PUBLIC DEBT MANAGEMENT AND ECONOMIC GROWTH IN NIGERIA

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Abstract
The study examines public debt management and economic growth in Nigeria. The study adopts the ex-post facto research design and data for the study is collected for 41 years spanning across 1981 to 2021. The Auto Regressive Distributed Lagged (ARDL) Model is adopted to analyze the data for the study. The first hypothesis tested shows that, public debt mounting has a negative and insignificant effect on gross domestic product in Nigeria. The second hypothesis tested shows that, public debt servicing has a positive but insignificant effect on gross domestic product in Nigeria while the third hypothesis tested revealed that, public debt restructuring has a negative and insignificant effect on gross domestic product in Nigeria. As a result, it is recommended that, the Nigerian government needs to prioritize debt sustainability. Even though the study found an insignificant effect of public debt on economic growth, it is crucial to maintain debt sustainability through adequate debt servicing to avoid potential risks in the future. Nigeria should carefully manage its debt levels, ensuring that borrowing is sustainable, and debt servicing does not become a burden on the economy growth potential of the country as it is at the moment. Furthermore, Nigerian government needs to foster regional integration and more efficient international debt repayment agreements. Nigeria can benefit from regional integration and these agreements by restructuring its debt servicing in a way the ratio of debt servicing to gross national income becomes more efficient and sustainable to enhance more economic growth.
***Keywords**: Debt, servicing, restructuring, gross domestic product.*

Introduction

Due to their high consumption, low productivity, and low savings rates, most developing countries' treasuries lack the capital necessary to support economic growth (Udeh et al., 2016). Therefore, to fill the resource imbalance, governments turn to borrowing (Thao, 2018). Governments utilize debt management as a strategy to finance development and economic progress. This strategy entails meeting interest payments, contractually required principle repayments, and any administrative fees that the borrower is responsible for paying (Shkolnyk & Koilo, 2018). Public debt is a common occurrence in the global economy. The global public debt of nations increased quickly as a result of the financial crisis of 2008–2009, which led to an economic slump, a fiscal imbalance, and the need for countries to borrow money on both domestic and international markets. Given Nigeria's quick increase in public debt relative to gross domestic product as an economic growth metric, one such instance can be seen there. The Nigerian Debt Management Office (DMO) is likewise concerned about this.

This study proposes three main debt management techniques. They are debt mounting, debt restructuring, and debt servicing. Debt mounting refers to the escalating total of debt that the government collects each fiscal year. On the other hand, debt servicing refers to the payment of debt owned by the government to its creditors, and debt restructuring deals with the refinancing of current debt by the government in times of financial hardship. All of these debt management techniques may have an impact on a nation's economic development (Oyedele et al., 2016). According to Mhlaba et al. (2019), achieving sustainable economic growth is one of a country's main macroeconomic goals.

Since public debt has been claimed to contribute to economic growth by writers like Bilan and Ihnatov (2015), the current high debt profile of Nigeria has prompted concerns that call for effective debt management strategies that would boost economic growth. As a result, studies on public debt management and economic growth have been conducted, however, due to conceptual and geographical gaps, these studies have yielded contradictory results. For example, studies done by Hilton (2021); Abdulkarim & Saidatulakmal (2021); Ajayi & Edewusi (2020); Ochuku & Idowu (2019); Mhlaba et al. (2019); all focused on types of public debt without taking into cognizance public debt management strategies. On the other hand, authors like Rafindadi & Musa (2019) and Chinanuiffe et al. (2018) attempted to study actual public debt management strategies on economic growth in Nigeria but their studies portend a timeframe gap as they are not updated to 2021 data. To bridge the existing gaps, the current study will adapt the models used by previous authors in Nigeria to carry out analysis of public debt management and economic growth with respect to the most recent data from Nigeria.

Objectives of the Study

The main objective of the study is to examine public debt management and economic growth in Nigeria. The specific objectives are to:

i. Assess the effect of public debt mounting on gross domestic product in Nigeria.
ii. Analyse the effect of public debt servicing on gross domestic product in Nigeria.
iii. Ascertain the effect public debt restructuring on gross domestic product in Nigeria.

