IJAAR PUBLISHING®

African Journal of Business and Economic Development | ISSN: 2782-7658
Vol. 5, Issue 5 (2025) | www.ijaar.org/ajbed

Effect of Public Debt on Nigeria Economic Growth

Dr. Victoria Ogochukwu Obi-Nwosu, Dr. Ezu Gideon Kasie,
Nneke-Emeka Chioma Christiana, Ugboma Jennifer A, Alor Precious Obiageli

Department of Banking and Finance, Nnamdi Azikiwe University Awka.
Email: vo.obi-nwosu@unizik.edu.ng

Abstract

This study investigates the effect of public debt on Nigeria's economic growth between 2004 and 2023. The main objective is to examine how external debt, domestic debt, and debt servicing influence the country's economic performance. The study relies entirely on secondary data sourced from the Central Bank of Nigeria (CBN). The analysis was conducted using the Auto-Regressive Distributed Lag (ARDL) model after testing for the stationarity of the variables. The findings reveal that external debt has a negative effect on economic growth, while domestic debt shows a growth-enhancing relationship with the economy. Debt servicing, although showing a reducing effect on growth, was not statistically strong enough during the period under review to draw firm conclusions. The study concludes that the structure and composition of Nigeria's public debt significantly influence its economic trajectory. Accordingly, it recommends that the government exercise caution in external borrowing and ensure that such loans are directed toward economically productive projects. Domestic debt should be prioritised for financing key sectors like infrastructure, education, and health. Additionally, debt management practices should be strengthened to ensure efficiency, and debt servicing should be reviewed to prevent the crowding-out of essential development spending. All borrowed funds should be linked to projects with measurable developmental outcomes to promote sustainable economic growth.

Keywords: Public Debt, Economic Growth, Nigeria Economy, External Debt, Domestic Debt, Debt Servicing, Fiscal Policy, Sustainable Development, Public Finance, Debt Management

Obi-Nwosu, V. O., Kasie, E. G., Nneke-Emeka, C. C., Ugboma, J. A. & Alor, P. O. (2025). Effect of public debt on Nigeria economic growth. *African Journal of Business and Economic Development. 5*(5), 42-58. DOI: https://doi.org/10.5281/zenodo.17009333

1. Introduction

Economic growth is widely recognized as a fundamental objective for developing countries due to its critical role in reducing poverty, improving living standards, and promoting inclusive development (Wang et al., 2020). For Nigeria, Africa's most populous nation and one of its largest economies, achieving sustained economic growth is a strategic necessity. However, despite its abundant natural resources and human capital, Nigeria has consistently experienced unstable and unimpressive growth rates, often falling below the averages for sub-Saharan Africa and the global economy (World Bank, 2020). Recent global challenges such as the COVID-19 pandemic have further compounded Nigeria's growth constraints, pushing the country into deeper fiscal and macroeconomic uncertainty (Azolibe et al., 2022).Low economic growth in Nigeria has far-reaching consequences, including rising unemployment, deepening poverty, heightened insecurity, and deteriorating public welfare (Ekesiobi & Dimnwobi, 2020). In response to these challenges, scholars and policymakers continue to explore the key macroeconomic variables that influence economic performance. One such variable that has generated intense academic and policy debate is public debt. The central question remains whether borrowing by the government stimulates growth or creates a long-term burden that hinders development (Okon & Onoja, 2017). From a theoretical standpoint, moderate levels of public debt can serve as a catalyst for economic growth if borrowed funds are directed toward productive investments such as infrastructure, education, and health (Onuoha et al., 2023a). In developing countries like Nigeria, where domestic savings are insufficient to meet investment needs, public debt can fill the resource gap and drive development. However, the debt overhang theory cautions that when public debt exceeds the economy's capacity to repay, it can reduce investment incentives, distort fiscal priorities, and slow down growth (Okere et al., 2023).

Nigeria's historical experience with public debt has been complex. During the 1980s and 1990s, the country accumulated large external debts due to persistent budget deficits, high interest rates, and mismanagement of borrowed funds. This trend continued into the early 2000s until 2005, when the Paris Club granted Nigeria significant debt relief worth $18 billion. The debt forgiveness led to a major reduction in the country's total and external debt stocks between 2004 and 2006, and it freed up an estimated $2.3 billion annually in debt servicing costs (DMO, 2021). This period marked a critical turning point in Nigeria's debt history and provides a unique window for examining the relationship between public debt and economic performance. Despite the opportunities offered by the 2005 debt relief, Nigeria's public debt has since resumed an upward trajectory. According to the Debt Management Office (DMO), the country's total debt increased from $64.5 million in 2013 to $70.9 million in 2017, and by 2021, it had reached ₦33.1 trillion (DMO, 2021). This trend has raised questions about the effectiveness of Nigeria's debt management strategies and the actual impact of debt on economic growth. It is therefore essential to revisit the role of public debt in shaping Nigeria's growth outcomes, especially during a period of major fiscal adjustment such as 2004–2005.

Several empirical studies have attempted to establish the relationship between public debt and economic growth in Nigeria. For instance, Onyenwife, Ezeanyeji, and Ekesiobi (2023), Mokuolu, Adejayan, and Ariyo (2024), Ikwuo et al. (2024), Abdullahi et al. (2024), Kolawole et al. (2024), and Abdulmumin (2022) have found that public debt exerts a significant influence on Nigeria's GDP. These studies generally argue that debt, when used efficiently, can enhance productive capacity and generate positive spillovers across the economy.However, other scholars argue differently. Studies such as Anaemena et al. (2023),

Mbobo and Onye (2024), Okafor et al. (2023), and Wachukwu and Esian (2024) suggest that Nigeria's growing debt burden has had no significant effect on economic growth, or even a negative effect in some cases. These contradictory results create uncertainty for policymakers and underscore the need for further research.Therefore, the key problem that this study seeks to address is the inconsistency in empirical findings on the effect of public debt on economic growth in Nigeria. Given the critical changes in Nigeria's debt profile around 2004–2005, this study aims to reassess the relationship using updated evidence. Specifically, it evaluates the influence of total public debt—broken down into domestic and external components—on the country's GDP growth during this pivotal period. The paper is organized into sections: the introduction (section one), a review of relevant literature (section two), the theoretical framework (section three), the methodology (section four), data analysis results and discussion (section five), and the conclusion and policy implications (section six).

