



## **RE-EXAMINING THE DEBT ACCUMULATION FOR SUSTAINABLE ECONOMIC GROWTH IN NIGERIA**

Olamide, E.G., Yusuff, S.A., Daisi, Taiwo F. & Jooda, Taiwo D.

Corresponding Author: Olamide, E.G.

<sup>1</sup>**Corresponding Author:** Olamideego@yahoo.co.uk

### ***Abstract***

*An in-depth study has been given to the relationship between debt accumulation and economic and sustainable development in development literature. While some scholars have maintained that the relationship between debt accumulation and economic transformation—whether positive or negative—is durable along a country's growth path, others have argued against it. Between 1999 and 2022, this study examines the effect of governmental debt on Nigeria's economic growth. Data on economic development proxies were used to establish the relationship and level of significance. The Johansen maximum likelihood regression method was employed because it allows for multiple co-integrating associations between the variables. The results suggest a positive correlation between the total debt profile and GDP per capita. The percentage of the population living below the poverty line, the total debt, and the literacy rate were not statistically significant over the study period. Nigeria's influence on the economy and long-term prosperity of the nation was detrimental over the studied period. The findings also advise the Nigerian government to investigate the reasons why public debt does not increase GDP per capita in order to spot and address bottlenecks. This report recommends that improvements in policy and institutional performance, notably in the areas of economics and debt management, as well as improved fiscal positions and financing from donors and creditors, be considered.*

***Keywords:*** Debt, Economic Growth, Accumulation, Sustainability



## **1. INTRODUCTION**

The idea of debt accumulation as a cure-all for economic growth and sustainability, particularly in emerging economies, has captured the attention of policy analysts, academics, and the government in the development literature. There is a plethora of evidence about the sustainability of debt accumulation in relation to economics. A substantial body of research exists regarding the relationship between debt accumulation and its sustainability in the context of economic growth. Notable contributions include the works of Olaoye (2023); Adekunle, Adeniyi, & Orekoya (2021); Law, Ng, Kutan, & Law (2021); Mohsin, Ullah, Iqbal, Iqbal & Taghizadeh-Hesary (2021); Onifade, Çevik, Erdoğan, Asongu, & Bekun (2020); Ndocirimpa (2020); Onafowora & Owoye (2019). Furthermore, a variety of studies have offered valuable insights into this subject. These include the research conducted by Yusuf & Mohd (2023); De Soyres, Kawai, & Wang (2022); Akhanolu, Babajide, Akinjare, Oladeji & Osuma (2018); Favour, Ideniyi, Oge, & Charity (2017); Egbetunde (2012); Ajayi & Edewusi (2020); Dada (2012); Ideniyi, Ogonna & Ifeyinwa (2016); João and Paulo (2022); Matthew & Adetayo (2022); Muhammad and Abdullahi (2020); Eke & Akujuobi (2021); Asteriou, Pilbeam & Pratiwi (2021) have examined the impact of debt on government investment, economic growth and development. The dispute over how much to borrow at any one time and how to manage such debt for sustainable economic growth and the long-term repercussions of loans remains an attractive topic in economic research, even though the information that was available showed a relationship between these factors. However, the fall in public spending due to debt-induced liquidity limitations is what causes the negative impact of debt accumulation and its sustainability on the economic growth of African countries (O'Connell,



2021; Onifade *et al.* 2020 & Ndoricimpa 2020). Due to liquidity restrictions implied by debt-servicing circumstances, the budget may be persuaded to forgo public investment. Government spending is anticipated to be a significant driver of economic activity in several places (Festus & Saibu 2019; Yusuf & Mohd 2021). This is an important factor to take into account. However, Nigeria has been abusing both its internal and external debt to the point where paying down the debt is costing the populace's well-being (Ohiomu, 2020). Adedoyin, Babalola, Otegunri & Adeoti (2016); Yusuf & Mohd (2021) contend that the low level of investment in the Nigerian economy can be largely attributed to "crowding out" and the "debt overhang" influence of debt maintenance. In all levels of government, this has created a significant infrastructure vacuum since it prevents money from flowing steadily into the public coffers. Nigeria's economic progress has not been sustainable and is not encouraging, especially in the areas of infrastructural decadence, unemployment, and poverty alleviation when considering important aspects such as job creation, poverty reduction, and other socio-economic challenges and difficulties that are plaguing. This is especially true since the beginning of the current uninterrupted democratic rule from 1999, 2015 to the present year 2022.

However, the 'debt overhang' influence lowers economic performance by resulting in tax disincentives and macroeconomic instability (Eke & Akujuobi 2021; Muhammad & Abdullahi 2020; Ohiomo 2022; Abdullahi, Abu Bakar & Hassan (2016); Shkolnyk & Koilo 2018). Macroeconomic instability has several repercussions, including a rise in fiscal deficits, uncertainty brought on by unconventional financing, a potential monetary expansion, a decline in currency values, and anticipated inflation (Ohiomu 2020 & Yusuf & Mohd 2021). In his debt overhang



hypothesis, Ohiomu (2020) claims that "the burden associated with debt service in Nigeria hampered and aggravated her rapid economic growth and social issues." Major institutions have had difficulty offering services targeted at enhancing the living conditions of underprivileged people due to a lack of funding. The reduction of social and economic infrastructure spending by the government appears to have impeded private sector investment and growth through lost externalities. This has decreased overall investment and increased welfare loss because public investment makes up a significant portion of the nation's total investment. The observed discrepancy between the size of the debt stock and economic realities served as the inspiration for this research. As a result, human development indices in Nigeria, where socioeconomic issues are still being experienced, continue to indicate a negative trend. Nigeria has continued to rack up debt, both domestic and foreign, frequently at incredibly low-interest rates. Increased debt accumulation is a sign that economic activity and infrastructure construction are increasing. If the total amount of debt is rising, concerns must be expressed as to why the standard of life for Nigerians is not rising at the same time. For instance, according to Jaiyeola & Bayat (2019), between 2004 and 2010, the poverty rate rose from 54.7% to 60.9%, and by the end of 2017, it had reached 64.61% (Lawanson & Umar, 2020). The poverty rate was estimated to be 71% as of the end of 2020 using the \$3.20 per day World Bank threshold income (NNBC 2021). The impact of debt stock and service signals on the yearly growth rate of output is examined in this article. The connection between the debt Laffer curve and non-linearity in the effect of debt becomes clear when the statements of the debt Laffer curve are revisited. The nonlinear curve connects the amount of debt to the likelihood of repayment (or the expected value of repayment). Repayment



