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Does Nigeria's External Debt Contribute to Economic Growth? A Revised Empirical Analysis

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Abstract
Following the debt relief and total payment of external debt in 2006, Nigeria's external debt has escalated in recent years without translating into infrastructure development or considerable growth. As a result, whether Nigeria's external debt promotes economic growth is a big question. Thus, using data from 1981 to 2020, this study explores the relationship between external debt and economic growth in Nigeria. The macroeconomic variables utilized are economic growth measured using real gross domestic product while the explanatory variables are total external debt, debt servicing, gross fixed capital formation and inflation rate. The main econometric tools are the Autoregressive Distributed Lag Model (ARDL) estimate and Granger causality tests. The ARDL results indicate that total external debt, gross fixed capital formation and inflation rate have negative significant nexus with economic growth in the short-run but insignificant direct effect in the long-run period. Furthermore, the Granger causality test unveiled bidirectional causation between external debt and real gross domestic product. Following the findings, this study proposed that the utilisation of external loans be aligned with their intended purpose, focusing largely on basic requirements and infrastructure development. Also, government should frequent and promptly pay the debt service in order to avoid accumulating more debt.

Keywords: Debt Servicing, Economic Growth, External Debt
JEL Classification Codes: C22, F34, F43

1. Introduction

Understanding the influence of borrowing on macroeconomic indicators (such as growth, investment, and consumption) is a key policy subject with a long history (Barro, 1980; Bernheim, 1987 & Domar, 1944). A spike in public debt might emerge from an increase in government

spending, a surge in government investment, a decrease in tax collections or other fiscal issues. While comprehending the effect of the resulting rise in debt on real gross domestic product is critical to government debt sustainability evaluations, there is currently limited agreement on its magnitude and direction (Constance, Reina, & Mengxue, 2022). To Izuchukwu, Okafor, and Obinna (2022), government resorts to borrowing when its earnings are insufficient to cover its expenditures. Several countries have opted to engage in inter-country borrowing to overcome revenue declines. The utilization of public debt as an essential instrument for government entities to finance government expenditures has resulted in a large amount of outstanding debt in several nations.

Essentially, prudent borrowing practices used to support infrastructure and government development efforts are critical drivers in accelerating economic growth. Inadequate budgeting and preparation for investment, along with inordinate borrowing, can lead to a nation acquiring an onerous long-term debt, eventually leading to slow economic growth (Ugwuanyi, Ugwuanyi, Efanga, & Agbaeze, 2021). Particularly, inadequate domestic finance (revenue) required for investment that would promote economic growth and development is one of the distinctive features of developing countries, including Nigeria (Efuntade, Adegboyo, & Efuntade, 2020). In Nigeria, the incapacity to find alternative sources of revenue, combined with mismanagement and corruption, forces the country to have insufficient funds for expansion and development projects such as roads, regular power supply, pipe-borne water, and so on (Udeh, Ugwu, & Onwuka, 2016). Based on the above, the country resorted to foreign borrowing to address its financial shortfall.

Historically, in 1958, the World Bank provided Nigeria with its initial significant foreign loan in order to facilitate the development of railway infrastructure. Subsequently, a significant accumulation of loans has been observed, specifically targeted towards diverse development efforts. Nigeria's foreign borrowing has historical roots dating back to the pre-independence era. However, it was not till the 1970s that these debts began to exert a notable burden, as the loans were obtained on favourable terms and conditions. Moreover, the nation had substantial oil profits, particularly during the oil boom of 1973-1976, which were utilised to mitigate the impact of debt service obligations on the economy. Nevertheless, the atypical influx of oil money experienced during this period was not enduring, as there was a following sharp decline in oil prices between the years 1977 and 1988. Consequently, the nation was compelled to get its initial jumbo borrowing from the international capital market, amounting to about $1.0 billion (equivalent to N606 million) in 1978 (Adesola, 2009). The situation

deteriorated as the amount owed escalated to $7.5 billion (equivalent to NN4.47 billion) by 1979 and then increased to $8.9 billion (which was equivalent to N4.895 billion) in 1980. Starting in 1987, there was a significant and unparalleled increase in the public debt of Nigeria, which skyrocketed from N38.8 billion to N136.58 billion, ultimately reaching N6.188 trillion by 2004. During that period, the primary driver of the overall debt profile was predominantly the internal debt. Thus, the debt profile of Nigeria has exhibited a consistent upward trend, with figures indicating a value of N7.564.4 trillion in 2012 and a subsequent increase to N8.32 trillion by September 2013. According to available data, Nigeria's overall debt increased from N17.189 trillion in September 2017 to N26.2 trillion in 2019. As of March 31, 2021, the Debt Management Office (DMO) reported that Nigeria's public debt stock was at around N33.107 trillion (Matthew & Adetayo, 2022). It must be noted that Nigeria's increasing debt burden and forthcoming repayment conditions have emerged as a matter of concern among both intellectual and policy-making spheres in the country. Of more concern is the observation that the significant increase in Nigeria's debt burden has not been matched by significant enhancements in infrastructure or the socioeconomic welfare of its populace. As the nation in the year 2022 is identified as the global epicentre of poverty, with a staggering population of 133 million individuals representing 63 percent of the total population experiencing multidimensional poverty (National Bureau of Statistics, [NBS], 2022). Furthermore, the country is grappling with escalating rates of unemployment and inflation, as well as an intensifying disparity among its populace (Matthew & Adetayo, 2022; NBS, 2022).

Given these concerns, a number of academics have endeavoured to examine the impact of public debt on economic growth of Nigeria and other nations. For instance, Egbetunde (2012); Hasen (2001) and Efuntade *et al*., (2020) observed direct effects of debt on economic growth while Obademi (2012); Naeem (2011); Lucky and Godday (2017); Elom-Obed, Odo, Elom & Anoke., (2017); Amaefule (2018) and Hadji (2022) noted that debt in the forms of external exerts adverse impact on economic growth, whereas Precious (2015) and Essien, Ngozi, Agboegbulem and Onumonu (2016) studies revealed insignificant relationship between debt variables and growth. However, the results of these studies have predominantly yielded equivocal outcomes. Based on these, this study is in the quest to find out if external debt does enhance the growth of the Nigeria's economy using recent data from 1981 to 2020. The study holds significance as it aims to provide insights for Nigerian policymakers and researchers regarding the intricate connection between foreign debt burden and economic growth.

