Impact of Capital Expenditure on Exchange Rate within the Period of the Second and Fourth Republic in Nigeria

Saheed, Zakaree S. (Ph.D)
Department of Economics and Management Sciences,
Nigerian Defence Academy, Kaduna,
Kaduna State, Nigeria.
zakss_1@yahoo.co.uk

Abstract

Government involvement in economic activities through fiscal policy, according to Keynes is very crucial for the growth of the economy. The government uses fiscal policy to regulate the economy through expansion or contraction of its spending consisting of recurrent and capital expenditures. However fiscal expansion tends to lead to increase in exchange rate. This paper examines the impact of government capital expenditure on exchange rate in Nigeria, using disaggregate approach. The finding indicates that Nigerian government capital expenditure, particularly government spending on social and community services has a statistically significant impact on exchange rate in Nigeria, while capital expenditures on administration, economic services and transfer are not statistically significant in respect to their impact on exchange rate. Based on this finding, policy recommendation was made that government should ensure strict compliance with the procurement act in the awards of government capital projects contracts to avoid over invoices. More so, high percentage local content should be ensure in all capital projects to minimize imports which may increase demand for foreign currency and put pressure on exchange rate.

1.0   Introduction

According to Keynes, government involvement in economic activities through effective fiscal policy by spending money towards performing its function is necessary for the economic growth of any country. Government of any country performs two major functions namely: protection and provision of certain public goods. Protection function consists of establishment of rules of law and enforcement of property rights, which help to minimize risks of criminality, protection of lives and properties, as well as protecting the nation from external aggression. On the other hand, government provides public goods like roads, health, education, power among many other public goods (Nurudeen and Usman, 2010).

In Nigeria, government expenditure has continued to rise from one regime to the other, due on one hand, to huge receipts from production and sales of crude oil, which is the major source of government revenue, and on the other hand, the increased demand for either repairing the existing or construction of new public goods like road, communication, power, education and health. There is also a continuous increase in the need for internal and external security for the people and the nation. Empirical data shows that the government expenditure and its components have continued to rise in the last three decades.

The growth in government expenditure in Nigeria, according to Buhari (1993) as cited by Ogwuru (2009), is due to, among other factors, rising income level, urbanization of the population, technological and innovative changes, national crises, inflation, changes in political and bureaucratic structures, and the productivity lag. The size and structure of public expenditure will determine the pattern and form of growth in output of the economy. The structure of Nigeria public expenditure can be broadly categorized into capital and recurrent expenditure. The recurrent expenditure are government expenses on administration such as wages, salaries, interest on loans, maintenance, etc., whereas expenses on capital projects like roads, airports, education, telecommunication, electricity generation, etc., are referred to as capital expenditure. One of the main purpose of government spending is to provide infrastructure facilities and the maintenance of these facilities requires a substantial amount of spending (Adesoye, Olukayode and Akinwande, 2010).

The Central Bank of Nigeria (CBN) (2010), classified the components of capital expenditure into four, namely: Administration (General administration, Defence, Internal security and National assembly); Social and Community Services (Education, Health and other social and community services); Economic Services (Agriculture, Construction, Transport and Communication and other economic services) and Transfers (Public debt servicing, Pensions and gratuities, Contingencies/Subventions and other CFR charges).

However, the relationship between government spending on public infrastructure and exchange rate tends to be an important analysis. The performance of the economy has thus been largely influenced by fiscal and monetary (exchange rate) policies. These policies in turn determine the growth of public and private sector in the economy and subsequent investment pattern.

The second republic in Nigeria commenced in 1979 with the election of President Shehu Shagari as the democratically elected President of the Federal Republic of Nigeria. Within the period of observation, Nigeria

had witnessed eight regimes, with four military regimes and four civilian administrations. Each of these regimes put in place various economic policies with different implication on the overall economic condition of the country.

