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Article

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Government Expenditure, Inflation Rate and Economic Growth in Nigeria (1981-2013): A Vector Autoregressive Approach.

Sanmi Olubokun
Department of Economics, Achievers University
Ebiwonjumi Ayooluwade
Department of Statistics, Ekiti State University
Fawehinmi Festus Olumide
Department of Economics, Ekiti State University

ABSTRACT

The study investigated the impacts of government expenditure and inflation rate on economic growth in Nigeria from 1981 to 2013. The data for the study were generated from the Central Bank of Nigeria (CBN) statistical bulletin and was analyzed using the Vector Auto Regressive (VAR) modeling approach. The variance decomposition shows that high level of government expenditure and inflation contributed significantly to shocks in the real gross domestic product. The central focus of the study is that fluctuation in output growth over the years is a true reflection of the level of government expenditure as well as the inflationary level in Nigeria. There is therefore, an urgent need for policy makers to formulate policies that will enhance real gross domestic product and consequently generate sustainable economic growth and development in the country.

Key words: Vector Autoregressive Model, Real Gross Domestic Product, Government Expenditure, Inflation Rate, Exchange Rate

JEL Classification: H50 , E31, O40, C59

1. Background of the Study

The size of government expenditure, inflationary trends and its impact on economic growth in the developing economies has continued to dominate the literature of recent. In Nigeria, government expenditure has continued to rise due to the huge receipts from production and sales of crude oil, and the increased demand for public goods like roads, communication, power, education and health. Besides, there is increasing need to provide both internal and external security for the people and the nation. Unfortunately, this rising government expenditure has not translated into meaningful growth and development, as Nigeria ranks among the poorest countries in the world. Inflationary rate within the economic system kept increasing and one wonders whether the upsurge in government expenditure has

anything to do with the high rate of inflation and output level in the study period. This aforementioned statement of the problem posed some serious research questions which form the main focus of this study: Is there any relationship among total government expenditure, inflation and economic growth in Nigeria? What is the magnitude of this relationship? What are the trends of government expenditure in Nigeria? Is there any significant relationship between government expenditure and inflation in Nigeria?

It is instructive to note that substantial volumes of empirical research based on identifying the dual significance of both the public expenditure and inflation on economic growth have been conducted in Nigeria though with contradictory results. Situated within the matrix of these studies, a sizeable number of research works had focused on the relation among government expenditure, inflation rate and economic growth in developed and developing countries like Nigeria and these studies used mostly the ordinary least square method. To the best of our knowledge, the research work that used a multivariate time series data to explore the relationship among government expenditure, inflation rate and economic growth in Nigeria is still lacking. The present study will differs on the previous method as it will attempt to use a Vector Autoregressive Approach (VAR) to complement the existing work on the topic. This study aims to update and complement the few works in this area.It is therefore the objective of this study to examine the interrelationship among total government expenditure, inflation and economic growth in Nigeria. Following this introduction, this study is structured as follows: Section two contains the literature review and theoretical framework while section three treats the methodology. Presentation of data and analysis is to be covered in chapter four while chapter five will be based on summary, conclusion and recommendation of the study.

2. Empirical Literature

2.1.Government Expenditure and Economic Growth

The relationship between government expenditure and economic growth has been an issue of interest in developing countries. Thus, Marcus (2013) opined that the constant increase in the size of government expenditure and its effects on GDP has come to fore among economists, analysts and scholars. In their contribution, Marcus and Nwosu (2013) examined government expenditure and economic growth using an error correction model mechanism in Nigeria. The study investigate the causality between government and gross domestic product in Nigeria, they found that a long run equilibrium relationship exist between government expenditure and gross domestic product while a unidirectional granger causality runs from GDP to government expenditure with no reverse causality established at different lag length.

Alexander (1990) applied OLS method for sample of thirteen Organization for Economic Cooperation and Development (OECD) countries using panel data during the period ranging from 1959 to 1984. The results showed, among others, that growth of government spending has significant negative impact on economic growth. Closely related to this, is the work of Gregorious and Ghosh (2007) on the impact of government expenditure on growth; Empirical evidence made use of the heterogeneous panel data to study the impact of government expenditure on economic growth. Their results suggested that countries with large government expenditure tend to experience higher economic growth. This stance was corroborated by Devarajan and Vinay (1993) who used a panel data for fourteen developed countries for a period ranging from 1970 to 1990 and applied the Ordinary Least Square method on 5-year moving average. They took various functional types of expenditure (health, education, transport, etc.) as explanatory variables and found that health, transport and communication have significant positive effect while education and defense have a negative impact on economic growth. In the same vein, Gemmell and Kneller (2001) provide empirical evidence on the impact of fiscal policy on long-run growth for European economy. Their study required that at least two of the taxation/expenditure/deficit effects must be examined simultaneously and they employ panel and time series econometric techniques, including dealing with the endogeneity of fiscal policy. Their results indicated that while some public

investment spending impacts positively on economic growth, consumption and social security spending have zero or negative growth effects.

