Tax Revenue And Capital Expenditure On Economic Performance In Nigeria: The Var Approach

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Abstract

The study examined the effect of Capital Expenditure and tax revenue on economic performance on the Nigerian economy from 1981 to 2016. The data for this study was sourced from CBN's statistical bulletin. Vector auto regression method of data analysis was adopted to determine the stability of the variables where it was discovered that the variables are integrated of order 1 and the variables are stable towards this backdrop, the government should be proactive in her revenue generation through tax as an increase in tax revenue will expand national income and output.

Keyword: Tax revenue, Capital Expenditure, Economic Performance, Cointegration,
         Economy, Payrolls.

1.0   Introduction

Tax revenue is considered as revenue generated from taxes on incomes and profit which are viewed as being levied on various goods and services, payrolls, ownerships and transfer of property. Tax revenue are also considered as percentage of GDP which is considered to translate to accommodate economic performance of a given nation. Therefore, tax revenues are further applied as a measure through which the government controls her economic resources (Onoh, 2007). Onoh further opined that tax revenue is viewed as a percentage of GDP which also translates to be a measure of economic performance. Capital expenditure is viewed as an expenditure which leads to the acquisition of permanent asset with the aim of applying same in business for purpose of earning revenue. Expenditures also regarded to be non-recurring by nature. Such expenditure that leads to the acquisition of assets which are believed will be applied in business with the ultimate aim of generating revenue. Economic performance is measured using GDP. Such that GDP has been regarded as being influential in determining growth potentials of a nation. These have led policy makers to aggregate issues affecting economic performance of a nation. These have necessitated the argument that GDP has remained the yardstick for determining various levels of growth of a nation (Begg, 2003). This position implies that economic growth is used to evaluate both resources and capabilities of a nation which could be quantitative and qualitative in nature. Thus, GDP is adopted in this study to measure economic performance.

2.1   Review of Related Literature

Tax revenue is seen as a general concept applied by the government of any nation in generating income from her citizens and organizations through appropriate and legal institutions which constitutes theoretical and institutional complexities (Herber, 2006). In generating revenue through tax, three principles are considered namely the rate structure, definition of the base and identification of the legal tax documents (Odusola, 2006). Considering the fact that tax is a compulsory levy imposed by the state which is seen as a legal entity on her citizens without a corresponding or specific performance from the government (Bhatia, 2012). While Jankir, (2011), asserted that since it is the responsibility of the government to provide basic amenities revenue generated through tax comes in various forms which goes into capital expenditure. In the views of Jhingan, (2004) he held the view that the purpose of tax is believed to raise revenue to meet anticipated expenditure with the aim of redistributing and managing the economy. Since one of the fundamental objectives of tax is to raise revenue, its aim is to create employment which is done through capital expenditure and the provision of basic social amenities.

Capital expenditure involves expenditure incurred by the government with the sole aim of meeting the provision of basic social amenities for her citizens. Furthermore, expenditures that are incurred with the sole aim of generating profit or reducing the cost of doing business in a nature is seen as capital expenditure. Expenditures embarked upon by the government could necessarily not be for profit motive but to provide basic amenities for her citizens whose marginal propensity to consume is believed to be zero.

2.2 Study Domain: The study is centered on the effect of tax revenue and capital expenditure on economic performance in Nigeria the VAR approach.

3.0 Analysis and Discussion

The data applied in this study is annual times series data on GDP, tax revenue and capital expenditure. The data was for 36 years (1981 to 2016). The data were sourced from two sources namely CBN statistical bulletin.

FIRs publications

Eviews 9.5 student version is used to analyse the data.

Figure 1.shows that all the variables trended upward over the study period which indicates that the variables are non-stationary.
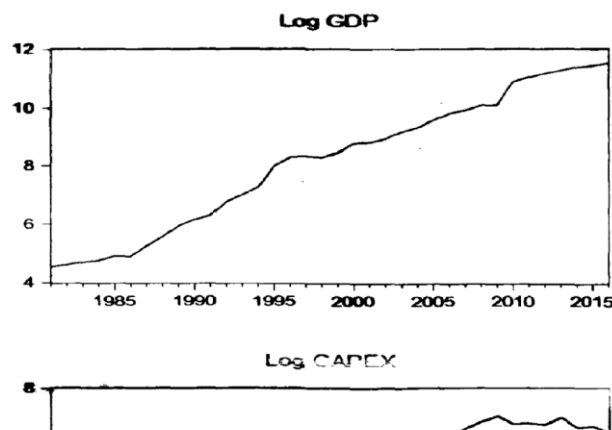
Graph of the variables

Fig. 1. Log GDP, log (Apex Log Tax

3.1   Root/Stationarity Test

Unit root test was conducted to determine their order of integration. In the course of this test, augmented Dicky Fuller (ADF) stationarity/unit root test was applied. The optimum lag length was determined using Schwarz information criterion (SIC).

