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# Inflation and Poverty in Nigeria: A Granger Causality Approach

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**ABSTRACT:** This study empirically examines the impact of inflation on poverty in Nigeria between the periods 2000-2018. The empirical results were estimated using the E-views software for the purpose of running Augmented Dickey Fuller test, which confirms the variables to be stationary at level and first difference. In view of the presence of mixed order of integration among the variables as evidenced by the unit root tests, Auto regressive distributed lag was conducted to determine the long run relationship between the series. The result shows that the independent variables have a joint significant relationship with POV with R-Square of 91.4%. It also shows that Inflation during the period under study has a negative but statistical relationship with poverty. The Granger Causality test conducted, shows that there is a uni directional causality flowing from poverty to inflation. the study concludes that the decreasing inflation rate will decrease the poverty level that the country has witnessed with that in check, recommendations were made to the Nigerian government to formulate effective macro-economic policies (fiscal discipline) to monitor and curtail inflation rate at a single digit and  cushion the itseffect on the poor.

**KEYWORDS:** Inflation, Poverty, Economy, Granger Causality, Nigeria

## I.    Introduction

Poverty and inflation are dreaded global phenomenon that affects people in Nigeria at various depths and levels at different times and phases of existence. Been the most populous black nation and 7th in the world with a population of about 195 million as of 2018 (UN, 2018) and having a nominal GDP of $397 billion in 2018 (Wikipedia, 2018). Her per capita income is $2,049 in 2018 and as a result was classified as one of Africa largest economy. In spite of having one of the prevalent financial system in Africa. The Nigerian economy is still not developed, although human and natural resources are large.

Poverty is a multidimensional phenomenon. World Bank summarizes the various aspects of poverty as; lack of power, lack of security and lack of opportunities (World Bank, 2001; Chimobi, 2010 &Talukdar, 2012). The window of opportunity is closed to the poor public, which makes them less active in the society. In turn they are vulnerable to illness, violence and power due to insecurity. Similarly, United Nations affirmed that:

*"Poverty rejects elections and opportunities and violates human dignity. It entails lack of basic competence for actual involvement in the society. It means that the family does not have enough food and clothing without visiting a school or clinic. They have no land to live without food and credit. This means instability, frustration and exclusion of individuals, families and society. It equally means that they are vulnerable to violence and often involve living in an unusual or unstable environment without using clean water or sanitation (World bank, 2004; Chimobi, 2010 and Talukdar, 2012)."*

In Nigeria, prevalent and extreme poverty are a reality. It is a reality that depicts unemployment, illiteracy rate, reduced standard of living such as: food, clothes and shelter, little or subtle per capita income, low-level human development and other basic amenities essential to health. Very poor people do not have the most basic necessities of life, so they may wonder how they can survive. Nigeria has some disadvantages associated with poverty. One of the main consequences of poverty is unemployment, as reflected in Nigeria's high unemployment rate and squat living standard and human development. In Nigeria, poor people face various health problems because of absence basic medical services and knowledgeable doctors. Most children have no chance of being educated and this leads to illiteracy in some of the children. Their education is low priority and with little or no choice, regardless of whether they are trained or not.

Inflation has prolonged unchanged a serious dilemma for Nigerian economy for some stretch. This is characterized by a rapid and permanent upsurge in the general price level over a period of time. This is not new and not so bad in the global economy, However, The Nigeria case will be devastating to the entire economy, unless extreme and proper checks are undertaken. From a public point of view, inflation creates ambiguity about imminent prices. These effect decisions on expenditures, savings, investment, low per capita income, poverty and low-level standard of living. Studies show that inflation is not bad because there is an affirmative correlation amid inflation and growth. But the problem is in a country that is experiencing high inflation. Economists differently assess the impact of inflation on people's well-being. Even though it is by and large acknowledged that enormously prohibitive inflation rates, such as those during hyperinflation, affect the economy damagingly, a number of economists oppose that low inflation is decent for the economy. This is not a problem, but in actuality inflation is a fundamental problem and non-economists, Shiller (1996) originate that there subsists a complete difference between the general public and economists in their perceptions of inflation. In his finding Shiller found that among non-economists, the biggest matter with inflation is that it let fall living standard of individuals. Another study by Talukdar (2012) established that inflation distress the needy more than the affluent using panel dataset comprised of 115 developing countries over the period 1981 – 2008, which covers 10 observations for separate country as the figures is obtained at 3 year interludes. From his study, Takuldar (2012) evidence supporte the view that inflation in general is positively correlated with poverty.

