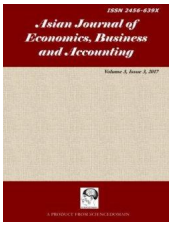

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Deficit Financing and Economic Growth in Nigeria: 1987-2017

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Authors' contributions

This work was carried out in collaboration among all authors. Author JOO designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author KOC managed the analyses of the study. Author ACA managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

The debt profile of the Government of Nigeria has been on the increase from 1986; climaxing during the worst recession Nigeria economy has entered into after the structural adjustment programme (SAP). With the reduction in government revenue occasioned by the fluctuations of price of crude oil in the international market and absolute recklessness on the part of successive government, the government has no option than to borrow to fund its day to day activities. This study examined the effect of deficit financing on economic growth of Nigeria from 1987 to 2017. Vector Autoregressive Estimates was used in estimating the model. The analysis performed revealed that deficit financing has positive but insignificant effect on Nigerian economic growth. We recommended that government should strive to diversify its revenue base and also demonstrate a high level of transparency in both its monetary and fiscal operations among others.

Keywords: Deficit financing; economic growth.

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1. INTRODUCTION

Deficit as a means of financing was introduced in Nigeria after the civil war, accentuated by the uncertainties in the oil market and further aggravated by the current financial and economic challenges. Since independence, over 85% of Nigerian budget are on deficit [1]. Despite the extended expansion of government expenditure in Nigeria over the years, the expected level of economic growth has not been achieved as greater percentage of the Nigeria citizens still wallow in absolute poverty, persistent high mortality rate, low life expectancy due to inaccessibility of standard medical facilities, poor road network, shortage of food and high rate of unemployment [1]. In reference to the Ricardian equivalence theorem which emphasis that increases in the deficit financed by fiscal spending will be matched by future increase in taxes and so this will leave interest rates and private investment unchanged. The implication of this is that in an attempt to repay the borrowed fund, tax which was cut in the previous years will eventually be raised higher than what was supposed to be paid earlier which meaning that the accumulated private savings during the period of increase in government spending will be used in setting off the borrowed fund in the future. The choice is therefore between tax now and tax later. At this juncture, one wonders why empirical evidence and theoretical underpinning justifies the fact that deficit financing stimulates economic growth especially when an economy is facing persistence unemployment like in the Nigerian case. But in the practical experience, the reverse is the case in the Nigeria. Despite the huge quantum of loan borrowed by the federal government to ensure economic development and growth in Nigeria, can we emphatically say that deficit financing has stimulated Nigerian economic growth from 1986 till date? Series of studies have been carried out on this subject matter and quite a number of results have also emerged in the process. Some researchers believe that deficit financing has a significant effect on Nigerian economy; others believe that there is no significant effect on the economy. Their findings are contradictory and is on this background that the study was motivated to fill the knowledge gap on the effects of deficit financing on Nigerian economic growth. This work seeks empirical explanation on how deficit financing has affected the economic growth of Nigerian (1987-2017).The subsequent sections of this work include: conceptual framework; theoretical framework and empirical review of related works. Others are methodology; data presentation and analysis; summary of findings, conclusion and recommendations.

2. LITERATURE REVIEW

Economic growth can be defined as change in the amount of real output and income in an economy overtime. An economy grows because it obtains increased goods and services, obtained increase resources and use the resource more efficiently [2]. According to him, growth occurs when a country experiences advances in technology and technical knowledge which leads to increases in productivity and output. Growth is also advocated with rising living standard of the population overtime and increase in the wealth of the citizens. Output or economic growth means the steady process by which the productive capacity of the economy is increased over time to bring about rising levels of national output and income. Economic growth could be said to comprise of three components; capital accumulation, growth in population and eventual growth in the labour force, and technological progress. According to Bhatia [3], a modern-day government has a large variety of debt obligations. He defined public debt to cover some or all of those debt obligations as far as data are available and for the purpose for which the government needs them. It is imperative for government to incur debt to oil the wheels of economic development and carry out the day to day administrative functions.

Most of the time, it is very difficult for the government on its own to generate all the revenue that it needs to fund its recurrent and capital expenditure from its revenue activities. In Nigeria that is a monocrop economy that relies solely on oil to generate 90% of its revenue, its revenue is solely determined by the vagaries of the fluctuations of the price of oil and gas in the international market. The direction of government revenue is determined by the direction of the price of crude oil in the international market. When there is a negative trend in the oil and gas market, the revenue of government is down and so its resources will definitely not fund the expenditure in the period under consideration. The government will have no option than to borrow to cover the deficit in revenue. This borrowing can be local or external. Iya et al. [4] described this deficit as a situation where current expenditure exceeds expected revenue. They specified that this deficit

may be as a result of inadequate allocation of taxes and heavy expenditure on the part of the government on infrastructure. They went further to state also that this situation may be aggravated by corruption and uncontrolled spending leading to the widening of the gap between government revenue and expenditure.

