

Fiscal Policy and Economic Growth: A Study on Nigerian Economic Perspective

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Abstract

This paper examines the impact of fiscal policy on economic growth of the Nigerian economy. The study used data from 1970 to 2011 and employed Engel-Granger cointegration for long-run relationship, ordinary least square for long-run estimate and diagnostic test for consistency of instruments. Empirical findings show that fiscal policy exerts a significant positive effect on economic growth, which indicates that appropriate fiscal measures stimulate the Nigerian economic growth. Thus, government spending has a greater impact on the growth rate of the Nigeria economy. There is need for continuous increase and growth of the nation's output by ensuring that government spending is channelled into sectors that best guarantees efficient and effective usage.

Keywords: Fiscal balances, economic growth, government spending, investment, Nigeria.

1.0 INTRODUCTION

In Nigeria, the continuous increase of fiscal deficits have been blamed for much of the economic crisis that beset them about two decades ago resulting in over indebtedness and debt crisis, high inflation, poor investment and growth (Chimobi & Igwe, 2010). For instance, the country recorded an increase in budget deficits from ₦3,902.10 million in 1981 to ₦8,254.30 million in 1986 to ₦15,134.70 million in 1989 but catapulted to ₦133,389.30 million and ₦301,401.60 million in 1998 and 2002 respectively (CBN, 2012). As of 2003-2006, government fiscal deficits witnessed a moderate decline from ₦202,724.70 million in 2003, ₦172,601.30 million in 2004, ₦161,406.30 million in 2005, to ₦101,397.50 million in 2006 (CBN, 2012). The causes of the persistent annual increase of fiscal deficits are bloating of government bureaucracy, cost of providing critical infrastructures and shortage of revenue generation, etc. (Umeora, 2013). For example; a run-down of government annual expenditure from 1970 (at the end of the Nigeria – Biafra War) to 2011 shows that the government ran annual deficits for 37 years.

Additionally, the issue of fiscal deficit is not only persistent to developing countries but also developed nations, though not severe in regards to the third world nations. In the early millennium, budgetary balances of both Europe and United states deteriorated, whereas, many European countries including large countries like Germany and France surpassed the 3% of GDP reference value stipulated by the Maastricht Treaty on government deficits (OECD, 2003). In 2002, United States faces significant deficits of about 3.7% in GDP (OECD, 2003). In Nigeria case, fiscal deficits as a percentage of GDP (at 1990 factor cost), deteriorated from -3.8 percent in 1981 to -5.7 percent in 1986 and further to -9.5 percent in 1993 (Appah & Chigbu, 2013). He further shows that the value of deficits as a percentage of GDP declined to -0.1 percent in 1997 only to rise to -5.9 percent in 1999. Furthermore, the share of deficits in total GDP has been declining, from -2.0 percent in 2003 to -1.1 percent and -0.6 percent in 2005 and 2006, respectively.

On this note, this study examines the impact of fiscal policy on economic growth of the Nigerian economy from 1970 to 2011. The study reported that fiscal policy exerts a significant positive effect on economic growth, which is consistent with the study by Chowdhury (1986), Dar-Atui & Amirkhalkhali (2002), Mansouri (2008) and Khosravi & Karimi (2010). It means that appropriate fiscal measures stimulate the Nigerian economic development and growth. The other part of this paper is structured into four sections; section two presents the review of past literatures and the third section shows the framework and methodology used for the study. Section four reveals data presentation and analysis and discussion of findings. And, the last section gave the concluding part of the study as well as policy options.

2.0 LITERATURE REVIEW

Several researchers have also carried out empirical studies on the relationship between fiscal policy and economic growth in different economies. Expectedly, there exist diverse opinions on the use of government expenditure components in economic management. A study by Abu et al (2010) uses co-integration and error correction methods to analyze the relationship between government expenditure and economic growth. This study, which is based on the Keynesian and Endogenous Growth model, reveals that government total capital expenditure, total recurrent expenditure and growth expenditure on education have negative effect on economic growth. He also maintained that, on the contrary, rising government expenditure on transport and communication and health results to an increase in economic growth.

