

Still on the Influence of Interest Rate on Nigerian Economy (1986 – 2018)

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Abstract:- Interest rate has been at the center of every monetary policies around the world, as it is vital in stimulating and changing the state of the economy. This study examines the effect of interest rate on the growth of Nigerian economy for the period 1986 to 2018. It utilizes the ARDL bound testing method to find the connection between economic growth measured by GDP and independent variables (lending interest rate (INT), savings rate (SVR), inflation rate (INF), broad money supply (M2), financial deepening (FD) and exchange rate (EXR). The findings establish a long run relationship between rate of interest and the growth of the economy. The short run analysis shows that one lagged value of GDP is negatively related with current GDP. While two lagged value of GDP has positive effect on the current GDP. The current value and one lagged value of M2 have negative effect on GDP. While two lagged value of M2 has positive effect on GDP. INF, FD and the current one lagged and two lagged value of EXR have negative effect on GDP. On the other hand, the current, one lagged and two lagged value of SVR have positive effect on the GDP. The granger causality test revealed a unidirectional causality from GDP to M2, weak unidirectional causation running from GDP to INT, SVR to GDP, and weak bidirectional causation between EXR and GDP. Also a unidirectional causation running from GDP to FD, INF to INT, SVR to INT, and a bidirectional causation between SVR and INF. There is no causation between INT and FD. The findings of this study reveals that rate of interest has a positive effect on the growth of the economy. Based on the findings, the study recommends that monetary authority need to be more proactive rather than being proactive most times.

Keywords:- Interest Rate, Economic Growth, Gross Domestic Product, ARDL, Nigeria.

I. INTRODUCTION

For centuries now, the main target of every country around the world has been growth and development which should be a reflection of the state of the economy (Abebiyi, 2002 as cited in Maiga, 2017). However, the problem is not with the target but with the means through which the target can be achieved without creating further imbalances. Several theories have been propounded to provide countries with models on how sustainable growth and development can be attained while also explaining the causes and effects of certain phenomenon. There is a general consensus that capital formation is key to unlocking the desire for growth and development potentials in any economy (Adeleye, 2018). Also the availability of financial resources is an important requirement of economic growth as it either allows or hinders the critical sectors of the economy to pursue their growth-oriented activities. The financial system exists to provide the platform for capital formation as it attracts financial resources from where it is temporarily not needed and channels it to where it is needed. Hence, the financial system performs the role of a catalyst for capital formation. It is noteworthy that the performance of this role has both cost, benefits and other implications to the deficit and the surplus units respectively. The cost and benefit depending on the perspective from where it is viewed, is often referred to as interest rate.

There are divergent views on the meaning of interest rate. Modern economists explain interest rate in terms of “money”, “saving”, “productivity”, and “liquidity preference”. It is simultaneously the reward for the supply of money, of saving, the pure yield of capital, and for forgoing of liquidity (Jhingan, 1999). From this definition, interest rate can be viewed as an important determinant of demand and supply of money as it plays the role of an equilibrating force between the demand and supply of loanable funds (Anthony, 2017). Interest rate has been at the center of every monetary policies around the world, as it is vital in stimulating and changing the state of the economy (Mushtaq & Siddiqui, 2016; Lee & Werner, 2018). Every investment and savings decision of all economic agents relies heavily on the state of the interest rate (Anaripour, 2011). Therefore, interest rate should be a major economic growth determinant through its effects on

investments and savings which are prerequisites in achieving economic growth (Stawska & Miszczynska, 2017).

The McKinnon (1973) and Shaw (1973) framework provides theoretical support for a market determined interest rate, and strongly rejects financial repression, which according to the framework, fails to show the true competitive state of the interest rate. According to the hypothesis, interest rate determined by the “invisible hand” attracts and allocates financial resources more efficiently in the economy, as the competitive interest rate is likely to increase the level of savings which is crucial for capital formation needed for growth-inducing investments in the economy. Succinctly, liberalized interest rates positively affect economic growth as against artificial ceilings of interest rate (Odhiambo, 2009). Critics of the hypothesis suggest that financial liberalization leads to higher level of interest rate, which consequently attracts more savings but it adversely affect the borrowing capacity of some sectors that are yet to be developed, and therefore weakens investment in some crucial sectors of the economy.

