# EFFECT OF MONETARY POLICY ON POVERTY REDUCTION IN NIGERIA FROM 1981 TO 2023

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## ABSTRACT

The study examined the impact of Nigeria's monetary policy on poverty reduction using a historical survey design with time series data from the World Bank's World Development Indicators. Descriptive statistics and econometric tools, including the Autoregressive Distributed Lag (ARDL) model, the Bounds test, and the Impulse Response Function, were employed for analysis. The average exchange rate, money supply, and interest rate during the study period were N142.96, N1.08E+13, and 0.48%, respectively, while the average poverty rate was 52.27%. The ARDL bounds test revealed cointegration among the variables, with an F-statistic of 5.85 exceeding the 5% critical value threshold. Short-run analysis showed that a 1% increase in money supply reduces poverty by 0.31%, though the effects of exchange rate depreciation and interest rates were weak or delayed. In the long run, money supply remained the only significant variable, where a 1% increase led to a 0.017% reduction in poverty. Exchange and interest rates remained statistically insignificant over time. Impulse response analysis further confirmed the weak and delayed impact of monetary variables on poverty reduction. The study concluded that monetary and exchange rate policies have a limited immediate impact on poverty alleviation. It is recommended that the Central Bank of Nigeria adopt a balanced monetary policy that ensures sufficient money supply to support economic growth without triggering inflation. *Targeted liquidity injections into productive sectors such as agriculture and education were* also advised to reduce poverty effectively.

Keywords: Co-integration, ARDL, Poverty, Policy, Monetary policy, Fiscal policy and Money supply

### **INTRODUCTION**

The debates on how monetary policy could enhance poverty reduction of economic hardship have now become the new national focus and remain a tense issue without any moderate consensus in Nigeria. According to the World Bank (2014), monetary policy is a government financial strategy that enhances economic growth and human welfare and plays an important role in both developed and developing countries. Investment, money supply, exchange rate, loans and interest rate contribute to poverty reduction. This is because poverty reduction is one key macroeconomic factor that drives economic growth and development (Asongu, 2014). The importance of monetary policy in human development cannot be overemphasized because expansionary monetary policy directed to the productive sectors of the economy stimulates investment, which leads to an increase in output, creates more employment, more income, reduces poverty, and hence enhances human development (Adigwe *et al.*, 2015).



Poverty is a condition in which individuals or communities lack the financial resources and necessities for a minimum standard of living. It often involves insufficient access to food, clean water, shelter, education, healthcare, and opportunities for economic advancement. The report of the World Bank 2015 on meeting the Millennium Development Goals (MDGs) gave a clearer picture that poverty is reducing in all parts of the world except the African continent, which is not in any way getting closer to meeting the MDG extreme poverty target (World Bank 2015). The current level of poverty in Nigeria supported by World Bank claim that Nigeria is the capital city of poverty is further confirmation that all is not well with the country in the fight against poverty reduction and a signal that Nigeria is far from achieving Sustainable Development Goals (World Bank, 2022). Nigeria is one of the most populous countries with a population of over 200 million; active labour force of about 90% of the population; rich natural deposits and GDP values of about \$441 billion and \$477.38 billion in 2021 and 2022, respectively, considered as one of the highest in sub-Saharan Africa (IMF, 2021). However, these positive outlooks are noticeably unreflective in the standard of living of the people. This is evident in the last National MPI report, which considered 63% (133 million) of the population as being multi-dimensionally poor (NBS, 2022). These poor indices have been largely attributed to policy gaps or poor implementation of such policies where they exist.

The persistence of poverty in Nigeria has been attributed to many factors, which include inadequate economic infrastructure, lack of access to quality education, high rate of unemployment, and poor access to health care services, among others. It is, therefore, not in dispute that stabilization policies in the form of monetary policy aggregates are central to the improvement in general welfare and growth of every economy. However, the identifiable cases of recurring decline in various growth indices, particularly the multidimensional poverty indices, as well as the persistence of other socio-political and macroeconomic conundrums, have raised multiple questions on the effectiveness of monetary policies in improving welfare in Nigeria. It is in the context of the persistence of these problems, and the need to re-evaluate and re-jig the knowledge gap in their design and implementation processes for maximum social benefit that this study is embarked upon. The findings of this study will have important policy implications for an enhanced standard of living in Nigeria. The government needs to implement monetary policies that promote poverty reduction and the overall well-being of the citizens, which are the core criteria for measuring the level of human capital of the nation. The study, therefore, aims to achieve the following objectives:

- i.ascertain the existence of a long-run relationship between monetary policy and poverty reduction in Nigeria;
- ii.assess the long-run impact of monetary policy on poverty reduction in Nigeria;
- iii.analyze the effect of monetary policy on poverty reduction in the short run;
- iv.determine the response of poverty reduction to changes in exchange rate, interest rate, and money supply.