Additionally, it will function as a reference for forthcoming governmental strategies aimed at reducing and managing public debt especially external borrowing. This work is structured into five parts, both sections one and two deals with introduction and literature review. The section three and four examined the research methodology and result presentation, the last part investigates the conclusion and policy recommendations.

1.1 Stylized Facts on External Debt Stock and other Selected Macroeconomic Variables

The commencement of Nigeria's present external debt dates back to 1958, when the nation initially acquired a loan of US$28 million from the World Bank. The finance was allocated to the Nigerian Railway Corporation with a maturity period of five years. The purpose of this financing is to assist the modernization of the country's rail network and the construction of a new line in the North-Eastern province. The intended outcome of these initiatives is to support and enhance industrial output and commercial exchange within the region (Babalola, 2020).

In the second part of 1964, the Paris Club of Creditor extended a loan of $13.1 million to the government for the purpose of financing the building of the Niger Dam. Subsequently, in 1978, Nigeria acquired a notable "jumbo loan" worth $1 billion from the International Capital Market (ICM), thereby initiating a consequential trend of reliance on substantial foreign loans. The acquisition of a $2.4 billion loan from the International Monetary Fund by then-military President Ibrahim Babangida in 1985, with the intention of addressing a significant balance of payments imbalance, resulted in a considerable outcry among the general people. As at March 2020, the nation's external debt profile has increased to N33 trillion (Babalola, 2020).

Furthermore, Nigeria's outstanding debt to China, Japan, France, Germany, and India stands at $5.16 billion as of March 2023. There has been a 2% rise in the amount due, which stood formerly at $5.07 billion recorded in December 2022. According to the National Bureau of Statistics (2023), the total external debt in the second quarter of 2023 amounted to N33.25 trillion (equivalent to US$43.16 billion). Based on the Debt Management Office's (DMO) report for the second quarter of 2023, the government's overall debt in terms of naira value was comprised of 38.05 percent external debt (DMO, 2023). The figures 1-5 depicts the trends of total external debt stock, real gross domestic product, debt service as a percentage of external debt, gross fixed capital information and inflation rate. All figures are in billions of US$ except for the inflation rate and obtained from (World Bank, 2021).

The figure 1 below has shown that the Nigerian society secured the highest foreign loan in 2021 with an estimated figure of $76.21 billion while the lowest was in 1981 with total of $ 11.44. In recent years (2006 to 2021), the loan has been rising. Several factors contribute to the increase or variability of external debt, including low export earnings and weak fiscal control. Other factors include infrastructure development, fluctuations in exchange rates, borrowing to cover budget deficits, and challenges related to debt restructuring and debt servicing.

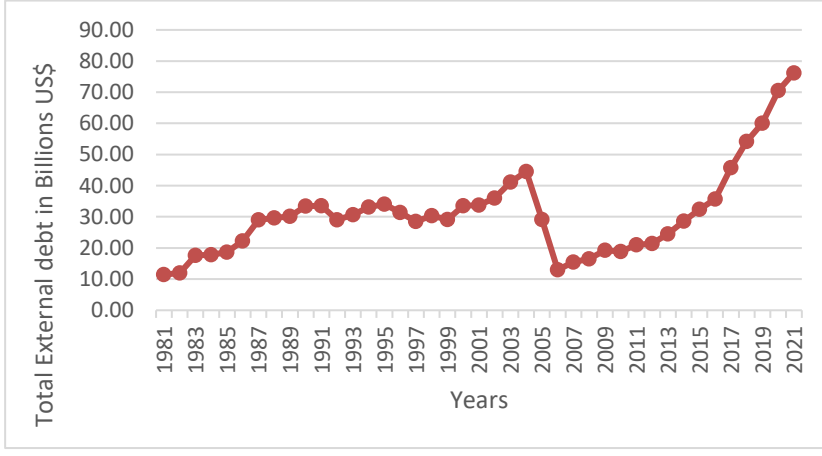

Figure 1: Trends of Total External Debt Stock in Current US$
Source: Authors' Computation (2023)

The real GDP trends as depicted in figure 2 shows a fluctuating situation. Thus, real GDP was at its peak with a value of $518.47 billion in 2021 while the lowest was in 1984 with an estimated value of $114.54 billion. The major reason for the fluctuating situation includes reliant on oil export as the primary source of revenue, while the infrastructure is lacking, political stability is compromised, policy implementation is ineffective, diversification is limited, and population growth is on the rise.

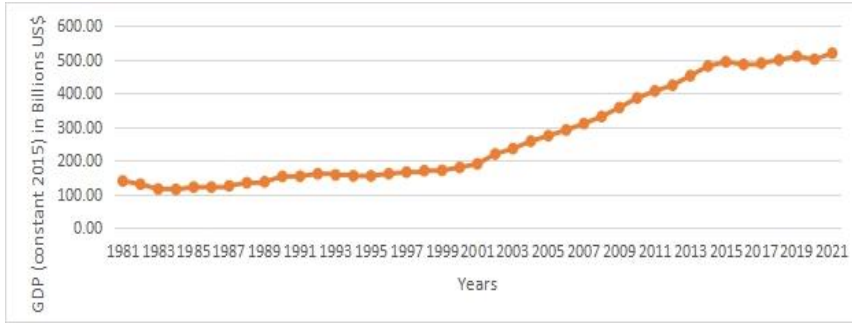

Figure 2: Trends of Real Gross Domestic Product in US$
Source: Authors' Computation (2023)

From figure 3, it is noted that debt servicing was at it peak in 2005 with a value of $8.80 billion and lowest in 2013 estimated as $495.4 million. From the graph, it can deduce that debt servicing is rising in recent years, the implications of this, is that government spending tends to reduce, as there will be increased in budget deficits, thus, crowding out of private sector investment will be observed while pressures on exchange rate will occur. This can also reduce foreign investor confidence.

