

The Impact Of Debt Burden On Economic Growth In Nigeria (1981-2021)

THANKGOD TONYE, PhD

Department of Economics, Faculty of Social Sciences
Ignatius Ajuru University of Education, Rumuolumeni, Rivers State, Nigeria
powerfulrugged@yahoo.com

PATIMI EBIKESEYE

Department of Economics, Faculty of Social Sciences
Isaac Jasper Boro College of Education, Bayelsa State, Nigeria
richardjoan210@gmail.com



Abstract

This study investigated the impact of debt burden on economic growth in Nigeria spanning from 1981 to 2021. Data for the study were obtained from Central Bank of Nigeria (CBN) Statistical bulletin and World Bank data. 2021. The formulated model was subjected to unit root test using the Augmented Dickey Fuller unit root approach. The ADF result revealed that the variables have mixed order of integration. Some of the variables were stationary at levels 1(0) while others became stationary after first difference 1(1). Based on this, the study adopted the Auto-regressive distributive lag (ARDL) Model to ascertain the long-run relationship as well as the behaviour of the variables. Thus, the result revealed that debt service ratio (DSR) is negative but significant to influence real gross domestic product (RGDP) in the long-run while external debt (EXDT) and domestic debt (DMDT) is significant to influence real gross domestic product in the short-run. However, international reserve ratio (IRR) is found to be insignificant with real gross domestic product (RGDP) both in the short-run and long-run. It was recommended amongst others that the federal government should drastically reduce the rate of borrowing. This will enable them use funds that would have been used for debt repayment to carry out essential capital project like road construction, health care and education. Also if the government must borrow to correct budget deficit, they should borrow domestically. This is because the domestic financial institutions will make profit from the cost of loan (interest rate) which will enables them increase the standard of living of their workers (salaries) and also expand their outlet by way of job creation. This scenario will help the government achieve some form of macroeconomic objective

Keywords: Debt Service Ratio, International Reserve Ratio, External Debt, Domestic Debt, Real Gross Domestic Product



1.0 Introduction

There is a general appreciation that economic growth is a primary goal of all countries and it is expected that such growth should translate to improved standard of living and better welfare for the citizenry which must be sustained for such country to make a meaningful stride towards economic development. A critical prerequisite for such growth is a massive investment in capital formation which would include physical capital, financial capital, human capital and effective information technology facilities. The limiting factor however is that no single country has all the savings domestically to actualize the required capital investment. Furthermore, because no country has all inputs required for economic transformation, a lot of

the inputs in form of machines, technology, management and organization have to be acquired from external sources which have to be paid for in foreign currency. The shortage of foreign currency as a result of inadequate export capacity and deficient domestic saving capacity is often cited as justification for external borrowing. This shortage in domestic savings and foreign exchange requirement for capital formation is sometimes referred to as the 'dual-gap' theses. The dual gap is more acute in sub-Saharan Africa countries where Nigeria belongs. However savings, foreign exchange and import is not without cost. Many countries resort to debt when non debt creating finance such as direct foreign investment, international development assistance and portfolio

investments and unrequited transfers are not readily available in the required amount.

Despite the importance of borrowing to correct budget deficit that will enable the government carry out critical capital projects, the continuous rise in debt stock and its corresponding repayment have affected the economic welfare of citizens. This is because majority of the income generated in the country are set aside to service debt instead of executing capital projects like road and bridge construction and supporting the industrial sector.

This situation has brought untold hardship to the citizens making most of them to resort to crime and other social vices. Based on this anomalies the present study reviewed related literature to ascertain the extent of work done. The reviewed literature reported mixed result. For instance, all the studies reviewed (Ilemona and Nwite (2021); Omesi, et al (2021); Muhammad and Abdullahi (2020); Obisesan *et al.* (2019); Charles and Abimbola (2018); Essien et al. (2016); Orjinta *and.* Nwadiolor (2016); Uma *et al.* (2013); and Sulaiman and Azeez (2012) agreed that there is a relationship between the dependent and independent variable but disagreed in the direction of the relationship. For example, Ilemona and Nwite (2021); Omesi et al. (2021); Muhammad and Abdullahi (2020); Obisesan, et al (2019); Charles and Abimbola (2018); Essien et al. (2016); Uma et al. (2013) all reported negative relationship between the variables while Sulaiman and Azeez (2012); and Orjinta *and.* Nwadiolor (2016) in their own study reported positive relationship.

