

## **External Debt and Poverty Nexus in Nigeria**

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### **ABSTRACT**

Insufficient funds stemming from low productivity and low savings have caused developing economies to embark on external borrowing to foster growth and improve the standard of living of the citizens. This study therefore examined the effect of external debt on poverty in Nigeria for the period 1981 to 2019 using ARDL cointegration technique to analyses data sourced from the CBN and World Bank. Based on empirical results; the ADF stationary test showed that all the variables attained stationarity after first difference except inflation rate which was integrated at order zero. The external debt and poverty rate were positively related in both the long run and short run. While the long run revealed an insignificant relationship, a significant relationship was observed in the short run. The rest of the variables; debt service and inflation showed evidence of positive and insignificant relationship with poverty rate both in the long run and in the short run period. The goodness of fit was robust and reasonable in explaining changes in poverty level and the coefficient of ECM confirms that in the event of shock or disequilibrium, the situation would go back to normal at the speed of 0.16 percent per annum. The post-estimation test result shows that the estimated parameters are normally distributed, have no serial correlation issues, no heteroscedasticity problems, and no specification errors and are stable over time and as such can produce a reliable forecast. Based on these results, the study recommends: the diversification of the productive base of the nation to boost domestic capital formation needed for investment, prudent utilization of borrowed funds to reduce poverty to the barest minimum and more efficient debt management strategies to ensure that borrowed funds are directed to more productive channels in the economy to stimulate growth and improve the living standard of people.

**Keywords:** External Debt, Poverty, Debt Servicing, Nigeria, ARDL.

### **INTRODUCTION**

External debts are loans raised through foreign sources. Practically in Nigeria, external debt is sourced basically from; Paris club of creditors, London club of creditors, multilateral creditors, bilateral and private sector creditors and promissory note creditors (CBN, 2020). The quest for external debts emanates from the paucity of funds and the quest for improvement in social and economic infrastructures in order to achieve sustainable economic growth and development. This lack of funds arises from the vicious circle of low productivity, low income, low domestic

savings and depleting foreign exchange earnings all of which has led to a short fall in internal capital formation (Chenery & Strout, 1966; Gbosi, 1998). The option left is therefore to resort to international communities for additional funds to augment domestic resources for investment in order to improve the standard of living of the citizen. The acquisition of external debt is part of government expansionary fiscal policy in order to meet the demand of the citizens thereby leading to shortage of revenue over expenditure (Ewubare et al, 2017).

Soludo (2003) identified two main reasons for external debts. The first is to finance higher investment, higher consumption or to finance transitory balance of payment deficit in order to lower nominal interest rates abroad. The second is to circumvent hand budget constraint. This implies that countries borrow in order to enhance economic growth and development thereby reducing poverty. External debt can serve as an economic stimulant to a nation, however, once an initial stock of debt grows to a certain level, servicing the debt becomes a burden especially when it grows to a certain threshold which eventually places the nation on the wrong side of the debt-laffer curve, with debt crowding out investment and growth (Soludo, 2003). This is why scholars have argued that external debt could be detrimental to economic growth because it diverts government expenditure and foreign exchange earnings thereby reducing the available resources for investment as a result of debt servicing and higher rate of interest which may lead to lower investment, and at the long run, reduce the welfare of the citizens. Nigeria, like most other developing countries is battling with insufficient savings and is left with the option of augmenting domestic sources of funds to fast track economic growth and reduce poverty. This is to say that external borrowing in Nigerian economy stems from savings – investment gap. Debt service is the total amount required to pay interest and principal on outstanding loans and bonds. The payments are made with foreign exchange earnings and are usually met through export earnings and/or further external borrowing. Debt service charge increases as the size of the debt or interest rate rises (Oyedele et al, 2013).

External borrowing in Nigeria started as far back as 1958 when the sum of \$28 million was borrowed from World Bank for rail way construction. This debt had lower interest rate with longer repayment period so it remained relatively low from that decade to the next. The oil boom of 1970's made servicing the debt a walk in the park and more loans were acquired with hope of repayment from the proceeds gotten from the oil windfall. After the crash in oil prices, there was pressure on the nations external debt stock because of the inability to promote export of finished goods as well as government failure to embark on necessary adjustment, particularly at the time of declining revenue that resulted to growing fiscal deficits and further external debt accumulation which caused financial burden on the economy and crowded out investment (DMO, 2005). Several factors have been identified as leading to the increase in external debt in Nigeria and they include; increase in government capital expenditure, non-concessional interest rates on loans from international community, decline in oil earnings from late 1970s and trade arrears resulting from high dependence on imports, upward review of interest rate, all of which compounded the debt situation (CBN, 2020).

