (15.87)	0.103	Accept H_0
Ramsey's RESET H_0: No functional form misspecification	F-stat. (2.464)	0.106	Accept H_0

Source: Author's computation from NARDL result in table 5

The results revealed that the residuals are serially independent, homoscedastic and normally distributed at 5 percent level. This is because the corresponding probability values of each of the test statistics are greater than 0.05. On the other hand, the result of RESET shows no evidence of functional misspecification in the model. Additionally, the stability test performed by plotting the recursive cumulative sum (CUSUM) statistics against the breakpoints and testing based on the null hypothesis that parameters are unstable is presented in figure 1.

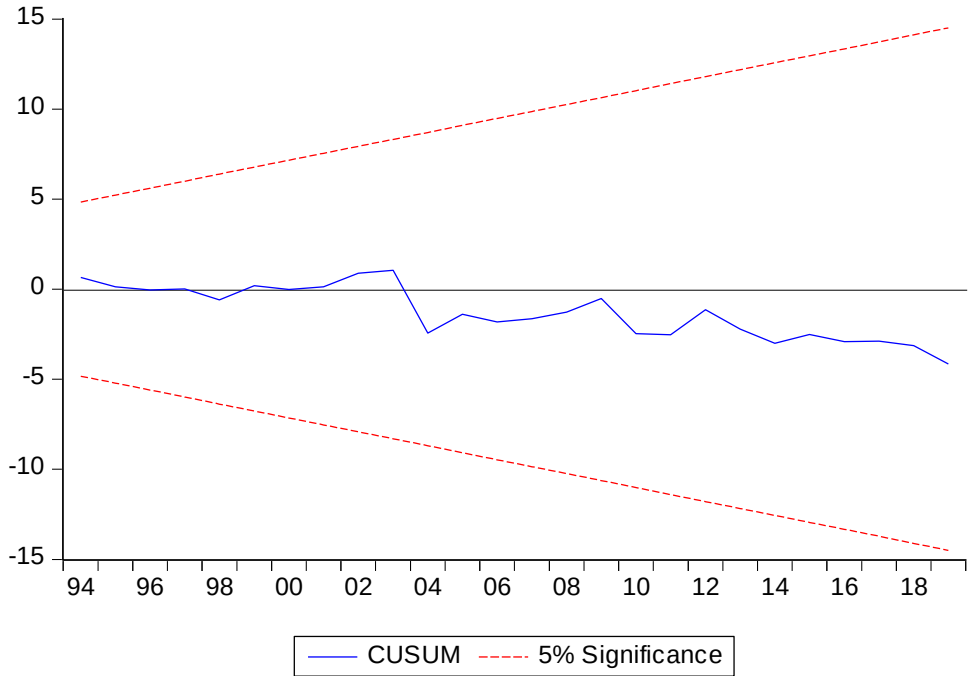

Figure 1: CUSUM plot

As observed from figure 1, the CUSUM plot lies within the two critical bounds at 5 percent level of significance, indicating that the null hypothesis is rejected. It therefore, follows from the finding that the estimated parameters are all stable.

V. Conclusion And Recommendations

This paper makes significant contribution to ongoing debate on trade-poverty nexus by investigating the asymmetric effect of external trade on poverty headcount in Nigeria. The estimated NARDL results reveal that net export is not significant in reducing poverty headcount in both short and long run. The results further revealed that the asymmetric effects of trade openness and real effective exchange rate on poverty headcount are positive and significant in the long run. This suggests that high propensity to import, infrastructural deficits, exchange rate volatility and decline in government revenue and expenditures due tariffs reduction associated with trade openness tend to undermine the potentials of external trade to address the challenge of poverty. Owing to the findings, this paper concludes that, on balance, growth in external trade and outward-oriented trade initiatives do not translate to poverty reduction in Nigeria. Thus, it is recommended that trade policies should be consistent with the development goal of poverty reduction to ensure that the associated benefits trickle down to those living below the poverty line. Again, infrastructure development, export-led growth and efficient sterilized interventions in foreign exchange market should be incorporated into the broad policy initiative of trade integration to ensure that external trade create intended and desired opportunities for meaningful reduction in poverty.

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