Domestic Debt And Interest Rate On Nigeria's Sustainable Development

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Abstract

The study investigated the impact of domestic debt and interest rate on Nigeria's sustainable development from 1981 to 2016. Data was sourced from CBN's statistical bulletin. Econometric method of data analysis was adopted to find out the unit root/stationarity test which indicates that all the variables are stationary at first difference which implies they had the first order of integration. Furthermore, the VAR stability plot is stable indicating that the estimated VAR is well articulated. Therefore, domestic debt should be properly spent on investment that will yield positive result on the Nigerian economy.

Keywords: Domestic debt, interest rates, GDP co-integration, sustainable development, Economy.

1. Introduction

Economic units have impacted so much on government finance leading to escalating government debt. These could be as a result of government expenditure which could be categorized as recurrent or capital expenditure which could be as a result of extensive government involvement in the economy. These have led policy makers to aggregate all these which have been responsible for government debt to be viewed as the policy statement of the government, with particular reference to its financial implication towards her liabilities. Such liabilities have experienced unprecedented fiscal imbalance.

In the views of Herbber (2006), he asserted that debt is merely a means of meeting a particular budgetary situation we can therefore say that domestic debt is a public sector borrowing requirement for all levels of government financial inability or liability. The term interest rate is commonly used in consumer and fixed income investment. But its application in based on several key economic factors. But interest rates have both positive and negative effects on

borrowing and as such its affects the demand and supply of capital (Jhingan, 2001). Thus, the demand for capital is inversely related to the rate of interest.

Sustainable development is viewed as a process with economic, social and ethical coupled with environmental dimensions. It further refers to economic and social development that meets the needs of present generation without undermining the ability of future generations to meet their needs. Thus it is seen as a capacity for continence into the future which is long term in nature. Since we are concerned with long term sustainability, we must look at the economy holistically, and as such the primary measure of an economy's performance is considered based on its total output of goods and services. These are aggregated which is referred to as cross domestic product which depends on the behavior of key categories of spending, consumption, investment and net exports (Lipsey and Chrystal, 2004).

2 Theoretical Foundation

2.1 Domestic Debt: This is the amount of money generated by a given government in local currency and from residents within that country. Such debt is made up of two categories namely bank and non-bank borrowings. Since government will have to respond to various needs of the society coupled with short fall in her revenue expectations, the government will be forced to borrow. In the views of Gbosi (2004) he posited that when government revenue falls short of her projected revenue, the government has no option but to resort to borrowing to finance projects that are presumed will bring about economic importance. This position is further corroborated with Jhingan (2004), where he asserted that the government resorts to borrowing due to its inability of increasing her rate of development as a result of lack of adequate resources to finance public investment. Thus, the government generates such revenue through the issue of securities, with varying maturity periods. These positions were further corroborated by Asogwa (2005) where he posited that government borrows in principle to finance public goods that increase welfare and promote economic growth. Thus, the government borrows internally basically to fill the vacuum created through fiscal gaps in her proposed expenditure and anticipated revenue within a fiscal period.

2.2 Interest Rate

This is viewed as the amount of interest due within a given period as the proportion of the amount being borrowed. Thus, a given interest rate on an amount lent or borrowed will depend on the principal sum coupled with the period of repayment. It also performs rationing function because it is used to guage the financial market condition. Since interest rates affects the supply and demand of loanable funds and by extension output level, it affects the cost of production (IMF 1993 Swanson 1998, Udeala, 2002). Based on these, we can say that interest rates are well articulated in the area of financial intermediation. This position is further corroborated by Thomas (2012) where he asserted that various factors influence interest rates which he listed as the government directives to the central bank with the aim of accomplishing anticipated government goals, the currency of the principal sum borrowed, the term to maturity of the investment, the perceived default probability of the borrower and the supply and demand in the market for fund.

Therefore, the direction and magnitude of changes in the market for interest rates are viewed as the primary concern to economic agents and policy makers.

