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INTEREST RATE AND ECONOMIC GROWTH IN NIGERIA (1990-2019)

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Abstract

The study investigated interest rate on economic growth in Nigeria from 1990 to 2019. Ex-post facto research design was adopted for the study. Secondary data obtained from Central Bank of Nigeria Statistical Bulletin was used for the study. Data obtained were analysed using descriptive analysis with the E-view. The study concluded that interest rate had positive and insignificant effect on gross domestic product in Nigeria. The study therefore recommended that Central Bank of Nigeria should adopt interest rate policy that will boost savings culture. In addition, interest rates should be business friendly and predictable in line with the prevailing economic dictate and conditions.

Keywords: Interest rate, Inflation, Economic growth and Gross domestic product

1.0 Introduction

Interest rate is the cost of borrowing and demonstrates what a borrower pays the lender for the use of the money. Interest rates facilitate the flow of credit into the economy and help financial entities such as corporate organizations, banks, mutual funds and insurance companies to play their intermediary role (Eregha, 2010). The impact of high cost of interest rates in the society is not unconnected to the fact that borrowers may hesitate to borrow when they should. This may be because the cost of credit and the credit itself may aggregate to an amount that may be unaffordable to the borrower to pay back within the stipulated due date of the loan. The implication of this on the economy is that GDP of the economy would be

low since equity financing alone cannot adequately sponsor the production activities in an economy (Sanusi, 2010).

Interest rate is a price of capital to the borrower and a return on capital to the saver or lender. As an Instrument of Monetary Policy, it can be used to combat inflation, ease budget burden, promote capital inflow and discourage capital flight, as well as avoid mis-allocation of resources. It can also be used to promote the growth of the capital and monetary markets.

In Nigeria interest rate was first used as an instrument of control between 1959-1962. It was used as a means of making the short-term investments of banks in the Nigerian market more profitable enough to encourage them repatriate short-term funds kept abroad for retention in Nigeria. In other periods when interest rate was used as an Instrument of Monetary Policy, this was directed at reducing the cost of government borrowing or at making credit for the private sector more costly (Otiti, 1982).

Obamuyi and Olorunfemi (2011) observed that the financial reforms which commenced in July 1986 in Nigeria relied on market forces and the main objectives was the elimination of financial repression in order to improve the incentive structure and ensure productive efficiency in the economy. The interest rate policy in Nigeria has changed within the time frame of regulated and deregulated regimes. However, the impacts of this variable on the economic growth of Nigeria have remained controversial (Acha & Acha, 2011).

Economic growth is the increase in the per-capital income of an individual (Utile, Okwori & Ikpambese, 2018). The Nigeria economy has suffered a lot of setbacks since independence in 1960 till date and economic growth stands tall above all. The economy witnessed various hurdles which affected the aggregate economic activities in addition to the devasting effects of world oil prices, this scenario has resulted to structural imbalances thereby affecting the country's revenue mobilization capacity, large and inefficient public sector, inadequate savings and investment capacity as well as persistent large fiscal deficits (Idris & Bakar, 2017).

Economic growth is an increase in the per-capital income of an individual in the economy. The economy of a nation is considered to have grown when the nation's capital divided by the total population of such a country increases sustainability. It may not be wise to consider a nation's economy as increasing when there is fluctuation in the per-capital income of such a nation within a short period of time. To Khan and Senhadji (2001), the economic growth of an economy may be considered using the GDP of the economy. If the GDP of an economy increases, the country's economic growth is considered increased. Also, if there are an increase in the aggregate goods and services per-person in an economy for a reasonable period of time say 5 years and above, there are elements of economic growth.

2.0 Literature Review

2.1 Concepts of Interest Rate

Sanusi (2002) defines interest rates as the costs a borrower has to pay when obtaining a loan in any economy. To Adebiyi (2002), money is borrowed at a cost and the cost associated with the borrowing of funds is referred to as interest rate. It is not just production of goods that are negatively affected by increased interest rates but also affected are those involved in real estate business. The increase in interest rates affects demand for mortgages posing a challenge on the prices of residential real estates. On the contrary, proponents of high interest rates are of the opinion that high interest rates encourage the supply of idle funds in the market making an improvement in the cycler flow of funds and making accessibility of funds quite easy for businesses to flourish.