Nouvedan wooden (2008), Chani, et al. (2011), Talukdar (2012), Yolanda (2017), &Omoniyi (2018) found in their work a positive correlation between inflation and poverty. Conversely, are nearby studies at the bottom of the view that in attendance is a confirmed correlation between inflation and poverty, other studies grasp been carried out contradict this view. Talukdar (2012) in added study where he analyzes the effect of inflation on poverty in low income countries, lower middle income countries and upper middle income countries with dissimilar levels of income, prove that in most cases inflation is positively and statistically significant with poverty. However, there subsist an adverse and statistically irrelevant correlation amongst inflation and poverty in the instance of little income countries. Ivanic& Martin (2008), Aiyedogbon&Ohwofasa (2012) also, contend this view in their respective works. Romer&Romer (1998) found not any connection amid inflation and poverty. Cutler & Katz (1991) in contrast, found that in the case of

The UN report on the World Social Situation, 2010, Rethinking poverty, raises a numeral of appealing questions: If inflation reduces real wages, afterward employment effect of inflation (creating extra jobs as of drop employment costs) preserve outweigh the real-wage produce (lower income) on poverty. This is prone to be the case, as inflation (real wage) elasticity of poverty is found to be meaningfully fewer than the output (employment) elasticity of poverty. Furthermore, majority of the poor are net debtors and inflation reduces the real usefulness of their debt. Consequently, this sense inflation may give a negative correlation with poverty. Thus, the effect of inflation on poverty is not straightforward. Poverty may be positively correlated with inflation or the reverse may be the case (UN, 2010).

This research shall examine the underlying correlation amid poverty and inflation in Nigeria between 2000 and 2018 and ascertain the policy support structure by which inflation can be brought to the minimum and standard of living better upon.

Inflation resulted to force up price level in general thereby reducing the quality of life or state of being poor and by so doing deny the poor people choices and opportunities and violates their human dignity. That entails lack of basic competence for actual involvement in the society. It subdued and mar buyer expenditure by escalating home prices comparative to overseas prices, the currency inflation impedes exports and encourages ingresses hence, and lessening the country limited foreign resources. Owing to the inflationary state the surplus spending unit discovers battered value of savings therefore they are obliged to add their present consumption in consequence thwart capital formation and the nation's economic growth.

Nigeria is bequeathed with creamy being and genuine resources. Given this wealth in efficient potentials, it is most troubling and odd that Nigeria is in spite of everything is rated the world poorest nation with 86.9 million (50%) of her people in abject poverty after overtaken India as the poverty capital of the world, positioned at 152 out of 188 countries on HDI ranking (World Poverty Clock, 2018).

In Nigeria, the extent of poverty has reached a furthest level, in bad feeling of the several direction poverty easing programs initiated since 1980 till now. But the objective of the programs was amid other belongings to demote poverty.

## II.    Literature Review:

The study on the Impact of Inflation on Poverty has appealed a number of scholars to empirically institute the correlation among inflation and poverty both in the technologically advanced and rising countries. Below are some of the many findings on the study as reviewed in this research:

Omoniyi (2018) with data from 1980 - 2013 periods studied an examination of the causes of poverty on economic growth in Nigeria and employed an error correlation model to analyze the time series data. He institutes a highly positive

correlation between life expectancy, economic growth and inflation. Though, investment proved insignificant. Conversely, corruption, debt, unemployment, mortality, human capital development and poverty offered a non-positive correlation with economic growth. He concluded that poverty, corruption, debt, mortality rate, human capital development and unemployment retarded economic growth, whereas other variables enhanced economic growth and recommends the government to establish quality institutions and sincere poverty alleviation programmes to improve the level of economic growth in Nigeria.

Nazima (2018) studied food inflation and poverty nexus between 1990 and 2015. She utilized Auto Regressive Distributed Lag Model to elucidate the short and long run elasticities and bring into being that a robust connection exists between food inflation and poverty level in Pakistan and conclude that Policy makers should keep into consideration the money supplies as a policy measure to check the poverty. Furthermore, the study suggests that bringing the short run solution of food inflation is not more fruitful; long run policies would be more inferential for steady state equilibrium in an economy like Pakistan.

Safia (2017) studied the effects of inflation on Somaliland's low income families between 2008-2017. The study found that inflation effected Hargeisa low income families in the areas of food and education. The low income families reduced either the quality or the quantity of their food in order to cope with inflation. Poor families also removed their children from schools as they were not able to pay the fees.

Adegoriola, et al (2017) examine the implication of unemployment and inflation on poverty level in Nigeria from 1980-2014. They subject their work to unit root test. Also, using the Johansen test, the variables were found to be co-integrated at 5% level of significance. Vector Auto Regressive (VAR) Model was also used to determine the short-run relationship between the variables and the forth lag was selected based on the lag selection criterion. The result obtained showed the proportion of the variations in Poverty, inflation and unemployment rate attributed to their respective lag values. Granger causality test was carried out from the VAR model, and the result indicated that there is a bi-causality between inflation and poverty. There is two-way causality between unemployment rate and poverty. There is one-way causality between unemployment rate and inflation rate. They recommended that since unemployment causes poverty in Nigeria, government should review the education curriculum which will include practical skill acquisition programme in the educational system so as to produce graduates that are employers of labour rather than employment seekers. The government should also give incentives to producers to enable them increase domestic production which will bring down price level.

