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An Empirical Analysis of the Impact of Budget Deficit on Economic Growth in Nigeria (1970-2011)

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Abstract: **This research aims at investigating the true impact of budget deficit (BD) on economic growth of Nigeria which is proxied by the real gross domestic product (RGDP). This study employed both theoretical and empirical approaches to determine the effectiveness of fiscal deficits in expanding the level of economic activity. The sample taken for the current study comprises of time-series considering period of 1970-2011. Regression analysis using Ordinary least squares (OLS) is conducted to ascertain the impact of BD on the RGDP, and the result showed a positive impact of budget deficit on the economic growth. This following the Keynesian theory implies that government budget deficit if invested in the production of public capital goods results in an increase in growth through the crowding-in effect of private investment. The study therefore recommends that where fiscal deficits are necessary in correcting economic cycles, such deficits should have target investments that are self-sustaining and through which, significant levels of investment and development in the economy can be enhanced. Furthermore, curbing corruption, an important source of fiscal deficits in Nigeria, will help to reduce the deficits and ensure prudent management of national resources.**

Keywords: **Budget Deficit, Keynesian Theory, Crowding-In Effect.**

1. INTRODUCTION

A striking feature of Nigeria's fiscal operations since the second half of 1970s has been persistent and rising budget deficits. The ever-rising government deficit, particularly since 1986 has attracted the attention of economists, policy makers, the World Bank and the International Monetary Fund (IMF). It is however pertinent to note that much of the debate over the deficits has been more related to the effects of unacceptable large deficits rather than with the causes of deficits, for example, higher interest rates, real exchange rate depreciation, increased public spending are frequently mentioned. Hence, Budget deficit is a situation where total expenditure exceeds the revenue for a given period, usually one year. It connotes the difference between the budget receipts and budget expenditures financed by withdrawal of cash balances and borrowing from public. Budget deficit arises when the demand for government expenditure far exceeds government revenue that needs to be financed by net lending.

The link between this budget deficit and economic growth is a universal phenomenon peculiar to every government in the world, particularly, to the governments of developing countries. The development of budget deficit is often traced to the Keynesian inspired public expenditure led growth of the 1970s. Gale and Orszag (2002) argue that, despite global capital flows, government budget deficits are still likely to slow economic growth because "the capital inflows represent a reduction in net national foreign investment and therefore a reduction in the capital owned by Nigerians and a reduction in future national income." In other words, because capital inflows imply rising future obligations to foreigners, foreign capital inflows may not be able to avoid a decline in the long-run growth of Nigeria's income. Rubin, Orszag, and Sinai (2004) hypothesize several additional negative growth effects of a rising government budget deficits, including declining asset prices, reduced national wealth, fear of inflation, reduced fiscal flexibility for dealing with macroeconomic shocks, and declining investor confidence. This study is motivated by the fact that budget deficit in Nigeria has been on the increase therefore it tends to ascertain the impact of budget deficit on economic growth.

Many studies show that government spending is positively related to economic growth, while, increase in government spending may lead to fiscal deficit. But if the government reduces her expenditure it may adversely affect the economy. However, the excess of government spending mainly on recurrent expenditures create fiscal deficits. But most economists believe that fiscal deficit is the main cause of every problem in an economy, it can be detrimental to welfare for several reasons, like leading to inefficient allocation of resources and crowding-out private investment and this is in contrast to the Keynesian view (the neoclassical view) which believes that deficit financing crowds-out private investment and in turn impacts negatively on growth. Hence, this study seeks to determine whether budget deficit has any impact on Economic Growth in Nigeria despite all policies made towards its implementation. Therefore, this study attempts to examine the following research questions:

1) What impact does these budget deficits [BD] have so far on economic growth of Nigeria?

2) What is the long run relationship between budget deficit [BD] and economic growth?

2. LITERATURE REVIEW

In the 1930's, during the period of the great depression, it was John Maynard Keynes, who put forward the idea of budget deficit because during this period, there was low demand and unemployment problem and the invisible hand theory was unable to regulate the market. Keynes therefore advocated for the running of budget deficit by increasing government spending and/or reducing taxes. Keynes provided a framework on how fiscal deficit behavior should be analyzed. His early emphasis was on fiscal policy and deficit as components of aggregate demand. From this perspective, the Keynesians found no need to balance the budget during periods of recession, instead, the notions of the cyclically balanced budget (that is, a budget philosophy calling for budget deficits during recessions to be financed by budget surplus during expansions). This implies also that the budget should be in balance on the average over the business cycle - in surplus during booms, and in deficit during recession was developed as a norm for fiscal behavior.