Financial theory suggests that a lower lending / interest rate attracts more investment, which then boosts economic growth (Woodford, 2003; Baum, 2009). While a higher lending / interest rate discourages investment, which is harmful to output growth. Similarly, a high lending / interest rate encourages the surplus units to supply more funds, while a lower one discourages them. Monetary authority faces a dilemma in setting the appropriate interest rate which would not only encourage savings but attracts more investments as well. Therefore, every monetary authority from both developed and developing economies are being confronted with how to find an optimum interest rate policy, which is not only capable of attracting investments both locally and internationally but as well sustain output growth.

Developing economies like Nigeria has taken on several reforms over the years in order to find an optimum mechanism through which an optimum interest rate can be achieved, as the country still lacks the optimal level of savings and investments needed for sustainable growth and development (Eze, 2010 as cited in Jelilov, 2016). Despite the fact that the country remains one of the largest economy in Africa, the level of infrastructures does not reflect this status as infrastructures continue to linger in deplorable state. One of the major reforms in the country has been the Structural Adjustment Programme (SAP) introduced in 1986 which ushered in financial liberalization which opened the door for a market-determined interest rate and credit allocation which was intended to enhance efficiency in the financial system and contribute to the rapid economic development. Since the introduction of SAP, the economy has witnessed several swings in the interest rate as the CBN continues to struggle to find an optimum level of interest rate. While the small and medium scale enterprises remains undernourished due to the paucity of funds which is a result of an inefficient financial system.

Empirical studies exist on the effect of interest rate on economic growth both in developed and developing countries. However, a general consensus remains elusive till date as existing studies have documented varying results from different economies (Twinoburyo & Odhiambo, 2018). For example, using Johansen Cointegration, Akinwale (2018) found a negative connection between rate of interest and the growth of the economy, while Okoye, Nwakoby and Modebe (2015) using VECM obtained a positive relationship between interest rate and output growth in Nigeria. Lee and Werner (2018) also found that interest rate positively follows GDP growth in industrialized countries. Contrary to the result of Lee and Werner (2018), Barry (2014) reported a weak relationship between rate of interest and the growth of the economy. It is therefore obvious that there is need for further empirical investigations on this topic as earlier suggested by Aspinall, Jones, McNeill, Werner and Zalk (2015), among others in their various studies.

In addition, through financial deepening, it has been posited that financial system can enhance its contributions and put the economy on the path of sustainable growth and development. One of the key variables to financial deepening as suggested by Odhiambo (2009) is interest rate which can be used to attract the unbanked populace in the economy. He argued that interest rate does not affect the economy directly but rather through its transmissions on financial deepening. Hence, this study intends to examine the relationship between interest rate and financial deepening, interest rate and economic growth and the causality between lending rate, savings rate and economic growth in Nigeria as such studies are relatively scarce in developing countries especially in Nigeria. This study is also justified on the premise that if monetary authority can identify the variable that causes the behavior of other variables, formulating an effective and efficient monetary policy for a sustainable growth would be relatively easy. The remaining part of the paper is divided as follows: sections two and three are for review of literature and methods of analysis, section four is results and discussion and section five concludes the paper and make some recommendations.

II. LITERATURE REVIEW

Using a panel data set of 22 countries, Anaripour (2011) carried out an empirical study on the causality between economic growth and rate of interest by employing Granger causality test. Result indicated that a negative and unilateral relationship exist between economic growth and interest rate running from economic growth to interest rate. In the same vein, Bhunia (2016) study on the relationship between inflation, economic growth and interest rates found a long run negative and unilateral causal relationship from economic growth to interest rate in India.

Utile, Okwori and Ikpambese (2018) proxy economic growth by GDP and reported a negative but insignificant effect of interest rate on economic growth. Similar result was also documented in the study of Etale and Ayunku (2016), who employed ECM to analyze the association between interest rate and the growth of the economy over the period

1980-2016. However, a study by Heba (2017) using 15 countries provided a support for the McKinnon and Shaw hypothesis. The findings of the study showed that real interest rate is positively associated with economic growth. That is, improvement in interest rate leads to more efficiency in capital formation, which then encourages investments.

