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EXTERNAL DEBTS AND ECONOMIC GROWTH IN NIGERIA

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ABSTRACT
The rising debt and its attendant effect on the economy, has raised major issues in recent national discourse. The aim of this study was to examine the short-run and long-run effect of external debt and debt servicing on the growth of the Nigerian economy. The study employed data from 1981 to 2023 using Vector Error Correction Model and Autoregressive Distributed Lagto estimate the short-run and long run equilibrium. The findings from the study revealed that there is short-run and long-run relationship between external debt and economic growth in Nigeria. That external debt has positive short-run and long-run effect on the economy. It also found that debt servicing has negative short-run and long-run effect on the Nigerian economy. The study concluded that there is both short-run and long-run relationship between external debt and economic growth and also between debt servicing and economic growth. The study made the following recommendations: that there should be caution on the part of government in increasing the nation's debt profile that are not investment grade debt. Borrowing that are made with the expectation of repayment from public revenue should be avoided.

Keyword: External Debt, Debt Servicing and Economic Growth

INTRODUCTION
One of the major responsibilities of governments in any country of the world is to initiate and co-ordinate the interaction of the resources (material and human), available within the country to ensure the growth of the economy and improvement in the living standard of the citizens. In almost all of the cases, the available resources are insufficient either for consumption or investment purposes. In order to bridge the gap between expectation and reality, countries borrow. Countries can borrow from within institutions in the country (internal borrowing) or from other countries or institutions outside the country (external borrowing). The borrowing from outside the country is what is referred to as external debts. Nigeria, like most developing nations of the world rely heavily on external debts to meet its developmental aspirations (Bashir, 2024). Nigeria's external debt remained low from independence to the middle of the 1970s when it started to grow rapidly. In 1970, the total external debts of Nigeria stood at about US$1.5 billion. By 1975, it had grown to US$2.5 billion. It grew astronomically to US$7.5 billion and US$8.9 billion in 1979 and 1980 respectively. From then onward the external debts continued to grow steadily. By 2004, Nigeria's external debts had hit $35.99b. In 2005, the Obasanjo's administration was able to secure debt forgiveness of $18b from the Paris Club. By the time all the terms and conditions of the debt forgiveness were fulfilled in 2006, which included Nigeria paying the balance owed to the Paris Club, the total stock of external debts of Nigeria as at December 31st, 2006, was $3.54b. From $3.54b in December 2006, Nigeria's debt has ballooned again to $27.67b, as at December 31, 2019. Primarily, Nigeria's external debts are owed to Multi-lateral agencies, Paris Club of Creditors, London Club of Creditors, Promissory Note Holders, Bilateral and Private Sector Creditors and other sources. Of late, China has become a major lender to Nigeria (Muhammad et al., 2024; Omagbemi,2016).

Economic theory, according to Pattilo, Ricci and Poirson (2002), suggest that reasonable levels of borrowing by a developing country are likely to enhance its growth. When economic growth is enhanced (at least by more than 5 percent rate), the economy's situation is likely to be affected positively. This implies that an economy indulges in debt to boost economic growth and reduce poverty. The Keynesian economics school of thought posits that government borrowing can be used to promote economic growth through the financing of government deficit expenditures, which stimulates aggregate demand and thus encourages increase in private investments. However, excessive public debt, according to Mbah, Umunna and Agu (2016), can create great debt burden for a country. OkonjoIweala et al (2013) argued that once an initial stock of debt grows to a certain threshold, servicing it becomes a burden, and countries find themselves on the wrong side of the Debt Laffer Curve, with debt crowding out investment and growth. Conversely, Uwakaeme (2024) asserts that a country's indebtedness does not necessarily slow growth, rather it is the nation's inability to optimally utilize these loans to foster economic growth and development and ensure effective servicing of such debt that hampers the benefits derivable from borrowed funds.

Statement of the Problem

Every nation of the world is involved in one form of borrowing or the other. These nations borrow so as to meet the areas of deficit in their economy. These deficits may be in the form of physical infrastructure, health, education, human capital development, expertise in different fields, technology, etc. When these debts are applied for the purpose for which they were acquired, the result, most likely is growth in the economies of those countries. This is mostly the case with the developed countries where, though heavily indebted, the effect of the borrowing can be seen in the economy by way of growth which eventually translates to the improvement of the living standard of the citizens. The question a lot of observers and commentators have asked is whether this same scenario stated above can be said of Nigeria (Alhassan & Islam, 2019; Muhammad et al., 2019; Uwakaeme, 2024; Bashir, 2024). There has been divergent views and positions on this issue. What is incontrovertible however, is that Nigeria's debt burden is getting heavier by the day. This burden reached a new height in the first quarter of 2020 when, as reported by Nairametrics (an online publication, quoting the Medium Term Expenditure Framework and Fiscal Strategy, which had just been released by the Federal Ministry of Finance, Budget and National Planning). According to Nairametrics, Nigeria's retained revenue for the first quarter of 2020 was N950.56 billion out of which the country spent N943.12 billion on debt servicing. This represents 99% of the retained revenue. With issues like this people are beginning to wonder if the external debts are actually engendering economic growth, hence the topic for this study.