More so, Narayan (2006) in his study reported that empirical exercises on the effect of government

spending which distinguish between government consumption and government capital accumulation suggest that government capital stock has a positive impact on productivity growth and that government spending had a positive and highly significant impact on output growth rates. An increase in current expenditure has positive and statistically significant growth effects while a negative relationship is detected between the capital components of public expenditure and per capita growth. The focus on capital expenditure by developing country government has the implication that they may have been misallocating public expenditure in favour of capital expenditure at the expense of current expenditure losing out in terms of growth in that process.

Various components of government expenditure have been examined in relation to economic growth. For instance, Folster and Henrekson (2000) find that government consumption spending is growth-retarding but spending on education impacts positively on growth. Kneller et al (2001) find that productive spending has a positive, while non productive spending has a negative impact on growth of OECD countries (1970-95). Ram (1996) using a sample of 115 countries found government expenditure to have significant positive externality effects on growth particularly in the developing countries (LDCs) sample but total government spending had a negative effect on growth.

Obi (2007) used a general equilibrium model (GEM) to examine fiscal policy – poverty alleviation relationship in Nigeria. In this study, he maintained that public recurrent and capital expenditures on economic and social services have received the least attention among the various classifications of government expenditure. However, the observation and recommendation of this study was that proper targeting of government expenditure is more politically and practically feasible in Nigeria than transfers and tariffs, as it has more positive impact.

Omitogun and Ayinla (2007) applied a reduced form of Solow Growth Model to examine fiscal policy and the Nigerian economic growth. They regressed economic growth on fiscal policy ratio, debt finance, and money printing finances. The result shows that fiscal policy pursued by the Nigerian government did not achieve its aims of promoting sustainable development and growth, during the period under study. Although, this findings invalidate the Keynesian School of Thought, but, the study observes that, social, economic and political problems in Nigeria such as corruption, wasteful spending, uncontrolled money supply, policy inconsistency, poor policy implementation and lack of feedback mechanism among others, are said to be responsible for the negative impact of fiscal policy in the country.

Of particular relevance to this current study is a study by Adeoye (2003) which analyse the contribution and impacts of different tools of fiscal policy on the growth of the Nigerian economy. The study was carried out using a derivative of the Denison growth accounting model which was estimated with data covering the period 1970 – 2002. The findings from the study reveals that majority of public investments are on unproductive activities which brings about a fragile relationship between investment expenditure and output growth in Nigeria. On the whole, Adeoye (2003) observed that investment in human capital has promoted growth which particularly is traceable to the increase in school enrolment. In all, the results of the regressed model pointed towards negative effect of fiscal balance on growth.

3.0 RESEARCH METHODOLOGY

3.1 Model Specification

The econometric model approach employed by Ocran (2009) for the case of South Africa is adopted to analyze the inter-relationship between fiscal policy and economic growth in Nigeria based on their methodological relevance in explaining precisely, the growth effect on Nigerian economy. The adopted empirical studies models are formulated using the Solow growth theory stated that labour and capital affect economic output. The adopted econometric model is expressed as:

$$RGDP_t = f(K, L) \tag{i}$$

Thus, mathematically stated as thus:

$$RGDP_t = \alpha_0 + \alpha_1 K_t + \alpha_2 L + \alpha_3 Z + u \tag{ii}$$

Where; RGDP = economic growth Indicators (like GDP growth rate and Per Capita Income); K = capital, L = labour, X = set of exogenous factor, α_0 = intercept or constant; α_{1-3} = parameters or co-efficient of explanatory variables; and u = error term.