Teslic et al. [5] described deficit financing as the difference between total revenue and expenditure of the state, created over a period, usually for one year. Gaber [6] x-raying the economic implication from deficit finance, described deficit budget policy as a famous instrument of fiscal policy used to increase the rate of economic growth of a country. He opined that this way of financing was established after the two world wars, oil crises and current financial economic crises. Budget deficit is a situation where government expenditure exceeds government revenue while debt is the cumulative excess of past spending over past receipt [7]. In order to measure the extent to which government has borrowed, it requires that all revenue and expenditure be taken into account so as to ascertain the deficit or surplus. The inability of the government revenue to take care of its debt necessitates increases in debt servicing cost.

When government cannot fund its expenditure with its revenue, a gap is created. This gap must be funded. It is this funding gap that is called deficit financing. Three options are available to the government at any point in time to finance this gap. They are, increase in taxes, borrowing and realization of government assets. In Nigeria, funding through taxation is always very difficult considering the low tax compliance. The other option is realization of government assets. This option is also not very feasible considering the lack of assets to realize. Apart from this challenge, the government when it has assets to realize has to get the right and willing investors that will want to buy the assets. But this option does not at all increase the indebtedness of the government. Most times, the only option available to the government is to borrow to cover the gap which can be done through internal or external borrowing. It is important to note that deficit financing in any economy has its implication. This can either be positive or negative as argued by various schools of thoughts.

2.1 Theoretical Framework

The theories guiding the study are Keynesian school and Neoclassical school but the theory backing the study is Neoclassical school. Keynesian economics on the other hand opined that there is a positive relationship between deficit financing and economic growth. They however argued that deficit financing stimulates domestic production, triggers aggregate demand; increases level of savings, promote investment at any given level of interest rate and hence crowd in private investment. At this point, persistence increase in unemployment is presumed in the economy and that the sensitivity of interest rate to investment is minimal. In addition, this view assumes that government spending increases private investment due to the positive effect of government spending on investors' expectations. It also increases disposable income, thereby enhances both consumption expenditure and encourages aggregate savings in the economy. This in effect means private sector is crowded in instead of crowding out.

Meanwhile, the neoclassical school are of the opinion that increases in government spending leads to crowding out effect. They argued that increased deficit spending stimulates aggregate demand and hence create a high level of competition in demand for loan between government and private investor given a fixed money supply which will in turn skyrocket interest rate, ultimately crowding- out private investors. Isah [8] and Akinmulegun [9] report that deficit financing does not stimulate economic growth in Nigeria and therefore tend to agree with the neo-classical school of thought. In standard Neoclassical Macroeconomic models, if resources are fully employed, so that output is fixed, higher current consumption implies an equal and offsetting reduction in other forms of spending. Thus, investment and/or net exports must be "fully crowding out". It is necessary at this juncture to distinguish between "financial" crowding out which occurs when the government enters into the same financial market to borrow funds that ordinarily would have available for the private sector and "resource" crowding out which occurs when the government competes with the private sector in purchasing certain resources (skilled labour, raw materials and so on).

When the government sector expands, the private sector will contract because of the increase in prices on these resources due to an excess demand by the government, hence this leads to a fall in investment and consumption by the private sector. Thus the government sector's expansion crowds out the private sector because

the government with more muscle has used up the resources that would have been used by the private sector. This is what is known as crowding out of resources. It is worthy of note here as well that resource crowding out is an important issue to take into account especially in developing countries where resources are scarce even sometimes to the private sector, so any excess demand for these resources by the government will severely impinge on private sector productivity.

2.2 Empirical Review

The contradictory findings from several studies suggest that empirical research, on the average, has had little success in establishing a strong and statistically significant connection between deficit financing and economic growth. This perspective is buttressed by Akinmulegun [10] who examined the effect of Deficit Financing on economic growth in Nigeria. The study utilized data from publications of the Central Bank of Nigeria Statistical Bulletin between 1981- 2012. The study applied descriptive statistics, OLS, Diagnostic test, ADF unit root, Johansen Co-integration and pairwise Granger causality test and their findings showed that the variables were stationary at first difference data I (1). The variables were jointly co-integrated at 5% level. Showing that Deficit Financing was seen to be statistically significant and positively related to economic growth in Nigeria.

Nwakobi et al. [11] determined the effect of fiscal deficit on selected macroeconomic variables in Nigeria by specifically evaluating the effect of fiscal deficit on gross domestic product, money supply and inflation. The study employed various econometric techniques such as unit root test, Johansen co-integration, granger causality test in which variations in gross domestic product, money supply and inflation were regressed on fiscal deficit and exchange rate using time series data from 1981 to 2015. Secondary data casing the time frame were collected from Central Bank of Nigeria statistical bulletin. The result of the analysis revealed that fiscal deficit has no significant effect on gross domestic product, money supply and inflation in Nigeria. The finding also showed that there is a positive insignificant relationship between fiscal deficit and gross domestic product. This is in line with the Keynesian postulation of the existence of positive relationship between fiscal deficit and macroeconomic variables.

