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The Relationship Between Budget Deficit, Inflation And Money Supply Growth In Nigeria, From 1970- 2014

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Abstract: ***The interrelationship between budget deficit, money supply and inflation have continued to generate a lot of debate among scholars on the direction of causality. This study investigates the relationship between budget deficit, inflation and money supply growth in Nigeria from 1970 to 2014; using Vector Auto regression (VAR) specification and Johansen cointegration test procedure. The standard deviation show that the highest standard deviation of (79429.43) is recorded by the DEFICIT while the least standard deviation of (15.67525) is recorded by INF. The skewness statistics from the result reveals that DEFICIT is negatively skewed while the rest of the variables are positively skewed. The correlation result shows INF has positive sign while M1GROWTH has a negative sign. The response of DEFICIT to M1GROWTH indicates a negative shock with no significant effect and continued with the sign to positive shock at later horizon. The response of the DEFICIT to INF shock shows a decreasing response in the initial stage but with a positive sign at a later horizon. The shock to M1GROWTH and INF decreases from the beginning to later time horizon. From the above findings, it is recommended that the Nigeria government during this economic recession should embark on deficit financing of capital projects to stimulate massive increase in productivity and employment opportunities. In the long run, the Nigeria government should highly reduce the deficit financing and manage the gains from the increased productivity to finance most of the capital projects though fiscal policies, especially, taxes. In conclusion, budget deficit financing of capital projects does not cause either inflation or excessive money supply in the economy in the short run except in the long run if not managed well. Consequently, deficit financing of capital projects at this period of economic recession will result in economic growth and reduce inflation in Nigeria.***

Keywords: Budget deficit, Inflation, Money supply, Growth, Vector Auto regression (VAR), and Nigeria

I. INTRODUCTION

Economists are generally of the view that if output cannot be increased to meet the increased demand for goods and services arising from the increased nominal stock of money, a pressure on price will be exerted. Most economists argue that inflation is strictly a monetary phenomenon as inflation rate rises due to high growth rate of money supply in the economy. Tekin-Koru and Özmen (2003) stated that budget deficits are inflationary in the monetarist framework only to the extent that they are monetized. This argument on inflation centered on money supply as the major cause. Other arguments view causation as running from inflation to money supply (Sargent and Wallace, 1973). While Kilindo (1997) noted the response of money supply to inflation through fiscal operation. According to Chimobi and Igwe, (2010), the Central Banks can eliminate the interrelationship between budget deficits and inflation by not monetizing the deficit. For instance, by not buying the bonds issued by governments. The development of a budget deficit is often traced to the Keynesian theory inspired by expenditure-led growth. Most economies adopted the Keynesian framework which motivated demand side of the economy geared towards stimulating growth. However, its consequences on macroeconomic variables cannot be underestimated in most countries of the world, Nigeria inclusive (Olomola and Olagunju, 2004). In the monetarist

framework, budget deficit is inflationary only to the extent that they are monetized (Olusoji and Oderinde, 2011).

STATEMENT OF THE PROBLEM

The interrelationships between budget deficits, money growth and inflation have been major issues of debate in the monetary economics literature. The basic argument is that monetization of budget deficits is the major cause of inflation especially in developing countries. There appears to be no consensus however, on the existence and the direction of the relationship between these three key macroeconomic variables theoretically and empirically (Olusoji and Oderinde, 2011). According to Mukhtar,T. and Zakaria,M. (2010), conventional notions suggest that persistently high budget deficits leads to inflation. On the other hand, the results of empirical studies on the relationship between budget deficits, money growth and inflation have generated conflicting results. For example, King and Plosser (1985) in their study of 12 countries conclude that budget deficits do not contribute significantly to money growth or inflation. Wolde-Rufael (2008) while investigating the causal link between inflation, money and budget deficits in Ethiopia shows that fiscal deficit does not seem to have any impact on the growth of the economy.

The pertinent gap this research sets out to fill is the confusion that exist in the causal relationship between budget deficits, inflation and money growth in Nigeria. And what the Nigeria government should do as a result of the direction of causality between budget deficit, money growth and inflation in Nigeria.

