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Public Revenue and Fiscal Consolidation in Nigeria

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Abstract

This study seeks to ascertain the relationship between public revenue and expenditure as well as to examine the proportion of revenue and budget deficit that is spent on capital projects in Nigeria. Both descriptive and regression methods were used to analyze time series data covering a period of thirty-one years. The regression model was well-fitted and all the explanatory variables were significant in explaining the dependent variable, government revenue. Findings reveal that a positive relationship exists between public revenue and expenditure and that Nigerian government has not been spending enough funds on capital projects.

The study therefore recommended that public spending should be more on capital projects. There should be government intervention in the provision of public goods and in the regulation of private investors' operation. Monetary policies which would lead to increase in money supply and favourable exchange rate should be put in place.

Keywords: public revenue, public expenditure, budget deficit, capital projects, public goods, monetary policies

1. Introduction

Over the years, there has been varying views on the causal relationship between public revenue and expenditure among economists and policy analysts. The need for the determination of the relationship between public revenue and expenditure cannot be overemphasized. An understanding of the relationship between the two variables is necessary for the formulation of sound fiscal policy and for the reduction of the deficit balance in the national budgets (Hondroyiannis and Papapetrou, 1996; Eita and Mbazima, 2008). Sanni (2007) noted that Nigeria's fiscal policy operations over the years have resulted in varying degrees of deficit; the financing of which has had tremendous implications for the economy. In recent times, oil prices have been on decline in the international market and this is perceived to likely pose a negative impact on the Nigerian economy, since oil revenue is currently the major component of public revenue. An excellent fiscal policy is therefore crucial in achieving sustainable growth in output, income and employment and in promoting price stability (Fasano and Wang, 2002; Eita and Mbazima, 2008; Wolde-Rufael, 2008).

In Nigeria, considering a 5-year periodic review, the period 1966-1970 recorded a decline in the average growth rate in real government revenue (RGR). This might be as a result of the civil war experience at that time. The highest growth in RGR and real government expenditure (RGE) was recorded in the period 1971-1975. This was the period in which Nigeria experienced oil-boom and it was also the post-civil war period when government spent so much on reconstruction and rehabilitation. The lowest growth in RGE was recorded in the period 1981-1985, which was the pre-Structural Adjustment Programme (SAP) period, when Nigeria experienced economic recession. In this same period, the highest growth rate in real budget deficit (RBD) was recorded, since government had to finance the economy through borrowing. However, the period 1976-1980 accounted for the least growth rate of RBD owing to the oil-boom experience (CBN, 2011).

Also, considering the ratio of average growth rate of RGR to real Gross Domestic Product (GDP), there has been an increase over and above the ratio of average growth rate of RGE to GDP for the periods under review. This suggests that government has been failing to appropriate revenue from crude oil into capital projects which could enhance socio-economic growth and development. From the foregoing, this study seeks to provide answers to the following questions:

i. How much of public revenue is being spent on capital and recurrent expenditure?

ii. How much of budget deficit is government spending on capital projects?
iii. What is the relationship between public revenue and expenditure?

The objectives of the study are to determine how much of public revenue is being spent on capital and recurrent expenditure, examine the proportion of budget deficit that is spent on capital projects and ascertain the relationship between public revenue and expenditure. This study will therefore contribute to existing literature in the area of methodology and scope because it is country-specific and covers the experience of recent years; from 1981-2011. The study is outlined in five sections. The first section introduces the focus of the paper; the second section contains the review of literature, while the third section outlines the methodology to be used in the study. The fourth section presents the results and the fifth section concludes the study with some policy recommendations.

2. Literature Review

The theoretical literature on public revenue and expenditure contain many hypotheses proposed by different authors to explain the relationship between the variables. These include: the revenue-spend hypothesis, the spend-revenue hypothesis, the fiscal synchronization hypothesis and the fiscal independence hypothesis. The revenue-spend hypothesis, also known as the tax-spend hypothesis was advocated by Friedman (1978). It states that there exists a unidirectional relationship, where public revenue causes public expenditure. Authors in support of this include Eita and Mbazima (2008), Emelogu and Uche (2010), Aregbeyen and Ibrahim (2012), Muhammad, et al (2012) and Rethabile and Sephooko (2012). Friedman is of the opinion that increases in tax or revenue will give rise to increased government expenditure, and this may result in further increase in fiscal deficits (Chang, 2009).