Mwanzia (2014) assessed the inflation effect on standard of living among under class lone mothers in Githurai, Kenya between 2010 to 2011, his research paper used a sample of 130 female headed households who were lone mothers. He found that majority of the single mothers had substandard education and low paying jobs. A major chunk of the single mothers did not buy the basic commodities or mostly buy in small than a dollar, had partial disposable income, struggled to buy essential commodities and lived in abject poverty. He recommends that an effort should be made by the government and Central Bank of Kenya to cushion the single mothers against the harsh economic effects of inflation. Focus should be on enacting effective policies to tame the high inflation rate and strengthen the shilling against the dollar so as to improve the living standards of the underclass single mothers and other vulnerable groups.

Anafo, Kweku, &Naatu, (2014) studied the effects of inflation on standard of living in terms of expenses on food and non-food items, income, savings, loan and recreation over the period (2010-2013). A sample of 100 heads of families was taken from Navrongo community in Ghana using stratified sampling. Structured questionnaire and interview schedule were used as tools for collecting data. The data was analyzed using descriptive statistics and multiple regression model. They found that inflation highly affect the living standard of the people, compelling them to get loans and to do overtime work to meet their family expenditures. It was also revealed that the standard of living of the people worsen form year to year with 2013 been the lowest due to the high inflation. They recommend that government should pay attention to the Agricultural sector of the economy in order to increase the supply of households' essentials. It is also recommended that government should always use the expected annual inflation for the year to determine the minimum wage level and adjust it as and when it is necessary so as to have/maintain a good standard living for Ghanaians.

Bakare&Ilemobayo (2013) in their empirical findings discover a point link between economic growth and poverty in Nigeria. Their findings imply that economic growth upsurge failed to degrade poverty in Nigeria. Hence, the underlying 'trickle-down' phenomenon that poverty is reduced by growth is not true in the case Nigeria. They recommend to policymakers to evaluate the pattern of public expenditures so as to make certain a reasonable distribution of the national income.

Aiyedogbon&Ohwofasa (2012) From an examination of the data for the interval of 1987 – 2011, where they employed ordinary least square to examine poverty and youth unemployment in Nigeria, their result shows that unemployment, agriculture and services contribute to real GDP as well as population and have a positive decisive influence on the rate of poverty in Nigeria. Agricultural sector proved the only variable being statistically insignificant. On the other hand,

the rate of inflation shows a non-positive relationship on the level of poverty in Nigeria. The study recommended among other things, that holistic effort should be made by governments at all levels to create jobs and arrest unemployment, should endeavor to convince the citizens to adopt birth control and finally the real sector of the economy should be boosted to contribute meaningfully in reducing poverty in Nigeria.

In a study on the effect of inflation on poverty in developing countries, (Talukdar, 2012) employed a panel dataset comprising of 115 developing countries over the span of 1981 - 2008. He institutes that inflation is positively correlated with poverty. Later, added study where he analyzes the effect of inflation on poverty in low income countries, lower middle income countries and upper middle income countries with dissimilar levels of income, prove that in most cases inflation is positively and statistically significant with poverty. However, there subsist an adverse and statistically irrelevant correlation amongst inflation and poverty in the instance of little income countries.

Maluleke (2012) he studied studies the relationship between poverty and inflation in Sharpeville by determining the impact of rising prices on the poor households in Sharpeville. The study uses the regression model to determine the impact of inflation on poverty in Sharpeville. all households are assumed to be faced with the same inflation rate. He found that household size is positively related to poverty gap squared. Household size is positively related to poverty gap squared. Households with the highest number of members were poorer than those with few members. He confirms that inflation negatively affects poverty. He recommends that government should provide more job opportunities for the individuals without any source of income in Sharpeville. The government should provide business funding to the unemployed individuals to enable them to start their own businesses. This would enable those individuals to create additional employment. In addition, measures should be introduced to determine the effect of inflation on those households who are not employed, but do benefit from some form of feeding scheme administered by either government or non-profit organizations.

In the Pakistan context, Chani, et al. (2011) studied the impact of macroeconomic parameters on growth and poverty using time series data covering 1972 - 2005. They originate that inflation is positively correlated with poverty. Quantifying consequences of inflation on poverty, they bring into being that one percentage point increase in the consumer price index is estimated to raise the head count ratio of poverty by 0.38% the following year. The policy makers in Pakistan who want to reduce poverty should ensure high and sustained economic growth and investment, and must not allow the prices to rise beyond a certain limit.