Ajayi, Oladipo, Ajayi and Nwanji (2017) also found out that a unilateral causal relationship running from savings interest rate to GDP exists. And suggest that insecurity, regional socio-political unrest and political instability in general apart from interest rate are some of the factors restricting economic growth. In line with the results of Ajayi et al (2017) is Obamuyi (2009) who found out a positive relationship between deposit interest rate and GDP growth. In addition, the result indicated that financial deepening has an adverse relationship with economic growth due to the weaknesses in the financial system. This is contrary to the study of Odhiambo (2009), who found out that financial deepening granger causes economic growth in Zambia.

In a study on Asian countries, Harswari and Hamza (2017) used a panel data of 20 countries within the period 2006 – 2015. The correlation and regression analysis employed revealed that interest rate negatively and significantly influence economic growth. However, Saymeh and Orabi (2013) in a study in Jordan on the relationship between economic growth, inflation rate and interest rate showed that interest rate has positive effect on economic growth. Similarly, a study in Zambia by Odhiambo (2009) on interest rate liberalization and economic growth using cointegration-based error correction model found out that interest rate liberalization indirectly affect economic growth positively through financial deepening.

Udoka and Anyingang (2012) employed the multiple regression analysis to identify the impact of interest rate movement on economic growth for the periods 1970 to 2010 in Nigeria. The findings pointed to an inverse relationship between interest rate and economic growth. Contrarily, Osadume (2018) reported a positive and significant effect of interest rate on economic development. The study however proxy economic development by human development index. Alhassan (2017), covering the period 1981 to 2014 and using ARDL to analyze the impact of interest rate liberalization on economic growth found that interest rate had a negative effect on the growth of the Nigerian economy. The result suggests that the liberalization of interest rate has led to high lending rate which has inflated the cost of capital. Thereby, hindering productive investments and encouraging capital flight. Perhaps, developing economies are not yet ripe for liberalization of interest rate as empirical evidences from developing economies have suggested. This can be traced to the “structural weaknesses” and “underdeveloped financial markets” which are yet to be effectively integrated into the global markets. This is echoed in the study of Lee and Werner (2018) who found out a positive relationship between interest rate and economic growth in industrialized countries as monetary policies tend to be effective in such countries. However, Moyo and Le Roux (2018) documented a positive relationship between interest rate and economic growth

through savings and investments in South African Development Community (SADC) countries.

It is obvious from the above review that there is no consensus among the researchers as to the relationship between interest rate, financial deepening and economic growth. Therefore, a further study of this nature is required to fill this gap.

III. RESEARCH METHODS

Time series yearly data between 1986 and 2018 were collected using both Federal bureau of statistics and CBN statistical bulletin in other to achieve the primary aim of investigating the influence of interest rate on the growth economy.

IV. MODEL SPECIFICATION

The model adopted for this study is in line with the McKinnon and Shaw hypothesis, which argued that interest rate liberalization positively affect economic growth. The adopted model is expressed as follows:

$$GDP_t = \beta_0 + \beta_1INT_t + \beta_2SVR_t + \beta_3FD_t + \beta_4M2_t + \beta_5INF_t + \beta_6EXR_t + \mu_t \dots\dots\dots (1)$$

- Where;
- β_0 = intercept
- $\beta_1 - \beta_6$ = parameters
- μ_t = error term
- GDP = gross domestic product
- INT = lending interest rate
- SVR = savings/deposit interest rate
- FD = financial deepening measured by CPS/GDP
- M2 = Money supply
- INF = Inflation rate
- EXR = Exchange rate

V. ESTIMATION TECHNIQUES

Unit Root Tests

The study test for the stationarity of the variables using the Augmented Dickey Fuller (ADF) unit root test to check the order of integration of variables and to avoid spurious results after performing diagnostic test such as serial correlation, heteroscedasticity and normality.

ARDL Cointegration Approach

The study employed the Autoregressive Distributed Lag (ARDL) cointegration approach because of its superiority over other methods of estimation. It could be used on variables with different order of integration that is, I(0) or I(1).