2. LITERATURE REVIEW

Public Debt

Public debt refers to the total amount of money borrowed by a government from both domestic and foreign sources to finance budget deficits and fund national development projects. It includes all outstanding loans and financial obligations incurred through instruments such as treasury bills, bonds, and multilateral borrowings. Public debt is often categorized into two major types: domestic and external, depending on the source of borrowing. While moderate levels of public debt can stimulate economic growth by financing infrastructure, education, and health, excessive borrowing may lead to fiscal instability, reduced investment, and economic stagnation—particularly if the funds are not used productively (Onuoha et al., 2023; Okon & Onoja, 2017). The sustainability of public debt depends on a country's capacity to repay without distorting macroeconomic stability, crowding out private investment, or imposing heavy tax burdens on future generations (Okere et al., 2023).

External Debt

External debt comprises loans and financial obligations that a country owes to foreign creditors, such as bilateral or multilateral institutions (e.g., the World Bank, IMF), foreign governments, and international commercial banks. These debts are typically denominated in foreign currencies and require repayment with interest over an agreed period. Developing countries like Nigeria rely on external debt to bridge gaps in domestic savings and finance developmental projects, especially when local financial resources are inadequate (DMO, 2021). However, the accumulation of large external debt can expose an economy to exchange rate risks, external shocks, and rising debt servicing costs, thereby weakening its fiscal position. According to Oke and Adenuga (2019), external debt must be managed carefully, as unproductive use of foreign loans can lead to a debt overhang, deterring investment and limiting future economic growth.

Domestic Debt

Domestic debt refers to financial obligations incurred by a government from local sources within its own economy. These include borrowings through government-issued instruments such as treasury bills, bonds, and other securities purchased by individuals, commercial banks, and institutional investors within the country. Domestic debt plays a vital role in

funding public expenditure without relying on volatile foreign aid or loans. Unlike external debt, it is usually denominated in local currency and therefore carries less exchange rate risk. However, excessive reliance on domestic borrowing can increase interest rates, crowd out private sector investment, and lead to inflationary pressures if not managed prudently. Hence, striking a balance between domestic and external borrowing is critical for ensuring debt sustainability and fostering long-term economic growth (Ozurumba & Kanu, 2014).

Debt Servicing

Debt servicing refers to the regular payment of interest and repayment of principal on a country's borrowed funds, both domestic and external (Joshua & Onuora, 2024). It represents the financial obligation that a government must meet to honour its debt commitments, often on a scheduled basis. Effective debt servicing ensures that a country maintains a good credit reputation and avoids default, but high debt servicing costs can reduce the funds available for critical sectors like education, health, and infrastructure. When a large portion of national revenue is allocated to debt servicing, it may limit the government's ability to invest in development, thereby affecting overall economic growth and stability.

GDP Growth

GDP Growth refers to the increase in the value of goods and services produced within a country's economy over a specific period, typically measured annually or quarterly. It is one of the most commonly used indicators to assess a nation's economic performance and overall health. Positive GDP growth signifies expanding economic activity, improved income levels, job creation, and increased investment, all of which contribute to a higher standard of living. Conversely, negative or stagnant GDP growth may indicate economic distress, rising unemployment, and declining consumer confidence (Wang et al., 2020). In developing countries like Nigeria, achieving sustained GDP growth is crucial for reducing poverty, attracting foreign investment, and ensuring inclusive development. However, GDP growth can be influenced by several factors, including fiscal policy, public debt levels, inflation, exchange rates, and global economic conditions.

Public Debt and Economic Growth

Public debt can affect the growth of Nigeria’s economy both positively and negatively, depending on how the borrowed funds are utilized and the efficiency of debt management practices. When public debt—whether sourced domestically or externally—is used to finance productive investments such as infrastructure, education, healthcare, and industrial development, it can stimulate economic activities, create jobs, and raise national income (Onuoha et al., 2023). These investments have the potential to boost Nigeria’s Gross Domestic Product (GDP) by expanding the productive capacity of the economy. In situations where domestic savings are low and private investment is insufficient, public borrowing can serve as a useful tool for bridging the financing gap necessary for development.

However, excessive or mismanaged public debt poses serious risks to economic growth. If a large portion of borrowed funds is spent on non-productive activities such as recurrent expenditure or is lost to corruption and inefficiency, the resulting debt burden may outweigh any economic benefits. The cost of servicing high levels of debt—through interest payments and principal repayment—can crowd out essential government spending on critical development sectors, thereby weakening economic progress (Okere et al., 2023). Moreover,

high debt levels may erode investor confidence, trigger inflationary pressures, and lead to currency depreciation, all of which can further dampen economic growth. For Nigeria, striking a balance between borrowing for growth and maintaining fiscal sustainability is vital for achieving long-term economic development.

3. Theoretical Framework

Debt Overhang Theory

The Debt Overhang Theory, propounded by Paul Krugman (1988) and later expanded by Jeffrey Sachs (1989), argues that when a country's debt level is so high that expected future repayments exceed its repayment capacity, it discourages both domestic and foreign investment. This is because investors anticipate that any economic gains will be heavily taxed to service the existing debt, thereby reducing their incentive to invest. In such a scenario, the economy becomes trapped in a cycle of low investment and slow growth. This theory is particularly relevant for developing countries like Nigeria, where rising debt levels may stifle private sector confidence and limit the government's ability to channel funds into productive sectors, thereby hindering economic growth.

Neoclassical Growth Theory

The Neoclassical Growth Theory was developed by Robert Solow in 1956. It explains long-term economic growth based on three main drivers: capital accumulation, labour force growth, and technological progress. The theory posits that while increasing capital (such as through public borrowing) can boost economic output in the short term, its effect diminishes over time due to the principle of diminishing returns. Sustained growth, therefore, depends largely on improvements in technology and productivity. In the context of public debt, the Neoclassical Growth Theory implies that if borrowed funds are invested in productive infrastructure, education, and innovation, they can support long-term growth; otherwise, excessive borrowing may lead to stagnation.

