

# IMPACT OF PUBLIC DEBT MANAGEMENT PROFILE ON ECONOMIC SUSTAINABILITY DEVELOPMENT IN NIGERIA

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**Abstract:** *The study investigated the impact of public debt management profile on economic sustainability development in Nigeria from (1981-2022). The sub-objective were to; Analyze the effect of external debt management on economic sustainability development in Nigeria; Determine the effect of internal debt management on economic sustainability development in Nigeria. Data collected were from the Central Bank of Nigeria (CBN) Statistical Bulletin, where external debt, and internal debt management as the independent variables and real gross domestic product as the dependent variable. Multivariate model was developed in this analysis and Ordinary Least Square (OLS) regression analyze was used for the analysis, The Unit root test, co-integration approach and error corrections model were used for the analysis. It was revealed from the result that External debt has significant negative impact on the economic sustainability in Nigeria. Internal debt management (IDM) has positive impact on the economic sustainability in Nigeria. The study concludes that public debt management profile has significant effect on economic sustainability development. The study recommends that government should develop a diplomatic plan in addition to the Debt Management Office's (DMO) oversight of the nation's debt. All external debts taken on by the different branches of government ought to be managed through formal debt management processes.*

**Keywords:** *External debt, internal debt, Central Bank of Nigeria, economic sustainability*

## 1.1 Introduction

Government borrows when her revenues fall short of her expenditures. Many countries have resorted to borrowing from their fellow countries to settle the fall in their revenue. The use of public debt by governments to finance their spending has left several nations with massive outstanding debts. Countries borrow money largely for macroeconomic purposes and to cover short-term balance of payments deficits (Adesola, 2009). This only suggests that government borrowing is done with the intention of promoting development and economic growth.

Prudent borrowing to fund public and infrastructure projects is necessary for faster economic growth. An excessive borrowing habit without sufficient financial planning for investments may result in a nation's long-term debt burden, which eventually causes economic problems (Ajayi & Edewusi, 2020). Public debt is defined as the precise sum of money that the apex government owes to organizations or agencies both inside and

outside the country (Anidiobu, Agu, & Ezinwa, 2016). External or domestic debt is referred to as public debt. Domestic debt is that which is owed to lenders within a nation, whereas external debt is that which is owed to institutions, organizations, or nations located outside the country.

In developing economies, the need to fast track the pace of economic growth is of main concern to the government and other stakeholders in the state. This has in time past and in the present resulted in debt acquisition from within the boundary of the country and beyond. Governments adopt debt finance to bridge the vacuum created by the financial inadequacy in the proposed expenditure and expected revenue within a fiscal period (Obademi, 2013). In order for debt acquisition to be productive and to guard against hampering the growth of the borrowing economy, debt must be properly managed. Thus, debt management is any strategy that helps a debtor to repay or otherwise handle its debt better (Fabian and Anyanwu, 2015).

Debt management may involve working with creditors to restructure debt or helping the debtor manage payments more effectively. By the standard financial definition, debt management involves a designated third party assisting a debtor to repay his or her debt. In managing debt, a simple routine practice of spending less than one earns is imperative. Nevertheless, for all intents and purposes, debt management is a structured repayment plan set up by a designated order or as a result of personal initiation. Obademi, (2013) also mentioned that debt is generated by the gap between domestic savings, investment and export earnings which increases in absolute terms overtime. As the gap widens and debt accumulates, interest charges also accumulate and a country tends to borrow more to maintain constant flow of net imports and to refinance maturing debt obligations.

This process continues as a result of the dire need of governments to finance public goods that increase welfare and promote economic growth. Management of this debt is therefore imperative as economic theory suggests that reasonable levels of borrowing by a developing country are likely to enhance its economic growth (Fajana, 1993). In Nigeria, the penchant for increased economic activity and improvement of major productive sectors is surely in the minds and evident in the mental disposition of all its citizenry due to the worsening conditions of things. This calls for decisive action of the constituted authority to garner their wits and act decisively to tackle the various economic problems one of which is managing the level of debt stock.

This issue ushered in the establishment of Debt Management Office in 2001. Although the establishment of this separate office is vital in controlling and managing the debt stock level, its activities seems not to have yielded the highly anticipated benefits. Prior to the \$8 billion debt cancellation granted to Nigeria in 2005 by the Paris club. The country had external debt of close to \$40 billion with over \$30 billion of the amount being owed to Paris Club alone. The history at Nigeria huge debts can hardly be separated from its decades of misrule and the continued recklessness of its rulers. Nigeria's debt stock in 1971 was \$8 billion.

By 1991, it had risen to \$33.4 billion and has been on the increasing particularly with the insurmountable regime of debt servicing and the insatiable desire of political leaders to obtain loan for the execution of dubious projects (Fabian & Anyanwu, 2015). Before the debt cancellation deal, Nigeria was to pay a whopping sum of \$4.9 billion every year on debt servicing (Aluko and Arowolo, 2010). It would have been impossible to achieve exchange rate stability or any meaningful growth under such indebtedness.

The problem of huge amount of debt stock and debt service payments of Nigeria has prevented it from embarking on larger volume of domestic investment, which would have enhanced economic sustainability (Clement, Bhattacharya and Nguyen, 2003). Debt has become a burden to most African countries because contracted loans were not optimally deployed therefore returns on investments were not adequate to meet maturing obligations and did not leave a favourable balance to support domestic economic growth. Therefore, Nigeria's economy has not performed well because the necessary macro-economic adjustment has remained elusive. The main objective of this study then is to examine the impact of public debt management profile on economic sustainability development: evidence from Nigeria.

