European Journal of Business and Management
ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)
Vol.7, No.24, 2015

Governments Spending, Real Gross Domestic Product, Money Supply and Inflation In Nigeria

Uwazie I.U. Ph.D[1], Igwemma, A. A. Ph.D[2]. & Olorunfemi Sola[3]
Department of Economics, [1, 2&3]
Alvan Ikoku University of Education, Owerri[1], Imo State University, Owerri[2] &
Adekunle Ajasin University, Akungba Akoko, Ondo[3]

Abstract
This study examined the empirical relationships between government spending, real output, money supply and changes in prices in Nigeria. Secondary data from CBN Statistical Bulletin were used and the data ranged from 1981 to 2014. The stationarity properties of the variables fitted in the model were tested using unit root, cointegration and error-correction tests and the cointegration test confirmed that there was long run relationship. The Ordinary Least Square (OLS) result showed that government expenditure, government revenue, GDP at factor cost and money supply were positively related to inflation and that a 1% change in each of these respective variables would lead to 20.84, 11.44, 1.59 and 11.49 change in inflation. In conclusion, it will be good, if the government should control price movements, but a lasting and impressive solution seems to lie with the growth rate of the economy in terms of increase in real output growth.
Key words: Money Supply, Real GDP. Inflation, Government Spending

Introduction

The usual problem facing the third world country like Nigeria is how to accelerate economic development so that the rate of increase in real national income is significantly higher than the rate in growth of population. However, the presence of the vicious circle of poverty tends to keep a low income country in the orbit of poverty. To break the vicious circle, it becomes necessary to take active part in planned economic activities; bearing in mind that the availability of capital resources becomes important factor determining the level of real income.

In the low income countries, Nigeria inclusive, the problem of accelerating economic development involves more than five adjustments of the existing resources at the margin. The problem is that of having a big push through the dynamic mobilization of idle and underutilized resources and structural changes. In order to meet the budgetary gap and accelerate economic development, government as a last resort is forced to have resource to financing this excess expenditure over revenue (deficit). This involves bank credit and drawing on accumulated balances at home and abroad. The aim is to raise the total outlay in the economy in the bid to accelerate economic development.

As a result of the above, there has been a sharp rise in government spending/expenditure in Nigeria which remains unprecedented in the history of the country during the period under review. And the proportion of this government spending to the gross domestic product (GDP) in nominal terms has been steadily increasing, which may be attributed to Wagner's law of increasing state activity.

Also there has been a tendency in recent times to attribute the rapid expansion of monetary stock and high rates of inflation in the Nigeria economy mainly to the huge government spending financed by the monetization of the oil revenue. This impression appeared to have been reinforced largely by the fact that the period of high price increase corresponds to the period when monetary stock and government spending increased more rapidly. There seems not to be a consensus on the determinant of the level of inflation in Nigeria.

This study therefore examines this contentions issue by investigating the empirical relationships between government spending, real output, money supply and changes in prices in Nigeria.

Literature Review

The economic analysis of the public sector especially the study of the size, finance and control of government budget deficit as a result of excessive government spending has attracted a considerable amount of attention in recent years, especially as it relates to real output, money supply and inflation.

According to Keynes (1939) who admitted that government has a role to play in the economy, claimed that government expenditure (deficit financing) is expansionary and that it will increase income by a multiple of the initial increase in expenditure via demand expansion.

But for Petersan (1957) whichever way of financing government spending, it will lead to a net increase in the amount of money in circulation, such increase being the result of conscious government policy designed to bring about economic activity that the officials believe desirable and that otherwise could not have taken place. Mbanefo (1982) and Marbuah, (2011) insisted that the impact of deficit – financed fiscal expansion on the economy depends very much upon the way in which the deficit is financed. But theoretical consideration of government spending holds that deficit may not always cause inflation, it depends to a greater extent the method

used to raise money (Roland 1982). He went further to say that although government spending may influence economic conditions; they are also influenced by economic conditions. The important thing is to know the origin of the deficit and how it is financed. This view was supported by Edwards (1969), Burkhead (1954) and Monfort andPeña, (2008) who based on the united state experience, showed that there is not much basis for believing that deficit financing is a major cause of inflation and that other factors should be examined such as changes in money supply. Greenidge, (2008) seems to disagree with this as his study of some Caribbean Countries showed that the basic factor which has created inflationary pressures has been a chronic budget deficit, though he suggests that budget deficit don't invariably produce inflation.