capacity decreases as the total amount of debt increases, as shown by the inverted U-shaped curve. In other words, productivity declines at a certain point due to new debt acquisition and a decrease in the efficient use of debt stock. But Nigeria was chosen for the investigation because, in addition to being the giant of Africa, she also plays a crucial role in regional and continental integration. Nigeria's attempts to lower the level of poverty in sub-Saharan Africa, as detailed in Senadza, Fiagbe & Quartey (2018) speak volumes, as noted by Eke & Akujuobi (2021). As more debt is accumulated, how far has Nigeria advanced economically in terms of GDP per capita, poverty reduction, life expectancy at birth, literacy rate, and unemployment rate? These and other basic questions about the justification for debt accumulation in economic transformation have been raised above. Has Nigeria's economic development throughout the past year been significantly impacted by the degree of debt accumulation?

Reconsidering the findings of the various studies on the relationship between debt and economic growth in Nigeria, it becomes evident that there are differing perspectives. On one hand, (Iliya & Tahir, 2017; Oyaromade *et al.* 2021; Anderu *et al.* 2019; Muhammad & Abdullahi. 2020; Eke & Akujuobi, 2021; Adekunle *et al.* 2021; Law *et al.* 2021; Asteriou, Pilbeam & Pratiwi 2021; João Tovar & Paulo, 2022; De Soyres, Kawai & Wang; 2022), as well as Matthew and Adetayo (2022), collectively argued that their research suggests that external debt exerts a negative influence on Nigeria's economic growth in both the short and long run. Furthermore, they posit that domestic debt, in contrast, tends to have a positive impact on the country's economic growth. However, it is worth noting the opposing viewpoints presented by Yusuf & Mohd, 2023; Egbetunde 2012; Ajayi & Edewusi 2020; Akhanolu Babajide *et al.* 2018. Their research indicates that debt can indeed



contribute positively to economic growth in Nigeria, provided that it is effectively managed and established.

Due to the presence of conflicting results in prior research, a notable void in conceptual understanding has been identified. This study seeks to address this gap by introducing a novel variable distinct from those utilized in previous research. It is important to underscore the significance of variables and factors in shaping the dynamics of a relationship. Established on the inconsistent findings regarding the correlation between debt and economic growth, there is a need to reexamine the nexus between debt accumulation and sustainable economic growth in Nigeria, with a specific focus on her recent economic transitions by filling this conceptual gap because variable and factor play a crucial role in a relationship.

Given its multifaceted nature, this paper measures sustainable development holistically. As a result, the study examines Nigeria's experience with respect to debt accumulation as it affects her economic growth aspiration.

## **2. LITERATURE REVIEW**

Omodero, Egbide, Madugba & Ehikioya (2020) examined the impact of Nigeria's external financial commitments on the country's population's overall level of living and came to the conclusion that borrowing money did not raise people's standards of living but rather contributed to the country's rising cost of living. Furthermore, it was discovered that the fundamental aim of taking debt was being undercut due to lack of political will, thus there was no real impact on people's living expenses. In a similar vein, Ohiomu (2020) claimed that both the debt overhang



and crowding-out impact variables in his study decreased investment level in Nigeria in the results of the ARDL bound test.

Festus & Saibu (2019) and Ekor, Orekoya, Musa & Damisah (2021) added to the body of evidence supporting the debt-growth theory and confirmed earlier results that debt continued to have a detrimental impact on Nigeria's economic growth. It was further supported in the time-series studies that used ARDL that debt should only be directed toward projects that will help local outputs be exported.

However, Oyaromade, Binuomoyo & Ogunleye (2021) found no statistically significant link between Nigeria's external debt and economic expansion. On the contrary, Anderu, Omolade & Adeniyi (2019) found that Nigeria's economic growth was negatively impacted by external debt. A long-term strategy that will take into account both long- and short-term foreign debt was suggested by the time-series analysis, which used the same ARDL estimation approach over the period 1980 to 2016. Also, George-Anokwuru & Inimino (2020) showed that external debt as well as debt servicing had negative and significant effects on Nigeria's economic growth.

Using a path analysis, Wijaya, Taseñte, Darma & Kasuma (2021) looked at the impact of demographic pressure, happiness, and a human development index on the labor force and economic growth in Romania from 2013 to 2019. The models' calculations made use of time series data taken from annual reports. The study presents six key conclusions, including the fact that factors like the human development index, demographic pressure, and happiness strongly support economic growth. The human development index is the most striking variable from the hypothesis



test as it was demonstrated that this index also has a significant effect on economic growth through the labor force. The labor force and the human development index both played significant and important roles in economic growth.

The Autoregressive Distributive Lag (ARDL) model was used on time-series data from 1985 to 2018 in the study by Muhammad & Abdullahi (2020) to examine the effect of servicing external debt on Nigeria's economic growth. According to the study's findings, servicing external debt will have a detrimental long-term consequence on economic growth. In other words, higher debt service costs result in slower economic growth. The report recommends that the contracted loan should be used to enhance infrastructure through effective and prudent application and that debt payment requirements should not be permitted to rise over the debt stock.

In Eke & Akujuobi (2021) study which covered 1981 to 2018, the impact of public debt on economic growth in Nigeria was experimentally examined. The study, which used a co-integration approach, made clear, among other things, that there is a strong short-run correlation between Nigeria's public debt and economic development. The analysis also revealed that while both the domestic and external debt variables were statistically significant, only the latter failed the *a priori* expectation test and hence had a negative impact on Nigeria's economic growth. The investigation came to the conclusion that the majority of Nigeria's foreign borrowings are misused.