Objectives of the Study

The broad objective of the study was to investigate the impact of external debt on economic growth of Nigeria. The study specifically sought to;

i. find out the impact of external debts on Nigeria economic growth.
ii. Establish the extent debt servicing influence Nigeria economic growth.

Research Questions

Based on the research problem stated above, this study seeks to answer the following research questions.

i. What is the impact of external debts on Nigeria economic growth?
ii. To what extent does debt servicing influence Nigeria economic growth?

Statement of Hypotheses

H_{01} External debt does not have statistically significant impact on Nigeria economic growth.
H_{02} External debt servicing does not have significant impact on Nigeria economic growth.

Literature Review
Conceptual Review
External Debt

The act of borrowing creates debts and this debt may be domestic or external. The focus of this study is on external debt which refers to that part of a nation's debt that is owed to creditors outside the nation. Arnone et al (2005) defines external debt as that portion of a country's debt that is acquired from foreign sources such as foreign corporations, government or financial institutions. According to (Ogbeifin, 2007), external debt arises as a result of the gap between domestic savings and investment. As the gap widens, debt accumulates and this makes the country to continually borrow increasing amounts in order to stay afloat. He further defined Nigeria's external debt as the debt owed by the public and private sectors of the Nigerian economy to non-residents and citizens that is payable in foreign currency, goods and services. Debt crisis occurs when a country has accumulated a huge amount of debt such that it can no longer effectively manage the debt which leads to several mishaps in the domestic political economy. Mimiko (1997) defined debt crisis as a situation whereby a nation is severely indebted to external sources and is unable to repay the principal of the debt.

Origin of Nigeria's External Debt

Nigeria's external indebtedness can be traced back to the pre-independence period when in 1958 a loan of US$28 million dollars was contracted from the World Bank for railway construction. This debt did not pose a serious burden reason being that it was acquired on soft terms i.e. with no interest or below market rate of interest. After this period, the need for external aid was relatively low until in 1977/1978 when there was a fall in world oil prices which in turn reduced the nation's oil receipts. Before this period Nigeria was experiencing abundance in oil receipts especially with the oil boom of1973-1976. After crude oil was first discovered in 1956, it became a major source of foreign exchange earnings as there was a gradual drift from agriculture which had been the dominant provider of export earnings, employment e.t.c to near total dependence on oil as the mainstay of the economy. Following the fall in oil prices, it became necessary for the government to correct balance of payment difficulties and finance projects. This led to the first major borrowing of US$1 billion which is referred to as the JUMBOLOAN in 1978 from the international capital market (ICM) (Omagbemi, 2016). Although this loan was used to finance various medium and long term infrastructural projects, the returns obtained from these projects were not enough to amortize the nation's debts as many of the projects as included in the Fourth National Development Plans (1981-1985) involved mainly the use of imported materials. In 1979, there was a recovery in the oil market and oil was sold in Nigeria at US$39.00 per barrel which led to the belief that the economy was bouncing back. But due to the fact that there was excessive importation, it resulted in over-invoicing of imports and under-invoicing of exports and in 1982 when there was another collapse in world oil prices it caused severe strains and stresses on the economy. Foreign exchange was declining rapidly and there were large amount of deficits in government financing. In the face of drastic oil downturn and dwindling oil reserves, the rate of borrowings increased from the international capital market (ICM) (Omagbemi, 2016)

At this point the nation's debt profile had begun rising astronomically due to the increasing external debt service payments. In 1980 external debt stood at US$8.5 billion and by 1985 it nearly reached US$19 billion showing an increase of about 45.02%. The increasing in debt service payments interests resulted in mounting of trade debts arrears. By 1997 the nation's debt stock stood at US$27.0878 billion; US$18.9804 billion Paris Club debt; US$4.3727 billion Multilateral debt; $1.6125 billion Promissory notes andUS$0.7919 billion Non Paris Bilateral debt (Ministry of Finance, 1997). Due to the rise in external debt there was a corresponding increase in external debt servicing ratios; debt/GDP and debt/export earnings. As at December 31st 2001, the external debt stock stood at US$28.35 billion which was about 59.4% of GDP and 153.9% of export earnings (Omagbemi, 2016).

Economic Growth

Economic growth is linked to population increase, resource development, technological advancement, and capital production. Economic growth is the country's GDP and per capita income rising (Onyema, 2017). Adolphus and Dibiah (2021) defined economic growth as a process of quantitative, qualitative and structural changes, with a positive impact on the economy and on the population‘s standard of life, whose tendency follows a continuously ascendant trajectory. Fasanya et al. (2013) also have seen economic growth as the process of increasing the sizes of national economies, the macroeconomic indicators, especially the GDP per capita, in an ascendant but not necessarily linear direction, with positive effects on the economic-social sector. Friedman defines economic growth as innovation process leading to the structural transformation of the social system. According to Agu (2018), economic growth is an increase in an economy's capacity to produce goods and services from one period of time to the next. It refers to the process by which a country's wealth grows over time. The gross domestic product is the most commonly used indicator of economic growth (GDP). GDP, as defined by Adolphus and Dibiah (2021), is a monetary measure of financial development that can be expressed in ostensible terms that include expansion or in genuine terms that account for swelling. Long-term GDP is concerned with the expansion of a pattern or expected pattern, whereas transient GDP is concerned with the yearly change in genuine public yield. In close examinations of various nations with varying population sizes, GDP per capita is frequently used.