Gill (2010) supported Greenidge, when in his study he suggested that there is no satisfactory conclusion with respect to the relation of economic growth to the rate of price rise in industrial countries. Reddy (1970), Menji, (2009), Greenidge, (2008) and Monfort andPeña, (2008) insisted that whether inflation (price changes) or not, there is a positive relationship between government spending and economic growth and that expenditure of government may increase at a faster rate than that of the gross domestic product, as a proxy for economic growth. But Due (1968) seems not to be bothered by the increased government spending but on how to finance it. As a result he suggested that the increase in government spending should be financed by money creation rather than borrowing or taxation because the economic function of the latter is to restrict private spending in order to prevent government expenditure from causing inflation, but in a period when the primary goal is to increase government spending, then this function is no longer relevant and inflation may be aroused.

As if in support of Reddy (1970) who tried to prove Wagner's proposition of a rising public expenditure as a result of an increase in economic austerity, Pryor (1968) maintained that though the relative share of government expenditure in National income differs from economic system to the other, the level of economic development increase is a 'first' important determinant of growth in government expenditure, other studies that supported Pryor included Veverka (1973), Haq, 2012, Beck (1976), Greenidge, (2008)Altowaijri, (2011), Jaradat, Zeaud and Rawahneh, (2011) Kandil and Morsy, (2009) Basher and Elsamadisy, (2012),Pesaran, Shin, and Smith, (1999) and Ilori (1987).They all agreed that there exist a relationship between government expenditure and economic growth and that each affects inflation. However, the degree of the relationship is what differs.

From these studies, some interesting results seems to be that

i. The use of inflationary financing (or borrowing) thereby increasing the money supply, increases prices and enhances inflation.
ii. In Nigeria, as budget deficit increase due to excessive government spending, it's financing was accompanied by increase in domestic prices (inflation).This study looked at the relationship among government spending, real gross domestic product, money supply and inflation

Methodology

Model Specification

This model assumes that the level of price depends on the amount of goods and services. As supply conditions improve in an economy, prices are expected to fall given a negative relationship in supply and inflation rate. Also the rate of money supply is assumed to affect the price level. All things being equal, if the level of money supply increases, prices tend to increase as more money is said to be chasing fewer goods, while government spending is expected to influence via the money supply.

The expenditure equation is specified as follows:

The price equation is specified as follows:

$$\log \inf_t = \beta_0 + \beta_1 gov\_ex + \beta_2 gov\_er + \beta_3 msr + \beta_4 gdpfc + \psi$$

Where:

$\inf_t$ = Consumer price index (as a proxy for inflation) at time t.

$gdpfc$ = GDP at factor cost in time t

msr = Money supply (narrowly defined) at time t

gov_ex = Government expenditure at time t

gov_re = government revenue at time t

β_0 = Regression intercept or constant

$\beta_1 \ldots\ldots \beta_4$ = Regression coefficients

ψ = Error term.

Interpretation of Results and Discussion

In an attempt to investigate the behavior of some macroeconomic variables and inflation growth rate in Nigeria, this section begins by examining the descriptive statistic of the data series employed in the study. These include descriptive statistics for inflation rate, money supply, government expenditure, government revenue and GDP at factor cost for the period of 1980 to 2014. Table I shows that government revenue has the largest standard deviation while money supply has the smallest standard deviation. All variables were positively skewed. The Jargue-Bera (JB) statistic indicates that most of the data series are normally distributed. This is indicated by the probability value of JB statistic which for most series is significantly different from zero at 1% significant level.