Naz, et al (2011) examined economic and psychological impact of inflation and price hikes on poor families in Malakand district, collecting figures from 280 categorized respondents, they bring into being that inflation has an enormous impact on the poor, socially, economically and psychologically. They moreover opined that the poor has suffered economic and social torture. They concluded that hikes in prices does not only affect productivity and output of the meagre class, but additionally leads the meagre class to crimes and crime rate upsurge.

Bello, et al. (2010) examined Nigeria poverty situation and employed economic growth and millennium development goals (MDGs) expenditure data. The method employed was panel data analysis consisting of pooled model, fixed-effects, random-effects and weighted least square. Their findings discovered a unit increase in per capita GDP led to 0.6 percent increase in poverty. Similarly, a unit increase in MDG expenditure resulted in 11.56 unit's expansion in relative poverty in the pooled model. Conclusively, from their revise it was found that poverty has not reduced regardless of economic advancement and MDG spending over the sample period.

Sugema, et al(2010) examined the impact of inflation on poverty in national level, urban and rural levels in Indonesia. Besides, they measure the input of respective group of commodity inflation to poverty level and the extent of its effect on urban and rural poverty levels. They employed consumer demand theory to measure the elasticity and so-called price index for the poor (PIP). Their outcomes submit that rural poor families are more susceptible to economic shocks, chiefly inflation. In more in depth breakdown, price variability on foods and its products has higher impact on poverty relative to non-food commodity. Again, rural poor households will experience more severe impact due to price fluctuation on foods. Furthermore, the magnitude of PIP shows that in the last three years, the inflation has larger impact on poor households both in rural and urban area relative to non-poor household.

## III.    RESEARCH METHOD

The data used in this research work were all secondary in nature, this consist of data that has been in existence before the start of this research work. They were obtained from the Central Bank Statistical Bulletin and the National Bureau of statistics. The data was collected on annual basis and consist CPI inflation and poverty index. The data used for this study are basically time series data covering 2000 – 2018, that is Eighteen (18) years.

In this study, the following tests were conducted:

Unit root test

Co-integration test

**Auto-Regressive Distributed Lag Model**

Granger Causality test

**Data Presentation:**

The data used for this research was sourced from secondary source as stated earlier. It was sourced from the statistical bulletin of CBN 2018 issue. The data collected include poverty rate and Consumer price index as a proxy for inflation respectively from 2000-2018. The data is presented in the table below.

**Table 1: Data Presentation of Poverty Rate (POV) and Inflation Rate (INF) in Nigeria from 2000-2018**

| YEAR | POV(%) | INF(%) |
|------|--------|--------|
| 2000 | 40.60 | 14.5 |
| 2001 | 34.60 | 16.5 |
| 2002 | 50.60 | 12.2 |
| 2003 | 40.60 | 23.8 |
| 2004 | 54.70 | 10 |
| 2005 | 50.50 | 11.6 |
| 2006 | 40.70 | 8.5 |
| 2007 | 45.60 | 6.6 |
| 2008 | 47.50 | 15.1 |
| 2009 | 40.50 | 13.9 |
| 2010 | 60.90 | 11.8 |
| 2011 | 53.7 | 10.3 |
| 2012 | 53.5 | 12 |
| 2013 | 53.9 | 8 |
| 2014 | 54.00 | 8 |
| 2015 | 55.90 | 9.55 |
| 2016 | 52.10 | 18.55 |
| 2017 | 49.60 | 15.37 |
| 2018 | 44.20 | 11.44 |

