

**IMPACT OF PUBLIC DEBT ON ECONOMIC GROWTH IN NIGERIA**

**(1970-2019)**

**BY**

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**BEING A PROJECT SUBMITTED TO THE DEPARTMENT OF ECONOMICS,**

**COLLEGE OF HUMANITIES MANAGEMENT AND SOCIAL SCIENCES**

**MOUNTAIN TOP UNIVERSITY**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF**

**BACHELOR OF SCIENCE DEGREE IN ECONOMICS**

**AUGUST, 2021**

## **CERTIFICATION**

I certify that this project was conducted under my supervision by Abimbola, Eniola Jane (17020301002) at the Department of Economics, Mountain Top University, Ogun State, Nigeria.

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## **DEDICATION**

This project is dedicated to the El Elyon, The Most High God.

## **ACKNOWLEDGEMENT**

I will forever remain grateful to God Almighty for His grace and mercies that has seen me through every phase of my life since the very beginning till this very moment and more.

To my wonderful parents, Engr. And Pastor (Mrs.) Abimbola, I say a very big thank you. I am so blessed to have such amazing parents who have constantly and continually provided for me and supported me financially, emotionally, spiritually and physically. Much love to my sisters, Victoria, Damilola, Esther and Blessing for the moral support and your idea of love.

I would like to appreciate the Chancellor, DR. D. K. Olukoya who has been a source of inspiration to me in every area of life. I also acknowledge the Vice-Chancellor, Professor Elijah Ayolabi and the Chaplain, Past. Olumide Adesina for their exemplary leadership and lifestyle.

My profound gratitude also goes to the Head of Department of Economics and Development Studies, Associate Prof. M. M. Ologundudu for being a father figure to us.

To my project supervisor, Dr. Obafemi Ademola Young, I am most grateful for your help and support in writing this research project. I couldn't have asked for a better supervisor.

Also, my thanks goes to my lecturers Dr. Clement, Dr. Babasanya and Dr. Oluyomi who have helped frame me into the economist I am today, I am deeply grateful.

My special thanks also go to Bunmi, John, Gloria, Precious (my partner-in-crime), and John Praise for all their help in this research project and to all my dear friends, loved ones, course mates and everyone that has made my stay in Mountain Top University worthwhile, I say thank you and may God bless you all.

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## ABSTRACT

This study analyzed the impact of public debt on economic growth in Nigeria. Specifically, it assessed the impact of domestic debt on growth, examined the impact of external debt on Nigeria's and investigated the impact of debt service on growth in Nigeria.

Annual time series secondary data was used in the study. World Development Indicators (2020), Central Bank of Nigeria Statistical Bulletin (2020), and Penn World Table version 9.0 were used to compile data on real GDP, domestic debt, external debt, debt service, inflation, trade, government expenditure, population, FDI, trade openness, exchange rate, interest rate and capital formation. The data was analyzed using econometric methods, namely the Autoregressive Distributed Lag (ARDL) Model. The unit root test, utilizing both the Augmented Dickey-Fuller (ADF) and Phillip and Perron (PP) tests, the lag order of the ARDL models using VAR lag order selection criteria, and the bound test were all carried out.

From the results of the study, it was discovered that domestic debt stock (DMD) has an insignificant and negative relationship with real GDP in Nigeria. However, external debt stock has an insignificant and positive relationship with economic growth while total public debt service was statistically insignificant and negatively related to RGDP in Nigeria.

The study concluded that the domestic debt of Nigeria has not been instrumental in aiding economic growth in Nigeria and an increase in the level of total debt service to the various creditors to the economy would decrease the level of growth in Nigeria. It is also ascertained that the external debt is preferable to domestic debt in terms of the general economic growth. Although, statistically insignificant, accumulated external debt stock has contributed positively to the economy for the period 1970-2019.

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background to the study**

Every nation wants to be at its best. Becoming a better nation comes under the government's responsibility, therefore they aim at specific goals to aid the growth, development and smooth running of the economy (Young, 2019). These goals are the macroeconomics goals. Each and every one of these goals require lots of planning, execution, policy making and more, which in turn need financing to attain (Premchand, 1989). Budgets are created every year by the government to take control of the economy and sponsor these aims. (Young, 2019). The budget lays forth the government's revenue and spending plans. The cost of attaining the macroeconomic goals falls under the government's expenditure. Taxation, borrowing, and capital stock are the main sources of the government's revenue (Gurley and Shaw, 1967).

Nigeria's capital stock is low, as is the case in most developing countries, due to a lack of domestic savings and investment (Adepoju, Salau and Obayelu, 2007), and hence insufficient to support expenditure. Taxation is similarly low in Nigeria, as the government's tax revenue-generating capacity has yet to be completely utilized, according to World Bank data (Heritage Foundation macroeconomic data, 2017). The other open source of revenue apart from taxation is borrowing and debt financing (Bello, 2017). Hence, in the case of a budget deficit, that is, the expenditure exceeds the revenue in a fiscal year, the government take out loans to attain their goals. These loans, when accumulated overtime, becomes public debt.

The national debt is an important metric for bridging the government's funding deficits. It signifies percentage of government expenditure funded by borrowing as an alternative to taxes. (Oyejide, 1985) stated that debt is the product of borrowing, and it is the money resources used in

a business that were not generated by the owners (Bello, 2017). Borrowing causes debt, and when the government incurs debt, the debt is referred to as a public debt. The government can incur these debts from within its country as domestic debt. Most times, borrowing from within its country is not enough for the government, so they borrow from external/foreign forces as external debt. Though both (domestic and external debt) aim at the same objectives, their effects are totally different. In any economy, a major avenue of governmental receipts for financing capital accumulation is external borrowings (Adepoju et al., 2007). Domestic borrowing simply moves resources within a country, whereas external debt can broaden a country's resource base. As a result, only external debt causes a "transfer" concern (Keynes, 1929).

In developing countries (including Nigeria), compared to developed countries, the debt dynamics are different, that is, the effect of accumulated borrowings for the economy are distinct than that of developed. Most times, the growth levels of developing countries have a favourable impact on the debt during economic growth catching-up process. This indicates that Debt is good (provided it is used for the purpose it was borrowed for), however, when debt growth outpaces revenue growth and debt servicing exceeds established threshold levels, it becomes unsustainable.