However, the empirical models adopted from the work of Ocran (2009) is modified taking into consideration main focus of this study, the structure of the Nigerian financial system, and relevance of fiscal policy (measure as fiscal balances) on the Nigerian economy. These are the most quantifiable in terms of data generation and as such should provide an acceptable approximation for fiscal policies in Nigeria. Therefore, the empirical model for this study is specified as:

$$RGDP = \alpha + \beta_1 GCF + \beta_2 FP + \beta_3 MS + \beta_4 EXR + \mu \tag{iii}$$

Where: RGDP = Real gross domestic product; GCF = Gross capital formation; FP = Fiscal policy proxy by fiscal

balances; MS = Broad money supply; EXR = Exchange rate of Naira vis-à-vis U.S dollar; α = Intercepts; β_{1-4} = Co-efficient or parameters of explanatory variables; and μ = Error term. There is a positive and direct relationship between the real gross domestic product (RGDP) and the independent variables employed. Thus, the economic a priori expectation of the model specified above is given below:

$$\frac{\partial \text{RGDP}}{\partial \text{GCF}} > 0; \frac{\partial \text{RGDP}}{\partial \text{FP}} > 0; \frac{\partial \text{RGDP}}{\partial \text{MS}} > 0 \text{ and } \frac{\partial \text{RGDP}}{\partial \text{EXR}} > 0$$

3.2 Sources of Data

The data for this study would be obtained from secondary sources, particularly from Central Bank of Nigeria (CBN) publications such as the CBN Statistical Bulletin, CBN Economic and Financial Review Bullion, CBN monthly reports, CBN Annual Reports and Statement of Accounts of various years, CBN Briefs, data from the National Bureau of Statistics and relevant journals as well as textbooks on fiscal policy and economic growth in Nigeria. The independent variables will also be calculated based on data gotten from the above sources.

3.3 Method of Data Analysis

The empirical investigation of the impact of fiscal policy on Nigerian economy is conducted using ordinary least square (OLS) method. In demonstrating the application of the ordinary least squared method, a multiple regression method is used with the Real Gross Domestic product of Nigeria as the dependent variable while total capital expenditure, total recurrent expenditure, company income tax and petroleum income tax are the explanatory variables.

Prior to the long-run estimate, the time series properties of the variables incorporated in multiple regression model (iii) is examined using the Augmented Dickey-Fuller unit root test in order to determine the long-run convergence of each series to its true mean. The test involves the estimation of equations with drift and trends as proposed Dickey and Fuller (1988). The test equations are expressed as:

$$\Delta Z_t = \eta_0 + \eta_1 Z_{t-1} + \sum_{i=1}^n \pi_i \Delta Z_{t-i} + v_t \quad (\text{iv})$$

$$\Delta Z_t = \eta_0 + \eta_1 Z_{t-1} + \eta_1 t + \sum_{i=1}^n \pi_i \Delta Z_{t-i} + v_t \quad (\text{v})$$

$$H_0 : \quad \eta_1 = 0$$

$$H_1 : \quad \eta_1 < 0$$

The time series variable is represented by Z_t and v_t as time and residual respectively. Equation (iv) and (v) are the test model with intercept only, and linear trend respectively.

The specified multiple regression model (v) is estimated through the use of Classical Least Square Estimator and other time series diagnostic tests are employed such as Ramsey RESET test for the entire structural stability of the model in line with underlining classical assumptions; residual diagnostic tests like Histogram normality test, Breusch Godfrey serial correlation LM test, Breusch-Pagan-Godfrey (BPG) and ARCH Heteroskedasticity tests; and Variance Inflation Factors (VIF) test to examine the level at which the estimated coefficient variance is inflated due to multicollinearity.

4.0 DATA PRESENTATION AND ANALYSIS

This section deals with econometric analysis of relative effectiveness of fiscal policy in Nigeria between two decades after independence (1970) and 2011. The time frame for the analysis is chosen based on availability of data from various sources.

4.1 Unit Root Test Results

Table 4.1 presents the results of the time series properties of the variables included in the model. This pre-test was carried out before estimating the long-run relationship between fiscal policy and economic growth in Nigeria (1970-2011).

Table 4.1: ADF Unit Root Test Results

| Variable | ADF Tau Statistics | | Order of Integration |
|----------|------------------------|------------------------|----------------------|
| | Intercept | Linear Trend | |
| GCF | -7.0125*(0) [-3.6056] | -6.9230*(0) [-4.2050] | 1 |
| FP | -6.2200*(0) [-3.6056] | -6.0992*(1) [-4.2119] | 1 |
| MS | -7.2305*(0) [-3.6056] | -7.1483*(0) [-4.2050] | 1 |
| MS | -8.4435*(0) [-3.6056] | -8.8851*(0) [-4.2050] | 1 |
| RGDP | -10.4090*(1) [-3.6156] | -10.8804*(1) [-4.2191] | 1 |
| ect_t | -3.6057*(0) [-3.6010] | -35716**(0) [-3.5236] | 0 |

Note: * significant at 1%; ** significant at 5%; *** significant at 10% Mackinnon critical values and are shown in parenthesis. The lagged numbers shown in brackets are selected using the minimum Schwarz and Akaike Information criteria.