Table 1 ADF Unit Root/Non Stationarity Test
The table below shows that the variables are first differenced and at such they are integrated of order 1 or 1(I).

ADF test			
Panel A: @level			
Variable	**Level**	**First difference**	**Integration @5% significance level**

LDGP	-0.571833 (0.8643)	-5.370648 (0.0001)	I(1)
LCAPEX	-1274337 (0.6304)	-5.833533 (0.0000)	I(1)
LTAX	-2.991259 (0.2100)	-5.413930 (0.0006)	I(1)

ADF unit root/nonstionarity test; ( ) contains p-values

3.2   Table 2: Unrestricted VAR Estimation

In this test, we determined the relationships among the study variables. Information criterion was applied in determining the optimum lag length. The Akaike information criterion (AIC), Schwarz information criterion (SIC) and Hannan Quiun information criterion (HQC) preferred the VAR with one lag. The constant term entered preferred the model as being an exogenous variable.

|	*LGDP*	*LCAPEX*	*LTAX*
LGDP (-1)	0.889600	0.214265	0.198412
LCAPEX (-1)	0.088844	0.808047	0.153020
LTAX (-1)	0.026633	-0.064822	0.684084
Constant	0.529691	-0.333467	-0.498904

VAR (1) Results; ( ) contains p-values

3.3   Table 3: Residual Diagnostic Test

The table below indicates that the VAR residuals are white noises indicating that the test statistics have high probabilities.

Lag	LM test	Q-test	Heteroskediasticity test (No cross term)	Heteroskedasticity test (with cross term)
At Lag 2	7.073938 (0.6294)	13.08810 (0.1587)	37.50500 (0.4000)	52.57564 (0.5295)

VAR Residual Tests

All the roots in this figure are contained inside the unit circle which indicates that the estimated VAR is stable.
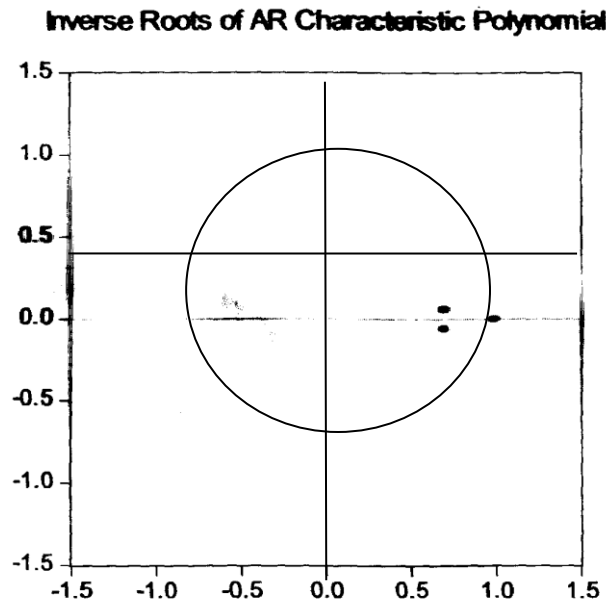

Fig. 2: VAR Stability Plot

VAR stability plot

3.5 Relationships between GDP, Capex and Tax Revenue

To determine how the economy responds to its own shock and shocks to both CAPEX and tax, we estimated the impulse Response Function (IRF) for GDP for two periods. As shown in figure 2, the economy (GDP) responded positively to all shocks relative to the study variables with impact of CAPEX being reasonably higher than that of tax revenue at the two impact shocks to GDP. Indicating that shocks to the Nigeria economy have long memory as the effects of shocks to GDP stays in the system even after the second period. Therefore, an unexpected increase or decrease in CAPEX and tax revenue would expand or contract the national income and output.

Response to Cholesky One S.D. Innovations ± 2 S.E.