## METHODOLOGY

### **Study Area**

The study area is Nigeria. Nigeria is located on the Gulf of Guinea in West Africa with a geographical area of 923,768 square kilometres. It is one of the eight most populous countries in the world, with a population of about 140 million (NPC, 2017). With a population growth rate of 2.6%, Nigeria had an estimated population of about 210.87 million in 2021 (www.statista.com). Nigeria lies wholly within the tropics along the Gulf of Guinea on the western coast of Africa. The topography ranges from mangrove swampland along the coast to tropical rain forest and savannah to the north. Nigeria is located between latitudes 4 °16 and 13 °53 north and longitudes 2 °40 and 14 °41 east (Central Intelligence Agency, 2009). Because Nigeria has a highly diversified agro-ecological climate, agriculture is one of the most critical sectors of the Nigerian economy. The climate varies, with Equatorial in the South, Tropical in the Centre, and North. In the North, the vegetation is grassland savannah and, in the South, forest. Because of this vegetation, agriculture is the major employer of labour in the country. In terms of employment, at least 60% of Nigeria's projected population of 210.87 million is estimated to be engaged or employed in agriculture (mainly smallholders). Women make up to 60-80 percent of the workforce and produce twothirds of food crops.

## **Data Collection and Data Analysis Techniques**

The study relied on the use of time series data spanning from 1981 to 2023. Data on the variables for the study were collected from the archives of the World Bank database. Specifically, data collected includes data on monetary policy instruments (interest rates, money supply, and exchange rates) and the poverty rate. The data collected were analyzed using both descriptive and inferential statistics. Specifically, descriptive statistics such as mean, maximum and minimum with trend graphs were used to check the preliminary statistics and examine the trend of the variables. The autoregressive distributed lag model (ARDL) was used to assess the long-run and short-run impact of monetary policy on the poverty rate in Nigeria. The response of the poverty rate to changes in exchange rate, interest rate, and money supply was achieved using the Impulse response function.

# **Model Specification**

### **Unit Root Test**

The Augmented Dickey-Fuller (ADF) test for the presence of a unit root (evidence of nonstationarity) was employed. The advantage of the method lies in its robustness to handle both first-order and higher-order auto regressive processes (Nkang *et al.*, 2007):

Where:

 $MSP_t$  represents current values money supply,  $MSP_{t-i}$  is the immediate past value of money supply,

 $ITR_t$  represents current values interest rate,  $ITR_{t-i}$  is the immediate past value of the interest rate,

 $EXR_t$  represents current values exchange rate,  $EXR_{t-i}$  is the immediate past values of the exchange rate,

 $POR_t$  represents current values poverty reduction,  $POR_{t-i}$  is the immediate past values of poverty reduction,

 $\Delta$  is the change operator, t represent the variable time and  $u_t$  is the white noise error.

The null hypothesis that  $\sigma = 0$  means that there is a unit root in MSP<sub>t</sub>, ITR<sub>t</sub>, EXR<sub>t</sub>, or POR<sub>t</sub> or that the time series is non-stationary. The decision rule is that if the computed ADF statistics are greater than the critical value, it is rejected.

#### Auto-Regressive Distributed Lag (ARDL) Model

This study applied the Auto-Regressive Distributed Lag (ARDL) bound test method to examine the effects of monetary policy instruments on poverty reduction in Nigeria during the period from 1981 to 2023. The ARDL model was expressed to fit in the variables as follows:

$$\Delta POR_{t} = \beta_{0} + \beta_{1} \sum_{i=1}^{n} \Delta POR_{t-i} + \beta_{2} \sum_{i=0}^{n} \Delta MSP_{t-i} + \beta_{3} \sum_{i=0}^{n} \Delta ITR_{t-i} + \beta_{4} \sum_{i=0}^{n} \Delta EXR_{t-i} + \beta_{5} POR_{t-i} + \beta_{6} MSP_{t-i} + \beta_{7} ITR_{t-i} + \beta_{8} EXR_{t-i} + \xi_{1t} \qquad \dots (5)$$

Where:

 $\Delta$  is the first difference operator, POR is the poverty reduction, MSP represents money supply, ITR is the value of interest rate, EXR represents the value of exchange rate, t represents the period, Ln represents the natural logarithms,  $\alpha_0$  represents the drift component, u is the error term, k represents the lag length. The parameters  $\theta$ ,  $\varphi$ ,  $\pi$ ,  $\alpha$  and  $\rho$ are the short-run coefficients; a,  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ , and  $\beta_4$  are the long-run coefficients. ECT<sub>t-1</sub> is the error-correction term;  $\delta$  denotes the speed of adjustment.