2.3 Gross Domestic Product: This is the monetary measure of market value of all final goods and services produced in a given period usually one year. And as such it is used to estimate and determine the economic performance of a country and further used to make international comparism. In determining GDP, three approaches are involved and each will give the same result. These are the production approach, income approach and expenditure approach. Therefore, the determination of GDP in the short run depends on the behavior of key categories of aggregates which includes spending, consumption, investment and net exports (Lispey and Chrystal, 2004).

3. Study Domain: The study focused on the impact of domestic debt, and interest rate on Nigeria's sustainable development from 1981 to 2016.

4. Methodology

This study adopted the VAR approach as a tool for analysis because it captures linear independence among multiple time series data.

VAR is also applied in the description of a set of knowledge variables which are often referred to as endogenous variables (Gujarati, 2006). And as such all the variables are viewed to be of the same order of integration and explained by their lag values. The time series data are collected from the CBN's annual statistical bulletin and analysed in Eviews 9.5 student version.

5. Model Specification: A var of order two will take the form incorporating an exogenous variable GDP = f (DD, Int. R.).

The function is represented using econometric model.

GDP = Gross Domestic Product

Int. R = Interest rate

6. Analysis and Discussion

The data applied in this study is an times series data on GDP, domestic debt and interest rate from 1981 to 2016.

6.1 Graph of the Variables

The figure below shows the graphical description of the variables applied in this study. It further shows that all the variables have upward trend which indicates that they are integrated.

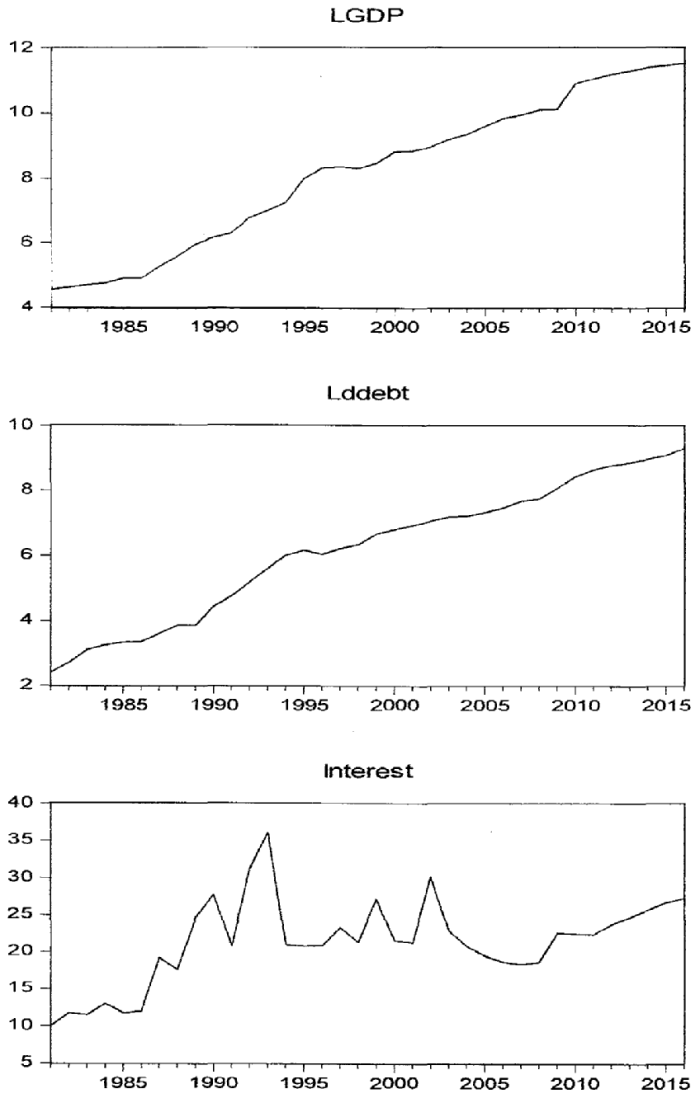

Figure 1: Graph of the variables

6.2 Unit Root/Stationarity Test

Unit root test where conducted on the variables to determine their order of integration. The table below shows the results of the Augmented Dickey Fuller (ADF) stationarity/Unit root test. The optimum lag length is further determined applying the Schwarz information criteria (Sic). Therefore, the table indicates that all the variables are stationary at first difference and as such they have first order integration. Interest rate achieved stationarity at 10% significant level.