Review of Theoretical Issues

The Dependency Theory

The dependency theory seeks to outline the factors that have contributed to the underdevelopment of the underdeveloped countries. This theory is based on the assumption that resources flow from a "periphery" of poor and underdeveloped states to a "core" of wealthy states thereby enriching the latter at the expense of the former. The phenomenon associated with the dependency theory is that poor states are impoverished while rich ones are enriched by the way poor states are integrated into the world system (Todaro, 2003; Amin, 1976). Dependency theory states that the poverty of the countries in the periphery is not because they are not integrated or fully integrated into the world system as is often argued by free market economists, but because of how they are integrated into the system. From this standpoint a common school of thought is the bourgeoisie scholars. To them the state of underdevelopment and the constant dependence of less developed countries on developed countries is as a result of their domestic mishaps. They believe this issue can be explained by their lack of close integration, diffusion of capital, low level of technology, poor institutional framework, bad leadership, corruption, mismanagement, etc. (Momoh and Hundeyin, 1999). They see the under-development and dependency of the third world countries as being internally inflicted rather than externally afflicted. To this school of thought, a way out of the problem is for third world countries to seek foreign assistance in terms of aid, loan, investment, etc, and allow undisrupted operations of the Multinational Corporations (MNCs). Due to the underdeveloped nature of most LDC's, they are dependent on the developed nations for virtually everything ranging from technology, aid, technical assistance, to culture, etc. The dependent position of most underdeveloped countries has made them vulnerable to the products of the Western metropolitan countries and Breton Woods institutions (Ajayi, 2000). The dependency theory gives a detailed account of the factors responsible for the position of the developing countries and their constant and continuous reliance on external for their economic growth and development.

Empirical Literature Review

Muhammad et al. (2024) investigated the intricate relationship between external debt, debt service, and economic growth. The study used the panel data of 32 Asian Developing Economies (ADE) spanning 1995 to 2020. The method of data analysis was two-step system generalized method of moments (GMM) and a dynamic common correlated estimate (DCCE) model. Findings reveal that public and private investment, total factor productivity, and national savings are pivotal channels transmitting the non-linear effect of external debt on economic growth. Notably, only private and public investment conveys the nonlinear effects of debt service to economic growth, while productivity and savings convey the linear effect. Evidence of debt overhang and crowding-out effects is identified in the sampled economies. The study suggests strategic measures for developing countries, emphasizing the productive use of accumulated debt, enhanced debt management, and timely project completion. Furthermore, it advocates for fostering economic growth through increased productivity, domestic savings, and private sector expansion to reduce dependence on foreign debt, facilitating both debt repayment and economic self-sufficiency.

Bashir (2024) examined the relationship between external debt and economic growth over the period 1981-2021 in Nigeria using the ARDL econometric technique. The study employed preliminary diagnostics and causality was established to run in a specific pairwise relationship as each of external debt and domestic investment Granger causes economic growth. The results reveal an inverse relationship between real interest rate and economic growth in the short-run. The results further establish that external debt impacts negatively, as against openness to trade and domestic investment averagely impacting positively, on economic growth in both the short-run and long-run. In essence, if it becomes pertinent for the country to borrow for growth-enhancing investments, the government is advised to borrow at a zero rate of real interest.

Uwakaeme (2024) studied analysis of external debt and real economic growth of developing economies: Nigeria's experience. The source of the study data is CBN and it spans for a period of 1980 to 2022. The study applied Co-integration technique, Error Correction Model (ECM) and Granger Causality tests for the econometric analysis. The empirical investigations confirmed that, in the longrun, the selected explanatory variables had significant adverse effect on Nigeria's RGDP. The Granger Causality test showed that NFXR had unilateral relationship with RGDP, which implies that NFXR determines RGDP without a feedback, while EXD and EDIC established independent relationships with RGDP. The study, therefore, recommends effective and sustainable debt management and monitoring to ensure that borrowed funds are spent on productive projects. Government should seriously pursue effective Exchange Rate management. Finally, the Policy makers should design policies that would match the magnitude of the expected changes in order to counter the lag effect.

Hassan and Abdirashid (2024) investigated the effect of external debt on economic growth in Somalia from the period of 1990 to 2021. The study was conducted based on an ex-post facto research design with a focus on longitudinal design. The study fully used quantitative research to evaluate the secondary data for scientific evaluation and to determine the conclusions for the objectives. Augmented Dickey Fuller Test (ADF) was used to examine the stationarity properties of the time series before analysis. Co-integration techniques developed by Johansen (1988) and Johansen and Juselius (1990) and Error Correction Model (ECM) were used to examine the long-run and short-run association between external debt and economic growth respectively. Multiple regression analysis was also done to capture the impact of external debt and economic growth in Somalia from 1990 to 2021. According to our research findings, Somalia's economic growth has been adversely affected by its external debt, both in the short-run and long-run, over the past three decades. The impact of external debt on Somalia's economic growth has been found to be negative and statistically significant.

