

EFFECTS OF SELECTED MONETARY POLICY VARIABLES ON INCLUSIVE GROWTH IN NIGERIA

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Abstract

Monetary policy is an economic stabilization catalyst geared towards achieving sustainable amount of inclusive growth in any economy especially developing nation like Nigeria. Hence, this made it imperative for the study to examine the effects of selected macroeconomic variables on inclusive growth in Nigeria. The study utilized time series data for the period of 1999 to 2019 sourced from CBN Statistical Bulletin, 2019 which included; Gross Domestic Product per capita plus Gini Coefficient as proxy for inclusive growth being the dependent variable while selected monetary policy variables such as; monetary policy rate, exchange rate, inflation rate and money supply were used as the independent variables. The study employed the econometric technique of ARDL as its method of estimation. Based on the long run form of the ARDL, monetary policy rate, exchange rate, inflation rate had significant negative effects on inclusive growth in Nigeria. Furthermore, money supply had significant positive effect on inclusive growth in Nigeria within the study period. Based on the findings, the study recommended that government should as a matter of urgency through the monetary policy committee set up tactical monetary policy strategies to reduce the amount of monetary policy rate to the barest minimum level in order to attain the desired level of inclusive growth in the Nigerian economy. Government should embark on holistic exchange rate policy in order to achieve the required amount of inclusive growth rate in Nigeria. Government should come up with anti-inflationary policies to reduce inflationary pressure in Nigerian so as to accomplish sustainable level of inclusive growth. Finally, government at this juncture in the Nigerian economy should increase the amount of money supply or in circulation through expansionary monetary policy in order to boost inclusive growth in the Nigerian economy.

Key Words: Inclusive Growth, Monetary Policy Rate and Money Supply

JEL Classification: E5; E51; E52; E58

1. Introduction

One of the issues facing any contemporary economy is the attainment of sustainable amount of economic growth and development with the vital aim of increasing the wellbeing of the populace. Thus, this driven development economists to recommend an ideal shift from pro-poor growth to inclusive growth. Growth is good and sustained high growth is better, but sustained high growth with inclusiveness is the best of all (Migap, Okwanya & Ojeka, 2015). Nigeria has long been recognized as the largest African nation, due to its estimated population of 200 million people, but large number of her populace live below \$1.25 per day as the country's economy had over the years been marked hard by high monetary policy rate, high exchange rate, high level of inflationary pressure and highly monetized economy due to excess liquidity as the government continues borrowing from the rest of the world (Central Bank of Nigeria, 2019).

Nigeria economy over the years was recognized as the largest economy in Africa with a GDP size of about ₦260 billion in the year 1990, about ₦5 trillion in 2000 to a GDP size of about ₦34 trillion in 2010 and at about ₦81 trillion in 2013 (Central Bank of Nigeria, 2014). However, in recent times, Nigerian economy recorded economic growth rate measured by Gross Domestic Product (GDP) as 6.6% in 2007, 6.8% in 2008, 8.0% in 2009, 8.0% in 2010, 5.3% in 2011, 4.2% in 2012, 6.7% in 2013, 6.3% in 2014, 2.7% in 2015, -1.6% in 2016 and 0.8% in 2017. Also, economic growth in the Nigerian economy in terms of gross domestic product in current prices growth rate was recorded as 1.9% in 2018, but in 2019, year on year, the economy of Nigeria grew by 1.94% in the second quarter of 2019, slackening from an upwardly revised 2.10% expansion in the prior period (World Bank, 2019).

However, despite strong GDP growth rate between 1999 and 2010, poverty did not decline materially to attain

desired level of inclusive growth (Migap, Okwanya & Ojeka, 2015). While the World Bank (2013) ranked Nigeria as one of the fastest growing economies of the world with GDP growth rates of 8.0% in 2010, 5.3% in 2011, 4.2% in 2012, 6.7% in 2013, 6.3% in 2014 and 2.7% in 2015. The negative economic growth recorded as -1.6% in 2016 which technically led Nigerian economy into recession resulted into high monetary policy rate, high inflation rate and high exchange rate with also minimal positive growth rate of 0.8% in 2017 (CBN, 2017).