OBJECTIVES OF THE STUDY

The broad objective of this study is to investigate the interrelationship between budget deficits, inflation and money growth in Nigeria. The specific objectives are:

- ✓ To determine the direction of causality budget deficit, money supply growth and inflation in Nigeria
- ✓ To proffer measures aimed at maintaining fiscal stability in Nigeria

RESEARCH HYPOTHESES

The objectives listed above are based on the following research hypotheses:

There is no relationship between budget deficit, money supply growth and inflation in Nigeria. Money supply growth and inflation have no impact on budget deficit in Nigeria.

There is no direction of causality between budget deficit, money supply growth and inflation in Nigeria

SCOPE OF THE STUDY

This study covers the period from 1970 to 2014. The choice of this particular period is motivated by the availability of data.

SIGNIFICANCE OF THE STUDY

The study of the impact of the interrelations between budget deficit, money supply growth and inflation in Nigeria is important to the policy makers, financial market operators, local and international investors, students, producers, and other players in the economy. This stems from the fact that an increased size of the market, due to government deficits, stimulates the economy by raising business profitability and spurring optimism, which encourages private fixed investment in factories, machines, and the like to rise.

II. LITERATURE REVIEW

Edwards and Tabellini (1991) in a study of sampled developing countries find that inflation rates are determined by deficits while the empirical result of Favero and Spinelli (1999) support the hypothesis that the relationship existing between deficits, money supply, and rate of inflation are not invariant to a policy regime change towards central bank independence in Italy. The results by Özatay (2000) suggest that inflation adjusts to a monetary disequilibrium caused by budget deficits in Turkey. Chimobi and Igwe (2010) in a study of the Nigerian economy indicates that the growth of money supply leads to budget deficit, thus indicating that the level of money supply determine whether there has been or there will be budget deficit in the economy.

According to, Olusoji and Oderinde (2011) deficit financing for economic development is not bad if it is channeled to the productive sectors for economic growth.

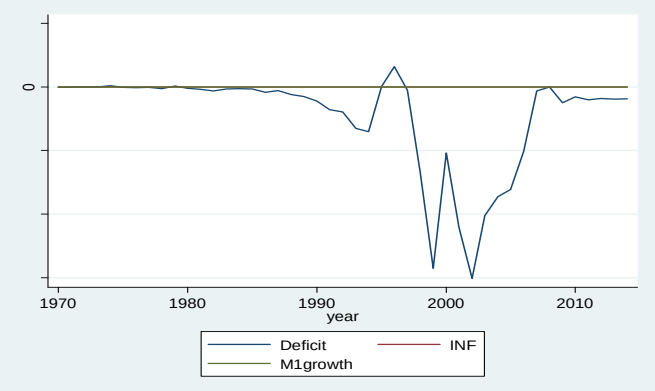

Figure 1: the growth of budget deficit, money supply growth and inflation from 1970-2014

From the graph above, in 1988 the fiscal deficit rose from ₦12.2 billion to ₦15.3 billion in 1989 and ₦35.3 billion in 1991.the deficit further increased to ₦43.8 billion in 1992 against the planned surplus of ₦2.0 billion and stood at ₦101.4 billion in 2006. The 2007 fiscal year recorded a deficit of N609.2 billon as against N580.30 billion in the previous budget. the international financial crisis of 2008 led to slowing growth across the world economy, resulting in lower demand for the nations crude oil, as a result the economy witnessed 0.56 trillion deficit (2.5% of GDP). The 2009 and 2010 fiscal years equally recorded deficits of-249 billion and ₦1.1trillion respectively.

III. BUDGET DEFICITS, MONEY GROWTH AND INFLATION

Government deficits and its financing as a primary cause of inflation has received serious attention since Friedman (1968). The three different connections between budget deficits and inflation are predominant in the literature (Saleh, 2003). The most direct connection between government deficits and inflation is that by increasing the real value of outstanding bonds and perceived net wealth, a deficit can raise total spending and the price level because the economy is operating at full employment. This connection is also the most long-standing (Saleh, 2003). Money-financed deficits are inflationary; if they are stabilizing (pegging) interest rates then bond-financed deficits are inflationary, because this calls for an expansion in the money supply that ultimately leads to rising prices, thus the Central Bank will be obliged to monetize the deficit(Saleh,2003). Such monetization results in an increase in the money supply and the rate of inflation, at least in the long-run period (Sargent and Wallace, 1981).