Also, it was found out that these studies used different techniques to evaluate the hypotheses. Some of the studies used Ordinary least square (OLS), while others used either auto-regressive distributive lag (ARDL) or error correction model (ECM) therefore a gap exist in literature which deserved to be filled. To achieve this, the paper is organized into five sections. Following this introduction, this paper is organized as follows: Section two is the conceptual, theoretical, empirical and literature review, section three presents the methodology of the work, section four shows analysis of the study and discussion of findings, while section five concluded the study with relevant policy recommendation from the findings.

2.0 Literature Review

Debt Burden

Debt burden is seen as the situation whereby public

debt overhang keep on raising in relation to limited or inadequate foreign reserve to cover short-term external debt and government revenue is inadequate for debt servicing. According to Balago (2014) debt burden is the financial crisis or distress arising from debt repayment due to constant interest payment from government revenue and foreign reserves.

Price Waterhouse Cooper (2020); Csaba and Gabriella (2017) and Ogunlana (1995) assert that debt burden is a rising debt overhang (total debt-to-GDP ratio), debt service-to-government revenue ratio, and short-term external debt-to-foreign reserves ratio over a long period. The further explain that if borrowed funds are not invested in economically viable projects, repayment of the principal sum and agreed interest becomes difficult.

In Nigeria, deficit financing has led to borrowings from richer countries, multinational finance institutions, such as the International Monetary Fund (IMF), the World Bank, African Development Bank (ADB) amongst others. Unfortunately, the rising public debt in Nigeria has begun to outweigh the country's revenue generation capacity and drawing down on foreign reserves, hence stifling the much-needed public capital investments and economic productivity. Also, it has been reported that these borrowed funds are often mismanaged and siphoned by public officers, hence, are not used for economically productive activities, leading to debt burden, capital flight and economic instability in the long-run (Iyatse, 2020; Onyele & Nwokocha, 2016).

Implications of Debt Burden on Economic Growth in Nigeria

Debt burden have led to various distortion in the Nigerian economy. In the view of Nzotta (2014), these distortion are structural in nature, and affect the level of per capita incomes and are instrumental to the raising poverty level in the country. This is the major problem facing the country's growth and development. From the perspective of poverty, it is imperative to note that Nigeria moved up from 42% in 2020 to 42.6% in 2022 according to World Bank in its poverty assessment report titled "A better future for all Nigeria: 2022 Nigeria poverty Assessment.

They further explained that poor Nigerians is projected to hit 95.1 million in 2022 from the previous year 89 billion. (Premium times, March, 2022). This situation have resulted to low life expectancy, high unemployment rate, inflation rate leading to all sort of

crime in the country. In line with this arguments Nzotta (2014) identifies seven (7) consequences of debt burden to economic growth they includes;

- i. Debt burden leads to high level of unemployment
- ii. It leads to a declining standard of living for Nigerians as well as worsening state of income distribution.
- iii. it sustain high level of poverty amongst the citizens
- iv. Continuing deterioration of social infrastructures and socio-economic variables including facilities.
- v. it leads to backlog of unpaid principal and interest charge
- vi. low level of industrial output, productivity and technical progress
- vii. low level of foreign investment inflow

From the above consequences of debt burden to economic growth in Nigeria, it therefore implies that the slow growth of the Nigerian economy can be attributed to access debt stock with limited means of repayment leading to decline in economic variables such as external reserve, high exchange rate, inflations, balance of payment disequilibrium. This situation have also resulted to low savings leading to low investment (domestic and foreign) causing high rate of unemployment and low standard of living in the country.

Theoretical Literature

Classical/Traditional Theory of Public Debt

The theoretical framework of this study is anchored on the classical/traditional theory of public debt by Adam Smith et al (1776). The basic assumption of this theory is that if government expenditure is financed through public borrowing, the present generation gets relieved from the cost and the burden is shifted to the future generation.

The future generation suffers when the present generation reduces its savings in order to meet debt servicing obligation there by leaving a smaller amount of capital resources for the future. Reduction of savings of the present generation will amount to reduced inherited capital and productive capacity of which the future generation will stand to lose.

The theory has three (3) key assumptions namely:

- (I) That public debt is more costly method of financing public expenditure than taxation

- (ii) That if the present generation does not reduce its consumption and increase its savings, the burden of public debt may pass on to the future generation and

- (iii) That Excess borrowing and mounting public debt by government may undermine the very credit worthiness of a nation and therefore, debt should be kept at the barest minimum and be offset as quickly as possible.

