

Inflation, Interest Rates and Economic Growth in Nigeria

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Abstract

The purpose of this study is to determine the effect of inflation and interest rate on economic growth & to determine the correction measures to inflation and interest rate trend are sustainable in Nigeria between 1981-2014. Secondary data sourced from World Bank databank and Central Bank of Nigeria was used in the study. The study adopted ordinary least square (OLS) method of analysis. The long run relationship between the variables was analyzed using the Johansen integration test. However, the Augmented Dickey Fuller test performed showed that only inflation is not stationary at first difference. The direction of causality and trend analysis was also performed on variables. It found out that Inflation and Interest rate has a negative effect on Economic growth but neither Inflation nor Interest rate granger causes economic growth. The work concludes with the recommendation that policy makers should focus on maintaining inflation at a low rate (single digit) and ensuring interest rate stability.

Key words: Inflation, interest rates, economic growth, Nigeria

INTRODUCTION

The ability and capacity to increase the level of production of quality service and tangible goods, is pertinent to the growth of any economy. Economic growth can therefore be viewed as an increase in the Gross Domestic Product (GDP) of a particular country. Inflation and Interest rate are essential macroeconomic variables capable of changing, transforming and redirecting the growth pattern of a country's economy. One of the major macroeconomic objectives of any country (Nigeria inclusive) is to have a sustained level of economic growth combined with low levels of Inflation and a reasonable level of Interest rate. Hence the behaviors' of both Inflation and Interest rate to a large extent affect the economic growth of a country (Okpe, 1998).

According to Jayathileke and Rathnayake (2013), most developing countries (like Nigeria), are easily affected by supply shocks which leads to high variability in inflation hence disturbing the consumption, investment and production behaviour. However, due to government intervention in the financial and goods markets, macroeconomic reactions may cause economic instability and market failure. Although mild inflation is a healthy and natural phenomenon of any developing economy, no matter how strong and stable it may be (Aurangzeb and Haq, 2012). Thus it could be said that a slight inflation is "greasing the wheels of commerce." The risk attached to this is that stable prices and zero inflation rates might trigger deflation, economic depression, general recession, technical insolvency and even bankruptcy.

Economists have diverse views about the concept of inflation. The monetarists opined that inflation is harmful to economic growth while the structuralists argue otherwise. Therefore existing literature opined that relationship of economic growth with inflation can either be positive or negative as the case maybe (Mortaza, 2005). However, interest rate is another macroeconomic growth factors (as earlier identified), it's up and down volatility is closely related with inflation rates. Its high or low rates also impact the economic prosperity and extending to influence economic growth rate. In business fields, it is very important to accurately predict interest rate trends. Unfortunately therefore, previous studies have assumed that the time series data is stationary and they ignored that non stationary could exist in the variables.

RESEARCH PROBLEM

The effect of Inflation and Interest rate on economic growth in Nigeria is a serious malady. There is a general consensus that high Inflation rates and Interest rate cause problems for aggregate economic performance, although there is much less agreement about the relationship between Inflation, Interest rate and economic growth and how it affects economic activities at the macroeconomic level. This has generated a significant

debate both theoretically and empirically. The level of the country's inflation is no longer the problem, but the fact that inflation has reached a crisis stage. Since the mid-1960's, Inflation has become so contentious in Nigeria and the recent rate of Inflation has been a cause of great concern to many. The change in Interest rate determines the rate of Inflation, as the Nominal Interest rate is a function of the Real Interest rate and the Inflationary expectations (Fisher 1993). Nominal Interest rate adjusts to change in rate of Inflation; the higher the rate of Inflation, the higher will be the Nominal Interest rate. The historical experience shows that Nominal Interest rate and Inflation are closely associated, bringing to light how economic activities are affected by this relationship.

Since independence, Nigeria has been suffering from high Inflation and Interest rate even after the several interventions by the Central Bank of Nigeria (CBN). Measuring real economic growth in Nigeria, aims to access whether growth can cope with the growing demands of the society including population and how to maintain growth and development in the face of Inflation and Interest rate. This study is designed to investigate the effect of the basic economic factors such as interest rate, inflation rate, and GDP on Nigeria's economic growth by answering the following questions;

- i. What degree of effect does Inflation and Interest rate have on the growth of the Nigerian economy?
- ii. How sustainable are the correction measures to inflation control in Nigeria?
- iii. Is the interest rate trend in Nigeria sustainable?