Source: National Bureau of Statistics (2019) & World Bank (2019).
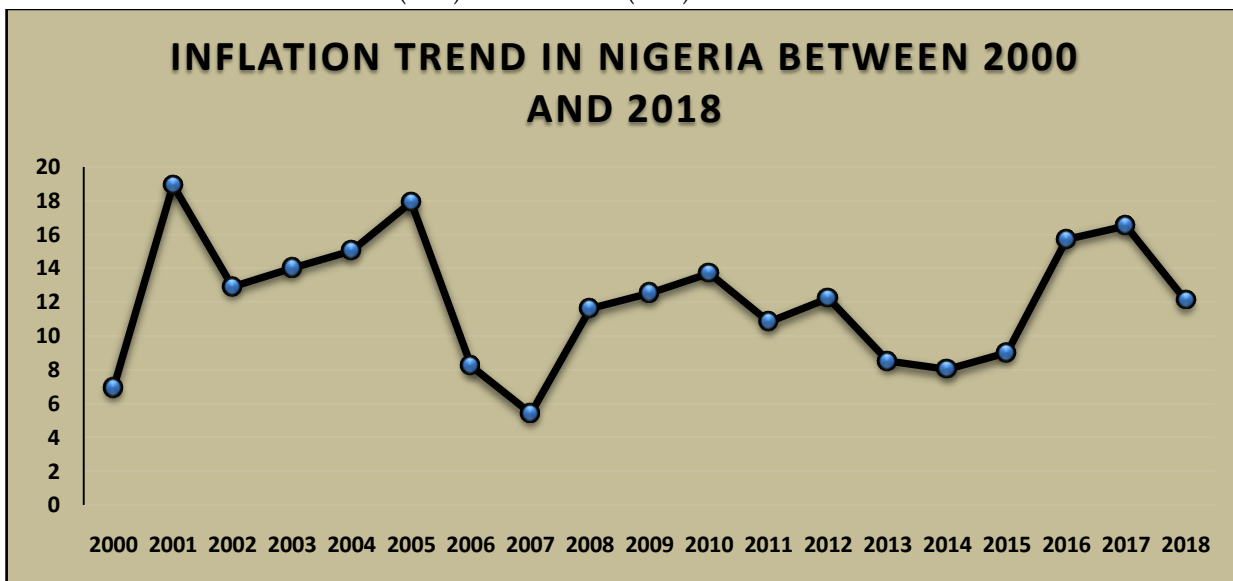


Source: CBN, NBS and computed by the Author Using Microsoft Excel 2016.

**POVERTY PROFILE OF NIGERIA BETWEEN 2000 AND 2018**
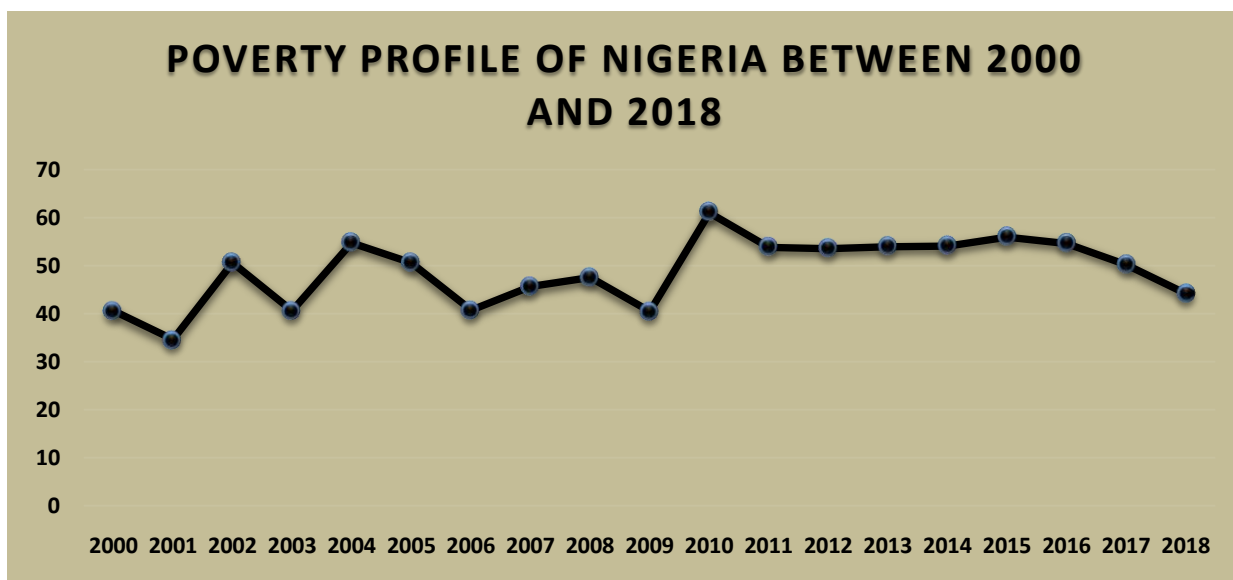
Source: World Bank and computed by the Author Using Microsoft Excel 2016.

## IV. RESULTS OF THE ANALYSIS

The data presented above was analyzed using multiple regressions with the aid of E-view because of the volume of data and to ensure accuracy in computation. The attempt to study the relationship between poverty and inflation in Nigeria led the researcher to subject the data collected to Unit Root test, Johansen Cointegration test, Vector Error Correction Model and Granger Causality Test. The variables considered in this research work are: Poverty rate which is the dependent variable and the independent variables Inflation. The empirical results are presented below as generated from the analysis:

**Table 2: Unit Root Test Result**

| Variable | ADF VALUE | 5% Critical Value | Order of Integration | Remarks |
|---|---|---|---|---|
| POV | -4.870221 | -3.098896 | I(1) | Stationary |
| INFLA | -3.687777 | -3.040391 | I(0) | Stationary |

Source: Researcher's computation from E-Views 10 (See Appendix)

The stationarity test was carried out using Eviews and it was done so as to determine if the variables were stationary or non-stationary. In other to test for the presence or absence of unit root in the data used for the empirical analysis, the Augmented Dickey-Fuller (ADF) test was employed and the test result is as presented in Table 2 above, it showed that the variables were stationary at level I(0) and first difference I(1) as their ADF values (4.870221 and 3.687777) were greater than 0.05 critical value (3.098896 and 3.040391). Table 4.2 shows the point which I was able to reject the null hypothesis which say that the variable has a unit root. I therefore, proceed to conduct auto regressive distributed lag model result.