Dual gap theory

The dual gap theory was propounded by Omoruyi (2005). The theory state that most economies experience shortfall in form of gap between the level of savings and investment and have resorted to external borrowing in order to fill this gap. This gap provides the motive behind external debt as pointed out by Chenery and Strout (1966) which is to make up for the shortage of savings and investment in a nation as increases in savings and investment would lead to increase in economic growth (Hunt, 2007).

The dual-gap analysis provides a framework that shows that the development of any nation is a function of investment and that such investment requires domestic savings which is not sufficient to ensure that development take place (Oloyede, 2002). Besides the inadequacy of savings in the domestic economy for the required minimum investment which should result into planned growth rate, there is the second gap that arises because of the shortfall in foreign exchange earnings which is required to import the foreign components of development inputs.

Empirical Literature Review

Onyele and Nwadike (2021) investigates the impact of national debt burden on economic stability in Nigeria Data spanning from 1981 to 2019 have been collated from the World Development Indicators and Central Bank of Nigeria Statistical Bulletin, 2019 edition. Consequently, the variables used to measure debt burden are total debt-to-GDP ratio (debt overhang), short-term external debt-to-reserves ratio (reserve adequacy) and debt service cost-to-government revenue ratio (revenue adequacy) with exchange rate as a control variable, while economic stability is measured with real GDP growth rate.

The Autoregressive Distributed Lag (ARDL) model is used for the analysis since the variables are stationary at both levels and first difference. The ARDL estimation shows that the explanatory variables collectively cause a diminishing impact on economic stability in the long run with revenue adequacy having a negative and significant impact. In the short run, all the components

of debt burden, except debt overhang, have a negative and significant impact on economic stability.

Under this circumstance, exchange rate has a positive and significant impact on economic stability in the long run.

Ilemona and Nwite (2021) examined the impact of the public debt on the economic growth of Nigeria. The aim was to present the nature, the danger of debt accumulation and strategic solutions to the problem debt incurrence for sustainable growth of the economy. It is an exploratory study that reviewed empirical studies in respect of impact of public debt burden on economies around the world particularly Nigeria the focus of the study.

It was found from the review that borrowing has impacted negatively on the growth of Nigerian economy. Diversification of the nation's economy from oil to non-oil sector, creation of conducive environment for businesses to thrive and curbing the menace of financial leakages and corruption are some of the recommendations of the study to reverse the increasing trend of public debt accumulation in Nigeria

Omesi et al. (2021) examined the nexus between debt, debt service and economic growth: an empirical analysis of Nigeria economy with data ranging from 2012 to 2019 that was extracted from debt management office and statistical bulletin of Nigeria using regression analysis to test our hypotheses with the help of e-view. Our findings revealed that debt with a statistical value of 0.2232, and debt servicing with a statistical value of 0.4134 are not the factors behind economic growth in Nigeria. We also found out that our independent variables debt (Internal and external), total debt servicing and inflation which served as control variables are on the increase with a statistical value of 0.8445. We therefore recommended that Government and those at the helm of policy making should engage in proper analysis on ways to invest borrowed fund/resources in profitable projects that will yield significant impact on the economic growth; and Policy makers should match borrowed fund/resources properly to avoid over servicing of borrowed funds

Muhammad and Abdullahi (2020) investigates the impact of external debt servicing on Nigeria's economic growth through a time-series data between 1985 to 2018 which was managed with Autoregressive Distributive Lag (ARDL) model. Results of the study indicated that in the long-run, external debt servicing will negatively affect economic growth. That is an

increase in external debt servicing lead to a decline in economic growth. The study suggests that debt service requirement should not be allowed to increase above the debt stock and, the contracted loan should be devoted to infrastructure development through efficient and judicious utilization.

Obisesan et al. (2019) examined the effect of external debt on economic growth in Nigeria under the period of 37 years (1981-2017). The study specifically examined the influence of external debt, external debt service payment and exchange rate on economic growth proxy as real gross domestic product. The study employed least square econometric technique to ascertain the relationship between external debt variables and economic growth in Nigeria. The study found that external debt and external debt service payment have negative effect on economic growth while exchange rate has positive effect on economic growth in Nigeria.

The coefficient of multiple determinations (R²) showed that approximately 77% of variations in economic growth are explained by the explanatory variables (EXTD, EXTDS and EXR) while the remaining 23% is accounted by factors not specified in the model. However, The Durbin Watson correlation test indicated that there is positive autocorrelation in the model which implied there is about 23% missing variables in the model. The conclusion that may be drawn from the study is that external debt has negative effect on economic growth in Nigeria. Hence, it is recommended that Debt Management Office should set mechanism in motion to ensure that loans were utilized for purposes for which they were acquired and channel towards productive uses and sourcing external debts should be considered as a means of long run development not just for solving short run problems.