Budget deficit, according to the Ricardian equivalence theory, also has no effect on private investment. Accordingly, a reduction in taxes, which is accompanied by an increase in budget deficit, does not trigger growth of consumption, and hence does not have any expansionary effect as households tend to increase savings in anticipation of higher taxes in the future, which are necessary to redeem the debt. Similarly, the Ricardian equivalence theory holds that debt- or tax-financed government deficits do not have any effect on the trade balance and the real exchange rate and hence the absence of a relationship between budget deficit and current account deficit.

The theoretical literature on the effects of budget deficits on the external sector is mixed. The theory can be traced back to the Mundell-Fleming model (Fleming; 1962 and Mundell; 1963). The Mundell-Fleming model, which is an open-economy version of the IS-LM model, posits that an increase in budget deficit increases consumer spending as it increases disposable income (income after tax) and hence, financial wealth. This increases import since expenditure increases on not only domestically produced goods but also on imported goods. However, an increase in the demand for import depreciates the exchange rate since it increases the demand for foreign currency. The depreciation of the exchange rate increases export. Since both import and export increase, the net effect on trade balance is ambiguous.

The Keynesians further posit that fiscal deficits could have a negative impact on the external sector, reflected through trade deficit, but only if the domestic economy is unable to absorb the additional liquidity through an expansion in output. Hence, if the supply of output does not expand in response to the deficit, the surplus expenditure would only increase the level of imports, thereby resulting in a trade deficit and subsequent decline in the exchange rate: the 'twin-deficits' hypothesis. According to the Keynesian absorption theory, an increase in budget deficit increases domestic absorption and import increases. Thus the current account goes into deficit, from an initial equilibrium position. This is in sharp contrast to the prediction of the Mundell Fleming model, which predicts an inconclusive effect. Hence, The Keynesian absorption theory argues that an increase in the budget deficit could induce domestic absorption and hence, import expansion, causing a current account deficit.

The empirical literature will be looked into in two different ways of; foreign empirical literature and domestic empirical literature.

Guess and Koford (1984) used the Granger causality test to find the causal relationship between budget deficits and inflation, GNP, and private investment using annual data for seventeen OECD countries for the period 1949 to 1981. They concluded that budget deficits do not cause changes in these variables. Another contentious issue is whether larger fiscal

deficits are associated with higher inflation. Sergeant and Wallace's (1985) "monetarist arithmetic" answers this question affirmatively, nevertheless, the relationship is blurred because government finances deficits by borrowing as well as by printing money. The relationship is further distorted by other influences such as; unstable money demand, inflationary exchange rate depreciations, widespread indexation, and inflationary expectations (Kiguel and Liviation, (1988) ; Dornbusch and Fisher, (1991). Khalid and Guan (1991) utilized co-integration technique to examine the causal relationship between budget deficit and current account balance as well as the causality using a selected sample of five developed countries (US, UK, France, Canada and Australia) and five developing countries (India, Indonesia, Pakistan, Egypt and Mexico) over the period of 1950-1994 for developed countries and 1955-1993 for developing countries. Their empirical results show that causal relationship between budget deficit and current account deficit exists in four out of five developing countries while no developed country exhibits such a relationship. The results suggest that a high correspondence between the two deficits is more likely to occur in developing countries than in developed countries.