Adekunle *et al.* (2021) examined the potential contributions of domestic investment to Nigeria in a non-linear relationship between external debt and economic growth between 1981 and 2015. Based on the findings of the threshold regression analysis utilized in this study, it was determined





that the relationship between foreign debt and economic growth is sensitive to the type of external debt measure and whether or not domestic investment is taken into account. In particular, the analysis supported the presence of the debt Laffer curve linked to the debt overhang theory resulting from an excessive build-up of external debt. The crowding-out impact of high external debt servicing also received empirical confirmation. To avoid the strain imposed by excessive external debt servicing, proper maximization of interest-free sources of external debt financing was adjudged the best for the country.

Law *et al.* (2021) employed a dynamic panel threshold method to offer fresh proof of the threshold value of the public debt-to-GDP ratio in 71 developing nations between 1984 and 2015. The study presented a threshold debt value of 51.65 percent, which is significantly less than that presented in earlier studies. At high levels of public debt, debt has a detrimental effect on economic growth that is statistically significant, while it has no impact at low levels of public debt. The results also show that stronger institutions tend to reduce the detrimental effects of public debt on economic growth.

Asteriou, Pilbeam & Pratiwi (2021) examined the association between public debt and its short-term and long-term effects on economic growth in a panel of chosen Asian nations from 1980 to 2012. Varieties of econometric techniques which include pooled mean groups, mean groups, dynamic fixed effects, and common correlated effects were employed. The asymmetric panel ARDL method was also used to analyze how a change in public debt affected society. Among other things, the findings suggested that rising public debt has a detrimental long- and short-term impact on economic growth.



Yusuff & Mohd (2023) investigated the impact of public debt on economic growth in Nigeria from 1980 to 2020 using the Nonlinear Autoregressive Distributed Lag method. The findings suggested that external debt has a significant positive impact on both short-term and long-term economic growth, while debt service payments hinder growth. Domestic debt has a negative short-term impact and a linearly negative long-term impact. Foreign reserve holding has an asymmetric long-term impact and a symmetric short-term impact on growth. João, Tovar & Paulo (2022) researched into the consequences of debt surges on economic growth in 190 countries from 1970 to 2020 using a local projection method. The results show that the relationship between debt surges and economic growth is complex. Debt surges often lead to weaker economic growth and persistently lower output, especially in the case of public debt surges. This negative impact is more pronounced when the economy already has a large positive output gap and when initial debt levels are high, particularly for private debt surges.

De Soyres, Kawai & Wang. (2022) examined the effects of unexpected changes in public debt on real GDP for 178 countries from 1995 to 2020. It finds that an unanticipated increase in the public debt-to-GDP ratio generally negatively affects real GDP, especially for countries with high initial debt levels or a rising debt trajectory in the previous five years. Conversely, it boosts real GDP for countries with low-income levels or those that completed the HIPC debt relief initiative.

Ajayi & Edewusi (2020) examined the effect of public debt on Nigeria's economic growth over a thirty-seven-year period (1982-2018). It finds that external debt negatively affects both short-term and long-term economic growth, while domestic debt has a positive impact on both short-term and long-term economic growth. This was corroborated by Matthew & Adebayo (2020), where the



relationship between debt sustainability and economic growth in Nigeria over forty years (1981-2020) was explored. The study uses the non-linear autoregressive distributed lag (NARDL) econometric technique to analyze the effects of debt variables. The findings reveal that an increase in total debt initially negatively affects economic growth but becomes positive after one year. Decreasing the total debt stock has consistently positive short-run effects. Debt service payments have a negative short-run effect on growth but no significant long-run impact, while reducing the total debt stock is crucial for long-term economic growth in Nigeria.

Akhanolu, Babajide, Akinjare, Oladeji & Osuma, (2018) investigated the impact of public debt on economic growth in Nigeria. They used quantitative research techniques and collected secondary data from 1982 to 2017. Their findings revealed that internal debt had a positive effect on economic growth, while external debt had a negative impact. They recommended minimizing the use of borrowed funds, particularly external debt, for positive economic effects.

However, most studies focused on the relationship between public debt and economic growth, while studies using Johansen's cointegration technique applied to public borrowing, economic, and sustainable development in Nigeria are very few in the literature. The purpose of this article is to apply the technique to inform policymakers about whether or not public borrowing helps economic and sustainable growth in Nigeria. This will help the government allocate resources from the public debt to other important sectors of the economy.

## **2.1 Theoretical Underpinning**

There are a variety of ideas and theories on economic growth (Chen, Pinar & Stengos 2020; Joy & Panda 2020; Muhammad & Abdullah 2020). These theories differ in terms of the distinct



behavioral assumptions they make, the ideas and categories they use, how they explain how development occurs, and the tactics they suggest (Mookherjee & Ray, 2001). One theory that views economic development as the rate of local economic growth as determined by changes in output, income, or employment is the Economic Base Theory. The key characteristics are its acceptance as a theoretical framework for comprehending economic development and its simplicity as a theory or tool for prediction (Malizia & Feser, 1999). Its primary shortcoming is that, as a theory, it falls short of explaining economic progress, especially over extended time periods.

Another theory of economic growth is the staple idea theory, with the industrial sectors as its basic presumption of notion. The theory's historical link to North American economic development and its emphasis on comprehending the region's economic history are two of its primary advantages. Its main flaw according to Hof & Stiglitz (1999) and Markey, Halseth, Ryser, Argent, & Boron (2019) is that it described rather than explaining the development process. Although the theory can be applied and empirically tested, the basic secondary and tertiary categories are too simplistic to be useful in practice (Todaro & Smith, 2009). The most crucial application is that industries that produce income-elastic goods must be prioritized for long-term growth.

Growth pole theory, interregional theory, product-cycle theory, entrepreneurship theory, and flexible production theory are other theories of economic development. The Classical Liberal and Social theories were chosen for this study because they defined and evaluated economic success by identifying and accounting for human capital. The study linked Nigeria's economic development to the nation's overall public debt using Human Development Index (HDI) variables.