Paris club, initiated a write-off for highly indebted countries in 2005 including Nigeria having US\$28 billion (85.8%) of its total debt owed to Paris club (Okonjo-Iwela, 2005). Sequel to the Paris club debt relief and the paying of US\$6 billion arrears on debt upfront, a debt in the sum of

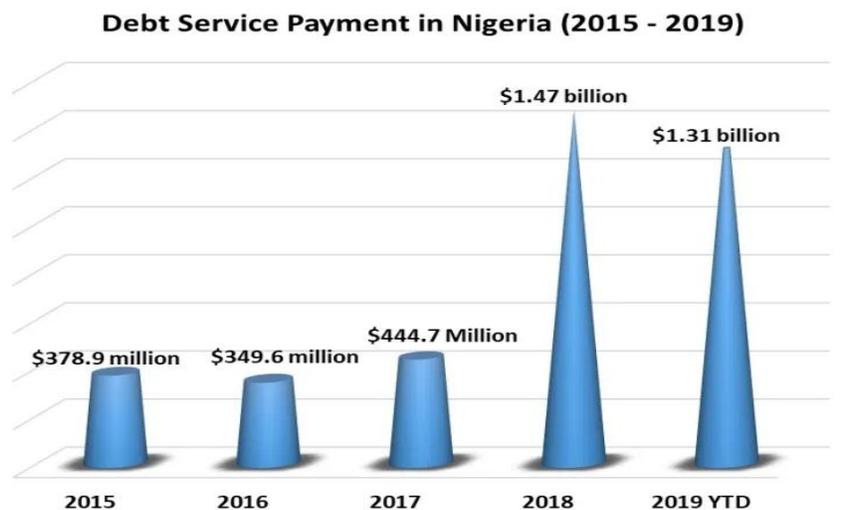
US\$16.6 billion was written off debt. The balance of US\$8.2 billion had to be bought back saving the nation the sum of US\$2 billion which reduced the external debt stock to US\$3.7 billion, representing 2.1 percent of GDP in 2006 (DMO, 2007). Despite the increase in the acquisition of external loans, the prevailing situation is a continuous increase in the rate of poverty in the country. Poverty in Nigeria has become endemic, just like other South Saharan African countries, stemming from the deprivation of basic life necessities. A report by the Nigerian Bureau of Statistics (NBS) in 2019, based on data sourced from Nigerian Living Standard Survey, showed that about 40 percent of the total population lives below the country's poverty line \$381.75 (N137,430) in a year. This implies that one in every ten Nigerians or more than 82.9 million Nigerians are living in poverty (DMO, 2020). Over the years, there have been several views on the relationship between debt and poverty. The ration is that huge debt burden is a major cause of poverty through its effects on economic growth and human development. The direct impact of debt on poverty is the crowding out effect of debt service payments on government expenditure on social infrastructure. The above situation inspired the quest to examine the impact of external debt on poverty in Nigeria. The rest of this study is sectioned into literature review, methodology, results and discussions and finally, conclusion and recommendations.

### **Stylized Facts on External Debt, Debt Servicing and Poverty in Nigeria**

In 1985, external debt was US\$19 billion. By 1990, external debt figure has risen to \$33.1 billion (CBN, 2006). Prior to that time, the nation had experienced economic boom in oil revenue which didn't last but declined shortly after (Frankal & Dude, 1989; Iyoha & Iyare, 2008). This incidence made government expenditure to skyrocket which eventually led to the accumulation of more external debt to finance its projects. By the end of 2004, Nigeria's debt stock had risen to \$36 billion of which \$31 billion was owed to the Paris Club of Creditors while the rest was owed to multilateral, commercial and other creditors (CBN, 2008; DMO, 2008). Nigeria's external debt profile rose from \$9.7 billion in 2015 to \$27 billion in 2019 and further to \$31.99 billion exceeding the amount owed before the debt cancellation in 2005. The total debt stock by 2019 was \$83.8 billion and increased to \$84.574 billion of which 37.82 percent were external debts while the remaining 62.18 percent were domestic debt (CBN, 2020). By the end of September 2020, the external debt stock was \$31.99 billion, representing 7.7 percent of total GDP of which \$16.74 billion were multilaterally sourced, \$4.08 billion were from bilateral sources (mainly the China EXIM bank) and the remaining \$11.17 billion were from commercial sources. External debt alone increased from \$9.7 billion in 2015 to \$27 billion in 2020. Most recently, the increase in the debt stock was attributed to COVID-19 pandemic response, meeting revenue shortfalls and the issuance of promissory notes to settle inherited liabilities (DMO, 2020).