PREVIOUS STUDIES

Saymeh and Orabi (2013) investigated the effect of interest rate, inflation rate, and GDP on macroeconomic growth in Jordan over the period 2000-2010. A unit root test was performed to check the integration order of the variables. From the Johansen test performed, it was found that all four equations had significant existence at 1% or 5% for the trace and max eigenvalue static. It was therefore opined that a long term equilibrium relationship existed among variables. Granger Causality results showed that only inflation causes interest rate while others are independent, hence no causality. However, regression results to check for impacts of both inflation / interest rates on growth rate found that inflation has significant effect on growth rate while only prevailing interest rate has significant influence on growth rate. Lastly, testing for interest, inflation rates and GDP all together, found out that current GDP and one lag GDP have influence power to growth rate.

Hidayat and Suman (2014) studied the effect of inflation, interest rates and government expenditure in Indonesia between 2005-2012. It was found out that the independent variables has about 99% influence on economic growth. The result was however in line with Keynesian theory, which states that government spending spurs economic growth. The inflation rate was found to be positively affect economic, which cannot be farfetched due to the relatively low rate (below 10%) experienced in Indonesia during the period under study. Interest rates has a negative relationship with economic growth, thus a reduction of the rate will therefore increase investment thus economic growth.

While studying the impact of inflation on economic growth in Tanzania between 1990 -2011 Kasidi and Mwakanemela (2013), an inflation-growth relationship was established. The level of responsiveness of change in GDP to that of price level was tested by Coefficient of elasticity, while the relationship between the two variables was established using correlation coefficient and co-integration technique. Results suggest that inflation has a negative impact on economic growth. It was further shown that no co-integration existed between inflation and economic growth during the period of study, hence absence of long-run relationship between them in Tanzania.

Umaru and Zubairu (2012) investigated the impact of inflation on economic growth and development in Nigeria between 1970-2010. Unit root and Granger Causality tests were performed to understand the stationarity status of the variables and direction of causation respectively. However, all variables were found to be stationary and that GDP causes inflation but inflation do not cause GDP. Furthermore, inflation possesses a positive impact on economic growth by encouraging productivity plus the evolution of total factor productivity. The study then concluded that policymakers should make effort to increase output level in Nigeria through improved productivity. This is will help reduce prices of goods and services, so that growth will be boosted. Recall that inflation can be reduced to the barest minimum by through increase output level (GDP).

Bawa and Abdullahi (2012) examined the threshold effect of inflation on economic growth in Nigeria. They made use of quarterly time series data covering 1981 – 2009 to achieve inflation threshold in Nigeria. Applying a threshold model developed by Khan and Senhadji (2001), a threshold level of 13 per cent was estimated for Nigeria. Hence below this level, inflation is insignificant; while above the negative magnitude is highly

significant. These relationships are quite robust with respect to changes in econometric methodology, additional explanatory variables and changes in data frequency. The findings of the study is quite useful in monetary policy formulation, because optimal target of inflation can be set and achieved with ease, which further points to a long-term sustainable economic growth goals of the country.

Inyiama (2013) examined the link among inflation, interest and exchange rates on economic growth in Nigeria. Employing the ordinary least square method to a data set of 1979-2010 for each of the variables, a multiple regression was adopted. Unit root test (Johansen & Juselius co-integration techniques) to ascertain existence of possibility of the sustainability short run relationship in the long run and Granger Causality test were performed on the model. It was found that inflationary rate is negatively related with real gross domestic product while a positive relationship existed for exchange rates and interest rates though not significant. This is sustainable even in the long run and the implication is that when inflationary rate is rising, it affects the economy negatively as growth is dampened. On causality, no causality was found at both lag 2 and lag 4, between inflation rate and real gross domestic product. But at lag 2, a unidirectional causality running from inflation rate to interest rate and also a unidirectional causality running from interest rate to real gross domestic product were noticed. At lag 4, a unidirectional causality from interest rate to inflation rate, so also an existence causality between interest rate to exchange rate and also a unidirectional causality running from exchange rate to real gross domestic product. It was then submitted that efforts should be geared towards a single digit level, thus enhance growth leading to development in Nigeria economy, making the macroeconomy better-off and alive.