The ARDL bound testing procedure employs the following equation;

$$\begin{aligned}
 LGDP_t = & \beta_0 + \sum_{i=0}^n \beta_1 \Delta L GDP_{t-1} + \sum_{i=0}^n \beta_2 \Delta L INT_{t-1} + \sum_{i=0}^n \beta_3 \Delta L SVR_{t-1} + \sum_{i=0}^n \beta_4 \Delta L FD_{t-1} + \sum_{i=0}^n \beta_5 \Delta L MS_{t-1} + \sum_{i=0}^n \beta_6 \Delta L INF_{t-1} \\
 & + \sum_{i=0}^n \beta_7 \Delta L EXR_{t-1} + \alpha_1 LGDP_{t-1} + \alpha_2 LINT_{t-1} + \alpha_3 LSVR_{t-1} + \alpha_4 LFD_{t-1} + \alpha_5 LMS_{t-1} + \alpha_6 LINF_{t-1} \\
 & + \alpha_7 LEXR_{t-1} + \mu_t
 \end{aligned}
 \tag{2}$$

Where: B = the short run coefficients; μ = the white-noise error term; α = the long run coefficients; Δ = the first difference operator; t = denoted time period; Akaike Info criterion (AIC) is the basis of chosen the highest number of lags in the model.

VI. RESULTS AND DISCUSSION

Descriptive Statistics

Table 1. Descriptive Statistics for Variables

Variables	Mean	Std. Dev.	Min.	Max.	Kurtosis
RGDP	33725.22	19578.10	13779.26	69810.02	1.996529
M2	5153.530	7536.395	14.47117	25079.72	3.431348
INF	20.10105	18.22136	0.220000	76.76000	4.716528
INT	17.57661	4.628233	7.750000	29.80000	3.668152
SVR	7.350403	5.050325	1.410541	18.80000	2.273558
EXR	90.13014	90.31565	0.610000	306.1875	3.133873
FD	11.05262	5.377672	5.917270	20.77330	1.962942

Source: Author’s Computation (2021) via EVIEW 9 Package

In order to give a brief overview of the time series data, the descriptive statistics for the dependent and independent variables were presented in table 1. The explained variable is economic growth (RGDP) measured by the value of real gross domestic product, while the explanatory variables are: money supply (M2), inflation rate (INF), interest rate (INT), savings rate (SVR), exchange rate (EXR) and financial deepening measured by credit to private sector as a measure of GDP (FD). The descriptive statistics presents the mean, standard deviation, minimum, maximum and kurtosis value. The statistics show that GDP has the highest mean value of 33,725 in billions of naira and the highest volatility which shows the

level of instability in the economy, while FD has the lowest mean of 11%. The value of Kurtosis is use to determine the peakedness of the series and usually considered at a value below or above three, when it is below three, it said to be flat/platykurtic and when above three it is considered leptokurtic to the normal distribution. From table 4.1 below RGDP, SVR and FD are less than three and as such are flat or platykurtic while M2, INF, INT and EXR are more than three therefore is peaked or leptokurtic.

Unit Root Test Result

Table 2: Augmented-Dickey-Fuller (ADF) Test

Variables	Null Hypothesis: Variable has a Unit root		Order of Integration
	Augmented Dickey-Fuller test statistic		
	Level	First Difference	
RGDP	-0.704467	-3.114373**	1(1)
M2	-2.365216	-3.139574**	1(1)
INF	-2.706619*	-4.907288***	1(1)
INT	-4.605514***		1(0)
SVR	-0.952982	-6.395918**	1(1)
EXR	0.688990	-4.707789***	1(1)
FD	-0.856241	-4.876972***	1(1)
Asymptotic critical values*:			
1% level	-3.661661		
5% level	-2.960411		
10% level	-2.619160		

Source: Author’s Compilation (2021) via EVIEW 9

Note: *, **, *** indicates significant at 10%, 5% and 1% levels respectively

The Augmented Dickey Fuller (ADF) test as presented in table 2 showed that only INT is stationary at level while others variables are at first difference. The ADF test confirmed that ARDL approach is suitable for the study because the variables are of different order. Hence the ARDL method was used in the study.