Also Mitchell (2005) critically examined the impact of government spending on economic performance in developed countries. He assessed the international evidence, reviewed the latest academic research, cited examples of countries that have significantly reduced government spending as a share of national output and analyzed the economic consequences of these reforms. Regardless of the methodology or model employed, he concluded that a large and growing government is not conducive to better economic performance. In addition, Abu and Abdullah (2010) investigated the relationship between government expenditure and economic growth in Nigeria from the period ranging from 1970 to 2008 using disaggregated analysis. Their results revealed that government total capital expenditure, total recurrent expenditure and education have negative effect on economic growth. Furthermore, Olorunfemi (2008) studied the direction and strength of the relationship between public investment and economic growth in Nigeria, using time series data from 1975 to 2004 and observed that public expenditure impacted positively on economic growth and that there was no link between gross fixed capital formation and Gross Domestic Product. He averred that from disaggregated analysis, the result reveal that only 37.1% of government expenditure is devoted to capital expenditure while 62.9% share is to current expenditure.

2.2.Inflation and Economic Growth

On the link between inflation and economic growth, Varvarigos (2010) constructed a stochastic, dynamic general equilibrium model. The model predicts a negative correlation between long-run output growth and policy volatility. In the same vein, Fama (1981) revealed that the real national income (Output) and Inflation are negatively correlated. In his working paper, he contends that a more plausible argument might be that high inflation facilitates the transfer of resources from the private sector which has a higher propensity to save to the government sector because inflation makes it easier for government to increase effective tax rate and thus served to depress over-all Savings/Income ratio. Based on theoretical and empirical studies, it may be concluded that the impact of Inflation on Output depends on the magnitude of Inflation (moderate or high) and on the type of inflation. In addition, Karpetis (2006) developed a simple dynamic New Keynesian type model using the multiplier – accelerator principle in order to examine the quantitative impact of changes in the level of government expenditures and the growth rate of nominal money supply on the level of several macroeconomic magnitudes. He concluded that long run value of inflation (expected and actual) is affected by size of government expenditure and nominal money supply. Han and Mulligan (2008) argued that inflation is significantly positively related to the size of government, mainly when periods of war and peace are compared. They found a weak positive peacetime time series correlation between inflation and the size of government and a negative cross-country correlation of inflation with non-defence spending.

The relationship between inflation and economic growth remains controversial in both theory and empirical findings. Theoretical models analyze the impact of inflation on growth focusing on the effects of inflation on the steady state investment and output. Drazen (1981) studied the effect of inflation on demand for capital and the aggregate capital labor ratio in a finite-horizon utility-maximization model. The result showed that deriving saving and asset choice decisions from utility maximization do not in itself lead to super neutrality and that a finite horizon is crucial in explaining this difference. It is further shown that it is possible under very general conditions to show that increases in the rate of inflation will increase the aggregate capital-labor ratio which supports the conclusion of Mundell and Tobin and Matyas (2001) using a theoretical model with endogenous growth strengthen. Haslag (1995) also showed that in an economy in which money and capital are complimentary goods, banks pool all savers but are asked to hold money as a deposit to satisfy a reserve requirement. Hence, an increase in inflation rate decreases the return on deposits because return on deposit is an average of return on money and capital. If saving goes down due to less return on deposits, there is less amount of capital accumulation which in turn impedes economic growth.

Recently many economists started to believe that the relationship between inflation and economic growth is not linearly related. Espinosa and Yip (1999) reviewed the interaction between inflation and

growth using model of endogenous growth with explicit financial intermediation. They use risk preference as their basis for identifying the effect of one variable on another which means the relation depends on the relative risk aversion of agents. If agents are fairly risk averse, higher rate of inflation decreases economic growth. If agents relative risk aversion low enough, there is positive relationship between the two variables which is in line with convectional claims of Philips curve. Hung (2001) studies the relationship between inflation and economic growth based on a model with adverse selection and costly state verification problems. He shows that if banking costs shows no externality, there is positive relationship between inflation and economic growth. However, if banking cost shows economies of scale, the relationship between the two variables depends on initial inflation rates. If initial inflation rate is high, an increase in inflation rate decreases economic growth and vice versa.