Empirical evidence from Nigeria on emerging markets as analyzed by Osuala and Onyeike (2013) examined the impact of inflation on economic growth. A forty year time series data sourced from Central Bank of Nigeria (CBN) was analyzed. Various tests variables to ascertain existence of stationarity (ADF, Philip-Perron (PP)), granger causality performed on the variables to estimate direction influence between them. The results show that there exists a statistically significant positive relationship between inflation and economic growth in Nigeria, but there was no leading variable in the relation between inflation and economic growth in Nigeria. The paper therefore concluded that the effect is simultaneous. Since there exist a positive relationship between inflation and economic growth in Nigeria, instead of spending billions of naira in negotiation for “debt forgiveness”, the government should “inflate away her debt”.

Ahmed and Mortaza (2005) in their empirical study of the relationship between inflation and economic growth in Bangladesh, using an annual data set on real GDP and CPI for the period of 1980 to 2005. The empirical evidence demonstrates that there exists a statistically significant long-run negative relationship between inflation and economic growth for the country due to the statistically significant long-run negative relationship between CPI (a measure for inflation) and real GDP (proxy for economic growth).

Udoka and Roland (2012) explored the effect of interest rate variability on the economic growth of Nigeria. Two main research focuses were identified. Firstly to explore the relationship between interest rate and economic growth and the variance in economic growth before and after interest rate deregulation regime in Nigeria. The research design employed here was Ex-post facto. The data as sourced from CBN statistical bulletin was analyzed using the ordinary least square multiple regression model. The result of the findings showed an inverse relationship existed between interest rate and economic growth in Nigeria, thus interest rate retards growth of the real sector. It was therefore recommended strong monetary policy formulation is important, which will enhance lending to the real sector economy for improved productive economic activities.

A study to ascertain a possible existence of a relationship between Inflation and economic growth in Nigeria was carried out by Omoke (2010). Employing cointegration and Granger causality on the variables and using consumer price index (CPI) as a measure for inflation and GDP proxy economic growth. Unfortunately, during the period under study no co-integrating relationship existed between inflation & economic growth, this was however evident at different lags. The results showed the same at different lags. It was also found that a unidirectional causality runs from Inflation to economic growth, a confirmation that Inflation has an impact on growth.

A study on four South Asian countries (Sri Lanka, Pakistan, Bangladesh and India) by Mallik and Chowdhury (2001) to establish the existence of a relationship between inflation and GDP growth for the countries. However, found that a long-run positive relationship between GDP growth rate and inflation in all the four countries. It was also found out that moderate inflation is beneficial to economic growth, which was due to significant feedbacks between inflation and economic growth. In another study by Ayyoub, Chaudhry and Farooq (2011) a negative and significant inflation growth relationship is found to exist in the economy of Pakistan. This study showed that current inflation is harmful to the economic growth, given a certain threshold level. Salian and Gopakumar (2010) opined that there is a long-run negative relationship between inflation and GDP growth rate in India. Chaudhry, Qamber and Farooq (2012) examines the short and long run relationships of inflation, monetary policy and economic growth in Pakistan between 1972 to 2010. The results showed that real GDP in Pakistan can be stimulated by granting more credit to private investment, while real exchange rate and budget deficit are found elastic and significant. Furthermore, bidirectional causality existed between real GDP and real exchange rate,

while both real GDP and real exchange rate as unidirectional causality existing between financial depth, domestic credit and budget deficit.

The foregoing review reveals that empirical studies on the relationship among the macroeconomic variables (inflation, interest rates and real gross domestic product) are quite scanty in the Nigerian literature. Therefore policy making process in the country needs to be aimed at the direction of causality of these relationships, because this will go a long way to happy such process.

DATA & METHODOLOGY

Data

Annual data from 1981-2014 was employed in the study for all four variables. The data was sourced from Central Bank of Nigeria (CBN) statistical bulletin (various issues) and the World Bank database.

RGDP	Real Gross Domestic Product
INFC	Inflation at Consumer Prices
INTR	Interest Rate
NDC	Net Domestic Credit
TRF	Transfer Payments

Model Specification

The study uses experimental research design approach for the data analysis. This approach combines theoretical consideration with the empirical observation and extracts maximum information from the available data. It enables the researcher therefore to observe the effects of explanatory variables on the dependent variable.