IV. TRENDS IN FISCAL DEFICIT, MONEY SUPPLY AND INFLATION IN NIGERIA

Since the end of oil boom years, public expenditure has grown beyond the revenue resources available to government. That is the government has been expending more money than it has been generating. This led to the fiscal crisis of the 1980s (Olusoji and Oderinde, 2011). According to the authors, despite the policy of government to contain fiscal deficit to a maximum of 3% of GDP over the years however, the extra budgetary expenditures have been rising thus resulting in ever bigger deficits. In Nigeria, lack of fiscal discipline is the bane of the economy. Despite the fact that realized revenue are often above budgetary estimates, extra budgetary expenditure has been rising too fast and resulting is ever bigger fiscal deficit (Olusoji and Oderinde, 2011).The overall fiscal deficit (which is the difference between the sum of both current and capital expenditure and the sum of both the capital and recurrent revenue) with net lending ranges from 2% of nominal GDP in 1975 to 12.5% of GDP in 1992. This is attributed to the huge debt service obligations, expenditure in respect of the transition programmes and other extra budgetary expenditures including the financing of ECOMOG in Liberia, donations, etc (Olusoji and Oderinde, 2011). The author noted that such fiscal deficits have become unsustainable. There is an increasing concern about the unfavorable effects on the productive capital stock, increased government debt as a ratio of the GDP and total private wealth. Thus, it is feared that the increase in public debt will continue to feed upon itself as the government borrows to finance the interest payments debt it previously incurred and debt eventually becomes excessively large relative to other macroeconomic variables.

V. THEORETICAL LITERATURE

According to Mukhtar and Zakaria (2010), in economic literature, numerous models have been developed to analyze the long-run relationship among inflation, money supply and budget deficit". Tekin-Koru and Özmen(2003) stated that budget deficits are inflationary in the monetarist framework only to the extent that they are monetized. Monetarists' argument on inflation has centered on money supply as the major cause. Other arguments view causation as running from inflation to money supply (Sargent and Wallace, 1973).

Kilindo (1997) asserted that if output cannot be increased to meet the increased demand for goods and services arising from the increased nominal stock of money, a pressure on price will be exerted. Tekin-Koru and Özmen (2003), mainted that the Monetarist arithmetic might be misleading as it does not recognize the fact that governments are constrained by their intertemporal budget. And that tight money may lead to an unsustainable debt financing process and thus higher inflation in the long run.

Following this framework, Tekin-Koru and Özmen(2003) argued that high inflation rate is a fiscal-driven by monetary phenomenon, and nominal money supply growth is determined endogenously in order to finance exogenously given deficit to satisfy the budget constraint. Hence in a non-Ricardian world, there is virtually no role for money in the determination of prices.

VI. EMPIRICAL LITERATURE

Tahira, and Hassan (2015) analyze the interaction between budget deficit and inflation for eleven Asian countries from 1980-2010 using Generalised Method of Moment (GMM) estimation. The results indicates that budget deficit are inflationary for selelcted samples and inflationary pressure of deficit indicates stronger when financial market are developed fully.

Koyuncu (2014) investigates the impact of budget deficit and money supply on inflation in Turkey from 1987 to 2013 using Granger causality test procedure. The empirical evidence indicates a bidirectional causality existing between budget deficit and inflation.

Hoang (2014) examines the relationship between deficit, money growth and inflation in Vietnam from 1995 to 2012. Applying a SVAR approach, the result reveals that money growth has positive effect on inflation while deficit hasd no effect on money growth and inflation.

Habibullah, Cheah and Baharom (2011) determine the long-run relationship between budget deficit and inflation in thirteen countries of Asia from 1950-1999. Using annual data for the period 1950-1999, the Granger causality and the error-correction model (ECM) estimate indicates the existence of a long-run relationship between inflation and budget deficits.