Table 1: ADF unit root/nonstationarity test;
( ) contains p-values

ADF test			
Panel A: @level			
variable	**level**	**First difference**	**Integration @5%significance level**
LGDP	-0.571833 (0.8643)	-5.370648 (0.0001)	I(1)
LDDEBT	-1.110185 (0.7004)	-4.46733 (0.0011)	I(1)
Interest	-2.926178 (0.0525)	-6.600579 (0.0000)	I(1)

6.3 Unrestricted Var Estimation

The table below shows the estimated unrestricted VAR (1) model for the dynamic relationships between GDP, domestic debt and interest rate. The optimum lag order is determined using Schwarz information criteria (SIC) and AIC both preferring lag I. Thus, the constant term is included as the only exogenous factor in the VAR specification.

Table 2: VAR(1) results;() contain p- values

	LGDP	**LDDEBT**	**Interest**
LGDP(-1)	0.522266	0.193040	0.415559
LDDEBT(-1)	0.537018	0.742571	-0.044921
Interest(-1)	-0.004698	0.015663	0.565931
constant	0.878123	-0.122836	6.623462

6.4 Var Residual Test

The table below reports the residual diagnostic test which indicates that the estimated VAR residuals are free from serial correlation and heteroskedasticity problems, all the test statistics stated above are associated with relatively high probabilities.

Table: 3 VAR residual test

lag	LM test	Q – test	Heteroskedasticity test (no cross term)	Hereroskedasticity test (with cross term)
At Lag 2	4.124464 (0.9030)	8.751472 (0.4605)	40.01785 (0.2964)	57.72809 (o.3392)

6.5 Var Stability Plot

The coefficient stability plot shows that the estimated VAR is stable with all the inverted roots contained in the circle. And as such, the estimated VAR is well articulated which means that we have examined the effects of structural shocks in the Nigerian economy.

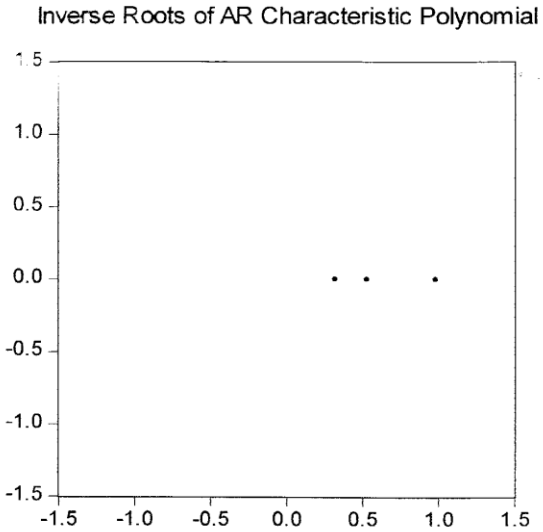

Figure 2: VAR stability plot

6.6 Response factor GDP, Domestic Debt and Interest Rate

To determine the response factor of both domestic debt and interest, we estimated the impulse response function (IRF) for GDP on two impact periods. Figure 3, below shows how GDP responded positively to its own shock and shock to domestic debt but negatively to shock on interest rate. Thus an increase in the level of domestic debt would expand the economy. Furthermore an increase in interest rate would have a negative effect on the economy.