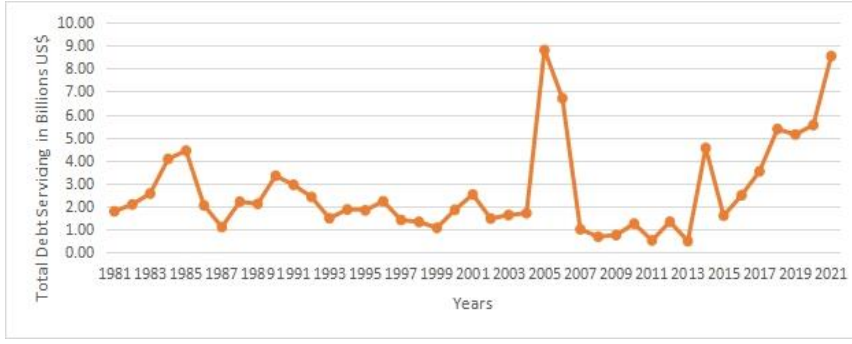

Figure 3: Trends of Total Debt Service on Foreign Debt in Current US$
Source: Authors' Computation (2023)

It is really appalling that the data from World Bank (2021) indicates that gross fixed capital formation for Nigeria was at peak in 1980, followed by 2019, with the least investment in 1987. However, the trends have showed that investment in the country has been unstable which might be attributed to issues of political instability, inappropriate government

policies, cost, and accessibility of financing options as well as other macroeconomic instability problems.

Figure 4: Trends of Gross Fixed Capital Formation in US$
Source: Authors' Computation (2023)

Based on the data in figure 5, it is noted that inflation rate was also unstable over the years with the highest in 1994 (72.84%) and the lowest in 1995 (5.39%). One expansion for fluctuating inflation rate, is attributed to excessive expansion of money supply relative to the output of goods and services which is widely recognised as a key catalyst for inflation. In the event that the Central Bank of Nigeria (CBN) engages in an excessive expansion of the money supply without commensurate improvements in productivity, it may result in the emergence of demand-pull inflationary pressures. Moreover, in the event that the Central Bank of Nigeria (CBN) is unable to proficiently regulate interest rates, it can have repercussions on borrowing and spending behaviours, thereby exacerbating the volatility of inflation.

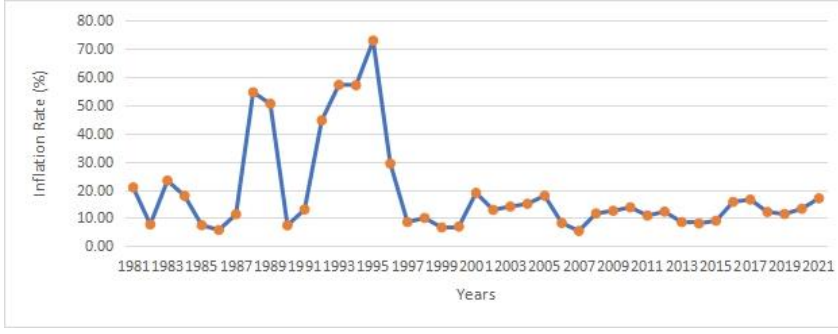

Figure 5: Trends of Inflation Rate in Percentage
Source: Authors' Computation (2023)

Another factor that can contribute to unstable inflation is the implementation of fiscal policies and government spending decisions, which exert a notable influence on general price level. Following the trends in figure 5, it must be noted that fluctuating and rising inflation has the potential of creating uncertainty within the business sector, diminishing purchasing power, rises the cost of living, erode the worth of savings likewise investments within the economy.

2. Literature Review

2.1 Conceptual Review

2.1.1 Concept of External Debt

According to Osadume (2022), the term "public debt" is occasionally used to describe the financial obligations that governments undertake in order to finance projects aimed at promoting the common welfare. Borrowings may be categorised into two distinct types: internal debt, which pertains to borrowings within one's own country, and external debt, which refers to borrowings from foreign sources. The definition provided by Udoffia and Akpanah (2016), is that external debt refers to the financial, technical, and managerial obligations that a country incurs from external sources in foreign currency, with the purpose of promoting economic growth and development, which must be repaid at a later date. According to Omagbemi (2021), foreign debt refers to the financial resources utilised within a nation that are not domestically generated and do not originate from local residents, be it from corporations or individuals.

Hadji (2022) submitted that "foreign debt," encompassing both settled and unsettled financial obligations owed to foreign entities. It may also encompass the aggregate of a nation's public and private obligations owing to external countries or institutions, denominated in foreign currency, goods, or services. The three primary categories of external debt encompass multilateral debt, bilateral debt, and commercial debt. Multilateral loans encompass financial assistance obtained from international organisations such as the International Monetary Fund (IMF), World Bank, the London Club, the African Development Bank, the Paris Club, and others.

Efuntade *et al*., (2020) noted that there exist two primary classifications of factors that prompt countries to engage in borrowing activities. The first category encompasses macroeconomic motives, which involve utilising borrowed funds to support increased investment or consumption. The second category pertains to addressing temporary deficits in the balance of payments. This allows countries to capitalise on lower

nominal interest rates available abroad, compensate for limited access to domestic long-term credit, and circumvent constraints imposed by fiscal limitations. Borrowing serves as a strategic instrument for nations to combat poverty and promote economic advancement.

2.1.2 Concept of Economic Growth

The concept of economic growth refers to the sustained increase in the production and consumption of goods and services within an economy during a specific period. Following the description put forth by Anyanwu and Onikhenan (1995), economic growth refers to the progressive augmentation in a nation's or economy's capacity to generate the goods and services essential for enhancing the living standards of its expanding population and diverse populace. The International Monetary Fund (2013) and the Central Bank of Nigeria (2010) offered definitions for economic growth, which pertains to the increase in the production of commodities and services within an economy. An increase in total productivity leads to economic expansion. Uremadu *et al*., (2020) have observed that there is a general tendency for average marginal productivity to increase alongside total productivity development. However, it should be noted that this relationship is not universally applicable. To incorporate the influence of inflation on the pricing of goods and services, the assessment of growth is commonly conducted in real terms, which refers to measurements that have been modified to account for inflation.