In a related development, Barro (1996) analyses the effect of inflation and other variables like fertility, democracy and others on economic growth in different countries for a period of 30 years. He uses system of regression equation in which other determinants of growth are held constant. To estimate the effect inflation on economic growth without looking at the endogeneity problem of inflation, he includes inflation as explanatory variable over each period along with other determinants of economic growth. Andres and Hernando (1997) obtain a significant negative relationship between inflation and economic growth during long periods. Inflation reduces the level of investment as well as the efficiency with which factors are used. It has a negative temporary impact on long term growth rates, which in turn generates permanent fall in per capita income. They conclude that the long run cost of inflation is large and the effort to keep inflation down will pay off in terms of better economic growth. Also, Faria and Carneiro (2001) investigate the relationship between inflation and output in an economy facing persistently high inflation shocks. The authors impose minimal structure and made use of the idea that inflation shocks can be broken down into permanent and temporary components. The result indicates that in the long run the response of output to a permanent inflation shock in a high inflation country is not significantly different from zero. The results could be considered as evidence against the view that inflation and output are reliably related in the long run. These results support Sidrauski's (1967) super-neutrality of money in the long-run, in that inflation does not affect growth. However, in the short run, it provides contradictory evidence against Sidrauski's model. In estimating a short run model for changes in output against changes in inflation, the authors find that inflation has negative impact on output.

Recently, numerous empirical studies found that inflation growth interaction is non linear and concave. Bruno and Easterly (1995) defining a period of inflation crisis as a period when inflation rate exceeds 40 percent, try to assess how the country perform before, during and after the crisis period. The result shows at higher level of inflation, there is a negative relationship between inflation and economic growth in which the cost of inflation will be higher. Sarel (1995) using data of 87 countries also strengthens the idea that inflation and economic growth are nonlinearly related. He finds that 8 percent is the appropriate threshold of inflation. Below the threshold, inflation has insignificant or even has little positive effect while above the threshold it has negative and significant effect on economic growth. The study also demonstrates that when the threshold is taken into account, the estimated affect of inflation on economic growth increases by a factor of three.

Hwang and Wu (2011) using growth accounting equation as basis of their model examine the possible threshold effect of inflation on economic growth in China. They find that the inflation threshold effect is highly significant and robust. Above the 2.50 percent threshold level, every 1 percentage point increase in the inflation rate impedes economic growth by 0.61 percent; below this threshold, every 1 percentage point increase in inflation rate stimulates growth by 0.53 percent. This indicates that inflation harms economic growth whereas moderate inflation benefits growth in China.

3. Empirical Literature

3.1.Data Requirement and Sources

The data needed for this study include the real GDP, total government expenditure, inflation rate, exchange rate and money supply. Time series data were used in the study and they are entirely secondary data. The data series covered a period between 1981 to 2013. The data were obtained from the Central Bank of Nigeria (CBN) statistical bulletin and the Federal Bureau of Statistics (FBS)

3.2.The Model

The study specifies model that captured the impact of government expenditure and inflation on economic growth in Nigeria. Thus, our restricted VAR in reduced form can be presented as:

$$\alpha_t = \sum_{i=1}^{k} A_i \times \alpha_{t-1} + \mu_t \quad (1)$$

Where α_t is column vector of observations at time t on all variables in the model

i.e $\alpha_t = (RGDP_t, TGEP_{t,} INFR_{t,} EXCH_t, MSPL_t)$ (2)

Where:

RGDP = Real Gross Domestic Product

TGEP = Total Government Expenditure

INFR = Inflation Rate

EXCH = Exchange Rate

MSPL = Money Supply

't' = Time Period

$\sum$ = Summation of exogenous variables at time 't'