Source: Author's Computation, 2015.

The Augmented Dickey Fuller (ADF) unit-root test results in growth rates presented in table 4.1 indicate that gross capital formation (GCF), fiscal policy proxy by fiscal balances (FP), broad money supply (MS), and exchange rate of Naira vis-à-vis U.S dollar (EXR) are stationary at first difference. While, only real gross domestic product (RGDP) was stationary at second difference. Thus GCF, FP, MS, and EXR as proxies for fiscal policy are *non-mean reverting at levels and do not converge to their long-run equilibrium* until they are first differenced. Econometric literature argued that regressing a stationary series on non-stationary series has severe implications in drawing policy inference. Hence, the long-run association among the series based on generated residual [ect_t] was also determined.

Following the Engle-Granger cointegration procedure, the generated residual or error correction term (ECT) confirmed existence of long-run relationship among fiscal policy and economic growth that the null hypothesis at level is rejected.

4.2 Long-Run Estimates

The table 4.2 below reported that fiscal policy proxy by fiscal balances (FP) and broad money supply (MS) exert positive influence on economic growth in Nigeria between a decade period after Nigeria's independence and 2010 fiscal year and all the effects conform with the theoretical expectation. This implies that for a per cent increase fiscal balances (FP) and broad money supply (MS); the Nigerian economy will grow by 0.00168 and 1.039 per cent respectively. From the table, it shows that log of gross capital formation (GCF) and exchange rate of Naira in growth rate vis-à-vis U.S dollar (EXR) exerts negative effects on economic growth in Nigeria during the review periods and this does not conform to the apriori expectations based on sign. However, in terms of magnitude of effect, a percentage increase in the log of gross capital formation (GCF) and exchange rate of Naira in growth rate vis-à-vis U.S dollar (EXR) will deteriorate the economic growth by 0.3321 and 0.3165 per cent respectively.

Table 4.2: Estimated Long-Run Model Results and Diagnostic Test

| Dependent Variable: LOG(RGDP) | | | |
|---|-------------|---------------------|---------|
| <i>Method: Least Squares</i> | | | |
| Observation (n) = 42 | | | |
| Variable | Coefficient | Std. Error | Prob. |
| C | 4.039761 | 1.519033 | 0.0116 |
| LOG(GCF) | -0.332118 | 0.294180 | 0.2664 |
| FD | 1.68E-06 | 6.90E-07 | 0.0202 |
| LOG(MS) | 1.039433 | 0.189985 | 0.0000 |
| LOG(ER) | -0.316580 | 0.169495 | 0.0699 |
| R-squared | 0.84943 | Durbin-Watson stat | 1.5409 |
| Adjusted R ² | 0.83270 | F-statistic | 50.7717 |
| S.E. of regression | 0.62065 | Prob(F-statistic) | 0.0000 |
| <i>Residual Normality Test</i> | | | |
| Jarque-Bera | 3.8774 | Prob(J.B) | 0.1439 |
| <i>Breusch-Godfrey Serial Correlation LM Test</i> | | | |
| F-statistic | 10.0720 | Prob. F(1, 36) | 0.1152 |
| Obs*R-squared | 9.1818 | Prob. Chi-Square(1) | 0.0721 |
| <i>Heteroskedasticity Test: Breusch-Pagan-Godfrey</i> | | | |
| F-statistic | 1.0816 | Prob. F(4,26) | 0.3859 |
| Obs*R-squared | 4.4227 | Prob. Chi-Square(4) | 0.3518 |

Source: Author's Computation (2015) using E-Views 7.1

In assessing the partial significance of the estimated parameters for the incorporated economic growth and macroeconomic indicators, the t-statistics results are presented in the table. The estimated result shows that the estimated parameters for fiscal policy proxy by fiscal balances (FP) and broad money supply (MS) were found to be partially statistically significant at 5% critical level because their *p-values* are less than 0.05 and exchange rate of Naira in growth rate vis-à-vis U.S dollar (EXR) was statistical significant at 0.1 critical value. Thus, gross capital formation (GCF) is not significant at both 5% and 10% significance level.

