Understanding the Growth Implications of Debt Servicing in Nigeria

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DOI 10.56201/ijebm.v9.no5.2023.pg42.51

ABSTRACT

This study examined the effect of external debt servicing on economic growth in Nigeria. The specific objectives are to determine the effects of multilateral debt service, total debt service and external debt stocks on gross domestic product (GDP) growth. Time series data required for the investigation were sourced from the World Development Indicators and International Debt Statistics. The data analysis techniques include descriptive statistics, unit root tests, Johansen cointegration test and parsimonious error correction model (ECM) in addition to the post-estimation tests. The unit root results showed that all the variables are stationary at first difference. In other words, this finding revealed that the variables are integrated into order one [I(1)]. Evidence of two cointegrating equations was established from the Johansen cointegration test results, which implies that GDP growth has a long-run relationship with multilateral debt service, total debt service and external debt stocks. The parsimonious ECM showed that multilateral debt service has a negative and significant effect on GDP growth. This implies that an increase in multilateral debt service is detrimental to economic growth. The results further showed that total debt service and external debt stocks negatively and significantly impacted GDP growth. This finding indicates that Nigeria has not productively utilized the growing stocks of foreign loans to enhance its contributions to economic growth. The error correction parameter (-0.432) is negative and significant, which suggests that short-run disequilibrium can adjust to a long-run equilibrium position at a speed of 43.2 per cent. Based on the findings, this study concludes that debt servicing undermines the growth of the Nigerian economy. Thus, it is recommended that among others the government should gradually reduce its debt stock to reduce the total debt service obligations and make more resources available for economic growth.

Keywords: *Debt servicing, multilateral debt, total debt, economic growth and Nigeria*

1. Introduction

Debt servicing has remained a major source of concern in developing economies including Nigeria following the increasing debt to gross domestic product (GDP) ratio. There is also growing interest in the rising debt-to-revenue ratio which has continuously attracted the attention of economists and non-economists. Public debt is often borrowed from domestic and foreign sources to finance infrastructure development. According to Shehu & Aliyu (2014), the rationale for the growth of

public borrowing includes financing of capital investment, consumption smoothening and addressing the challenge of fiscal deficits. Omodero (2019) posits that developing economies rely on borrowed funds to achieve economic growth. Whether the borrowed funds are invested economically or not, there is always a fixed repayment which affects the level of economic growth and revenue for debt sustainability. Krugman (1988) opines that the debt servicing obligation is detrimental to economic growth and public investment given that it distorts the level of economic activities.

Furthermore, debt servicing has been described as a deprivation of public investments in social services such as education and health. However, Ijirshar, Joseph & Godoo (2016) describe external borrowing as productive when properly managed or invested in critical sectors with the rate of return higher than the cost of debt servicing. The growing incidence of the global economic crisis has provided the basis for developing economies to borrow to meet their growing fiscal responsibilities. Notwithstanding that external debt can be used to stimulate the economy, Sanusi (2003) asserted that excessive external debt constitutes a limitation to sustainable economic growth and poverty reduction. Excessive external debt stock increases external debt service costs and generates debt overhang problems for the economy. The stock of external debt can affect economic performance via uncertainty associated with inflation and exchange rate which are major indicators of macroeconomic stability. Checherita & Rother (2010) opine that a high level of external borrowing hinders economic progress besides reducing capital growth. This occurs through increased inflation, reduced investment; an increase in distortionary taxes, high real interest rates lower primary spending in some instances.

Besides the arguments for deficit financing as documented in the extant literature, there were opposing views on the adverse effects of deficit financing. Amgain & Dhakal (2017) posit that deficit financing represents debt accumulation for future generations with more tax obligations which undermine the growth effects of tax revenues in the long run. Also, a persistent increase in the debt to GDP ratio dampens output growth in the long run (Chudik, Mohandas, Pesaran & Raissi, 2013). As outlined in the monetary theory, Friedman (1963) stated that deficit financing triggers growth in the money supply, which increases inflation with a negative impact on economic growth. Many scholars argue that deficit financing is detrimental to the economy due to recurring debt servicing and capital repayment costs for borrowed funds. They advocated that borrowed funds should finance projects and critical infrastructure to create income for the servicing and repayment of the debt capital.

In Nigeria, the issue of public debt servicing has continued to generate concern among policymakers and other key players in the economy following the episode of high debt profile in recent years. Prior to the late 1970s, the debt profile in Nigeria was not an issue to worry about as it was very much within the capacity of the country to service. However, the glut in the global oil market in addition to fiscal deficits and shocks in the external sector triggered the quest for foreign loans with a view to financing growth and development activities. As observed by Oyedele, Emerah & Ogege (2013), the Nigerian debt crisis actually started in 1978 when the country borrowed from the international capital market with high lending rates and limited tenure and grace periods. The inability of the Nigerian economy to effectively meet its debt servicing requirements has exposed the country to a high debt service burden. The resultant effect of this debt service burden creates additional problems for the nation particularly the increasing fiscal deficit which is

driven by higher levels of debt servicing and eventual draw down on external reserves to service the fiscal gap.