Since 1990, UN agencies and other international organizations have made extensive use of the HDI to evaluate both economic and human progress. Development economists are becoming more and more interested in HDI (Wijaya *et al.*, 2021; Joy & Panda 2019).

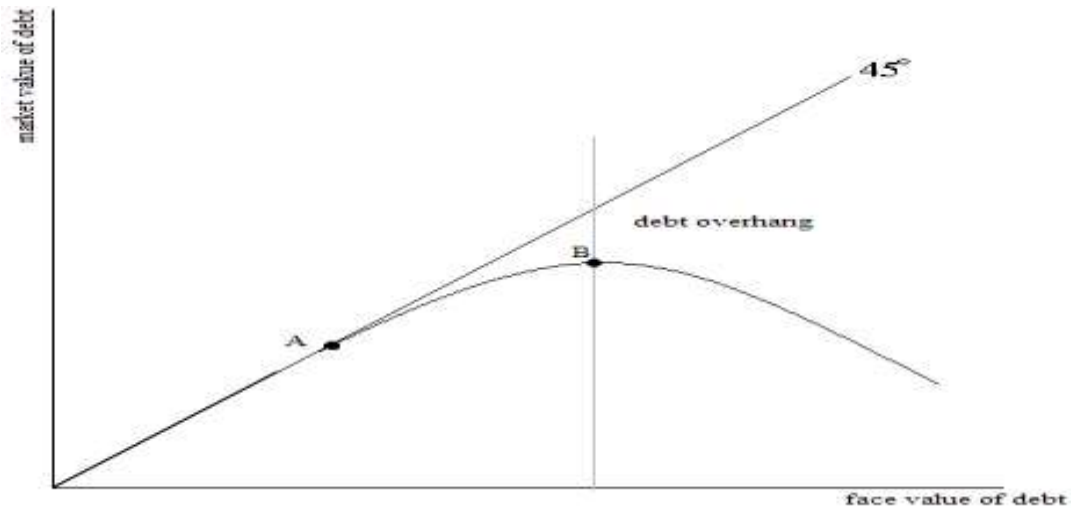
Theoretical research by Sachs (1989), known as the "debt overhang for developing countries", demonstrated that debt forgiveness might increase the value of future debtor country repayments while maintaining the current market value of debt instruments. This is particularly true when a nation takes on excessive debt and must deal with the debt-servicing burden. The risk of default rises when a nation's debt exceeds its capacity to pay it off (Uguru 2016, Joy & Panda 2019). It may be the case that lowering the face value of the debt reduces the likelihood of a country defaulting on interest or principal payments, increasing the expected value of repayments to creditors. Creditors take these factors into account when calculating the expected value of repayments they can expect from a sovereign, and if that value is less than the face value of the debt, it may be the case that doing so increases the expected value of repayments to creditors.

Krugman (1989), who also formally presents Sachs' notion, explains the potential for market-based debt reduction strategies. When a country's debt exceeds its capacity to pay it off, or "when a country's responsibilities exceed the amount it is likely to be able to pay," these obligations function as a high marginal tax rate on the country, with the main benefits going to its creditors rather than the country if it performs better than expected. The benefits will all flow to the creditors rather than the nation, discouraging the domestic government from succeeding and enhancing its economic performance. Contrarily, the loan must be repaid by domestic taxpayers, primarily through capital taxes, which would further discourage investment. Krugman continues by



elaborating on the theory behind the debt Laffer curve, which is seen in Figure 1, noting that the link between the debt's face value and market value is one-to-one—up until a certain point. When a security's face value rises above this mark, the market value starts to increase more slowly. This discrepancy is caused by the fact that as the debt grows, financing is harder because of increased servicing obligations, which inadvertently operate as a tax on investment, policy changes, and other activities that demand up-front expenditures in exchange for long-term rewards (Epaphra & Mesiet 2021). The marginal return on debt to the right of point A starts to drop as more debt is acquired, and the overall market value of debt grows as more debt is accrued. A country is said to have a "debt overhang" when its debt levels exceed a certain threshold and the absolute growth in face value is inadequate to balance the slight fall in market value:

### **Figure 1: Debt Relief Laffer Curve**



There are two possibilities when a country's amount of debt at face value is related to a lower market value: the country is either on the left or right side of point B. The maximum market value of a nation's debt is represented by point B. A nation is said to be on the "right" side of the debt Laffer curve if its level of debt corresponds to a point on the curve between A and B. In this instance, debt forgiveness won't raise the debt's market worth. A nation is considered to be on the "wrong" side of the Laffer curve, or to have a debt overhang, if, on the other hand, its amount of debt corresponds to a point on the curve, that is, to the right of point B. In this case, debt forgiveness will increase the market value of a nation's debt while lowering its face value.

### 3. METHODOLOGY



The definition of inclusive and sustainable development is ambiguous (Wijaya et al. 2021 and Rauniyar & Kanbur, 2009). Several research studies have proxied sustainable growth using various metrics such as HDI, poverty, etc. Indicators for education and health have also been utilized by others (Allison & Foster 2004; James, Luis & Miguel 2005),

The scope of the study spans the years 1999 through 2022. The selection of this period reflects the importance that various governments devote to economic growth and development as well as the start of the nation's current democratic governance since 1999. GDP per capita (GDPpc), literacy rate (LTR), population rate below the poverty level (PPL), and total debt (TTD) are used as proxies to measure economic and sustainable development. They were chosen in accordance with the tenets of the UNDP's inclusive development strategy. The *a priori* assumption is that when the total debt stock rises, GDPpc, LTR, and PPL should all show positive trends, but PPL should decrease. The E-Views software package was used for the analysis.