Oladipo and Akinbobola (2011) investigate the nature and direction of causality between budget Deficit and Inflation in Nigeria applying a Granger causality test procedure. The result of the study indicates that there is no causal relationship from inflation to budget deficit. The study also finds a causal relationship existing from budget deficit to inflation.

Olusoji and Oderinde (2011) explore the interrelationship between inflation and fiscal deficit in Nigeria from 1970-2006. Using robust Toda-Yamamoto Granger non-causality test

procedure, the result shows no evidence of causality between fiscal deficit and inflation.

Samimi and Jamshidbaygi (2011) explore the link between budget deficit and inflation in Iran using the quarterly data from 1990-2008. Using simultaneous equation model, the study also finds a positive and significant impact of price index on budget deficit.

Chimobi and Igwe(2010) assess the long run relationship between budget deficit, money growth and inflation in Nigeria using the Johansen cointegration test and A vector error correction (VECM) model procedures. The result finding point to a close long–term relationship between inflation and money supply. The causal long run relationship between budget deficit, money growth and inflation result indicate that money supply causes budget deficit.

Mukhtar and Zakaria(2010) examine the interaction between budget deficits and inflation in Pakistan using Johansen cointegration analysis. The results suggest that in the long-run, inflation is not related to budget deficit but only to supply of money, and supply of money has no causal connection with budget deficit.

Tekin -Koru and Ozmen (2003) investigate the long-run relationships between budget deficits, inflation and monetary growth in Turkey. The study finds that in consistent with the policy regime of financing domestic debt through commercial banking system, budget deficits lead to a growth not of currency seigniorage but of broad money in Turkey.

Onwioduokit (1995) investigates the causal relationship between inflation and fiscal deficit in Nigeria from 1970 to 1994. The empirical result confirms that although fiscal deficit causes inflation, there is no feedback between inflation and fiscal deficit. Further study suggests that there is a feedback between inflation and fiscal deficit deflated by the GDP. The Structural model of inflation reveals that it takes about two years for the fiscal deficit to impact on inflation in Nigeria.

VII. METHODOLOGY

A SIMPLE VAR MODEL

In order to analyze short-run dynamics and long-run relationships among budget deficits, money growth and inflation, we make use of Vector Auto regression (VAR) specifications in this study. In the VARs, two useful tools for short-run dynamics are the impulse response functions and the variance decompositions. Estimates of the effects of changes in one variable on all the variables of the model are investigated by means of variance decompositions and impulse response functions. The variance decompositions shows the percentage of the expected k-step ahead squared prediction of a variable produced by an innovation in another variable while the impulse response functions indicate the expected response of each variable in the system to a one standard deviation shock in one of the systems variables.

THE VAR MODEL

We set up a VAR model with three endogenous variables: budget deficit (DEF), Inflation (INF) and money growth (Mt). The model is summarized in the reduced-form VAR equation as follows:

$$Y_i = \alpha_o + \sum_{i=1}^{n} \beta_i Y_{t-i} + u_i \quad \text{.....(1)}$$

WhereY_t is a 3*1 vector of variables (DEF, INF, and Mt), β_i are coefficient matrices of size 3×3 and u_t is the one-step ahead prediction error with variance-covariance matrix Σ , α_o is the intercept. All variables are either in logarithms or normal.

SIGN RESTRICTIONS

We adopts the method of Uhlig (2005) and Lian (2006). The method involves a rejection based Bayesian Monte Carlo procedure, which consists of "outer-loop draws" and "inner-loop draws". To identify the budget deficit shock, we must identify the impulse vector corresponding to the budget deficit, DEF which is a column of A, and $AA' = \sum$. A, can be any factor of permissible decomposition of Σ, such as those based on choleski decomposition, eigen decomposition or structural decompositions. The product of the factors with identity matrix is also a permissible factor. The impulse vector corresponding to budget deficit, DEF can be characterized as follows. Let $\tilde{A}\tilde{A} = \sum$ be the choleski decomposition of Σ, Then DEF is the impulse vector if and only if there is an three -dimensional vector α of unit length, so that $DEF = \tilde{A}\alpha$