### **1.2 Statement of the Problem**

There has been ongoing debate in the media and political platforms about Kenya's growing public debt and its impact on Kenya's economy (Ndii, 2017; Ngugi, 2018; Ochieng, 2018). Although the government has defended borrowing as beneficial and necessary in covering infrastructure gaps and spurring economic growth, the opponents of borrowing have argued that public debt trajectory is unsustainable and deleterious to economic growth (Ndii, 2017; Mwere, 2018). There is a relationship between economic development and public debt because the choice of public financing impacts incentives, resource use, and production possibilities (Owusu-Nantwi & Erickson, 2016).

A major catastrophe that comes with the debt is that the country has been borrowing faster than it has been repaying debt. The repayment of debts is competing with several of the country's wants and needs, such as healthcare, education, and other fiscal policies aimed at realizing economic sustainability. Public debt becomes a burden for governments if loans are not used effectively (Audu, 2004). As a result, income from investments will not be enough to payoff maturing debts, which will impede economic growth. When loans are not used to fund economically sound initiatives, it is challenging to repay the principal and acceded interest.

Nigeria is in this situation right now because investments that would normally lead to high-speed growth and a reduction in poverty are fluctuating in both good and negative directions. The major problems associated with public debt management in Nigeria is that debt are not used for productive purposes rather to fund recurrent expenditures, again these debt are not services as at when due as a result of embezzlement and corrupt practices on the part of the government.

### **1.3 Objectives of the Study**

The broad objective of the study is to examine the impact of public debt management profile on economic sustainability development in Nigeria. The following are the specific objectives:

- i. Analyze the effect of external debt management on economic sustainability development in Nigeria.
- ii. Determine the effect of internal debt management on economic sustainability development in Nigeria.

## REVIEW OF RELATED LITERATURE

### 2.0 Conceptual Review

#### 2.1 Concept of Public Debt Management

Government incurs debt either by external or internal means so as to promote policies that will bring about economic development. Bamidele and Joseph (2013) described debt management as policy which seeks to alter the stock, composition, structure and terms of debt with a view to maintaining at any given time, a sustainable level of debt service payment. It establishes the rules and regulations to guide borrowing and management of the State's debts, as well as confirming the commitment of State government to comply with sound financial, fiscal and reserve management practices including full and timely repayment of debts, attainment of the cheapest borrowing cost at the best degree of risk. Public debt management is the establishment of the conditions for the issue and redemption of public securities. It involves the process of administering the national debt, providing for the payment of interest and arranging the reinforcing of maturity bond. Once a debt is raised, it becomes contractually obligatory for the payment of their interest and capital as at when due. The way these debts are managed have a lot to of implications for government revenue and expenditure as the debt and their interest would have to be repaid from current government revenue or through issuance of new debt instruments (Uzoma, Kalu & Osuji, 2015).

#### 2.1.2 Economic Sustainability

Economic sustainability is understood as economic development without any loss of ecological or social sustainability. Economic sustainability means the allocation of resources over time (Markulev and Long 2013) and also intergenerational equity (Anand and Sen 2000). It emphasizes a production system which offers the highest level of well-being for current and future generations (Markulev and Long 2013) without compromising future needs (Basiago 1999). Economic sustainability, as one of the sustainability pillar (Elkington 1994), is necessary to maintain the natural, social, and human capital required for income and living standards.

Economic sustainability is when an activity or practice, financial or not, helps to support long-term long-term financial growth whilst keeping the environment, community, and social factors in mind. The main goal of economic sustainability is to create a balance between economic growth and the development of positive change for the environment and humanity. As a result, economic stability works towards the concept to provide all people with the resources necessary to live a satisfying life – such as helping to provide affordable housing, sufficient salaries, good working conditions such as providing paid time off (PTO) and childcare, and regular access to public transportation. Economic sustainability is important as it is next to impossible for any business to find long-term growth or success if they rely on finite resources for production, marketing, and piquing investor or consumer interest (Sadifie, 2024). Economic sustainability is important because it describes how societies can maintain their current financial structures and what steps might be necessary to improve the system for greater sustainability long term. Understanding sustainability in finance can help you learn more about current systems, how they work and why sustainability is important in many fundamental systems (Indeed editorial team, 2022).

## **2.2 Theoretical Framework**

### **Debt Overhang Theory**

Howard first proposed this theory in 1972. In 1988, Paul Krugman coined the phrase “debt overhang” to describe the undesirable consequences of government borrowed funds on growth of an economy: furthermore, capacities for repayment for outstanding facilities falls below the signed value. When the cost of possible forthcoming resource transfers is less than the debt, a country faces a debt overhang problem; a situation in which certain nations’ inheritable debt exceeds the present worth in expected funds transference that lenders anticipate these nations to forego during repayment (Krugman, 1988). Both debt and its servicing have an effect on growth by depressing private investment.

The country’s deficit continually will increase because of higher external interest payments, thus, decreasing public savings if private savings don’t counter the resulting effect. Debt servicing adversely affects the growth of an economy by decreasing amounts for which public funds are available for physical and human capital ventures (Clements et al., 2005). Debt overhang is well-known as a primary source of economic distortion and stagnation in economies with significant debt obligations (Sachs, 1989; Bulow and Rogoff, 1990). Since these nations lose their grip on private investors, economic development has slowed.