Between 1980-1983 which marked the second republic under Shehu Shagari administration, the total government spending decreased by 55.3 percent, from N14,968.8 million in 1981 to N9,636.5 million in 1983, with major decrease arising from capital expenditure by 51.9 percent, while current expenditure decreased by only 1.1 percent. The brake down shows an increase of 36.5 percent and 63.2 percent in defence and agriculture capital expenditure respectively. However, there was a decrease of 114.7 percent, 174.8 percent and 8.2 percent in transportation, education and health capital expenditure respectively. The recurrent expenditure over the period experienced a slight overall decrease of just 1.1 percent, with a slight decrease in defence recurrent expenditure by 21.9 percent. Health, agriculture, transportation and communication recurrent expenditure decreases by 8.1 percent, 10.9 percent, and 17.7 percent respectively. However, education recurrent expenditure increased by 3.8 percent. 1984 – 1985 represent the military regime under Buhari/Idiagbon. Following the 1984 military coup that toppled the civilian government of President Shehu Shagari, the total capital expenditure decreases by 16.08 percent. Capital expenses on defence decreased drastically by 80.9 percent, while agriculture, transport and communication, education and health decreased by 78.7 percent, 76.1 percent, 58.2 percent and 58.7 percent respectively.

1985-1993 represent another military government in Nigeria under the leadership of General Babangida. Within the period, total capital expenditure has attained N54, 501.8 million from N5,464.7 million, a rocket increase of 897.3 percent. Capital expenditure on defence increased by 3,447.7 percent, while capital expenditure on education, agriculture, transport and communication, education and health increased by 84.7 percent, 496.1 percent, 764.9 Percent and 527.9 percent respectively. The period between 1993-1998 marked yet another military regime in the history of Nigeria. Within this period, there was a sharp increase in the total capital expenditure by 467 percent. The capital expenditure on defence increased by 466.3 percent, while capital expenditure on agriculture, transport and communication, education and health sectors also increased by 387.7 percent, 333.5 percent, 718.5 percent and 1,918.6 percent respectively. During this period, the health sector experienced the highest percentage rise, followed by the education sector and the defence sector.

The period of 1999 – 2007 marked the period of return to democratic government in Nigeria in the fourth republic under the administration of president Obasanjo. Total capital expenditure increased by 52.3 percent. Meanwhile, the capital expenditure on defence recorded an increase of 203.17 percent, while an increase of 225.89 percent, 972.2 percent, 467.1 percent and 592.7 percent was recorded in capital expenditures for agriculture, transport and communication, education and health sector respectively. Between the period of 2007 and 2010, under the administration of President Shehu Musa Yar'adua, the government capital spending attained 8.83 billion Naira, an increase of about 16.4 percent compare to previous government.

Within the period of observation, the government capital expenditures experienced the highest increase (897.3 percent) between the period of 1985-1993, which represented the military era under the leadership of General Ibrahim Babangida.

The government spending on the construction of new infrastructure (capital expenditure) may involve importation of some machineries and technology that might indirectly influence the demand for foreign currency, hence exert pressure on exchange rate. Just like the government expenditure, exchange rate in Nigeria has continuously fluctuated from one regime to another. For instance, based on the data from the Central Bank of Nigeria on exchange rate between 1981 – 2010, the Naira was exchanged for 0.59 USD in 1980. However, between 1981-1984, the naira depreciated by 23.5 percent against the United State of American dollar. Between 1984-1985, the naira further depreciated by 16.9 percent. The Naira experienced a sharp depreciation by 2,367.1 percent between 1985 – 1993. Between 1993 – 1998, and 1998- 2010, the Naira depreciated against US dollar by 320.35 percent and 62.1 percent respectively. The Nigerian Naira experienced highest depreciation against US Dollar between the period of 1985-1993, when it dropped by 2,367.1 percent.