The debt profile in Nigeria has increased in recent times with an associated increase in debt service obligations. The National Bureau of Statistics (2017) reports that Nigeria's debt to foreign creditors in 2016 stood at 15.05 billion US dollar and N14.06 trillion to domestic creditors. This could be linked to the Keynesian theory of capital accumulation as a catalyst for economic growth. Contrarily, Campbell & Hercowitz (2009) posits that accumulating debt is accumulating risk by increasing claims on future unrealized income. Following the growing controversy on the implications of debt, it is imperative to ascertain how the growing external debt servicing of the Nigerian government has affected economic growth as propelled by Keynesian theory, or has the debt accumulation exposed the country to great danger as expressed by Campbell (2009). Therefore, this study examined the link between external debt servicing and economic growth in Nigeria during 1981-2021.

2. Review of Related Literature

2.1 Theoretical Literature Review

The neoclassical theory postulates that a budget deficit financed through public borrowing will be detrimental to the economy. This is based on the assumption that a budget deficit under the condition of full employment and a closed economy would result in the rise of current expenditure that would in turn translate to high-interest rates, reduced national savings, and reduced future investment. It is also important to note that the crowding-out effect is an integral aspect of the neoclassical theory which assumes that deficit financing precipitates the crowding-out of investment, which triggers a reduction in capital formation. On the other hand, Keynes' (1936) theory assumes that government involvement in the economy is crucial given that the vagaries of the market forces seem not to work efficiently.

According to Keynes (1936), large public debt is considered a national asset rather than a liability and that steady deficit spending is necessary to foster rapid growth and development of the economy. This is contrary to the classical view which opposed government intervention in the economy. Notably, the Keynesians supported budget deficit and increase in government spending as a vehicle for driving aggregate demand, which fosters employment and output growth. Accordingly, Renjith & Shanmugam (2018) are of the view that public debt plays an important role in boosting aggregate demand and, in so doing, stimulates the growth of the economy. Keynes (1936) linked public borrowing to deficit financing and agreed that government should borrow to stimulate demand which creates more opportunities for boosting employment and output.

2.2 Empirical Literature

Evidently, a growing body of empirical literature provides insights into the growth implications of debt financing and debt servicing. While some of the studies found evidence to justify the negative contributions of debt servicing on economic growth, others showed contradictory evidence on the effect of debt servicing on economic growth. For instance, Liu & Lyu (2021) investigated the effect of public debt on economic growth using panel data from 102 countries over the period 1980–2016. The results showed that there is a non-linear relationship between public debt and economic growth.

In a related study, Shkolnyk and Koilo (2018) explored the relationship between external debt and economic growth in emerging economies for the period 2006–2016. The study established that a high level of external debt, in conjunction with macroeconomic instability, impedes economic growth in emerging economies. Using the autoregressive distributed lag (ARDL) model and bounds cointegration test, Kharusi & Ada (2018) investigated the relationship between government external borrowing and economic growth in Oman. The study showed evidence of a negative and significant influence of external debt on economic growth in Oman. Thus, the study advocated for a more productive use of the external debt fund to bolster economic growth. Similarly, Hassan and Meyer (2021) explored the channels through which external debt affects economic growth in sub-Saharan African (SSA) countries. The study utilized panel data comprising 30 SSA countries for the period 1985–2019 and found that there is a nonlinear effect of external debt on economic growth.

In addition, Epaphra and Mesiet (2021) examined the effect of external debt on economic growth and public investment in Africa, covering 45 African countries over the period 1990-2017. The study also examined the impact of external debt and debt services on public investment. The estimated model showed that high levels of external debt are likely to hamper both economic growth and public investment. Similarly, the debt service-to-export ratio tends to have a deleterious effect on public investment, which consequently results in lower economic growth.

3. Data and Methodology

3.1 Data Description

The data required for this study are time series data on GDP growth (annual percent), multilateral and total debt service payments and external debt stocks. Specifically, the data were obtained from the World Development Indicators (WDI).

3.2 Model Specification

This study adopted an error correction model to estimate the dynamic effects of debt servicing on economic growth. In this light, the model is specified in a functional form as:

GDP_GROWTH = f (MDSE, TDSE, EXDS) (3.1)

The econometric representation of the model in equation (3.1) takes the form below.