The spend-revenue hypothesis, also known as the spend-and-tax hypothesis was put forward by Peacock and Wiseman (1961, 1979), who stated that there exists a unidirectional relationship where changes in government spending brings about changes in government revenue. Authors in support of this include Abu (2008), Fazal and Muhammad (2010) and Magazzino and Dalena (2010). Increase in tax initially arising from economic and political crises will eventually be made permanent tax policies even after the crises. This is referred to as 'displacement effect' (Bhatia, 2003; Chang, 2009). The fiscal synchronization hypothesis advanced by Musgrave (1966) and Meltzer and Richard (1981) is based on the premise that government revenue and expenditure decisions are jointly made. The studies of (Gebhard and Silika (2006), Yuan-Hong and CHiung-Ju (2009), Mohsen and Mosayeb (2011) and Yousef and Mohammad (2012) support the fiscal synchronization hypothesis. According to Chang (2009), there exists a bidirectional relationship between the variables. The opinion here is that in making decisions on appropriate levels of public revenue and expenditure, the marginal costs and benefits of the good or service to be provided should be considered.

The fiscal independence hypothesis, also known as the institutional separation hypothesis associated with Baghestani and McNown (1994), has to do with the institutional separation of the tax and expenditure decisions of government. The opinion here is that there exists no causal relationship between the variables (Chang, 2009). Thus, public revenue and public expenditure are independent of each other. Owoye (1995) carried out a study on the relationship between tax revenues and expenditures in G7 countries. His finding revealed that the relationship between the variables is not the same for the countries despite their common features. In Nigeria, there had been different studies on this area of concern with various econometric tools employed ranging from Granger Causality test to Error Correction Modelling to Autoregressive Distributed Lag Bound test. However, there is the need to carry out a country-specific study on the relationship between public revenue and expenditure using an up-to-date data and also to ascertain how much of budget deficit (if any) is spent on capital projects using the Two-stage Least Square method (2SLS).

3. Methodology

This study is based on the fiscal synchronization hypothesis put forward by Musgrave (1966) on one hand and fiscal independence hypothesis by Baghestani and McNown (1994) on the other hand. From the review of existing literature, it is evident that there exist different views on the causal relationship between public revenue and expenditure. Therefore this study employs the 2SLS method to analyze time series data from 1981-

2011 in order to arrive at robust results which are useful for policy making. Two alternative estimation techniques are used: the single equation model and simultaneous equation model to examine the effect of public revenue and expenditure on the Nigerian economy. The reason for this is the fact that there might be simultaneity in the relationship between public revenue and expenditure, which in turn spur growth in the economy. Following Fasano and Wang (2002), annual real variables are used firstly to estimate the regression equation of public revenue on expenditure; then that of public expenditure on revenue. The econometric model is specified as follows:

$$RGR = \alpha_0 + \alpha_1 RGE + \mu_1 .....(i)$$

$$RGE = \beta_0 + \beta_1 RGR + \mu_2 .....(ii)$$

where RGR is real government revenue; RGE is real government expenditure; α_0, α_1, β_0

and β_1 are parameters to be estimated; μ_1 and μ_2 are the stochastic terms. From theoretical knowledge, the components of government expenditure include capital and recurrent expenditure. Also, in a situation where government revenue is not enough to meet domestic needs, government resort to deficit financing. Thus, equations (i) and (ii) are modified as:

$$RGR = \alpha_0 + \alpha_1 GCAP + \alpha_2 GREC + \mu_1 .....(iii)$$

$$RGE = \beta_0 + \beta_1 RGR + \beta_2 DEF + \mu_2 .....(iv)$$

where GCAP and GREC are government capital and recurrent expenditure respectively, while DEF represents budget deficit. To capture the ratio of budget deficit spent on capital projects, the model is specified as:

$$GCAP = \gamma_0 + \gamma_1 RGR + \gamma_2 DEF + \gamma_3 GREC + \mu_3 .....(v)$$