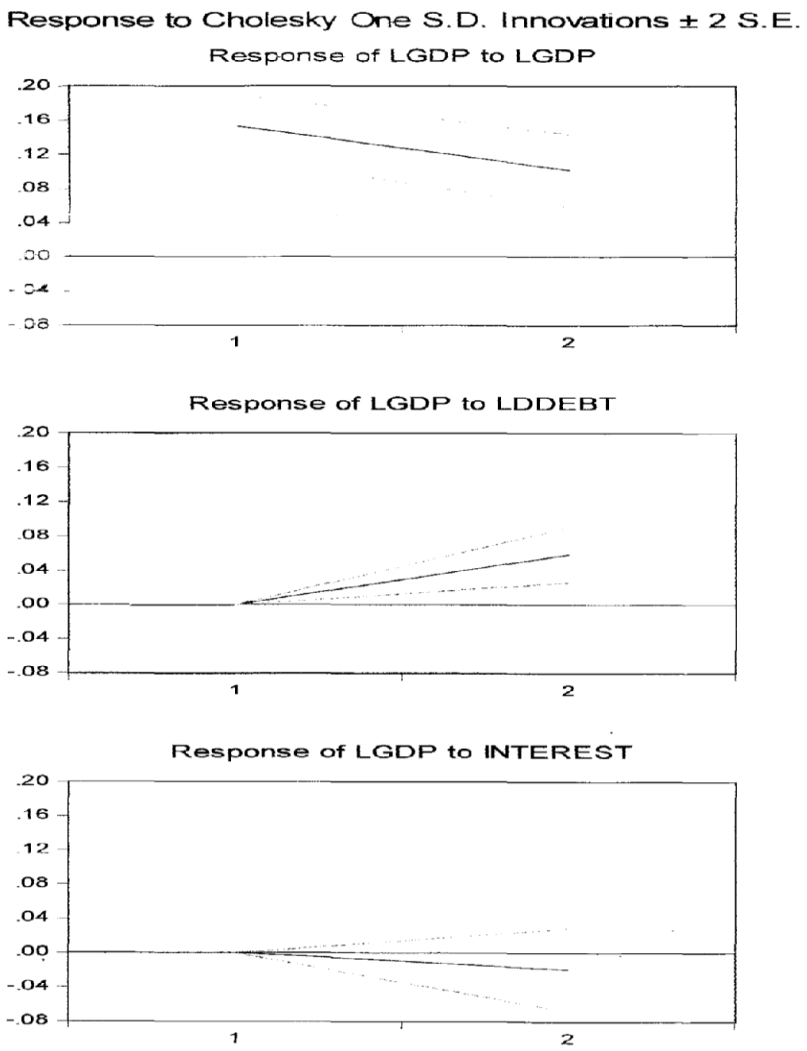

Figure 3:IRF for GDP

6.7 Variance Decomposition of GDP

This table below shows the variance decomposition of GDP into its component sources. The results indicates that own shock is the source of structural shock to GDP in the first period and accounted for 90% in the second period and as such domestic debt and interest rate contributed more than 9% and less than 1% respectively.

Table 4: Variance decomposition of GDP

Period	S.E	LGDP	LDDEBY	INTEREST
1	0.153332	100.0000	0.000000	0.000000
2	0.294034	89.80599	9.213779	0.980227

6.8 Co-integration Test (Johanson Co-integration Test)

This test was conducted to determine if the variables share the same long run stochastic trend, using the Johanson co-integration test. The table below indicates that there is one co-integrating relationship in the VAR model with both trace and max-eigevalue statistic rejecting the null of no co-integration (None*) at 5% significant lent. Therefore GDP, domestic debt and interest rate are related in the long run.

Table 5: Johanson Co-integration test

Hypothesized no of co-integration	Eigenvalue	Trace Statistic	Max-Eigenstatistic
None*	0.488456	33.31757 (0.0189)	22.79091 (0.0289)
At most 1	0.233290	10.52666 (0.2424)	9.031972 (0.2835)
At most 2	0.043009	1.494689 (0.2215)	1.494689 (0.2215)

7. Conclusion

The study examines the relationship between domestic debt and interest rate on Nigeria's sustainable development from 1981 to 2016. Vector auto Regression model method of data analysis was employed to analyse the time series data for the variables therein. The result shows that all the variables have upward trend indicating that they have integrated series. Furthermore all the variables are related in the long run. The VAR model also indicates that the stability conditions in the variables are believed to be positive throughout the response period. This is followed with the following recommendations.

8. Recommendations

Domestic debt should be properly channeled in such a manner that it can yield positive results on the economy in the longrun. Interest rates should be guided appropriately by the monetary authorizes so as not to drive out investors and further increase it negative impact on borrowings.

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