Charles and Abimbola (2018) examined the effect of external debt on economic growth in Nigeria. Gross domestic product was used as a proxy for economic growth which is the dependent variable while external debt stock, external debt service payments, domestic debt, external reserve and exchange rate were the independent variables. External debt stock and external debt service payments were used to capture the external debt burden in Nigeria. The paper adopted the ARDL bound testing to co-integration as an appropriate technique. The result shows that domestic debt lag 1, D (LDDS (-1)), has a negative but significant effect on economic growth. The result of the conditional error correction regression suggests that external debts stock lag 1, that is, LEDS (-1) has a

significant direct relationship with economic growth at 1 percent significance level. It could also be observed that external debt service payment and exchange rate indicate a significant negative effect on economic growth while external reserve reveals a significant positive impact on economic growth in the long run. The consequent policy recommendation is that external debts should be contracted solely for economic reasons and not for social or political reasons.

Essien, et al (2016) examines the impact of public sector borrowings on prices, interest rates, and output in Nigeria. It utilized a Vector Autoregressive framework, the Granger causality test, impulse response, and variance decomposition of the various innovations to study the impact. It found that shock to external debt stock increases prime lending rate, but with a lag. However, the level of external and domestic debt over the period of this study had no significant impact on the general price level and output.

Orjinta and. Nwadiolor (2016) examines the effect of debt service on economic growth using a time series data of 20 years (1996-2015). The data were collected from the CBN statistical bulletin and government gazette. The study was predicated on ex post facto research design, the data collected were analysed using unit root, co-integrations and ordinary least square regression. The analysis result revealed a significant long run relationship between real gross domestic product (RGDP) and external debt (EDEBT) and debt service (DEBT) and an insignificant long run relationship between real gross domestic product (RGDP) and domestic debt (DDET). Secondly, the regression analysis result revealed that external debt and debt servicing has a positive significant effect on economic growth in Nigeria. Real gross domestic product and external debt services exhibit the inelastic relationship. Based on the above findings, we recommend that Debts should be contracted solely for economic capital formation purposes since capital formation has direct impact on economic growth.

Uma, et al (2013) investigates the influence of total domestic debt, total external debt cum servicing of external debt from 1970-2010 on the economic development of Nigeria. The required data was sourced from Central Bank of Nigeria Statistical Bulletin and World Bank data bank. The study started with the battery test of stationarity of time series data using Augmented Dickey-Fuller test and Johansen test for co-integration to ascertain the long-run relationship of the variables. Ordinary least square was used to analyse

the data. The results show that total domestic and total external debts are inversely related to real gross domestic product, a proxy for economic development, but at an insignificant level. Interest on total external debt relates positively on real gross domestic product contrary to our expectation but at an insignificant level. On this basis, we made the following recommendations, among others:

The government must be sincere and focus more on internally generated revenue to finance development projects until all the debts and its interests are finally settled. It is imperative for the government to cut down cost of government with the intention to promptly redeem loans repayment and its servicing. The government has to diversify the economy as there are many sectors that need to be developed so as to generate more revenue and avoid opting for loans as the best alternative.

Sulaiman and Azeez (2012) examines the effect of external debt on the economic growth of Nigeria. The model built for the study proxy gross domestic product as the endogenous variable measuring economic growth as a function of external debt, ratio of external debt to export, inflation, and exchange rate proxy as the exogenous variables. Annual time series data was gathered from the Central Bank of Nigeria Statistical bulletin and Debt Management Office from 1970 to 2010.

The econometric techniques of Ordinary Least Square (OLS), Augmented Dickey-Fuller (ADF) Unit Root test, Johansen Co-integration test and Error Correction Method (ECM) are employed in the empirical analysis. The co-integration test shows that long-run equilibrium relationship exist among the variables. The findings from the error correction method show that external debt has contributed positively to the Nigerian economy. The study recommends that government should ensure economic and political stability and external debt should be acquired largely for economic reasons rather than social or political reasons.

Summary of Literature Reviewed

The empirical review of related literature with respect to debt burden on economic growth in Nigeria. The reviewed literature revealed an inconclusive findings. For instance, all the studies reviewed (Ilemona and Nwite (2021); Omesi *et al.* (2021); Muhammad and Abdullahi (2020); Obisesan *et al.* (2019); Charles and Abimbola (2018); Essien *et al.* (2016); Orjinta and. Nwadiolor (2016); Uma *et al.* (2013); and Sulaiman and Azeez (2012) agreed that there is a relationship

between the dependent and independent variable but disagreed in the direction of the relationship.