Muhammad et al. (2019) examined the impact of total external debt, public external debt, and private external debt on the economic growth of Asian developing and transition economies from 1995 to 2019. The study applied the fixed effect model with two robust estimators of the feasible generalized least square estimator-FGLS and Driscoll-Kraay standard error-DSKE estimator to address the cross-sectional dependence, heteroscedasticity, and autocorrelation. The findings of the effect model, FGLS, and DSKE estimators show that the total external debt has a significant and positive impact on economic growth. In contrast, public external debt and private external debt harm economic growth in selected countries. The findings recommend controlling additional public and private external debt, investing in the productive sectors, motivating people about saving behaviour, concentrating on foreign trade, and foreign direct investment to resolve the indebtedness and low economic growth.

METHODOLOGY

The research design for this work is ex-post factor research design. It is a time series study. It covered various aspects of Nigeria's external debts from 1981 to 2023. Secondary data were collected from Central Bank of Nigeria (CBN) Statistical Bulletins, National Bureau of Statistics (NBS), World Bank Reports, Journals, etc. Data were collected on Nigeria's Gross Domestic Products (GDP), External Debts and External Debts Servicing.

Method of Data Analysis

The following analytical tools will be used for data analysis: Unit Root Test, Augmented Dickey Fuller (ADF), Cointegration Test, Vector Error Correction Mechanism and Autoregressive Distributed Model. This study adopts the ARDL bound testing approach developed by Pesarem and Shin (1995, 1999) to estimate the long run equilibrium. The classical assumptions regression model requires that both the dependent and independent variables be stationary and that errors have a zero mean and constant variance. In the presence of non-stationary variables, there might be what (Granger &Newbold, 1974) called a spurious regression, whereby the results obtained suggest thatthere are statistically significant relationships between the variables in the regression model when in fact all that is obtained is evidence of contemporaneous correlation rather than meaningful causal relations. Thus, the statistical properties (Unit root and Cointegration test) of the series were tested using appropriate soft-wares such as E-Views 9.0 and Strata 16 software among others.

Unit root test: A unit root test examines whether a times series variable is non-stationary and possess a unit root. The null hypothesis is generally defined as the presence of a unit root and the alternative hypothesis is either stationarity, trends stationarity depending on the test used. As such the unit root test is conducted first before actual model estimation. This is to ascertain the underlying properties of the time series variables in the model. The importance of unit root test is that it enables us to avoid the problem of spurious regression output (Gujarati & Porter, 2009). In this study, the Augmented Dickey-Fuller (1981) unit root test method will be utilized. The (ADF) unit root test equation to be used is specified as follows:

$$\Delta y_t = \omega + \delta y_{t-1} + \sum_{i=1}^{m} \theta_i \Delta y_{t-i} + \mu_t$$

Where Δ is the first difference operator; y_t is a time series variable at current time (t); ω is the drift term; y_{t-1} is the one period lagged value of y_t; $\delta$is the coefficient of y_{t-1}; $\Delta y_{t-i}$is the lagged valued of the first difference of y_t; m is the maximum lag length; ϑ_i is the coefficients of Δy_{t-i}; and μ_t is the white noise error term. The null hypothesis is such that the time series contains a unit root which implies that δ=0. The null hypothesis is rejected if δ is negative and statistically significant. The ADF unit root test is based on t-statistic test.

Hypothesis:
H_0: $\delta = 0$ (Variable has unit root i.e.; time series is non-stationary)
H_1: $\delta < 0$ (Variable do not have unit root i.e.; time series is stationary)
Decision Rule:
(i) If t^*> ADF critical value in absolute terms, reject the null hypothesis
(i) If t^*< ADF critical value in absolute terms, do not reject the null hypothesis
Note: t^* is the calculated value of the ADF unit root test.

Cointegration Test
This test is used to confirm whether time series variables which might be individually non-stationary can be linearly combined to give a meaningful long-run equilibrium relationship. That is, cointegration test is conducted to ascertain if the time series variables under consideration are cointegrated i.e., if they have a long-run relationship (Gujarati & Porter, 2009). In this study, the Johansen and Juselius (1990) cointegration test procedure will be used. This test is based on vector autoregression framework. The two statistics to be obtained are the Trace and Maximum Eigen-Value statistics. The *Trace statistic* is defined by the equation:

$$LR_{trace}(r_0) = -T \sum_{i=r_0+1}^{k} \log\left(1 - \hat{\lambda}_t\right)$$

While the *Maximum Eigen-Value Statistic* is defined by the equation:

$$LR_{max}(r_0) = -Tlog\left(1 - \hat{\lambda}_{r_0+1}\right)$$

Critical values for the asymptotic distribution of$LR_{trace}(r_0)$ and $LR_{max}(r_0)$ statistics are tabulated in MacKinnon, Haug and Michelis (1999) for $k - r_0 = 1,,10$.
Hypothesis:
H_0 : No cointegration
H_1 : Cointegration exists
Decision Rule:
(i) If Trace statistic > Critical values, cointegration exists
(ii) If Maximum Eigen-Value Statistic > Critical values, cointegration exists.