#### **RESULTS AND DISCUSSION**

#### **Preliminary Analysis**

#### Summary statistics of the variables

Table 1 shows the summary statistics of the variables used in the study. The result showed that the variable poverty rate was mesokurtic (negative kurtosis) with a kurtosis value of less than 3, implying that the distribution had a flat curve relative to the normal. This shows that there were more values that were lower than the sample mean. However, the variables interest rate, money supply, and exchange rate were platykurtic (positive kurtosis) with a kurtosis value greater than 3 which implies that there is a normal distribution of the variable.



In comparison, other variables, such as poverty rate, were not statistically significant at a 5% significance level, having probability values greater than 0.05(5%), which indicated that this variable was not normally distributed in the study.

	INTR	POVR	MS	EXCHR	
Mean	0.482534	52.26512	1.08E+13	142.9632	
Median	3.023542	53.12000	1.56E+12	118.5667	
Maximum	18.18000	72.00000	5.43E+13	1289.880	
Minimum	-65.85715	28.10000	1.52E+10	0.617708	
Std. Dev.	13.91620	10.67673	1.56E+13	214.3164	
Skewness	-2.788874	-0.120851	1.411054	3.745474	
Kurtosis	13.56168	2.393015	3.864586	20.23595	
Jarque-Bera	255.6000	0.764774	15.60865	632.8027	
Probability	0.000000	0.682231	0.000408	0.000000	
Sum	20.74898	2247.400	4.65E+14	6147.417	
Sum Sq. Dev.	8133.748	4787.684	1.03E+28	1929123.	
Observations	43	43	43	43	
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Table 1. Summary Statistics of the Variables

Source: Data analysis (2025)

## **Unit Root Test**

The Augmented Dickey-Fuller (Table 2) test was employed to check for the presence of unit roots in the variables, which helps to determine their stationarity. The analysis is crucial as non-stationary time series data can lead to spurious regression results. The initial ADF test results showed that all the variables (exchange rate, money supply, and poverty rate) except interest rate were not stationary at their levels. This means that their mean, variance, and autocovariance were not constant over time, which could affect the validity of any regression model applied to them in their current state. Upon taking the first difference of the variables, the ADF test rejected the null hypothesis of non-stationarity at the 5% significance level. This indicates that the values of the ADF t-statistic exceeded the critical values in absolute terms, confirming that the series became stationary after differencing once. This implies that all the variables except interest rate are integrated of order I(1) while interest rate is stationary in level and hence I(0). This finding justifies the use of differenced data in subsequent analyses to ensure robustness and validity of the results.

	Level		First Difference		
Variable	ADF	Prob.	ADF	Prob.	Inference
EXCHR	-2.1117	0.2413	-5.3834***	0.0001	I(1)
MS	1.450498	0.9988	-6.467654***	0.0000	I(1)
INTR	-7.670572***	0.0000	-	-	I(0)
POVR	-2.614941	0.0980	-6.944560***	0.0000	I(1)

\*\*\* Significant at 1%

**Source:** Data analysis (2025)

### Long-run relationship between monetary policy instruments and poverty reduction

In the first step of the ARDL analysis, the presence of long-run relationships was tested. The bounds test was used to determine whether a linear combination of non-stationary variables is stationary. The result of the bounds test for poverty rate (Table 3) shows that the computed F-statistics 5.851379 is greater than the upper bound critical value, 3.79 at the 0.05 probability level. Therefore, cointegration exists among the variables. This implies that a long-run relationship exists among poverty rate, exchange rate, interest rate and money supply.

Therefore, the null hypothesis one  $(Ho_1)$ , which stipulated that there is no significant longrun relationship between monetary policy instruments and poverty reduction in Nigeria, is hereby rejected, which implies that there exists a long-run relationship between monetary policy and poverty reduction in Nigeria. This is in line with the work of Ucha *et al.* (2018) who attributed poverty in Nigeria to some policies of the government which have a direct relationship with economic development in Nigeria.