α_{t-1} = Lag of endogenous variable

Equation (2) above can be presented in a VAR linear form, as follows

$$RGDP_t = \gamma_1 \times TGEP_{t-1} + \gamma_2 \times INFR_{t-1} + \gamma_3 \times EXCH_{t-1} + \gamma_4 \times MSPL_{t-1} + \gamma_5 \times RGDP_{t-1} + V_1 \quad (3)$$

$$TGEP_t = \theta_1 \times TGEP_{t-1} + \theta_2 \times INFR_{t-1} + \theta_3 \times EXCH_{t-1} + \theta_4 \times MSPL_{t-1} + \theta_5 \times RGDP_{t-1} + V_2 \quad (4)$$

$$INFR_t = \alpha_1 \times TGEP_{t-1} + \alpha_2 \times INFR_{t-1} + \alpha_3 \times EXCH_{t-1} + \alpha_4 \times MSPL_{t-1} + \alpha_5 \times RGDP_{t-1} + V_3 \quad (5)$$

$$EXCH_t = \beta_1 \times TGEP_{t-1} + \beta_2 \times INFR_{t-1} + \beta_3 \times EXCH_{t-1} + \beta_4 \times MSPL_{t-1} + \beta_5 \times RGDP_{t-1} + V_4 \quad (6)$$

$$MSPL_t = \sigma_1 \times TGEP_{t-1} + \sigma_2 \times INFR_{t-1} + \sigma_3 \times EXCH_{t-1} + \sigma_4 \times MSPL_{t-1} + \beta_5 \times RGDP_{t-1} + V_5 \quad (7)$$

Where $\mu_t = V_1 - V_5$ are the impulses or innovations or shocks while,

$\gamma_1 - \gamma_5, \theta_1 - \theta_{5,} \alpha_1 - \alpha_5, \beta_1 - \beta_5, \sigma_1 - \sigma_5$ are number of parameters to be estimated in equation (3)-(7) above.

3.3.A priori Expectation

The a priori expectations are:

$$\frac{\partial TGEP}{\partial RGDP} > 0, \quad \frac{\partial INFR}{\partial RGDP} < 0, \quad \frac{\partial EXCH}{\partial RGDP} < 0, \quad \frac{\partial MSPL}{\partial RGDP} > 0$$

From the economic theory, we expect a direct and significant relationship between total government expenditure and real gross domestic product. The increase in total government expenditure will contribute to the increase in real gross domestic product of a country positively. Alternatively, the relationship between inflation and real gross domestic product is expected to be negative due to the inflationary pressure in the country. This implies that a persistent rise in price of money will be inversely related to the real gross domestic product in any country. Also, the relationship between the exchange rate and the real gross domestic product expected to be negative due to an increase in the exchange rate. In order word, they are inversely related. Meanwhile, we expect a direct and significant relationship between money supply and real gross domestic product.

4. Results and Discussions

The output of the regression is given in Table 1.The standard error and the t-statistics are written in parentheses.

Table 1: Vector Auto-Regressive Result.

	RGDP	TGEP	INFR	EXCH	MSPL
RGDP(-1)	0.983515	0.252003	0.281553	-0.174906	0.702544
	(0.29144)	(0.12017)	(0.12144)	(0.16027)	(0.77530)
	[3.37472]	[2.09702]	[2.31845]	[-1.09135]	[0.90615]
RGDP(-2)	0.148858	-0.113126	-0.240240	-0.022023	0.563791
	(0.35766)	(0.14748)	(0.87681)	(0.19668)	(0.25317)
	[0.41620]	[-0.76707]	[-0.27399]	[-0.11197]	[2.22692]
TGEP(-1)	-0.340391	0.355772	-1.020257	-1.056901	-3.320274
	(0.68282)	(0.28156)	(1.67396)	(0.37550)	(1.81651)
	[-0.49851]	[1.26358]	[-0.60949]	[-2.81468]	[-1.82784]
TGEP(-2)	-0.344768	0.589012	1.170548	0.773694	0.293754
	(0.78912)	(0.32539)	(1.93455)	(0.43395)	(2.09929)
	[-0.43690]	[1.81017]	[0.60507]	[1.78290]	[0.13993]
INFR(-1)	0.130266	-0.019157	0.219683	-0.151800	-0.127324
	(0.01658)	(0.04064)	(0.24159)	(0.05419)	(0.26216)
	[7.85681]	[0.47143]	[0.90933]	[-2.80114]	[-0.48567]
INFR(-2)	-0.061279	0.023289	-0.287241	-0.027158	-0.071449
	(0.06803)	(0.02805)	(0.16678)	(0.03741)	(0.18098)
	[-0.90077]	[0.83021]	[-1.72231]	[-0.72594]	[-0.39479]
EXCH(-1)	-0.057500	-0.011476	0.214314	1.080757	-0.139599
	(0.11456)	(0.04724)	(0.28085)	(0.06300)	(0.30477)
	[-0.50191]	[-0.24293]	[0.76308]	[17.1548]	[-0.45804]
EXCH(-2)	-0.062940	-0.007731	-0.332427	-0.010031	-0.214463
	(0.12256)	(0.05054)	(0.30046)	(0.06740)	(0.32605)
	[0.51354]	[-0.15298]	[-1.10639]	[-0.14884]	[-0.65777]
MSPL(-1)	0.074256	0.096849	0.439127	0.040021	0.648075
	(0.12811)	(0.04537)	(0.31406)	(0.07045)	(0.32080)
	[0.57964]	[-2.48387]	[1.39823]	[0.56808]	[2.02018]
MSPL(-2)	-0.093683	-9.527955	-0.269865	0.270739	-0.445760
	(0.11004)	(2.79817)	(0.26976)	(0.06051)	(0.29273)