Nigeria's debt stock has been steadily increasing since the 1920s, when it was still under colonial administration. As a result of her desire to conduct big capital development projects, the government began increasing its debt stock portfolio, and therefore the necessity to finance these projects developed. The British government took the first documented loan on behalf of Nigeria in 1923/24 (£5.7 million) at a rate of 2.5 cents per year and a repayment term of 20 years. By 1936, Nigeria had borrowed a further £4.89 million, bringing the country's debt stock to roughly £9.89 million. Between 1946 and 1948, more loans totaling £5.74 million were granted, raising Nigeria's total debt to £21.24 million by the ending of 1952. Nigeria's overall debt stock was roughly £17

million at the conclusion of colonial administration. Despite the fact that Nigeria wanted to focus on raising public finances domestically after independence, she took out another loan, this time from the Paris club of creditors. (31 million dollars), with a 3.5 percent annual interest rate and a 20-year repayment period (BudgiT, 2019).

Thus, when the Structural Reform Programme (SAP) was implemented in 1986, Nigeria's debt burden was within a reasonable range. As Nigeria mainly depended on its oil revenue, the global oil glut in 1978 affected the revenue as the price of oil reduced and caused Nigeria's economy to slump. To resolve this, the government borrowed vigorously from external sources hoping that the price will rise again. This was not the case as the borrowings accumulated to a debt crisis which brought about the adoption of the SAP introduced by the IMF as part of the condition for further loan. The SAP was to liberalize the economy and boost the GDP growth of Nigeria but the policy was not handled with enough transparency, implementation and accountability. To carry out the policy, the government took out further loans, and Nigeria was recognized as a Heavily Indebted Poor Country (HIPC) in 1992. Excessive foreign debt is widely known as a serious obstacle to developing countries' economic development (Audu, 2004; Mutasa, 2003). According to (Gohar and Butt, 2012), accumulated debt service payments cause a slew of issues for governments because the debt is really serviced for more than the amount it was acquired, slowing the growth process in those countries.. The debt forgiveness that was extended by the Paris club in 2006 was what helped Nigeria, putting the country's debt stock back on a sustainable course. This still did withhold the government from acquiring more loans. Soon after, the government began a new round of unrestrained debt accumulation, this time primarily domestic debt. This has been trending in recent discussions over the country's need for external financing.

Nigeria's economic growth has been hampered by the persistent growth of fiscal deficits and budgetary constraints. The debt crisis in Nigeria may have undesirable consequences, such as low GDP growth and more (Okonjo-Iweala, 2011). Research has it that debt is good given the funds are channeled and judiciously used for what they were borrowed for, for instance, productive investment used to provide goods which returns are more than the cost of incurring the debt.

According to Soludo, once a country's debt stock reaches a particular level, servicing it becomes a burden, and the country falls into the debt-lafer curve, cutting down investment and growth. This appears to be Nigeria's current situation, since investment, which will lead to high-speed growth and a reduction in poverty, is fluctuating in both good and negative directions (Egbetunde, 2012). Many issues have been associated with Nigeria's continuous rise in its debt stock.

The fundamental setback in Nigeria's economic situation is that the debt stock has grown without corresponding increases in production, resulting in a rise in public debt payment over time (Ogbonna, Ibenta, Chris-Ejiogu and Atsanan, 2019). Over the years, the Nigerian public debt servicing framework has remained a key leakage in the Nigerian financial system.

“The ownership structure of Nigeria's debt is such that the federal government pays 75 percent of the debt payment while the remaining, 25 percent, is serviced by the states,” Ngozi Okonjo-Iweala said in one of her articles.

As a result, fully servicing Nigeria's debt every year would leave the federal government with very little money for capital spending over the next 5-7 years, as the federal government's share of such debt service would virtually consume the entire capital budget, especially when domestic debt service is taken into account.” Thus, the most serious difficulties Nigeria has recently faced include a surge in the public debt size as well as debt servicing (Ogbonna et al., 2019).

Scholars and academics have raised concerns about the public debt and the high cost of servicing the debt with its influence on economic growth in Nigeria. Hence, it is critical to look at the influence of debt on the economy's performance, as well as to assess the public debt servicing structure and its impact in the country.

## **1.2 Statement of the Research Problem**

It has been argued that public debt can stimulate demand and have a positive growth effect. Public debt also pushes out private investment and, in the long term, degrades economic performance (Elmendorf and Mankiw, 1999). Increased government debt can deter investment by raising long-term interest rates (Modigliani 1961; Gale and Orszag, 2003; Baldacci and Kumar, 2010). A fiscal debt burden isn't the only condition that can limit long-term progress (Inter-American Development Bank, 2013). Even if a deficit helps fund public investments, it is detrimental to growth when the fiscal balance deteriorates in the midst of substantial public debt stocks (Saint-Paul, 1992; Adam and Bevan, 2005; Aizenman, Kletzer and Pinto, 2007). For the most part, it is contended that a higher supply of public obligation will initiate further distortionary tax assessment, or higher swelling, to pay the obligation, which diminishes further possible development. Along these lines, high open obligation diminishes the capacity to execute countercyclical monetary approaches, bringing about higher unpredictability and lower development (Aghion and Kharroubi, 2007; Woo, 2009).

The stuffed obligation designs of African nations turned into an impediment to its turn of events and full discount practically theoretical (Hadhek and Mrad, 2014). Notwithstanding the expanding idea of the obligation stock, Nigeria's financial development and advancement isn't empowering, especially taking a gander at the monetary improvement as far as its fundamental parts like business creation and destitution decrease (Ayadi and Ayadi, 2008). Public obligation

overhauling seriously impacts financial development by lessening/narrowing the significant portion of assets accordingly forestalling the accomplishment of macroeconomic objectives. As Nigeria is a country driven by obligation, it has been trapped in the snare of public obligation overhauling which has hampered its macroeconomic objectives and accomplishments

In addition, the Nigerian monetary circumstance has been so undermined by lopsided and wrong financial strategies, failure of government and its offices, capital flight, misappropriation of oil income by the political and regulatory tip top, defilement and purposeful obligation collection by the political class in order to redirect reserves through elephant projects which have additionally added to absence of arrangement of essential framework, for example, great street organization, pipe borne water, power, etc. (Uma, Eboh and Obidike, 2013). The absence of prudent utilization of these procured credits to work on the country by dispensing the assets to the useful areas of the economy has influenced convincing and settling impact of shortage financing for monetary development in Nigeria.