Model Specification
To empirically examine the impact of external debt on economic growth in Nigeria, this study adopted the following model:

$$GDP_t = \beta_0 + \beta_1 ED_t + \beta_2 DS_t + \mu_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots .(1)$$

GDP = f(EX, DS)
$GDP_t = \beta_0 + \beta_1 ED_{t-1} + \beta_2 DS_{t-1}$……………………………………………………..………Ut
Where:
GDP= Gross Domestic Product (Proxy for Economic Growth)
ED= External debt
DS= Debt Servicing
β_0= Intercept
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$= Slope Parameters
μ=Error Term
t= Time

***A Priori* Expectations**
A Priori defines the theoretical expectations about the sign or size of the parameters of the specified model. *A priori* expectations are determined by the principles of economic theory guiding the relationship between the variables under study. E.g, (3.1) in line with economic theory, external debt is expected to have a positive relationship with the GDP. Debt Servicing on the other hand is expected to have negative relationship with GDP. Theseexpectations are mathematically expressed as follows:
$\beta_1, \beta_2 < 0$or $\beta_1, \beta_2 > 0$; $\beta_3, \beta_4 > 0$; $\beta_5, \beta_6 < 0$.

DATA ANALYSIS AND DISCUSSION OF FINDINGS

Table 1: Descriptive Statistic on External Debt and Economic Growth

	GDP	EXD	DS
Mean	1098774.	2851.005	1481.987
Median	26935.32	648.8130	155.4162
Maximum	43560000	37955.09	42000.00
Minimum	16211.49	2.331200	1.007078
Std. Dev.	6797141.	6253.901	6529.017
Skewness	6.166359	4.576058	6.042624
Kurtosis	39.02434	25.64850	38.00888
Jarque-Bera	2476.826	1019.390	2343.277
Probability	0.000000	0.000000	0.000000
Sum	45049738	116891.2	60761.47
Sum Sq. Dev.	1.85E+15	1.56E+09	1.71E+09
Observations	43	43	43

Source: Estimation Using EViews 10, 2024

The result in table 1 showed that Gross Domestic Product (GDP) averaged US$238.79 billion, for Nigeria. The value for Nigeria ranged between 16211.49 billion and 435600.00 within the period under consideration. The coefficient of Skewness, Kurtosis and the Jarque-Bera statistic with a P-value of less than 0.05 indicates that GDP is not normally distributed. Mean (Average) external debt for the study within the period was 2851.005 billion. Its Minimum and maximum Value was 2.331200 billion to37955.09 billion within the period under consideration. The coefficient of Skewness, Kurtosis and the Jarque-Bera statistic with a P-value of less than 0.05 indicates that EXD is not normally distributed. Mean (Average) debt service for the study within the period was 1481.987 billion. Its Minimum and maximum Value was 1.007078 billion to 42000.00 billion within the period under consideration. The coefficient of Skewness, Kurtosis and the Jarque-Bera statistic with a P-value of less than 0.05 indicates that EXD is not normally distributed.

Table 2: Augmented Dickey-Fuller (ADF) Unit Root Test on the series for External Debt and Economic Growth

Series	ADF Test Statistics	Prob. Value	5% Critical Value	Order of Integration
GDP	3.418161	1.0000	-3.529758	
D(GDP)	-4.051890	0.0151	-3.533083	I(1)
LOGEXD	2.204899	0.9924	1.949319	
D(LOGEXD)	-4.053813	0.0002	-1.949609	I(1)
LOGPDS	2.573796	0.9969	-1.949319	
D(LOGPDS)	-4.707403	0.0000	-1.949609	I(1)

Source: Estimation Using EViews 10, 2024.

The results of the unit root test in table 2 revealed that there is evidence of the presence of a unit root in the series used in the study. All the series were found to be stationary after first difference. This makes the series particularly satisfy the conditions for conducting a vector effort correction model and an autoregressive distributed lag estimation. All the variables were integrated of order 1.

Table 3 Test for Optimal Lag Length

VAR Lag Order Selection Criteria
Endogenous variables: CGDP LOGEXD
LOGPDS
Exogenous variables: C
Date: 10/24/24 Time: 07:41
Sample: 1981 2023
Included observations: 43

Lag	LogL	LR	FPE	AIC	SC	HQ

0	-490.6804	NA	77969982	26.68543	26.81604	26.73147
1	-307.5594	326.6482*	6389.397	17.27348	17.79594*	17.45767*
2	-297.1464	16.88593	5986.810*	17.19710*	18.11141	17.51944
3	-291.6095	8.080894	7420.317	17.38430	18.69045	17.84478

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion
Source: Estimation Using EViews 10, 2024

In deciding the lag length to use, five lag length criteria were used to determine the lag length, LR test suggests 2 lag length, FPE suggest 3 lag length, AIC suggest 3 lag length, SIC suggest 2 lag length while HQ suggest 2 lag length (see table 3). Since majority of the lag length selection criteria suggest 2 lag length, we decide that 2 lag length is the optimal and efficient lag to be used for both cointegration test and the vector error correction model.