Table 1: Descriptive Statistics

	MSR	GOV_EX	GOV_REV	GDPFC	INF
Mean	**39.32**	**293679.5**	**2943693**	**143927.5**	**20.77**
Median	**34.22**	**169663.1**	**1048521**	**87708.7**	**12.7**
Maximum	**89.99**	**1152800**	**14526757**	**897630.9**	**72.8**
Minimum	**10.23**	**4100.1**	**7201.2**	**2162.92**	**4.7**
Std. Dev	**24.23**	**339553.7**	**4254019**	**234253.1**	**18.55**
Skewness	**0.79**	**1.05**	**1.45**	**2.74**	**1.40**
Kurtosis	**2.42**	**2.90**	**3.87**	**8.92**	**3.71**
Jarque-Bera	**4.06**	**6,31**	**13.03**	**92.28**	**12.07**
Probability	**0.13**	**0.04**	**0.0014**	**0.000**	**0.000**
Observation	**34**	**34**	**34**	**34**	**34**

Table 2 shows the correlation matrix. With this table, the degree of association between two of the variables at a time are known.

Table 2: Correlation Matrix

	MSR	GOV_EX	GOV_RE	GDPFC	INF
MSR	1.000000	-0.049568	-0.067125	0.108217	-0.239290
GOV_EX	-0.049568	1.000000	0.903853	0.202389	-0.358132
GOV_RE	-0.067125	0.903853	1.000000	0.402427	-0.313782
GDPFC	0.108217	0.202389	0.402427	1.000000	-0.114515
INF	-0.239290	-0.358132	-0.313782	-0.114515	1.000000

This shows that between money supply and government spending, there is positive correlation of 4.9%. Between government spending and inflation it was 35.8%, for money supply and inflation it was 23.9% while it was 20.23% between GDP and government expenditure.

Figure 1: Scatter plot Correlation Matrix among Inflation, Money Supply, GDP at Factor Cost, Government Revenue and Government Expenditure

Figure 1shows the scatter plot matrices between money supply, inflation rate, exchange rate, government expenditure oil revenue and interest rate. This is used to look at the relationships between all these variables. In each plot, the variable to the side of the graph is used as the Y Variable and the variable above or below the graph is used as the X Variable (Ulrich et al., 2008). In the first line of Figure 1are scatter plots of inflation rate against money supply, government expenditure, government revenue and gdp at factor cost.

Figure 2 in the study shows the trend over the period for inflation, government expenditure and money supply. From the diagram inflation was very high in1995, and has been on a downward trend as from that time till 2014. From the Figure 3, it can also be observed that government expenditure reached its highest point in 2009, despite this; inflation for the period seems to be mild.

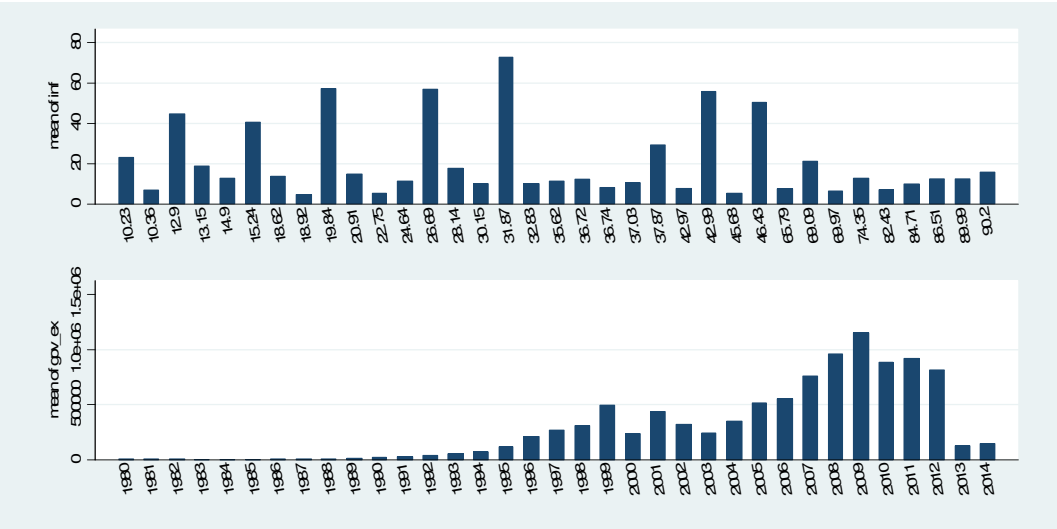

FIGURE 2: **Trend of Inflation, Government Expenditure and Money Supply for Various Years**