2.2 Theoretical Review

This research is based on four fundamental theories, namely the Debt Laffer Curve Theory, the Keynes Fiscal Policy Multiplier, the Debt Overhang Theory, and the Dual Gap Model.

2.2.1 Dual Gap Model

The Dual Gap Model originally introduced by Chenery (1966), is an extension of the Harrod-Domar model, which focuses on the analysis of economic development. The dual gap model posits that the dearth of resources in emerging countries can be primarily attributed to a fundamental issue of inadequate level of domestic savings to facilitate investment. The foreign exchange gap arises when the import purchasing power, which encompasses the value of imports along with capital transfers, is inadequate to support the desired level of economic expansion. The analysis of the requirement for foreign aid or foreign capital borrowing to address the two gaps prevalent in underdeveloped and emerging nations is commonly conducted with this model. According to Efuntade *et a*l., (2020), Rostow's

thesis on the stages of economic development posits that reducing the disparity between affluent and impoverished nations will facilitate the transition of emerging countries into the phase of economic growth.

2.2.2 Keynes's General Theory of Employment, Interest, and Money

According to Keynes (1936), during a recession, attempting to achieve budget equilibrium would exacerbate the situation rather than improve it. As a result, Keynes suggests that the government should opt to borrow funds for the purpose of investing in public infrastructure projects, with the aim of generating employment opportunities and augmenting the overall purchasing power within the economy. The field of macroeconomics, which was established by Keynesian theory, examines the aggregate economy and the ways in which government expenditures, borrowing, and taxation are employed to exert impact on the overall economy (Ofurum & Fubara, 2022). From the point of view of the Keynesians, loans whether internal or foreign are expected to enhance economic growth through investment in infrastructure.

2.2.3 Debt Laffer Curve

The concept of the Debt Laffer Curve demonstrates the ideal level or threshold of debt that can promotes economic expansion, thereby highlighting the relationship between the buildup of debt and economic growth. That is, the Debt Laffer Curve posited that an optimal threshold exists for government debt, beyond which incremental increases in debt may yield adverse consequences for economic growth. Initially, augmenting government debt may engender a favourable impact on economic activity by facilitating the financing of public expenditure, including initiatives such as infrastructure development and social welfare programmes, thereby fostering heightened demand and employment opportunities. Nevertheless, as the level of debt escalates, a tipping point emerges wherein the deleterious repercussions begin to outweigh the favourable outcomes (Hadji, 2022).

2.2.4 Debt Overhang

The debt overhang argument posits that government debt exerts a negative influence on economic growth (Amaefule, 2018). Proponents of this notion contend that the investment climate of a nation deteriorates when its external debt surpasses its capacity for repayment. As per Cohen (1993), the presence of substantial debt may lead to a reduction in private investment as a result of the ambiguity surrounding the accumulation of significant debt, the low probability of debt relief, and the heightened risk of default.

2.2.5 Neoclassical Solow Growth

The neoclassical Solow growth analysis elucidates the phenomenon of long-term economic growth by examining crucial factors including savings, population growth, and technological advancements. The model posits that an augmentation in foreign loan or capital has the potential to bring about higher rates of economic growth in the immediate term, although its long-term viability remains uncertain. The theoretical analysis posits that the production function is contingent upon the factors of labour, capital, and technology. The infusion of foreign loans or capital has the potential to augment the aggregate stock of capital within an economy, thereby resulting in elevated levels of output and income. Nonetheless, the transient nature of this surge in production persists unless the economy manages to uphold the growth rate by means of its intrinsic savings and investment. In the event that the economy fails to generate sufficient savings to fund its own investment, it will develop a reliance on inflows of foreign capital. The aforementioned scenario poses a potential vulnerability in the form of increased external debt accumulation, which has the capacity to precipitate financial crises and engender economic instability.

The notions of all the theories reviewed are that borrowing can enhance economic growth, though there is a limit of borrowing which can impede economic growth. For instance, in the year 2022, Nigeria exhibited a debt service-to-revenue ratio of 80.6 percent, a value significantly surpassing the World Bank's recommended threshold of 22.5 percent for nations classified as low-income, such as Nigeria. A report by World Bank (2022) indicates that Nigeria's allocation of 96.3 percent of its revenue towards debt servicing in 2022, compared to 83.2 percent in 2021, indicates a deterioration in the nation's fiscal deficit and an increase in its public debt stock (Balogun, 2023). The above analysis explains the view of adverse excessive loan by the Debt – Laffer Curve and Debt Overhang analyses.

2.3 Empirical Review

Extensive study has been conducted to examine the impact of public debt on economic growth globally. However, the outcomes of extant studies exhibit variability. For instance, Were (2001) used data from 1970 to 1995 to evaluate the structure of Kenya's external debt and its potential impact on economic growth in her study. According to the results of the Error Correction Model (ECM) analysis, there is a negative relationship between the accumulation of external debt and the inflation rate and economic growth. Domestic investment and debt servicing, on the other hand, were found to have a positive impact on the economy. Finally, the author identifies a significant barrier that the government faces in ensuring efficacy

in service delivery and increasing the productivity of public investments. Furthermore, the author suggested that in order to boost investor confidence in both domestic and international investments, it is critical to establish credibility by demonstrating commitment and political determination.

Sulaiman and Azeez (2012) investigated the impact of external debt on Nigerian economic growth using time series data spanning from 1970 to 2010. The results of the Johansen cointegration analysis point out that the variables under consideration have a long-term relationship. The Error Correction Method (ECM) results indicate that the impact of external debt on the Nigerian economy has been positive. The study recommends that the government prioritise the establishment of economic and political stability, while emphasizing that external debt should be incurred primarily for economic reasons rather than social or political motivations.