Furthermore, debt servicing depletes the revenue of the indebted country to a larger extent than the possibility for revamping the initial paths of growth is reduced (Chowdhury & Levy-Livermore, 1998). Debt overhang occurs not just when a nation acquires considerable amounts of debt; this also happens when the circumstances of a country change, thus becoming problematic to regulate and service the accumulating debt stock, this is according to Arslanalp and Henry (2004). These situations may arise as a result of negative economic shocks or ineffective economic policy. Bamidele & Joseph, (2013) debt servicing burdens thwarts rapid growth and development, worsening societal welfare. As debt service tends to be increasing proportion of a country’s output, resources that could otherwise be employed for growth and development are taxed away by the lenders. This increases uncertainty in an economy thus, foreign investors are discouraged, and private investment in the economy is reduced. Kenya is already battling with high debt to GDP ratios which keeps rising even further, every fiscal year. Larger proportion of the GDP is likely to be used in servicing the loans than on development.

This has devastating effects on the economy through underemployment and declined output. The debt overhang has caused the Kenyan economy to be relatively stagnant, and led to diminishing purchasing power of citizens for necessities. This theory is important for this research since it helps explain that debt can only be useful up to a certain extent, after which the taxes and other revenues collected by government will be used to service the debts instead of being channeled to productive avenues and development project.

### **2.3 Empirical Studies**

Nguyen, (2023) deals with the impact of national debt on gross domestic product growth, which plays an essential role in economic development when the debt-to-GDP ratio achieves the optimal public debt ratio. The goal of this study is to comprehend the relationship between government debt and GDP growth, which becomes increasingly essential for economic development as the debt-to-GDP ratio approaches the optimal threshold of public debt. The study applied regression threshold models, unit roots, and



Pearson correlation tests to the data collected in Vietnam from 2000 to 2020 to determine the optimum national debt-to-GDP threshold. The results show that the correlation between national debt-to-GDP and GDP growth was 85.2%. All the variables are stationary at the first difference and lag after one year, and the 38% threshold is the best level of national debt for GDP growth. This study contributes to the theoretical enhancement of the current knowledge of the factors that offer the Vietnamese government a point of reference for policy recommendations to control national debt successfully.

Agu, et al. (2023) investigated the impact of Nigeria's public debt on economic growth using data from 1990 through 2021. The specific objectives of the study ascertained impact of external debt on Nigeria's GDP growth rate; examined effect of domestic debt on Nigeria's GDP growth rate; assessed influence of debt service payment on Nigeria's GDP growth rate and determined direction of causality between public debt and economic growth in Nigeria. We adopted Ordinary Least Square (OLS) approach to analyze the public debt-GDP growth rate nexus. Furthermore, the Auto-regressive Distributed Lag (ARDL) model was used to test for co- integration. Findings showed that while external debt had a negative effect on GDP growth rate on the short-run, it indicated long-run positive effect on GDP growth rate. Domestic debt exerted a negative influence on GDP growth rate both in the short and long run. Debt Service payment had a negative impact on GDP growth rate both in the short-run and the long-run. Results of Granger causality tests indicated a unidirectional causality between external debt and GDPGR, as well as debt service payment and GDP growth rate in Nigeria. The study concluded that borrowing for expansionary fiscal policies is not detrimental if debts are properly utilized. The study therefore recommended that Nigeria's economic growth should be internally determined through enhanced economic activities; the government should endeavor to intensify investment on local resources to boost productivity and to prevent debt trap, the nation's rapidly expanding debt profile must be proficiently managed.

Ouedraogo, (2022) focused on the role of gross public debt in financial sustainability. Two opposing views on sustainability of the economy have emerged: strong sustainability, requiring separate preservation of all environmental assets, and weak sustainability, allowing a high degree of substitutability among produced capital, human capital, and natural capital. Our study focuses on weak sustainability. Although debt build-up can finance capital expenditure, debt servicing can increase pressure on natural resources that are essential for a sustainable economy, affecting all components of adjusted net saving or the inclusive wealth index, both of which measure economic sustainability. We gathered data on gross debt as a percentage of gross domestic product for 80 low-income countries over the period 1990–2017. Using the Arellano and Bond (1991) estimator, we found that an increase in public debt translated to a higher adjusted net saving rate. Debt scaling-up in low-income countries from 2010 was thus associated with progress towards sustainability. However, although debt sustainability appeared to be associated with sustainability of an economy, the public debt coefficient was negative when using inclusive wealth growth to measure progress. Our study is the first attempt to assess the impact of gross public debt on economic sustainability, taking all dimensions into account. It contributes to ongoing efforts by the World Bank and the International Monetary Fund to improve the debt sustainability framework for low-income countries and help them move towards more sustainable economies. Our findings are particularly relevant for the

Sustainable Development Goals (Goal 12: Ensure sustainable consumption and production patterns) in the context of post-covid-19 recovery.