ARDL Bound Test

Table 3: Results of ARDL Bounds Test

Null Hypothesis: No long-run relationships exist		
Estimated equation $GDP = f(M2, SVR, INF, INT, EXR, FD)$		
F-statistics	5.76***	
Optimal lag length	(3, 3, 3, 2, 3, 3, 0)	
Significance level	Critical values	
	Lower bound I0	Upper bound I1
1%	2.12	3.23
5%	2.45	3.61
10%	3.15	4.43

Note: *** denotes significance at 1%

The Null hypothesis of no cointegration among the variables was rejected because the F statistic value of 5.76 is greater than upper bound critical value as shown in table 3. The optimal lag length selected using the Akaike Info criterion (AIC) is ARDL (3, 3, 3, 2, 3, 3, 0). The results of the model selected are presented in Table 4 and 5 for long and short run respectively.

Table 4 Long Run Coefficients of ARDL (3, 3, 3, 2, 3, 3, 0)

Dependent variable: ΔGDP				
Regressor	Coefficient	Standard error	t-Statistic	Probability
<i>lnM2</i>	0.395791	0.044823	8.829996	0.0000
<i>INF</i>	-0.006835	0.001495	-4.571465	0.0013
<i>INT</i>	0.038384	0.015893	2.415093	0.0389
<i>SVR</i>	-0.016403	0.020150	-0.814022	0.4366
<i>lnEXR</i>	-0.316801	0.078361	-4.042831	0.0029
<i>FD</i>	-0.014435	0.006018	-2.398617	0.0400
<i>C</i>	8.756599	0.210702	41.559161	0.0000

Source: Author’s Compilation (2021) via EVIEW 9

Note: *, **, *** indicates significant at 10%, 5% and 1% levels respectively

From the result presented in Table 4, the long run coefficients showed that the major determinants of economic growth from the selected independent variables are interest rate, broad money supply, exchange rate, inflation rate and financial deepening in the long run. Increase in broad money supply (M2) causes an upward trend in GDP. The result also shows that the coefficient of interest rate (INT) is positively and significantly related to the economy (GDP). This implies that increase in the lending interest rate seemingly causes an upward movement in the GDP in the long run. On the other hand, the savings interest rate (SVR) coefficient is negatively signed, which implies that SVR causes a downward swing in the economy in the long run. This is contrary to economic theory. However, this could be due to some factors such as weak banking system, economic instability and political instability in terms of relative frequent changes in government policies among others (Ajayi et al, 2017). This is more evident from the coefficient of both inflation rate (INF) and exchange rate (EXR) which have negative effects on the economy. Surprisingly, financial deepening (FD) has significant negative effect on the economy in the long run. This could also be traced to the underdeveloped financial system in the country as significant numbers of people remain unbanked.

Table 5: Short Run Coefficients of ARDL (3, 3, 3, 2, 3, 3, 0)

Dependent variable: ΔGDP				
Regressor	Coefficient	Standard error	t-Statistic	Probability
$\Delta \ln GDP(-1)$	-0.497732**	0.169667	-2.933587	0.0167
$\Delta \ln GDP(-2)$	0.261924**	0.093435	2.803266	0.0206
$\Delta \ln M2$	-0.018600	0.027315	-0.680958	0.5130
$\Delta \ln M2(-1)$	-0.099937*	0.050678	-1.971983	0.0801
$\Delta \ln M2(-2)$	0.100326**	0.038335	2.617073	0.0279
ΔINF	-0.000522**	0.000207	-2.523235	0.0326
ΔINT	0.003014*	0.001430	2.107459	0.0643
$\Delta INT(-1)$	-0.001325	0.001002	-1.322562	0.2186
ΔSVR	0.004325	0.003232	1.338124	0.2137
$\Delta SVR(-1)$	0.004581*	0.002471	1.853832	0.0968
$\Delta SVR(-2)$	0.011249***	0.002559	4.395183	0.0017
$\Delta \ln EXR$	-0.099677***	0.009895	-10.073602	0.0000
$\Delta \ln EXR(-1)$	-0.034880**	0.012200	-2.859137	0.0188
$\Delta \ln EXR(-2)$	-0.014507	0.010573	-1.372094	0.2033
ΔFD	-0.004668**	0.001760	-2.652054	0.0264
ECM	-0.323377***	0.095505	-3.385965	0.0081

Source: Compiled by Authors (2021) via EVIEW 9

Note: *, **, *** indicates significant at 10%, 5% and 1% levels respectively

The short run coefficients showed the major contributing factors to economic growth in the short run are lagged value of GDP, lagged value of M2, current value of INF, lagged value of SVR, current and lagged EXR and current FD as showed in Table 5.