	RGDP	TGEP	INFR	EXCH	MSPL
	[-0.85138]	[-3.40507]	[-.000410]	[4.47422]	[-1.52278]
C	-6.681798 (6.78598) [-0.98465]	-9.527955 (2.79817) [-3.40507]	16.18412 (16.6360) [0.97284]	11.02854 (3.73173) [2.95534]	-34.20236 (18.0527) [-1.89459]
R-squared	0.988403	0.964520	0.521871	0.998829	0.699547
Adj. R-squared	0.980119	0.939178	0.180351	0.997992	0.484937
Sum sq. resides	284.2161	48.32499	1708.132	85.94962	2011.438
S.E. equation	4.505680	1.857898	11.04579	2.477753	11.98641
F-statistic	119.3176	38.05924	1.528083	1193.820	3.259627
Log likelihood	-65.85920	-43.71188	-88.27696	-50.90953	-90.32008
Akaike AIC	6.148736	4.376950	7.942157	4.952763	8.105606
Schwarz SC	6.685041	4.913255	8.478462	5.489068	8.641912
Meandependent	84.88360	6.772000	16.66400	69.47635	26.10840
S.D. dependent	31.95508	7.533393	12.20064	55.29378	16.70164

Determinant resid covariance (dof adj.)	16483412
Determinant residual covariance	90777.75
Log likelihood	- 320.0694
Akaike information criteria	30.00555
Schwarz Criteria	32.68708

Source: Authors' Computation (2014)

4.1.Analysis of the Vector Autoregressive Estimates

The study examined the impact of real gross domestic product on certain macroeconomic variables such as total government expenditure, inflation rate, exchange rate and money supply in Nigeria. The vector autoregressive result revealed the statistical and theoretical significance of the parameter estimates. Looking at the results individually, the real gross domestic product, total government expenditure and inflation rate lagged once, money supply lagged twice were found to be statistically significant as revealed from the first row. The statistical significance of these variables is evaluated on the basis of the values of the standard errors. When compared to the value of coefficient of the variables, the value of the standard errors were less than half of the values of the coefficient of the variable in absolute term. However, exchange rate is statistically not significant as it failed to pass the standard error test. Nevertheless, the F statistic of 119.3 for real gross domestic product is high enough and this implies the overall significance of the model. In other words, the F value is so high that we cannot reject the hypothesis that collectively all lagged terms were statistically significant.

The adjusted R squares which ranges from 0.180351 to 0.997992 shows that variation in the inflation rate, money supply, total government expenditure, real gross domestic product and exchange rate in Nigeria are being accounted for by variations in the real exchange rate.

The theoretical significance is evaluated on the basis of the sign and size of the coefficient. The result shows that the coefficient of real gross domestic product is positively related to inflation rate which implies that the real gross domestic product appreciation increases the inflation rate. The real gross domestic product also exerted a positive impact on the total government expenditure on the short run. Evidence from the vector autoregressive estimate suggests that the real economic growth is positively related to the total government expenditure when lagged once. This implies that the increase in economic growth raises the demand for total government expenditure, and hence the gross domestic product in the economy and this tends to cause an appreciation in the value of total government expenditure.