Valdrin, Fisnik and Halit (2021) analyzed the impact of public debt on Kosovo's economic growth during the period 2007-2019. Through various analyzes related to the country's public debt, we will be able to conclude the effect of public debt on Kosovo's economic growth. To analyze the public debt of the country, the following variables are included: GDP as a dependent variable, while as independent variables are the internal debt (DD) and external debt (EXD) of the Republic of Kosovo. This paper is mainly based on the collection of data from secondary sources which are provided by the annual public debt reports published by the Ministry of Finance, the reports of the Central Bank of Kosovo and the World Bank in a period of 13 years, while the review of the literature in terms of content includes studies of various authors regarding the impact of public debt on economic growth. The collected data will be analyzed, processed and interpreted through econometric models using the STATA software. Based on the results and findings of the study of this scientific research we can conclude that public debt has a positive impact on economic growth, implying that the low level of public debt has ensured financial stability at the national level and the use of debt to a large extent for capital investments has caused a positive substantive impact on the economic growth of the country during this period. Through the results of this study, we recommend that for the needs of financing the economy and capital projects, the Republic of Kosovo has the opportunity to use public debt for economic needs up to the allowable limit while maintaining financial and macroeconomic stability of the country. This scientific research presents real and sustainable findings regarding the public debt of the Republic of Kosovo as an impact on economic growth for the analyzed period.

Ajayi and Edewusi, (2020) examined the effect of public debt on economic growth of Nigeria. Specifically, the study determined the impact of domestic debt on the economic growth of Nigeria; assessed the effect of external debt on the economic growth of Nigeria and analyzed the relationship public debt and the economic growth of Nigeria. Secondary time series data spanning thirty-seven years (1982-2018) was gathered in the study. Data gathered in the study was estimated using descriptive statistics, unit root test, Johansen co-integration test and vector error correction model. Discoveries from the study suggests that external debt exerts a negative long run and short run effect on economic growth of Nigeria and domestic debt was ascertained to exert positive long run and short run effect on economic growth of Nigeria. Based on these findings, the study suggested that policy makers should integrate appropriate measures towards ensuring suitable management of domestic debts; government should ensure that contracted national debts are directed towards encouraging investment in the country and government through necessary monitoring committees should ensure that national debts are directed toward the provision of basic amenities and services required for the development of communities and societies of the nation.

## METHODOLOGY

### Research Design

The type of research design adopted in this study is *ex-post facto* research.

### Nature and Sources of Data

The data used for this research work is mainly secondary data which were collected from the Central Bank of Nigeria's Statistical Bulletin 2023. The collected data were external and internal debt as well as real gross domestic product.

### Model Specification

The Study modified the work of Agu, et al. (2023) investigated the impact of Nigeria's public debt on economic growth. Their model was adapted by this present study. Their model is stated as:

$$\text{GDP growth} = f(\text{EDD}, \text{ITD}, \text{DS})$$

Where

EDD = External debt

ITD = Internal debt

DS = Debt service

Our present study modified the above model to suit our objectives as follows:

$$\text{RGDP} = F(\text{EDM}, \text{IDM})$$

Where

RGDP = Real gross domestic product

EDM = External debt management

IDM = internal debt management

F = Functional notation

The econometric form of the model can be expressed as;

$$\text{RGDP} = B_0 + B_1\text{EDM} + B_2\text{IDM} + \mu$$

Where;

$B_0$  is the constant intercept which shows the level of RGDP.

$\beta_1$  = coefficient of parameter EDM

$\beta_2$  = coefficient of parameter IDM

$\mu_1$  = the stochastic error term or disturbance variable.

The model can be re-written in a logged form

$$\text{LogRGDP} = B_0 + \text{Log}B_1 \text{EDM} + \text{Log}B_2 \text{IDM} + \mu$$

Where

Log = logged values of the variables

### Tool of Analysis

The evaluation technique applied in this study is the use of econometric estimation method of the ordinary least square which Koutsoyannis (1997) remark as the best linearly unbiased estimator (BLUE). The estimates of the model were obtained through the statistical package of E-view version 8.0. Therefore, diagnostic statistics like the



coefficient of determination, adjusted R-square, t-statistic, Durbin Watson statistics and standard error test was employed to test the plausibility of our parameter. Unit root test was also conducted to check the stationarity of our variable before the regression will be concluded.

## DATA PRESENTATION, ANALYSIS AND INTEPRETATION

### 4.1 Descriptive Analysis

The descriptive statistics for the dependent and independent variables used in this study were presented in table 4.1 below:

	LECS	LEDM	LIDM
Mean	10.36703	6.521438	6.667567
Median	10.20543	6.505800	6.992964
Maximum	11.20743	9.471020	9.715886
Minimum	9.530920	0.845868	2.415021
Std. Dev.	0.611212	2.100800	2.268165
Skewness	0.172021	-0.854929	-0.337757
Kurtosis	1.435808	3.287723	1.893578
Jarque-Bera	4.488860	5.261199	2.940857
Probability	0.105988	0.072035	0.229827
Sum	435.4153	273.9004	280.0378
Sum Sq. Dev.	15.31678	180.9478	210.9275
Observations	42	42	42

*Source: Researchers' computation (2024)*

*Note: \*1% level of significance \*\*5% level of significance*

The variables' lowest, median, and maximum values are displayed in the table together with the descriptive statistics of the mean, standard deviation, and Jarque-Bera (JB) Statistics normalcy test. The study used data from 43 years of observations of yearly reports from the Central bank of Nigeria statistical bulletin. Economic sustainability is the dependent variable, and external debt management and internal debt management are the independent factors, according to the table above. The summary statistics reveal that the average means of Economic sustainability, external debt management and internal debt management are 10.36703, 6.521438 and 6.667567 respectively. The standard deviations of these variables are 0.611212, 2.100800 and 2.268165 respectively. The standard deviation figures show that the variables in Nigeria are widely distributed. The large difference between the maximum and minimum readings further supports this. For instance, there is a **1.67** difference between the maximum and minimum economic sustaibility values, which are 11.20743 and 9.530920, respectively.