One lagged value of GDP is surprisingly negatively related with current GDP. While the two lagged value of GDP has positive effect on the current GDP. The current value and one lagged value of M2 have negative effect on GDP. On the other hand, two lagged value of M2 has positive effect on

GDP. Expectedly, INF has an adverse effect on the GDP. In the same vein, the current, one lagged and two lagged value of EXR have negative effect on GDP. On the other hand, the current, one lagged and two lagged value of SVR have positive effect on the GDP. While FD exhibits a negative effect on GDP.

Furthermore, the Error Correction term coefficient is significant and shows that the variable adjust by 3.2338 per cent towards the equilibrium level in the long run whenever it drifted from it in the short run.

Table 6 Result of Diagnostic Tests

Test	Statistics	P-value
Serial Correlation: CHSQ(2)	0.160667	0.6885
Heteroscedasticity	28.83524	0.1858
F-statistics	6318	0.0000
Normality test (Jarque-Bera)	1.729990	0.4211
R-squared	0.9999	
Adjusted R-squared	0.9997	

Source: Author’s Compilation via EVIEW 9

Generally, the ARDL regression model fits well as it passed the entire estimation test conducted and reported in Table 6.

Granger Causality Test

Table 7: Granger Causality

Null HYPOTHESIS	F-Statistics	Prob.
M2 does not Granger Cause GDP	0.79771	0.4611
GDP does not Granger Cause M2	5.70433	0.0088***
INT does not Granger Cause GDP	1.26490	0.2991
GDP does not Granger Cause INT	2.97119	0.0688*
SVR does not Granger Cause GDP	3.24060	0.0554*
GDP does not Granger Cause SVR	0.30661	0.7386
EXR does not Granger Cause GDP	2.54715	0.0977*
GDP does not Granger Cause EXR	2.55612	0.0969*
FD does not Granger Cause GDP	1.67142	0.2076
GDP does not Granger Cause FD	6.12271	0.0066***
SVR does not Granger Cause INF	10.4622	0.0005***
INF does not Granger Cause SVR	6.54689	0.0005***
INT does not Granger Cause INF	1.39668	0.2654
INF does not Granger Cause INT	4.31438	0.0241**
SVR does not Granger Cause INT	3.99878	0.0306**
INT does not Granger Cause SVR	2.37473	0.1129
FD does not Granger Cause INT	1.04117	0.3673
INT does not Granger Cause FD	0.44113	0.6480

Source: Compiled by Authors (2021)

Note: *, **, *** indicates significant at 10%, 5% and 1% levels respectively

The result of the granger causality test from table 4.6 reveal unidirectional causality from GDP to M2, weak unidirectional causation running from GDP to INT, SVR to GDP, and weak bidirectional causation between EXR and GDP. Also a unidirectional causation running from GDP to FD, INF to INT, SVR to INT, and a bidirectional causation between SVR and INF. However, there is no causation between INT and FD.

VII. DISCUSSION AND CONCLUSION

This paper investigates the influence of interest rate on Nigerian economy for the period 1986 to 2018. utilizing the ARDL approach, both short and long run relationships between economic growth and the selected explanatory variables which are broad money supply (M2), inflation rate (INF), interest rate (INT), savings rate (SVR), exchange rate (EXR) and financial deepening (FD) were analyzed.