With an increasing debt stock, billions to trillions of naira has been spent on public debt servicing for the past 30 years in Nigeria without the expected increase in the economic welfare, raising the questions; how has the public debt servicing affected economic growth? To what extent has the service of public debt (both domestic and external) had a real-world impact on economic growth? Why hasn't Nigeria's economic growth been driven by external borrowings? Is Nigeria's domestic debt having a substantial impact on national output? These are important questions to ask in order to determine the implications of the country's debt service on the economic situation (Ogbonna et al., 2019).

In light of this, the objective of this research is to look into the implication of domestic debt, external debt, and governmental debt servicing on Nigeria's economic growth.



### **1.3 Research Questions**

The following questions will direct the course of this study:

- i. to what extent does domestic debt influence Nigeria's economic growth?
- ii. what is the impact of foreign debt on growth in Nigeria?
- iii. what is the impact of debt service on Nigeria's economy?

### **1.4 Research Objectives**

The broad objective of this study is to investigate the impact public debt on the Nigerian economic growth. The specific objectives are:

- i. assess the impact of domestic debt on growth.
- ii. examine the impact of external debt on Nigeria's economic growth.
- iii. investigate the impact of public debt servicing on growth in Nigeria.

### **1.5 Research Hypothesis**

The hypothesis to be tested in this course of study includes:

Hypothesis 1:

$H_0$  : Domestic debt has no influence on growth in Nigeria

$H_1$  : Domestic debt has influence on growth in Nigeria

Hypothesis 2:

$H_0$  : External debt has no impact on Nigeria's economic growth

$H_1$  : External debt has impact on Nigeria's economic growth run

Hypothesis 3:

$H_0$  : Public debt servicing has no impact on growth in Nigeria

$H_1$  : Public debt servicing has impact on growth in Nigeria

## **1.6 Significance of the Study**

The debt burden has clearly been a restraining factor on Nigeria's economic recovery growth and development with the debt increasing at an alarming rate. Funds that should have gone toward economic development are instead being diverted to pay off debts. The debt burden services' limiting effects are more obvious since the economy has failed to grow fast enough to reduce the burden to a sustainable level (Udoka and Ogege, 2012).

Because scarce public resources are limited for other uses, debt repayment and debt service commitments have resulted in disinvestment in the economy, limiting Nigeria's growth and development potential. This has been an issue of great concern to the government of Nigeria and even to the populace whose future is being short-changed by means of higher taxes.

This study examines the influence public debt has on Nigeria's economic growth as well as the impact of debt repayment on the economy. The results of this study are noteworthy because they give a platform for policymakers to design solutions to solve debt crisis issues and alleviate the negative growth consequences of Nigeria's public debt.

## **1.7 Scope of the Study**

A detailed empirical investigation was done with data spanning a 50-year period, i.e. 1970-2019, in order to adequately capture its effect on the economy. This time frame was chosen to reflect the period following the oil price drop, as well as the post-debt-relief era and subsequent changes in Nigeria's debt profile.

## **1.8 Organization of the Study**

This study is divided into five chapters. Chapter one contains the general introduction providing the background to the study, statement of research problem, scope of the study, significance of the study, research objectives, research questions and the research hypothesis.

Chapter 2 portrays the conceptual and theoretical reviews as well as the empirical review with its implication for the current study. Chapter 3 provides the theoretical framework of the study and the methodology employed. It also contains the specification and estimation of the model. While Chapter 4 presents the empirical analysis and interpretation of the estimated models, chapter 5 depicts the summary, conclusion and recommendations.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter is divided into four parts. Section 2.2 presents the conceptual review. Section 2.3 portrays the theoretical review of the study. Section 2.4 focuses on the empirical literature of public debt and growth while section 2.5 reveals the gap in literature.

#### **2.2 Conceptual Review**

##### **2.2.1 Public Debt**

Debt is the asset or cash utilized in an association that isn't added to its proprietor and doesn't in some other manner have a place with them (Oyejide, 1985). In this case, the organization represents the government. As a result, the term "public debt" refers to the entire amount of money owing at any given moment by the federal, state, and municipal governments. When a government's budget deficit grows, so does its public debt; as a result, if a government's budget deficit grows, so does its public debt.

The monetary value owed by a country's government to numerous creditors, institutions, other entities, and individuals residing in or outside Nigeria is known as public debt. For the study, public debt is categorized into domestic debt and external debt.

##### **2.2.2 Domestic Debt**

Ozurumba and Kanu (2014) stated that the part of the debt stock borrowed from within its borders is known as domestic debt. It consists of government borrowings from within her domestic economy. Unlike external debt, domestic debt doesn't increase the total resources available to that country. There is simply a transfer of resources from one to another for public services purpose (Nurudeen and Usman, 2010). Domestic debt is just an interchange of purchasing power between

citizens of the same country; no real output is given up to another country. (Isibor, Babajide, Akinjare, Oladeji and Osuma, 2018).

Government domestic borrowing, according to (Mba, Yuni, and Oburota, 2013), serves as a yardstick for the assurance of private sector debt security, such as corporate funds and treasury bills, in order to give investors confidence that their returns are safe and secure. Treasury bills, treasury certificates, treasury bonds and development stock are some of the instruments used to finance domestic debt. Treasury bills and development stocks are tradable debt securities, whereas treasury bonds and other advances are not tradable and are held mainly by the Nigerian Central Bank (Adofu and Abula, 2010). Domestic debt, then, refers to debt obtained through the Nigerian capital market and other sources.