2.2 Concept of Growth

The Solow neoclassical growth model in particular represented the seminal:

$Y=K^{a}(AL)^{1-a}$……. (1)

Where:

Y= Gross Domestic Product

K= Stock of capital (which may include human capital as well as physical capital)

L=Labour

A= Labour productivity, which grows at an exogenous rate

$^{1-a}$ = the elasticity of output with respect to capital

According to traditional neoclassical growth theory, output growth results from one or more of three factors: increases in labour quantity and quality (through population growth and education), increases in capital (through savings and investment), and improvements in technology (Todaro & Smith, 2004).

2.3 Empirical Review

Ologunde, Elumilade and Asaolu (2006) studied the impact of the interest rate on investment in Nigeria between 1990 and 2005 with the help of the joint integration technique. The study revealed that the real interest rate negatively affects investment. A 1 percent increase in the real interest rate reduces the level of investment by 44 percent.

Aydemir and Demirhan (2009) studied the behaviour of interest rates and investment in Nigeria from 1976 to 2006, using time series data, and found that investment behaviour significantly influences the interest rate and the inflation rate.

Udoka and Roland (2012), with evidence from 1970-2010 the study found that interest rates and economic growth have an inverse relationship. The research collected data from the CBN using the ex post facto research design and an ordinary least square multiple regression analysis to arrive at findings. A negative effect of interest rates on economic grown in Kenya was obtained in the study conducted by Mutinda (2014) who collected data from the central Bank of Kenya using the period 2003-2012. This study used the leading rate as a proxy for interest rate. The study also used GDP as the dependent variable with multiple regression analysis as its major technique of data analysis to arrive at the findings stated above.

Kurihara (2016) examined the determinants of private investment in the least developed developing countries for 23 countries between 1975 and 1987, and found that the interest rate on real deposits had a negative impact on private investment.

3.0 Methodology

3.1 Research Design

This study is on the effect of interest rate changes on the economic growth of Nigeria from 1990 to 2019. Secondary data was obtained from World Bank Indicators and Central Bank of Nigeria statistical bulletin of 2019. Ex post facto research design was adopted in this study. The data was analysed, interpreted and tested in order to facilitate a valued conclusion on the effect of interest rate changes in Nigeria. The major statistical tool used is the Ordinary Least Square method.

3.2 Sources and Types of Data

Secondary data was obtained from World Bank Indicators and Central Bank of Nigeria statistical bulletin of 2019.

3.3 Method of Data Analysis

3.3.1 Statistical Treatment

Statistical treatments are used to test for the overall significance of the estimated parameters and the model itself. The statistical treatments used for this study includes:

3.3.1.1 T-Statistics

The test is carried out to check for the statistical significance of individual variables in the model. If the probability at which the calculated T-value (Teal) is significant in the regression for any independent variable is less or equal to the chosen level of significance, the null hypothesis (Ho) is rejected, which shows that the independent variable is significant in the model.

3.3.1.2 F-Statistics

F-Statistics it is a test of the overall significance of all the variables in the regression model. The null hypothesis is that all the coefficients are equal to zero. That is, H_o: $\beta_1 = \beta_2 = \ldots = \beta k = 0$.

The non-rejection of H_0 implies the model is not a good model. While rejection of H_0 implies that all the variables included in the model are jointly significant, then the model is a good model. The decision of the test can be determined by comparing the p-value of the F-Statistics with the level of significance.

3.4 Model Specification

3.4.1 Model of Model Estimation

Given the nature of the research work, the ordinary least square (OLS) estimation techniques would be employed, specifically, multiple linear regression analysis.

3.4.1.1 Ordinary Least Square

Ordinary least squares (OLS) or linear least square is a method for estimating the unknown parameters in a linear regression model.

The regression analysis is a statistical process for estimating the relationship among variables. This method minimizes the sum of squared vertical distance between the observed responses in the data set and the responses predicted by the linear approximation by a simple formula, especially in the case of multiple on the right-hand side of a model.

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$

3.4.2 Model Evaluation Techniques

3.4.2.1 Economic Criteria

This defines the theoretical expectation about the sings and magnitude of the parameters of the specified model. It will be the criteria upon which the result of the estimated model would be evaluated from the model. For economic growth: $\beta 1$, $\beta 2 < 0$, this implies that the two variables have a negative relationship with economic growth while $\beta 3 > 0$, this implies that the third variable has a positive relationship with economic growth.

3.4.2.2 Statistical Criteria

These tests are used to determine the statistical reliability and validity of the estimates of the parameter of the model. The most widely used statistical criteria are the correlation, standard deviation (standard error), T-test and P-values to check statistical of estimates.