Table 4: Cointegration Test on the series for External Debt and Economic Growth
Date: 10/24/24 Time: 07:51
Sample (adjusted): 1981 2023
Included observations: 42 after adjustments
Trend assumption: No deterministic trend (restricted constant)
Series: CGDP LOGEXD LOGPDS
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.418946	40.67947	35.19275	0.0116
At most 1 *	0.312626	20.59172	20.26184	0.0451
At most 2	0.166112	6.721259	9.164546	0.1419

Trace test indicates 2 cointegratingeqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values
Source: Estimation Using EViews 10, 2024

The result of the cointegration shows that there is at least 2 cointegration equation. This is revealed by the probability value of the trace statistic. Their probability value is found to be significant at 5% level of statistical significant (see table 4). The presence of cointegrating equation indicates the presence of long-run relationship between the dependent variable and the independent variable and makes it possible for the use of vector error correction model and ARDL. The result of the normalized cointegrating coefficient shows that the t-statistic for LOGEXD and LOGPDS are statistically significant (see appendix A for normalized coefficient). This affords us to conclude that there is long-run relationship between the dependent variable and the independent variables. In the long-run, LOGEXD has a positive impact on economic growth while LOGPDS has a positive impact on economic growth. The coefficient is statistically significant at 5% level of statistical significance and also the t-statistic for LOGEXD is 2.9065 while LOGPDS is 2.9132 by rule of thumb, they are greater than 2. The null hypothesis of no cointegrating equation is rejected.

Table 5: Vector Error Correction Model for External Debt and Economic Growth
Vector Error Correction Estimates

Date: 10/24/24 Time: 07:53
Sample (adjusted): 1981 2023
Included observations: 42 after adjustments
Standard errors in ( ) & t-statistics in [ ]

CointegratingEq:	CointEq1	CointEq2	
CGDP(-1)	1.000000	0.000000	
LOGEXD(-1)	0.000000	1.000000	
LOGPDS(-1)	-9164.959	-1.454011	
	(5521.07)	(0.12549)	
	[-1.66000]	[-11.5871]	
C	31675.01	-0.253411	
	(9189.69)	(0.20887)	
	[3.44680]	[-1.21326]	
Error Correction:	**D(CGDP)**	**D(LOGEXD)**	**D(LOGPDS)**
CointEq1	0.066530	5.26E-06	3.16E-06
	(0.02083)	(1.7E-06)	(1.6E-06)
	[3.19458]	[3.01981]	[2.02876]
CointEq2	-2423.588	0.066546	0.281424
	(849.480)	(0.07109)	(0.06351)
	[-2.85303]	[0.93610]	[4.43133]
D(CGDP(-2))	0.018025	-3.67E-05	1.69E-05
	(0.25502)	(2.1E-05)	(1.9E-05)
D(LOGEXD(-2))	547.3593	-0.170056	-0.254446
	[0.27051]	[-1.00429]	[-1.68205]
D(LOGPDS(-2))	2117.750	0.122840	-0.060415
	(1832.22)	(0.15333)	(0.13698)
	[1.15584]	[0.80115]	[-0.44106]
R-squared	0.784684	0.218642	0.369036
Adj. R-squared	0.757770	0.120973	0.290166
Sum sq. resids	1.65E+08	1.153133	0.920292
S.E. equation	2268.374	0.189830	0.169585
F-statistic	29.15474	2.238590	4.679014
Log likelihood	-335.7071	11.66533	15.83794
Akaike AIC	18.41660	-0.360288	-0.585835
Schwarz SC	18.63429	-0.142596	-0.368143
Mean dependent	4164.691	0.083233	0.094889
S.D. dependent	4608.935	0.202471	0.201284
Determinant resid covariance (dof adj.)		4344.589	
Determinant resid covariance		2810.564	
Log likelihood		-304.4133	
Akaike information criterion		17.69801	
Schwarz criterion		18.69940	
Number of coefficients		43	

Source: Estimation Using EViews 10, 2024

The result of the long-run coefficient in table 5 shows that LOGPDS is more statistical significant in explaining the long-run relationship between the dependent variable and the independent variable.The result of the short-run coefficient shown in table 4.5 revealed that there is short-run relationship between the dependent variable and the independent variable. Using CointEq2, LOGPDS is found to have significant adjustment toward the long-run equilibrium in any disequilibrium situation. For both LOGEXD and LOGPDS their coefficient is statistically significant using the rule of thumb for the t-statistic.

Table 6: Probability for the Vector Error Correction Model for External Debt and Economic Growth

Dependent Variable: D(CGDP)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Date: 10/24/23 Time: 07:54
Sample (adjusted): 1981 2023
Included observations: 42 after adjustments
D(CGDP) = C(1)*(CGDP(-1) - 9164.95917366*LOGPDS(-1) +
31675.0051115) + C(2)*(LOGEXD(-1) -
1.45401117544*LOGPDS(-1)
- 0.253411012321) + C(3)*D(CGDP(-2)) + C(4)*D(LOGEXD(-2))
+ C(5)
*D(LOGPDS(-2))

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.066530	0.020826	3.194576	0.0031
C(2)	-2423.588	849.4800	-2.853026	0.0075
C(3)	0.018025	0.255022	0.070679	0.9441
C(4)	547.3593	2023.406	0.270514	0.7885
C(5)	2117.750	1832.219	1.155838	0.2563

R-squared	0.784684	Mean dependent var	4164.691
Adjusted R-squared	0.757770	S.D. dependent var	4608.935
S.E. of regression	2268.374	Akaike info criterion	18.41660
Sum squared resid	1.65E+08	Schwarz criterion	18.63429
Log likelihood	-335.7071	Hannan-Quinn criter.	18.49335
Durbin-Watson stat	1.736760		

Source: Estimation Using EViews 10, 2024.