In reality and as established in literature, there exist other variables which affect government revenue and expenditure like inflation (INF), money supply (MS), private investment (PI) and exchange rate (EXR). Therefore, equations (iii), (iv) and (v) becomes:

$$RGR = \alpha_0 + \alpha_1 GCAP + \alpha_2 GREC + \alpha_3 INF + \alpha_4 MS + \alpha_5 PI + \alpha_6 EXR + \mu_1 .....(vi)$$

$$RGE = \beta_0 + \beta_1 RGR + \beta_2 DEF + \beta_3 INF + \beta_4 MS + \beta_5 PI + \beta_6 EXR + \mu_2 .....(vii)$$

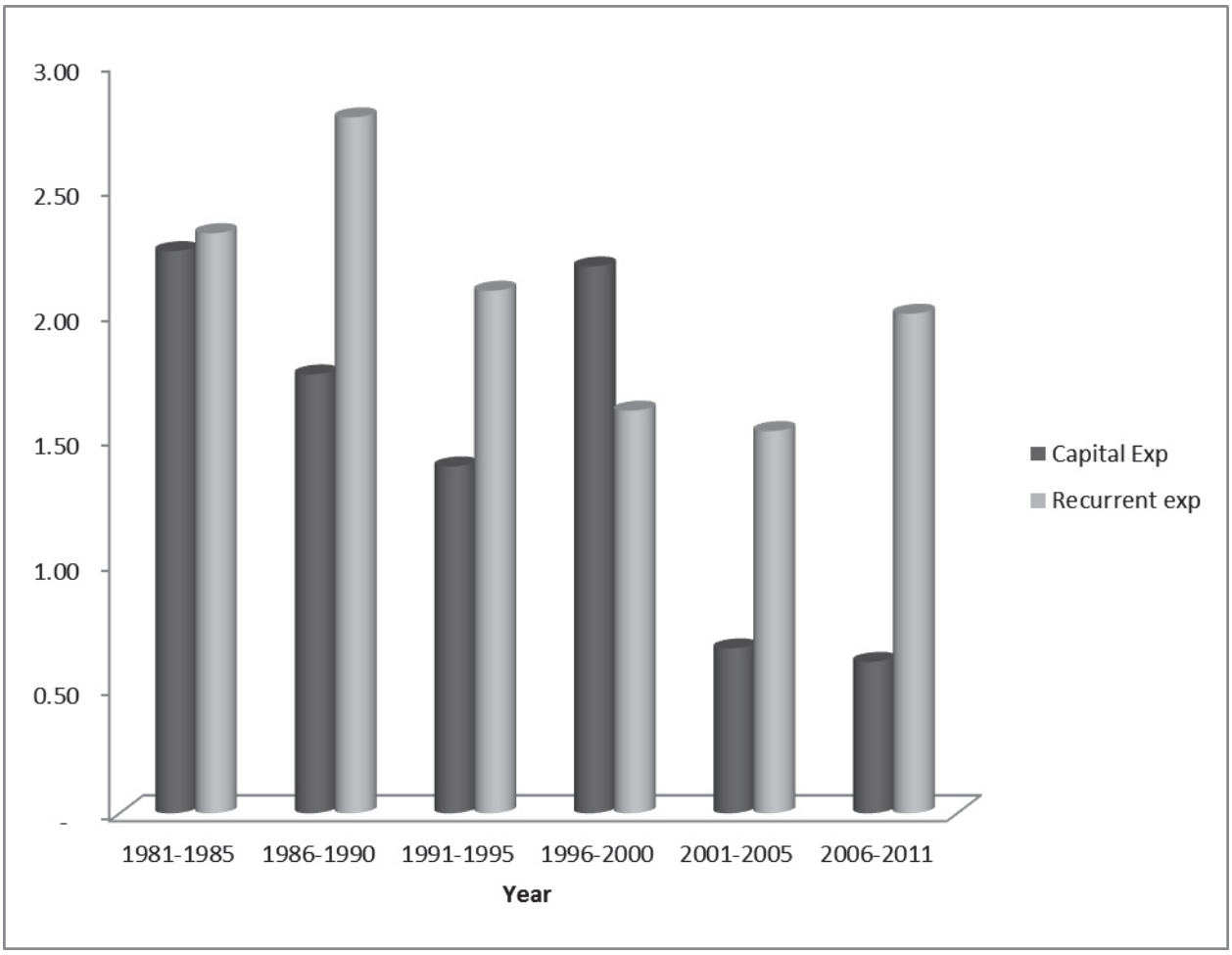
$$GCAP = \gamma_0 + \gamma_1 RGR + \gamma_2 DEF + \gamma_3 GREC + \gamma_4 INF + \gamma_5 MS + \gamma_6 PI + \gamma_7 EXR + \mu_3 .....(viii)$$