On the domestic front**,** Oyejide (1972) using data spanning the period of (1957- 1970), made empirical enquiry into the impact of deficit financing on inflation and capital formation in Nigeria; He related domestic money supply to inflation using Fisher's type of equation. Since there seems to exist a direct correlation between general price level and measures of deficit financing over the time period, he concluded that less emphasis on deficit financing may limit the growth of price inflation. Adeyeye and Fakiyesi (1980) estimated and tested the hypothesis that the main factor responsible for instability of prices and inflationary tendencies in Nigeria has been government expenditure. Using annual time-series data, spanning (1960-1977), they tested the hypothesis that the rate of inflation in Nigeria is linearly related to the rates of growth of money stock, government expenditure, especially deficits and growth of government revenue, especially monetization of foreign exchange from oil exports. Agu (1988) reviewed IMF journal on the effect of budget deficit on GDP to ascertain the determinants of macroeconomic volatility and its implications on economic growth in Nigeria. He noted the existence of trade imbalance and negative real interest rate during most of the review period (1970-1985). He also demonstrated the negative effect of budget deficit on GDP over time using Mckinnon financial repression diagram. His main conclusion was that the relationship between budget deficit and macroeconomic aggregates is a dual sign that is some are negatively related while some are positively related to fiscal deficit.

The limitations of the existing literature reviewed so far are:

(a) There is scarcity of domestic literature on the impact of budget deficit on economic growth in Nigeria.

(b) Most of the studies are foreign inclined and are usually based on cross-country analysis.

(c) Most studies reviewed have variations in their choice of data.

Thus, this study is poised to examine thoroughly the impact of budget deficit on economic growth in Nigeria by looking at previous studies in Nigeria, the theories guiding the relationship and also by including other core determinants of economic growth in Nigeria.

3. METHODOLOGY

The model used follows the techniques of statistical inference of Haavelmo (1994).

Hence the model is as follows:

The functional form of the model is specified as:

$RGDP_t = f(BD_t , M2\text{-}GDP_t , RINT_t , EXR_t , SAV2GDP_t)$……..……..……..…(1)

The mathematical form of the model is specified as:

$RGDP_t = \alpha + \beta_1 BD_t + \beta_2 M2\text{-}GDP_t + \beta_3 RINT_t + \beta_4 EXR_t + \beta_5 SAV2GDP_t$……..… (2)

The econometric form of the model as:

$RGDP_t = \alpha + \beta_1 BD_t + \beta_2 M2\text{-}GDP_t + \beta_3 RINT_t + \beta_4 EXR_t + \beta_5 SAV2GDP_t + \varepsilon_t$…… (3)

The dependent variable is real gross domestic product while the independent variables are; budget deficit, money supply to GDP ratio, real interest rate, exchange rate, savings to GDP ratio. In order to properly estimate the parameters of the above model , we rescale the variables both dependent and independent by double logging the model expressed in equation (3),thus transforming it into a **log-log** model as follows;

$LOG(RGDP)_t = \alpha + \beta_1 BD_t + \beta_2 M2\text{-}GDP_t + \beta_3 RINT_t + \beta_4 LOG(EXR)_t + \beta_5 SAV2GDP_t + \varepsilon_t$……(4)

Where;

$RGDP_t$= Real gross domestic product which is used as a proxy for economic growth (output of the economy).

BD= Budget deficit / GDP.

M2-GDP= Broad money which is used as a proxy for money supply.

RINT= Real Interest rate

EXR= Exchange rate

SAV2GDP= Savings to GDP ratio computed as savings/ GDP

The research study makes use of secondary time series data spanning a period of 41years (1970-2011). The data used are obtained from the Central Bank of Nigeria **(CBN)** Statistical Bulletin, World Bank data and National Bureau of Statistics **(NBS)** online publication for 2011.

Table 1

Variables	Expected signs
RGDP	This is the dependent variable.
BD	This is expected to be positive (+)
M2	This is expected to be positive (+)
RINT	This is expected to be negative (-)
EXR	This is expected to be positive (+)
SAV2GDP	This is expected to be positive (+)

SOURCE: CBN - Central Bank Of Nigeria (CBN) Statistical Bulletin 2011 Edition WDI - World Development Indicator.