Ayodeji and Oluwole (2018) submitted that due to low economic growth rate in the Nigerian economy, the government of Nigeria through the Central Bank adopted monetary policy as an economic stabilization policy to achieve desired level of inclusive growth. Monetarists long ago considered monetary policy as a macroeconomic policy options for addressing the problems of inadequate growth and widespread poverty in Nigeria. Thus, it is believed that monetary policy can be conducted efficiently in an economy to achieve inclusive growth that will reduce unemployment and widespread poverty to guarantee equal opportunities in the economy. Monetary policy which is one of the macroeconomic tools (the other being fiscal policy) has been used in stimulating economies towards the achievement of macroeconomic goals which include price stability, exchange rate stability, maintenance of equilibrium balance of payment, employment generation, promotion of output and sustainable growth (CBN, 2018).

In Nigeria however, there has been various regimes of monetary policy. Sometimes it could be tight and at other times it is loose mostly used to stabilize prices. The economy has also witnessed times of expansion and contraction but evidently, the reported growth has not been a sustainable one as there are evidences of macroeconomic instability. As such, in literature, considerable number of studies had been carried out in this area of research interest, however, much attention was given to the impact of money policy on economic growth as a whole with little attention on monetary policy and inclusive growth in Nigeria. It is the bid to fill this gap that motivated this study to examine the effect of selected macroeconomic variables on inclusive growth in Nigeria.

2. Literature Review

Andaberi, Ikeora and Anah (2019) examined the impact of monetary policy on economic growth of Nigeria between 1990-2017. The study used Ordinary Least Squares. The study find out that treasury bills, liquidity

ratio and monetary policy rate has significant negative impact on the growth of economy (GDP). The study concluded that increased treasury bills, liquidity ratio and monetary policy rate led to decline in the growth of Nigerian economy.

Ayodeji and Oluwole (2018) examined the impact of monetary policy on economic growth in Nigeria. The study used multi-variable regression analysis; the study proxy the variables of monetary policy instruments to include; money supply, exchange rate, interest rate, and liquidity ratio. Economic growth was represented by Gross Domestic Product (income) at constant prices. From their result, two variables (money supply and exchange rate) had a positive but fairly insignificant impact on economic growth. Measures of interest rate and liquidity ratio on the other hand, had a negative but highly significant impact on economic growth.

Abdulazeed (2016) examined the impact of monetary policy on economic growth in Nigeria using time series data covering the range of 1990-2010. Multiple regression was employed to analyze data on variables such as money supply, interest rate, financial deepening and GDP. The study revealed that money supply, interest rate and financial deepening had negative impact on economic growth in Nigeria. The study concluded that increased in money supply, interest rate and financial deepening led to decline in GDP.

Adigwe, Echeboba and Justus (2015) examined the impact of monetary policy and economic growth in Nigeria. The study used Ordinary Least Squares to analyze data between 1980-2010. The study result revealed that monetary policy represented by money supply exerted a positive impact on GDP growth but negative impact on the rate of inflation. The study concluded that monetary policy facilitates a favorable investment climate through appropriate interest rate, exchange rate and liquidity management mechanism and the money market provides more financial instruments that satisfy the requirement of the ever-green sophistication of operation.

Amassoma, Nwosa, and Olaiya (2011) examined the effect of monetary policy on macroeconomic variables in Nigeria for the period 1986 to 2009. The study adopted a simplified Ordinary Least Squared technique and also conducted the unit root and co-integration tests. The results of the study showed that monetary policy have witnessed the implementation of various policy initiatives and has therefore experienced sustained improvement over the years. The result also showed that monetary policy had a significant effect on exchange rate

and money supply while monetary policy was observed to have an insignificant influence on price instability.

Akujuobi, (2010) investigated the impact of monetary policy on Nigeria economic development. The study used multiple regression analysis. The variables of interest in the study included; gross domestic product (dependent variable) and independent variables as; Cash Reserve Ratio (CRR), Liquidity Ratio (LQR), interest rate, Minimum Rediscount Rate (MRR) and the treasury bill rate. The study revealed based on the results that apart from cash reserve ratio, other impact much on the economic development of the nation and this may be as a result of the underdeveloped of the paths of these instruments such as the money and capital markets.