Nwanna and Umeh [12] examined the effect of deficit finance on Nigeria economic growth using secondary data from 1981-2016. Estimation by OLS revealed that deficit financing through External debt borrowing has a significant negative effect on Nigeria's economic growth. Also Domestic debt has a positive significant effect on Nigeria's economic growth, while Debt service has no significant effect on Nigeria's economic growth.

Onwioduokit and Inam [13] investigated the relationship between budget deficits and economic growth in Liberia. The study employed Classical Ordinary Least Squares Technique (OLS) and Co-integration test using Engle-Granger Two-Step procedure (EGTS); and a parsimonious Error Correction Model. It was evident from the analysis that there exists a long run relationship between Budget deficit and economic growth in Liberia. There also exists a positive and significant relationship between Budget deficit and economic growth in Liberia. Therefore, a 1.0 percent increase in deficits will result in an increase of approximately 0.42 percent in economic growth in Liberia.

Ubi and Inyang [14] descriptively appraised the implication of fiscal deficit on Nigeria's economic development from 1980 to 2016. The study disclosed that Nigeria's fiscal deficit has contributed positively to the growth of per capita income, economic growth and stabilization of Balance of payments only but did not reduce unemployment and inflation rates.

Bazza et al. [15] evaluated the impact of deficit financing on economic growth in Nigeria for the period spanning from 1981 to 2016 using the ARDL Technique. The result from the ARDL regression estimate showed that government deficit finance over the years had significantly impacted on the output growth of Nigeria.

Momodu and Monogbe [1] examined the influence of budget deficit on economic performance in Nigeria using time series data between the periods 1981 to 2015.Findings established that Budget deficit significantly stimulate economic performance. The output of the VAR estimate established that the lag value of federal government budget deficit has contributed to performance of the economy in the current year although the contributive quadrant is not been felt to a reasonable extent. These empirical findings support the Keynesian

postulation of significant relationship between budget deficit and economic performance.

Olatunde and Temitope [16] ascertained the effect of fiscal deficit on sectoral output in Nigeria from 1981 to 2015. Five sectors namely; agricultural sector, industrial sector, building and construction sector, wholesale and retail trade sector and service sector were selected for the study. Autoregressive distributed lag is used as the estimating technique. The result showed that fiscal deficit has negative effect on agricultural, building and construction, industrial and wholesale and trade sector in the short run, while in the long run, fiscal deficit has negative effect on the following sectors: agricultural, building and construction, service and wholesale and trade. For industrial sector, fiscal deficit has positive effect in the long run.

Hussain and Haque [17] studied the effect of deficit financing on economic growth in Bangladesh. findings from the VECM for BBS data reveal that there is a positive and significant relationship between FD and GDPGR, supporting the Keynesian theory, while findings from the VECM for World Bank data indicate that the impact of Fiscal Deficit (FD) on GDPGR is mild but negative and significant at the 5% level.

Iya et al. [4] studied an empirical analysis of the effect of fiscal deficits on economic growth in Nigeria. The authors applied the OLS techniques, Augmented Dicky Fuller technique, Granger causality test and Johansen co-integration test. The results of the unit root test suggested all the variables of the model are stationary at the first instance. The overall finding of this paper shows that government fiscal deficit has no significant effect on real GDP, hence, the need for fiscal deficit in Nigeria is minimal.

Paiko [18] examined the impact of government expenditures on private investment and also how the financing of budget deficit has not only affected the performance of private investment but also how it crowds out private investment in Nigeria over the time period of 1990 to 2007. Secondary data from CBN statistical bulletin and Bureau of statistics bulletin were used. Econometric models of OLS were used in examining the relative impact of deficit financing on private investment in Nigeria. The findings revealed a negative relationship between deficit financing and investment in the period under review.

Osuka and Achinihu [19] evaluated the impact of budget deficits on macro-economic variables in the Nigerian economy for the period 1981-2012. The study found out that the variables in the study are all co-integrated of order one showing the presence of long-run relationship between employed variables (GDP, interest rate, nominal exchange rate and inflation rate). However, the test for causality showed that there exists no causality between deficits and interest rate, budget deficits and inflation and budget deficit and nominal exchange rate. They thereby concluded that budget deficits exert significant impact on the macro-economic performance of the Nigerian economy.