Response of LGDP to LGDP

Response of LGDP to LCAPEX

Response of LGDP to LTAX
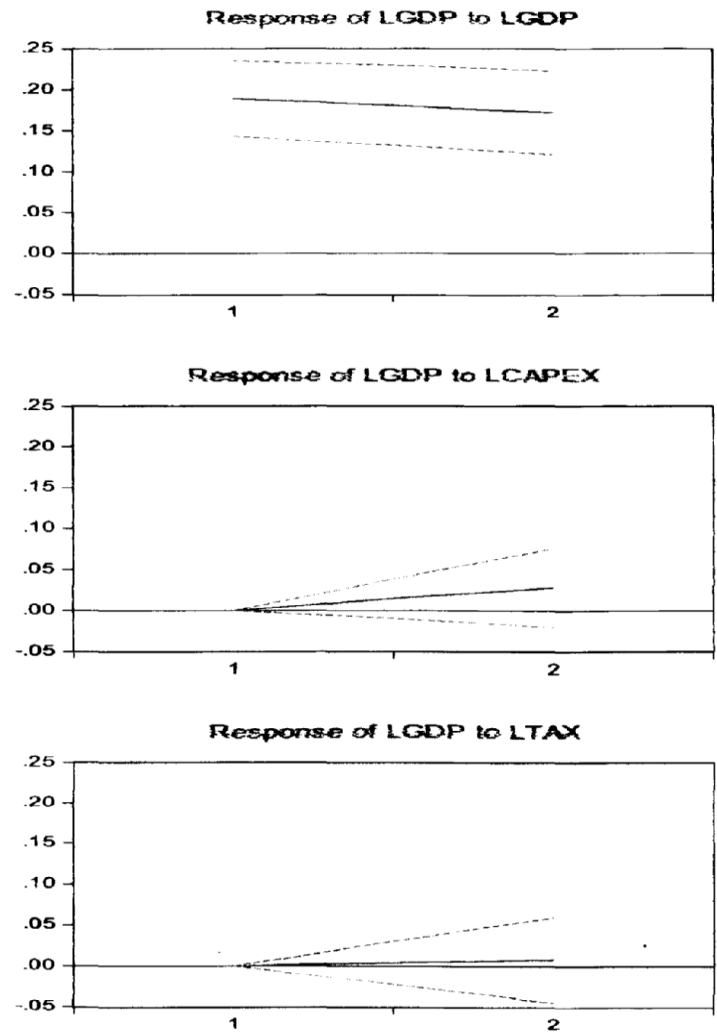
IRF for GDP

3.6 Table 4: Total Error Variance of GDP

Table 4 was used to determine the contribution of each variable to the error variance of GDP where we estimated the variance decomposition of GDP into its component sources. Thus the table indicates the major source of shock to the economy is its own shock which accounted for all the error variance in GDP in the first period and more than 98% in the second period.

Period	S.E.	LGDP	LCAPEX	LTAX
1	0.189509	100.0000	0.000000	0.000000
2	0.258323	98.67308	1.219321	0.107601

Variance Decomposition of GDP

3.7   Table 5: Cointegration Test

To determine whether there are long run relationship in the VAR model, we conducted the Johansen cointegration test. The result of the test below indicates that there is no cointegrating relationship in the VAR model, where both the trace and max eigen value statistic failed to reject the null of no co-integration (none*) at 5% level of significance. Thus, in the long run GDP, CAPEX and tax revenue are not related.

Hypothesized no of cointegration	Eigenvalue	Trace statistic	Max-EigenStatistic
None	0.200155	12.95904 (0.8935)	7.370113 (0.9379)
At most 1	0.105605	5.588930 (0.7435)	3.683068 (0.8912)
At most 2	0.056117	1.905862 (0.1674)	1.905862 (0.1674)

Johansen Cointegration Test

4   Conclusion and Recommendation

The study examines the effect of capital expenditure and tax revenue on economic performance in Nigeria from 1981 to 2016. Vector Auto Regression model of data analysis was employed to analyse the time series data of the variables applied in this study. The results indicates that all the variables are integrated of Order 1. Furthermore, all the variables have high probability indicating that the estimated VAR is stable.

5   Recommendation

Since an unexpected increase or decrease in CAPEX and tax revenue would expand or contrast national income and output, the government should be very proactive in her ability to general revenue through taxes, as this will further lead to increase in her capital expenditures in the areas of provision of basic infrastructures which will contribute greatly to the national economy.

References

Begg, D. (2003) *Economics 7ᵗʰ Ed. Berkshire, Mcgrawhill Education*
Bhatia, H.L. (2012) *Public Finance: New Delhi Vikas Publishing House.*

Herber, B.P. (2006) Modern Public Finance 5ᵗʰ Ed. New Delhi, A.I.T.B.S Publishers and Distributors.

Jakir, K. (2011) "Role of Tax Revenue in Economic Development Individual Tax Payers, attitude and Compliance behavior in Nigeria" The Moderating Role of Financial Condition and Risk Preference. *Journal of Accounting and Tax Revenue* Vol. 3(5).

Jhingan, M.L. (2004) Economics of Development and Planning India, Vrinda Publications (P) Limited.

Odosola, A. (2006). *"Tax Policy Reforms in Nigeria" Research Paper* No: 2006/63 United Nations University. World Institute for Development and Economic Research.

Onoh, J.K. (2007). *Dimensions of Nigerian Monetary and Fiscal Policies: Domestic and External.* Aba, Astra Meridian.