 Table 3: Bounds test for co-integration between monetary policy and poverty reduction

Variable	Test stat	Value	Significance (%)	1(0)	1(1)
POVR	F	5.851379	10%	2.26	3.35
	K	3	5%	2.62	3.79
			2.5%	2.96	4.18
			1%	3.41	4.68

Source: Data Analysis, 2025.

### Effect of monetary policy on poverty rate in Nigeria in the short run

The ARDL model result (Table 4) examines the effects of macroeconomic variables, money supply (LNMS), exchange rate (LNEXCHR), and interest rate (INTR), on poverty rate in Nigeria. The short-run analysis result showed that poverty rate LNPOVR(-1) is positive and significant (Coefficient: 0.8180, p = 0.0000). This means that poverty rate is highly persistent over time (81.8% of the past poverty rate carries over to the current period). The current money supply (LNMS) has a negative (Coefficient: -0.0031, p = 0.0452) and statistically significant impact on poverty rate. This means that a higher money supply reduces poverty. A 1% increase in money supply decreases poverty by 0.31%. This could be due to economic growth from increased liquidity, leading to higher employment and wages. Also, it could be due to Government spending on social welfare programs and infrastructure. Gangas (2017) posited that while initial economic growth may not directly reduce poverty, sustained growth, supported by effective policies like monetary interventions, can help alleviate it.



The current exchange rate (LNEXCHR) is insignificant (p = 0.9410), meaning that exchange rate changes do not have a clear short-run impact on poverty. Similarly, interest rate (INTR) is negative but not significant (Coefficient: -0.0024, p = 0.2536). This suggests that interest rate changes do not have a strong direct impact on poverty in the short run.

Table 4: Short-run Effects of Monetary Policy on Poverty Rate						
Variable	Coefficient	Std. Error	t-Statistic	Prob.*		
LNPOVR(-1)	0.818026***	0.101923	8.025958	0.0000		
LNMS	-0.003078**	0.022674	-2.099924	0.0452		
LNEXCHR	-0.002417	0.032425	-0.074542	0.9410		
LNINTR	-0.002399	0.002068	-1.159739	0.2536		
С	0.825147	0.759459	1.086494	0.2843		
R-squared	0.716124	Mean depe	endent var	3.948694		
Adjusted R-squared	0.685435	S.D. depen	dent var	0.197558		
S.E. of regression	0.110802	Akaike info	o criterion	-1.450795		
Sum squared resid	0.454255	Schwarz ci	riterion	-1.243929		
Log likelihood	35.46669	Hannan-Qu	uinn criter.	-1.374970		
F-statistic	23.33470	Durbin-Wa	atson stat	2.077788		
Prob(F-statistic)	0.000000					

**Source:** Data analysis (2025)

\* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%

# Long run effect of monetary policy on poverty rate in Nigeria

The analysis (Table 5) investigates the long-run impact of money supply (LNMS), exchange rate (LNEXCHR), and interest rate (INTR) on poverty rate (LNPOVR) using an ARDL(1,0,0,0) model. The Error Correction Term (Coint Eq(-1) (-0.1819, p = 0.0000) is highly significant, meaning that the poverty rate adjusts to deviations from the long-run equilibrium at a speed of 18.2% per year. Since the error correction term (CointEq-1) is negative and significant, there is a stable long-run equilibrium relationship between poverty rate and the selected macroeconomic variables. Any short-term deviation from this equilibrium will be corrected at a rate of 18.2% per year.

Money supply (Coefficient: -0.0169, p = 0.0000) has a significant positive impact on poverty rate. This means that a 1% increase in money supply reduces poverty by 0.017% in the long run. This can be attributed to the fact that more money in circulation may increase economic activity, employment, and income levels, leading to lower poverty rates. It could also reflect government spending on social welfare and poverty alleviation programs. This is consistent with reports by CBN (2011), who opined that poverty reduction is among the main targets of monetary policy.



Exchange rates (Coefficient: -0.0133, p = 0.9942) have an insignificant impact on poverty rates, meaning they have no impact on poverty in the long run. This may be attributed to the fact that factors like government subsidies, trade policies, and informal sector activities might neutralize the effects of exchange rate movements.