In a similar vein, the external debt management ranges from 9.471020 at the minimum to 0.845868 at the maximum. These fluctuations in external debt management are a little on the high side. Internal debt management has a maximum value of 9.715886 and a minimum value of 2.415021. The significant volatility over time suggests a high degree of variable variability, which impacts economic sustainability value. The difference between the highest and lowest performance values in Nigeria showed that the sampled firms are

homogeneous and that the heteroscedasticity issue should not be taken into account by the chosen estimation methodologies.

Last but not least, table 4.1's Jarque–Bera (JB) test, which looks for abnormalities or extreme values among the variables, reveals that economic sustainability, external and internal debt management have a normally distributed distribution at the 5% level of significance, Overall, the descriptive statistics showed that the data did not contain any outliers or bias in the sample selection that would have hampered the study's ability to be generalized. This also justifies the use of ordinary Least Square estimation techniques. Hence, any recommendations made to a very large extent would represent the characteristics of the true population of study.

**4.2: Correlation Analysis**

In examining the association among the variables, we employed the Pearson correlation coefficient (correlation matrix) and the results are presented in the table 4.2 below.

**Table 4.2 Result of Pearson Correlation Matrix**

	LECS	LEDM	LIDM
LECS	1.000000	0.411425	0.341671
LEDM	0.411425	1.000000	0.270363
LIDM	0.341671	0.270363	1.000000

*Source: Researcher’s summary of correlation analysis (2024).*

None of the variables were found to be less than 0.90. That is, no two exploratory variables had a perfect correlation. The highest correlation is between two variables which are highly correlated with (LEDM/LIDM=0.41/0.34) which indicate that multi co linearity is not a serious problem that would distort the regression result in the model used for analysis. All of the factors have a strong link with economic sustainability, according to a detailed examination of the Pearson correlation coefficient values.

**4.3 Unit Root Test**

The first stage of co-integration and Error Correction Model is to test for unit root. The whole analysis then proceeds from it. Konya (2004) maintains that there exists unit root in most time series. Therefore, it is necessary to analyze whether the series are stationary or not whenever time series data are involved. The presence of unit root implies that the timeseries under investigation is non-stationary, the absence of a unit roots shows that stochastic process is stationary. The Augmented Dickey-Fuller (ADF) test is employed in this test.

**Table 4.3 Unit Root Test**

variable	ADF	Integration	Significant
LECS	-5.538986	1(1)	1%
LEDM	-4.921517	1(1)	1%
LIDM	-4.493762	1(1)	1%

Source: Author’s computation using E-view 9.1

Finally, the ADF test was conducted on public debt management profile and economic sustainability development in Nigeria and the results presented in table 4.3 show that null hypothesis of unit roots was rejected after differencing once. Hence, the variable is clearly integrated of order one and at 1% level of significant respectively.

## 4.2 Co-Integration test

Given that all the variables are integrated of order one, co-integration test was carried out to establish whether the variable though individually non-stationary could be co-integrated as a group and also to establish the existence of a long-run relationship among them. The Johansen procedure is used to achieve this.

**Table 4.4: Johansen Co-integration Test**

<b>Unrestricted Cointegration Rank Test (Trace)</b>				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value 0.05	Prob.**
None *	0.400247	31.82532	24.27596	0.0047
At most 1 *	0.268962	12.90956	12.32090	0.0398
At most 2 *	0.034991	1.317843	4.129906	0.2934
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level				
*denotes rejection of the hypothesis at the 0.05 level				
**Mackinnon-Haug-Michelis (1999) p-values				
<b>Unrestricted Cointegration Rank Test (Maximum Eigenvalue)</b>				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value 0.05	Prob.**
None *	0.400247	18.91576	17.79730	0.0338
At most 1 *	0.268962	11.59172	11.22480	0.0431
At most 2 *	0.034991	1.317843	4.129906	0.2934
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level				
*denotes rejection of the hypothesis at the 0.05 level				
**Mackinnon-Haug-Michelis (1999) p-values				

### Source: Author's Compilation Using E-views 9 Output

The result of Johansen co-integration test is shown in Table 4.4 above. The result shows that there exist two (2) co-integrating equations at 5% level of significance. This is because the trace statistic is greater than critical values at 5%. This shows that there exists a long run relationship between digitalized accounting system and all the explanatory variables. The result indicates that in the long run, the dependent variables can be efficiently anticipated using the specified independent variables and, thus, we proceeded to estimate the Error Correction Model (ECM) so as to reconcile the short-run dynamics with long-run disequilibrium of the variables. The Error Correction Model results are presented in table below.