The result of the probability values revealed that there is long-run relationship between the dependent variable and the independent variable. This is denoted by C(1). Also, C(2) probability is also found to be significant at 5% level of significance showing that LOGEXD significantly affects the dependent variable. But C(4) and C(5) were not found to be significant at 5%. However, the regression parameters, performed significantly well.

Table 7 Wald Test for VECM on LOGEXD

Wald Test:
Equation: Untitled

Test Statistic	Value	df	Probability
t-statistic	0.270514	32	0.7885
F-statistic	0.073178	(1, 32)	0.7885
Chi-square	0.073178	1	0.7868

Null Hypothesis: C(4)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(4)	547.3593	2023.406

Restrictions are linear in coefficients.

Since the chi-square is not significant at 5%, we conclude that there is no short-run causality running from LOGEXD to GDP

Wald Test for VECM on LOGPDS

Wald Test:
Equation: Untitled

Test Statistic	Value	df	Probability
t-statistic	1.155838	32	0.2563
F-statistic	1.335963	(1, 32)	0.2563
Chi-square	1.335963	1	0.2477

Null Hypothesis: C(5)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(5)	2117.750	1832.219

Restrictions are linear in coefficients.

Source: Estimation Using EViews 10, 2024

Also, since the chi-square is not significant, we conclude that there is no short-run causality running from LOGPDS to GDP

Table 8 Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.201256	Prob. F(9,27)	0.0547
Obs*R-squared	15.65900	Prob. Chi-Square(9)	0.0744
Scaled explained SS	16.05264	Prob. Chi-Square(9)	0.0658

Source: Estimation Using EViews 10, 2024

The model shows presence of heteroskedasticity based on the probability value of the chi-square.

Table 9 Variance Inflation Factor

Variance Inflation Factors
Date: 10/24/24 Time: 07:57
Sample: 1981 2023
Included observations: 42

Variable	Coefficient Variance	Uncentered VIF
C(1)	0.000434	10.60295
C(2)	721616.2	3.864949
C(3)	0.065036	13.37643
C(4)	4094172.	1.627868
C(5)	3357028.	1.161585

Source: Estimation Using EViews 10, 2024

The results of the variance inflation factor shows that there is no serial correlation except for C(1) and C(3) with high values, other value are less than 5%. With this we can rely on the tests from the VECM and ARDL F Bound test for inference on hypotheses testing.

Table 10: ARDL Result for External Debt and Economic Growth
Dependent Variable: CGDP
Method: ARDL
Date: 10/24/24 Time: 08:06
Sample (adjusted): 1981 2023
Included observations: 40 after adjustments
Selected Model: ARDL(4, 0, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
CGDP(-1)	1.161119	0.192979	6.016814	0.0000
CGDP(-2)	-0.148142	0.320842	-0.461728	0.6476
CGDP(-3)	-0.441758	0.321279	-1.374998	0.1793
CGDP(-4)	0.516635	0.218401	2.365534	0.0247
LOGEXD	-1789.756	696.7287	-2.568800	0.0154
LOGPDS	3838.714	1192.316	3.219544	0.0031

R-squared	0.998422	Mean dependent var	37858.30
Adjusted R-squared	0.998159	S.D. dependent var	46892.04
S.E. of regression	2011.791	Akaike info criterion	18.20245
Sum squared resid	1.21E+08	Schwarz criterion	18.46637
Log likelihood	-321.6441	Hannan-Quinn criter.	18.29456
Durbin-Watson stat	1.846054		

*Note: p-values and any subsequent tests do not account for model selection.

Source: Estimation Using EViews 10, 2024

The result of the ARDL presented in table 10 shows that there are four lag of CGDP and no lag for LOGEXD and LOGPDS after 100 model have been evaluated. The probability value of the first lag for CGPD was found to be significant at 5% level of statistical significance. LOGEXD and LOGPDS were also found to be statistically significant at the chosen level of statistical significance. This shows that they significantly cause variation in CGDP in both in the short-run and long-run. The R-squared of 99.84% shows that the independent variables account for greater percent of the variation in the dependent variable. The result of adjusted R-square also shows a good fit in respect of the model. The Durbin Watson statistic shpows that therey is no serial correlation in the model estimated. The lag selection criteria used to estimated the ARDL are the Akaike info criterion, Schwarz criterion and Hannan-Quinn criterion.

Table 11 Bound Test of ARDL Result for External Debt and Economic Growth
ARDL Long Run Form and Bounds Test
Dependent Variable: D(CGDP)
Selected Model: ARDL(4, 0, 0)
Case 1: No Constant and No Trend
Date: 10/24/24 Time: 08:08
Sample: 1981 2023
Included observations: 43

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CGDP(-1)*	0.087855	0.027279	3.220583	0.0031

LOGEXD**	-1789.756	696.7287	-2.568800	0.0154
LOGPDS**	3838.714	1192.316	3.219544	0.0031
D(CGDP(-1))	0.073264	0.206439	0.354894	0.7252
D(CGDP(-2))	-0.074878	0.221834	-0.337540	0.7381
D(CGDP(-3))	-0.516635	0.218401	-2.365534	0.0247

* p-value incompatible with t-Bounds distribution.
** Variable interpreted as Z = Z(-1) + D(Z).