The findings of the study suggest that lending interest rate and savings rate generally have positive effect on economic growth both in the short and long run which conforms to economic theory. Although, the effect of lending interest rate on the economy is insignificant in the short run. This may be due to the response lag effect, which may cause delay in bringing the desired changes in the economy (Stawska & Miszcynska, 2017). However, the effect is

significant in the long run as businesses and consumers adjust to the implemented changes in interest rate. The result also suggests that the liberalization of the interest rate in 1986 has not only reflect the true competitive state of the interest rate but has also contributed to the growth of the economy positively. The findings is in line with the McKinnon and Shaw hypothesis and the studies of Obamuyi (2009) Ajayi et al (2017), and Heba (2017). However, it contradicts Chris and Anyingang (2012), Bhunia (2016), and Harswari and Hamza (2017).

The broad money supply (M2) exhibits an adverse effect on the economy in the short run and a positive effect in the long run. Increase in money supply has been associated with inflationary trend as too much money will be chasing few goods. This causes imbalance in the economy in the short run. However, the effect turns out positive in the long run as firms increase their productive capacity to accommodate the increase in demand, as the result suggests.

Inflation rate (INF) has adverse effect on the economy both in the short and long run. This only supports the level of instability in the economy, and the inability of the monetary authorities to provide balance in the economy. This is supported by the effect of the exchange rate (EXR) on the economy which is negative also both in the short and long run.

This is a reflection of the weakness in the productive capacity, insecurity and unstable economic policy of the country.

Contrary to the study of Odhiambo (2009) and in line with the study of Obamuyi (2009), financial deepening has had a negative effect on the economy. This may be traced to the weak financial system, which is yet to contribute effectively and efficiently to the economy, despite the various reforms that have taken place in the banking sector. The result only shows that more still need to be done in order to position the Nigerian banking sector in the global financial market.

The Granger causality employed showed that savings rate weakly granger causes economic growth, which is in line with the Mckinnon and Shaw hypothesis. Increase in the savings rate encourages more funds from the surplus units which can then be channeled to productive uses by the deficit unit. As capital formation is key to economic growth. On the other hand, GDP granger causes both lending interest rate and financial deepening index, which shows that the monetary policy has been more reactive than proactive so far, which could account for the instability in the economy. In addition, inflation rate also granger causes lending interest rate, while saving rates and inflation rate both granger cause each other. The result suggests that the monetary authority need to pay more attention to the savings/deposit rates more than before in order to boost the economic activities in the country.

In conclusion, the findings of this study has shown that interest rate has positive effect on the growth of the economy. However, the savings rate needs to be given more attention than before. The liberalization of the interest rate has been more beneficial to the economy, which supports the Mckinnon and Shaw hypothesis. The study also suggests that monetary authority need to be more proactive rather than being proactive most times. More creative reforms are needed in the financial system so as to not only provide more financial services but also make the Nigerian banking system more competitive globally.