Although, the F-statistic result shows that all the incorporated economic growth and macroeconomic indicators are simultaneously significant at 5% critical level. While, the adjusted R-squared result reveals that 83.3% of the total variation in economic output growth is accounted by changes in fiscal policy proxy by fiscal balances (FP), broad money supply (MS), exchange rate of Naira in growth rate vis-à-vis U.S dollar (EXR), and gross capital formation (GCF) during the review period. The Durbin-Watson test result reveals that there is presence of semi-strong positive serial correlation among the residuals, because of the d-value (1.5410) is far from zero but close to two.

However, the Breusch-Godfrey serial correlation test result from table 4.3 reported that we do not reject the null hypothesis “no serial correlation” at 5% significance level, and likewise for the Breusch-Pagan-Godfrey heteroskedasticity test, the result indicated that we do not reject the null hypothesis “no heteroskedasticity” at 5% significance level.

The table also reports the probability value of the Jarque-Bera statistic (0.1439) shows that the estimated residual series is normally distributed with zero mean and constant variance. This tends to improve the reliability of the estimated parameters and thus, necessitate other residual diagnostic test such as higher order serial correlation and heteroskedasticity tests.

Thus, table 4.3 below shows that there is no multi-collinearity among the explanatory variables incorporated except for money supply with a small variation from 10 in the estimated cointegrating model as evaluated by the centered Variance Inflation Factor (VIF).

Table 4.3: Variance Inflation Factors

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|----------|----------------------|----------------|--------------|
| ER | 0.000866 | 17.05785 | 1.892002 |
| FD | 327.9014 | 72.35877 | 5.034976 |
| MS | 12.98661 | 138.4248 | 12.15615 |
| GCF | 0.213332 | 11.52733 | 4.836370 |
| C | 6315313. | 25.97960 | NA |

Source: Authors computation, 2015.

5.0 CONCLUSION AND POLICY OPTIONS

This study examines the relative effectiveness of fiscal policy on the Nigerian economic growth between two decades after independence (1970) and 2011. From the different estimation techniques employed, the study reported that fiscal policy and money supply exert positive influence on economic growth. The positive relationship between fiscal policy and economy growth is consistent with the study of Chowdhury (1986), Dar-Atui & Amirkhalkhali (2002), Mansouri (2008) and Khosravi & Karimi (2010). They maintained that fiscal policy is generally believed to be associated with growth, or precisely, it is held that appropriate fiscal measures in particular circumstances can be used to stimulate the Nigerian economic development and growth. In this study, fiscal policy's impact on economic activity in Nigeria was also of the opinion that fiscal policy rather than monetary action had greater influence on economic activities. This is consistent with the study of Chowdhury (1986).

Following the value of fiscal balance in Nigeria, the value of government expenditure outweighs government revenue for over thirty-six years out of the considered period under study. This shows that government spending has a greater impact on the growth rate of the Nigeria economy. It follows Dar-Atui and Amirkhalkhali (2002)'s investigation using the endogenous growth model of fiscal policy that it (government expenditure and income) is very crucial in predicting future economic growth. This relationship shows that the size of government expenditure is very important in determining the performance of the economy (Abdullah, 2000). However, government should not only support and encourage the private sector to accelerate economic growth, but should also increase its budgetary provision on infrastructure, social and economic activities.

In Nigeria, findings from the study provided support for fiscal Policy led growth through crowd in private investment resulting from government expenditure on infrastructure (Ekpo, 1994). The impact of budgetary expenditure on the defense sector and economic development of Nigeria has shown that defense expenditure opted to be one of the factors influencing the economic growth in Nigeria due to the recent security insurgent in the country.

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