#### 4.4 Regression Result

**Table 4.5 Error Correction Model Result**

Dependent Variable: LECS  
 Method: Least Squares  
 Date: 08/29/24 Time: 07:11  
 Sample (adjusted): 1982 2022  
 Included observations: 41 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.788036	0.068635	1.280397	0.0000
LEDM	-0.113584	0.019573	-5.803057	0.0000
LIDM	0.347846	0.017126	2.031119	0.0009
ECM(-1)	-0.687631	0.122155	-5.629159	0.0000
R-squared	0.763811	Mean dependent var		10.38494
Adjusted R-squared	0.740876	S.D. dependent var		0.607549
S.E. of regression	0.120171	Akaike info criterion		-1.307328
Sum squared resid	0.534323	Schwarz criterion		-1.140150
Log likelihood	30.80023	Hannan-Quinn criter.		-1.246451
F-statistic	328.4665	Durbin-Watson stat		1.583406
Prob(F-statistic)	0.000000			

**Source: Author’s Compilation Using E-views 11 Output**

The results presented above will be analyzed using three criteria; economic a priori criteria, statistical criteria and econometric criteria.

The R<sup>2</sup> which is the coefficient of determination or the measure of goodness of fit shows the degree of variation in the dependent variables. The closer R<sup>2</sup> is to 100%, the better the fit of the model. From the regression result, R<sup>2</sup> is 0.76%. This implies that the independent variable can explain about 76% of the variations in the dependent variable, leaving the remaining 24% which would be accounted for by other variables outside the model as captured by the error term. The F-statistics measures the overall significance of the explanatory parameter. From the result in table 4.3 above, our computed value F-statistics is 328.4665 while the probability is 0.0000, Since the probability of the F-statistics in the computed output is less than the desired 0.05 level of significance, we accept and state that there is a significant relationship between the variance of the estimate and that of the dependent variable.

The specific objectives are addressed using the coefficient of regression and its corresponding t-statistics were use to test the hypothesis of the study. The result is as shown on the equation below:

The specific objectives are addressed using the coefficient of regression and its corresponding t-statistics. The result is as shown on the equation below:

$$LECS = 0.788036 - 0.113584LEDM + 0.347846LIDM$$

The coefficient of regression (-0.113584LEDM) indicates that External debt (EDM) has negative effect on economic sustainability. This indicates that a unit increase in External

debt will lead to about 2percent decrease in the economic sustainability in Nigeria. The t-statistics -5.803057 with P.value of 0.000 Since the P.value is greater than 0.05 level, we reject the null hypothesis and accept alternative hypotheses which indicates that “External debt has significant negative effect on economic sustainability in Nigeria”. Therefore that study posited that External debt has significant negative improve on the economic sustainability in Nigeria.

The coefficient regression (0.347846IDM) indicates that internal debt management (IDM) has positive effect on the economic sustainability in Nigeria,. This indicates that a unit increase in internal debt will lead to about 34 percent raise in the economic sustainability in Nigeria. The t-statistics 2.031119 with P. value of 0.0000. Since the P. value is less than 0.05 level, we reject the null hypothesis that “internal debt management does not have significant effect on economic sustainability in Nigeria”. Therefore the study maintains that internal debt management (IDM) has positive effect on the economic sustainability in Nigeria

### **5.1 Conclusion and Recommendation**

An essential tactic for the growth of the Nigerian economy is debt management. This cannot be overstated because debt becomes both inevitable and essential for Nigeria's economic development, including the financing of infrastructure and social development initiatives. As long as borrowed money is wisely used for profitable investments to support Nigeria's economic development, debts can become useful. But if responsible debt management measures are implemented, they will eliminate resource theft or diversion toward purposes other than paying off debt. Therefore, debt management is crucial to ensuring that different debts, whether internal or foreign, are wisely applied to Nigeria's economic development and that the debt is repaid when it is due. The government should focus more on foreign loans notably in funding infrastructure like transportation, health and power sectors. The right plan should be created about the management of the debt such that it should escalate The government should develop a diplomatic plan in addition to the Debt Management Office's (DMO) oversight of the nation's debt. All external debts taken on by the different branches of government ought to be managed through formal debt management processes.

### **References**

- Adesola, W. A. (2009). Debt servicing and economic growth in Nigeria: An Empirical Investigation. *Journal of Social Science* 8, no. 2, pp 1-11.
- Agu, F. N. Ugwuanyi, W. N. J., Anyanwaokoro, M. & Sa'adatu A. (2023) Impact of Public Debt on Economic Growth of Nigeria, 1990-2021. *IJMGS Vol.3(2), 1-12*
- Ajayi, I. E, and Edewusi, D. G. (2020). Effect of public debt on economic growth of nigeria: an empirical investigation. *International Journal of Business and Management Review* 8, No.1, pp.18-38,
- Ajayi, I. E. & Edewusi, D.G. (2020) Effect of Public Debt on Economic Growth of Nigeria: An Empirical Investigation. *International Journal of Business and Management Review* 8(1), 18-38