The study specifies an economic growth model that captures the impact of inflation and interest rate on economic growth in Nigeria. This model permits the estimation of the implication of inflation and interest rate on economic growth using Nigeria data.

In an explicit form is given as;

$$RGDP = \alpha_0 + \alpha_1 INFC + \alpha_2 INTR + \alpha_3 NDC + \alpha_4 TRF + U_t$$

A' priori Expectation

$$Y = \alpha_0 + \alpha_1 INFC + \alpha_2 INTR + \alpha_3 NDC + \alpha_4 TRF$$

Where $\alpha_0, \alpha_1, \alpha_2, \alpha_3, \alpha_4$ are the parameter estimates for the independent variables

$$\text{Given } Y = RDGP \rightarrow \frac{RGDP}{INFC} < 0; \frac{RGDP}{INTR} < 0; \frac{RGDP}{NDC} > 0; \frac{RGDP}{TRF} > 0$$

Tests

Unit Root Test

Unit root test are performed majorly to avoid spurious results, because of possible stationarity properties of variables (Datta and Kumar, 2011). Before estimating the empirical model, it was very important to test out stochastic properties of the variables to be estimated. Thus such situations are averted through the conduct of a unit root test. This test is not without its own shortcoming, because of the number of observations it can allow coupled with fact that a minimum of 20 observations are required to get a reliable result and then infer appropriately (Gujarati and Porter, 2009; Gujarati, 2004).

Autocorrelation in observed series was estimated through Augmented Dickey-Fuller (ADF) model:

$$\Delta Y_t = \beta_1 + \beta_2 t + \alpha Y_{t-1} + \sum_{i=1}^M \alpha_i \Delta Y_{t-i} + \mu_t$$

Where μ_t is the pure white noise error term, $Y_{t-1} = (Y_{t-1} - Y_{t-2}), \Delta Y_{t-2} = (Y_{t-2} - Y_{t-3}),$ etc. The number of lagged difference terms to include is often determined empirically; note that enough terms were introduced simply to ensure the error terms are serially correlated (Gujarati, 2003). The null hypothesis is that there is unit root in the series, which is $H_0: \alpha=0$ against the alternative hypothesis, $H_1: \alpha < 0,$ that the time series is stationary (no unit root). The variables are tested at levels. If they are stationary at levels, they are said to be integrated of the order zero, $I(0)$. If the results indicate that all series have unit roots, they are first-differenced to make the series stationary. They are said to be integrated of the order one, $I(1)$.

In testing the unit root, the researcher employed ADF instead of DF test because the ADF took care of possible serial correlation in the error terms by including the lagged difference of the dependent variable. Moreover,

Phillips-Perron was used to test for the presence of unit root because it also take care of serial correlation in the error terms by using the non-parametric statistical method without addition of lagged difference terms (Hussain 2011).

Cointegration Test

Two variables are said to be co-integrated if they have a long-term, or long run equilibrium, relationship between them. If two variables, dependent (independent) are individually non-stationary but their residual (combination) is stationary, those variables are co-integrated on the long run (Gujarati, 2004; Yang, 2000). In this case the researchers used the Johansen co-integration test to test co-integration since it is the only test which can estimate more than one co-integration relationship if the data set contains two or more time series as well as gives the maximum rank of co-integration (Ssekuma, 2011).

Two time series are co-integrated if both are integrated of the same order, and there is a linear combination of the two time series. If two time series variables are both non-stationary at levels but stationary at first-differences, they are integrated of order 1, $I(1)$, then there could be a linear relationship between them which is stationary, $I(1)$ and as such all the series of interest should be integrated of the same order, preferably $I(1)$. The two time series variables that satisfy this requirement are considered to be co-integrated. For instance, x_t and y_t are said to be co-integrated if there exists a parameter α , such that

$$u_t = y_t - \alpha x_t$$

All the variables should be integrated of the same order before proceeding with the co-integration test.

Granger Causality Test

Many models assume different hypotheses to discuss variables' relationship; but they could not make sure variables' cause and effect relationship. However, Granger (1969) was the first person who defined lead and lag relations based on the role of predictability; He used twin factors of VAR to find variables' causal relationship. . Granger causality test is a method of investigating whether one time series can correctly forecast another (Granger, 1969). A variable X Granger-causes Y if the past changes of X could help to predict current changes of Y. If X Granger-causes Y and not vice versa, it is called unidirectional causality. If X Granger causes Y and Y also Granger causes X, it would be said that there is bi-directional causality between.