### **2.2.3 External Debt**

The part of a country's debt obtained from overseas sources, such as foreign firms, governments, or financial institutions, is known as external debt (Arnone, Bandiera and Presbiteri, 2005). It involves a country borrowing from foreign countries or issuing bonds to finance capital projects. Countries rely on each other to encourage economic growth and achieve sustainable economic development due to resource constraint and the rule of comparative advantage (Adepoju et al., 2007).

The resources can be borrowed from a foreign government, as well as foreign businessmen and private citizens. External debt is largely regarded to be beneficial to economic development and prosperity (Hirschman, 1958; Osinubi, Dauda and Olaleru, 2006). That is by far the most typical cause for taking on debt in the first place. The requirement of borrowing to fund a deficit budget has resulted in increasing in external debt (Osinubi et al., 2006).

Because of the future burden of repaying the debt and satisfying interest commitments, external debt increases a country's overall available resources. This form of debt is critical for a developing economy that requires further capital imports in order to grow.

#### **2.2.4 Public Debt Servicing**

The act of paying interest on borrowed money is referred to as debt servicing (Oxford Advanced Learner's Dictionary). Debt service is the cash that is required to cover the repayment of interest for a particular period (Tuovila and James, 2020). The term "servicing a debt" refers to the process of repaying a loan's interest (Routledge Economics Dictionary, 1995). The World Bank's International Debt Statistics defined total debt service as the sum of principal repayment and interest actually paid in money, goods or services on long-term debt, interest paid on short-term debt, and payback (repurchases and charges) to the International Monetary Fund (IMF) (IMF, 2018).

#### **2.2.5 Economic Growth**

Economic growth, according to many economist, refers to the total worth of all final output that a country can produce within a year valued at market prices as adjusted for price changes plus the imputed value of the economy's produced services and products that do not pass through the market channel minus net income from abroad (Odo, Anoke and Elom-Obed, 2017). When comparing one period of time to the next, this is seen as a growth in the country's productive capacity. As a result, an economy's growth is evident when the total output increases when compared to past years.

An economy can grow in one of two directions: upward or downward. A positive growth indicates an higher output for that particular economy, which is referred to as a boom, whereas a

downward growth indicates an inverse growth, which means that the total output for that particular economy has decreased when compared to its value in previous years.

## **2.3 Theoretical Review**

### **2.3.1 Classical Theory of Public Debt**

The classical economists believed in the laissez faire economy and that the state functions should be minimum, that is, there is no need for the government's intervention in the smooth running of the economy and if any calamity befalls it, it will be brought to equilibrium automatically. Since the government's function is minimum, there is no need of large revenues and then there arises no question of huge public expenditure, hence, the government did not require raising funds in form of public debt also. Because the money supply is limited, any funds shifted to the government would come at the expense of private employment and spending. Thus, public debt will inflict unnecessary burden on the shoulders of the community. The classicalist opposed public debt and considered it evil as it introduced the burden of interest payments.

### **2.3.2 Keynesian Theory of Public Expenditure**

The theory was published in 1936. The publication was a massive rebuke to the classical economics system in which Keynes was educated. The First World War had destroyed the period that had sustained classical economics, and subsequent cataclysms had proven the classical ideology's deficiencies for Keynes. Obviously, a new fusion was required, and this is what Keynes sought to do, as he believed that classical economics was based on a fundamental error in presuming, incorrectly, that supply and demand equilibrium would produce full employment. However, in Keynes' opinion, the economy was constantly and prone to fluctuations, and supply and demand could well balance out an equilibrium that did not deliver full employment in the

economy due to poor investment and over-saving, both entrenched in the psychology of vagueness in the economy.

Keynes claimed that the remedy was ostensibly simple: replace lost private investment with public investment, which was financed by the economy's deliberate budget deficits. He had the impression that the government should borrow money to spend on things like public works, and that deficit spending would, in turn, lead to the creation of jobs and increased real income in the economy, as balancing the government's budget during a recession would exacerbate rather than alleviate the problem. Keynes advocated that government should assume a stronger role in the economy, and his vision was of a revived, regulated capitalism (capitalism saved from both itself and socialism). He proposed for the state to take "an ever better accountability for openly coordinating investment in the economy" and for an inclusive socialization of investment. He claims that fiscal policy would allow wise managers to sustain the economy without resorting to actual restrictions, and that the decentralized market, rather than the central planner, would make the majority of decisions.

### **2.3.3 The Debt Overhang Theory**

Myer (1977) proposed this theory to explain firm valuation in corporate finance and the impacts of debt financing. He confirmed that even if a company wants to pay higher interest rates, there is always a limit to how much money it can borrow from the capital market. Later, experts like as Krugman and Sachs compared and applied the theory to a country's financial status and ability to satisfy debt servicing commitments, as well as how debt relief might benefit the creditor receiving partial payments (Sichula, 2012; Mabula and Mutasa, 2019). These authors argued that, as sovereign governments service their debt by taxing firms and households, high levels of debt imply a raise in the private sector's expected future tax burden.



Debt overhang refers to a situation in which the future debt load is thought to be so enormous that it discourages present investment because investors believe that any new project proceeds will be taxed to get rid the existing debt. Lower levels of current investment, in turn, leads to lower growth and, for a given tax rate, lower government revenues, lower ability to pay, and lower the value of the debt. Countries with a debt overhang may be on the bad side of the "Debt Lafer curve," which describes a situation in which partial debt cancellation, which lowers the predicted tax burden, benefits both lenders and borrowers by raising investment and growth, and hence tax revenues and debt value. Even if creditors would benefit from debt cancellation, it necessitates a coordination system that requires all creditors to suffer some nominal losses. Without such a process, one creditor will opt to hold out while other creditors cancel a portion of their claims.

#### **2.3. 4 The Debt Lafer curve**

The Lafer curve which is basically non-linear and U-shape, is a tool that is used to postulate the peak at which debt overhang occurs. It was used to optimize tax revenue to reduce the fiscal deficit. Given the rapid increase of debt in recent decades, researchers in economics have examined the debt Lafer curve as an evaluation tool that lenders can use to assess the solvency of a debtor country.