Given the impulse vector for budget deficit shocks, we calculate the appropriate impulse response as follows. Let $r_i(k)$ be the vector response at horizon k to the budget deficit shock in a choleski decomposition of Σ. The impulse response of the variables to a budget deficit shock at horizon $r_{DEF}(K)$, k is then given by:

$$r_{DEF}(k) = \sum_{i=1}^{3} \alpha_i r_i(k) \quad \text{.....(2)}$$

And the fraction $\phi_{DEF,J,K}$ of the variance of this forecast error for variable j explained by budget deficit shock at horizon k is given by:

$$\phi_{DEF,J,K} \frac{(r_{DEF,J}(k))^2}{\sum_{i=1}^{3}(r_{i,j(k)})^2} \quad \text{... (3)}$$

The sign restrictions we impose on impulse responses here are:

Budget deficit will not decrease (0 ≥) in response to its positive shocks.

The Mt will not decrease (0 ≥) facing a budget deficit situation. The basic cause of inflation in developing economies resulted as budget deficit is monetized. The INF will not increase (0 ≤) facing budget deficit and (0 ≥) facing money growth.

UNIT ROOT TEST

To test for stationarity or the absence of unit roots, this test is done using the Augmented Dickey Fuller test (ADF) with the hypothesis which states as follows: If the absolute value of the Augmented Dickey Fuller (ADF) test is greater than the critical value either at the 1%, 5%, or 10% level of

significance, then the variables are stationary either at order zero, one ,or two. The Augumented Dicky Fuller test equation is specified below as follows:

$$\Delta\bar{u}_t = \beta\bar{u}_{t-1} + \sum_{i=1}^{k} \Delta\bar{u}_{t-1} + \varepsilon_t \quad \ldots (4)$$

THE COINTEGRATION APPROACH

This study adopts the Johansen and Juselius (1990) techniques to estimate whether two or more variables are cointegrated, via a multivariate maximum likelihood procedure. This method overcomes many of the limitations of the bivariate tests of Engle and Granger (1987). However, there are limitations which require that one of the two variables is considered exogenous, while these tests do not have well-defined limiting distributions and, therefore, their critical values are sensitive to sample size.

The Johansen maximum likelihood procedure begins by expressing a process of NI(1) variables in an Nx1 vector x as an unrestricted autoregression:

$$X_t = \lambda_1 + X_{t-1} + \lambda_2 X_{t-2} + \ldots\ldots + \lambda_k X_{t-k} + \mu_t$$

with t = 1, 2, …, T and μ_t being stochastic term. The long-run static equilibrium is given by $\prod_x = 0$, where the long run coefficient matrix Π is defined as:

$$\prod = 1 - \prod_1 - \prod_2 - \ldots\ldots - \prod_k \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

where I is the identity matrix and Π is an nxn matrix whose rank determines the number of distinct cointegrating vectors which exist between the variables in x. Define two nxr matrices α and β, such that:

$$\prod = \alpha\beta' \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

with the rows of β′ to form the r distinct cointegrating vectors. The likelihood ratio statistic (LR) or trace test for the hypothesis that there are at most r cointegrating vectors is:

$$\text{LR or TRACE} = -T\sum_{i=r+1}^{n} \ln(1-\lambda i) \quad \ldots\ldots\ldots\ldots\ldots\ldots (7)$$

Where λr + 1,…, λn are n-r the smallest squared canonical correlations between the residuals of xt–k and Δxt series, corrected for the effect of the lagged differences of the x process. Additionally, the likelihood ratio statistic for testing at most r cointegrating vectors against the alternative of r + 1 cointegrating vectors, namely, the maximum eigenvalue statistic, is given as:

$$\lambda MAX = T\ln(1-\lambda r+1)$$

Both statistics have non-standard distributions under the null hypothesis, although approximate critical values have been generated by Monte Carlo methods and tabulated by Johansen and Juselius (1990).