- Alejandro, (ed.), by Ronald Findlay. Oxford, Blackwell. Cited in Tatu, S. (2014). An application of Debt-Laffer curve: Empirical evidence for Romania's case. *Romanian Journal of Fiscal Policy*, 5(1(8)), 29 -38.
- Aluko F. & Arowolo D. (2010). Foreign aid, the third world's debt crisis and the implication for economic development: The Nigerian experience. *African Journal of Political Science and International Relations*. 4(4), 120-127.
- Anidiobu, G.A., Agu, B.O. and Ezinwa, C.E. (2016). Responsiveness of economic growth to external debt in Nigeria. *Journal of Policy and Development Studies*, 10, no.3, pp1-19.
- Audu, I.. (2004). The impact of external debt on economic growth and public investment: the case of Nigeria. *African Institute for Economic Development and Planning* (IDEP), Dakar 2004.
- Bamidele, T.B. & Joseph, A.I (2013). Financial crisis and external debt management in Nigeria *International Journal of Business and Behavioral Sciences*, 3(4), 45-71.
- Clements, B., Bhattacharya, R. & Nguyen, T. Q. (2003). External debt, public investment, and growth in low income countries. IMF Working Paper WP/03/249, December.
- Clements, B., R. Bhattacharya, and T. Q. Nguyen (2005), 'External Debt, Public Investment, and Growth in Low-Income Countries', IMF Working Paper No. 03/249.
- Fabian, M. E. & Anyanwu, U. N. (2015). Debt management and economic growth empirical evidence from Nigeria. *International Journal of Innovative Research and Development*. 4(1), 243-258.
- Fajana, F. O. (1993). Nigeria debt crisis. United National Economic Commission for African socio-development. *Economic Research and Planning Division, Addis-Ababa, Ethiopia*. 5 (2), 54-57.
- Krugman Paul. (1988). Financing vs. Forgiving a debt overhang: Some Analytic notes. *Journal of Development Economics*, 29, 253-268.
- Mwere, D. (2018, November 10). President Kenyatta defends government borrowing. Daily Nation. Retrieved from <https://www.nation.co.ke/news/Uhuru-defends-government-borrowing/1056-4845134-cxneon/index.html>
- Ndii, D. (2017, November 17). Jubilee's borrowing binge: Chickens are coming home to roost. The Daily Nation. Retrieved from <https://www.nation.co.ke/oped/opinion/Jubilee-s-borrowing-binge/440808-4191788-sty2lr/index.html>
- Ngugi, B. (2018, February 27). Concern over Kenya's debt as it hits new record of Sh4.57trn. Daily Nation. Retrieved from <https://www.nation.co.ke/business/Kenya-s-public-debt-crosses-Sh4-5trn-mark/996-4320928-bit76az/index.html>
- Nguyen, N. S. (2023). Public debt management and economic growth: Athreshold regression approach. *Public and Municipal Finance*, 12(1), 62-72.doi:10.21511/pmf.12(1).2023.06
- Obademi, O. E. (2013). External debt and Nigeria's economic growth nexus, matters arising. *Journal of Poverty, Investment and Development*. 1(1), 22-28
- Ochieng', J. (2018, March 10). ICPAK alarmed over Kenya's growing debt. Retrieved from <https://www.nation.co.ke/news/ICPAK-on-Kenya-debt/1056-4345984-7kwrle/index.html>

- Owusu-Nantwi, V., & Erickson, C. (2016). Public debt and economic growth in Ghana. *African Development Review*, 28(1), 116-126.
- Sachs, J. D. (1989). The debt overhang problem of developing countries. In debt, stabilization and development. Essays in Memory of Carlos Diaz-
- Valdrin, M., Fisnik, M. & Halit S. (2021) The impact of public debt on economic growth: Evidence From Kosovo (2007-2019). *Journal of Accounting, Finance and Auditing Studies* 7(4), 119-133

## Appendix

Dependent Variable: LECS  
 Method: Least Squares  
 Date: 08/29/24 Time: 07:11  
 Sample (adjusted): 1982 2022  
 Included observations: 41 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.788036	0.068635	1.280397	0.0000
LEDM	-0.113584	0.019573	-5.803057	0.0000
LIDM	0.347846	0.017126	2.031119	0.0009
ECM(-1)	-0.687631	0.122155	-5.629159	0.0000
R-squared	0.763811	Mean dependent var		10.38494
Adjusted R-squared	0.740876	S.D. dependent var		0.607549
S.E. of regression	0.120171	Akaike info criterion		-1.307328
Sum squared resid	0.534323	Schwarz criterion		-1.140150
Log likelihood	30.80023	Hannan-Quinn criter.		-1.246451
F-statistic	328.4665	Durbin-Watson stat		1.583406
Prob(F-statistic)	0.000000			

Null Hypothesis: D(LECS) has a unit root  
 Exogenous: Constant  
 Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.538986	0.0000
Test critical values:		
1% level	-3.605593	
5% level	-2.936942	
10% level	-2.606857	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(LECS,2)  
 Method: Least Squares  
 Date: 08/29/24 Time: 07:04  
 Sample (adjusted): 1983 2022  
 Included observations: 40 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LECS(-1))	-0.890767	0.160818	-5.538986	0.0000
C	0.035291	0.017885	1.973240	0.0558
R-squared	0.446712	Mean dependent var		0.000650
Adjusted R-squared	0.432152	S.D. dependent var		0.140630
S.E. of regression	0.105972	Akaike info criterion		-1.602569
Sum squared resid	0.426746	Schwarz criterion		-1.518125
Log likelihood	34.05138	Hannan-Quinn criter.		-1.572037
F-statistic	30.68037	Durbin-Watson stat		1.946980
Prob(F-statistic)	0.000002			