Levels Equation
Case 1: No Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGEXD	20371.73	9527.360	2.138234	**0.0408**
LOGPDS	-43693.78	17606.72	-2.481653	**0.0189**

EC = CGDP - (20371.7260*LOGEXD -43693.7781*LOGPDS)

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	7.232973	10%	2.17	3.19
k	2	5%	2.72	3.83
		2.5%	3.22	4.5
		1%	3.88	5.3
			Finite Sample: n=43	
Actual Sample Size	43			
		10%	-1	-1
		5%	-1	-1
		1%	-1	-1
			Finite Sample: n=43	
		10%	-1	-1
		5%	-1	-1
		1%	-1	-1

t-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
t-statistic	3.220583	10%	-1.62	-2.68
		5%	-1.95	-3.02
		2.5%	-2.24	-3.31
		1%	-2.58	-3.66

Source: Estimation Using EViews 10, 2024

The result of the F bound test shows that there is short-run relationship between the dependent variable and the independent variable. The F-statistic value in table 11 is 7.232 which is above 3.83 for 5% level of significance. Then we accept that there is short run relationship. For the long run relationship, the probability value of LOGEXD is 0.04 which is less than 5% and LOGPDS is 0.0189 which is also less than 5% (see table 4.12). We can accept that there is short-run relationship between the dependent variable and the independent variables.

Test of Hypotheses

H01 External debt does not have statistically significant impact on Nigeria economic growth.
The F-Statistics value of 7.232 which is above 3.83 for 5% level of significance and LOGEXD value of 0.04 and LOGGPDS of 0.0189, show that the external debts have statistical impact on Nigeria's economic growth. The null hypothesis is thus rejected.

H02 External debt servicing does not have significant impact on Nigeria economic growth.
Drawing from tables 10 and 11 where the F-Statistics value of 7.232 which is above 3.83 for 5% level of significance and LOGEXD value of 0.04 and LOGGPDS of 0.0189, shows that the external debts servicing have statistical negative impact Nigeria's economic growth. The null hypothesis is thus accepted as we can conclude that external debt servicing has short-run and long-run negative effect on economic growth in Nigeria.

Discussion of Results

The findings of this study which shows that there is significant long-run relationship between external debt and external debt servicing to the growth of the economy and that external debts, when not well managed, in the long-run, will have significant negative effect on the growth of the economy. This conforms to the study by Mbah et al (2016) where they examined the existence of long-run equilibrium relationship among the variables, they employed the ARDL bound testing approach to cointegration and error correction models for the period 1970 – 2013 and Granger causality test to check for the direction of causality among the variables. The result of this study indicates a long-run relationship among the variables. External debt impacts negatively significant on output. The finding also established a unidirectional causality between external debt and economic growth. The finding of Safdari and Mehirizi (2011) is also in consonance to the finding of this study. In their study, they investigated the effect of external debt on economic growth in Iran for the period of 1974-2007, by observing the balance and long term relation of five variables: GDP, Private investment, Public Investment, external debt and Imports. They employed the Vector autoregressive model (VAR) in their econometric analysis and the result of their research showed that external debt and imports had a negative effect on gross domestic product, but variables of private and public investments had positive effects on economic growth. It was also found out in this study that there is both short-run and long-run relationship between debt servicing and the growth of the economy in Nigeria and that this effect is a positive one, in the short run. This positive effect may be due to the domestic component of debt servicing which helps the local economy. In the long run, the effect becomes negative. This finding is not in consonance with the finding of Adesola (2009) who examined the relationship between debt servicing and economic growth in Nigeria.He found that debt payments to the London club creditors, Paris club creditors, Promissory notes holders and other creditors have significant impact on the GDP and GFCF (Gross Fixed Capital Formation), while debt payments to Paris club and debt payment to Promissory notes holders are positively related to GFCF and GDP, the debt payments to London club creditors and other creditors revealed a negative effect on GFCF and GDP for the period of 1981-2004. While this study found out a positive effect, Adesola found a negative effect.

CONCLUSION

Based on the findings from the empirical investigation conducted in this study, we conclude that there is both short-run and long-run relationship between external debt and economic growth and debt servicing and economic growth. While external debt was found to positively affect economic growth, debt servicing negatively affected economic growth in Nigeria. The study shows that excessive reliance on external debt can impinge on economic growth.

RECOMMENDATIONS

Recommendations from the study are as follows:

1. There should be caution on the part of government in increasing the nations debt profile that are not investment grade debt.
2. Borrowing that are made with the expectation of repayment from public revenue should be discouraged. Rather if the government will have to borrow from the external economy, it should be such that will repay itself and not from public revenue.
3. The nation should rather borrow from the domestic debt market so that the benefit that can accrue from the debt repayment and servicing should be to the domestic economy. This will reduce the money burden from the citizens in time of repayment and increase the amount of fund in circulation thereby increasing the impact in the real sector of the economy.

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