Given the foregoing, this paper proposes to critically examine the impact of government expenditure on exchange rate fluctuation in Nigeria, with emphasis on the period within the second and the fourth republic in Nigeria. To this end, the paper is organized into five sections. Following this introduction is section 2, which focuses on literature review and theoretical framework. Section 3 discusses the methodology, while section 4 summaries the finding and proffers policy recommendation.

2.0   Literature Review and Theoretical Framework

2.1   Literature Review

This section discusses relevant literature and theoretical framework on the linkage between government expenditure and exchange rate. There have been many studies on government expenditure and exchange rate, and many researchers have directed the focus of their studies on government expenditure as well as exchange rate both within and outside Nigeria. For instance, Penati (1985) examine the effect of government spending on

exchange rate in a model exhibiting complementarity between consumption at different point. He examined a time series data from a cross section of European countries for the period of 1970-1982. The result showed that a fiscal expansion may depreciate the real exchange rate. However, the defect of this work lies on time interval between the periods of observation, which might have made the finding not relevant to the present situation. More so, the object of research in the study was cross section of European countries which economy may be different from that of Nigeria, which is the main focus of the present study.

Monacelli and Perotti (2006) employed structural VAR technique to examine the effect of government spending shocks on the real exchange rate and trade balance for a series of OECD countries. The result obtained indicates that in all countries examined, a rise in government spending induces a real exchange rate depreciation and a trade balance deficit. The result also show that private consumption in all countries rises in response to a government spending shock, and therefore comove positively with the real exchange rate. However, the study did not consider Nigeria as one of the objects of research, hence the result may not reflect the Nigerian situation.

In Nigeria, Nurudeen and Usman (2010) examines the impact of rising government expenditure on economic growth in Nigeria between 1970 and 2008 using a disaggregated analysis approach. Their finding reveals that government total expenditure, total recurrent expenditures and government expenditure on education have negative effect on economic growth, while increased expenditures on transport and communication, and health results in an increase in economic growth.

Ogwuru (2009) applied the co-integration analysis and Error Correction Model to time series annual data to examine the impact of federal government expenditure on price stability in Nigeria. The result indicates there is a significant relationship between inflation and government expenditure in Nigeria.

In another study, Onwioduokit investigates the causal relationship between inflation and fiscal deficit in Nigeria from 1970 to 1994. The result shows that fiscal deficit causes inflation.

This study identifies some gaps in the literature reviewed, which it proposes to address. For instance, though some of the earlier researchers study the effect of government spending on real exchange rate (Penati, 1985; Monacelli and Perotti, 2006), however, they did not consider Nigeria in their study. Some authors in Nigeria have also written on expenditure and economic growth in Nigeria (Nurudeen and Usman, 2010; Ogwuru, 2009; Onwioduokit). However, their study never reflects the effect of government expenditure on exchange rate in Nigeria. Hence, this study proposes to address these gaps. Using disaggregated approach, this paper considers capital expenditure as important variable that affects exchange rate (Nurudeen and Usman study did not include exchange rate in their model). More so, this study covers both periods of the civilian administration (1981-1984; 1999-2010) and military regimes (1984-1999) in the political history of Nigeria.

2.2 Theoretical Framework

In an open economy, the demand for goods depends both on the interest rate and exchange rate. A decrease in interest rate increases demand for goods, and an increase in the exchange rate, increases the demand for goods.

On the effect of fiscal policy on exchange rate, Blanchard, (2003) opine that an increase in government spending leads to an increase in demand, thereby leading to an increase in output. As output increases, so does the demand for money which leads to upward pressure on the interest rate. The increase in the interest rates makes domestic bonds more attractive, which tends to cause appreciation of the domestic currency.

According to Mankiw (2000), expansive fiscal policy like increase in government expenditure or reduction in tax revenue, leads to decrease in national saving. Decrease in national savings reduces domestic currency that could be exchanged for foreign currency, thereby increasing real exchange rate.