Again, a positive relationship was found between the real gross domestic product and money supply when lagged twice. This shows that an appreciation of money supply will lead to increase in real gross domestic product in demand for money depending on the elasticity of the demand for product and the nature of the contracts that have been agreed.*

4.2.Analysis of the Forecast Variance Decomposition:

The short run dynamic property of VAR model in this study is further supported by Forecast Error Variance Decomposition (FEVD). As a result of this, the variance decomposition in this section provides information about the relative importance of each random innovation affecting the variables in the VAR model. Variance decompositions provide the percentage of the forecast variance that is attributed to various shocks in the system and shows the contribution of each structural shock to the forecast error variance of the variables in the model at different forecast horizons. The variance decomposition appears in Table 2.

Table 2: Variance Decomposition Table

Variance Decomposition of RGDP						
Period	**S.E.**	**RGDP**	**TGEP**	**INFR**	**EXCH**	**MSPL**
1	4.505680	100.0000	0.000000	0.000000	0.000000	0.000000
4	10.06688	94.56160	1.575970	3.174872	0.064889	0.622668
8	18.10449	95.95278	0.830766	2.830549	0.085430	0.300478
10	23.04806	96.43024	0.589875	2.691600	0.079555	0.208727
Variance Decomposition of TGEP						
Period	**S.E.**	**GDP**	**TGEP**	**INFR**	**EXCH**	**MSPL**
1	1.857898	0.426179	99.57382	0.000000	0.000000	0.000000
4	3.809188	54.07081	34.99240	4.730177	0.848202	5.358409
8	8.538277	81.77336	10.30639	6.039465	0.559480	1.321301
10	12.22507	86.66017	6.250896	5.770638	0.513091	0.805202
Variance Decomposition of INFR						
Period	**S.E.**	**RGDP**	**TGEP**	**INFR**	**EXCH**	**MSPL**
1	11.04579	3.949316	2.377067	93.67362	0.000000	0.000000
4	13.36192	6.372176	3.231920	75.13707	2.833537	12.42530
8	13.97465	8.239032	3.252963	72.03633	3.184502	13.28717
10	14.33465	10.46322	3.728786	69.12297	3.372651	13.29137
Variance Decomposition of EXCH						
Period	**S.E.**	**RGDP**	**TGEP**	**INFR**	**EXCH**	**MSPL**
1	2.477753	4.201025	46.70582	3.047867	46.04529	0.000000
4	12.56830	39.95741	16.47913	22.16501	13.96915	7.429292
8	33.42288	56.02447	18.10423	16.10093	5.830086	3.940283
10	51.15522	64.67358	15.65821	13.30874	3.780233	2.579233
Variance Decomposition of MSPL						
Period	**S.E.**	**RGDP**	**TGEP**	**INFR**	**EXCH**	**MSPL**
1	11.98641	31.99743	11.16144	0.000414	5.949902	50.89081
4	18.80011	34.64018	20.96456	0.954857	5.850899	37.58950
8	19.68441	35.32938	21.00868	2.525390	5.766370	35.37018
10	19.84129	35.56508	20.73819	2.748307	5.834242	35.11418

Source: Authors' Computation (2014)

4.2.1.Variance Decomposition of Real Gross Domestic Product

The variance decomposition suggest that shocks to the real gross domestic product as evidenced in table 2 shows that its own shock constitute the predominant source of variation for all variables in the model. Real gross domestic product ranged between 100 percent in the first quarter declining in effects to about 94.56 percent in the fourth quarter and rose to 95.95 percent marginally in the eight quarter and finally rises to 96.43 in the tenth quarter. Total government expenditure did not contribute initially to the shocks in the output growth in the first quarter but the contribution of total government expenditure rose to

1.57 percent in the fourth quarter and decline to 0.83 in the eight quarter before dropping back to 0.58 in the tenth quarter. This shows that total government expenditure performed weakly over the entire period in the country.

Also, shocks to the inflation rate did not contribute initially in the first quarter to the real gross domestic product but in the fourth quarter contributed about 3.17 percent and decline marginally to 2.83 percent in the eight quarter and finally decline to 2.69 percent in the tenth quarter. This shows that inflation rate performed weakly over the entire period. As for the exchange rate, the shocks in the exchange rate also did not contribute initially in the first quarter but rose marginally to 0.06 percent in the fourth quarter and to 0.08 marginally in the eight quarter and finally decline to 0.07 percent in the tenth quarter. This finding is consistent with our a priori expectation that exchange rate shocks do significantly affect the real gross domestic product although the extent and magnitude of that contribution to real GDP is weak. In the same vein, the shocks in money supply did not contribute initially in the first quarter but rose to 0.62 percent in the fourth quarter and decline to 0.30 percent in the eight quarter and further decline to 0.20 percent in the tenth quarter.