Nwanne [20] investigated the implications of budget deficit financing on economic stability in Nigeria between 1970-2013 using the econometric tool of OLS. The author adopted external source of deficit financing, non-banking public source of deficit financing, exchange rate as independent variables, ways and means source of deficit financing, banking system source of deficit financing and interest rates as independent variables. Economic growth was proxy with gross domestic products. The study revealed that external source of deficit financing, non-banking public source of deficit financing and exchange rate has significant and positive relationship with gross domestic product. On the other hand, ways and means source of deficit financing, banking system source of deficit financing and interest rates have negative implications on gross domestic product.

Ezeabasili and Nwakoby [21] investigated the relationship between Fiscal Deficits and Private Investment within the Nigerian context, using data over 1970-2006. A modelling technique that incorporates co-integration and structural analysis was adopted. Evidence shows that there is a positive long run relationship between private investment and real growth of the national economy.

Adesuyi and Falowo [22] examined the relationship between fiscal deficit and the Nigeria economy; the work assessed and investigated the impact fiscal deficit has on the economy given variables like fiscal deposit ratio, external debts and domestic loans. It was discovered that fiscal deposit has made a significant contribution to GDP and economic growth in Nigeria.

Jibrin [23] studied the effect of budget deficit and its impact on Nigeria economic growth and development, between 1995 and 2008, with the essence of exposing how deficit financing has accentuated economic growth with the Keynesian economic theory as the basis of the study; found out that there is a positive influence of deficit finance on economic growth after using the OLS. The study revealed that since government cannot provide all the resources it needs to fund its entire activities at any given point in time, the source available to the government in addition to increase in taxes, which most time is resisted is to borrow from both within and outside the country.

Olugbenga and Owoye [24] investigated the relationships between a segment of deficit financing which is government expenditure and economic growth for a group of 30 OECD countries during the period 1970-2005. The regression results showed the existence of a long-run relationship between government expenditure and economic growth. In addition, they also observed a unidirectional causality of government expenditure to growth for 16of the countries; thus supporting the Keynesian hypothesis.

Folorunsho and Abiola [25] examined the long-run determinants of inflation in Nigeria between 1970 and 1998, using the econometric methods of co-integration and error correction mechanism. They found that inflation in Nigeria could be caused by the level of income, money supply, and public sector balance. The results also indicate that in the long-run, exchange rate, money supply, income and fiscal balance determine the inflation spiral in Nigeria.

Nwodo [26] analysed the long-run effect of budget deficit on economic growth of Nigeria for the first half of the 1990s using the OLS. The main findings were that budget deficit did matter, but only to the extent it contributed to the money growth and if not checked, induces inflation, hence, leading to a distorted economy. As most of the budget imbalance was being monetized during that period, it is no surprise that independent influence of the budget deficit on the GDP growth was not found.

3. METHODOLOGY

The study obtained time series data from the statistical bulletin of the Central Bank of Nigeria. The model follows the classical linear regression model (CLRM) is stated as follows:

$$RGDP = f(DMTB, FRGB, PCEX, AGGS, DSRV, EXRV) \quad (1)$$

where:

RGDP = Real Gross Domestic Product
DMTB = Domestic Borrowings
FRGB = Foreign Borrowings
PCEX = Private Consumption Expenditure
AGGS = Aggregate Savings
DSRV = Debt Servicing (Aggregate)
EXRV = External Reserves.

Converting Equ. 1 to the mathematical/econometric form by the introduction of the (α0) and error term (μ) thus:

$$RGDP = \alpha_0 + \alpha_1 DMTB + \alpha_2 FRGB + \alpha_3 PREX + \alpha_4 AGGS + \alpha_5 DSRV + \alpha_6 EXRV + \mu \quad (2)$$

where:

α_0 = Constant Term
$\alpha_1 - \alpha_6$ = Coefficients of Predictors
μ = Error correction term

4. DATA PRESENTATION AND ANALYSIS

The characteristics of the data series used in the analysis are presented in Table 1. The Table shows the summary of descriptive statistics used

Table 1. Descriptive statistics

	Mean	Median	Maximum	Minimum	Std. dev	Obs
RGDP	29640.18	11332.25	113711.6	249.4391	35594.75	31
DMTB	2739.782	1166.000	12578.80	36.79000	3506.158	31
FRGB	1592.051	689.8400	5787.513	1000.7900	1586.420	31
PCEX	12613.03	5540.186	43699.86	75.98113	15050.09	31
AGGS	3154.513	592.0900	12965.06	18.68000	4355.637	31
DSRV	360.5283	163.8113	1959.200	3.928950	475.1174	31
EXRV	32485552	12472512	91014490	251336.9	34744053	31