Review of Related Literature

Theoretical Framework

This study is anchored on the Keynesian theory of public debt. A significant public debt is a national asset rather than a liability, according to Keynes (1936), and consistent deficit spending is essential for a country's economy to advance. Keynes (1936) challenged the classical theory that the economy tends to stabilize at full employment. According to Keynes' theory of public debt, if there were resources that were idle and unavailable for employment in the private sector, those resources may be used by an unbalanced budget. According to him, an increase in public debt would have a number of positive benefits, including an increase in national income and a boost to the economy. He agreed that government should borrow for all reasons in order to increase efficient demand in the economy, which will lead to higher employment and output. He also equated governmental borrowing with financing deficits. He did not make the same distinction between productive and wasteful spending as the classical. Borrowing for consumption, according to Keynes (1936), is equally significant as borrowing for investment in productive products since consumer expenditures drive up investment.

Concept of Public Debt management

Governments borrow when their spending is greater than their income (Rahman et al. 2019). Thus, public debt is a crucial tool for governments to finance public spending, especially when it is challenging to raise taxes and cut spending. The majority of Nigeria's governments have accrued substantial unpaid debts as a result of this procedure throughout the years (Ujuju & Oboro, 2017). The secret to accelerating economic growth is to take on reasonable debt to pay for infrastructure and public projects. However, excessive borrowing without proper investment planning can result in a high debt load and interest payments, which can have a number of negative repercussions on the economy (Rafindadi & Musa, 2019). For this reason, public debt management plans must be in place by governments.

The process of developing and implementing a plan for managing public debt in order to raise the necessary money at the acceptable risk and cost levels is known as public debt management (Ochuku & Idowu, 2019). According to Ntshakala (2012), macroeconomic policy heavily rely on public debt management. Accordingly, Gómez-Puig & Sosvilla-Rivero (2017) claim that issues with public debt management are frequently the result of policymakers failing to consider the advantages of having a responsible debt management strategy and the consequences of poor macroeconomic management. This mainly applies to poorer nations.

Debt Management Strategies

The administration of the external debt was largely transferred to the central bank of Nigeria (CBN) in the 1980s. This called for the creation (setting up) of a department for the management of external debt in cooperation with the Federal Ministry of Finance. However, from the beginning of the 1980s, when the external debt first became noticeable, the debt management policies and measures have changed periodically. The following criteria were used by the government as guidelines for external borrowing: economic sectors should have positive Internal Rates of Return (IRR) that are at least as high as the cost of borrowing, or interest; external loans for private and public projects with the shortest rates of return should be sourced from the international capital market, while loans for social services or infrastructure could be sourced from confessional financial institutions; State Government, local governments, and other local governments, as well as other private entities, should be sourced from the international capital market.

The government over the years adopted the under listed strategies and measures to deal with the debt problem. They include;

a) Debt Servicing: In order to ensure proper coordination of the country's debt recording and management activities, including debt service forecast, debt service repayments, and advice on debt negotiation as well as new borrowings, the debt management functions were consolidated into the DMO (Debt Management Office) and placed under the purview of a single agency. The DMO has an agreement with the debtors on the stock of the country's external debt and the debt service obligation so that the levels of government and their agencies that contracted the loans would be aware of their respective stock of debt and the required amount for servicing. This will facilitate the implementation of a new debt service arrangement.

b) Debt restructuring involves delaying, extending, and rearranging payments on existing debt. The four components of loan restructuring are: rescheduling the principal of a portion or the entirety of an existing loan by delaying repayment; refinancing an existing loan by raising new or complementary funds to meet existing obligations; restoring trade-related bank credit lines; and convincing the financial sector to reinstate interbank lines of credit to a specific minimum.

c) Debt mounting: This refers to the government actually taking on more debt to accomplish development goals. If not handled appropriately, this will typically result in the government taking on more debt. One example is the strict IMF conditionality for Nigeria.

Economic Growth

Economic growth, according to Ochuku & Idowu (2019), is the increase in a nation's potential GDP or output. Fiscal measures can increase the growth rate and utility levels, for instance, if the social rate of return on investment is greater than the private return. The best tax policy focuses on the trait of services in growth models that include public services. According to Igberi et al. (2016), economic growth has shed light on the reasons why states grow at varying rates over time. As a result, the government is now better able to choose the amounts of expenditure that will affect growth rates. When the pace of growth is proportionate to the amount of quality existing, for instance, the exponential growth model is applied.