4.2.2 Variance Decomposition of Total Government Expenditure

When the forecast error variance decomposition of total government expenditure was considered Standard Error (S.E) ranges between 1.85 percent in the first quarter to about 3.80 percent in the fourth quarter and rose to 18.10 percent in the eight quarter and finally dropped back to 12.22 in the tenth quarter. The own shock for total government expenditure seems to have a sustained impact on itself with an initial impact of 99.57 percent coming down to 34.99 percent in the fourth quarter and further to 10.30 percent in the eight quarter and finally reduces to 6.25 in tenth quarter.

Also, the shock of inflation rate to real gross domestic product is 0 percent in the first quarter. It increases fairly to 4.73 percent in the fourth quarter. It rises to 6.03 percent in the eight quarter and reduces marginally to 5.77 percent in the last quarter. These findings confirm that shock of total government expenditure and inflation rate are necessarily inflationary in Nigeria. Output growth changes contribute 0.42 percent to changes in commodity price level in the first quarter, rising to 54.07 in the fourth quarter and further to 81.77 percent in the eight quarter and finally to about 86.66 percent in the tenth quarter. This finding is consistent with our a priori expectation that total government expenditure shock do significantly affect the real gross domestic product.

4.2.3 . Variance Decomposition of Inflation Rate

When the FEVD of inflation rate was considered, the forecast error (S.E) ranges from 11.04 percent in the first quarter to 14.33 percent in the tenth period. The result shows that own shocks constitute highest cause of the variation as the inflation rate moved from 93.67 percent in the first period declining to 75.13 percent in the fourth quarter and to 72.03 percent in the eight quarter before settling down to 69.12 percent in the tenth quarter.The real gross domestic product shocks seems to have a sustained impact on the inflation rate of 3.94 percent in the first period, rising to 6.37 percent in the fourth quarter and further to 8.23 percent in the eight quarter and finally to 10.46 percent in the last quarter.

4.3.Impulse Response Function

An impulse response function traces the effect of a one-time shock to one of the innovations on current and future values of the endogenous variables. In this study, the impulse response analysis will be used to uncover the dynamics relationship between real gross domestic product, total government expenditure, inflation rate, exchange rate and money supply within the Vector Autoregressive (VAR) model.

Table 3: Impulse Response Function Table

Response of RGDP					
Period	**RGDP**	**TGEP**	**INFR**	**EXCH**	**MSPL**
1	4.505680	0.000000	0.000000	0.000000	0.000000
4	5.879983	-0.953714	0.545998	-0.209101	-0.222193
8	8.342769	-0.518370	1.351025	-0.151067	-0.041345
10	10.45891	-0.0400278	1.716191	-0.280380	-0.256929
Response of TGEP					
1	0.121288	1.853935	0.000000	0.000000	0.000000
4	2.351130	0.474666	0.502560	-0.226103	-0.287284
8	4.521413	0.809024	1.131391	-0.317051	-0.226814
10	6.365514	1.016116	1.578737	-0.445431	-0.353321
Response of INFR					
1	2.195117	-1.703011	10.69068	0.000000	0.000000
4	2.139135	-0.607567	-2.036801	-1.532753	-2.820777
8	1.225273	-0.045930	-0.296710	-0.554004	-0.783291
10	1.518829	1.021253	1.117070	-0.413408	-0.338306
Response of EXCH					
1	0.507850	-1.693337	-0.432570	1.681321	0.000000
4	-6.677955	-2.744404	-4.336145	3.134463	3.129682
8	-15.84238	-8.241064	-7.203702	3.528653	2.896111
10	-25.56190	-10.85005	-9.900101	4.287015	3.535706
Response of MSPL					
1	-6.780268	4.004509	-0.024383	2.923777	8.550844
4	6.586232	-3.616599	0.444398	-2.433064	-4.441963
8	2.000430	-1.371533	-0.318377	-0.901713	-1.439739
10	0.715870	-0.048589	0.893028	-0.275390	-0.078881

Source: Authors' Computation (2014)

4.3.1.Response of Real Gross Domestic Product

Accumulative dynamic effects of structural shocks on real gross domestic product are reported in the impulse response function in the table above. The impulse response function shows that past real gross domestic product shocks have positive relationship with the current real gross domestic throughout the period. Real gross domestic product had an immediate and sustaining positive impact on itself. The shocks in total government expenditure on real gross domestic product were all negative all through the year except in the first year which shows a positive impact. However, the shocks in the real gross domestic product have a stable and positive impact on inflation rate throughout the time horizon. Unexpectedly, it is however observed that the shocks on real gross domestic product contribute negatively to the exchange rate but shows positive in the first three years over the study period. And as for money supply shocks on real gross domestic product contribute positively in the first three years and later turns negative in the rest of the time horizon.