Cointegration regressions can be estimated using a variety of methods. Johansens' cointegration method, however, is used in this study since, like others, it allows for many cointegrating relationships. Furthermore, Etokakpan, Solarin, Yorucu, Bekun & Sarkodie (2020), results substantially favours the Johansen Maximum Likelihood technique (JML) over the Engle-Granger technique. The idea is that if the variables are cointegrated, they will eventually get closer to one another since they have a long-term relationship.

To learn more about the model's long-term equilibrium relationship, a cointegration analysis is performed. The Augmented Dickey-Fuller is applied to check for the presence of unit roots in order to prevent false regression. The alternative hypothesis is that there is no unit root, while the





null hypothesis is that there is a unit root. The estimate of the equations inside a cointegration framework is justified by the presence of a unit root. When data sets are weak, which is a characteristic of time series analysis like in this instance, cointegration analysis is more suited.

In keeping with Olamide & Maredza (2021), the study's equation is hereby written as:

Total Debt and GDP per Capita (Long-run relationships):

$$GDPpc_t = \alpha + \beta TTD_t + \mu_t \dots\dots\dots (1)$$

Total Debt and Literacy Rate (Long-run relationships):

$$LTR_t = \alpha + \beta TTD_t + \mu_t \dots\dots\dots (2)$$

Total Debt and Population Below Poverty Line (Long-run relationships):

$$PPL_t = \alpha - \beta TTD_t + \mu_t \dots\dots\dots (3)$$

Where:

TTD is the Total Debt, GDPpc is GDP per Capita, TR is the Literacy Rate and PPL is the Population below the Poverty Line.  $\alpha$  is the intercept,  $\beta$  is the Beta Coefficient of the Independent Variable, and finally,  $\mu$  stands for the Standard Error of the Estimate.

Total debt is measured as the value of both internal and external debts. Economic growth is proxied by the GDP per capita growth rate while literacy rate and population below the poverty level are the two major components of Human Capital Development.



### 3.1 Sources of Data

Basically, data for this study were sourced from the Statistical Bulletin of the Central Bank of Nigeria (CBN), the National Bureau of Statistics (NBS), the International Monetary Fund (IMF), and the World Bank Indicator of various issues.

## 4. RESULTS AND DISCUSSION

In line with the objective of the study which is the examination of the long-run relationship between debt accumulation and sustainable economic growth in Nigeria, the Akaike information Criterion (AIC) is used to specify the lag as shown in Table 1 below. As a result, the findings imply that VAR at lag 1, 1 is preferable.

**Table 1:** Lag order selection

Lag	Logl	LR	FPE	AIC	SC	HQ
0	-1328.160	NA	5.39e+22	93.0184	93.00421	93.0671
1	-1210.756	172.0153*	7.09e+19*	94.31255*	87.03685*	85.41143*
2	-1201.603	6.111320	0.69e+28	95.03735	87.52741	86.38820

To ascertain whether the variables are long-term related, the Johansen maximum likelihood technique is then used. The test results are displayed in Table 2 and contrast the alternative co-presence hypothesis with the null hypothesis of no co-integration using maximal eigenvalue statistics. This approach assumes that the co-integrating vector will remain constant during the



period under examination. The long-term relationships between the underlying components may change as a result of the government's reform initiatives.

**Table 2:** Johansen Maximum Likelihood Co-Integration Tests

	Eigen Value	Likelihood Ratio	5% Critical Value	1% Critical Value	Hypothesized
<b>For GDPpc TTD</b>	0.914508	34.04149	15.41	20.04	None **
	0.314402	4.529564	3.76	6.65	At most 1 *
<b>For LTR TTD</b>	0.558696	11.32670	15.41	6.65	None
	0.118271	1.510449	3.76		At most 1
<b>For PPL TTD</b>	0.828655	16.36043	15.41	20.04	None **
	0.233541	1.191693	3.76	6.65	At most 1
(**) denotes rejection of the hypothesis at a 5% (1%) significance level L.R. test indicates 2 cointegrating equation(s) at 5% significance level					

According to the statistical finding in Table 2, there is a correlation between GDPpc and the federal government's overall debt profile. At critical values of 5% and 1%, the hypothesis is favorably significant. At a 5% significance level, it does, however, show two co-integrating equations. However, it is believed that Nigeria's economy is dependent on debt and consequently vulnerable to internal shocks.

Table 2 showed no evidence of a long-term association between literacy and total state debt in Nigeria. Any co-integration is rejected in the long run at a 5% level of significance. The likelihood ratio is accepted as the null hypothesis at both the 5% and 1% significant levels. The results show



that public debt had no effect on literacy rates over the period under investigation. The maximum eigenvalue statistics in the Table show rejection of the hypothesis at both the 5% and 1% significance levels, as well as acceptance that the long-run test only discloses one co-integrating equation at the 5% significance level. The results show that there is no connection between poverty and total federal debt. According to the statistics that are currently available, the percentage of people living in poverty rose from 34.1% in 1999 to 60% in 2000. Between 2000 and 2009, the percentage stayed at 60%. From 2010 to 2012, it rose to 70%. The real GDP growth rate during the same time frame showed no discernible trend. It was 2.7% in 1999, 3.5% in 2000, 3.5% in 2001, 3.0% in 2002, 7.1% in 2003, 6.2% in 2004, 6.9% in 2005, 5.3% in 2006, 6.4% in 2007, 5.3% in 2008, 5.6% in 2009, 8.4% in 2010, 10.2% in 2015, 15% in 2018, more than 20% in 2020, 11.04% in 2021 and 12.4% in 2022.

### **Diagnostic Tests**

Three post-estimation tests were performed to ensure the fitness and reliability of our model as presented in Table 3 below.