In a study conducted by Naeem (2015), the autoregressive distributed lag (ARDL) approach was employed to examine the impact of government debt on economic development and investment in the Philippines for the period spanning from 1975 to 2010. The results of the study substantiated the notion that substantial indebtedness to other nations significantly hampers both economic growth and investment. This phenomenon is commonly referred to as the debt spillover effect. The analysis revealed significant associations between debt servicing, investment, and economic development; however, these associations did not provide sufficient evidence to substantiate the crowding out argument. In order to expedite economic progress, the study recommended that emerging nations should adopt policies aimed at expediting the repayment of their loans.

In their study, Essien, Ngozi Agboegbulem, Mba and Onumonu (2016) employed various statistical techniques, including the Vector Autoregressive (VAR) model and the Granger causality test, to investigate the impact of government borrowing on interest rates, prices, and output in Nigeria. The findings indicate that the impact of both foreign and domestic indebtedness on the overall price level and output is not significant. The study suggests that the government should continue its current practise of obtaining loans from the long-term market through the Debt Management Office (DMO).

Precious (2015) looked at how Swaziland's economic growth was affected by both foreign and domestic debt from 1988 to 2013. The study found that foreign debt does not have a big effect on economic growth. So, the work suggested that the government of Swaziland should consider facilitating long-term borrowing from domestic and international sources,

with the intention of allocating the funds towards economically productive activities.

Similarly, Ndubuisi (2017) used secondary data from 1985 to 2015 to analyzed Nigerian economic growth and external debt nexus. The result of the OLS regression analysis indicates that debt service payment has a negative and statistically insignificant impact on Nigerian economic growth. The external debt stock, on the other hand, has a positive and statistically significant impact on Nigeria's growth index. The causality test results indicate that there is a unidirectional causal relationship between external debt and GDP. Based on the findings, the study recommends that the government consider utilizing external loans to improve infrastructure development.

In a related work, Lucky and Godday (2017) employed multiple regression models to examine the correlation between the composition of Nigeria's public debt and economic growth from 1990 to 2015. The multiple regression analysis suggested a significant negative relationship between Nigeria's external debt and economic development. The recommendation points out that Nigeria should prioritise home debts over external debts. The objective can be achieved by creating innovative and diverse financial products in the money and capital markets, and by expanding the international presence of Nigeria's capital and money markets.

Similarly, Elom-Obed *et al.,* (2017) employed a range of econometric methodologies to examine the link between Nigeria's government debt and its growth in the economy over the period 1980 to 2015. The empirical findings proved that Nigeria's economic growth is significantly impaired by both external and internal debt. Also, both domestic debt and external debt Granger's cause real gross domestic product (RGDP). The study's findings suggest that the government should decrease its foreign debt and ensure that any debt borrowed is exclusively used for its stated purposes to achieve favourable outcomes.

Amaefule (2018) work on the Nigeria's economy using data of 1991 to 2016, showed that external debt exerts a negative influence on both Gross Domestic Product (GDP) and Per Capita Income (PCI). However, the impact of external debt on the Human Development Index (HDI) appears to be very insignificant. The researcher suggests that it is important to guarantee that loan funds are utilised to enhance the quality life for the people by investing in essential infrastructure projects thereby directly benefit the well-being of the residents.

Sami and Mbah (2018) investigated the relationship between government external borrowing and economic growth in Oman. The study relied on secondary data from 1990 to 2015. The study shows that the error

correction mechanism detects a statistically significant and negative relationship between Oman's external debt and economic growth. Furthermore, it was discovered that gross fixed capital has a significant positive impact on growth performance in Oman. As a result, the research suggests that in order to foster favourable economic expansion, a more efficient allocation of external debt resources should be pursued.

Also, Taofik and Abdisamad (2020) used the ECM estimation technique to investigate the relationship between Somalia's external debt stock and economic growth from 1990 to 2016. The study's findings suggest a negative relationship between external debt stock and economic growth. Based on the findings, the study suggests that the government should step up efforts to promote the rational and appropriate use of resources, as well as increase the concessional capacity of newly acquired debt inflows.

Efuntade *et al.,* (2020) employed the ARDL-ECM estimate technique to examine the impact of foreign debt on Nigeria's economic growth throughout the period spanning from 1981 to 2018. The research findings indicate that Nigeria's economic growth is positively correlated with the presence of foreign direct investment and loans acquired from external sources. According to the study, it is recommended that the nation possesses the capacity to get external financing as and when required. Nevertheless, it is imperative to exercise caution to prevent the nation from accumulating excessive levels of debt.

In their study, Olusegun, Matthew, Ayomitunde, and Georgina (2020) conducted a thorough analysis of the impact of external debts on economic growth in Nigeria over the period of 1981 to 2018. They employed the Autoregressive Distributed Lag model and Bounds Testing techniques to assess this relationship. The results of the study revealed that the presence of external debt had a considerable negative impact on the progress of the economy, whereas there was a direct correlation between debt servicing and economic growth in Nigeria. As a result, the authors recommended that policymakers in Nigeria should consider alternative methods of funding the country's budget deficit, rather than relying on external debt.

Eze and Akujuobi (2021) conducted a study examining the impact of Nigeria's debt to the government on economic growth within the time frame of 1981 to 2018. Both the variables of internal debt and external debt had statistical significance. Nevertheless, the variable representing external debt did not pass the a priori expectation test, indicating that it has a detrimental impact on Nigeria's economic growth. Based on the findings, the investigation has arrived at the conclusion that a significant portion of Nigeria's external loans are being misappropriated. Therefore, it is recommended that there should be effective mechanisms in place to oversee

public borrowings, particularly focusing on all foreign debts, in order to ensure a significant reduction, if not complete elimination, of misappropriation.