Source: Author's computation

Table 2. Result of ADF unit root test at level

Variables	ADF test statistic	Test critical value at 1%	Test critical value at 5%	Remssark
RGDP	9.355425(1.0000)**	-3.670170	-2.963972	Stationary
DMTB	8.835901 (1.0000)**	-3.670170	-2.963972	Stationary
FRGB	-0.434694(0.8905)**	-3.670170	-2.963972	Not Stationary
PCEX	0.133367 (0.9631)**	-3.670170	-2.963972	Not Stationary
AGGS	2.423233 (0.9999)**	-3.670170	-2.963972	Not Stationary
DSRV	4.843291(1.0000)**	-3.670170	-2.963972	Stationary
EXRV	0.174584 (0.9662)**	-3.670170	-2.963972	Not Stationary

Source: Author's computation

Table 3. Result of ADF unit root test at 1st difference

Variables	ADF test statistic	Test critical value at 1%	Test critical value at 5%	Remark
RGDP	-0.510722(0.8752)**	-3.679322	-2.967767	Not Stationary
DMTB	-1.184871(0.6671)**	-3.679322	-2.967767	Not Stationary
FRGB	-2.372644 (0.1578)**	-3.679322	-2.967767	Not Stationary
PCEX	-6.232417 (0.0000)**	-3.679322	-2.967767	Stationary
AGGS	-4.787339 (0.0006)**	-3.679322	-2.967767	Stationary
DSRV	-2.760588 (0.0765)**	-3.679322	-2.967767	Not Stationary
EXRV	-3.362646 (0.0210)**	-3.679322	-2.967767	Not Stationary

Source: Author's computation

Table 4. Result of ADF unit root test at 2nddifference

Variables	ADF test statistic	Test critical value at 1%	Test critical value at 5%	Remark
RGDP	-6.918343(0.0000)**	-3.689194	-2.971853	Stationary
DMTB	-6.342302 (0.0000)**	-3.689194	-2.971853	Stationary
FRGB	-5.264812 (0.0002)**	-3.689194	-2.971853	Stationary
PCEX	-9.585843 (0.0000)**	-3.689194	-2.971853	Stationary
AGGS	-11.80514 (0.0000)**	-3.689194	-2.971853	Stationary
DSRV	-9.039344 (0.0000)**	-3.689194	-2.971853	Stationary
EXRV	-5.207987 (0.0002)**	-3.689194	-2.971853	Stationary

Source: Author's computation

Table 5. Result of PP unit root test at level

Variables	ADF test statistic	Test critical value at 1%	Test critical value at 5%	Remark
RGDP	6.394590 (1.0000)**	-3.670170	-2.963972	Stationary
DMTB	13.17354 (1.0000)**	-3.670170	-2.963972	Stationary
FRGB	-0.970672 (0.7506)**	-3.670170	-2.963972	Not Stationary
PCEX	0.645183 (0.9887)**	-3.670170	-2.963972	Not Stationary
AGGS	2.809138 (1.0000)**	-3.670170	-2.963972	Not Stationary
DSRV	6.237477 (1.0000)**	-3.670170	-2.963972	Stationary
EXRV	0.040835 (0.9552)**	-3.670170	-2.963972	Not Stationary

Source: Author's computation

in the analysis. The mean value was shown to be 29640.18 for RGDP, 2739.782 for DMTB, 1592.051 for FRGB, 12613.03 for PCEX, 3154.513 for AGGS,360.5283 for DSRV and 32485552 for EXRV.

The variables for the analysis were subjected to two types of unit roots test to determine whether there are unit roots or stationary series. The tests employed were the Augmented Dickey Fuller text (ADF) and the Phillips-Perron (PP)

test. In conducting this test, the Augmented Dickey-Fuller (ADF) and the Phillips-Perron (PP) unit root test with intercept were employed to determine the stationarity of data. The ADF and PP tests in Tables 4 and 5 respectively denote that the variables are stationary at second difference which allow for ascertaining the co-integration relationship.

Table 6. Result of PP unit root test at 1st difference

Variables	ADF test statistic	Test critical value at 1%	Test critical value at 5%	Remark
RGDP	0.62751 (0.9881)**	-3.679322	-2.967767	Not Stationary
DMTB	-0.914674 (0.7690)**	-3.679322	-2.967767	Not Stationary
FRGB	-2.295078 (0.1801)**	-3.679322	-2.967767	Not Stationary
PCEX	-6.324287 (0.0000)**	-3.679322	-2.967767	Stationary
AGGS	-4.943527 (0.0004)**	-3.679322	-2.967767	Stationary
DSRV	-2.796176 (0.0712)**	-3.679322	-2.967767	Not Stationary
EXRV	-2.898965 (0.0577)**	-3.679322	-2.967767	Not Stationary