Ordinary Least Square

In order to facilitate the estimation of the time series data generated for the study, the ordinary least square method for multiple regressions shall be employed. This method of analysis is employed because it is unbiased, it is fairly simple to understand when compared with some other econometric technique for analyzing data, and it only requires a fairly small amount of data. The least square has been used in a wide range of economic relationship with fairly satisfactory result, and despite the improvement of computational equipment and of statistical information which facilitated the use of other more elaborate econometric techniques, OLS is still one of the most commonly used method in estimating relationships in econometric models. OLS is an essential component of most other econometric technique, (Koutsoyiannis, 1977). The general purpose of multiple regressions is to learn more about the relationship between several independent variables and a dependent or criterion variable. Ordinary least squares (OLS) regression is a generalized linear modeling technique that may be used to model a single response variable which has been recorded on at least an interval scale. The technique may be applied to single or multiple explanatory variables and also categorical explanatory variables that have been appropriately coded.

TEST RESULT & ANALYSIS

Unit Root Test Result

Unit root was conducted using Augmented Dickey Fuller test which was used to test for the stationarity of the data at 1%, 5% and 10 % critical values. The H_0 is the presence of unit root and H_1 is the absence of unit root. But first, the stationary test can be presented in graphical view;

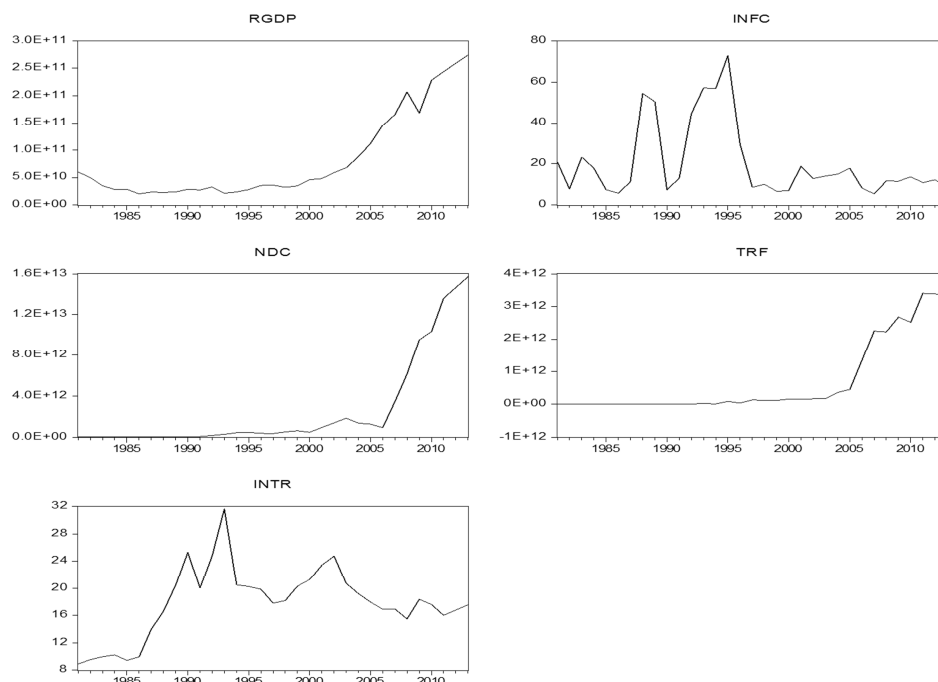


Figure 1: Graphical representation of Unit Root Test

From the graphical presentation of the series above, it shows that only INFC (Inflation) is stationary at level. The result is further tested with the ADF unit root test. The result is presented in table II below.