**Table 3:** Model Fitness and Reliability Results

Lag	LRE*Stat	Df	Prob.	Rao- F- Test	Df	Prob.
Serial Correlation [Null hypothesis: no serial correlation]						
1	2.835774	4	0.4016	0.980142	(4, 213.0)	0.4016



2	3.763765	4	0.3401	1.215398	(4, 213.0)	0.3401
Jarque-Bera Normality test						
		Jarque-Bera Stat	Prob.			
		2.386418	0.321029			
Breusch-Pagan-Godfrey Heteroskedasticity Test						
F-Statistics	0.005461	Prob. F(1, 109)	0.9501			
Obs*R- Square	0.005573	Prob. Chi- Square	0.9491			
Explained SS	0.003298	Prob. Chi- Square	0.5108			

**Source:** Authors' computation.

Table 3 was created using the LM test for the VAR residual serial correlation. The p-values are higher than the 5% threshold, thus we are forced to accept the null hypothesis that there is no serial connection. The Jarque-Bera test produced results with a statistic value of 2.386418 and an associated p-value of 0.321029, both of which are higher than the 5% cutoff. Thus, it is reasonable to assume that the residuals of the model have a regular distribution. The alternative hypothesis of the normal distribution is therefore accepted, while the null hypothesis of the residuals having a



non-normal distribution is rejected. Since the p-values are higher than the 5% benchmark, it can be inferred from Table 3 above that the model is homoskedastic rather than heteroskedastic. As a result, the model's residuals have a constant variance and are suitable for the investigation.

**Table 4:** Variance decomposition

Variance Decomposition for LGDPpc			
Period	Std Error	LGDPpc	TTD
1	0.002053	100.00000	0.000000
2	0.007428	88.73023	0.017738
3	0.011204	88.71305	-0.048749
4	0.014123	88.70502	0.152441
Variance Decomposition of TTD			
1	1.105023	17.013281	82.536133
2	1.603037	16.371830	83.013100
3	2.101036	16.235608	83.037133
4	2.630503	15.838085	82.788385
Ordering of Cholesky: LGDPpc TTD			

**Source:** Authors' computation.

Table 4 shows that, in addition to shock to itself, shock from gross domestic product per capital on TTD started to be visible by the fourth period with a value of 15.24%. Any shock from GDPpc has no effect in the first period but has a negligible effect by the third period, totaling 4%. The first



and second quarters of the era, however, were when the impacts of TTD shocks on the GDP were most noticeable. During the third and fourth periods, respectively, these effects slightly decreased to 16.23% and 15.84%. Since there are other factors that might shock GDPpc in addition to total debt, this sounds plausible economically (De Soyres, Kawai & Wang 20220).

## **5. CONCLUSION**

Growth is positively impacted by debt in the near term, but negatively impacted in the long run. Although a large public debt may not have an immediate impact on economic growth, if utilized wisely, it could have a significant long-term benefit. The results show that during the study period, Nigeria's economic and sustainable developmental efforts were hampered by its total public debt.

According to the data, Nigeria's efforts at promoting economic growth and sustainable development have been hampered during the study period. The absolute increase in face value will not be sufficient to offset the little drop in market value if the debt level rises above a certain point, leaving the government with a future "debt overhang". If Nigeria continues to increase its debt profile without physical development to fund the borrowings, this study supports the debt relief Laffer curve. In managing public debt, efforts should generally be taken to guarantee fiscal sustainability with enough care to prevent the debt profile from exceeding the discounted value of its expected net revenue.

### **5.1 Recommendation**

In order to find and fix bottlenecks, the Nigerian government should investigate the reasons why public debts do not contribute to human development indices. This can be the result of ineffective management, corruption, higher finance expenses, or a failure to target the necessary population



segment. Debts are meant to increase the economic development and expansion of the debtor nation as well as the level of living for its people. Therefore, rather than merely using debt to address immediate issues, the Nigerian government should always view it as a tool for long-term economic and sustainable growth.

Further, reforms aimed at improving institutional and policy performance, particularly in the areas of economic and debt management, should be strengthened and finally, it is also essential to look into creditors' and donors' stronger financial positions and better financing terms in any debt arrangement.

One major gap in this study is the exclusion of corruption which has been found to be a major setback to the developmental yearnings of the countries (Olamide & Andrew 2021). In Rotimi et al. (2023); Sambo (2023); Awogu Obilor & Maduagwuna (2021), it was argued that most of the borrowed money in Nigeria is being diverted to personal purses and stocked away in foreign countries. Incorporating this will show the extent to which this cancerous social vice has retarded the progress of the country. However, the study is limited by inadequate data availability and variable exclusion.

## REFERENCES

- Adedoyin, L.I., Babalola, B.M., Otegunri, A.O. & Adeoti, J.O. (2016). External debt and economic growth: evidence from Nigeria. *Acta Universitatis Danubius*, 12(6)179-194.
- Adekunle, W., Adeniyi, O. & Orekoya, S. (2021). Non-linear relation between external debt and economic growth in Nigeria: Does the investment channel matter? *Iranian Economic Review*, 25(1), 45-56. DOI: 10.22059/ier.2019.70878.
- Ajayi, I. E. & Edewusi, D. (2020). Effect of public debt on economic growth of Nigeria: an empirical investigation. *International Journal of Business and Management Review*, 8(1), 18-38, Available Online ISSN: 2052-6407.