DATA PRESENTATION AND ANALYSIS

DESCRIPTIVE STATISTICS

The descriptive statistics result for the variables in this study are shown in table below. The probabilities of Jarque-Bera test of normality for the variables indicates that three of the variables have values greater than 5% level of significance.

	DEFICIT	M1GROWTH	INF
Mean	-46111.24	27.23237	18.55111
Median	-8254.300	27.90000	12.90000
Maximum	32049.40	92.00000	72.80000
Minimum	-301401.6	-14.20000	3.200000
Std. Dev.	79429.43	18.98687	15.67525
Skewness	-1.904215	0.663206	1.776146
Kurtosis	5.656747	4.923370	5.588164
Jarque-Bera	40.42958	10.23510	36.22008
Probability	0.000000	0.005991	0.000000
Sum	-2075006.	1225.457	834.8000
Sum Sq. Dev.	2.78E+11	15862.05	10811.39
Observations	45	45	45

Source: Author's computation

Table 1: The descriptive statistics

From the table above, the result indicate that two of the variables DEFICIT and INF have positive mean values while the variable DEFICIT with 45 observations. The standard deviation showed that the highest standard deviation of (79429.43) is recorded by the DEFICIT while the least standard deviation of (15.67525) is recorded by INF. The skewness statistics from the table reveals that DEFICIT is negatively skewed while the rest of the variables are positively skewed. The kurtosis coefficients showed that all the three of the variables are leptokurtic, suggesting that the distributions are high relative to normal distribution.

CORRELATION TEST

In the correlation test, we test the variables to ascertain the degree of relationship that exist between the independent variables and the dependent variable. The correlation matrix result is presented in the table below:

	DEFICIT	M1GROWTH	INF
DEFICIT	1.000000	-0.024186	0.095179
M1GROWTH	-0.024186	1.000000	0.141469
INF	0.095179	0.141469	1.000000

Source: Author's computation

Table 2: The Correlation matrix

The correlation result shows that one of the variables under consideration, INF indicates positive sign. This result suggests that the variable has a direct relationship with budget deficit during the period under review. However, the variable M1GROWTH shows a negative sign thus indicating a negative relationship with the budget deficit during the period under review.

UNIT ROOT

In literature, most time series variables according to Granger (1969), are non-stationary and hence a non-stationary variables in a model leads to spurious regression. The first or second differenced terms of most variables will usually be stationary (Ramanathan 1992).Using the Augmented Dickey Fuller (ADF) test for the unit root for the levels as follows:

Augmented Dickey Fuller ADF test						
Variable	Level difference	Probability	Order of integration	First difference	probability	Order of integration
DEFICIT	-2.343329	0.1635	I(0)	-7.057118	0.0000	I(1)
M1GROWTH	-4.432730	0.0009	I(0)	-5.069176	0.0001	I(1)

INF	-3.279388	0.0220	I(0)	-6.502286	0.0000	I(1)

Source: Author's computation

Table 3: The Unit root test

The result indicates that two of the variables, M1GROWTH and INF are stationary at level. However one of the other variables is not stationary at level difference I(0). Thus a need to difference the variable; at first difference I(1) all the variables are stationary and integrated of order one at 5% level of significance. A cointegration is therefore, conducted.

COINTEGRATION

To test for the long-run relationship between the variables under consideration, the multivariate procedure developed by Johansen (1988) and Johansen and Juselius (1990) is adopted. Johansen method detects a number of cointegrating vectors in non-stationary time series. It allows for hypothesis testing regarding the elements of cointegrating vectors and loading matrix. The result of the cointegration test is as follows:

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.371200	26.46042	24.27596	0.0261
At most 1	0.107125	6.510912	12.32090	0.3765
At most 2	0.037390	1.638619	4.129906	0.2354
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Table 4: Trace test

From the table above, the trace likelihood ratio results point out that the null hypothesis of no cointegration among the variables is rejected in favour of the alternative hypothesis up one cointegrating equation at 5% significant level because their values exceed the critical values. Also, the maximum eigen value indicates at most one cointegrating equation. This means there are at most one cointegrating equations in both tests, implying that a unique long-run relationship exists among the variables under consideration.