Implication of Debt overhang theory on the study

The Debt Overhang Theory directly informs and shapes the study of public debt and economic growth in Nigeria by providing a theoretical framework that explains the potential negative impact of excessive debt accumulation on economic performance. According to the theory, when Nigeria's public debt becomes unsustainably high—whether due to domestic or external borrowing—it creates a situation where future repayment obligations loom so large that both investors and policymakers begin to expect that any gains from economic activity will be used to service debt rather than to fund development or profits. This perception discourages private investment, reduces capital inflows, and limits government spending on growth-enhancing sectors such as infrastructure, health, and education. Consequently, rather than boosting growth, rising public debt may result in a slowdown of Nigeria's economic expansion, increased poverty, and macroeconomic instability. The Debt Overhang Theory therefore serves as a cautionary lens through which this study examines the relationship between Nigeria's growing public debt and its inconsistent economic growth trajectory.

3.3 Empirical Review

Abdullahi et al (2024) examined the effect of public debt and tax on economic growth in Economic Community of West Africa covering the period 2010-2022. The regression analysis used was based on a two step system Generalized Method of Moment and threshold regression. The finding shows that the coefficients of public debt and interest paid on debt is negative and statistically significant while tax is positive and statistically significant in influencing growth. Furthermore, the countries with threshold above 77% are Benin, Burkina Faso, Congo Democratic, Mali, Niger, Nigeria, Senegal, and Togo. Those with threshold below 77% are Cabo Verdi, Congo Republic, Cote d'Ivoire, and Gabon are above the 77% threshold. The estimated threshold less than and greater 77% threshold has the threshold value of 0.009 and 0.026 respectively with probability value less than 0.05.

Abdulmumin (2022) examined the effect of public debt on economic growth in Nigeria. The study employed secondary data, which was sourced from Central Bank of Nigeria Statistical bulletin over a period of 33 years from 1987 to 2020. The study adopted expost facto research design. The study also employed the Autoregressive distributive lag (ARDL). The result of the study revealed that external debt is a positive determinant of economic growth in Nigeria with a p-value of 0.0255. The study also revealed that domestic debt is a negative significant determinant of economic growth in Nigeria with a coefficient value of 0.0005. The study concludes that public debt has significant effect on economic growth in Nigeria.

Alonge, Afolalu and Olaniyan (2023) examined the management of public debts and its impact on stimulating economic growth in Nigeria. The escalating burden of public debts at both federal and state levels has presented significant challenges to budget implementation and sustainable economic development. The research focuses on the trends of internally generated revenue (IGR), federal government statutory allocation (STA), external debt patterns, and aggregate budgeted expenditure (GEXP) in the country. The population of the study was made of all the thirty-six (36) of the Nigeria. The 36 states were divided unto six (6) geopolitical zones. Four states were selected from each geopolitical zones as the sample of the study. The study covered fourteen years between 2006 and 2020. Graph and descriptive statistics like mean, median, standard deviation, skewness were correlational analyse were employed to describe and analysis the data. Through a comprehensive analysis of data from various states and geopolitical zones, this study identifies the characteristics of Nigeria's public revenue and expenditure. The findings highlight the disparities in fiscal activities among the states, with Lagos emerging as the state with the largest internally generated income (IGR), external debts (EXTD), domestic debt, and aggregate budgeted expenditure (GEXP). Conversely, Ekiti and Taraba states display lower statutory allocation (STA) and internally generated revenue (IGR), leading to reduced aggregate budgeted expenditure.

Anaemena, Onwuatuelo, Ogbonna and Ezeaku (2023) investigated into the effect of public debt on Nigerian economic development. It was aimed at determining the effects of domestic debt on the human development index and the per capita income of Nigeria and was also aimed at determining the effect of External debt on the human development index and the per capita income of Nigeria. This study was anchored on the classical/traditional theory of public debt. Internal and external debts were used as the independent variables while HDI and PCI served as the dependent variables. Secondary data were sourced from the Central bank of Nigeria's Statistical bulletin. The Granger causality test was adopted for the

empirical analysis. The research revealed that both Public debt and Domestic debt has no significant effect on Per Capita Income and Human Development Index respectively.

Ikwuo et al (2024) examined the effect of public debt on the economic growth of Nigeria spanning from 1990 to 2022 with emphasis on the effect of domestic debt, external debt and domestic servicing. The model built for the study proxy gross domestic product as the endogenous variable measuring economic growth. Secondary data were collected from Central bank of Nigeria Statistical Bulletin, National Bureau of Statistics (NBS) and Debt Management Office (DMO) from 1990 to 2022. The regression technique anchored on Ordinary Least Square (OLS) was employed in the empirical analysis. The co-integration test shows that long-run equilibrium relationship exist among the variables. The findings showed that domestic debt has a negative and significant effect on economic growth. External debt has a positive and significant effect on economic growth while debt servicing has a negative and significant effect on economic growth. The implication of the findings is that proper application of public debt will encourage economic growth.

Kolawole et al (2024) investigated the effect of government debt on economic growth in Nigeria. The study employed auto regressive distributed lag model to analyse the secondary data that was obtained from statistical bulletin of Central Bank of Nigeria from 1992 to 2023 and World Development Indicator. The study revealed that there is an existence of significant but negative relationship between domestic debt and economic growth on the long run with a coefficient value of −0.008394 and at 5% level of significance. There also exist a significant and positive impact of foreign debt on economic growth in long run with value of coefficient of 0.360653 and at 5% level of significance. Debt servicing was reported to have negative relationship with economic growth in Nigeria with value of coefficient of −0.120965 and at 1% level of significance. The study also reported a bi-directional effect of domestic debt on growth of economy in Nigeria while a unidirectional causality was reported between economic growth and debt servicing. The study concluded that public debt has significant impact on the growth of economy in Nigeria. Government of Nigeria should make effort in reducing the debt-revenue ratio by paying some affordable debt as soon as possible and seeks for ways of enjoying debt forgiveness by multinational banks.

Mbobo and Onye (2024) used annual data from 1981 to 2019 to evaluate the ideal public debt threshold that would be consistent with Nigeria's long-term growth goal. It showed overall support for an inverted U-Shaped relationship between the three categories of public debt—domestic, external, and total—and economic growth. For total public debt as a percentage of GDP, the result indicates a threshold level of 41 % (as the optimal debt benchmark). The implication of this finding is that debt accumulation in excess of the estimated threshold levels could hurt economic growth. Against the general notion, the study found no support for external debt accumulation opportunities.