It is expected a priori that RGE and other explanatory variables should have a positive relationship with RGR except inflation. This is so because the explanatory variables spur investment thereby boosting output and revenue of government. Inflation on the other hand reduces the value of money and therefore poses a negative effect on investment and output. Public revenue is also affected negatively by the reduction in output; thus, there exist a negative relationship between RGR and inflation.

4. Result and Discussion

The first objective of this study is to determine how much of public revenue is spent on capital and recurrent expenditure. Figure 4.1 shows the average capital and recurrent expenditure of government in the periods under review.

Figure 4.1 Ratio of public revenue spent on capital and recurrent expenditure

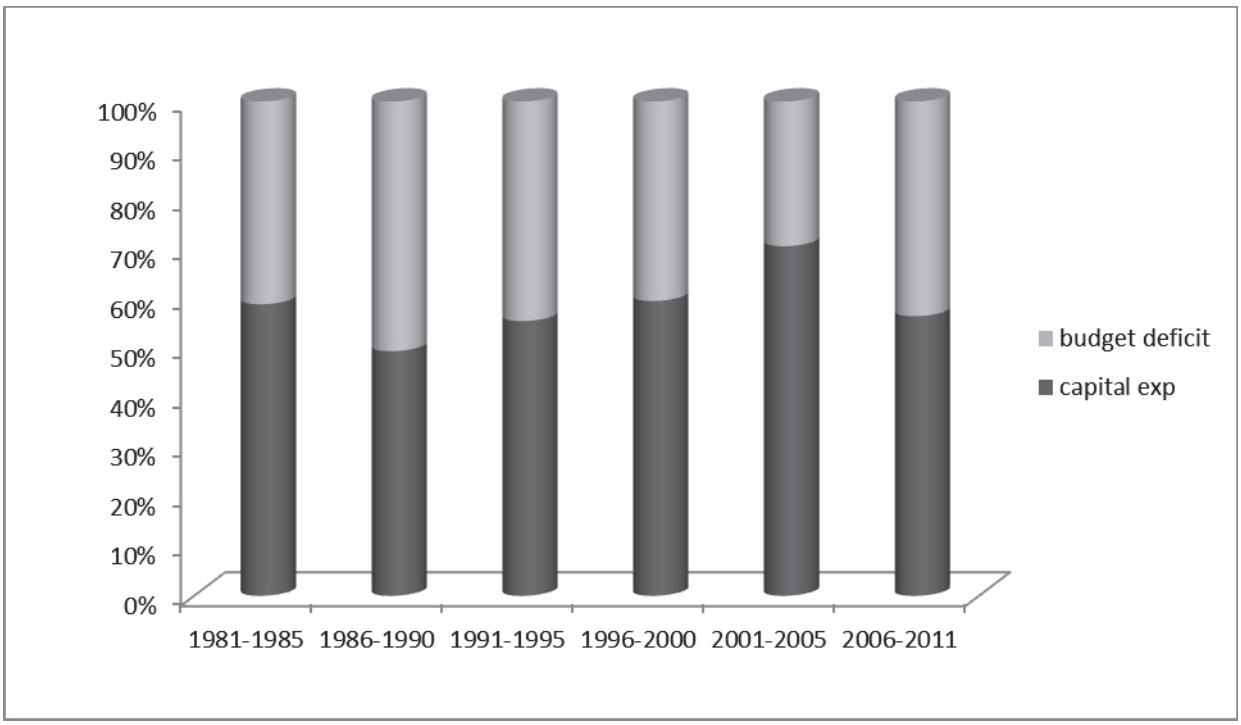


Source: Author's computation, underlying data from CBN Statistical Bulletin, 2011