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Also, it was found out that these studies used different techniques to evaluate the hypotheses. Some of the studies used Ordinary least square (OLS), while others used either auto-regressive distributive lag (ARDL) or error correction model (ECM) therefore a gap exist in literature which deserved to be filled.

3.0 Methodology

This study used secondary source of data, and were mainly annual time series data that were obtained from World Bank data and Central Bank of Nigeria Statistical bulletin, from 1981 to 2021. The dependent variable of the study is real gross domestic product (RGDP) as a proxy for economic growth while the explanatory variables are debt service ratio (DSR), international reserve ratio (IRR), domestic debt (DMDT) and external debt (EXDT) as proxy for debt burden). This study adopt the Ex-post facto research design. The ex-post facto research can be defined as an empirically based investigation which does not involve the researchers' direct control over the independent variables because they have already led to effects which cannot be manipulated.

3.1 Model Specification

The general bases for model specification is the classical/traditional theory which posit that if government expenditure is financed through public borrowing, the present generation gets relieved from the cost and the burden is shifted to the future generation. The future generation suffers when the present generation reduces its savings in order to meet debt servicing obligation there by leaving a smaller amount of capital resources for the future. Therefore, the model of this study is based on the modification of Onyele and Nwadike (2021)

Ugochukwu (2015). The model is stated thus;

$$\Delta RGDP_GR_t = \beta_0 + \Delta RGDP_GR_{t-1} + \sum \beta_{1t} \Delta TDBT_GDP_{t-1} + \sum \beta_{2t} \Delta STED_REV_{t-1} + \sum \beta_{3t} \Delta DBTS_REV_{t-1} + \sum \beta_{4t} \Delta EX_R_{t-1} + U_t$$

Where:

RGDP_GR = Real Gross Domestic Product to =Growth Rate

TDBT_GDP=Total Debt to Nominal Gross Domestic Product

STED_REV = Short-term External Debt to Reserve

DBTS_REV = Debt Service Cost to Government Revenue Ratio

EX_R = Naira to Dollar Official Rate

The model would be modified by introducing International reserve ratio (IRR), Domestic debt (DMDT) and External Debt (EXDT) as new variables, thus;

$$RGDP = f (DSR , IRR , DMDT , EXDT) \quad 3.1$$

The mathematical form of the model is;

$$RGDP = \beta_0 + \beta_1 DSR + \beta_2 IRR + \beta_3 DMDT + \beta_4 EXDT \quad 3.2$$

Equation (3.2) above is transformed into an econometric model by incorporating the disturbance term (μ) as follows;

$$RGDP = \beta_0 + \beta_1 DSR + \beta_2 IRR + \beta_3 DMDT + \beta_4 EXDT + \mu \quad 3.3$$

Logarithmic transformation are also a convenient means of transforming a highly skewed variable into one that is more approximately normal (Kenneth 2011).The modified version of the model adopted for this study now take the form of

$$LRGDP = \beta_0 + \beta_1 DSR + \beta_2 IRR + \beta_3 LDMDT + \beta_4 LEXDT + \mu \quad 3.4$$

Where,

RGDP = Real Gross Domestic Product, **DSR** = Debt Servicing Ratio, **IRR** International Reserve Ratio, **DMDT** = Domestic Debt **EXDT**= External Debt μ = Error term **β_0** = Constant, **β_1 - β_4** = Estimated Parameters

3.2 Method of Data Analyses

3.2.1 Unit Root Test

The study employed the Augmented Dickey Fuller (ADF) unit root test to identify the order of integration of the variables under study to select appropriate methodology in order to avoid spurious regression.

3.2.2 The ARDL Methodology

The study employed the autoregressive distributive lag model (ARDL) proposed by Pesaran, Shin and Smith (2001) to estimate the relationship between the variables. The model is therefore specified in unrestricted error correction form to test for cointegration relationship as follows:

The Autoregressive Distributed Lag (ARDL) Model is specified as follows:

$$\Delta LRGDP_t = \beta_0 + \Delta LRGDP_{t-1} + \sum \beta_{1t} \Delta IDSR_{t-1} + \sum \beta_{2t} \Delta IRR_{t-1} + \sum \beta_{3t} \Delta LDMDT_{t-1} + \sum \beta_{4t} \Delta LEXDT_{t-1} + \Delta LRGDP_{t-1} + \sum \Phi_{1t} \Delta IDSR_{t-1}$$

$$+ \sum \Phi_{2t} \Delta \text{LIRR}_{t-1} + \sum \Phi_{3t} \Delta \text{LDMDT}_{t-1} + \sum \Phi_{4t} \Delta \text{LEXDT}_{t-1} + U_t$$