- Akhanolu, I.A., Babajide, A.A., Akinjare, V., Oladeji, T. & Osuma, G. (2018). The effect of public debt on economic growth in Nigeria: An empirical investigation. *International Business Management*. 12(6), 436-441.
- Allison, R.A. & Foster, J.E. (2004). Measuring health inequalities using qualitative data. *Journal of Health Economics*, 23, 505-524. <https://doi.org/10.1016/j.jhealeco.2003.10.006>
- Anderu, K. S., Omolade, A. & Adeniyi Oguntuase, A. (2019). External debt and economic growth in Nigeria. *Journal of African Union Studies*, 8(3), 157-171. Available at: <https://www.jstor.org/stable/26890430>.
- Asteriou, D., Pilbeam, K. & Pratiwi, C. E. (2021). Public debt and economic growth: panel data evidence for Asian countries. *Journal of Economics and Finance*, 45, 270–287.
- Chen, C., Pinar, M., & Stengos, T. (2020). Renewable energy consumption and economic growth nexus: Evidence from a threshold model. *Energy Policy*, 139, 111295. doi:10.1016/j.enpol.2020.111295.
- De Soyres, C., Kawai, R., & Wang, M. (2022). Public debt and real GDP: revisiting the impact. *IMF Working Paper WP/22/76*, Washington DC: *International Monetary Fund*.
- Egbetunde, T. (2012). Public debt and economic growth in Nigeria: evidence from Granger Causality. *American Journal of Economics*. 2(6), 101-106.
- EKE, C. K. & Akujuobi, N.E. (2021). Public debt and economic growth in Nigeria: an empirical investigation. *International Journal of Development and Management Review (INJODEMAR)* 16(1), 178-192.
- Ekor, M., Orekoya, T., Musa, P. & Damisah, O. (2021). Does external debt impair economic growth in Nigeria? *MPRA Paper No. 107844*, Available at: <https://mpra.ub.uni-muenchen.de/107844>.
- Çinar, M. (2017). The effects of terrorism on economic growth: panel data approach. *Zb. rad. Ekon. fak. Rij.* 35(1), 97-121.
- Engle, R. & Granger, C. (1987). Cointegration and error correction: representation, estimation and testing. *Econometrica*, 55, 251-276. <http://dx.doi.org/10.2307/1913236>.
- Epaphra, M. & Mesiet, W. (2021). The external debt burden and economic growth in Africa: a panel data analysis. *Theoretical and Applied Economics*, 28(2), 175-206.
- Etokakpan, M. U., Solarin, S. A., Yorucu, V., Bekun, F. V., & Sarkodie, S. A. (2020). Modeling natural gas consumption, capital formation, globalization, CO2 emissions and economic growth nexus in Malaysia: Fresh evidence from combined counteraction and causality analysis. *Energy Strategy Reviews*, 31, 100526. doi:10.1016/j.esr.2020.100526.
- Favor, E.O., Ideniyi, O.S., Oge, E.O. & Charity, I.A. (2017). Public debt and economic growth in Nigeria. *Asian Research Journal of Arts & Social Sciences*. 4(3), 1-16.
- Festus, G.E. & Saibu, M.O. (2019). Effect of external debt on Nigerian economy: further evidence. *MPRA Paper No. 92704*. Available at: <https://mpra.ub.uni-muenchen.de/92704>.
- Fosu, A.K. (2007). *The external debt-servicing constraint and public expenditure composition: evidence from African countries*. *UNU-WIDER Research Paper No. 2007/36*.
- George-Anokwuru, C. C. & Inimino, E. E. (2020). External debt and economic growth in Nigeria. *International Journal of Research and Innovation in Social Science*, 4(4), ISSN 2454-6186.



- Granger, C. W. J. (1981). Some properties of time series data and their use in econometric model specification. *Journal of Econometrics*, 16, 121-130. [https://doi.org/10.1016/0304-4076\(81\)90079-8](https://doi.org/10.1016/0304-4076(81)90079-8)
- Granger, C.W.J. & Newbold, P. (1974). Spurious regressions in econometrics. *Journal of Econometrics*, 2, 111-120. [http://dx.doi.org/10.1016/0304-4076\(74\)90034-7](http://dx.doi.org/10.1016/0304-4076(74)90034-7)
- Habito, C.F. (2009). patterns of inclusive growth in developing Asia: insights from an enhanced growth-poverty elasticity analysis, *Asian Development Bank Institutes working paper series*, 145.
- Hoff, K. & Stiglitz, J. (1999). Modern economic theory and development. In G. Meier and J. Stiglitz (eds). *Pioneers in Development*. London: Oxford University Press.
- Ideniyi, Ogonna & Ifeyinwa (2016). Public debt and public expenditure in Nigeria: a causality analysis. *Research Journal of Finance and Accounting*. 7(10), 27-38.
- Iliya, A. T. & Tahir, H. M. (2017). The impact of external debt on Nigeria's economic growth (1980 -2014): VAR, cointegration and VECM approach. *Journal of Economics and Sustainable Development*, 8(18), [www.iiste.org](http://www.iiste.org) ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online).
- Jaiyeola, A.O. & Bayat, A. (2019). Status of living standards in Nigeria between 2010 and 2013. *Journal of Poverty*, Available at: <https://doi.org/10.1080/10875549.2019.1692270>.
- James F., Lopez-Calva, L. & Miguel. S., (2005). Measuring the Distribution of Human Development: methodology and an application to Mexico, *Journal of Human Development and Capabilities*, 6, (1), 5-25
- João T. J. & Paulo, M. (2022). Economic Growth After Debt Surges, *IMF Working Paper No. WP/2022/159 EL* Classification Numbers: C33, H63, E20, F44.
- Joy, J., & Panda, P. K. (2019). Pattern of public debt and debt overhang among BRICS nations: an empirical analysis. *Journal of Financial Economic Policy*, 12(3), pp.345–363. doi:10.1108/jfep-01-2019-0021.
- Klasen, S. & Misselhorn, M. (2008). Determinants of the growth European Development. *Research Network Working paper 11*.
- Krugman, P. (1989). *Market-based Debt-reduction Schemes*. NBER Working Paper 2587. Washington, DC: National Bureau of Economic Research.
- Law, S. H., Ng, C. H., Kutan, A. M., & Law, Z. K. (2021). Public debt and economic growth in developing countries: Nonlinearity and threshold analysis. *Economic Modelling*, 98, 26–40. doi:10.1016/j.econmod.2021.02.004.
- Lawanson, O.I. & Umar, D.I. (2021). The life expectancy–economic growth nexus in Nigeria: the role of poverty reduction. *SN Bus Econ* (2021) 1:127 <https://doi.org/10.1007/s43546-021-00119-9>.
- Malizia, E.E. & Feser, J.E. (1999). Understanding Local Economic Development. New Brunswick, NJ: *Center for Urban Policy Research*, Rutgers University.
- Matthew, B.O. & Adetayo A. O. (2022). *IOP Conf. Ser.: Earth Environ. Sci.* 1054 012053 DOI 10.1088/1755-1315/1054/1/0120.