4.3.2.Response of Total Government Expenditure

The second row is the Impulse Response Function of total government expenditure due to itself and other selected macroeconomic variables. The result indicates that the past total government expenditure shocks have a positive relationship with the current total government expenditure over the time horizon. The shocks in the real gross domestic product also had a positive impact over the entire period. In addition to this, the inflation rate, the shocks in the total government expenditure had positive impact on total government expenditure in both short run and long run periods. Apart from the first two years, the shocks of total government expenditure have a positive impact on exchange rate and the rest of the years had negative impact. In the same vein, the shocks of total government expenditure on money supply had an initial positive impact in the first three years but later turns out negative over the later years.

4.3.3.Response of Inflation Rate

The second one focuses on selection of financial variables supporting diagnosis of fiscal distress plays the crucial role. The analysis of state of art in this scope provided the core financial measures used by authors in related work. Table 2 presents the list of financial variables selected in different studies for diagnosis and predicting fiscal distress phenomenon.

4.4.Overview of the Monetary policy in Nigeria

As in 2012, the monetary policy rate in 2013 was maintained at 12.0% after the initial increase to this level in December 2011. This monetary-policy stance was aimed at achieving a single digit inflation rate and yielded the expected result. For the first time in five years, the inflation rate declined from an average of 12.2% in 2012 to 8.6% in 2013 with its lowest level, 7.8%, in October. In the same period, average core inflation declined from 13.3% in 2012 to 6.8% in 2013. The cash-reserve requirement and the liquidity ratio were retained in 2013 at 8.0% and 30.0%, respectively. From August 2013 until end-2013, the CBN commenced application of a 50% cash reserve requirement to all government funds with commercial banks. The monetary tightening policy has not engendered lower interest rates, however. The average interest rates in 2013 stood at 12.0%. The central bank continued to support the exchange rate with external reserves through a biweekly sale of dollars via the Retail Dutch Auction System, stabilising the exchange rate at around NGN 158 per USD 1 in 2012 and 2013. Credit to the private sector as a share of GDP increased from 34.6% at the end of December 2011 to 37.3% in 2012 and was above the 30.0% mark in 2013. This shows the potential of a vibrant private sector in the country. Aside from the formal financial market there is a substantial unbanked population estimated at around 45% of the adult population. Low education, cultural barriers, unemployment and lack of appropriate means of identification are often ascribed to the situation. The rate of adult financial exclusion in Nigeria is estimated at 46.3%, one of the highest in sub- Saharan Africa. In a bid to curb this trend, a National Financial Inclusion Strategy and the Micro, Small and Medium Enterprises Development Fund were launched by the CBN in October 2012. The main objective of the strategy is to reduce the financial exclusion rate to 20% by 2020.

5. Summary, Conclusion and Recommendations

The main objective of this study was to examine the interrelationship among total government expenditure, inflation rate and economic growth and some other macroeconomic variables in Nigeria and examine the trend and components of government expenditure in Nigeria from 1981 to 2013. Based on the findings, it was established that real gross domestic product in Nigeria was influenced by such dynamic variables such as total government expenditure, inflation rate, exchange rate and money supply. Economic growth fluctuation is one of the major macroeconomic problems that confront Nigeria economy today. The central opinion of this study is that fluctuation in output growth over the years in the economy reflects the level of government expenditure and as well as the inflationary trends in Nigeria. In view of the conclusion made above, this research recognized that it would be a welcome idea not to allow phenomenon like inflation to get out of hand. Government should intensify efforts at improving domestic policies that can ameliorate inflation since increase in government expenditure appreciates the real gross domestic product. Also, since real output has positive impact on government expenditure, to obtain a sustained real gross domestic product, there should be a set aside policies that will increase productivity which are useful in Nigeria. These include improvement in the educational system, infrastructure and health facility

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