$GDP\_GROWTH_t = a_o + a_1 MDSE_t + a_2 TDSE_t + a_3 EXDS_t + \mu_t$ (3.2)

Where GDP_GROWTH = Gross domestic product growth, proxy for economic growth

MDSE = Multilateral debt service, TDSE = Total debt service, EXDS = External debt stocks

a_o= Intercept, a_1, a_2, a_3 are Parameter estimates of the explanatory variables and μ= error term

The specification of the error correction model (ECM) is presented as follows:

$$GDP-GROWTH = \beta_0 + \sum_{i=1}^{q} \beta_1 \Delta GDP-GROWTH_{t-i} + \sum_{i=1}^{q} \beta_2 \Delta MDSE_{t-i} + \sum_{i=1}^{q} \beta_3 \Delta TDSE_{t-i}$$

$$+ \sum_{i=1}^{q} \beta_4 \Delta EXDS_{t-i} + \alpha ECM_{t-1} + \mu_{1t} \quad (3.3)$$

β_0 = Intercept, $\beta_1 - \beta_4$ = dynamic coefficients of the explanatory variables, q = lag length order and α = error correction estimate.

3.4 Method of Data Analysis

This error correction model (ECM) was employed by this study and followed a general to specific modelling approach. Specifically, the ECM is intended to capture the speed at which short-run deviations are reconciled to stable state equilibrium in the long run. In addition to this, it provides the short-run dynamic behaviour of the lagged dependent and explanatory variables. Notably, this study allows sufficient lag length in the ECM to adequately integrate the data-generating process in the general to the specific approach of modelling. The hypothesized sign of the ECM is negative and this is necessary for the model to converge, otherwise it becomes explosive. Additionally, this study utilized descriptive statistics for analyzing the trends in each of the series. More importantly, pre-estimation tests such as Dickey and Fuller's (1981) unit root test and cointegration test credited to Johansen (1988).

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

The descriptive statistics for the variables are presented in Table 1.

Table 1: Descriptive statistics results

	GDP_GROWTH	MDSE	EXDS	TDSE
Mean	3.055069	34.28635	34.81134	2.647487
Median	4.195924	31.34868	24.46118	1.884082
Maximum	15.32916	83.52759	120.8353	6.521339
Minimum	-13.12788	3.402827	4.950816	0.102518
Std. Dev.	5.387712	21.27047	30.18072	2.082596
Jarque-Bera	9.147918	1.806952	5.505190	3.935823
Probability	0.010317	0.405159	0.063762	0.139748
Observations	41	41	41	41

Source: Researcher's computation from E-views

The results showed that the GDP growth and multilateral debt service averaged 3.055 and 34.286 per cent respectively while external debt stock and total debt service are associated with mean values of 34.81 and 2.547 per cent respectively. The standard deviation for all the variables is less than the corresponding mean values which indicates that the observations for all the variables are close to their respective mean values. It was also found from the probability values of the Jarque-Bera statistics that all the variables except GDP growth are normally distributed.

4.2 Unit root test results

The results of the ADF unit root test are presented in Table 2.

Table 2: ADF unit root test results

Variable	Levels test results	First difference test results		Order of integration
	t-statistic	t-statistic	5 percent	

			Critical value	
GDP_GROWTH	-2.698	-11.643	-2.94	I(1)
MDSE	-2.741	-6.761	-2.94	I(1)
TDSE	-2.042	-6.268	-2.94	I(1)
EXDS	-1.309	-5.947	-2.94	I(1)

Source: Researcher's computation from E-views

The results showed that all the not stationary at levels given that their computed t-statistics are less than their corresponding critical values. Thus, the null hypothesis of the unit root is accepted for all the variables. This is because the variables have unit roots. The evidence of unit root in all the variables necessitated the first difference test and it was found that the variables are stationary at first difference. In other words, this finding revealed that the variables are integrated of order one [I(1)]. This finding provided the basis for the choice of the Johansen cointegration method.

4.3 Cointegration Tests

The results of the Johansen cointegration tests are presented in Table 3.

Table 3: Johansen cointegration test results

Series: GDP_GROWTH MDSE TDSE EXDS				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.647997	72.92919	47.85613	0.0001
At most 1 *	0.456664	34.29691	29.79707	0.0142
At most 2	0.209344	11.72587	15.49471	0.1705
At most 3	0.078749	3.034842	3.841466	0.0815
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.647997	38.63228	27.58434	0.0013
At most 1 *	0.456664	22.57105	21.13162	0.0312
At most 2	0.209344	8.691026	14.26460	0.3128
At most 3	0.078749	3.034842	3.841466	0.0815

Source: Researcher's computation from E-views

*** denotes rejection of the hypothesis at the 0.05 level**

The results showed that the trace test showed that two cointegrating equations exist in the model. Similarly, evidence of two cointegrating equations was established from the maximum eigenvalue test results. The evidence of two cointegration equations from the results implies that at least two variables in the model can adjust to the long-run equilibrium position. This indicates that the null hypothesis of no cointegration is rejected. Thus, a long-run relationship exists between economic growth and debt servicing in Nigeria. This finding necessitates the fitting of the dynamic error correction model.