Also, Uchenna, Modebe, Adedayo, and Evbuomwan (2020) sought to assess the impact of external borrowings on Nigerian economic growth, as well as key determinants such as the exchange rate, gross fixed capital formation, and inflation rate. Both the ordinary least squares (OLS) and generalised least squares (GLS) tests show a statistically significant positive correlation between economic growth and the explanatory variables, namely external debt, inflation rate and exchange rate. However, there is a negative relationship between economic growth and gross fixed capital formation. As a result, the study recommended that the government consider using external borrowing to supplement domestic financial resources in order to accelerate economic growth and development.

In their research, Kur, Abugwu, Abbah, and Anyanwu (2021) investigated the relationship between public debt and its possible influence on Nigerian economic growth. The researchers used data from 1981 to 2019, and the ARDL estimates show a significant positive relationship between external debt and investment and economic growth. Domestic debt and external debt service, on the other hand, have an inverse relationship with growth. As a result, it is advisable to exercise diligent oversight over external debt investments in order to guarantee their optimal utilisation, thereby preventing any potential misappropriation of such debts for personal enrichment.

The research conducted by Ofurum and Fubara (2022) looked at the impact of Nigeria's national debt on the country's economic growth from 1980 to 2019. The Autoregressive Distributed Lag (ARDL) test results show that the process of repaying foreign debt has a limited but negative effect on the growth of real GDP. According to the aforementioned study, external debt has no statistically significant effect on real GDP. According to the study's findings, it is recommended that the private sector collaborate with the government in the advancement of technology aimed at facilitating natural resource exploitation. This would generate additional revenue for the purpose of funding the government budget and reducing the need for borrowing.

Hadji (2022) conducted a supplementary investigation examining the relationship between foreign debt of Sierra Leone and its economic growth over the years 1973 to 2021. The findings of the Ordinary Least Squares (OLS) analysis indicated a negative association between Sierra Leone's economic development and its external debt within the examined time frame. This implies that the nation's trajectory of sustained economic

expansion is negatively impacted by increased debt, hence substantiating the country's predicament of excessive debt burden. Therefore, the research suggests that it is imperative to reassess the nation's debt management approach in order to implement more resilient methods that would guarantee the sustained effectiveness of public debt in the long run.

Based on the above studies reviewed, this study tends to bridge the gap in previous studies by using recent data to evaluate the relationship between external debt and economic growth in the Nigerian economy.

3. Methodology

This study employs an ex-post facto design to obtain the historical time series data covering the period from 1981 to 2020. The data sources are from the 2021 annual report of the Central Bank of Nigeria and the World Development Indicators database. The theoretical foundation is based on the Neoclassical Solow growth model, which posits that output (Y) is generated through the utilisation of technological progress (Tp), the amount of labour (la), and the stock of capital (Pc) at time 't'. The model is represented by the following equation:

$$Y_t = f(Tp_t, sC_t, La_t) \quad \text{.....(1)}$$

From equation (1), to enhance economic performance (Yt), the government has the ability to augment expenditure in the accumulation of capital through expenditures in education and health services, which are regarded as the primary investments in human resources (L). The adoption of neo-classical growth theory is motivated by the recognition that external debt can be considered productive when used to finance investments in health, education, and development. This productive use of external debt has the potential to contribute favourable to economic growth by increasing labour, capital stock and technological progress (Precious, 2015; Eze *et al.*, 2019). In specifying the model for this work, the equation 1 is employed, where Y_t is captured, using Real Gross Domestic Product (RGDP), an indicator for assessing economic growth. The sC is measured using Gross Fixed Capital Formation (GFK) in the form of domestic investment both in human and physical capital which can be sourced from External Debt (EXD) and Debt Service (DES). Furthermore, the model incorporates a control variable: inflation rate (INF) that accounts for price fluctuations due to excessive loans not backed with productivity.

With regards to the theoretical framework and drawing from the works of Precious (2015); Eze *et al.*, (2019); Eze and Akujuobi (2021) and Hadji (2022), with an adjustment, the modified model is stated as:

$$RGDP_t = f(EXD_t, DES_t, GFK_t, INF_t).....(2)$$

Where:
RGDP = Real gross domestic product
EXD = Total external debt granted to Nigeria in dollars
DES = Total debt service in dollars
GFK = Gross fixed capital formation
INF = Inflation rate
The natural log form of the linearized model is given as

$$LnRGDP_t = \beta_0 + \beta_1 LnEXD_t + \beta_2 LnDES_t + \beta_3 LnGFK_t + \beta_4 LnINF_t + \mu_t .....(3)$$

Ln= The natural Logarithm of the variables.
β_0 is the constant while $\beta_1 - \beta_4$ are the slopes/coefficients of the explanatory variable.
µt is the error term.

The dynamic version of the short-run relationship equation is specified as follows:

$$\Delta LnRGDP_{t-1} = \beta_0 + \beta_1 \Delta LnEXD_{t-1} + \beta_2 \Delta LnDES_{t-1} + \beta_3 \Delta LnGFK_{t-1} + \beta_4 \Delta LnINF_{t-1} + \beta_5 ECM_{t-!} + \mu_t ....(4)$$

Where Δ represents the first difference operator, ECMt-1 the error correction term, and U_t is a disturbance term.

The utilisation of the error correction model involves incorporating the information contained in the error term of the long-run model. This enables the estimation of deviations from the equilibrium and the representation of the short-run adjustments required to restore the system to its equilibrium state. Based on a priori Expectation, it is expected that $\beta 1>0$, $\beta 2<0$, $\beta 3>0$, $\beta 4<0$.

The time series is subjected to several econometric tests. Prior to that, the data is analyzed using descriptive statistics, followed by the utilisation of other econometric methods. The econometric processes involve five distinct processes. The initial step involves carrying out the correlation analysis. The next phase entails assessing the stationarity of the series or determining their order of integration, as it is necessary for the series to possess the same integration order. This encompasses the use of Augmented Dickey Fuller (ADF) and Phillip Perron (PP) unit root tests. The subsequent stage is evaluating the lag selection criteria and assess if the existence of a long-term association among all the variables inside the equation.