Mokuolu, Adejayan, and Ariyo (2024) examined the impact of public debt on economic growth in Nigeria from 1981 to 2021using Auto Regression Distributed Lag (ARDL) model. Specifically, the study investigated the impact of total domestic debt, total external debt, investment and the effect of government expenditure on economic development in Nigeria. Gross Domestic Product (GDP) was used as a proxy for economic growth while Total domestic debt (TDD), Total external debt (TXD), Inflation rate (IFNR), Government expenditure (GEX), investment (INV) and gross domestic savings (GDS) were used as the explanatory variables. The result revealed that all variables (TDD), (TXD), (INFR), (GEX), (INV) and (GDS) had an insignificant impact on economic growth in the long- run while GEX has a significant impact on economic growth in the long- run. However, all variable were found to be insignificantly related to economic growth in the long- run. TDD,

government expenditure and inflation rate were found to be positive and insignificantly related to economic growth in the long- run implying that their increase will improve economic growth in Nigeria in the long- run. On the other hand total external debt, investment and gross domestic savings exhibited a negative and insignificant effect on economic growth. This means that their increase will decrease economic growth in Nigeria in the long- run. The study concluded that public debt indices has an insignificant impact on economic growth in Nigeria in the long run.

Okafor, Nwawuru and Ariwa (2023) examined public debt management and economic growth in Nigeria. The study adopts the ex-post facto research design and data for the study is collected for 41 years spanning across 1981 to 2021. The Auto Regressive Distributed Lagged (ARDL) Model is adopted to analyze the data for the study. The first hypothesis tested shows that, public debt mounting has a negative and insignificant effect on gross domestic product in Nigeria. The second hypothesis tested shows that, public debt servicing has a positive but insignificant effect on gross domestic product in Nigeria while the third hypothesis tested revealed that, public debt restructuring has a negative and insignificant effect on gross domestic product in Nigeria.

Onyenwife, Ezeanyejiand Ekesiobi (2023) did a study on the effect of Public debt on economic growth in Nigeria: a consideration of new evidence. The study aimed to achieve two pronged research objectives: To appraise the implications of public debt on the economic growth in the tradable sector of the Nigerian economy and to analyze the effect of public debt on the economic growth in Nigeria's non tradable sector. This study spans from 1981 to 2020. Using the Generalized Linear Model (GLM), the following conclusions are made. Initially, different elements of public debt have varying impacts on the growth of the tradeable sector. External debt and debt obtained from non-bank sources positively drive the growth of the tradable sector. However, debt acquired from banks and the associated servicing costs hurt the growth of the tradeable sector. Furthermore, the different components of public debt have varying impacts on the growth of the non-tradable sector. Specifically, foreign debt and debt obtained from non-bank sources have a significant positive influence on the growth of the non-tradable sector. The influence of debt acquired from banks on the non tradable sector is positive but insignificant. However, similar to the tradable sector, the servicing of debt undermines the growth of the non-tradable sector. Policy insights were provided in line with the study's findings.

Wachukwu and Esian (2024) examined the relationships between public debt and economic development in Nigeria, specifically focusing on the relationship between domestic debt, external debt and real exchange rate and real GDP per capita in Nigeria. Economic development was represented by per capita real gross domestic product (RGPCt), the dependent variable, while domestic debt (DMDt), external debt (EXDt), real exchange rate (RXRt), and nominal exchange rate (EXRt) served as the independent variables. Time series data of the variables are sourced from the Central Bank of Nigeria's statistical bulletin spanning 1981 to 2022. The variables underwent unit root test and were found to be integrated of order one I (1) and order two I(2). Following, the Toda-Yamamoto Causality (Block Exogeneity Wald) test was employed to examine causality among the variables in the model. The analysis revealed that external and domestic debt have no statistically significant relationship with per capita real gross domestic product in Nigeria.

4. Methodology

The study adopted an ex-post facto research design and relied on secondary data obtained from the Central Bank of Nigeria Statistical Bulletin covering the period 2004 to 2023. To

analyze the data, the Autoregressive Distributed Lag (ARDL) regression technique was employed. The study was based on and modified the model of Mokuolu, Adejayan, and Ariyo (2024), who examined the impact of public debt on economic growth. Their original model is expressed as:

GDP = f(TDD, TXD, INFL, GEX, GDS).....(Eqn.1)
Where:
GDP = Gross Domestic Product
TDD = Total Domestic Debt
TXD = Total External Debt
INFL = Inflation Rate
GEX = Government Expenditure
GDS = Gross Domestic Savings

In order to specifically assess the effect of public debt on Nigeria's economic growth, the model was revised as follows:

GDPR = ∫(ED, DD, DSR).....(Eqn.2)

Which is further specified as:
$GDPR = \beta_0 + \beta_1 ED + \beta_2 DD + \beta_3 DSR + \mu_t$.....(Eqn.3)

Where:
GDPR = Growth in Gross Domestic Product
ED = External Debt
DD = Domestic Debt
DSR = Debt Servicing
∫ = Functional notation
μ_t = Error term
$\beta_0 – \beta_3$ = Coefficients to be estimated.

5. RESULTS AND DISCUSSION

Table 1: Descriptive statistics results

	GDPR	ED	DD	DSR
Mean	15.51850	6443.217	10718.46	1794.481
Median	13.89500	2403.290	7511.505	884.9000
Maximum	33.69000	38219.85	53258.01	8556.930
Minimum	5.630000	438.8900	1370.330	213.7300
Std. Dev.	8.036352	9244.731	11744.73	2171.286
Skewness	1.074438	2.273374	2.495187	1.883042
Kurtosis	3.131678	8.050059	9.712868	5.962925
Jarque-Bera	3.862505	38.48001	58.30535	19.13525
Probability	0.144966	0.000000	0.000000	0.000070
Sum	310.3700	128864.3	214369.3	35889.61
Sum Sq. Dev.	1227.076	1.62E+09	2.62E+09	89575185
Observations	20	20	20	20

Source: Computer analysis using E-views 12.0

Table 1 presents the descriptive statistics for the variables used in the study—GDP growth rate (GDPR), External Debt (ED), Domestic Debt (DD), and Debt Servicing (DSR)—over 20

observations. The average GDP growth rate is 15.52%, with a standard deviation of 8.04, indicating moderate variability over the years. External debt has a high mean of ₦6,443.22 billion and a large standard deviation of ₦9,244.73 billion, suggesting significant fluctuations. Similarly, domestic debt averages ₦10,718.46 billion, with a wide dispersion (₦11,744.73 billion). Debt servicing also exhibits variability, averaging ₦1,794.48 billion with a standard deviation of ₦2,171.29 billion. The skewness values greater than 1 for all variables indicate a right-skewed distribution, meaning the data are not symmetrically distributed. Kurtosis values, particularly for ED (8.05), DD (9.71), and DSR (5.96), exceed the normal value of 3, suggesting the presence of outliers and a leptokurtic distribution. The Jarque-Bera test confirms non-normality for ED, DD, and DSR ($p < 0.05$), while GDP growth is approximately normally distributed ($p = 0.14$). This variability and skewness highlight the need for robust analytical techniques like ARDL to handle non-stationary and non-normal data.