According to the traditional neoclassical growth model, the only things that can affect economic growth over the long term are the accumulation of physical and human capital as well as technology (Baum et al. 2012). Some studies look at the relationship between financial development and growth, but the endogenous growth model incorporates many other variables as well, including population, education, trade, and public policy, among others. According to Babu et al. (2015), market factors are insufficient for analyzing a country's economy because every economic system must be in line with the country's ongoing development process. This process reflects the dynamics of debt management strategies as well as the political context that influences the modification of various interests and institutions, and this is reflected in the government's public expenditure policy. This supports the idea that while analyzing economic growth, debt management issues must be taken into account.

Empirical Review

In developing economies, Hilton (2021) investigated the causal links between public debt and economic growth over time. He tested the causal linkages between public debt and gross domestic product (GDP) as economic growth using a dynamic multivariate autoregressive-distributed lag (ARDL)-based Granger-causality model. The study's findings show that while there is no short-term causal link between public debt and GDP, there is a long-term unidirectional Granger causal link connecting public debt to GDP. Additionally, Abdulkarim & Saidatulakmal (2021) used annual data from 1980 to 2018 using the Autoregressive Distributed Lag method to examine the impact of government debt on Nigeria's economic growth. According to empirical findings from their study, external debt hindered long-term growth despite having a growth-promoting influence in the short term. However, while domestic debt had a short-term negative impact on growth, it had a considerable long-term positive benefit.

Ajayi & Edewusi (2020) investigated how Nigeria's public debt affected the country's growth in economy. In their investigation, time series data spanning 37 years (1982–2018) were used, and estimates were made using vector error correction model and descriptive statistics. The results of their analysis indicate that whereas domestic debt

was determined to have a favorable long-term and short-term impact on economic growth in Nigeria, external debt was shown to have a negative long-term and short-term impact. Additionally, Rafindadi & Musa (2019) examined how debt management techniques affected the profile of Nigeria's governmental debt. Their research specifically assesses the effect of debt management techniques on Nigeria's governmental debt profile. In order to analyze the long-run and short-run dynamics of the total debt profile of the country with regard to debt refinancing (DRF), debt forgiveness (DF), and debt conversion (DCV), their study employed the autoregressive distributed lagged model econometric approach. The results of their investigation showed that DRF had a negative effect on Nigeria's overall debt profile. Additionally, it was shown that DF had a major negative influence on the nation's debt profile. While DCV was discovered to have a considerable impact on Nigeria's debt profile.

Methods

The ex-post facto research design is employed in the study. The 41 years of public debt management and economic growth data (1981-2021) that were used for the study that make up the study's population. The study used the entire 41 years as its sample size, adopting the consensus sampling approach. Secondary sources provided the data for this investigation. Data on the chosen variables is taken from the World Bank Data Base and the Central Bank of Nigeria's website.

Table 1: Data Measurement

S/N	Variables	Definitions	Variable Type	Measurement	Construct validity source
1	GDP	Gross domestic product	Dependent	Total amount of GDP	Ochuku & Idowu (2019)
2	PDM	Public debt mounting	Independent	Total amount of PDM	Rafindadi & Musa (2019)
3	PDS	Public debt servicing	”	Total amount of PDS	Rafindadi & Musa (2019)
4	PDR	Public debt restructuring	”	Total reported ratio of public debt servicing to GNI ratio	Rafindadi & Musa (2019)

Source: Authors compilation 2023

While correlation analysis was conducted to determine the direction and amount of the relationship that exists between each pair of variables, the obtained data were summarized and the normality of the series utilized determined using descriptive statistics. The Auto Regressive Distributed Lag model was used in the investigation. Because they determine whether the model should be estimated as a differenced VAR

or ARDL levels, the unit root test and tests for co-integrating rank are required to apply this method.
This study adapted the model used in the works of Rafindadi and Musa (2019) as follows:

Debt profile= f (debt conversion + debt refinancing + debt forgiveness) ---------- (1).
Rafindadi & Musa (2019) focused on debt profile of Nigeria as while varying other public debt components. The findings of Rafindadi & Musa (2019) cannot fit into the public debt theory as argued by Keynes in 1939. To establish findings that are in line with divergent public debt and economic theories, the present study adapted a more robust approach. The model specified in this study is as follows:

GDP = ∫ (PDM, PDS, PDR) (2)
Equations 2 represent the functional relationship of the model while the econometric representation is respectively presented in equations 3 viz:
GDP = δ0 + ψ1 + ψ2 + ψ3 + ψ4 + ψ5 + ψ6 + μt (3
The operational model of the ARDL in equation 4 is presented in equation 5.

$$\Delta LNGDP_t = \psi_0 + \sum_{i=1}^{k} \vartheta_i \Delta\, LNGDP_{t-1} + + \sum_{i=1}^{p} \zeta_i\, \Delta LNPDM_{t-1} + \sum_{i=1}^{v} \varphi_i\, \Delta LNPDS_{t-1} + \sum_{i=1}^{m} \lambda_i \Delta LNPDR_{t-1} +$$

Decision Rule for Hypothesis Testing
Accept HO if the calculated p-value of t-statistic is ≥ 0.05. Otherwise, do not accept HO.