Theoretical Framework

This study is anchored on the classical monetary theory which from classical school of thought evolved through concerted efforts and contribution of economists like Jean Baptiste Say, Adam Smith and David Richardo (Onyiewu, 2013). The study was anchored on this theory because in the classical system, the main function of money is to act as medium of exchange, it determines the general level of prices (monetary policy rate, exchange rate and inflation rate) in which goods and services will be exchanged. This relationship between money and the price level (monetary policy rate, exchange rate and inflation rate) is explained in terms of the quantity theory

of money. The classical quantity theory of money states that the price level is a function of the supply of money.

3. Methodology

This study utilized time series data for the period of 1999 to 2019 sourced from Central Bank of Nigeria (CBN) Statistical Bulletin, 2019. Data on Gross Domestic Product per capita plus Gini Coefficient (GDPG) was used as proxy for inclusive growth being the dependent variable while selected monetary policy instruments such as; monetary policy rate (MPR), exchange rate (EXR), inflation rate (INF) and money supply (MS) were used as the independent variables. The study used Auto Regressive Distributed Lag (ARDL) to determine the effects of the selected monetary policy variables on economic growth in Nigeria.

This is showed as expressed in Equation [1] below;

$$[1] \quad MV=PT$$

Where; M, V, P, and T are the supply of money, velocity of money, price level and the volume of transactions (Jhingan, 2015).

The classical economists believe that the economy automatically tends towards full employment level by laying emphasis on price level and on how best to eliminate inflation to enhance inclusive growth among the populace (Amacher and Ulbrich, 1986).

The study further specified the model functionally as shown in Equation [2]

$$[2] \quad GDPG = F(MPR, EXR, INF, MS)$$

The ARDL model for this study is specified as represented in Equation [3]

$$[3] \quad \Delta LGDPG_t = \alpha_0 + \sum_{i=1}^p \delta_i \Delta LGDPG_{t-i} + \sum_{k=0}^p \beta_k \Delta LMPR_{t-k} + \sum_{k=0}^p \epsilon_k \Delta LEXR_{t-k} + \sum_{i=0}^p \gamma_i \Delta LINF + \sum_{m=0}^p \varphi_m \Delta LMS_{t-m} + \lambda_1 LGDPG_{t-1} + \lambda_2 LMPR_{t-1} + \lambda_3 LEXR_{t-1} + \lambda_4 LINF_{t-1} + \lambda_5 LMS_{t-1} + \mu_t$$

Where α_0 and μ_t is the autonomous component and white noise respectively. The expression with the signs of summation in the equation is error correction. The parameter coefficient denotes the short run effects while lambda (λ) is the corresponding relationship in the long run. Gross Domestic Product per capita plus Gini Coefficient (GDPG) was used as proxy for inclusive growth being the dependent variable while selected monetary policy instruments such as; monetary policy

rate (MPR), exchange rate (EXR), inflation rate (INF) and money supply (MS) were used as the independent variables.

4. Results and Discussion of Findings

Unit Root Test Results

To ascertain the order of integration of the variables, this test was carried out to account for the presence of unit roots (that is whether the variables are stationary or not) using the Augmented Dickey Fuller (ADF) test.

Table 1: Unit Root Test Results

Variables	ADF Statistic at level	ADF Statistic at first difference	Critical values of 5% at level	Critical values of 5% at first difference	P-values at level	P-values at first difference	Order of integration
GDPG	-7.537297	-	2.960411	-	0.0001	-	I(0)
MPR	2.789432	-4.605607	-2.960411	-2.963972	0.0981	0.0009	I(1)
EXR	-1.523104	-6.398559	-2.960411	-2.963972	0.5089	0.0000	I(1)
INF	-2.025979	-5.236945	2.960411	-2.963972	0.2748	0.0002	I(1)
MS	-8.873622	-	2.960411	-	0.0305	-	I(0)

Source: Researcher's Computation using Eviews version 10, 2020

Table 2: ARDL Bound Co-integration Test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Sig.	I(0)	I(1)
F-statistic	3.84808	10%	1.99	2.94
K	5	5%	2.27	3.22
		1%	2.88	3.78

Source: Researcher's Computation using Eviews version 10, 2020

Based on table 2; since the calculated F-statistic (3.84) is greater than all the lower bound and upper bound critical values at 1%, 5% and 10% level of significance, the null hypothesis of no long-run relationship among the variables of the selected ARDL (1, 1, 2, 0, 2, 2, 2) is to be rejected. Thus, the variables employed in this study are co-integrated.