4.4 Model Estimation

The estimation of the model was carried out with the application of the parsimonious ECM. The results are presented in Table 4.

Table 4: Parsimonious ECM

Dependent Variable: D(GDP_GROWTH)				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP_GROWTH(-1))	0.131545	0.119217	1.103404	0.2800
D(MDSE)	-0.040512	0.014540	-2.786244	0.0034
D(MDSE(-1))	-0.071783	0.029297	-2.452442	0.0062
D(TDSE(-1))	-0.193561	0.060358	-3.206882	0.0002
D(TDSE(-2))	-0.006418	0.569327	-0.011273	0.9911
D(EXDS)	-0.108419	0.050724	-2.137430	0.0421
D(EXDS(-1))	-0.028585	0.049911	-0.572722	0.5718
ECT(-1)	-0.432427	0.156291	-2.766799	0.0103
C	0.398935	0.635092	0.628153	0.5354
R-squared	0.621579	Mean dependent var		-0.018851
Adjusted R-squared	0.555972	S.D. dependent var		4.513012
S.E. of regression	3.621752	Akaike info criterion		5.641926
Sum squared resid	341.0443	Schwarz criterion		6.081793
Log likelihood	-91.55467	Hannan-Quinn criter.		5.795451
F-statistic	3.149498	Durbin-Watson stat		2.163562
Prob(F-statistic)	0.010564			

Source: Researcher's computation from E-views

The findings revealed that multilateral debt service has a significant negative effect on GDP growth. This finding aligns with the a priori expectation which indicates that debt service payment is detrimental to the growth of the economy. The significant negative effect of multilateral debt service on GDP growth is in accordance with the work of Getinet and Ersumo (2020) and Eze and Nwambeke (2015) which highlighted the negative effects of debt servicing on economic growth and job creation. The implication of this finding is that increased debt servicing payment to various multilateral sources has posed a threat to the growth of the Nigerian economy. At the same time, total debt service has a significant negative effect on GDP growth. The significant negative effect of total debt service on GDP growth is in accordance with the underlying economic theory that states that debt servicing has a negative relationship with economic growth. Hur-Yagba, Jekele and Umar (2021) also found that foreign debt has significant negative implications on economic growth. The implication of this finding is that meeting the total debt obligations undermines the process of economic growth in Nigeria. There is also a significant negative effect of total debt stocks on GDP growth. This finding corroborates with the work of Hassan and Meyer (2020) and Liu & Lyu (2021) which revealed that external public debt exerts a negative impact on economic growth. The implication of the significant negative effect of external debt on GDP growth is that the availability of foreign loans has not created the intended and desired opportunity for economic

growth. This could be attributed to the pervasiveness of corruption and the unproductive use of the borrowed funds.

Table 5: Post-estimation diagnostics test results

Test type	Test statistic	Probability value
Breusch-Godfrey Serial Correlation LM Test	3.470	0.1764
Normality Test	2.232	0.3277
White's Heteroscedasticity Test	2.802	0.9716

Source: Researcher's computation from the parsimonious ECM

The results showed that there is no serial correlation in the model given that the probability value of the test statistic is greater than 0.05. Similarly, the residuals are have a constant variance and normally distributed at a 5 per cent level given that the test statistics are associated with high probability values. It followed from the results that the model is reliable for forecasting and policy formulation.

5. Conclusion and Recommendations

Meeting the debt servicing obligations has remained one of the fiscal challenges faced by successive governments in Nigeria. This could be attributed to the dwindling revenue and pervasiveness of budget deficits. Thus, there is growing concern about the implications of debt servicing on macroeconomic performance. In this light, this study examined the economic growth implications of debt servicing in Nigeria. The findings revealed that multilateral and total debt servicing negatively impacted GDP growth. This finding highlights the negative contributions of debt servicing to economic growth. It further indicates that debt servicing obligations reduce the resources required to boost economic growth in Nigeria. Additionally, the findings showed that external debt stocks contributed negatively to GDP growth. This finding suggests that the increase in external borrowing has not translated to economic growth in Nigeria which could be attributed to mismanagement of the borrowed funds. Based on the findings, this study concludes that debt servicing undermines the growth of the Nigerian economy. The recommendations proffered based on the findings are as follows:

1. Policymakers should ensure that multilateral debt service payment is reduced through debt rescheduling and renegotiation of interest payments on funds borrowed from multilateral sources. This will help to reduce the negative implications of debt servicing on economic growth.
2. Government should gradually reduce its debt stock to reduce the total debt service obligations and make more resources available for economic growth.
3. Policymakers should ensure that the funds borrowed from external sources are channelled to infrastructural development which has the potential of repaying the borrowed funds.

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