Between 1985 and 2001, Debt Management Office unveiled that about \$32 billion was used to service debt in Nigeria (DMO, 2006). In 2015, \$378.9 million was spent on debt servicing alone in Nigeria. The figures increased to \$1.47 billion in 2018 and further to \$1.31 billion in 2019 (CBN, 2020). Debt service payment rose by 245.9 percent from 2015 to 2019 representing \$3.95 billion accumulation of debt service payment for those periods.

Figure 1: Debt Service Payment in Nigeria



Source: Debt Management Office

Statistics showed that the poverty level in 1985 was about 56 percent but increased to about 58 percent in 1992 and further to about 62 percent in 1994. The poverty rate dropped to 57 percent in 2004 and increased to 69 percent in 2010 (NBS, 2012) to drop slightly to 35.6 percent in 2011 only to rise to 36.1 percent in 2013 and further to 62.22 percent in 2017 (NBS, 2018). A survey by NBS on “2019 Poverty and Inequality in Nigeria” revealed that poverty rate was 40.1 percent in that year.

## THEORETICAL AND EMPIRICAL REVIEW

Most economic theories did not explicitly address the effect of external debt and poverty reduction but it has been established that nations access loans is to augment domestic savings for investment which will in turn foster economic growth (Pattillo et al, 2002), alleviate poverty and eventually increase the welfare of the citizens. In practice however, when countries accumulates so much external debt, the opportunity cost of honouring the debt repayment obligations is the reduction of investments with its resultant negative effect on poverty. This is to say that the direct impact of debt on poverty is the crowding out effect of debt service payments on government expenditure on social amenities. Hasen (2001) examined the impact of aid and external debt on growth and investment from cross-country regression analysis. Findings from his study showed strong evidence of positive impact of aid on the GDP per capita growth rate and the investment rate. Were (2001) posits that sub-Sahara African countries are still burdened with huge external debts coupled with poverty and structural weaknesses, which has hampered the attainment of sustainable growth and development.

A study by Siyanbola (2005) reported a positive relationship between debt service obligations and poverty. A country with a heavy debt profile would experience difficulty in utilizing her available resources for projects that are beneficial the poor.

Oyedele et al (2013), in their study examined the impact of external debt and debt servicing on poverty reduction in Nigeria using data for the period 1980 to 2010 using the co integration and regression analysis. Their result showed that both the external debt and debt servicing caused poverty in Nigeria. In recommendation, suggested that government needs to mobilize domestic saving to replace external debt.

In investigating the effects of debt variables on poverty in Nigeria, Okoli (2012) employed the Vector Auto-regressive method for the period 1980 to 2010. The result showed a positive but weak debt variables effect on poverty.

Emmanuel & Onoja (2017) set out in their study to examine the relationship between external debt, poverty and economic growth in Nigeria for the period 1986 to 2016 using a multivariate regression approach. Findings from their study showed a positive and significant relationship between poverty level and economic growth.

## METHOLOGY

The secondary data for the study ranged from the period, 1981 to 2019 and was sourced from the publications of the Central Bank of Nigeria (CBN) statistical bulletin. Also, the Autoregressive Distributed Lags (ARDL)/bound test approach to co-integration, proposed by Pesaran et al (2001) was adopted in this study to determine whether the underlying time series variables has long run relationship. The null hypothesis of no cointegration is tested against the alternative hypothesis of cointegration. Meanwhile, preliminary test through descriptive statistics was carried out to ascertain the characteristic nature of the time series under consideration. In addition, stationarity test via ADF unit root test was carried out to test for the existence (or otherwise) of unit root in each of the time series.