Table II: ADF Unit Root Result

Variables	Level		1st Difference		Order of Integration
	T-STAT	PROB VALUE	T-STAT	PROB VALUE	
RGDP	2.766559	1.0000	-5.818425	0.0000	I (1)
INTR	-2.317538	0.1728	-4.883478	0.0005	I (1)
INFC	-2.687031	0.0873	-5.171517	0.0002	I (0)
TRF	5.204640	1.0000	-4.811412	0.0005	I (1)
NDC	3.589734	1.0000	3.800407	0.0005	I (1)

Source: Authors' Computation

The lag length was chosen using Schwarz Information Criterion and it indicates optimal lag length of 8. For each of the series, the levels of the series are considered first. The ADF test result indicates that the null hypothesis of a unit root cannot be rejected in all the series except at 1%, 5% and 10%, thereby indicating that all series are non stationary on levels except for INFC. They are however stationary at first difference. Since all the remaining series are found to be stationary at first difference, it is concluded that each series are intergraded of order one, I(1) and INFC is integrated of I(0).

Estimation Result

Dependent Variable: RGDP
 Method: Least Squares
 Date: 06/17/15 Time: 22:08
 Sample: 1981 2013

Included observations: 33

Table III OLS Regression Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.32E+10	1.25E+10	3.448819	0.0018
INTR	-1.25E+08	6.99E+08	-0.178011	0.8600
INFC	-2.36E+08	2.09E+08	-1.125243	0.2700
NDC	0.000945	0.002408	0.392637	0.6976
TRF	0.061820	0.009673	6.390837	0.0000
R-squared	0.950551	Mean dependent var		8.20E+10
Adjusted Rsquared	0.943487	S.D. dependent var		8.01E+10
S.E. of regression	1.91E+10	Akaike info criterion		50.31763
Sum squared resid	1.02E+22	Schwarz criterion		50.54438
Log likelihood	-825.2410	Hannan-Quinn criter.		50.39393
F-statistic	134.5596	Durbin-Watson stat		1.721265
Prob(F-statistic)	0.000000			

Source: Authors computation from E-view

The regression model

$$RGDP = 4.32E+10 - 1.25E+08INTR - 2.36E+08INFC + 0.000945NDC + 0.061820TRF$$

The value of R-squared is 0.95 and it implies that 95% of variation in dependent variables is explained by the independent variables. The Durbin-Watson value of the estimate shows the absence of autocorrelation (i.e. 1.721265) among the variables.

Economic Implication of the Results

As shown from the parameter estimates, the relationship between RGDP and Interest Rate is negative. This simply means that any slight increase in the INTR will lead to decrease in RGDP (proxy for economic growth). Inflation as expected is negative to economic growth from the OLS result, an indication that percentage increase in INFC will lead to a percentage reduction in real gross domestic product. However, RGDP and net domestic Credit (NDC) is positive. It indicates that increase in the former will lead to increase in macroeconomic growth (a unit increase in NDC will lead to a 0.000945 increase in RGDP). Lastly for transferred payments, a positive relationship is observed. It indicates that increase in transfer payments will lead to increase in real gross domestic product.

Co-integration Result

After establishing the order of integration (i.e. all the series are I(1)), the Johansen co-integration test is applied on the series to examine whether or not co-integration exist among the variables. The results of Johansen test for co-integration is presented in table IV below;

Table IV: Johansen Co-integration Result

No. of CE(s)	Trace Statistics	Max Eigen Statistics	Critical Values (5%)		Critical Values (5%)	
			Trace	P-value	Max-Eigen	P-Value
None	90.76353	42.47085	69.81889	0.0005	33.87687	0.0037
At most 1	48.29268	22.51018	47.85613	0.0455	27.58434	0.1954
At most 2	25.78250	13.36452	29.79707	0.1354	21.13162	0.4192
At most 3	12.41798	10.42025	15.49471	0.1380	14.26460	0.1858
At most 4	1.997733	1.997733	3.841466	0.1575	3.841466	0.1575

Source: Authors Computation

The above result shows that both Trace test and Maximum-Eigen test are statistically significant to reject the null hypothesis at 5% significance level. Therefore, there is a long run co-integration relationship between RGDP and the explanatory variables.

Granger Causality Result

The Granger causality test was carried out to determine the direction of causality between RGDP and Inflation and Interest rate. The test result shows that the Ho that INFC and INTR does not granger cause RGDP accepting the null hypothesis at 5 % level of significance. This implies that no causality emanates from inflation and interest rate to real GDP. This can be explained as inflation and interest rate has not significantly affected the growth of the economy, though against the expected result.