In Figure 3, the first row has three panels. Panel 1 shows fluctuations in money supply for the periods covered in the study. It is indicated that money supply was high in 1980 and fell after 1980 while it began to go down and up between 1990 and 2014. The figure showed that money supply was very high 2014. Panel 2 shows that while government expenditure was low between 1980 and 1990s, it continued to rise and reached its peak in 2010 and fell thereafter. This was also the case for government revenue. In the second row, Panels 1 and 2 show the fluctuations in both GDP at factor cost and inflation between 1980 and 2014. The trend for GDP indicated that it was high as from 2010 to 2014 covered in the study.

Panel 2 demonstrates the oscillating nature of inflation rate and that it was high in the 1990s and fell as from 2000 down 2014.

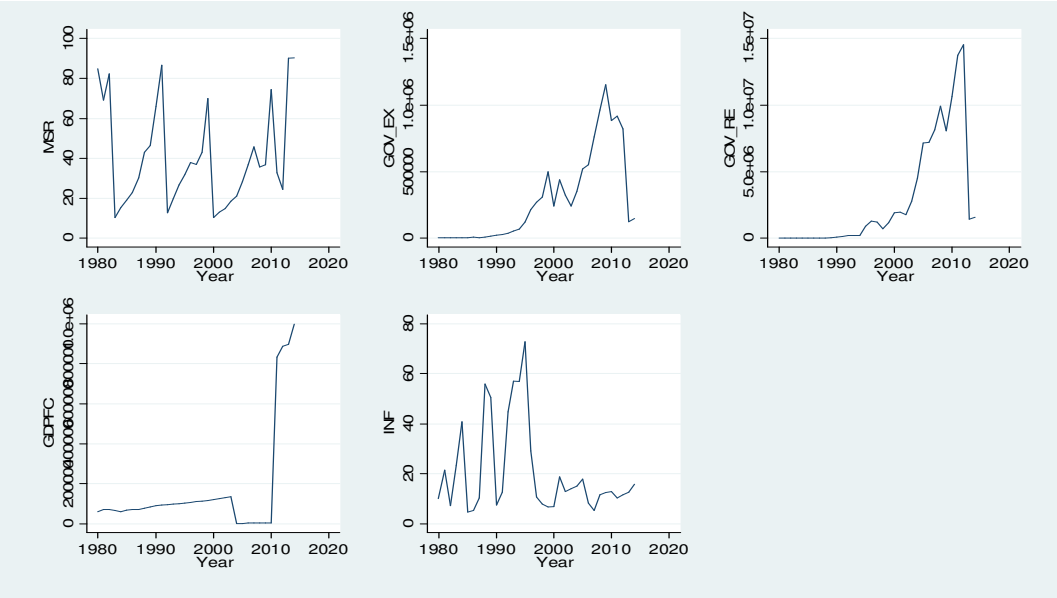

Figure 3: Inflation and Other Economic Indicators

In the literature, it is well posited that a priori, many economic time series will be non-stationary integrated (Granger and Newbold, 1974). To ascertain the degree of stationarity of variables employed in this study, the ADF and Phillip Perron (PP) unit root tests were carried out in Table 3.

Table 3: Testing the Order of Integration or Unit Root Tests

Serial	ADF Statistics with	Phillip – Perron	S/NS
MSR	-3.7078	-3.6801	S
GOV.EX	-1.49308	1.4224	NS
GOV.RC	1.71895	1.483170	NS
GDPFC	-1.85929	-1.98818	NS
INF	3.50575	-2.90880	S
Critical Value 5%	-2.9558	-2.9527	
First Difference			
GOV-EX	-2.6302	-5.34912*	S
GOV-RE	-3.4563*	-5.58839*	S
GDPFC	-3.86009*	-1.98818	S
Critical Value 5%	-2.9591	2.9527	

*= Statistically significant at 0.05 level

Source: Authors Computation.