Null Hypothesis: D(LEDMD) has a unit root  
 Exogenous: Constant  
 Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.921517	0.0002
Test critical values:		
1% level	-3.605593	
5% level	-2.936942	
10% level	-2.606857	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(LEDMD,2)  
 Method: Least Squares  
 Date: 08/29/24 Time: 07:05  
 Sample (adjusted): 1983 2022  
 Included observations: 40 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LEDMD(-1))	-0.703036	0.142849	-4.921517	0.0000
C	0.118374	0.074873	1.581009	0.1222
R-squared	0.389277	Mean dependent var		-0.033083
Adjusted R-squared	0.373205	S.D. dependent var		0.545263
S.E. of regression	0.431686	Akaike info criterion		1.206472
Sum squared resid	7.081420	Schwarz criterion		1.290916
Log likelihood	-22.12944	Hannan-Quinn criter.		1.237004
F-statistic	24.22133	Durbin-Watson stat		1.865644
Prob(F-statistic)	0.000017			

Null Hypothesis: D(LEDMD) has a unit root  
 Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.493762	0.0009
Test critical values:		
1% level	-3.605593	
5% level	-2.936942	
10% level	-2.606857	

\*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(LIDM,2)

Method: Least Squares

Date: 08/29/24 Time: 07:05

Sample (adjusted): 1983 2022

Included observations: 40 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LIDM(-1))	-0.701498	0.156105	-4.493762	0.0001
C	0.120838	0.036076	3.349553	0.0018
R-squared	0.347011	Mean dependent var		-0.006869
Adjusted R-squared	0.329827	S.D. dependent var		0.171684
S.E. of regression	0.140547	Akaike info criterion		-1.037837
Sum squared resid	0.750636	Schwarz criterion		-0.953393
Log likelihood	22.75673	Hannan-Quinn criter.		-1.007304
F-statistic	20.19390	Durbin-Watson stat		2.048293
Prob(F-statistic)	0.000064			

Date: 08/29/24 Time: 07:10

Sample (adjusted): 1986 2022

Included observations: 37 after adjustments

Trend assumption: No deterministic trend

Series: LECS LEDM LIDM

Lags interval (in first differences): 1 to 4

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.400247	31.82532	24.27596	0.0047
At most 1 *	0.268962	12.90956	12.32090	0.0398
At most 2	0.034991	1.317843	4.129906	0.2934

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.400247	18.91576	17.79730	0.0338
At most 1 *	0.268962	11.59172	11.22480	0.0431
At most 2	0.034991	1.317843	4.129906	0.2934

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b\*S11\*b=I):

LECS	LEDM	LIDM
0.671001	-0.287407	-0.347437
-0.085591	1.247507	-0.947803
0.264993	0.052463	-0.565627

Unrestricted Adjustment Coefficients (alpha):

D(LECS)	D(LED M)	D(LID M)
0.028275	0.030861	-0.011044
0.160379	-0.148724	-0.009902
0.063003	0.015544	0.016459

1 Cointegrating Equation(s):                      Log likelihood                      49.25381

Normalized cointegrating coefficients (standard error in parentheses)

LECS	LEDM	LIDM
1.000000	-0.428326 (0.45409)	-0.517789 (0.40216)

Adjustment coefficients (standard error in parentheses)

D(LECS)	0.018973 (0.01242)
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	LECS	LEDM	LIDM	ECM
1981	9.632859	0.845868	2.415021	0.053233
1982	9.614810	2.177022	2.708717	0.102704
1983	9.536021	2.358965	3.100993	-0.093058
1984	9.530920	2.695303	3.245323	-0.106230
1985	9.612728	2.850707	3.330417	-0.034748
1986	9.631547	3.724488	3.347797	0.091255
1987	9.633248	4.613039	3.605226	0.116026
1988	9.693715	4.897541	3.850786	0.125414
1989	9.758154	5.482263	3.851211	0.265595
1990	9.868152	5.699138	4.431888	0.195634
1991	9.862617	5.794385	4.755313	0.086549
1992	9.884314	6.299427	5.181559	0.021037
1993	9.899881	6.450692	5.612544	-0.098224
1994	9.902443	6.475140	6.010237	-0.235017
1995	9.920993	6.574895	6.169046	-0.260434



1996	9.960714	6.425388	6.040207	-0.193944
1997	9.989165	6.390123	6.218102	-0.233826
1998	10.01381	6.450502	6.329418	-0.241234
1999	10.01902	7.854525	6.678103	-0.178759
2000	10.07274	8.038312	6.800448	-0.145035
2001	10.13728	8.063469	6.924593	-0.121722
2002	10.27359	8.277127	7.061334	-0.006681
2003	10.36437	8.407005	7.192694	0.053877
2004	10.46369	8.495003	7.222807	0.153827
2005	10.53143	7.899179	7.330346	0.105689
2006	10.59652	6.112487	7.469232	-0.110896
2007	10.66715	6.084249	7.682312	-0.120300
2008	11.00093	6.260059	7.749456	0.212237
2009	11.05436	6.380868	8.079627	0.163013
2010	11.11473	6.536460	8.423282	0.120416
2011	11.14221	6.798889	8.634592	0.106229
2012	11.12625	6.934300	8.785315	0.053831
2013	11.13446	7.235136	8.870518	0.070548
2014	11.15353	7.397255	8.975127	0.073175
2015	10.81690	7.655159	9.086703	-0.269975
2016	10.73667	8.154474	9.310928	-0.365753
2017	11.13446	8.663457	9.440618	0.051619
2018	11.15353	8.956635	9.455198	0.103523
2019	11.18314	9.107468	9.566099	0.112966
2020	11.20743	9.449800	9.681836	0.140208
2021	11.18844	9.463172	9.696949	0.117532
2022	11.19637	9.471020	9.715886	0.119701