3.4.2.3 A priori Expectation

The a-priori criteria refer to the size and sign of the parameters and the economic relationship between the variables. The a-priori expression of this multiple regression model is $\beta_1 > 0$; $\beta_2 > 0$; $\beta_3 > 0$; $\beta_4 > 0$; $\beta_5 > 0$.

A positive sign is expected from the coefficient of the relationship between GDP and INT, GDP and DIR, GDP and LIR.

3.5 Operationalization of Variable

In an attempt to determine the effect of monetary policy rate on the level of economic growth in Nigeria, the model adopted is given as

$Y=f(x)$ …… (3.1)

Where Y is a dependent variable and X is an independent variable. The value of Y depends on the value of X. The independent variable X is regarded as a cause while dependent variable Y is regarded as effect.

The above linear equation yields the first version of the empirical model as follows:

$GDP = F(MRR,INV,Ut)$ ……., (3.2)

Where:

GDP = Economic growth which will be measured using GDP rate

MPR= Monetary Policy rate

INV= Investment

The second version of the empirical model involves disaggregation of monetary policy rate into lending interest rate and deposit interest rate. This process leads to the second version of the estimating equation, as follows:

$GDP = f(LIR, DIR, INV)$ (3.3)

Where:

LIR = Lending Interest Rate

DIR = Deposit Interest Rate

Equations (3.2) and (3.3) constitute our empirical models. In linear form, we have:

$GDP = \alpha 0 + \alpha 1MPR + \alpha 2INV + \varepsilon_t$ (3.4)

$GDP = \beta_0 + \beta_1 LIR + \beta_2 DIR + \beta_3 INV + \mu_t$

Where:

β_0 = intercept which explains and indicates value of the GDP rate when explanatory variables are equal to zero

β_1 β_2 β_3 = coefficient of the independent variable which explains the effect of an average change in dependable variable associated with a unit change in the independent variable.

μ = Error term

t = number of years

4.1 Data Presentation

Table 4.1

Year	GDP	Lending Interest Rate	Deposit Interest Rate	Investment
1990	11.77688593	25.3	19.783	17.50
1991	0.358352604	20.042	14.917	15.00
1992	4.631192947	24.758	18.042	21.00
1993	-2.035118776	31.65	23.242	26.90
1994	-1.814924483	20.483	13.092	12.50
1995	-0.072664767	20.233	13.531	12.50
1996	4.195924045	19.837	13.059	12.25
1997	2.93709942	17.795	7.169	12.00
1998	2.581254103	18.184	10.108	12.95
1999	0.584126895	20.29	12.811	17.00
2000	5.015934757	21.274	11.691	12.00
2001	5.917684652	23.438	15.256	12.95
2002	15.32915574	24.771	16.67	18.88
2003	7.34719497	20.714	14.218	15.02
2004	9.250558228	19.181	13.698	14.21
2005	6.438516525	17.948	10.533	7.00
2006	6.059428031	16.893	9.752	8.80
2007	6.591130361	16.939	10.288	6.91
2008	6.764472778	15.136	11.868	7.02
2009	8.036925102	18.991	12.958	6.13
2010	8.005655915	17.585	6.521	10.08
2011	5.307924204	16.02	5.693	11.10
2012	4.230061175	16.792	8.405	13.60
2013	6.671335393	16.723	7.945	10.42
2014	6.309718656	16.548	9.338	11.99
2015	2.652693295	16.849	9.148	9.14
2016	-1.61686895	16.868	7.495	10.75
2017	0.80588662	17.553	9.554	13.99
2018	1.922757342	16.904	9.701	12.18
2019	2.208429277	15.4	8.901	9.5

Source: Central Bank of Nigeria Statistical Bulletin

Table 4.2: Descriptive Statistics

	GDP	LIR	DIR	INV
Mean	4.546357	19.36997	11.84623	12.70872
Median	4.823564	18.06600	11.11200	12.21250
Maximum	15.32916	31.65000	23.24200	26.90000
Minimum	-2.035119	15.13600	5.693000	6.130000
Std. Dev.	3.986615	3.617435	4.027617	4.417411
Skewness	0.430109	1.573329	0.889382	1.159967
Kurtosis	3.313360	5.632624	3.637167	5.000893
Jarque-Bera	1.047712	21.04021	4.462481	11.73208
Probability	0.592233	0.000027	0.107395	0.002834
Sum	136.3907	581.0990	355.3870	381.2617
Sum Sq. Dev.	460.8998	379.4892	5470.4292	565.8921
Observations	30	30	30	30