#### **2.3. 5 Debt-cum-Growth Model**

The initial non-optimizing strategy was promoted in the context of the "Debt-cum-Growth" literature, which focused mostly on foreign investment reasons, i.e., to get rid of the differences between domestic investment and saving (Abdullahi, 2013). The Debt-cum-Growth Model takes into account debt capacity, that is, the benefit and cost of borrowing during the economic growth process. The primary idea is that a country's ability to service debt will be maintained as long as debt increases contribute (sufficiently) to growth over time. A debt pattern is presented, in which

capital flow behavior might alter across a number of stages that are closely tied to the economic growth rate. The Debt-cum-Growth model's strength rests in its simplification of the complexity of debt growth mechanics into a basic and easy-to-understand insight: any debt strategy will only work in the end if there is enough growth to back it up. When it comes to evaluating debt capacity in greater detail, the Debt-cum-Growth Model framework also has a number of conceptual challenges due to its theoretical underpinning and the rigidity of its key assumptions (Mcdonald, 1982).

The model's strong focus on the saving-investment gap is a fault in its design. However, because external finance will have been made available in foreign value, the savings surplus will have to be converted into foreign currency in some way. The Debt-cum-Growth Model ignores this transformation problem since it ignores the economy's external sector.

### **2.3. 6 The Crowding Out Theory**

Current consumption is encouraged by shifting tax burdens to future generations in the form of debt repayment, which diminishes savings. Because of this circumstance, interest rates in the capital markets rise, discouraging private investment. Low investment cuts government revenues even further, limiting the government's capacity to affect budgetary policies. The crowding out effect starts with domestic creditors (mainly the government via the central bank as a lender of last resort) being unable to service investors' needs due to an increased external debt servicing due to liquidity limitations (Broner, 2013). Current higher debt servicing implicates higher future taxes of which private investors escape it by being reluctant to invest (Mabula and Mutasa, 2019).

### **2.3. 7 The Dual-Gap Theory**

The theory is proposed on the condition that state thus, to achieve a reasonable level of development in an economy, investment is a key player. Such investment, however, cannot be

made without significant domestic savings; in order for a country to achieve a sustainable level of development, both investment and significant domestic savings are required. Domestic savings and investment are also insufficient to achieve comprehensive growth. As a result, borrowing from another country is required. This means that, according to this theory, the mix of domestic savings, investment, and foreign borrowed funds is a function of economic progress.

## **2.4 Empirical Review**

Various economic researchers have sought out to investigate the implication of public debt burden on debtor nations including Nigeria and have come up with diverse views and findings;

**TABLE 2.1: Empirical Review**

<b>Author</b>	<b>Title of Publication</b>	<b>Period Covered</b>	<b>Methodology</b>	<b>Findings</b>	<b>Recommendation</b>
Servides (1992)	Investment slowdown in developing countries during the 1980s	1980-1986 (43 developing countries)	Two-stage limited dependent variable model	Public debt service payments have the same damaging effect on GDP as a rise in marginal tax rate	Developing countries should not be allowed to accumulate debt to more than 60 percent.
Cunningham (1993)	The effects of debt burden on economic growth in heavily indebted nations	1971-1986		Debt payments had an inverse impact on GDP growth	The government should muster resources from alternative avenues.
Cohen (1993)	Low investments and large LDC debt in the 1980s	1965-1987	OLS method	For every one percent of GDP paid abroad, domestic investment decreased by 0.3 percent of GDP	Policies relating to debt management should be reviewed.

Iyoha (1999)	External debt and Economic growth in sub-saharan African countries: an econometric study	1970-1994	An econometric simulation model	The variables related to the external debt have a harmful effect on investment, showing that an accumulation of outstanding debt discourages investment	Proper debt management to enhance growth and development
Weeks (2000)	Latin America and high performing Asian economies: growth and debt	1960-1994	OLS estimation technique	Insignificant relations between public debt service and GDP in Asian countries	No recommendation
Serieux and Sammy (2001)	The debt service burden and growth; Evidence from low-	1970-1999 (53 low income countries )	Fixed effects model	Debt service costs crowd out private and public investment spending by suppressing capital imports	Effective management of debt and its payment by government official

	income countries				
Karagol (2002)	The causality analysis of external debt service and GNP: the case of Turkey	1956-1996	Johansen and Joselius maximum likelihood estimation techniques	An inverse short-run and long-run impact of debt service on GNP growth rate in Turkey during the study period	Review of debt repayment policies.
Audu (2004)	The impact of external debt on economic growth and public investment		OLS Regression	Debt servicing pressure on the country has had a significant adverse effect on growth process	External debts should be kept to a minimum because it has a detrimental impact on the economy.
Osinubi and Olaleru (2006)	Budget deficits, external debt and economic growth	1970-2003		Existence of the debt lafer curve and non-linear effects on external debt on growth in Nigeria	To ensure the efficient use of borrowed funds, the government and development partners must implement

					monitoring mechanisms.
Adepoju, Salau, and Obayelu (2007)	The effects of external debt management on sustainable economic growth and development	1962-2006		Accumulation of external debts adversely affected Nigeria's economic growth.	Proper and effective debt management
Ayadi and Ayadi (2008)	The impact of external debt on economic growth		OLS and Generalized Least Square	Debt and its service requirements have a negative impact on Nigeria's and South Africa's economic growth.	Minimal acquisition of debt.
Adesola (2009)	Debt servicing and economic growth in Nigeria; An empirical investigation	1981-2004	OLS method of multiple regression	Payments to the Paris club of creditors and promissory notes are directly associated to GDP, whereas payments to the London club of	Discouragement of debt from creditors with unfavorable repayment conditions and policies.