4. EMPIRICAL RESULTS AND DISCUSSION

The ordinary least square **(OLS)** regression result of this study is presented below:

Dependent Variable**: LOG (RGDP)**

Table 2: The Regression Result

VARIABLE	COEFFICIENT	t-STATISTIC
The constant (C)	11.24664	33.09861***
Budget deficit (BD)	1.603969	1.916045
Savings to GDP (SAV2GDP)	0.068744	1.905459
Real Interest Rate (RINT)	-0.112844	-9.801262***
LOG of Exchange Rate (LOG(EXR))	0.159956	3.637567***
Money Supply to GDP M2-GDP	0.005204	0.210547

R^2= 0.953876 **F-STATISTIC**=148.9016
ADJUSTED R^2=0.947470 **D-W** STATISTIC=1.266706
*** significant @ 1% level

From the regression table, it can be observed that the multiple coefficient of determination **(R^2)** value is given as 0.955195 or 95.51% of the variation in Real GDP that is explained by variation in the explanatory variables,(BD,SAV2GDP,RINT,REXR, M2, UNEMP). The Adjusted **R^2** is given as 0.947514 or 94.75%. This implies that about 94.75% of the fluctuations in the dependent variable **(RGDP)** are jointly explained by the fluctuations in the explanatory variables.

THE INTERPRETATIONS: ECONOMIC AND PRACTICAL RELEVANCES:

CONSTANT [C]: The model intercept /constant turned up a coefficient of 11.24664, representing the **LOG** of **[RGDP]** at the beginning of the study period. By taking the antilog **[= $e^{11.24664}$],** we obtain **N76, 622.03millions** as the initial value of Real Gross Domestic Product (ie in 1970).

BUDGET DEFICIT [BD]: This was found to be non-significant at 1% level of significance. This implies that with the influence of SAV2GDP, M2-GDP, RINT, EXR held constant, budget deficit (BD) has little or no influence on the RGDP. However, its sign conforms to an aspect of the economic theory (Keynesian view) which posits that budget deficit has a positive effect on economic growth, but this is only when the debt arising from budget deficit is directed towards capital projects that would yield more income in the long run.

However, the regression result showing that budget deficit has insignificant effect on RGDP in Nigeria is due to the fact that most expenditure undertaken by the government is mostly channeled to recurrent expenditures which do not have any yield in the long run. It could be as a result of incomplete capital projects arising from corruption and political instability.

REAL INTEREST RATE [RINT]: The sign of the coefficient is significant and negative, **– 0.112844** which indicates that keeping other variables in the model constant, as real interest rate (RINT) goes up by 1%, on the average, the real gross domestic product reduces by about **11.284%.**

SAVINGS TO GDP [SAV2GDP]: The coefficient of SAV2GDP is positive but non-significant. which implies that, keeping other variables constant, an increase in savings, on the average, will lead to little or no effect on the real gross domestic product (RGDP) of the nation.

LOG OF EXCHANGE RATE [LOG (EXR)]: The partial coefficient of LOG (EXR) is **0.159956** and it is positive. The coefficient is statistically significant which suggests that over the period of study, if exchange rate goes up by 1%, on the average, the real gross domestic product **(RGDP)** goes up by about **0.16%,** other factors held constant**.**

MONEY SUPPLY TO GDP (M2-GDP): The sign of its partial coefficient is positive. The coefficient is **0.005204** but non-significant which suggests that money supply (M2) on the average, has little or no influence on the real gross domestic product (RGDP)**.** This means that in Nigeria, the money in circulation is not being directed towards investments in capital projects that can yield more income in the future.

Since F_{cal}=148.90 is greater than the $F_{0.05}(4,37)$ =2.69, we conclude that the slope coefficients are not simultaneously zero; hence, there is a joint significance of the variables used in the model, which implies that there exist strong relationship between the regressand (real GDP) and the regressors.

The ADF test for unit root shows that budget deficit (BD) was stationary at level form but the logarithm of real gross domestic product [LOG(RGDP)], savings to GDP (SAV2GDP), real interest rate (RINT), logarithm of exchange rate [LOG(REXR)], money supply to GDP (M2-GDP) became stationary at their first difference**.** Hence, we conclude that over the study periods of 1970-2011, the Nigerian real gross domestic product time series became stationary at first difference.

The Engle-Granger asymptotic 5% critical value is about **-3.52** and the test statistic is about **-**4.18**,** therefore the residuals from the regression are stationary, then we conclude that the variables are co-integrated.

The error correction mechanism (ECM) result is statistically significant at 5% level of significance and this suggests that the dependent variable (RGDP) adjusts to the independent variables with a lag and only about 51% disequilibrium or discrepancy between long term and short term RGDP is corrected each year.

Using the Jarque - Bera (JB) test the residual is normally distributed at 5% level of significance.