There are many types of exchange rate arrangements. They range from fully flexible exchange rates to pegs to fixed exchange rates. Some countries have flexible exchange rates, whereby they have no explicit exchange rate target. They allow their exchange rate to fluctuate considerably. However, some other countries maintain a fixed exchange rate in terms of some foreign currency, while some peg their currency to the dollar, French franc or Euro.

Under flexible exchange rates, an expansionary fiscal policy leads to an increase in output, to an increase in the interest rate, and to an appreciation of currency. However, a contractionary monetary policy leads to decrease in output, to an increase in the interest rate and to an appreciation of the domestic currency, (Blanchard, 2003).

Under the fixed exchange rate, the central bank cannot let the currency appreciate. As the increase in output leads to an increase in the demand for money, the central bank must accommodate the increased in demand for money by increasing the money supply, so that interest rate and thus, the exchange rates do not change. So, under fixed exchange rates, fiscal policy is more powerful than it is under flexible exchange rates. This is because fiscal policy triggers monetary accommodation (Blanchard, 2003).

3.0   Methodology
3.1 Sources of Data

Data used in this study are mainly secondary source which include Nigeria government expenditure and exchange rate obtained from the Central Bank of Nigeria Statistical Bulleting and the National Bureau of Statistics (NBS), Abuja.

3.2   Model Specification

Based on the foregoing analytical considerations of the study, literature review and theoretical framework, the study adopts a model as follows:

$$TGE = f(TCE, TRE) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$
$$TCE = f(ADM, ECO, SOC, TRF.) \dots\dots\dots \dots\dots\dots\dots\dots\dots (2)$$
$$ER = F(ADM, ECO, SOC, TRF) \dots\dots\dots\dots\dots\dots\dots\dots\dots.. (3)$$

In stochastic form equation (3) becomes:

$$ER = \beta_0 + \beta_1 TCE + \beta_2 ADM + \beta_3 ECO + \beta_4 SOC + \beta_5 TRF + \varepsilon \dots\dots. (4)$$

Where:

ER = Exchange Rate

TCE = Total Capital Expenditure

ADM = Administration Expenditure

ECO = Economics Expenditure

SOC = Social Services Expenditure

TRF = Transfers Expenditure

ε = Error term

Prior to estimation of the model, standard econometric tests, that is, stationarity tests were conducted to tests for its stochastic properties through unit root tests in order to avoid estimating spurious regression results, while co-integration test was used to analyze the relationship between government expenditure and exchange rate.

4.0   Data Analysis and Interpretation

In the fourth model, since there is a large gap between the values of the dependent variable: exchange rate, and independent variables: total capital expenditure, administration expenditure, economics expenditure, social services expenditure and transfer services expenditure, the independent variables are transformed into log format, through Numeric Expression.

4.1   Data Analysis

Table 1**:** Results of Stationarity (unit root) test.

Variables	ADF-Statistic	Critical Values	Order of Integration
ER	-3.277102	1% = -3.6959 5% = -2.9750 10% = -2.6269	Stationary at first difference
LOGTCE	-3.732300	1% = -3.6959 5% = -2.9750 10% = -2.6265	Stationary at first difference
LOGADM	-3.415101	1% = -3.6959 5% = -2.9750 10% = -2.6265	Stationary at first difference
LOGECO	-3.517099	1% = -3.6959 5% = -2.9750 10% = -2.6265	Stationary at first difference
LOGSOC	-4.955924	1% = -3.6959 5% = -2.9750 10% = -2.6265	Stationary at first difference
LOGTRF	-6.885187	1% = -3.6959 5% = -2.9750 10% = -2.6381	Stationary at first difference

Source: Computed from Eview 4.0

The unit root test result from the table 1 above indicates that ER and the log of TCE, ADM, ECO, SOC and TRF were stationary at first difference (5%) level.