The result of the short run and the long run models in table 3 revealed that the independent variables monetary policy rate (MPR), exchange rate (EXR), inflation rate (INF) and money supply (MS) explained about 72% of the total variations in inclusive growth proxy by sum of GDP per capita and Gini coefficient while the remaining 28% unexplained is captured by the error term.

Considering the prob (F-statistic) of 0.000042, the entire model is robust.

The short run model accounts for the speed of adjustment to long run equilibrium of the variables employed. Hence, the speed of adjustment of the model to long run equilibrium is measured by the coefficient of the first lag of the error correction term (ECT (-1)). The error correction term (-0.94) has the right a priori sign and it is statistically significant. Hence, the result of the ECT (-1) showed that 94% of the deviation of the variables in the short run will be restored in the long run within one year.

Table 3: Estimated ARDL Model

Dependent Variable: D(GDPG)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.541775	1.486232	0.364529	0.7213
Short Run Model				
D(GDPG(-1))	0.211307	0.023240	9.092384	0.0002
D(MPR(-1))	-0.482112	0.079131	-6.092580	0.0043
D(EXR(-1))	-0.542168	0.102511	-5.288876	0.0055
D(INF(-1))	-0.348470	0.054381	-6.407937	0.0006
D(MS(-1))	0.623812	0.063211	9.868725	0.0000
ECT(-1)	-0.942059	0.411890	-2.287162	0.0396

Long Run Model				
GDPG	0.236191	0.251784	0.938071	0.3653
MPR	-0.568151	0.088120	-6.447469	0.0010
EXR	-0.710387	0.098502	-7.211904	0.0002
INF	0.541696	0.066938	8.092504	0.0000
MS	0.587321	0.075261	7.803789	0.0021
R-squared	0.723966	Durbin-Watson stat		1.959950
Adjusted R-squared	0.405465			
F-statistic	21.73043			
Prob(F-statistic)	0.000042			

Source: Researcher's Computation using Eviews version 10, 2020

Based on the long run model of the ARDL in table 3, monetary policy rate, exchange rate, inflation rate and money supply had the estimated coefficients of -0.568151, -0.710387, -0.541696 and 0.587321 respectively. This implied that monetary policy rate, exchange rate, inflation rate had significant negative effects on inclusive growth in Nigeria while money

supply had significant positive effect on inclusive growth in Nigeria within the study period. Thus, 1% rise in monetary policy rate, exchange rate and inflation rate led to 57%, 71% and 54% decline in economic growth in Nigeria while 1% rise in money supply led to 59% rise in inclusive growth in Nigeria.

Table 4: Diagnostic Test of the ARDL Model

	Value	Df	Probability
t-statistic	1.549660	15	0.1452
F-statistic	2.401447	(1, 15)	0.1452
Likelihood ratio	5.085362	1	0.0241

Source: Researcher's Computation using Eviews version 10, 2020

From table 4, since the probability value of the Ramsey RESET test is greater than 0.05, we accept the null hypothesis and reject the alternative hypothesis and conclude that there is no specification error in the ARDL model.

Table 5: Serial Correlation Test

F-statistic	9.300232	Prob. F(2,12)	0.0891
Obs*R-squared	12.52466	Prob. Chi-Square(2)	0.0619

Source: Researcher's Computation using Eviews version 10, 2020

From table 5, since the probability value of the serial correlation LM test which is (0.0619), is greater than 0.05, we accept the null hypothesis and reject the alternative hypothesis and conclude that there is no serial correlation in the ARDL model.