## Model Specification

The functional form of the model is as follows:

$$POV = f(EXD, DSV, IFR) \dots\dots\dots(1)$$

Where: POV = Poverty rate (proxied by poverty head count)

EXD = External Debt

DSV = Debt Servicing

IFR = Inflation Rate

The Autoregressive Distributed Lags (ARDL)/bound test approach to co-integration, proposed by Pesaran et al (2001) was adopted in this study to determine whether the underlying time series

variables has long run relationship. The null hypothesis of no cointegration is tested against the alternative hypothesis of cointegration. Restating equation (1) as an ARDL model we have:

$$\Delta POV_t = \delta_0 + \delta_1 POV_{t-1} + \delta_2 EXD_{t-1} + \delta_3 DSV_{t-1} + \delta_4 IFR_{t-1} + \sum_{i=1}^n \theta_{1i} \Delta POV_{t-1} + \sum_{i=0}^n \theta_{2i} \Delta EXD_{t-1,j} + \sum_{i=0}^n \theta_{3i} \Delta DSV_{t-1} + \sum_{i=0}^n \theta_{4i} \Delta IFR_{t-1} + \lambda ECM_{t-1} + \mu_t \dots \dots \dots (2)$$

Where  $\Delta$  denotes the difference operator

$n$  is the optimal lag length

$\delta_0$  is the vector of the intercept

$\delta_1 - \delta_4$  is the long run elasticities

$\theta_1 - \theta_4$  is the short run dynamic coefficient

$\mu_t$  is the error term

$ECM_{t-1}$  is the error correction term

$\lambda_1$  is the error coefficient which shows the rate at which the model corrects the speed of adjustment of the previous period's disequilibrium to restore the long run equilibrium relationship. Traditionally, the coefficient of ECM is expected to be negative and statistically significant implying that any movement in short run between the dependent and independent variables will converge back to the long run equilibrium.

The null hypothesis of no cointegration is tested under the asymptotic distribution of the F-statistic. From the ARDL model in equation (2), the null and the alternative hypotheses are expressed respectively below:

$$H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6$$

$$H_1: \delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq \delta_5 \neq \delta_6$$

Pesaran et al (2001) reported two sets of critical values. One critical value requires that all the variables in the ARDL model are I(0), while, the other assumes that the variables are I(1). If the computed F-statistic is greater than the upper bound I(1) of the critical value, the null hypothesis of no cointegration would be rejected. However, if it falls below the lower bound, the null hypothesis of no cointegration cannot be rejected. The test is however inconclusive if the F-statistic falls in between the bounds.

**RESULT PRESENTATION**

**Table 1: Descriptive Statistics**

The presentation of results started out with the descriptive statistics of the variables in the study. This is followed by the unit roots test, ARDL bounds test, long run result, short run error correction model and the diagnostic test results.

Statistics	POV	EXD	DSV	IFR
Mean	57.61333	1562.672	378.1785	19.12179
Maximum	88.00000	8321.640	2144.010	72.84000
Minimum	32.00000	2.330000	1.010000	5.380000
Std. Dev.	14.48639	2012.990	560.3781	17.07406
Skewness	0.105593	1.920366	1.882850	1.784009
Kurtosis	1.940517	6.361028	5.705947	4.996583
Sum	2246.920	60944.19	14748.96	745.7500
Observations	39	39	39	39

**Source:** Computed Result Using (E-Views 10)

The descriptive statistics in table 1 above revealed that poverty rate, external debt, debt service and inflation rate averaged 57.6%, N1.56 trillion, N378.18 billion and 19.12% respectively. The result further showed that poverty level recorded a maximum of 88%. External debt and debt services had maximum values of N8.32 trillion and N2.14 trillion respectively while inflation rate grew to a peak of 72.8%. The standard deviation calculated for external debt was the most volatile in the series while that of poverty rate was the least volatile.

The calculated values for the skewness statistics revealed that external debt, debt service and inflation rate were positively skewed, having a long right tail. Poverty rate showed a normal distribution. Also, the kurtosis statistics of all the variables except poverty level were leptokurtic, suggesting that their distributions were more peaked than a normal distribution. These observations show how imperative it is to conduct a unit root test to check the stationary characters of the variables. In this study, the Augmented Dickey Fuller (ADF) unit root test procedure was adopted

**Table 2: Unit Root Test at Level**

VARIABLE	ADF Test	1% Critical Value	5% Critical Value	10% Critical Value	Order of Integration
POV	-2.245975	-3.615588	-2.941145	-2.609066	Not Stationary
EXD	-1.757011	-3.621023	-2.943427	-2.610263	Not Stationary
DSV	-1.018041	-3.621023	-2.943427	-2.610263	Not Stationary
IFR	-2.944054	-3.615588	-2.941145	-2.609066	Stationary

**Source:** Computed Result Using (E-Views 10)

The stationarity test result presented in Table two shows that at various levels of significance (1%, 5% and 10%), all the variables except inflation rate were not integrated at order zero.