Sample: 1981 2014

Lags: 2

Table V: Granger Causality Result

Null Hypothesis:	Obs	F-Statistic	Prob.
NDC does not Granger Cause RGDP	31	0.61472	0.5485
RGDP does not Granger Cause NDC		23.4755	1.E-06
TRF does not Granger Cause RGDP	31	2.81998	0.0779
RGDP does not Granger Cause TRF		25.7534	7.E-07
INTR does not Granger Cause RGDP	31	1.43394	0.2566
RGDP does not Granger Cause INTR		0.31031	0.7359
INFC does not Granger Cause RGDP	31	0.02016	0.9801
RGDP does not Granger Cause INFC		1.09291	0.3501
TRF does not Granger Cause NDC	31	38.0387	2.E-08
NDC does not Granger Cause TRF		8.69151	0.0013
INTR does not Granger Cause NDC	31	0.06838	0.9341
NDC does not Granger Cause INTR		0.08966	0.9145
INFC does not Granger Cause NDC	31	0.40440	0.6715
NDC does not Granger Cause INFC		0.61570	0.5480
INTR does not Granger Cause TRF	31	0.66258	0.5240
TRF does not Granger Cause INTR		0.18946	0.8285
INFC does not Granger Cause TRF	31	0.10049	0.9047
TRF does not Granger Cause INFC		0.74529	0.4845
INFC does not Granger Cause INTR	31	3.00205	0.0671
INTR does not Granger Cause INFC		1.11595	0.3428

Source: Author's Computation from E- view

The Ho is accepted at 5 percent level, the Granger causality test is applied to test the relationship between the variables. The F-statistics significance of the groups of explanatory variables was tested for each function. The Granger causality test shows the relationship between RGDP and INFC, but no causation, which means Inflation does not play significant role in economic growth. For INTR and RGDP, Ho is accepted at 5 percent level of significance. This means that INTR has not contributed significantly to the actualization of economic growth in the country. However, when the INTR and growth are measured, there is no causality relationship between them. Also for NDC and RGDP, Ho is accepted at 5 percent level of significance. This means RGDP and NDC have no causality relationship, indicating that NDC has not played significant role in economic growth. For TRF and

RGDP there is causality relationship between TRF and RGDP and H_0 is rejected at 5 percent level of significance, indicating a unidirectional causality running from transfer payments to real GDP. For INFC and INTR, there is a causality relationship between INFC and INTR and H_0 is rejected at 5 percent level of significance, indicating a unidirectional relationship between inflation to interest rate.