The estimation of long-run coefficients is conducted through the utilization of the Autoregressive Distributed Lag (ARDL) bound cointegration technique. After confirming the presence of co-integration, the residuals obtained from the regression can be utilised in the third step to estimate the ARDL error-correction model. Subsequently, the Granger

causality test is employed to determine the causal relationship between two variables, assessing if one variable causes changes in the other. Conversely, there exists a unidirectional influence between variables, with no reciprocal feedback effect. Finally, the Breusch-Pagan-Godfrey heteroskedasticity test is utilised to examine the presence of autocorrelation among the variables. The data is evaluated using EViews 10.

4. Results and Discussion

The descriptive analysis and other econometric tests are presented below. The data in table 1 contain the statistical properties of RGDP, EXD, DES and GKF in billions of Dollars (US$). Only inflation rate is in percentage. The average of RGDP, EXD, DES, GKF and INF are given as: 263.0, 29.9, 2.5, 60.3 and 18.99. During the surveyed periods, the Nigeria economy experienced double digits inflation, the effect of this outcome is said to be declined in purchasing power, rapid hike in the price of goods and services, which will cause disruption in business activities.

Table 1: Descriptive Statistics Result

	RGDP	EXD	DES	GKF	INF
Mean	263	29.9	2.5	60.3	18.99
Median	185	29.4	2	57.5	12.71
Maximum	509	70.5	8.8	111	72.84
Minimum	115	11.4	0.5	39.7	5.39
Std. Dev.	141	12.6	1.8	13.9	16.86
Skewness	0.64	1.13	1.58	1.33	1.82
Kurtosis	1.81	4.77	5.37	5.74	5.16
Jarque-Bera	5.07	13.65	26.10	24.30	29.94
Probability	0.08	0.00	0.00	0.00	0.00
Observations	40	40	40	40	40

Source: Authors' Computation (2023).

Hence, two variables (DES and INF) have standard deviation values closer to their respective mean values. The DES standard deviation value of 1.8 suggests that the actual debt servicing rate vary around the mean by an average of 1.8 units. This suggests that there is relatively low variability in the data points, and most of the values are close to the mean. Furthermore, with a standard deviation of 16.86, the inflation rate exhibits higher dispersion compared to the mean. The actual inflation rate can deviate significantly from the average by an average of 16.86 units. This implies that the inflation rates tend to fluctuate more widely, and there may be significant variations in the inflationary pressures affecting the economy. Additionally, all the variables exhibit leptokurtic curve except RGDP that is platykurtic. In sum, RGDP is the only variable that is normally distributed, given the J-

B probability value of 0.079. This might be as a result of the time span of the data employed.

Table 2: Correlation Outcome

	RGDP	LNEXD	LNDES	LNGFK	INF
RGDP	1.00				
LNEXD	0.33	1.00			
LNDES	0.04	0.29	1.00		
LNGFK	0.48	-0.15	0.10	1.00	
INF	-0.35	0.15	0.02	-0.30	1.00

Source: Author's Computation (2023).

Deducing from the outcome in table 2, it is stated that there is relatively low correlation between the regressand and regressors. The correlation coefficients of RGDP and other variables are EXD (033), DES (0.04), GFK (0.48) and INF (-0.35) which are below average of 0.50. However, multicollinearity issue is absent in the result, as the correlation coefficient between any two of the explanatory variables are quite small. This is good for the estimate.

Table 3: ADF and PP Unit Root Test Result

	ADF Test				PP Test			
	T-Stat	5%	1%	Inter Order	T-Sta	5%	1%	Inter Order
RGDP	-3.766	-2.94	-3.62	I(1)	-3.77	-2.94	-3.62	I(1)
LNEXD	-4.545			I(1)	-4.484			I(1)
LNDES	-3.637			I(0)	-3.643			I(0)
LNGFK	-5.065			I(1)	-3.520			I(0)
INF	-2.958			I(0)	-10.01			I(1)

Source: Authors' Computation (2023).

The findings in table 3 revealed that there is a mixed order of integration among the variables. Therefore, the Autogressive Distributed Lag (ARDL) Bounds test is carried out.

Table 4: Autoregressive Distributed Lagged (ARDL) Bounds Test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	13.01107	10%	2.45	3.52
K	4	5%	2.86	4.01
		2.5%	3.25	4.49
		1%	3.74	5.06

Source: Authors' Computation (2023).

From the test (table 4), the F-statistics value (13.011) is greater than all the critical bound values, implying that, the null hypothesis of no-cointegration among the variables could not be accepted. Based on this, both the long-run and short-run estimated are carried out.

Table 5: Short-Run (SR) and Long-Run (LR) Estimates

ARDL Error Correction Regression			Dependent Variable:D(LNRGDP)	
Selected Model: ARDL(1, 4, 2, 4, 4)			Sample: 1981 2020	
Case 2: Restricted Constant and No Trend			Included observations: 36	
ECM Regression			Case 2: Restricted Constant and No Trend	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNEXD(-1))	-0.133492	0.038508	-3.466592	0.0032
D(LNDES(-1))	0.017414	0.010978	1.586300	0.1322
D(LNGFK(-3))	-0.129654	0.045236	-2.866164	0.0112
D(INF)	-0.001125	0.000375	-2.999213	0.0085
CointEq(-1)*	-0.002095	0.000207	-10.12236	0.0000
R-squared	0.684732	Adjusted R-squared		0.474554
S.E. of regression	0.026776	Durbin-Watson stat		2.154071
Long-Run Estimate				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNEXD	0.093989	0.379993	0.247344	0.8062
LNDES	0.097993	0.223489	0.438470	0.6640
LNGFK	4.376536	1.298480	3.370508	0.0020
INF	0.021564	0.013313	1.619793	0.1151
C	-87.84335	32.26903	-2.722218	0.0104

Source: Authors' Computation (2023).