Table 2: Regression Result
Dependent Variable: ER
Method: Least Squares
Date: 03/08/12 Time: 09:37
Sample: 1981 2010
Included observations: 29
Excluded observation: 1

Variable	Coefficient	Std. Error	t-statistic	Prob
LOGTCE	3.365608	16.51831	0.203750	0.8403
LOGADM	8.626430	9.685944	0.890613	0.3824
LOGECO	-10.37057	8.986500	-1.154016	0.2603
LOGSOC	27.23211	10.22704	2.662755	0.0139
LOGTRF	-3.362398	3.339221	-1.006941	0.3244
C	-324.3998	85.82578	-3.779748	0.0010

R-squared	0.868009	Mean dependent var		53.87438
Adjusted R-squared	0.839315	S.D. dependent var		57.95384
S.E. of regression	23.23112	Akaike info criterion		9.310854
Log likelihood	-129.0074	F-statistic	30.25074	
Durbin-Watson stat 1.663223		Prob(F-statistic)		0.00001

$$ER = \beta_0 + \beta_1 TCE + \beta_2 ADM + \beta_3 ECO + \beta_4 SOC + \beta_5 TRF$$
$$ER = -324.3998 + 3.365608TCE + 8.626430ADM - 10.37057ECO + 27.23211SOC$$
$$- 3.362398TRF$$

4.2 Discussion

The results show a robust Adjusted R-square of about 83.9 percent, indicating that about 83.9 percent change in dependent variable (ER) is jointly explained by the explanatory variables (TCE, ADM, ECO, SOC and TRF); The DW statistics of 1.66 which falls into the acceptable zone of 1.59 and 2.41, shows that there is no autocorrelation between the variables.

The result indicates that only SOC is statistically significant in explaining exchange rate in Nigeria. However, the estimation results show that other variables like TCE, ADM, ECO, and TRF, are not statistically significant in explaining exchange rate fluctuation in Nigeria. Meanwhile, one percent changes in Social and Community services (SOC) expenditures will bring about a positive change of 27.23 percent in exchange rate. The social and community services expenditure include capital expenditures on education, health and other community services. This result is in line with the findings of Penati (1985); and Monacelli and Perotti (2006) that increase in government expenditures leads to increase in exchange rate. The increase in government capital expenditures on the health sector includes importation of hospital equipment which stimulates the demand for foreign currency, thereby leading to increase rise in exchange rate, that is, the number of unit of the domestic currency that would be purchased by a unit of foreign currency.

5.0 Conclusion and Recommendation

Based on the analysis carried out on the available data, it is observed that government capital expenditure experienced highest increase between the period of 1985 – 1993, with corresponding highest exchange rate within the same period under the military government. Changes in capital expenditures, especially government spending on social and community services, have a significant impact on the exchange rate in Nigeria. The impact of government capital expenditures on exchange rate, particularly capital spending in sectors like administration, economic services and transfers, are not statistically significant. Based on this finding, it is therefore recommended that government should ensure strict compliance with the procurement act in the award of government contracts on capital projects to avoid over invoices or inflating capital projects value. More so, all capital projects should adopt high percentage of local content to minimize importation which may increase demand for foreign currency and put pressure on exchange rate.

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APPENDIX A

Table 1.0: Federal Government of Nigeria Capital Expenditure (N'Million) and Exchange Rate,
1981-2010