**Table 3: Auto-Regressive Distributed Lag Model Result**

| Variable | Coefficient | Std. Error | t-Statistic | Prob.* |
|---|---|---|---|---|
| POV(-1) | 0.722325 | 0.170460 | 4.237507 | 0.0055 |
| POV(-2) | -0.021856 | 0.206170 | -0.106008 | 0.9190 |
| INF | -0.817809 | 0.234578 | -3.486297 | 0.0130 |
| C | 76.44234 | 13.09510 | 5.837474 | 0.0011 |
| R-squared | 0.914195 | Mean dependent var | | 51.35333 |

| | | | |
|---|---|---|---|
| Adjusted R-squared | 0.799787 | S.D. dependent var | 5.128334 |
| S.E. of regression | 2.294680 | Akaike info criterion | 4.782773 |
| Sum squared resid | 31.59334 | Schwarz criterion | 5.207603 |
| Log likelihood | -26.87080 | Hannan-Quinn criter. | 4.778248 |
| F-statistic | 7.990703 | Durbin-Watson stat | 2.764100 |
| Prob(F-statistic) | 0.010359 | | |

Source: Researcher's computation from E-Views 10 (See Appendix)

In view of the presence of mixed order of integration among the variables as evidenced by the unit root tests, ARDL was conducted to determine the long run relationship between the series. The coefficient from table3 can be used to write our model as;

POV = 76.44234-0.817809INF

From the table 3 above, the result shows that inflation has a statistical significance effect on poverty at 5 percent level of significance as shown by inflation probability of 0.0130. It can be seen from the result that inflation exhibits a negative relationship with poverty in Nigeria, meaning that it could lead to poverty decrease in Nigeria. In support of the claim is the coefficient -0.817809. This indicates that if other things remain constant decrease in inflation leads to decrease in the no of poverty level in the economy.

The above result shows that the $R^2$ is 0.91, which shows that the model explains about 91% of the total variations in poverty are explained by the independent variables during the period of the study while the remaining 9% is explained by variable not included in the model.

The result also shows the F-statistics =7.990703. Which is used to test the model of this study to ascertain if there is a significant relationship existing between the parameters? The probability of the F-statistics value is 0.010359, the probability of the F-statistics shows that inflation and poverty were statistically significant considering its probability value which was less than 5% level of significance.

At 2.76; the Durbin-Watson statistics indicate presence of negative serial auto-correlation.

**Table 4: Pairwise Granger Causality Test**

| Null Hypothesis | Obs | F-Statistic | Prob. |
|---|---|---|---|
| INF does not Granger Cause POV | | 0.26001 | 0.7753 |
| POV does not Granger Cause INF | 17 | 4.47297 | 0.0354 |

Source: Researcher's computation from E-Views 10 (See Appendix)

From table4, the result revealed that inflation does not granger causes Poverty, the null hypothesis is accepted at 5% significance level, indicated by the high probability value 0.5774. The results also revealed that Poverty granger causes inflation, the null hypothesis is rejected at 5% level of significance and the alternative hypothesis accepted confirming that poverty granger causes inflation, it is confirmed by the probability value of 0.0354 and this is confirmed by the t-statistics value 4.47 is statistically significant at 5%level of significance. This result therefore indicates one-way causation flowing from poverty to inflation.

## V.    Discussion of Results:

The null hypothesis of this study is: Inflation rate does not affect poverty level in Nigeria and no causality between inflation and poverty. The research subjected the hypothesis to econometric and statistical tests and confirms the following results; the inflation rate significantly influence poverty in Nigeria: This result is similar to the findings of Talukdar (2012) where he found that there is a negative and statistically significant under certain specifications in the case of low income countries. It is also in agreement with (Aiyedogbon&Ohwofasa, 2016). But the study was in disagreement with (Omoniyi, 2018; Yolanda, 2017 &Talukdar, 2012).