Table 6: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.874052	Prob. F(15,14)	0.6018
Obs*R-squared	14.50801	Prob. Chi-Square(15)	0.4874
Scaled explained SS	6.468098	Prob. Chi-Square(15)	0.9708

Source: Researcher's Computation using Eviews version 10, 2020

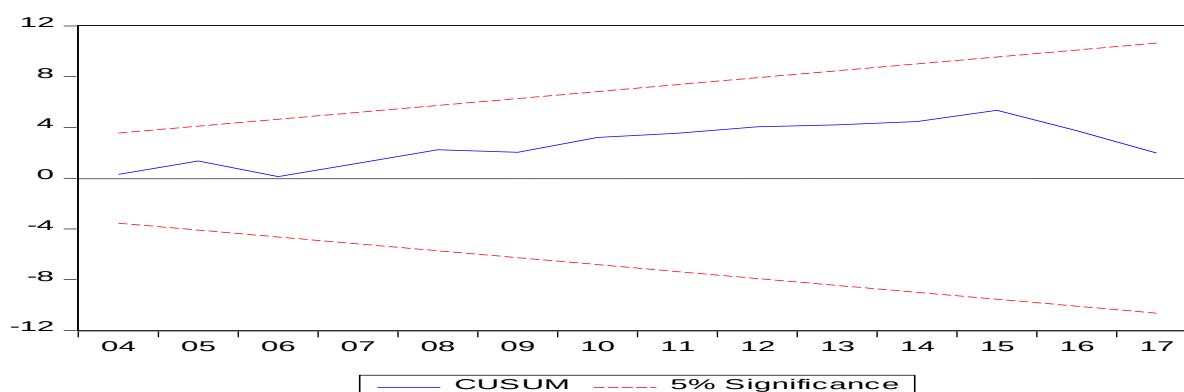
From table 6, since the probability value of the heteroskedasticity test which is 0.4874 is greater than 0.05, we accept the null hypothesis and reject the alternative hypothesis and conclude that there is no heteroskedasticity in the ARDL model. For the observed collinearity, this study adopts the solution offered by Gujarati (2009) to do nothing.

Table 7: Multicollinearity Test: Correlation Matrix

Variables	GDPG	MPR	EXR	INF	MS
GDPG	1.000000	-0.055348	-0.252481	-0.026210	0.101992
MPR	-0.055348	1.000000	0.519803	0.406015	0.460959
EXR	-0.252481	0.519803	1.000000	0.016670	0.350159
INF	-0.026210	0.406015	0.416670	1.000000	0.940781
MS	0.101992	0.460959	0.350159	0.940781	1.000000

Source: Researcher's Computation using Eviews version 10, 2020

From table 7, the correlation matrix shows absence of multicollinearity between other independent variables except inflation (INF) and money supply (MS) with high correlation coefficient of 0.94 indicating presence of multicollinearity in the model since the correlation coefficients was greater than 0.8.

Fig 1: Stability Test: CUSUM test of the ARDL Model

The result of the CUSUM test in fig 1 which is the necessary condition for stability of a model shows that the blue line lies inside the dotted red line and it indicates that the model is dynamically stable at 5% level of significance.

5. Conclusion and Recommendations

The study focused on effects of selected monetary variables on inclusive growth in Nigeria for the period of 1999 to 2019. The study employed the econometric technique of ARDL as its method of estimation. Based on the long run form of the ARDL, monetary policy rate, exchange rate, inflation rate had significant negative effects on inclusive growth in Nigeria. This implied that increased in monetary policy rate, exchange rate and inflation rate led to decline in inclusive growth rate in the

Nigerian economy within the study period. Money supply had significant positive effect on inclusive growth in Nigeria within the study period. This implied that increased in money supply led to increase in inclusive growth in the Nigerian economy within the study period.

Based on the findings, the study recommended the following; government should as a matter of urgency through the monetary policy committee set up tactical monetary policy strategy to reduce the amount of monetary policy rate to the barest minimum level in order to attain the desired level of inclusive growth in the Nigerian economy. Government should embark on holistic exchange rate policy in order to achieve the required amount of inclusive growth rate in Nigeria. Government should come up with anti-inflationary policies to reduce inflationary pressure in Nigeria so as to

accomplish sustainable level of inclusive growth. Finally, government at this juncture in the Nigerian economy should increase the amount of money supply or in

circulation through expansionary monetary policy in order to boost inclusive growth in the Nigerian economy.

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