Data Analysis
Summary Statistics
Table 2 presents the results of descriptive statistics of GDP, PDM, PDS, PDR variables used in the analyses. The mean values, maximum, minimum, and Standard Deviation are recorded. The number of observations for the study is 41 (1981 – 2021).

Table 2: Descriptive Statistics of the Series

Variable |	Obs	Mean	Std. Dev.	Min	Max
PDM |	41	-.0568585	2752.726	-15855.23	3683.197
PDS|	41	2.68e+09	2.01e+09	4.95e+08	8.81e+09
PDR |	41	2.645479	2.085717	.100218	6.521339
GDP |	41	37119.15	49833.52	137.9294	173527.7

Source: Author's Computation, 2023.

For GDP, the data reveal a mean value of 371.19 billion Naira with a deviation of 498.33 billion Naira. GDP has a maximum and minimum values of 17.3 trillion Naira and 137.9 billion Naira. PDM show a mean of -5.6 (0.0568585) million Naira with a

standard deviation of 27.52 billion Naira. PDM has maximum and minimum values of 3.683 trillion Naira and -158.55 billion Naira respectively. Furthermore, the PDS statistics reveal a mean of 2.68 trillion Naira with a standard deviation of 2.01 trillion Naira. The maximum and minimum values of PDS are 4.95 trillion Naira and 8.81 trillion Naira respectively. Lastly, PDR which measures the restructuring of debt to ease gross national income reveal a mean ratio of 2.64 with a deviation of 2.08. PDR further reveal a maximum value of 0.1002 with a minimum value of 6.521339 ratio. The variables' maximums, minimums, averages, and deviations represent the properties of the data for each variable and the resulting level of variation.

a) Stationarity Test

Table 3: Skewness Test

	GDP	**PDM**	**PDS**	**PDR**
Skw (Prob)	0.0013	0.000	0.9670	0.0166

Source: Authors Computation, 2023.

To standardize all the variables, the Skewness values of all the series are computed using Stata 13. As shown in table 3 above, only PDS has probability value which is greater than 0.05 (shown to be normally distributed); while GDP, PDM and PSR are <0.05 which is not normally distributed. Although this is the case, the study in the subsequent sub-section runs a Unit root test and used the differential values (GDP_d & PDR_d) for further analysis. Also, the GDP and PDS data used are transformed into their Log form to enable a uniform unit root before the regression analysis.

Regression Analysis

Table 4: Diagnostics result

	GDP	**PDM**	**PDS**	**PDR**
PDM				
PDS		-0.2408 (c)		
PDR		-0.0816(c)	0.3823(c)	
Unit Root	I(I)	I(0)	I(0)	I(I)
Cointegration	Trace (74.2002)>	5% (47.21)		
Lag Selection	**1** FPE*	AIC*	HQIC*	SBIC*
DW	**2.035013**			

Source; Authors computation, 2023.

a) Multicollinearity Test

For multicollinearity test of independent variables, the study adopts the correlation matrix test. The correlation analysis between PDM, PDS, and PDR as independent variables in Table 5, reveal that PDM, PDS, and PDR are not strongly correlated, with correlation coefficients that are <0.75. The highest correlation value is between PDS and PDR with a correlation value of 0.3823(c) while PDM and PDS shows a correlation value of -0.2408(c), and PDM & PDR with -0.0816(c). All the correlation

test statistics indicates the absence of multicollinearity between the independent variables in the study.

b) Unit Root Test

To correct the non-normality for GDP, PDS, and PDR data earlier shown in the stationarity test above, the study ran a Augmented D-Fuller unit root test for all the study variables. Results for unit root in the series indicates that, PDM and PDS are stationary at level given order I(0) while GDP and PDR are stationary after first differencing with ADF order of I(1). This means their respective Trace statistics values are greater than the 5% critical values after first differencing. Since the variables are stationary at different order, the study have to test for cointegration to determine if the data are mean reverting in order to choose between the ARDL and the VAR model for further analysis.