Unit root tests: Augmented Dickey-Fuller Test

The Ordinary Least Squares (OLS) regression technique typically requires that time series data be stationary to produce reliable estimates. However, when the data are found to be non-stationary, alternative modelling approaches can be employed to handle such characteristics. One such approach involves applying OLS after establishing the order of integration of the variables. This method assumes that the variables are either stationary at level I(0), at first difference I(1), or a combination of both. To verify this assumption, the Augmented Dickey-Fuller (ADF) unit root test was conducted. The results, shown in Table 2 below, indicate the stationarity status and integration order of each variable used in the study.

Table 2: Augmented Dickey-Fuller Test for unit root

Variables	ADF Tests: Level ADF Test Statistic	p-values	ADF Tests: 1st Diff ADF Test Statistic	p-values	ADF Tests: 2nd Diff ADF Test Statistic	p-values	Order of Integration
ED	4.574458	1.0000	-4.975793	0.0441	-1.795213	0.3699	I(1)
DD	3.144871	0.9995	-4.068128	0.0417	-1.077916	0.6991	I(1)
GDPR	-3.186354	0.0369	-6.856570	0.0000	-10.57474	0.0000	I(0)
DSR	11.74308	1.0000	-3.981628	0.0000	-0.951243	0.7454	I(1)

Source: Author, E-views 12 edition

The Augmented Dickey-Fuller (ADF) test was carried out to determine the stationarity of the variables used in the study, as non-stationary data can lead to spurious regression results. The test revealed that most of the variables—ED, DD, GDPR, and DSR—were stationary either at level [I(0)] or at first difference [I(1)]. This mix of integration orders confirms that the variables were properly assessed and supports the appropriateness of using regression methods such as OLS for further analysis.

ARDL Co-Integration Test

The confirmation of stationarity using the Augmented Dickey-Fuller (ADF) unit root test enabled the assessment of long-run relationships between the dependent and independent variables. The Autoregressive Distributed Lag (ARDL) model was selected over the traditional Johansen co-integration method due to its flexibility in handling variables with different orders of integration (I(0) and I(1)). The ARDL bounds testing approach compares the computed F-statistic to the lower and upper critical values at various significance levels—1%, 2.5%, 5%, and 10%. In this study, the calculated F-statistic of 15.15423 exceeds the

upper bound values at the 2.5%, 5%, and 10% significance levels, confirming the existence of a stable long-run relationship among the variables. This implies that public debt indicators have a long-term association with economic growth in Nigeria.

Table 3. ARDL bounds tests for cointegration

F-Bounds Test			Null Hypothesis: No levels relationship	
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	15.15423	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Source: Author's Calculation employing E-Views 12 Software

The computed F-statistic value of 15.15423 is greater than the lower and upper bound critical values at the 1%, 2.5%, 5%, and 10% significance levels, indicating the presence of a stable long-run relationship among the variables. This suggests that the selected variables—External Debt (ED), Domestic Debt (DD), and Debt Servicing (DSR)—are jointly associated with long-term changes in Nigeria's economic growth.

Decision Rule: Since the F-statistic exceeds the critical bounds, we reject the null hypothesis of no co-integration and accept the alternative hypothesis that co-integration exists. Therefore, it can be concluded that public debt indicators have a significant long-run impact on the growth of Nigeria's Gross Domestic Product (GDPR) during the study period.

Nature of Long Run Relationship/ARDL Error Correction Model

The ARDL result confirms that External Debt (ED), Domestic Debt (DD), and Debt Servicing (DSR) have a long-term impact on the growth of Gross Domestic Product (GDPR), indicating that these variables are co-integrated over the long run. As a result, it becomes important to assess the specific nature of this long-run relationship, as well as the speed at which any short-run disequilibrium adjusts back to long-run equilibrium.

Table 4: ARDL Co-integrating and Long Run Form for GDPR→ED +DD+DSR

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPR(-1) *	-1.203228	0.171440	-7.018351	0.0001
ED**	-0.003271	0.001396	-2.342617	0.0472
DD**	0.003806	0.000886	4.296771	0.0026
DSR**	-0.016975	0.012258	-1.384802	0.2035
CointEq(-1)*	-1.203228	0.112863	-10.66099	0.0000
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
ED	0.006080	0.001657	3.667931	0.0063
DD	0.000543	0.001073	0.506501	0.6262
DSR	-0.023180	0.012377	-1.872833	0.0980
C	13.12006	2.847209	4.608042	0.0017

Computer Output Data using E-views 12.0

The ARDL findings establish that External Debt (ED), Domestic Debt (DD), and Debt Servicing (DSR) are co-integrated with Gross Domestic Product (GDPR), indicating a long-term relationship among the variables. Therefore, it is essential to assess both the direction of these long-run effects and how quickly any imbalances adjust back to equilibrium. As shown

in Table 4, ED has a positive and statistically significant impact on GDPR, while DD also shows a positive but statistically insignificant effect. DSR, on the other hand, has a negative and insignificant influence on GDPR. Regarding the adjustment process, the Error Correction Mechanism (ECM) in Table 4 is negative and statistically significant, with a coefficient of -1.203228. This implies that approximately 120.32% of the previous period's disequilibrium is corrected in the current period, indicating a relatively fast adjustment back to long-run equilibrium.

Diagnostic Test

Table 5: Test for heteroskedasticity

	F-statistics	Probability
Heteroskedasticity Test	0.786866	0.6379

Source: Author's Calculation employing E-Views 12 Software

In accordance with the assumptions of classical linear regression, the model was tested for heteroskedasticity as part of its diagnostic evaluation. The test produced a p-value of 0.6379, which is greater than the 5% significance threshold. This indicates that the null hypothesis of constant variance cannot be rejected, suggesting that the model does not suffer from heteroskedasticity.