POV = 76.44234-0.817809INF

From the equation, the result shows that inflation has a statistical significance with poverty at 5 percent level of significance as shown by inflation probability of 0.0130. It can also be seen from the result that inflation exhibits a negative relationship with poverty in Nigeria, this implies that a unit decrease in inflation will have a corresponding decrease on poverty by 0.817809. Economically, the result revealed that the decrease in inflation rate of the country will decrease poverty rate by double standard. In support of the claim is the coefficient -0.817809. This indicates that if other things remain constant decrease in inflation leads to decrease in the poverty level in the economy. It implies that the government fiscal or monetary policy has a way of either increasing or decrease the poverty rate in Nigeria, this means

the right policy will decrease poverty rate and the wrong policy will increase poverty rate as inflation rate goes up or down. The above result shows that the $R^2$ is 0.91, which shows that the model explains about 91% of the total variations in poverty are explained by the independent variables during the period of the study while the remaining 9% is explained by variable not included in the model.

The result also shows the F-statistics of 7.990703 which is a measure of joint significance of the explanatory variable if there exist significant relationship between the parameters. The probability of the F-statistics value is 0.010359 which shows that inflation and poverty were statistically significant considering its probability value which was less than 0.05 level of significance and implies that a decrease or increase in inflation will have a corresponding effect on poverty. Meaning, in tackling poverty rate in the country, inflation should be given a higher emphasis because, its contribution is relevant to poverty rate reduction.

At 2.76; the Durbin-Watson statistics indicate presence of negative serial auto-correlation.

The analysis also shows the $R^2$ which measures the explanatory power of the model to be 0.91, this implies that the model explains about 91% of the total variations in poverty by the independent variables during the period of the study while the remaining 9% is explained by variable not included in the model. Hence, the overall model has a strong statistical significance in analyzing inflation and poverty in Nigeria.

## VI.    Conclusion and Recommendations

This study has shown that the decreasing inflation rate will decrease the poverty level that the country has witnessed. Having seen that inflation rate has an impact on poverty level. Thus, there is need to maintain a single digit inflation rate. Hence with single digit inflation rate as well as other things being checked, it will help to maintain a favorable standard of living, and above all, eradicate or maintains low poverty level in the country. As decreasing inflation rate has led to reduction in penury as such the monetary authority in their quest to curb poverty should channel their effort to decrease inflation rate to control poverty. And should use it to complement other macro-economic policies. If all these recommendations are implemented, there will be a statistical decrease in the poverty level in the country.

Based on the findings of this study, the study specifically made the following policy recommendations to eradicate poverty level:

✓ To eradicate poverty level, the following suggestions are made to the government for long-term sustenance of poverty reduction in Nigeria;

Inflation significantly affects poverty level in the country, be it a developing or developed country. For Nigeria to eradicate or achieve minimum poverty level, inflation rate must be monitored and curtailed to a single digit inflation rate so that poverty can be eradicated. The Central Bank of Nigeria should come up with effective macro-economic policies (fiscal discipline) to cushion the poor against harsh economic times by putting in strict measures to prevent extreme inflationary rates and low purchasing power of Naira.

✓ The government should also use the expected annual inflation for the year to determine the minimum wage level and adjust it as and when it is necessary so as to maintain a good standard living for Nigerian. Government should initiate poverty reduction programmes, which should be all-inclusive and properly monitored to ensure that such programmes reached the desired or targeted population in Nigeria as these will provide macroeconomic stability in the country by reducing inflation and poverty rate.

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## APPENDIX:

**Augmented Dickey-Fuller Unit Root Test Result**

Pov @ Level
Null Hypothesis: POV has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=3)

|  | t-Statistic | Prob.* |
|---|---|---|

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -2.442973 | 0.1448 |
| Test critical values: | 1% level | -3.857386 | |
| | 5% level | -3.040391 | |
| | 10% level | -2.660551 | |

*MacKinnon (1996) one-sided p-values.

Warning: Probabilities and critical values calculated for 20 observations

and may not be accurate for a sample size of 18

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(POV)

Method: Least Squares

Date: 11/14/19   Time: 20:36

Sample (adjusted): 2001 2018

Included observations: 18 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| POV(-1) | -0.498397 | 0.204012 | -2.442973 | 0.0265 |
| C | 25.26935 | 10.34022 | 2.443792 | 0.0265 |

| | | | |
|---|---|---|---|
| R-squared | 0.271672 | Mean dependent var | 0.200000 |
| Adjusted R-squared | 0.226151 | S.D. dependent var | 6.129485 |
| S.E. of regression | 5.392027 | Akaike info criterion | 6.312159 |
| Sum squared resid | 465.1832 | Schwarz criterion | 6.411089 |
| Log likelihood | -54.80943 | Hannan-Quinn criter. | 6.325800 |
| F-statistic | 5.968119 | Durbin-Watson stat | 1.689393 |
| Prob(F-statistic) | 0.026543 | | |