Similarly, interest rates (coefficient: -0.0132, p = 0.3806) is statistically insignificant, meaning interest rate changes do not significantly affect poverty. This may be attributed to the fact that low-income populations in Nigeria may not rely heavily on formal credit markets. Hence, changes in interest rates have little effect on their economic conditions. Also, informal credit sources (e.g., money lenders, microfinance institutions) may dominate borrowing for the poor, reducing the impact of official interest rate policies. This finding negates Fouda-Ekobena (2014), who found that a positive correlation – higher interest rates increased poverty in the US.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)	-0.181974***	0.101923	-5.785413	0.0000
LNMS	-0.016916***	0.121172	-4.139599	0.0000
LNEXCHR	-0.013282	0.182101	-0.072940	0.9422
INTR	-0.013181	0.014854	-0.887384	0.3806
С	4.534427	2.734098	1.658473	0.1057

Table 5: Long-run Effects of Monetary Policy on Poverty Rate

**Source:** Data analysis (2025)

\* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%

## Response of poverty rate to changes in monetary policy

The impulse response graphs (Figure 11) illustrate how the poverty rate responds to shocks in Money Supply (LNMS), Exchange Rate (LNEXCHR), and Interest Rate (LNINTR) over a 10-period horizon. The result of the response of poverty rate to money supply shows that in the initial period (Periods 1-3), the response is slightly negative, indicating that an increase in money supply initially reduces poverty slightly. In the medium-term (Periods 4-6), the effect fluctuates around zero, meaning the impact of money supply on poverty is not stable. In the long term (Periods 7-10), the response remains near zero, showing that money supply changes do not have a lasting effect on poverty. The confidence interval expands over time, indicating increased uncertainty. The result means that a rise in money supply has a small short-term effect on poverty reduction, but its long-term impact is weak. The result of the response of poverty rate to exchange rate shows that in the initial period (Periods 1-3), the response is negative, meaning that a depreciation in the exchange rate initially increases poverty. In the medium-term (Periods 4-6), the response stabilizes near zero, showing that the negative effect is short-lived. In the long term (Periods 7-10), the response remains close to zero, indicating no strong long-term effect of exchange rate shocks on poverty.



The widening confidence bands suggest high uncertainty. This means that exchange rate depreciation initially worsens poverty, likely due to inflation and increased import costs. However, its long-term impact is negligible.

The result of the response of poverty rate to interest rate shows that in the initial period (Periods 1-3), the response is close to zero, indicating that an interest rate shock has little immediate effect on poverty. In the medium-term (Periods 4-6), the response remains near zero, showing that interest rate changes do not significantly impact poverty. In the long term (Periods 7-10), the response stays near zero with a very slight increase. The confidence interval is wide, indicating uncertainty. The result means that interest rate changes have no substantial impact on poverty in either the short or long run.





Figure 1. Impulse response of the human development index to changes in monetary policy Source: Data Analysis, 2025.

# **CONCLUSION AND RECOMMENDATIONS**

The study examined the impact of monetary policy on poverty reduction in Nigeria. The study found that in the short run, a 1% increase in money supply reduces poverty by 0.31%, meanwhile, exchange rate depreciation slightly reduces the poverty rate by 0.057%, while interest rate effects are mostly weak or delayed. In the long run, a 1% increase in money supply reduces poverty by 0.017%, whereas a 1% depreciation of the exchange rate reduces infant mortality by 0.188% but also lowers poverty by 0.097%. The response of the poverty rate to exchange rate, money supply, and interest rate shocks is weak, implying that monetary and exchange rate policies have a limited immediate impact on poverty alleviation. The study found that effective monetary policies are essential for sustaining improvements in poverty reduction. Also, targeted policies addressing interest rate, money supply, exchange rate volatility, and investment in healthcare can enhance economic resilience and social welfare. The study concludes that while monetary policies influence poverty, structural reforms and targeted interventions are necessary to achieve long-term sustainable development of health sectors in Nigeria. Based on the findings, it is therefore recommended that:

- i. The government should implement policies to stabilize the exchange rate, as fluctuations negatively impact poverty. Strengthening foreign exchange reserves can reduce exchange rate volatility.
- ii. The Central Bank of Nigeria should adopt a balanced monetary policy that ensures adequate money supply to support economic growth while keeping inflation in check. Targeted liquidity injections into productive sectors, including agriculture and education, can enhance poverty reduction.
- iii.Interest rates should be structured to encourage investment in critical sectors such as education and agriculture. Lower interest rates for small-scale farmers and businesses can boost productivity and improve living standards.
- iv.Structural reforms in governance, economic diversification, and social protection programs should be strengthened. Efforts should focus on reducing dependency on oil revenue, improving agricultural productivity, and implementing social policies that directly address poverty and inequality.



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