Normality Test

The normality test results indicate that the residuals from the regression model are approximately normally distributed. The histogram displays a roughly bell-shaped pattern, and the summary statistics further support this. The mean of the residuals is virtually zero (–1.24e–14), skewness is close to zero (–0.048702), indicating symmetry, and the kurtosis value of 1.831710 suggests a slightly flatter distribution than the normal curve but still acceptable. Most importantly, the Jarque-Bera statistic is 1.030791 with a p-value of 0.597264, which is greater than the 5% significance level. This means we fail to reject the null hypothesis of normality, confirming that the residuals are normally distributed and validating the reliability of the model's estimates.

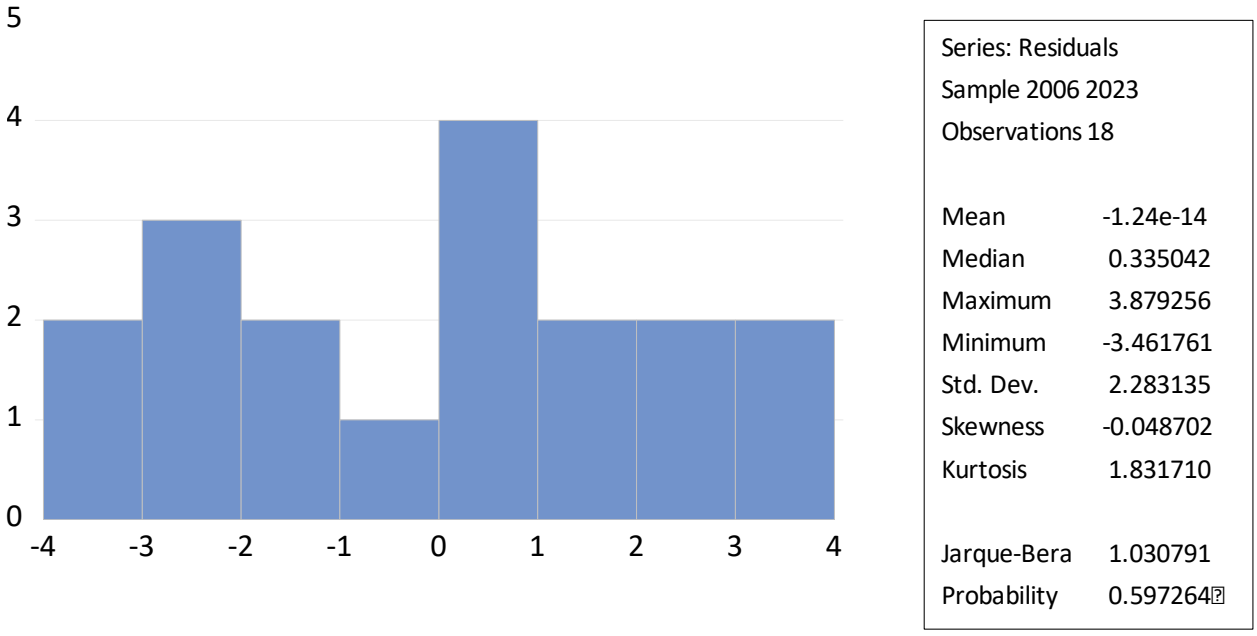


Fig. 1: *Normality Text*
Source: E-views 12.0 version data output

CUSUM and CUSUM of squares tests of stability

Figures 2 and 3 display the results of the model's stability tests, specifically using the CUSUM and CUSUM of squares methods. These tests are applied to assess whether the model remains stable over time. The outcomes indicate that the model is indeed stable, as the blue lines in both figures stay within the bounds set by the two red dotted lines, which represent the critical limits. This suggests that, at the 5% significance level, both the CUSUM and CUSUM of squares tests validate the model's stability and reliable performance.