c) Cointegration Test

From the table above, the cointegration test reveals a Trace Statistics of 74.2002 that is greater than the 5% critical value of 47.21. This shows that, the data are mean reverting in the long run thus, and the ARDL model is more preferred in this case.

d) Lag Determination Test

The study ran a lag criteria determination test, which gave a result of 4 **** in order 1 for FPE, AIC, HQIC, and SBIC statistics. This justifies the study's choice of 1 maximum lag criteria for the ARDL model that is adopted.

e) Autocorrelation Test

The Dubin Watson (DW) Test statistics reveal a value of 2.035013 which is within the accepted region of 2, indicating the absence of autocorrelation of the series.

Table 5: The ADRL model with GDP as dependent variable

Variables	**Coefficients**	**t. Stat**	**P-Value**
PDM	-2.02e-06	-0.78	0.438
PDS	.0078996	0.31	0.756
PDR	-.0057801	-0.15	0.310
C	-.0360151		
R^2	**0.3133**	Adj R^2	**0.2326**
F. Stat	3.88`		0.0106

Source: Extracted from Author's Computation 2023

The R^2 (R-square) value of 0.3133 shows that, the public debt management strategies (PDM, PDS, and PDR) collectively cause the GDP to change by 31.33%, while the remaining 68.77% is caused by other factors not incorporated in the study. The other factors could be revenue generation or exchange rate variables. The adjusted R^2 value of 0.2326 shows that, the model can adjust to 0.0807 (0.3133 – 0.2326). This means an adjustment of 8.07% if the other factors are considered.

Furthermore, the constant (C) value of -0.0360151 shows that, given intercept only model, the GDP value will have a negative logged value of 0.0360151 without considering the impact of public debt management strategies. But a unit variation in PDM in the model will lead to a 2.02e-06 decrease in GDP. Furthermore, a unit variation in PDS in the model will lead to a 0.0078996 increase in GDP. While, a unit variation in PDR in the model will lead to a 0.0057801 decrease in GDP. Lastly, Table 4 reveals a Fisher Statistics (F .Stat) of 3.88 with an accompanying Probability value of 0.0106. This shows that the model is statistically significant and fit for the purpose of analysis.

Test of Hypotheses

Ho_1: Public debt mounting has no significant effect on gross domestic product in Nigeria.

From table 5, the P value of t-statistic for PDM against GDP revealed a calculated p-value of 0.438>0.05. As a result, the study accepts the null hypothesis and rejects the alternative thus, public debt mounting has no significant effect on gross domestic product in Nigeria.

Ho_2: Public debt servicing has no significant effect on gross domestic product in Nigeria.

From table 5, the P value of t-statistic for PDS against GDP revealed a calculated p-value of 0.756>0.05. As a result, the study accepts the null hypothesis and rejects the alternative thus, concludes that, public debt servicing has no significant effect on gross domestic product in Nigeria.

Ho_3: Public debt restructuring has no significant effect on gross domestic product in Nigeria.

From table 5, the P value of t-statistic for PDR against GDP revealed a calculated p-value of 0.310>0.05. As a result, the study accepts the null hypothesis and rejects the alternative thus, concludes that, public debt restructuring has no significant effect on gross domestic product in Nigeria.

Conclusion

From the findings above, the study concludes that, public debt management strategies have no significant effect on gross domestic product in Nigeria. This is owing to the fact that, increase in debt profile has proven difficult for the government to effectively come up with efficient means to repay the debts and have enough revenue left for foster economic growth.

Recommendations

In line with the findings of this study, the following recommendations are made;

i. Enhancing governance practices and ensuring transparency in public financial management are essential for effective utilization of public debt for economic growth. This includes strengthening institutions, reducing corruption, and promoting accountability in the management of public funds as debt mounting is sustained to enable economic growth in Nigeria.
ii. The Nigerian government needs to prioritize debt sustainability. Even though the study found an insignificant effect of public debt on economic growth, it is crucial to maintain debt sustainability through adequate debt servicing to avoid potential risks in the future. Nigeria should carefully manage its debt levels, ensuring that borrowing is sustainable, and debt servicing does not become a burden on the economy growth potential of the country as it is at the moment.
iii. Nigerian government needs to foster regional integration and more efficient international debt repayment agreements. Nigeria can benefit from regional integration and these agreements by restructuring its debt servicing in a way the ratio of debt servicing to gross national income becomes more efficient and sustainable to enhance more economic growth.

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