				creditors are negatively related.	
Malik, Hayat and Hayat (2010)	External debt and economic growth; empirical evidence from Pakistan	1972-2005	Time series econometric technique	External debt affects economic growth in an inverse and significant way.	The government should provide additional incentives to local producers
Udoka and Ogege (2012)	Public Debt and the crisis of development in Nigeria Econometric investigation	1970-2010	Error correction modeling framework with co-integration techniques	Political instability may slow growth, and other independent variables may be to blame for the country's underdevelopment.	To avert an economic development catastrophe in Nigeria, the country's public debt should be lowered to the bare minimum.
Egbetunde (2012)	Public debt and economic growth in Nigeria.	1970-2010	VAR, Augmented Dickey Fuller and Philip Peron test	There is a long-term association between public debt and economic development.	The government should be honest with the loans it receives, steering them into economic



					development rather than into private pockets.
Ejigayehu (2013)	The effect of external debt on economic growth	1991-2010		External debt has a debt crowds out economic growth rather than a debt overhang.	Debt should only be used for productive purposes, and domestic products should be exported more.
Okon, Maji and Denise (2013)	The relative potency of external and domestic debt on the economic performance of Nigeria	1970-2011	Series of econometric analysis	External debt is superior to domestic debt in terms of economic growth, external debt and not domestic debt crowds out domestic investment in Nigeria.	In order to mobilize domestic savings and boost domestic investment in Nigeria, the government should turn to domestic market-based borrowing.
Tchereni, Sekhampu and Ndovi (2013)	The impact of foreign debt on economic	1975-2003		Negative but statistically insignificant relations between economic growth	Rather than relying on borrowing to expand their economy, the government should

	growth in Malawi			and foreign debt in Malawi	provide additional incentives to local producers to help them compete in both domestic and international markets.
ThankGod (2014)	The impact of public debt on private investment in Nigeria: Evidence from a nonlinear model	1981-2012	For the computation of normal based standard errors for the turning points, the Instrumental Variable approach and bootstrapping technique was used.	Domestic debt has a direct linear influence on private investment; external debt has an Inverted impact on investment; and private consumer expenditure has an inverse impact on private investment.	Nigeria will gain from government foreign borrowings if the funds are sufficient in comparison to the country's GDP and are invested in productive initiatives.
Kalu, Okai, Chukwu and Amadi (2016)	Debt servicing and economic growth: The	1981-2013	Ordinary Least Square regression method And	Nigeria's and other countries' growth is constrained by debt burdens, as indicated	Reduced debt structures

	Nigerian experience		Granger causality test	by the government's servicing payments.	
Matthew and Mordecai (2016)	The impact of public debt on economic development of Nigeria	1986-2014	Augmented Dickey-fuller test, Johansen co-integration test and Granger causality test	External debt and debt servicing have a minor negative impact on Nigeria's economic advancement. In Nigeria, domestic debt has a direct and important link to economic development, but debt service payment has a strong but inverse link to economic development.	The government should decrease the amount of external debt it acquires over time, but domestic debt buildup would help the economy grow greatly.
Sunday (2016)	An empirical analysis of the macroeconomic impact of		VAR, Granger causality test, impulse response and variance decomposition	The shock to the foreign debt raises the prime lending rate, but only temporarily.	External borrowing by the government should be kept to a minimum because it has a detrimental

	public debt in Nigeria			However, across the study period, the quantity of internal and foreign debt had no substantial impact on the general price level or output.	impact on the economy.
Odo, Elom-Obed, Anoke and Elom-Obed (2017)	Public debt and economic growth in Nigeria.	1980-2015	Vector Error Correction Model (VECM)	External debt and domestic debt have significant negative impact on economic growth.	To maintain economic stability and long-term growth, the government should reduce both borrowing and spending.
Sami and Mbah (2018)	External debt and economic growth; the case of emerging economy	1990-2015	ARDL cointegration approach	External debt has an inverse and considerable impact on Oman's economic growth.	To impact good growth, more productive utilization of the external debt money is required.

Isibor, Babajide, Akinjare, Oladeji and Osuma (2018)	The effect of public on economic growth in Nigeria: An empirical investigation	1982-2017	Least Square Regression	External debt negatively impacts the economy while internal debt directly impact the economy.	Attempts to corrupt borrowed monies should be made at all costs.
Ogbonna, Ibenta, Chris-Ejiogu and Atsanan (2019)	Public debt services and Nigerian economic growth	1970-2017	Augmented Dickey-fuller unit root test, Johansen co-integration & Vector Error Correction model	Public debt services influences economic growth negatively and affect economic development and enhancement adversely	Reduced debt structures and the preservation of a specific debt granting threshold based on economic strength in order to reduce rising debt service costs.
Eze, Nweke and Atuma (2019)	Public debt and Nigeria's economic growth	1981-2017	Autoregressive Distributed Lag (ARDL) and chow breakpoint test	External debt has an inverse and considerable influence on GDP, but domestic debt has a damaging but minor impact.	The government should stop using debt to finance the economy's budget deficit, but it should step up efforts to boost revenue

					internally through smart investment and economic diversification.
Festus and Saibu (2019)	Effect of external debt on Nigerian economy: Further evidences	1982-2017	Autoregressive Distributed Lag (ARDL) model	Nigeria's external debt has a detrimental impact on growth.	The need of excellent governance, a stable macroeconomic policy environment, proper debt acquisition and use purely for productive purposes, and increased domestic product exports
Ajayi and Edewusi (2020)	Effect of public debt on economic growth in Nigeria: an empirical investigation	1982-2018	Unit root test, Johansen co-integrated test and vector error correction model	External debt has an inverse long-term and short-term impact on Nigerian economic growth, whereas domestic debt has a direct long-term and short-term impact.	Policymakers should incorporate necessary measures to ensure that home debts are properly managed.

Benjamin, Alexander, Godswill and Ofe (2020)	Dynamic relations between public external debt and economic growth in African countries: A curse or blessing?	2001- 2018 (41 African countries including Nigeria)	Johansen co- integration test and system Generalized Method of Moments (sysGMM)	Long run equilibrium relations between external debt and economic growth in Africa. Beyond a given capacity, the short run converges to equilibrium in the long run, and Africa's economic growth should begin to deteriorate due to external debt.	The findings highlight the importance for policymakers to guarantee that debt is properly applied in economic activity in order to achieve long-term economic stability.
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## **2.5 Gaps in Literature**

The conclusion of the above review is that, while there is a large body of literature on the public debt's impact in Nigeria, many of them are limited to either domestic debt or external debt's impact on growth. Only a few have taken both into account, as well as public debt servicing, and their impacts on growth in Nigeria. Moreover, the debt-growth literature have not been updated to more recent years. This study, thus, fills this gaps.



## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter focuses on the methodology employed to attain the objectives of the study. In particular, the theoretical framework and various methodological issues entailed in the analysis of the study are discussed. It contains the model specification, definition and measurement of variables with their sources as well as the estimation technique.

#### **3.2 Theoretical Framework**

According to economic theory, a developing country's acceptable borrowings, whether domestic or external, tend to boost economic growth. Growth ought to increase and enable timely debt repayment, according to Pattilo, Poirson, and Ricci (2001, 2002), as long as these countries utilize these borrowings for productive activities and does not cause macroeconomic instability, distortive economic policies, or big negative shocks.

But why can a large amount of debt contribute to slower growth? The debt overhang theory, according to Pattilo et al (2001, 2002), is the best explanation for why high amounts of accumulated debt contribute to reduced growth (Anyanwu and Erhijakpor, 2004).

This research is established on the debt overhang idea. The debt overhang idea adds a new dimension to the growth-debt crisis. According to the hypothesis, if a country's borrowing exceeds its ability to pay, debt payment obligations will drain the debtor country's output, increasing the debt burden and resulting in a liquidity crisis. High debts, including domestic and external obligations, according to the debt overhang theory, contribute to foreign tax anticipation, discourage savings and investment, and promote capital flight from the home economy (Pattillo et al, 2002). It claims that while debt accumulation initially stimulates growth, once it exceeds the

debt sustainability threshold, liquidity constraints exacerbate the debt accumulation effect, while debt servicing commitments reduce income from exports within the public sector for expenditure, undermining growth.

This theory claims that accumulation of high-sized debt stock would lead to a decrease in economic growth and complicates developmental efforts through the channels of reduced public revenue and investment expenditure. According to Krugman (1988), rapid rise in public debt leads in higher taxes (tax disincentive) on future production and this crowds out private investment and growth. This implies that potential investors will be discouraged due to large debt stocks on the assumption that by applying high taxes, government funds its debt service obligations and that this will further delay the nation's growth. Reinhart and Rogoff (2010) argued that the resources used to service massive public debt represent resource drain and thus, slowing growth. The cost of servicing huge public debts could take a greater part of government revenue leading to distortions and lower levels of developing countries' economic growth.

### 3.3 Model Specification

To derive the first objective, the study takes after the work of (Maana, Owino & Mutai, 2008) with few modifications;

$$RGDP = f(DMD, INF, TRD, FGTE) \quad (1)$$

The above equation can be defined econometrically as;

$$\ln RGDP = b_0 + b_1 \ln DMD + b_2 \ln INF + b_3 \ln TRD + b_4 \ln FGTE + \mu \quad (2)$$

$$b_1, b_2 < 0, b_3 b_4 > 0,$$

To examine objective two, the study employed the work developed by (Mbah and Umunna, 2018) with some modifications

$$RGDP = f(EXD, POP, FDI, TOP) \quad (3)$$

Econometrically, the equation can be defined as;

$$\ln RGDP = \beta_0 + \beta_1 \ln EXD + \beta_2 POP + \beta_3 \ln FDI + \beta_4 \ln TOP + \mu \quad (4)$$

$$\beta_2, \beta_3, \beta_4 > 0, \beta_1 < 0$$

To investigate the objective three, the study employed the work of (Ogbonna et al, 2019) and is estimated as follows;

$$RGDP = f(TPDS, EXR, INR, CF) \quad (5)$$

The above equation is expressed econometrically as;

$$\ln RGDP = \delta_0 + \delta_1 \ln TPDS + \delta_2 EXR + \delta_3 \ln INR + \delta_4 \ln CF + \mu \quad (6)$$

$$\delta_2, \delta_4 > 0 \quad \delta_1, \delta_3 < 0$$

Where;

RGDP, DMD, INF, TRD, FGTE, EXD, POP, FDI, TOP, TPDS, EXR, INR and CF depicts Real Gross Domestic Product, Domestic Debt, Inflation Rate, Trade, Federal Government Total Expenditure, External Debt, Population, Foreign Direct Investment, Trade openness, Total Public Debt Service (domestic and external debt service), Exchange Rate, Interest Rate and Capital Formation respectively.  $b_i (i = 1, \dots, 4)$ ,  $\beta_i (i = 1, \dots, 4)$  and  $\delta_i (i = 1, \dots, 4)$  Are parameters and  $\mu$  is the error term. The model was formulated using RGDP as the dependent variable, DMD, EXD and TPDS as the independent variables, and INF, TRD, FGTE, POP, FDI, TOP, EXR, INR, CF as control variables (a set of variables that determines change in RGDP). Some variables were logged because of the large nature of their values while others were not logged since they are in rates and percentage.

In conformity with economic theories, it is expected that;

- i.  $b_3, b_4, \beta_2, \beta_3, \beta_4, \delta_2, \delta_4$  are positive.
- ii.  $b_1, b_2, \beta_1, \delta_1, \delta_3$  are negative.

### **3.4 Sources of Data Collection**

The study made use of secondary data sourced majorly from the publications of Central Bank of Nigeria (CBN) Statistical Bulletin, Penn World Table (PWT) and the World Development Indicators (WDI 2020). The specific sources are highlighted in the table below;

**TABLE 3.1: Definitions and Measurements of Variables**

<b>Variable</b>	<b>Definition/Measurement</b>	<b>Source</b>
RGDP	The output produced in a particular year is reflected in the real GDP. It is utilized to reflect economic growth since it has been adjusted for inflation and provides a more accurate statistic. It's denominated in US dollars.	WDI 2020
DMD	Domestic Debt stock is used as a proxy for total domestic debt of the economy in a given period and is measured in N' Billion. The expected a priori can be positive (when on a sustainable threshold) or negative (when debt growth outstrips revenue growth) relations with economic growth.	WDI 2020
INF	Inflation Rate measured by consumer price index in percentage. It is expected that an inverse relations with economic growth.	WDI 2020
TRD	Trade as a percentage of GDP. The expected a priori is a direct relations with growth.	WDI 2020
FGTE	Federal Government Total Expenditure as; general government final consumption expenditure as a percentage of GDP. The expected a priori is a direct relations with economic growth.	CBN statistical bulletin
EXD	External Debt as a proxy for capturing total external debt of the economy in a given period. It is measured in N' Billion. The expected a priori can be a direct or negative relations with economic growth	WDI, 2020