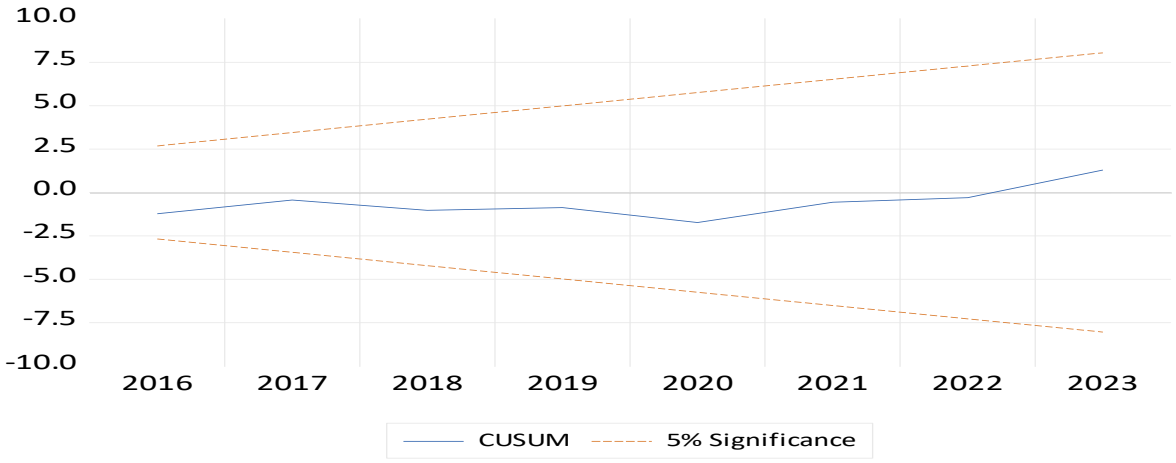


Fig. 2: *CUSUM Text*
Source: E-views 12.0 version data output

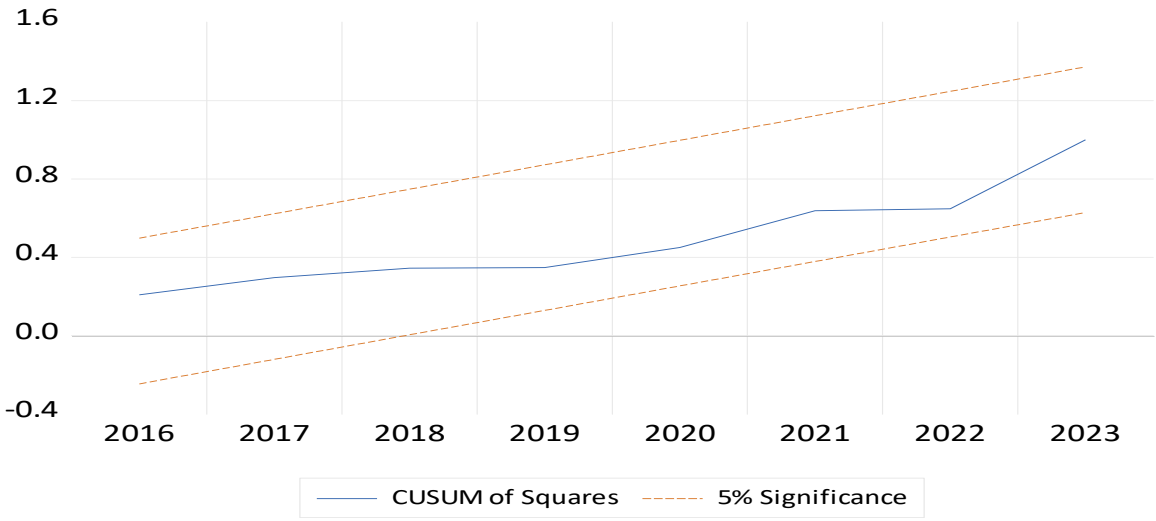


Fig. 3: *CUSUM of Squares Text*
Source: E-views 12.0 version data output

Short Run OLS Relationship

To examine the relationship between public debt and the growth of Nigeria's economy, Ordinary Least Squares (OLS) regression analysis was employed. The findings, presented in Table 6**,** were interpreted using the coefficients of the explanatory variables, the adjusted R-squared, the F-statistic, and the Durbin-Watson statistic.

Table 6: OLS Regression: Public Debt and Nigeria Economic Growth

Dependent Variable: GDPR
Method: ARDL
Date: 08/02/25 Time: 21:06
Sample (adjusted): 2006 2023
Included observations: 18 after adjustments
Maximum dependent lags: 2 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (2 lags, automatic): ED DD DSR
Fixed regressors: C
Number of models evalulated: 54
Selected Model: ARDL(1, 1, 2, 2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDPR(-1)	-0.203228	0.171440	-1.185418	0.2699
ED	-0.003271	0.001396	-2.342617	0.0472
ED(-1)	0.010586	0.002153	4.916299	0.0012
DD	0.003806	0.000886	4.296771	0.0026
DD(-1)	0.005193	0.002415	2.149958	0.0638
DD(-2)	-0.008346	0.003157	-2.643698	0.0295
DSR	-0.016975	0.012258	-1.384802	0.2035
DSR(-1)	-0.025721	0.016292	-1.578769	0.1530
DSR(-2)	0.014805	0.011896	1.244525	0.2485
C	15.78642	4.633313	3.407157	0.0093
R-squared	0.873517	Mean dependent var		13.83889
Adjusted R-squared	0.731223	S.D. dependent var		6.419699
S.E. of regression	3.328212	Akaike info criterion		5.542928
Sum squared resid	88.61596	Schwarz criterion		6.037579
Log likelihood	-39.88636	Hannan-Quinn criter.		5.611134
F-statistic	6.138821	Durbin-Watson stat		2.139233
Prob(F-statistic)	0.008878			

Source: Author's E-view 12 computations

Text of Probability

The constant term in the model is 15.78642, with a probability value (p-value) of 0.0093. This positive and statistically significant value (at the 5% level) implies that when all independent variables are held constant, the Gross Domestic Product (GDP) is expected to increase by approximately 15.79 units. In essence, the constant reflects the baseline level of GDP in the absence of changes in the independent variables, and its significance suggests it plays an important role in explaining GDP growth.

The coefficient of external debt is -0.003271, indicating that for every unit increase in external debt, Nigeria's economic growth is expected to decline by approximately 0.0033 units. The associated probability value of 0.0472 is less than the 5% significance level, suggesting that the negative effect of external debt on economic growth is statistically significant. This result implies that rising external debt may hinder Nigeria's economic performance.

The coefficient of domestic debt is 0.003806, which means that a unit increase in domestic debt leads to a corresponding increase in economic growth by about 0.0038 units. With a p-

value of0.0026, this effect is positive and statistically significant, indicating that domestic borrowing, if well-managed, can serve as a source of growth for the Nigerian economy.

Conversely, the coefficient of debt servicing is -0.016975, showing that an increase in debt servicing obligations reduces economic growth by approximately 0.017 units. However, the p-value of 0.2035 indicates that this negative effect is statistically insignificant at the 5% level. This suggests that, although debt servicing may reduce available resources for development, its impact on growth during the period under review is not strong enough to draw firm conclusions.

The R-squared value of 0.873517 shows that about 87.35% of the variations in GDP growth rate (GDPR) are accounted for by the explanatory variables in the model, indicating a strong explanatory power. The adjusted R-squaredof0.731223, which corrects for the number of predictors used, still reflects a very good model fit. The F-statistic of 6.138821 with a p-value of 0.008878 confirms that the model is statistically significant overall, meaning the predictors jointly have a meaningful impact on GDPR. Additionally, the Durbin-Watson statistic of 2.139233 suggests there is no significant autocorrelation in the model's residuals, implying that the regression results are reliable.

6. SUMMARY, CONCLUSION AND POLICY IMPLICATION

Public debt enables the government to fund critical infrastructure, social services, and development projects without the need for immediate tax increases. It also serves as a tool for economic stabilization by supporting government spending during economic downturns. Moreover, it can encourage investment by creating opportunities for both local and international investors. When managed properly, public debt can stimulate economic growth and improve overall national productivity. However, empirical studies have yielded mixed results on this topic. Therefore, this study aims to examine the effect of public debt on Nigeria's economic growth from 2004 to 2023.