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.371200	19.94951	17.79730	0.0234
At most 1	0.107125	4.872293	11.22480	0.4954
At most 2	0.037390	1.638619	4.129906	0.2354
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Table 5: Maximum Eigenvalue

VIII. THE VAR MODEL RESULT

THE IMPULSE RESPONSE FUNCTIONS (IRFS)

The graph below displays the impulse responses of the budget deficit, money supply growth and inflation shock. The x axis shows the shock duration whilst the y-axis indicates the direction and intensity of the impulse. In each graph, the solid line indicates the estimated response while the dashed lines denote the one standard error confidence band around the estimate. It is interesting to note that the error bands are typically symmetric around the median. A Monte Carlo simulation (with one hundred draws) from the unrestricted VAR was used to generate the standard errors for the impulse response coefficients. The confidence bands for the response function are 90 % intervals generated by normal approximation. There is no consensus on an explicit criterion for significance in a VAR framework. Sims (1987) however suggests that impulse responses significance can be crudely gauged by the degree to which the function is bounded away from zero. The IRFs shows the response of each variable in the system due to a shock from each variable in the system. A two-standard-deviation confidence interval is reported for each IRF. A confidence interval containing zero indicates lack of significance.

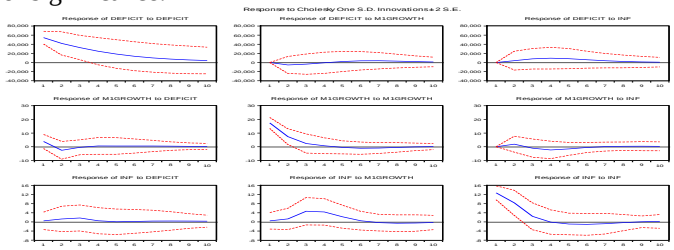

Figure2: The impulse response function of the variables

From the result above, the response of the DEFICIT to itself increases instantly to its own shocks and continued with the shock with the sign at some later horizons. The response of DEFICIT to M1GROWTH indicates a negative shock with no significant effect and continued with the sign to positive shock at later horizon. The response of the DEFICIT to INF shock shows a decreasing response in the initial stage but with a positive sign at a later horizon.

The IRF of the variable M1GROWTH to itself on the other hand, shows that it had a high positive response to its own shock and with a low significance impact for the rest of the period. The response of the M1GROWTH to DEFICIT and INF shocks indicates a little significant positive at initial horizon but decreased at a later horizon.

The response of the INF to itself increases instantly to its own shocks and the declines with a negative sign at some later horizons. The response of INF to DEFICIT equally was constant with no significant effect and continued with the sign to positive shock at later horizon. The IRF of the variable INF to M1GROWTH in the equation shows an initial positive response and then declines at a later time horizon.

VARIANCE DECOMPOSITION

Table below shows the variance decomposition over the short term period (1-2 years), medium term (3-4 years) and over the long term (5-10 years). The statistics indicate the percentage contribution of innovations in each of the variables in the system to the variance of the dependent variable. The tables are shown below:

Period	S.E.	DEFICIT	M1GROWTH	INF
1	54505.78	100.0000	0.000000	0.000000
		(0.00000)	(0.00000)	(0.00000)
2	68983.88	99.05061	0.624982	0.324410
		(4.31325)	(2.97751)	(3.18883)

3	76833.36	97.90424	0.738149	1.357613
		(6.41728)	(4.38069)	(5.19342)
4	81262.88	96.75945	0.667236	2.573316
		(8.67060)	(5.23385)	(7.58408)
5	83779.14	95.90605	0.692037	3.401913
		(10.1381)	(5.59893)	(8.89078)
6	85176.65	95.35282	0.853331	3.793846
		(10.9789)	(5.89065)	(9.35183)
7	85931.44	95.04420	1.029113	3.926686
		(11.3561)	(6.10613)	(9.38281)
8	86330.63	94.90641	1.138992	3.954597
		(11.5969)	(6.26530)	(9.41904)
9	86542.45	94.86071	1.185176	3.954109
		(11.7925)	(6.40366)	(9.50143)
10	86658.73	94.85148	1.198251	3.950271
		(11.9312)	(6.52411)	(9.54207)

Table 6: Variance Decomposition of DEFICIT

The variance decomposition of the DEFICIT result indicates that shocks to itself accounts for most of the variability in all the periods under review. The shock to M1GROWTH and INF decreases from the beginning and continued decrease at later time horizon.