Year	Administration	Economic Service	Social and Community Services	Transfer	Exchange Rate
1981	720.1	3,629.4	1,299.0	918.5	0.6100
1982	385.4	2,542.5	968.3	2,521.0	0.6729
1983	1,098.2	2,290.7	1,026.5	470.3	0.7241
1984	262.7	656.3	237.6	2,943.5	0.7649
1985	459.6	892.7	1,154.0	2,958.4	0.8938
1986	264.8	1,099.9	655.4	6,506.7	2.0206
1987	1,816.2	2,159.7	619.1	1,777.5	4.0179
1988	1,898.6	2,128.7	1,726.0	2,586.8	4.5367
1989	2,617.5	3,926.3	1,844.8	6,645.5	7.3916
1990	2,919.9	3,485.7	2,096.0	15,547.0	8.0378
1991	3,345.0	3,145.0	1,491.7	20,359.2	9.9095
1992	5,118.5	2,336.7	2,132.6	30,175.5	17.2984
1993	8,081.7	18,344.7	3,575.3	24,500.1	22.0511
1994	8,785.1	27,102.8	4,994.4	30,036.0	21.8861
1995	13,337.8	43,149.2	9,215.6	55,435.7	21.8861
1996	14,863.6	117,829.1	8,656.2	71,577.4	21.8861
1997	49,549.0	169,613.1	6,902.0	43,587.6	21.8861
1998	35,270.4	200,861.9	23,365.6	49,517.7	21.8861
1999	42,737.2	323,580.8	17,253.5	114,456.1	92.6934
2000	53,279.5	111,508.6	27,965.2	46,697.6	102.1052
2001	49,245.9	259,757.8	53,336.0	76,347.8	111.9433
2002	73,577.4	215,333.4	32,467.3	0.0	120.9702
2003	87,958.9	97,982.1	55,736.0	11.3	129.3565
2004	137,775.8	167,721.8	30,072.6	15,729.8	133.5004
2005	171,604.1	265,034.7	71,361.2	11,500.0	132.1470
2006	185,224.3	262,207.3	78,681.3	26,272.9	128.6516
2007	220,900.0	367,900.0	131,100.0	39,423.0	125.8331
2008	287,100.0	504,400.0	152,100.0	17,300.0	118.5669
2009	311,868.8	509,120.5	120,049.2	211,758.1	148.9017
2010	326,010.00	434,480.0	104,910	18,470.0	150.2980

Source: Central Bank of Nigeria

APPENDIX B
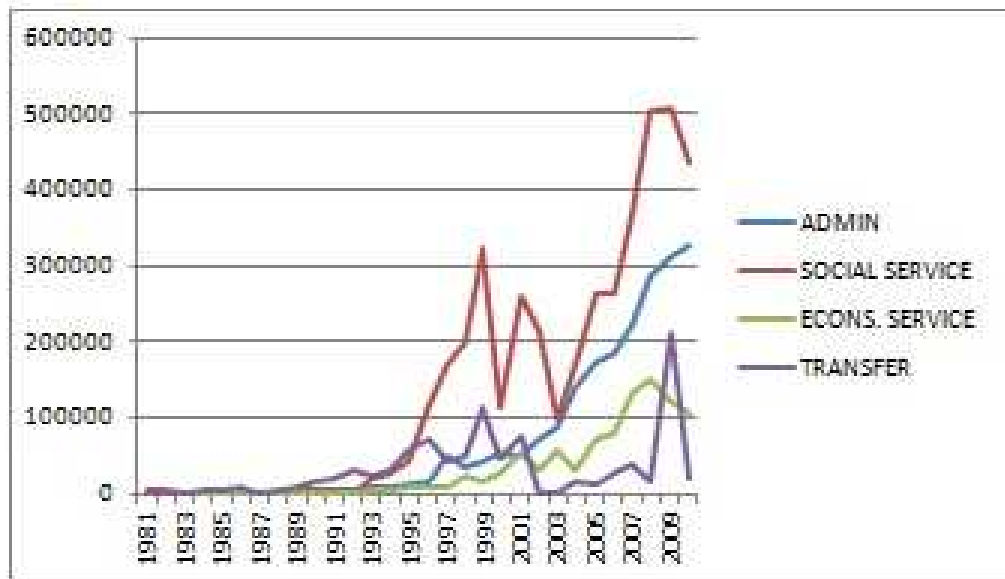
Source: Author's computation

Figure 1.0, Trends of Federal Government of Nigerian Expenditure, 1981-2010