Money supply and inflation were both stationary at the level while government expenditure, government revenue and gdp at factor cost were stationary at first difference. To be able to know whether there is long run relationship, we then tested whether the linear combination of the variables in the model might be stationary, that is, we found out if the regression residual was cointegrated. For cointegration, a pair of integrated, or smooth, series must have the property that a linear combination of them is stationary (Granger, 2000). The results of likelihood ratio statistics test were summarized in Table 4. The tests assumed linear deterministic trend in the series and uses one log in differences. The result showed that there exist one cointegrating vector, and so therefore, there is long run relationship

Table 4: Cointegration Likelihood Ratio Test For Government Spending, Government Expenditure, government Revenue, Money Supply and GDP at Factor Cost

Eigen value	Likelihood Ratio	5 Percent critical Value	I Percent Critical value	Hypotheses no of CE (S)
0.023	87.320	87.1	96.58	None*
0.534	56.038	62.99	70.05	At most 1
0.506	31.547	42.44	48.45	Almost 2
0.139	8.934	25.32	30.45	Almost 3
0.121	4.138	12.25	16.26	Almost 4

Source: Author's computation

That is long run equilibrium relationship exists among variables in the model, which means that they do not diverge away from each other. This is so, since the calculated values of the likelihood ratio greater than the critical of 87.1 5 percent levels.

Table 5: Error Correction Model of The Price Equation

Explanatory	Elasticities	SE. Values
dloggov-ex	0.4874	0.028
dloggov-re	2.5491	0.006
dloggdpfc	0.2244	0.198
dlogmsr	0.7750	0.015
ECM (-1)	-0.0256	0.019
$R^2 = 0.716$		
DW = 1.77		

Source: Author's computation

From Table 5, the error correction value has a negative and statistically significant coefficient of -0.0256. The negative sign of the error correction term ensure the long run equilibrium is achieved. However, the adjustment toward equilibrium is not instantaneous. Only 2.6 percent of any year's deviation from the equilibrium is corrected in the next year inflation rate in Nigeria. The long run regression of the price model is estimated. The results summarized in Table 6, shows that all the coefficients have the expected signs. This result shows that all the variables (government expenditure, government revenue, GDP at factor cost and money supply) are positively related to inflation and that a 1% change in each of these respective variables will lead to 20.84, 11.44, 1.59 and 11.49 change in inflation. This means that, government must pay attention to all these macroeconomic variables to control the level of inflation. This result is in tandem with Marbuah, (2011), Haq, (2012) andKim, (2001) but against Monfort andPeña, (2008)

Table 6: Estimate of the Price Equation (Inflation as Dependent Variable)

Regressors	Coefficient	Standard error
GOV-EX	20.84	0.009
GOV –Re	11.44	0.002
GDPFC	1.59	0.24
MSR	11.49	0.005
$R^2 = 0.73$ F-Statistics = 1.086 (Pr = 0.008) Durbin Watson = 1.98		

Source: Author's computation

Policy Recommendations and Conclusion

Policy implication can be highlighted from the findings of this study, and these include the followings: Money creation via financing the excess government expenditure through borrowing from the banking sector will result in an increase in the domestic credit which will raise the level of money supply and this is inflationary.The price inelasticity of the government expenditure implies that the government would seem not to border about the price implication of its expenditure pattern. This could make fiscal policy to be "unconsciously" inflationary either because government expenditure is unnecessarily growing over – time or that government will tend not to believe in the price implication of its expenditure pattern. The sustained increase in government expenditure over time, especially in the unproductive ventures will tend to aggravate the supply of money thereby enhancing the inflationary process. As a result of these, the following suggestions are made as follows:

The government should steadily cut back its spending by trying to achieve budget surplus.

i. Government through its excess spending should aim at accelerating the rate of capital formation which will be more beneficial to the society, hence infrastructural as well as capital projects with short gestation term periods that enhance productivity should be embarked upon.

ii. The government should imbibe the habit of fiscal discipline, to achieve this, it should ensure a judicious use of loans taken by them and their extra budgetary spending should also be on productive investments. Also inflated contracts have almost come to be accepted as one of the norms of most of the government's businesses, this should be discouraged.

iii. The government should endeavour to steadily cutback on its expenditure, this will help abate the growth of money supply thereby reducing the possibility of high inflation rate.