The analysis began by testing the stationarity of the variables, which revealed different orders of integration: some variables were stationary at level (I(0)), while others became stationary after first differencing (I(1)). Consequently, the Auto-Regressive Distributed Lag (ARDL) model was employed for the analysis. The results indicate that public debt has an adverse effect on Nigeria's economic growth.Based on the findings, this study recommends that the government exercise caution in external borrowing. External loans should be carefully assessed and strictly directed toward projects that can generate adequate economic returns and support long-term development. Domestic borrowing should be strengthened and prioritised for financing productive sectors such as infrastructure, health, and education, which have the potential to enhance economic performance and create employment opportunities.Furthermore, there is a need to enhance debt management practices. A sound and transparent debt management framework will ensure that both domestic and external debts are well-coordinated, efficiently utilised, and responsibly monitored. The government should also review and optimise its debt servicing commitments to prevent the diversion of critical resources away from developmental objectives. Where necessary, high-cost debts should be renegotiated or restructured to ease fiscal pressure.Finally, all borrowed funds should be channelled into projects with clear economic value and measurable outcomes. This will help ensure that public debt contributes meaningfully to national development, supports economic stability, and avoids becoming a burden on future generations.

References

Abdullahi, T ; Adamu, P; Menson, A.E; Musa,A.B; Ikpe,O.K; & Bognet, A.C (2024) Public debt, tax and economic growth in economic community of West Africa. *KASU Journal of Economics and Development Studies, 10*(2), 240-253.

Abdulmumin, B.A. (2022). Effect of public debt on economic growth In Nigeria. *Malete Journal of Accounting and Finance, 3*(1),18-31.

Alonge F.B, Afolalu A.B & Olaniyan N.O (2023) Managing Public Debts and Stimulating Economic Growth: A Case Study of Nigeria's Fiscal Landscape. *Fuoye Journal of Accounting and Management, 6*(2)133-152.

Anaemena, H. C , Onwuatuelo, M. J, Ogbonna, K. S & Ezeaku, C. N (2023) Effect of public debt on the Nigerian economic development. *Journal of the Management Sciences, 60*(1), 200-212.

Azolibe, C.B., Dimnwobi, S.K., & Uzochukwu, C.P. (2022). *The determinants of unemployment rate in developing economies: does banking system credit matter*? AGDI Working Paper, No. WP/22/044, African Governance and Development Institute (AGDI), Yaoundé.

Debt Management Office (DMO). (2021). *Annual Debt Report*. https://www.dmo.gov.ng.

Ekesiobi, C., & Dimnwobi, S.K. (2020). Economic assessment of the Igbo entrepreneurship model for entrepreneurial development in Nigeria: evidence from clusters in Anambra state. *International Journal of Entrepreneurial Behavior & Research, 27*(2), 416-433.

Ikwuo, A, Josiah, F .O, Abagha, J. U, OkoEgwu, E & Nkwagu, L. C (2024) Public debt and economic growth in Nigeria .*Journal of Humanities and Social Science, 29*(4), 50-57.

Joshua, N. G & Onuora, J.K.J (2024) Public debt servicing and economic growth in Nigeria. *Journal of Accounting and Financial Management, 10*(8),329-344.

Kolawole, K.D., Seyingbo, O.A., Adejare, R.B., Olofinlade, S.O., & Haliru, A.N. (2024). Public debt, debt servicing and economic growth in Nigeria. *Development Management, 23*(4), 76-83.

Krugman, P. (1988). *Financing vs. forgiving a debt overhang*. *Journal of Development Economics, 29*(3), 253–268.

Mbobo, E.U & Onye, K.U. (2024). Public debt and economic growth in Nigeria: A dynamic threshold regression analysis. *International Journal of Commerce and Management Research, 10*(4), 65-73.

Mokuolu, J. O., Adejayan, A. O., & Ariyo, C. O (2024) The impact of public debt on economic growth. *International Journal of Humanities Social Science and Management,4*(2), 349-360.

Okafor, V.I, Nwawuru, C. E & Ariwa, F. O. (2023). Public debt management and economic growth In Nigeria. *Journal of the Management Sciences, 60*(2), 215-226.

Oke, J. T. O., & Adenuga, A. O. (2019). External debt and economic growth in Nigeria: A cointegration and causality analysis. *International Journal of Economics and Financial Issues, 9*(3), 76-84.

Okere, K. I., Dimnwobi, S. K., Ekesiobi, C., & Onuoha, F. C. (2023). Turning the tide on energy poverty in sub-Saharan Africa: Does public debt matter? Energy, 282, 128365. https ://doi.org/10.1016/j.energy.2023.128365.

Okon, E.O., & Onoja, I.M. (2017). Empirical and evidence-based investigation: External debt, poverty and economic growth nexus. *International Journal of Applied Economics, Finance and Accounting, 1*(1), 37-47.

Onuoha, F. C., Dimnwobi, S. K., Okere, K. I., & Ekesiobi, C. (2023). Sustainability burden or boost? examining the effect of public debt on renewable energy consumption in Sub Saharan Africa. Energy Sources, Part B: Economics, Planning, and Policy, 18(1), 1-15. https:// doi.org/10.1080/15567249.2023.2214917 .

Onuoha, F. C., Dimnwobi, S. K., Okere, K. I., & Ekesiobi, C. (2023b). Sustainability burden or boost? examining the effect of public debt on renewable energy consumption in Sub Saharan Africa. Energy Sources, Part B: *Economics, Planning, and Policy, 18*(1), 1-15.

Onyenwife, K.C, Ezeanyeji, C.I & Ekesiobi,C (2023) Public debt and economic growth in Nigeria: a consideration of new evidence. *Timisoara Journal of Economics and Business, 16*(1), 1-24.

Ozurumba B.A & Kanu, S.I. (2014) Domestic debt and economic growth in Nigeria. *Journal of Economics and Sustainable Development,1*(5)1-20.

Sachs, J. D. (1989). *The Debt Overhang of Developing Countries*. In G. Calvo et al. (Eds.), *Debt, Stabilization and Development*.

Solow, R. M. (1956). *A Contribution to the Theory of Economic Growth*. Quarterly Journal of Economics, 70(1), 65–94.

Wachukwu, E & Esian, A.J (2024) The relationships between public debt and economic development in Nigeria. *Journal of Political Discourse, 2*(4), 176-187.

Wang, Z., Asghar, M. M., Zaidi, S. A. H., Nawaz, K., Wang, B., Zhao, W., & Xu, F. (2020). The dynamic relationship between economic growth and life expectancy: Contradictory role of energy consumption and financial development in Pakistan. Structural Change and Economic Dynamics, 53, 257-266.

World Bank. (2020). *World Development Indicators*. Washington, DC: The World Bank.