Pov@First

Null Hypothesis: D(POV) has a unit root
Exogenous: Constant
Lag Length: 3 (Automatic - based on SIC, maxlag=3)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -4.870221 | 0.0022 |
| Test critical values: | 1% level | -4.004425 | |
| | 5% level | -3.098896 | |
| | 10% level | -2.690439 | |

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 14

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(POV,2)
Method: Least Squares
Date: 11/14/19   Time: 20:37
Sample (adjusted): 2005 2018
Included observations: 14 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(POV(-1)) | -2.356679 | 0.483896 | -4.870221 | 0.0009 |
| D(POV(-1),2) | 1.110016 | 0.360693 | 3.077453 | 0.0132 |
| D(POV(-2),2) | 0.879856 | 0.270881 | 3.248125 | 0.0100 |
| D(POV(-3),2) | 0.558539 | 0.179242 | 3.116121 | 0.0124 |
| C | 0.229409 | 1.106464 | 0.207335 | 0.8404 |

| | | | | |
|---|---|---|---|---|
| R-squared | 0.769270 | Mean dependent var | | -0.471429 |
| Adjusted R-squared | 0.666723 | S.D. dependent var | | 6.848406 |
| S.E. of regression | 3.953592 | Akaike info criterion | | 5.859579 |
| Sum squared resid | 140.6780 | Schwarz criterion | | 6.087814 |
| Log likelihood | -36.01706 | Hannan-Quinn criter. | | 5.838452 |
| F-statistic | 7.501659 | Durbin-Watson stat | | 0.934604 |
| Prob(F-statistic) | 0.006074 | | | |

Inf @ Level

Null Hypothesis: INF has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=3)

| | t-Statistic | Prob.* |
|---|---|---|
| Augmented Dickey-Fuller test statistic | -3.687777 | 0.0141 |
| Test critical values: 1% level | -3.857386 | |
| 5% level | -3.040391 | |
| 10% level | -2.660551 | |

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
    and may not be accurate for a sample size of 18

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INF)
Method: Least Squares
Date: 11/14/19   Time: 20:39
Sample (adjusted): 2001 2018
Included observations: 18 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| INF(-1) | -0.914161 | 0.247889 | -3.687777 | 0.0020 |
| C | 11.32151 | 3.283556 | 3.447942 | 0.0033 |

| | | | | |
|---|---|---|---|---|
| R-squared | 0.459454 | Mean dependent var | | -0.170000 |
| Adjusted R-squared | 0.425670 | S.D. dependent var | | 5.795280 |
| S.E. of regression | 4.391928 | Akaike info criterion | | 5.901853 |
| Sum squared resid | 308.6246 | Schwarz criterion | | 6.000783 |
| Log likelihood | -51.11668 | Hannan-Quinn criter. | | 5.915494 |
| F-statistic | 13.59970 | Durbin-Watson stat | | 2.003237 |
| Prob(F-statistic) | 0.001993 | | | |

Auto-Regressive Distributed Lag Model Result

Dependent Variable: POV

Method: ARDL

Date: 11/14/19   Time: 20:44

Sample (adjusted): 2002 2018

Included observations: 17 after adjustments

Maximum dependent lags: 2 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (2 lags, automatic): INF

Fixed regressors: C

Number of models evalualed: 6

Selected Model: ARDL(2, 0)

| Variable | Coefficient | Std. Error | t-Statistic | Prob.* |
|---|---|---|---|---|
| POV(-1) | 0.722325 | 0.170460 | 4.237507 | 0.0055 |
| POV(-2) | -0.021856 | 0.206170 | -0.106008 | 0.9190 |
| INF | -0.817809 | 0.234578 | -3.486297 | 0.0130 |
| C | 76.44234 | 13.09510 | 5.837474 | 0.0011 |

| | | | |
|---|---|---|---|
| R-squared | 0.914195 | Mean dependent var | 51.35333 |
| Adjusted R-squared | 0.799787 | S.D. dependent var | 5.128334 |
| S.E. of regression | 2.294680 | Akaike info criterion | 4.782773 |
| Sum squared resid | 31.59334 | Schwarz criterion | 5.207603 |
| Log likelihood | -26.87080 | Hannan-Quinn criter. | 4.778248 |
| F-statistic | 7.990703 | Durbin-Watson stat | 2.764100 |
| Prob(F-statistic) | 0.010359 | | |

*Note: p-values and any subsequent tests do not account for model selection.

Granger Causality Test Result

Pairwise Granger Causality Tests

Date: 11/14/19   Time: 21:06

Sample: 2000 2018

Lags: 2

| Null Hypothesis: | Obs | F-Statistic | Prob. |
|---|---|---|---|
| INF does not Granger Cause POV | 17 | 0.26001 | 0.7753 |
| POV does not Granger Cause INF | | 4.47297 | 0.0354 |