Trend Analysis

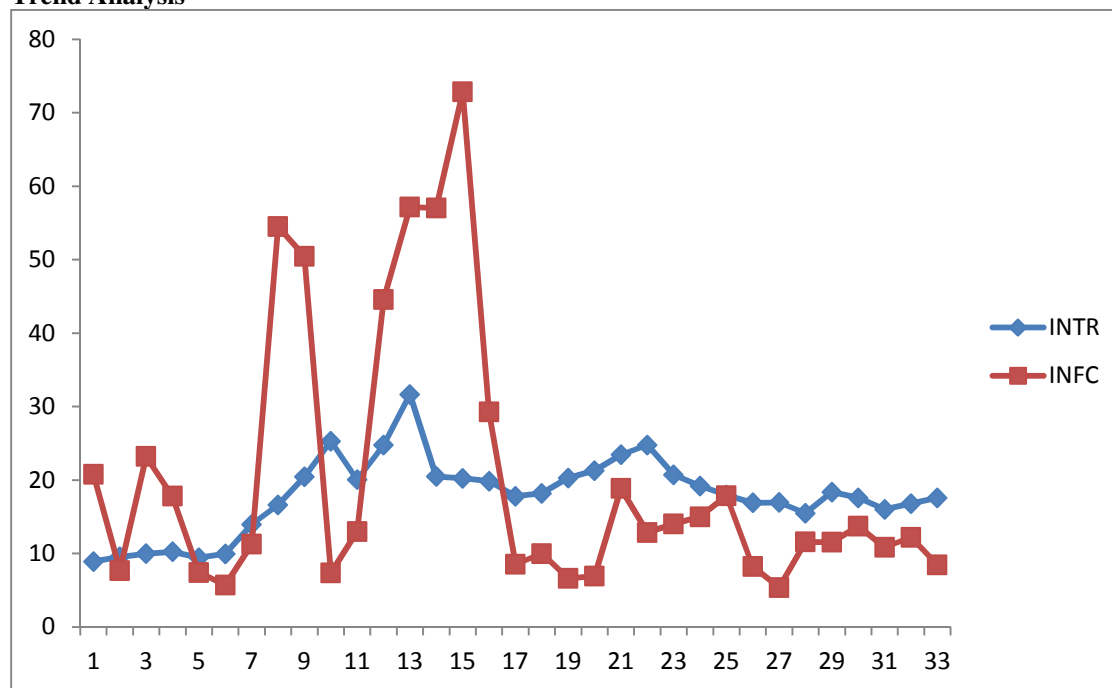


Figure 2: Trend Analysis for Inflation and Interest Rate

The figure above indicates the trend for inflation and interest rate across thirty-three periods. The graph shows the trend relationship between inflation and interest rate. From periods 1-3, as inflation experienced a downward trend, interest rate experienced upward trend, this continued until period 13, where inflation and interest rate both experienced an all time high. From periods 17-33, interest rate maintained a steady trend indicating a sustainable interest rate trend within that period (may be due to the constant regulations by the financial authorities). Also inflation maintained a steady downward trend indicating the sustainability of the inflation control measures within that period.

FINDINGS

The ADF unit root test results show that all the variables were not stationary at level, except for INFC but were stationary at first difference. The result of the OLS Regression test shows a negative relationship between inflation, interest rate and Real GDP. The result of the co-integration test revealed that both Trace test and Maximum-Eigen values confirm at least one co-integrating equation.

The result of the granger causality reveals a non causality between inflation and economic growth. The result also shows a non causality between interest rate and economic growth, which is against the expected result. This further shows a non causality between net domestic credit and economic growth. There is a unidirectional causality running from transfer payments to economic growth. The trend analysis indicated a steady upward trend for RGDP from 1995 to 2014, in relation to the sustainable interest rate and low inflation experienced in the same period.

CONCLUSION

This study, investigated the effect of inflation and interest rate on Nigeria's economic growth over the period of 1981-2014. It is well known that since the global recovery from last the recession seems to have encountered further delays; economic growth outlook for Nigeria is increasingly challenging. From the findings it is clear that

inflation and interest rate have a negative effect on economic growth in Nigeria. This indicates that the control measures for inflation control are not sustainable and the interest rate trend is unstable.

Nigeria as a developing nation should aim to maintain a single digit inflation rate with sustainable control measures and a stable interest rate trend. A strong economy will attract foreign investors to collaborate with the government to grow and develop the economy. But this cannot be achieved in the face of a negative inflation and interest rate relationship with economic growth

POLICY RECOMMENDATION

These results have important policy implications for domestic policy makers and development partners, implying that controlling inflation and maintaining interest rate is a necessary condition for promoting economic growth. Thus, policy makers should focus on maintaining inflation at a low rate (single digit) and ensuring interest rate stability. Stability in inflation rate and interest rate is an important factor as the results from the findings indicated that about 95 percent of the variations in RGDP have been explained by inflation and interest rate and the other variables. This could imply any fluctuation in Nigeria's general price level and interest rate trend has a significant impact on economic growth.

In this regard the study concluded that all factors which cause an increase in the general price levels and interest rate fluctuations such as energy crisis, exchange rates volatility, poor agricultural production, over-dependence on oil, political instability and increase in money supply, and so forth should be addressed with the appropriate policies so as to foster economic growth.

Spurred by the urge to jump start the economy and thus create employment and alleviate poverty, fiscal operations of the three tiers of government were always expansionary as evidenced by their borrowing from the money and capital markets. Since government direct instrument and the moral suasion by the Central Bank of Nigeria never persuaded them to adhere to the fiscal prudence, there should be a policy or an act of parliament empowering the banks granting loans to government to make exceptional prudential provision for such loans (Fatukasi, 2013). These loans should then be used efficiently for the right purpose. For example, the problem of poor economic infrastructure (water supply, transport system, telecommunication, and energy) is solved by the use of either massive public expenditure or massive private investment. These have inflationary effect on the economy. But such inflationary effect would be minimal if these loans borrowed were spread out over a long time period with efficiency.

Government should also formulate and implement financial policies that enhance investment-friendly rate of interest and take into consideration those other factors which negatively affect investment in the country in order to maintain sustainable economic growth.

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