Source: Author's computation

Table 7. Result of PP unit root test at 2nd difference

Variables	ADF test statistic	Test critical value at 1%	Test critical value at 5%	Remark
RGDP	-9.188717 (0.0000)**	-3.689194	-2.971853	Stationary
DMTB	-7.405350(0.0000)**	-3.689194	-2.971853	Stationary
FRGB	-6.287547(0.0000)**	-3.689194	-2.971853	Stationary
PCEX	-27.54996(0.0001)**	-3.689194	-2.971853	Stationary
AGGS	-37.72391(0.0001)**	-3.689194	-2.971853	Stationary
DSRV	-10.14519(0.0000)**	-3.689194	-2.971853	Stationary
EXRV	-8.931330(0.0000)**	-3.689194	-2.971853	Stationary

Source: Author's computation

Table 8. Presentation of Johansen co-integration result-growth model

Eigen value	Trace statistic	5% critical value	Prob **	Hypothesised no. of (CE_S)
0.996777	457.3195	125.6154	0.0001	None *
0.963735	290.9321	95.75366	0.0000	At most 1*
0.916035	194.7419	69.81889	0.0000	At most 2*
0.900401	122.8985	47.85613	0.0000	At most 3*
0.756496	56.00706	29.79707	0.0000	At most 4*
0.392111	15.04102	15.49471	0.0584	At most 5
0.020676	0.605889	3.841466	0.4363	At most 6

**(**) denotes rejection of hypothesis @ 5% and (1%) Significant level*
L.R. test indicates 5co-integrating equation @ 5% significant level

Table 9. Results of vector autoregressive estimates normalised on RGDP

Parameters	Coefficient	Standard error	t-statistic	p-value
RGDP(-1)	0.909120	0.13115	6.93198	0.03325
DMTB(-1)	2.735336	0.74776	3.65805	0.06892
FRGB(-1)	0.253104	0.23076	1.09682	0.15633
PCEX(-1)	-0.096685	0.06136	-1.57574	0.13981
AGGS(-1)	-0.074941	0.41460	-0.18075	0.52369
DSRV(-1)	2.811607	2.26258	1.24266	0.12784
EXRV(-1)	-2.88E-05	3.1E-05	-0.91671	0.11561
C	150.3409	216.259	0.69519	0.14985

Adjusted R-squared = 0.99; F-Statistic = 7920.053; P-value of F-Statistic = 0.00000

4.1 Co-Integration Test

The co-integration test is used in the determination of the long-run relationship that exists between variables. Table 8 shows that long-run relationship (co-integration) exists among the variables in the tables. There is 5 co-integrating equation which is RGDP, DMTB, FRGB, PCEX and AGGS. This is reflected in the trace statistic of the table that shows a value greater than that of the 5% critical value respectively.

The result from Table 9 shows that DMTB, FRGB, DSRV and RGDP have positive effect on RGDP while PCEX, AGGS and EXRV have negative effect on RGDP. A one percent change in one year lag of DMTB, FRGB, DSRV and RGDP will results to a positive change in RGDP by 2.7 percent, 0.25 percent, 2.8 percent and 0.9 percent respectively. On the other hand, a one percent change in one year lag of PCEX, AGGS and EXRV will results to negative change in RGDP by 0.9 percent, 0.07 percent and 2.8% respectively. On the performance of the individual variables, the results reveal that only one year lag of RGDP and DMTB are statistically significant given the high values of their t-statistics while other variables have insignificant effect on RGDP. The adjusted R-squared value of 0.999748% indicates that, about 99.9748% of the variations in RGDP is explained by the combined effect of the independent variables. It also implies that the model has good fit in explaining the relationship. Similarly, the F-statistic which measures the overall significance of the model showed a high value of 7920.053which indicates that the effects of deficit finance on Nigerian economic growth is statistically significant in Nigeria.

4.2 Variance Decomposition

It helps to ascertain deficit financing variables (DMTB, FRGB, PCEX, AGGS, DSRV, and EXRV) which most influences the variable of economic growth in Nigeria. The results of the variance decomposition estimates of RGDP in Table 10 indicate that foreign borrowings shocks explain about 66% of the variation in RGDP in

Table 10. Variance decomposition of GDP

Period	S.E.	RGDP	DMTB	FRGB	PCEX	AGGS	DSRV	EXRV
1	571.0871	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	937.0041	71.94666	24.56511	0.068074	2.043393	0.739088	0.111423	0.526261
3	1343.820	51.66007	19.72955	0.033466	21.29116	5.491791	1.528894	0.265070
4	1644.246	35.42780	26.17853	7.638371	14.43715	12.60123	3.393313	0.323606
5	2136.143	23.77462	17.63375	28.25282	10.95878	10.58909	3.310440	5.480496
6	2721.023	15.17177	15.90160	36.69149	8.454771	6.884158	3.218994	13.67722
7	3865.826	9.881231	8.966813	53.23365	9.644718	3.442784	1.758674	13.07213
8	4874.740	6.254996	10.07440	60.21101	8.179937	2.681681	1.172691	11.42528
9	6220.142	3.880487	10.35840	66.29916	7.612884	2.346276	1.016424	8.486364
10	7652.143	4.014448	15.43224	64.58428	5.207375	2.910403	1.160257	6.690995