Period	S.E.	DEFICIT	M1GROWTH	INF
1	17.80831	4.613758	95.38624	0.000000
		(5.75986)	(5.75986)	(0.00000)
2	19.55018	5.606565	93.48818	0.905253
		(7.58075)	(8.64165)	(3.45963)
3	19.72381	5.553852	93.27731	1.168838
		(7.91631)	(9.10829)	(3.93102)
4	19.88590	5.554168	91.89630	2.549534
		(7.90772)	(9.49159)	(5.20085)
5	19.96140	5.583620	91.25582	3.160559
		(8.03314)	(9.69947)	(5.70984)
6	20.00446	5.623659	91.15623	3.220113
		(8.14999)	(9.83973)	(5.88068)
7	20.03424	5.676891	91.11070	3.212410
		(8.26068)	(10.0208)	(6.07419)
8	20.04856	5.718854	91.04229	3.238855
		(8.33633)	(10.1637)	(6.27021)
9	20.05492	5.739064	90.98722	3.273719
		(8.36835)	(10.2517)	(6.36707)
10	20.05819	5.746109	90.96107	3.292825
		(8.40958)	(10.3635)	(6.43315)

Table 7: Variance Decomposition of MIGROWTH

The variance decomposition of the M1GROWTH to itself account to for most of the variability in the short and medium term but with a significant increase in the long run horizon. The shock to the DEFICIT decreased from the beginning but with a little decline in the longer term periods. Equally, the shock to INF declined from the short and medium term but with little increase in the longer term periods.

Period	S.E.	DEFICIT	M1GROWTH	INF
1	12.75576	0.121730	0.130062	99.74821
		(3.56010)	(2.84403)	(4.38963)
2	15.36095	0.792215	0.801413	98.40637
		(6.12157)	(4.38438)	(7.60284)
3	16.32614	1.794819	8.866749	89.33843
		(6.76173)	(8.39404)	(9.99081)
4	16.90756	1.759880	14.93743	83.30269
		(7.57173)	(9.88915)	(11.1482)
5	17.07849	1.725301	16.33612	81.93858
		(8.50075)	(9.88557)	(11.5153)
6	17.12200	1.729791	16.34365	81.92656
		(8.94347)	(9.85779)	(11.7384)
7	17.14749	1.769726	16.33402	81.89626
		(9.11917)	(9.85507)	(11.9909)
8	17.16552	1.820488	16.41919	81.76032
		(9.38286)	(9.81655)	(12.2942)
9	17.17680	1.862832	16.48374	81.65343
		(9.70165)	(9.73872)	(12.5515)
10	17.18274	1.890305	16.49813	81.61156
		(9.94671)	(9.72341)	(12.7476)

Table 7: Variance Decomposition of INF

From the result table above, the shock of the INF to itself increases from the beginning and continued on the increases significantly at a longer term horizon. The INF shock to DEFICIT continued declining with little increase at a later horizon. Equally, the shock to M1GROWTH declined from the short and medium term but with little increase in the longer term periods.

IX. CONCLUSION AND RECOMMENDATION

In conclusion, budget deficit financing of capital projects does not cause either inflation or excessive money supply in the economy in the short run except in the long run if not managed well. Consequently, deficit financing of capital projects at this period of economic recession will result in economic growth and reduce inflation in Nigeria.

In terms of recommendation, the Nigeria government during this economic recession should embark on deficit financing of capital projects to stimulate massive increase in productivity and employment opportunities. In the long run, the Nigeria government should highly reduce the deficit financing and manage the gains from the increased productivity to finance most of the capital projects though fiscal policies, especially, taxes.

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