From table 5, it is observed that only inflation rate (INF) has the expected negative sign while other variables do not. In the short-run, it is noted that INF significantly predicts RGDP, though negative effect. It is important to acknowledge that moderate inflation has the potential to foster economic expansion through the promotion of investment and the provision of incentives for consumption. Nevertheless, once inflation surpasses a specific threshold, its adverse consequences as showed in table 5, includes escalated production expenses, diminished purchasing ability, decreased export competitiveness, heightened uncertainty, and diminished investment, and these effects outweigh any potential favourable outcomes. This finding aligns with previous research conducted by Were (2001), Taofik and Abdisamad (2020), among others, which consistently demonstrate a

statistically significant negative relationship between inflation and economic growth.

In both the SR and LR periods, it was anticipated that both external debt stock (EXD) and gross fixed capital formation (GFK) would have a favourable and considerable impact on economic growth. However, the opposite has been observed in the SR period. The outcome suggested that there exists a negative relationship between EXD, GFK, and RGDP during the short-run period. One factor contributing to the adverse impact of external debt on the Nigerian economy is the burden of debt servicing. Consequently, higher levels of external debt can lead to a heightened burden on the government in terms of debt servicing. When a substantial proportion of the government's budget is assigned to the servicing of debt, it has the potential to restrict the resources accessible for public investment and social expenditure, both of which are crucial for fostering economic growth. The findings indicate the magnitude of the adverse effects of domestic investment (GFK) on economic growth (RGDP) resulting from inadequate management of external debt and unfavourable loan terms. However, the LR analysis has indicated a positive nexus between the variables EXD and GFK with economic growth. This relationship is contingent upon the loans being utilised in a productive manner. The SR findings of this study align with the research conducted by Naeem (2015); Lucky and Godday (2017); Olusegun *et al.,* (2020); Kur *et al.,* (2021); Eze *et al.,* (2022). However, they differ from the research results of Sulaiman and Azeez (2012); Ndubuisi (2017) and Efuntade *et al*., (2020).

For the debt servicing variable (LNDES), the result suggests that 100% increases in LNDES will cause RGDP to rise by 1.74%. On a priori ground, the variable is not consistent with the expected sign. Thus, inappropriate debt management, as described by Uchenna *et al.,* (2020), places a strain on the borrowing nation and can discourage domestic enterprise by diverting a large portion of national earnings to debt service payments. Thus, making LNDES exert adverse effect on national output. This current result conflicts with the works of Naeem (2015) and Kur *et al.,* (2021) while supported by the conclusion of Were (2001) and Olusegun *et al.,* (2020).

The error correction mechanism of the error correction model had a negative coefficient of -0.00209, which was found to be statistically significant at a level of -10.122. This suggests the presence of a long-run association among the variables. Additionally, the findings of the study

indicate that in cases of short-term disequilibrium within the economy, a long-term return to equilibrium can be observed, albeit with a sluggish adjustment rate of 0.020%. The Durbin-Watson statistic of 2.15 exceeds the R^2 value, indicating the absence of autocorrelation in the findings.

Table 6: Pair-wise Granger Causality Test Result

Sample: 1981 2020			Lags: 1
Null Hypothesis:	Obs	F-Statistic	Prob.
EXD does not Granger Cause RGDP	39	9.46442	0.0044
RGDP does not Granger Cause EXD		4.18758	0.0493
DES does not Granger Cause RGDP	39	1.07039	0.3089
RGDP does not Granger Cause DES		1.39997	0.2457
GFK does not Granger Cause RGDP	39	2.83131	0.1025
RGDP does not Granger Cause GFK		15.3543	0.0005
INF does not Granger Cause RGDP	9	2.08409	0.1589
RGDP does not Granger Cause INF		1.85503	0.1830

Source: Authors' computation (2023)

The Granger causality test is employed to determine the pair-wise relationships among the estimated variables. In order to establish a causal relationship between real gross domestic product (RGDP) and the explained variables, it is necessary to account for a lag of one period in the data. Based on the result in table 6, the researchers observed a statistically significant form of bi-directional causality between EXD and RGDP at significant levels of 1% and 5%. A causal relationship with feedback has been identified between EXD and RGDP. That is, there is a unidirectional-causal relationship between RGDP and GFK, with RGDP Granger causing GFK, but no reciprocal causality from GFK to RGDP.

Table 7: **Heteroskedasticity Test: Breusch-Pagan-Godfrey**

F-statistic	1.732206	Prob. F(14,16)	0.1456
Obs*R-squared	18.67729	Prob. Chi-Square(14)	0.1777
Scaled explained SS	5.800086	Prob. Chi-Square(14)	0.9713
Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.035144	Prob. F(2,28)	0.9655
Obs*R-squared	0.095152	Prob. Chi-Square(2)	0.9535

Source: Authors' computation (2023)

The Breusch-Pagan-Godfrey heteroskedasticity and serial correlation tests were conducted to examine the presence of autocorrelation among the variables Based on the utilization of the probability Chi-Square

values, which exceed the essential value of 0.05, it is apparent that the obtained result is devoid of any auto correlation concerns.

5. Conclusion and Recommendations

While examining the relationship between external debt stock and economic growth in Nigeria employing data from 1981 to 2020, the ARDL estimates was utilized to achieve the objective. This study makes several significant contributions to the field of study. For instance, it was noted that external debt in Nigeria during the specified time had a significant negative impact on the country's economic growth in the SR. Concurrently, there was a direct relationship between debt servicing and national economic growth. The rate of inflation has had a negative impact on economic growth. While GFK had a significant negative impact on Nigeria's economic growth in the short run, it also had a positive significant effect in the long run. According to the available data, there is a reciprocal causal relationship between EXD and real gross domestic product (RGDP) in Nigeria. As a result of these significant findings, the formulation of recommendations is given.

Following the findings, this study recommended that the use of external loans should align with its intended purpose, primarily focusing on fundamental and infrastructural development. This strategic move not only strives to enhance the business climate and stimulate economic activity but facilitate the payback process. Also, the implementation of a well-designed debt management strategy is crucial in mitigating the impact of debt servicing on the economy, as indicated by the research findings. Efforts need to be directed towards the diversification of the economy and government earnings in order to mitigate reliance on borrowings from abroad for financing government projects. Lastly, to prevent further debt accumulation, the government needs to shell out debt service payments on a regular and timely basis.

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