Source: Extracted from e-views 9 output data on variables of study

Table 11. Pairwise granger causality teston input variables

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
DMTB does not Granger Cause RGDP	29	5.62963	0.0099	Causality
RGDP does not Granger Cause DMTB		10.2274	0.0006	Causality
FRGB does not Granger Cause RGDP	29	1.05063	0.3653	No Causality
RGDP does not Granger Cause FRGB		4.14145	0.0285	Causality
PCEX does not Granger Cause RGDP	29	1.21916	0.3131	No Causality
RGDP does not Granger Cause PCEX		13.2686	0.0001	Causality
AGGS does not Granger Cause RGDP	29	1.89791	0.1717	No Causality
RGDP does not Granger Cause AGGS		12.0449	0.0002	Causality
DSRV does not Granger Cause RGDP	29	0.52487	0.5983	No Causality
RGDP does not Granger Cause DSRV		6.75722	0.0047	Causality
EXRV does not Granger Cause RGDP	20	3.26580	0.0557	No Causality
RGDP does not Granger Cause EXRV		2.74154	0.0847	No Causality

Source: Granger Causality test output data using e-views 9

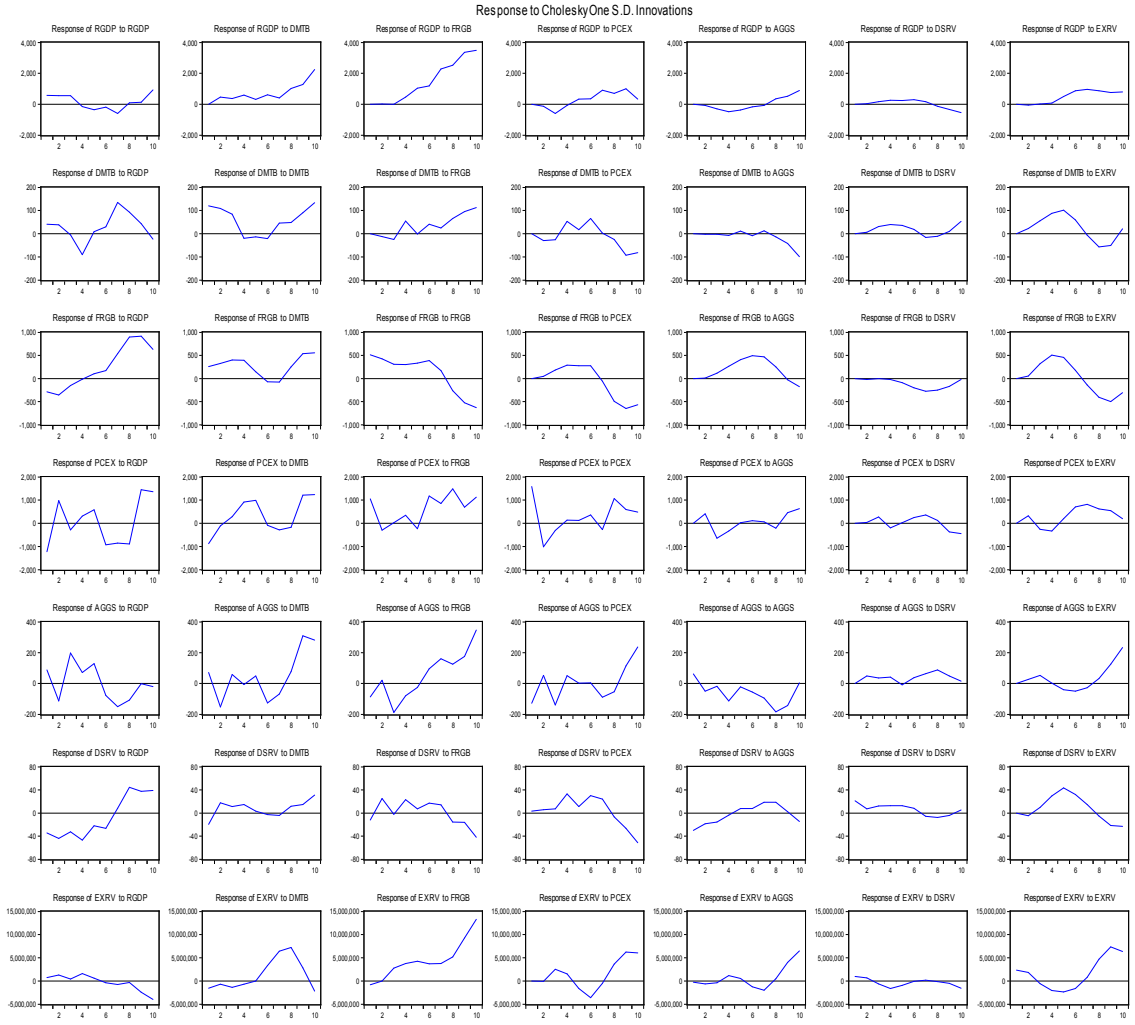

Fig. 1. Impulse Response Function of RGDP to shocks in DMTB, FRGB, PCEX, AGGS, DSRV and EXRV

the 9th period. This is followed by domestic borrowings which explain about 15% changes in RGDP in the 10th period. However, about 5.2%, 2.9%, 1.1% and 3% of the future changes in RGDP were attributable to changes in PCEX, AGGS, DSRV and EXRV respectively, while about 4% of future changes in RGDP are explained by present RGDP.