Figure 4.1 shows that the period 1981-1985 recorded the highest value for the ratio of capital expenditure to RGR, while the lowest value was recorded in 2006-2011. In the period 1986-1990, the highest value for the ratio of recurrent expenditure to RGR was recorded, while the lowest value was recorded in 2001-2005. It also reveals that in the periods under review, recurrent expenditure was greater than capital expenditure except for 1996-2000. Thereafter, there was great reduction in capital expenditure relative to revenue expenditure.

The second objective aims at examining the proportion of budget deficit that is spent on capital projects. This is shown in Figure 4.2.

Figure 4.2 Percentage of budget deficit spent on capital project



Source: Author's computation, underlying data from CBN Statistical Bulletin, 2011

Figure 4.2 shows that the period 1986-1990 recorded the lowest percentage of budget deficit spent on capital project, while the period 2001-2005 recorded the highest value. After this period, there was a decline in the value showing that lesser proportion of budget deficit is spent on capital projects.

The third objective of this study is to ascertain the relationship between public revenue and expenditure. The result of the 2SLS regression revealed that the model was well fitted. Both the r-squared and the adjusted r-squared values were 99%. This shows that the explanatory variables sufficiently explain the dependent variable, RGR. Also, all the explanatory variables were significant. The result shows that government recurrent expenditure is statistically significant at 1% critical level. This implies that 1% increase in recurrent expenditure of government results in 1% increase in RGR. In addition, government recurrent expenditure has a positive coefficient of 0.6 to RGR. Capital expenditure has a positive coefficient of 0.2 to RGR and is statistically significant at 5% critical level. The result shows that 1% increase in public capital expenditure leads to 5% increase in RGR. Inflation has a positive 0.01 coefficient and is statistically significant at 1% critical level. The result implies that 1% increase in inflation leads to 1% increase in RGR. Also, money supply in the economy poses a positive effect on RGR. Money supply has 0.4 coefficient and is statistically significant in explaining RGR at 10% critical level. This implies that 1% increase in money supply leads to 10% increase in RGR. Similarly, exchange rate poses a positive effect on RGR and is statistically significant in explaining RGR at 1% critical level. The regression result also shows that exchange rate has a coefficient of approximately 0.01. However, private investment has a negative coefficient of 0.4 though it is statistically significant in explaining RGR at 5% critical level. This result implies that 1% increase in private investment will result in decrease of about 5% in RGR.

5. Conclusion and Recommendations

From the above results, it can be concluded that all the variables of interest are statistically significant in explaining RGR. Also, there exist positive relationship between RGR and RGE, be it capital or recurrent expenditure. That is, increase in public spending will boost public revenue. The findings of this study reveal that the Nigerian government has been spending relatively less on capital projects, which is supposed to have

enhanced the socio-economic development much craved for by the citizens of the country. Much of the deficit financing has been expended on recurrent items which have relatively less future relevance in terms of economic development. Therefore, the following policy recommendations have emerged from the study:

First, the current democratic government in Nigeria should note that both the current well-being of the citizens and the future development of the nation lie on the fulcrum of the policies adopted. As good as privatization may seem, not all sectors of the economy should be privatized. Government intervention is essential in some sectors of the economy which provide public goods, like defence, power, education, health to mention a few. The operation of private investors should be regulated in the provision of these public goods. Second, more of government revenue should be spent on capital projects which are usually unaffordable to private investors. For example, after privatizing the distribution stream of the power sector, the Nigerian government had to dash out funds to the purchasing companies after realizing that they do not have the financial capacity to bear the challenges ahead of them. This amounts to reduction in funds which should be made available for development projects in other sectors.

Third, government monetary policy should be carefully made considering the effect of exchange rate, money supply and inflation. Increase in money supply and favourable exchange rate will spur investment and public revenue thereby making more funds available for capital projects. However, the result suggests a very low elastic limit for the effect of inflation on RGR. Therefore, mild inflation is good for the economy.

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