REFERENCES

- [1]. Adeleye, S. T. (2018). Capital formation in the Nigerian capital market and its effect on economic growth. *International Journal of Economics and Business Management*, 4(2), 16-23.
- [2]. Ajayi, S. A., Oladipo, O. A., Ajayi, L. B., & Nwanji, T. I. (2017). Interest rate and economic growth. *International Review of Business Research Papers*, 13(1), 141-150.
- [3]. Akinwale, S. O. (2018). Bank lending rate and economic growth: Evidence from Nigeria. *International Journal of Academic Research in Economics and Management Sciences*, 7(3), 111-122.
- [4]. Alhassan, A. (2017). The Impact of interest rate deregulation on Gross Domestic product of Nigeria. *Journal of Economics and Sustainable Development*, 8(18), 67-73.
- [5]. Anaripour, J. T. (2011). Study on relationship between interest rate and economic growth by E-View (2004-2010, Iran). *Journal of Basic and Applied Scientific Research*, 1(11), 46-52.
- [6]. Aspinall, N. G., Jones, S. R., McNeill, E. H., Werner, R. A., & Zalk, T. (2015). Sustainability and the financial system, review of literature. Institute and Faculty of Actuaries, London.
- [7]. Baum, S. D. (2009). Description, prescription and the choice of discount rates. *Ecological Economics*, 69(1), 197-205.
- [8]. Bhunia, A. (2016). How inflation and interest rates are related to economic growth? A case of India. *Journal of Finance and Accounting*, 4(1), 20-26.
- [9]. Etale, L. M., & Ayunku, P. E. (2016). The relationship between interest rate and economic growth in Nigeria: AN error correction model (ECM) approach. *International Journal of Economics and Financial Research*, 2(6), 127-131.
- [10]. Harswari, M. H., & Hamza, S. M. (2017). The impact of interest rate on economic development: A study on Asian countries. *International journal of Accounting and Business Management*, 5(1), 180-188.
- [11]. Heba, E. M. S. A. (2017). The relationship between interest rate and economic growth: An international comparative study with reflection on the Egyptian economy (Thesis), Faculty of Commerce, Zagazig University.
- [12]. Jelilov, G. (2016). The impact of interest rate on economic growth example of Nigeria. *African Journal of Social Sciences*, 6(2), 51-64.
- [13]. Jhingan, M. L. (1999). *Microeconomic theory* (4th ed.). Delhi, Vrinda Publications.
- [14]. Lee, K. S., & Werner, R. A. (2018). Reconsidering monetary policy: An empirical examination of the relationship between interest rates and nominal GDP growth in the U.S., U.K., Germany and Japan. *Ecological Economics*, 146(1), 26-34.
- [15]. Maiga, F. K. (2017). Impact of interest rate on economic growth in Nigeria. *Journal of Business and Finance Management Research*, 3(3), 98-111.
- [16]. McKinnon, R. I. (1973). *Money, Capital and Banking in Economic Development*. Brooklyn Institution, Washington D.C.
- [17]. Moyo, C., & Le Roux, P. (2018). Interest rate reforms and economic growth: the savings and investment channel. MPRA Paper, No. 85297.
- [18]. Mushtaq, S., & Siddiqui, D. A. (2016). Effect of interest rate on economic performance: Evidence from Islamic and non-Islamic economies. *Financial Innovation*, 2(9), 1-14.
- [19]. Nwosu, E. O. & Anthony, O. (2017). Addressing poverty and gender inequality through access to formal credit and enhanced enterprise performance in Nigeria: An empirical investigation. *African Development Review*, 29(51), 56-72
- [20]. Obamuyi, T. M. (2009). An investigation of the relationship between interest rates and economic growth in Nigeria, 1976 -2006. *Journal of Economic and International Finance*, 1(4), 93-98.

- [21]. Odhiambo, N. M. (2009). Interest rate liberalization and economic growth in Zambia: A dynamic linkage. *African Development Review*, 21(3), 541-557.
- [22]. Okoye, L. U., Nwakoby, C. I. N., & Modebe, N. J. (2015). Interest rate reform and real sector performance: Evidence from Nigeria. *African Banking and Finance Review*, 2(1), 97-114.
- [23]. Osadume, R. (2018). Effect of interest rate mechanisms on the economic development of Nigeria, 1986-2016. *International Journal of Economics and Business Management*, 4(4), 91-115.
- [24]. Saymeh, A. A. F., & Orabi, M. M. A. (2013). The effect of interest rate, inflation rate, GDP, on real economic growth rate in Jordan. *Asian Economic and Financial Review*, 3(3), 341-354.
- [25]. Shaw, E. (1973). *Financial Deepening in Economic Development*, Oxford University Press, New York.
- [26]. Stawska, J. & Mizcynska, K. (2017). The impact of European central banks interest rates on investment in Euro area. *The Polish Journal of Economic*, 5, 51-72
- [27]. Twinoburyo, E. N., & Odhiambo, N. M. (2018). Monetary policy and economic growth: A review of international literature. *Journal of Central Banking Theory and Practice*, 2(2), 123-137.
- [28]. Udoka, C. A., & Anyingang, A. R. (2012). The effect of interest rate fluctuation on the economic growth of Nigeria 1970-2010. *International Journal of Business and Social Science*, 3(20), 295-302.
- [29]. Utile, B. J., Okwori, A. O., & Ikpambese, M. D. (2018). Effect of interest rate on economic growth in Nigeria. *International Journal of Advanced Academic Research, Social and Management Sciences*, 4(1), 66-76.
- [30]. Woodford, M. (2003). *Interest and prices: foundations of a theory of monetary policy*. Princeton University Press, Princeton.