In testing for multicollinearity, we observed that the real interest rate, RINT is correlated to the logarithm of real GDP [LOG (RGDP)], also Savings to GDP is correlated to money supply to GDP. Since the collinear variables follow a priori information, we allow them so as to avoid specification bias.

The Durbin Watson statistic 1.266706 lies between d_l (1.230) and d_u (1.786), the zone of indecision; therefore we do not reject or accept the null hypothesis that there is no first-order serial correlation in the residuals.

For the heteroscedasticity test, the chi-square calculated value is 14.68627. The critical chi-square value at 1% df (degrees of freedom) is 15.0863. Since 14.68627 < 15.0863, we conclude that there is no heteroscedasticity.

The Ramsey RESET test shows that the model is correctly specified since the F- stat (9.385137) is greater than F- tab (2.69) at 5% level of significance.

5. POLICY IMPLICATIONS

The result of this study presents some policy implications. It is worthy of note that the empirical result affirmed that economic growth is quite sensitive to the influence of budget deficit and other key macroeconomic variables such as those employed in the analysis. Thus, the government of the Federal Republic of Nigeria can regulate the levels of her economic activity by controlling her fiscal deficit such that it does not exceed a certain level or threshold that may result to economic instability in the country.

Secondly, excessive budget deficits could lead to exchange rate crises, internal and external debt overhang as well as higher interest rates in the economy. Hence, Deficit could be reduced by cutting down on expenditure (mostly on recurrent expenditure) without compromising the funding of key expenditure programmes for growth and poverty reduction. This would further provide more funds for developmental projects as well as the provision of social and economic infrastructures which are the building blocks for any meaningful economic growth and development.

There is need to pass into law, on time, the enabling fiscal responsibility bill to sanitize and enthrone financial probity in the three arms and tiers of government with the view to sustaining this meaningful impact of budget deficit on the economy over the long run period, there should, as well, be transparency in governance and fiscal discipline being the key watch words of government.

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REFERENCES

[1] Adeyeye, E. A. and Fakiyesi T. 0. (1980). “Productivity Prices and incomes Board and Anti Inflationary Policy in Nigeria”, in the Nigerian Economy under the Military, Proceedings of the I 980 Annual Conference of Nigeria Economic Society. Ibadan.

[2] Aisen, A. and Hauner, D. (2008). Budget Deficit and interest rates. IMF working papers 42, 1-21.

[3] Al-Khedair, Saleh I. (1996), “The Impact of the Budget Deficit on Key Macroeconomic variables in the Major Industrial Countries”, Ph.D. Dissertation, Florida Atlantic University.

[4] Dornbusch, R. and S. Fisher (1991): “Moderate Inflation” Working Papers (Wps), No. 807, Washington D.C: the World Bank, office of the vice President, Development Economics.

[5] Guess, G. and Koford, K. (1984), “Inflation, Recession and the Federal Budget Deficit (or, Blaming Economic Problems on A Statistical Mirage)”, Policy Sciences, Vol. 17, pp. 385- 402.

[6] Islam, M. F. (1998), “Brazil’s Twin Deficits: An Empirical Examination”, Atlantic Economic Journal,Vol. 26, No. 2, pp. 121-128.

[7] Jhingan, M.L. (2002). The Economics of Development and Planning. New Delhi: Vrinda Publications Ltd.

[8] Khalid, A. M. and Guan, T. W. (1999), “Causality Tests of Budget and Current Account Deficits: Cross-Country Comparisons”, Empirical Economics, Vol. 24, No. 3, pp. 389-402.

[9] Oyejide, T.A. (1972), “Deficit Financing, Inflation and capital formation. An Analysis of the Nigeria Experience, 19591970. The Nigeria Journal of Economic and Social Sciences 14:2243.

[10] Robert E. Rubin, Peter R. Orszag and Allen Sinai (2004, April), “Sustained Budget Deficits: Long-run US Economic performance, the risk of financial and fiscal disarray”. Paper Presented at AEA-NAEFA joint session allied social science Associations Annual meetings.

[11] Sargent, T. and Wallace, N. (1981), “Some Unpleasant Monetarist Arithmetic”, Quarterly Review, Federal Reserve Bank of Minneapolis, No. 5, pp. 1-18.