**Table 3: Unit Root Test at 1<sup>st</sup> Difference**

VARIABLE	ADF Test	1% Critical Value	5% Critical Value	10% Critical Value	Order of Integration
POV	-6.763478	-3.621023	-2.943427	-2.610263	Stationary
EXD	-4.909642	-3.621023	-2.943427	-2.610263	Stationary
DSV	-7.750127	-3.621023	-2.943427	-2.610263	Stationary
IFR	-	-	-	-	Stationary

**Source:** Computed Result Using (E-Views 10)

The stationarity test result presented in Table three shows that at various levels of significance (1%, 5% and 10%), the variables were stationary. Specifically, all the variables were integrated of order one.

**Table 4: ARDL Bounds Test for Co-integration Model**

Test statistic	Value	K
F-statistics	4.82	3
<b>Critical value bounds</b>		
Significance	I0 Bound	I1Bound
10%	2.37	3.2
5%	2.79	3.67
2.5%	3.15	4.08
1%	3.65	4.66

**Source:** Computed Result Using (E-Views 10)

The result of the ARDL bounds test for co-integration in table four clearly showed that there is a long run relationship amongst the variables (POV, EXD, DSV and IFR). This is because the computed F-statistic of 4.82 is higher than the upper critical bounds at 5 percent critical value. Therefore, the null hypothesis of no co-integration at 5 percent significance level for the model was discarded. It is therefore concluded that there is long run relationship between the variables. Following the establishment of long-run co-integration relationship among the variables, the study obtained the long-run and short-run dynamic parameters for the variables.

**Table 5: ARDL Long Run Result for the Estimated Model**

**Dependent Variable: LPOV**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LEXD	0.062156	0.174731	0.355726	0.7244
LDSV	0.136561	0.172407	0.792086	0.4341
IFR	0.008044	0.218842	0.036757	0.9709
C	4.387015	0.943830	4.648098	0.0001

Cointeq= LPOV-(0.0622\*LEXD+0.1366\*LDSV+0.0080\*LIFR+4.3870)

**Source:** Computed Result Using (E-Views 10)

The long run result reported in table five reveals that external debt, debt servicing and inflation rate all have positive relationship with poverty. This implies that increases in these variables (EXD, DSV & IFR) increased poverty in Nigeria. In the long run, all the explanatory variables were insignificant at 5 percent level.

**Table 6: ARDL Error Correction Model Result for the Estimated Model**

**Dependent Variable: POV**

Variable	Coeff.	Std. Error	t-Statistic	Prob.
D(POV(-1))	0.160413	0.122822	1.306064	0.2008
D(EXD)	0.087617	0.039681	2.208039	0.0345
D(DSV)	0.021906	0.022861	0.958238	0.3451
D(IFR)	0.001290	0.039681	2.208039	0.0345
CointEq(-1)*	-0.160413	0.050038	-3.205829	0.0030

$R^2 = 0.79$ , F-stat = 19.48, F-Prob. = 0.000, D.W = 2.12

**Source:** Computed Result Using (E-Views 10)

The result of the short run error correction ARDL model in table six indicates that the lagged value of poverty had a positive impact on current poverty level although it was insignificant. The implication of this is that poverty is endemic and has ripple effects in Nigeria. External debt was observed to be positively related to poverty. This result is in tandem with the long run result although it was statistically significant at 5 percent level. This shows that external debt has direct implications on poverty in Nigeria. This result corroborates the findings from the studies of Okoli, (2012), & Oyedele et al, (2013) which showed a direct relationship between external debt and poverty. This result goes a long way to show that the huge amount of external debt accumulated in the nation have not been channeled to investment to foster growth and improve the welfare of the citizens. The debt service coefficient conformed to theoretical expectation with its coefficient impacting positively on poverty level. This was the case both in the long run. It implies that debt servicing increased the poverty level in Nigeria. The ration here is that debt repayment and services leads to leakages from the income stream. The result is in consonance with the findings of Okoli, (2012), & Oyedele et al, (2013). It was however not significant at 5 percent level. Inflation rate was positive and significantly related to poverty both in the long and