- Markey, S., Halseth, G., Ryser, L., Argent, N., & Boron, J. (2019). Bending the arc of the staples trap: negotiating rural resource revenues in an age of policy incoherence. *Journal of Rural Studies*, 67, 25–36. doi:10.1016/j.jrurstud.2019.02.002.
- Mohsin, M., Ullah, H., Iqbal, N., Iqbal, W. & Taghizadeh-Hesary, F. (2021). How external debt led to economic growth in South Asia: A policy perspective analysis from quartile regression. *Economic Analysis and Policy*, 72, 423-437, <https://doi.org/10.1016/j.eap.2021.09.012>.
- Mookherjee, D. & Ray, D. (2001). Readings in the theory of economic development. New York: Blackwell Publishers.
- Muhammad, M.A. & Abdullahi, K. (2020). Impact of external debt servicing on economic growth in Nigeria: an ARDL approach international. *Journal of Business and Technopreneurship*, 10(2), 257-268.
- Nigeria National Bureau of Statistics. (2021).
- Ndocirimpa, A. (2020). Threshold effects of public debt on economic growth in Africa: a new evidence. *Journal of Economics and Development*, 22(2), 187-207.
- Ndubuisi, P. (2017). Analysis of the impact of external debt on economic growth in an emerging economy: evidence from Nigeria. *African Research Review*. 11(4), 156-173. Available at: <http://dx.doi.org/10.4314/afrrrev.v11i4.13>.
- O’Connell, Stephen & Benno Ndulu (2000). Africa’s growth experience: a focus on sources of growth. *AERC Growth Project*.
- Ohiomu, S. (2020). External debt and economic growth nexus: empirical evidence from Nigeria. *The American Economist*, DOI: 10.1177/0569434520914862.
- Olamide, E.G. & Maredza, A. (2021). Pre-Covid-19 evaluation of external debt, corruption, and economic growth in South Africa. *Review of Economics and Political Science*. Available at: DOI: 10.1108/REPS-03-2011-0019.
- Olaoye, O. (2023). Sub-Saharan Africa's rising public debt stock: before another debt relief! *African Journal of Economic and Management Studies*, 14(1), 86-105. <https://doi.org/10.1108/AJEMS-03-2022-0105>.
- Omodero, C.O., Egbide, B., Madugba, J.U. & Ehikioya, B.I. (2020). A mismatch between external debt finances and consumption cost in Nigeria. *Journal of Open Innovation: Technology, Market, and Complexity*, MDPI, 6(58), doi: 10.3390/joitmc6030058.
- Onakoya, A. B. & Ogunade, A. O. (2017). External debt and Nigerian economic growth connection: evidence from Autoregressive distributed lag approach. *Journal of Economics and Development Studies*, 5(1), 66-78. DOI: 10.15640/jeds.v5n1a7.
- Onafowora, O. & Owoye, O. (2019). Public debt, foreign direct investment and economic growth dynamics: Empirical evidence from the Caribbean. *International Journal of Emerging Markets*, 14(5), 769-791. <https://doi.org/10.1108/IJOEM-01-2018-0050>.
- Onifade, S.T., Çevik, S., Erdoğan, S., Asongu, S. & Bekun, F.V. (2020). An empirical retrospect of the impacts of government expenditures on economic growth: new evidence from the Nigerian economy. *Journal of Economic Structure*, 9(6).
- Oyaromade, R.O., Binuomoyo, O.K. & Ogunleye, A.G. (2021). Perils of debt-financing: external debt and its implications on Nigeria’s economic growth. *Zbornik Radova*.



- Ravi, K. & Ganesh, R. (2010). Conceptualizing inclusive development: with applications to rural infrastructure and development assistance. *Journal of the Asia Pacific Economy*, 15(4), 437-454, DOI: 10.1080/13547860.2010.516163.
- Rotimi, M.E., Ise-Olorunkanmi, O.J., Rotimi, G.G. & Doorasamy, M. (2022). Re-examining corruption and economic growth nexus in oil dependent economy: Nigeria's case. *Journal of Money Laundering Control*, 2(3), 526-539. <https://doi.org/10.1108/JMLC-06-2021-0057>.
- Senadza, B., Fiagbe, A. K. & Quartey, P. (2018). The effect of external debt on economic growth in Sub-Saharan Africa, *International Journal of Business and Economic Sciences Applied Research (IJBESAR)*, ISSN 2408-0101, Eastern Macedonia and Thrace Institute of Technology, Kavala, 11(1), 61-69, <http://dx.doi.org/10.25103/ijbesar.111.07>.
- Shi, L., Han, L.H., Yang, F. & Gao, L. (2019). The evolution of sustainable development theory: types, goals, and research prospects. *Sustainability*, 11, 7158. doi:10.3390/su11247158.
- Taylor, L. (1990). A three-gap model, problems of developing countries in the 1990s. The World Bank, Washington DC: 55–90.
- Todaro, M.P. & Smith, S.C. (2009). *Economic Development*, 10<sup>th</sup> Edition. USA: Addison Wesley.
- Uguru, L. (2016). The link between public debt and government expenditure pattern: the Nigerian experience. *IOSR Journal of Business and Management*, 18(1), 37-41.
- Wijaya, A., Tasente, T., Darma, D.C. & Kasuma, J. (2021). Labor force and economic growth based on demographic pressures, happiness, and human development: empirical from Romania. *Journal of eastern European and central Asian research*, 8(1).
- Yusuf, A., Mohd, S. (2023). Nonlinear effects of public debt on economic growth in Nigeria. *SN Bus Econ*. 3, 88. <https://doi.org/10.1007/s43546-023-00468-7>.
- Yusuf, A. & Mohd, S. (2021). The impact of government debt on economic growth in Nigeria. *Cogent Economics & Finance*, 9:1, 1946249, DOI: 10.1080/23322039.2021.1946249.
- Zivot E, & Andrews, D.W.K. (1992). Further evidence on the great crash, the oil-price shock, and the unit root hypothesis. *J Bus Econ Stats*, 106:251–279.