In conclusion, it will be good, if the government should control price movements. But a lasting and impressive solution seems to lie with the growth rate of the economy in terms of increase in real output growth.

REFERENCES

Altowaijri, 2011 "Determinants of inflation in Saudi Arabia," World Review of Business Research, vol. 1, no. 4, pp. 109-114.
Basher and Elsamadisy, 2012. "Country heterogeneity and long-run determinants of inflation in the gulf Arab states," OPECEnergy Review, vol. 36, no. 2, pp. 170-203,
Beck, M. (1976), 'The expanding Public Sector: Some Country Evidence', National Tax Journal, Vol.29,No3.
Due, J.F. (1968), 'Government Finance.'Economics of Public Sector, Richard D. Irwin, Inc, Homewood Illinois.
Edwards, D. J. (1960), 'The Association of Federal Deficits, GNP growth with interest rate and price changes'. Journal of Politica Economy, (March/April) Pg 286 – 290.
Elbirt, "The main determinants of inflation in Albania," World Bank Policy Research, working paper 1930, 1998.
Gill, 2010. "Determinants of inflation: A case of Pakistan (1970-2007)," Journal of Economics, vol. 1, no. 1, pp. 45-51,
Greenidge, 2008 "Determinants of inflation in selected Caribbean countries," Business, Finance and Economics in EmergingEconomies, vol. 4, no. 2, pp. 371-397.
Haq, 2012 "Determinants of inflation in Pakistan," Universal Journal of Management and Social Sciences, vol. 2, no. 4, pp. 89-96.
Ilori, Oshihoro, T. (1987), 'The size of Government Spending and the Private Sector's Evaluation', Journal of the Japanese and International Economics, Vol.1 (March), Pg. 82 - 96.
Jaradat, Zeaud and Rawahneh, 2011 "An econometric analysis of the determinants of inflation in Jordan," Middle Eastern Finance and Economics, issue 15, pp. 120-13.
Kandil and Morsy, 2009 "Determinants of inflation in GCC," IMF, working paper 09/82,.
Khan, and Ahmed, 2007 "Determinants of recent inflation in Pakistan," MPRA, working paper 16254,.
Kim, 2001 "Determinants of inflation in Poland: A structural cointegration approach," BOFIT, Discussion Paper, no. 16.
Marbuah, 2011 "Determinants of inflation in Ghana: An empirical investigation," South African Journal of Economics, vol. 79, no. 3, pp. 251-269.
Mbanefoh, G.F. (1982), 'Sources and Consequences of Deficit Financing in the Nigerian Economy' in Deficit Financing, Proceedings of the Annual Workshop of the Nigerian Economic Society, (August).
Menji, 2009. "Determinants of Recent Inflation in Ethiopia," Bachelor Degree thesis, Unity University,
MonfortandPeña, 2008 "Inflation determinants in Paraguay: Cost push versus demand pull factors," IMF, working paper 08270.
Patterson, G. (1957), 'Impact of Deficit Financing in Underdeveloped Countries; Sometimes Neglected Aspects', The Journal of Finance, Vol. 12, No. 2. (March), Pg. 178 – 189.
Pesaran, Shin, and Smith, 1999. "Pooled mean group estimation of dynamic heterogeneous panels," Journal of the American Statistical Association, vol. 94, no. 446, pp. 621-624,

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:
http://www.iiste.org

CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

Prospective authors of journals can find the submission instruction on the following page: http://www.iiste.org/journals/ All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: http://www.iiste.org/book/

Academic conference: http://www.iiste.org/conference/upcoming-conferences-call-for-paper/

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library , NewJour, Google Scholar