3.5

The inference here is that, if the computed F-statistics is greater than the upper bound critical value at 5% there is said to be cointegration. If the computed F-statistics is less than the lower bound critical value at 5% there is no cointegration. However, if the value of the computed F-statistics lies between the upper and the lower critical values, then the inference is said to be inconclusive. Once cointegration relationship exist, the long-run model would be estimated as specified

$$\Delta \text{LRGDP}_t + \sum \Phi_{1t} \Delta \text{IDSR}_{t-1} + \sum \Phi_{2t} \Delta \text{IRR}_{t-1} + \sum \Phi_{3t} \Delta \text{LDMDT}_{t-1} + \sum \Phi_{4t} \Delta \text{LEXDT}_{t-1} + U_t$$

3.6

Similarly, the short-run model of the error correction specification would be estimated to ascertain the short-run dynamic behaviour of the variables in the model as;

$$\Delta \text{LRGDP}_t = \beta_0 + \Delta \text{LRGDP}_{t-1} + \sum \beta_{1t} \Delta \text{IDSR}_{t-1} + \sum \beta_{2t} \Delta \text{IRR}_{t-1} + \sum \beta_{3t} \Delta \text{LDMDT}_{t-1} + \sum \beta_{4t} \Delta \text{LEXDT}_{t-1} + \text{ECT}_{t-1} + U_t$$

3.7

Where the ECT in the above equation is specified as;
 $\text{ECT}_t = \Delta \text{LRGDP}_t - \beta_0 - \Delta \text{LRGDP}_{t-1} - \sum \beta_{1t} \Delta \text{IDSR}_{t-1} - \sum \beta_{2t} \Delta \text{IRR}_{t-1} - \sum \beta_{3t} \Delta \text{LDMDT}_{t-1} - \sum \beta_{4t} \Delta \text{LEXDT}_{t-1}$

Finally, the study diagnosed the model by conducting test for serial correlation, Ramsey reset test and heteroskedasticity.

3.4 Description of Variables in the Model

i. Economic Growth

Economic growth can be referred to as an increase in the productive capacity of an economy as a result of which the economy is capable of producing additional quantities of goods and services. However to determine economic growth, the study would use real gross domestic product as a proxy for economic growth. Therefore real gross domestic product can be measured as $\text{RGDP} = \text{NGDP}/R$. where, RGDP = Real gross domestic product, NGDP = Nominal gross domestic product, R = gross domestic product deflator.

ii. Debt Service Ratio (DSR)

Debt service ratio also called total debt service to exports of goods and services. The debt service ratio is a ratio that measures debt burden of a country. it measures the level of services that must be set aside each year to assist a country settle its external debt obligations as they fall due. Debt service ratio can be measured as total debt service divided export of goods and services thus TDS/XGS

iii. International Reserve Ratio (IRR)

International reserve ratio or international reserve ratio to import of goods and services. The international reserve ratio measures the adequacies on meeting the demand of international finance obligations and imports. This ratio is applies in situations where there wide variation in trade balance and disequilibrium in the balance of payment. International reserve ratio is calculated by dividing the international reserve with import of goods and services. Thus $\text{IRR} = \text{IGS}$ where IRR = international reserve ratio, IR international reserve, IGS = import of goods and services.

v. External Debt (EXDT)

According to World Bank (2004) external debt is referred to accumulated fund owed to non-residents repayable in terms of foreign currency, food or service. It can also be defines as the mobilization of fund and resources generated elsewhere outside the home country. External debt is determines as the sum of all debt issued in international market.

vi. Domestic Debt (DMBT)

Asogwa (2008) explained debt as a contractual obligation of owing or accumulated borrowing with a hope of paying back at a futuristic time. From the perspective of the government, debt may be contracted from within the country (domestic debt) using one instrument or the other and denominated in local currency. Domestic debt refers to all public debts issued in domestic market.