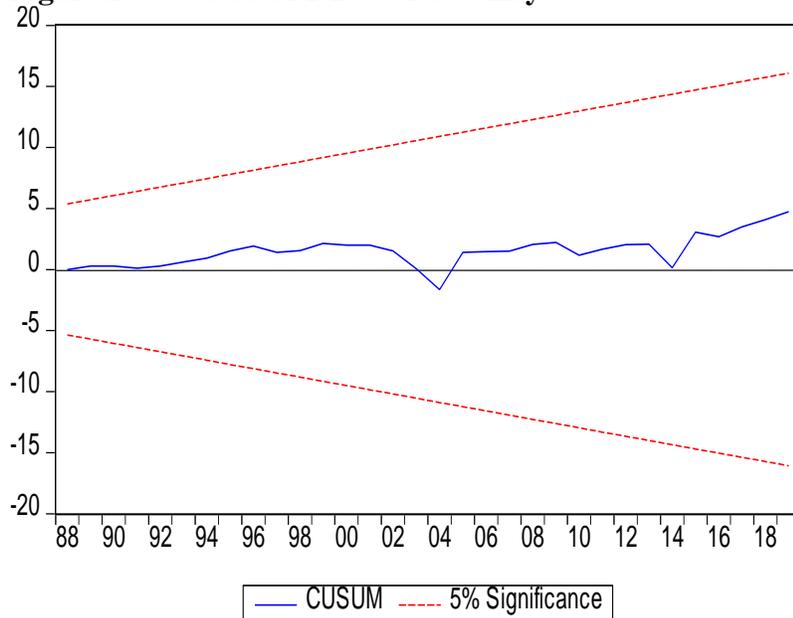
short runs. This result is in consonance with our a priori expectation. An increase in the general price level spurred poverty. When price level increases, the disposable income cannot purchase as much goods and services as it used to thereby reducing the standard of living of the citizens. The error correction term in the model was rightly signed and statistically significant at 5 percent level implying that deviations from the long-term poverty level adjusts to long run equilibrium at a speed of 16 percent. This slow speed of adjustment can be attributed to the poor debt management in the nation. However, the  $R^2$  value indicates that 79 percent of the systematic variation in poverty level is explained by external debt, debts service, and inflation in Nigeria over the period under study. Also, the significance of the ARDL growth model implies that it is robust and fit for prediction. Durbin Watson statistic of 2.12 suggests the absence of serial correlation.

**Table 7: Summary of the Diagnostics Test**

Test	F-statistic	Prob.	Conclusion
Jarque-Bera	0.638552	0.726675	Normally Distributed
Breusch-Godfrey Serial Correlation LM	0.086711	F(2, 30) 0.9172	No Serial Correlation
White Heteroskedasticity	0.879806	F(20, 17) 0.6117	No heteroskedasticity
Ramsey RESET	0.571233	F(1, 31) 0.4555	No specification errors

**Source:** Computed Result Using (E-Views 10)

**Figure 2: CUSUM Test of Stability**



The diagnostic test results in table seven showed that the model scaled through the diagnostic tests as their probability values were greater than 0.05 implying that the null hypotheses of normal distribution, no serial correlation, no heteroscedasticity and no specification errors are accepted based on the Jarque-Bera normality test result, Breusch-Godfrey serial correlation LM result, ARCH test result and Ramsey RESET tests respectively. Also, the stability of the parameters of the model was examined using the plot of the cumulative sum of recursive residuals (CUSUM). The CUSUM in figures 2 stayed within the 5 percent critical line, indicating the stability of the regression estimates throughout the period covered by the study.

### **CONCLUSION AND RECOMMENDATIONS**

This study examined the effect of external debt on poverty in Nigeria for the period 1981 to 2019 using ARDL cointegration technique. Specifically, the study showcased the influence of external debt, debt service and inflation rate on poverty rate in Nigeria. Based on empirical results; the ADF stationary test showed that all the variables except inflation rate attained stationarity after first difference. The external debt and poverty rate were positively related in both the long run and short run. While the long run revealed an insignificant relationship, a significant relationship was observed in the short run. The rest of the variables; debt service and inflation showed evidence of positive and insignificant relationship with poverty rate both in the long run and in the short run period.

The goodness of fit was robust and reasonable in explaining changes in poverty level and the coefficient of ECM confirms that in the event of shock or disequilibrium, the situation would go back to normal at the speed of 0.16 percent per annum. The post-estimation test result shows that the estimated parameters are normally distributed, have no serial correlation issues, no heteroscedasticity problems, no specification errors and are stable over time and as such can produce a reliable forecast. Based on these results, the study recommends: the diversification of the productive base of the nation to boost domestic capital formation needed for investment, prudent utilization of borrowed funds to reduce poverty to the barest minimum and more efficient debt management strategies to ensure that borrowed funds are directed to more productive channels in the economy to stimulate growth and improve the living standard of people. For further studies, the study recommends the incorporation of domestic debt, government expenditure and revenue in future studies.

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