4.3 Impulse Response Function

Impulse response function is employed to produce the time path of the dependent variables to shocks from all the explanatory variables. Fig. 1 shows that foreign borrowings and domestic borrowings have the highest shock impact on gross domestic product among the variables. The effect of foreign borrowings impulses is positive on RGDP from 1th to 10th period while making its full impact on the eighth and tenth period. Accumulated impulse response functions shows that foreign borrowings and domestic borrowings impact the highest shock on RGDP among the other variables making its full impact from the seventh period to the tenth period. PCEX has a negative effect on RGDP in the second to sixth period while EXRV has a negative effect on RGDP on the second period to the third period. Thereafter they generate a positive effect. AGGS has a negative effect on RGDP from the second period to the ninth period. DSRVR has a positive effect on RGDP from first to last period.

4.4 Granger Causality Test

The work tested the causality of the variables studied on the dependent variable RGDP using granger causality test. The output data were shown in Table 11. Table 11 shows that there exists a unilateral causality between Foreign Borrowings (FRGB) and Real Gross Domestic Product (RGDP); Private Consumption Expenditure (PCEX) and Real Gross Domestic Product (RGDP); Aggregate Savings (AGGS) and Real Gross Domestic Product (RGDP) as well as Debt Servicing (DSRV) and Real Gross Domestic Product (RGDP). The granger causality moving from FRGB, PCEX, AGGS and DSRV to RGDP. There exists a bilateral causality between domestic borrowings (DMTB) and Real Gross Domestic Product (RGDP). EXRV however, did not granger cause RGDP.

5. SUMMARY, CONCLUSION AND POLICY IMPLICATION

5.1 Summary and Conclusion

The effect of Deficit Financing on Economic Growth of Nigeria has been a contradictory issue and is based on that, this study determined the effect of deficit financing on Nigerian economic growth 1987 to 2017. After establishing the unit root status of the variables in the structural equation and the existence of co-integration, the Vector Autoregressive Estimate (VAR) was utilized in deriving the long run and short run estimates. The structural analysis was done using the Granger Causality, Impulse Response Analysis and Forecast Error Variance Decomposition to trace the one-time shock to one of the innovations on current and future values of the endogenous variables. Empirical evidence emerges that deficit financing has insignificant effect on Nigerian economy.The result of the analysis shows that deficit financing has insignificant effect on the Nigerian economic growth which is consistent with the findings of [6,27,18,28] and agrees with neoclassical economists who argue that deficit financing crowd out private investors. We conclude that government should ensure judicious use of borrowed fund and should invest such funds on project that can generate good return in the future.

5.2 Policy Implication

Owing to the current profile of Nigeria's external debt, deficit financing should be discourage in view of its failure to stimulate the desired level of growth and development in the economy. Different stakeholders in the economy has attributed this to poor budget implementation, corruption and mismanagement, investment in wrong projects and poor macroeconomic management. These apart, deficit financing has oiled inflation, increased the cost of borrowings, created income inequality and distorted investment pattern in the country. The Federal Government have always hinge to poor revenue base as its reason for continued external borrowing to financing her budgets. This reason adduced by the government is considered deceitful by the citizens' consequent to ethnicity and sentiment by those in corridors of power. That notwithstanding, we are of the opinion that to overcome the dearth of revenue that forces the government to always resort to deficit financing, government at all levels are encouraged to expand its present revenue base. It is necessary that the government implement fully Voluntary Assets and Income Declaration Scheme (VAIDS) through the Federal Inland Revenue Service (FIRS) because, it will assist in broadening the tax base and increase the tax revenue to the government. Let the scheme not be neglected or allow to die like many other policies of government or be an instrument for victimization of political opponents. Government should setup strong monitoring teams that will make sure that the budget is well and carefully implemented. The monitoring team should also ensure that the loan borrowed is directed to the project it is planned for in other to reduce wastage. Government should demonstrate a high sense of transparency in its monetary and fiscal operations to curb high prevalence of domestic and external debt, to reduce the incidence of inflation in Nigeria. Concerted efforts should be made by policy makers to install financial discipline among political office holders.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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