4.0 Empirical Data Analysis

Table 4.1: Unit Root Test on Debt Burden and Economic Growth

The Augmented Dickey Fuller (ADF) unit root test is used to establish the stationarity of the time series data used in the study. The result in table 4.1.1 are shown below:

Variable	Levels			First Difference			Order of integration
	ADF statistics	1% critical value	5% critical value	ADF statistics at First Difference	1% critical value	5% critical value	
LRGDP	-0.959583	-3.615588	-2.941145	-3.976049	-3.610453	-2.938987	1(1)
DSR	-2.084328	-3.605593	-2.936942	-6.180153	-3.610453	-2.938987	1(1)
IRR	-4.667369	-3.605593	-2.936942				1(0)
LEXDT	-1.525689	-3.615588	-2.941145	-4.786532	-3.615588	-2.941145	1(1)
LDMDT	-2.185370	-3.610453	-2.938987	-4.761107	-3.615588	-2.941145	1(1)

Source: Author Computation 2022 * Level of significance at 5%

Result from table 4.1.1 above revealed that the variables used in the analysis were subjected to Augmented Dickey Fuller (ADF) Tests, to determine whether they are stationary series or non-stationary series. The result of the stationarity test indicate that IRR is stationary at level 1(0) while LRGDP, DSR, LEXDT and LDMDT were stationary at first difference 1(1). From the analyses of stationarity of the variables, it was seen that the variables have mixed order of integration

or stationarity of level and first differences. The Autoregressive Distributive Lag (ARDL) approach which is capable of handling both stationary at level I(0) and first difference I(1) were used for the data analysis. Thus, the most suitable tool of analyses is the ARDL test that accommodates both the short and long run trends in testing the relationship between the dependent and independent variables.

Co-integration Test

Table 4.1.2: ARDL Bound Test

Test Statistics	Value	K
F-statistics	5.820043	4
Significance	I (0)	1(1)
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: Authors computation from E-view 10 Output

The bound test is shown in Table 4.1.2, the result compared the F-statistics with the critical bound values. The F-statistic value is 5.820043. The result showed that the F-statistic is greater than the lower bound at 2.86 and the upper bounds at 4.01 of the critical values at 0.05 level of significance. The

implication is that there is levels equation of co-integration between debt burden and economic growth in Nigeria. Therefore, the long-run and short-run Auto-regressive distributive lag (ARDL) result is estimated.

Table 4.1.3: ARDL Long-run-run Result

Variable	Coefficient	Std. Error	t-statistics	Prob
DSR	-0.225146	0.109867	-2.049261	0.0045
IRR	0.000404	0.000294	1.373372	0.1823
LEXDT	0.064229	0.143106	0.448825	0.6576
LDMDT	0.137564	0.162185	0.848194	0.4047

Source: Extracts from E-view 10. * Level of significance at 5%

The Autoregressive Distributive Lag (ARDL) Long run estimates report in table 4.1.3 shows that debt service ratio (DSR) is negative (-0.225146) but significant with the log of real gross domestic product (LRGDP) as a proxy to economic growth. This implies that a unit increase in debt service ratio (DSR) will result to about 23% declined in the log of real gross domestic product (LRGDP).

However, the coefficient s of international reserve ratio (IRR), log of external debt (LEXDT) and log of domestic

debt (LDMDT) all reported positive (0.000404, 0.064229 & 0.137564) relationship with the log of real gross domestic product (LRGDP). This means that a unit increase in IRR, LEXDT and LDMDT will lead to about 0.04%, 6% and 13% increase in the log of real gross domestic product (LRGDP). However, the p-value of 0.1823, 0.6576 and 0.4047 indicate that IRR, LEXDT and LDMDT are insignificant to influence the log of real gross domestic product (LRGDP) at 0.05 level of significance.

Table 4.1.4: ARDL Short-run Result

Variable	Coefficient	Std. Error	t-statistics	Prob
D(DSR)	-0.000237	0.005527	-0.042953	0.9661
D(DSR(-1))	0.009932	0.005981	1.660629	0.1098
D(IRR)	6.94E-06	1.11E-06	0.623791	0.5386
D(IRR(-1))	-1.75E-05	1.13E.05	-1.551889	0.1338
D(LEXDT)	0.008812	0.017332	0.508443	0.6158
D(LEXDT(-1))	-0.034858	0.017101	-2.038337	0.0527
D(LDMDT)	0.078493	0.057022	1.376531	0.1814
D(LDMDT(-1))	-0.123125	0.053543	-2.299527	0.0305
Ecm (-1)	-0.096290	0.029552	-3.258361	0.0033

Adj R² = 0.308271, F-statistics = 2.82129 (0.016709), DW = 1.835025

Source: Extracts from E-view 10. * Level of significance at 5%

Table 4.1.4 shows the short-run result of the model. It is indicated that debt service ratio (DSR) have a negative (-0.000237) but insignificant (0.9661) relationship with the log of real gross domestic product (LRGDP) at the most current year period. This implies that a unit rise in debt service ratio will lead to a decline of about 0.02% in the log of real gross domestic product (LRGDP). Similarly, the coefficient of international reserve ratio (IRR) showed a negative (-1.75E-05) and insignificant (0.1338) relationship with the log of real gross domestic product (LRGDP) at the previous year period.