Source: Author's computation using E-views 9.0

The first two descriptive that is the mean and median are measures of central tendency for all the variables. Investment has the highest standard deviation (deviation from the mean) while Lending interest rate has the lowest standard deviation. The JarqueBera is a test for normally of the distribution where the null hypothesis is that distribution of the sample is a normal one. If the probability value of the JarqueBera test is significant, then the null hypothesis is rejected and the alternative is accepted which says that the sample is not normally distributed. If each variable is statistically (indicated by a zero probability), then the series is not normally distributed. Therefore, the farther the probability statistic of a variable is to zero, the lower the value of its JB-statistic and the more normally distributed it is (and vice versa).

Table above presents a summary of the descriptive statistics for the variables in the empirical model adopted for this study. The variables are Gross Domestic Product (GDP), Lending Interest Rate (LIR), Deposit Interest Rate (DIR), Investment (NIV). The table shows that the sample data on GDP and DIR are not statistically different from the normal distribution, given that the p-values of the Jaque-Bera (JB) statistic is each greater than 0.05. this means that the skewness and kurtosis of these variables are not statistically different from '0' and '3', respectively. In contrast, the sample data on LIR and INV are statistically different from the normal distribution, given that the p-values of the JB statistic is each less than 0.05. This means that the skewness and kurtosis of these variables are statistically from '0' and '3', respectively. That is, both the skewness and kurtosis of GDP and DIR are smaller than those of LIR and INV.

4.2 Correlation

The below table shows the level of correlation among the variables. The dependent variable GDP is positive (weakly) corelated with LIR and DIR, and negatively correlated with INV.

Table 4.3: Correlation Matrix

	GDP	LIR	DIR	INV
GDP	1.00000	0.046343	0.099610	-0.116333
LIR	0.046343	1.000000	0.909310	0.839020
DIR	0.099610	0.909310	1.000000	0.731933
INV	-0.116333	0.839020	0.731933	1.000000

Source: Author's computation using E-views 9.0

Presentation of Estimated Models

Test for Unit Root

Unit root test is carried out to determine if the variable are stationary and if not, to determine their order of integration (i.e number of times they are to be differenced to achieve stationarity). In standard econometric analysis of the data used in research, a stationary test was carried out; this is due to the fact that most time series data are non-stationary. Augmented Dickey Fuller (ADF) test was conducted for the time series employed in the study. The Augmented Dickey Fuller (ADF) test shows that Lending Interest Rate and Deposit Interest Rate are integrated series of order I (0) while Gross Domestic Product and Investment are integrated series of order I (1). The results are shown in tables below:

Table 4.3: Augmented Dickey-Fuller Test for Unit Root

Variables	Test at Level	P-value @ Level	Test at 1st Difference	P-value at 1st Difference	Order of Integration
GDP	-3.461377	0.0628	-4.467011	0.0078	I(1)
LIR	-3.950110	0.0225	-	-	I(0)
DIR	-3.696172	0.0388	-	-	I(0)
INV	-3.460056	0.0630	-6.472869	0.0001	I(1)

Sources: Author's computation using E-views 9.0 (Significance at 5% level of significance)

The table above shows that two of the variables are stationary at level while the other two are stationary at first difference. This can be seen by comparing the observed values (in absolute terms) of the Augmented Dickey Fuller test statistics with the critical value (also in absolute terms) at 1%, 5% and 10% level of significance. As a result of this, LIR and DIR were not differenced at all, while GDP and INV were differenced once and from the table above it can be seen that the variables are stationary at either level or first difference, since all the variables are not integrated of the same order.

5.0 Conclusion and Recommendations

5.1 Conclusion

From the study, we determine the effect of interest rate on gross domestic product in Nigeria. The result shows that lending interest rate (LIR) has a positive and insignificant effect of gross domestic product. The study also examined deposit interest rate on gross domestic product in Nigeria, it was revealed that deposit interest rate also has a positive and insignificant effect on gross domestic product.

5.2 Recommendations

Based on the result obtained from the study, the following recommendations are made:

1. The CBN should adopt an interest rate policy that will boost the savings culture of the people, by increasing the interest rate paid to deposit made by individuals, local and foreign investor.
2. Interest rates should be business friendly and predictable in line with prevailing economic dictate and conditions.
3. Relevant stakeholders should be consulted in arriving at appropriate interest rates.

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