This means that a unit rise in international reserve ratio (IRR) will result to about 1.7 unit increase in the log of real gross domestic product (LRGD) as a proxy for economic growth in Nigeria. However, the p-value of 0.1338 shows that IRR is insignificant to influence LRGDP.

Furthermore, the short-run ARDL result showed that the log of external debt (LEXDT) is negative (-0.034858) but significant (0.0527) with the log of real gross domestic product (LRGD) in the previous year period. This result agrees with earlier studies from Obisesan, et

Diagnostic Test

Table 4.1.5: Ramsey Reset Test, Serial Correlation LM Test and Homoscedasticity Test Results.

	F-Statistic	Prob.Value
Ramsey Reset Test	2.823459	0.1064
Breusch-Godfrey Serial Correlation LM Test	0.734120	0.4913
Breusch-Pagan-Godfrey Heteroskedasticity Test	1.361389	0.2477

Source: Author’s Computation using E-view 10

From Table 4.1.5. above, the results of the diagnostic test shows that the linearity test using Ramsey reset test indicates that the f-statistic (2.823459) with computed p-value of 0.1064 which is greater than 5 percent (0.05) critical value, hence the study reject the null hypothesis and conclude that the model is correctly specified.

The result of the serial or auto correlation test using Breusch - Godfrey Serial Correlation LM Test shows that the f-statistic is 0.734120, with a Chi-Square probability value is 0.4913. This indicates that the probability value of about 49 percent (0.4913) is greater than 5 percent (0.05) critical value; hence the study confirms no serial correlation in the model.

al (2019) and Charles and Abimbola (2018).

Finally, the log of domestic debt (LDMDT) revealed a negative (-0.123125) but significant (0.0033) relationship with the log of real gross domestic product (LRGD).

The ECM (-1) which is the error correction term has a coefficient estimate which is negative and also significant at 0.05 level of significant. It indicates the model will adjust toward long run equilibrium at a speed of 10% annually. This implies that the previous year's error can be corrected with an adjustment speed of 10% annually.

The adjusted R-Square (R²) value indicates that 31% of the total variation in the dependent variable (LRGDP) is explained by the independent variables (DSR, IRR LEXDT & LDMDT). The F-statistics is statistically significant at 5% level of significance indicating the overall model is significant. The Durbin-Watson statistics of 1.835025 reveals the absence of serial correlation in the model.

The result of the heteroscedasticity test using Breusch-Pagan-Godfrey test shows that the f-statistic is 1.361389 with a Chi-Square probability value of 0.2477. The result suggests that there is no evidence of heteroskedasticity in the model since the probability Chi-square value is more than 5 percent (P >0.05). So, residuals do have constant variance which is desirable in regression meaning that residuals are Homoscedastic.

5.0 Conclusion and Recommendations

Conclusion

This research discourse investigated how debt burden hinder economic growth in Nigeria. The dependent variables of the paper is, real gross domestic product (RGDP), while the explanatory variables are, debt service ratio (DSR), International reserve ratio (IRR),

External debt (EXDT) and Domestic debt (DMDT). The study employed secondary data from and ex-post facto research design for 41 years period (1981-2021). The Augmented Dickey Fuller (ADF) and Auto-regressive Distributive Lag (ARDL) model technique was used in the study to analyses the variables.

Thus, the result revealed that debt service ratio (DSR) is negative but significant to influence real gross domestic product (RGDP) in the long-run while external debt (EXDT) and domestic debt (DMDT) is significant to influence real gross domestic product in the short-run. However, international reserve ratio (IRR) is found to be insignificant with real gross domestic product (RGDP) both in the short-run and long-run.

Recommendations

Based on the conclusion and findings of the study, the following recommendations are made: In order to reduce the effect of debt burden on economic growth in Nigeria. The federal government should drastically reduce the rate of borrowing. This will enable them use funds that would have been used for debt repayment to carry out essential capital project like road construction, health care and education. Also if the government must borrow to correct budget deficit, they should borrow domestically. This is because the domestic financial institutions will make profit from the cost of loan (interest rate) which will enables them increase the standard of living of their workers (salaries) and also expand their outlet by way of job creation. This scenario will help the government achieve some form of macroeconomic objective.

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