POP	Population Growth rate as a proxy for labor and measured in percentage. The expected a priori is that it directly influences growth.	PWT
FDI	Foreign Direct Investment measured in US dollars. The expected a priori is that it directly influences growth.	WDI 2020
TOP	Trade Openness as the total of imports and exports (goods and services) as a percentage of GDP. The expected a priori is that it directly influences growth.	WDI 2020
TPDS	Total Public Debt Service is used to capture the total amount of money expended by the government on debt payment. It is the sum of the domestic debt service and the external debt service. It is measured in N' Billion. The expected a priori is that it inversely influences growth.	WDI 2020
EXR	Official Exchange Rate is the price of a nation's currency in terms of another currency. Measured in lcu per US dollars. The expected a priori is that it directly influences growth.	WDI 2020
INR	The real Interest Rate (%). The expected a priori is that it inversely influences growth.	WDI 2020
CF	Gross capital formation as a proxy for capital measured in percentage. The expected a priori is that it directly influences growth.	WDI 2020

### 3.5 Estimation Techniques

The estimation technique adopted in this study is the (ARDL) Autoregressive Distribution Lag, as employed by (Mbah and Umunna, 2018), to empirically analyze the short-run and long-run impact of economic growth in Nigeria. The approach allows the analysis of long-term relations between variables, regardless of whether they are stationary at levels  $I(0)$  or first difference  $I(1)$  or fractionally co-integrated. It also allows for the simultaneous estimation of the short-run and long-run components, eliminating the problems associated with omitted variables and the presence of autocorrelation. Furthermore, unlike the typical co-integration test, the technique allows for the use of multiple lags for distinct variables. The short and long-run parameters estimated using this Approach are compatible in small samples such as the one used in this study.

Since time series data could be vulnerable to unit root problems, Augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) unit root tests are implemented on the series to avoid spurious regressions. Unit root tests are first conducted to determine the stationarity of the variables, which must be a combination of  $I(0)$  and  $I(1)$  series.

To obtain the optimal and appropriate number of lags for each variable, a lag length test is conducted by estimating single equation Vector Autoregressive (VAR) and using lag length criteria considering the Hanna-Quinn information Criteria (AIC), the Akaike Information Criteria (SIC), the Log Likelihood (LL) and the Final Prediction Error (FPE).

Furthermore, when one or all of the variables are non-stationary at level, which suggests they have a stochastic trend, the co-integration test is used to assess the long run relations between the dependent and independent variables. Essentially, it is used to check if the independent variables can predict the dependent variable both in the short run and in the long run. Testing for co-integration is thus a test for the existence of long run equilibrium relations postulated. When it is

established that variables are co-integrated (that is, there is a long-run or equilibrium relations between them), in the short-run, there may be disequilibrium. Error Correction Model (ECM) is used to correct the disequilibrium.

For objective one, the ARDL form of equation (2) is specified as follow:

$$\begin{aligned}\Delta \ln RGDP = & a_0 + \sum_{i=1}^a a_1 \Delta \ln RGDP_{t-i} + \sum_{i=0}^b a_2 \Delta \ln DMD_{t-i} + \sum_{i=0}^c a_3 \Delta \ln F_{t-i} \\ & + \sum_{i=0}^d a_4 \Delta \ln TRD_{t-i} + \sum_{i=0}^e a_5 \Delta \ln FGTE_{t-i} + b_1 \ln RGDP_{t-1} + b_2 \ln DMD_{t-1} \\ & + b_3 \ln F_{t-1} + b_4 \ln TRD_{t-1} + b_5 \ln FGTE_{t-1} + \mu_t\end{aligned}\quad (7)$$

Where;  $\Delta$  denotes the first difference operator,  $a_0$  is the drift component and  $\mu_t$  is the white noise residual. The  $b_s$  represents the long-run coefficients to be estimated whereas the  $a_s$  represents short-run coefficients of the respective variables in the model. Hence, from equation (7) in applying co-integration tests, the study test the null hypothesis of no co-integration  $H_0: b_1 = b_2 = b_3 = b_4 = b_5 = 0$  against the alternative hypothesis  $H_1: b_1 \neq b_2 \neq b_3 \neq b_4 \neq b_5 \neq 0$ .

For objective two, the ARDL model of equation (4) is specified as;

$$\begin{aligned}\Delta \ln RGDP = & \alpha_0 + \sum_{i=1}^a \alpha_1 \Delta \ln RGDP_{t-i} + \sum_{i=0}^b \alpha_2 \Delta \ln EXD_{t-i} + \sum_{i=0}^c \alpha_3 \Delta \ln POP_{t-i} \\ & + \sum_{i=0}^d \alpha_4 \Delta \ln FDI_{t-i} + \sum_{i=0}^e \alpha_5 \Delta \ln TOP_{t-i} + \beta_1 \ln RGDP_{t-1} + \beta_2 \ln EXD_{t-1} \\ & + \beta_3 \ln POP_{t-1} + \beta_4 \ln FDI_{t-1} + \beta_5 \ln TOP_{t-1} + \mu_t\end{aligned}\quad (8)$$



Where;  $\Delta$  denotes the first difference operator,  $\alpha_0$  is the intercept or drift component and  $\mu_t$  is the white noise error term. The  $\beta_s$  represents the long-run coefficients to be estimated whereas the  $\alpha_s$  represents the short-run coefficients of the respective variables in the model. Accordingly, from equation (8) in applying co-integration tests, the study tests the null hypothesis of no co-integration  $H_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$  against the alternative hypothesis  $H_1 = \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$

For objective three, the ARDL model of equation (6) is specified as;

$$\begin{aligned} \Delta \ln RGDP = & \theta_0 + \sum_{i=1}^a \theta_1 \Delta \ln RGDP_{t-i} + \sum_{i=0}^b \theta_2 \Delta \ln TPDS_{t-i} + \sum_{i=0}^c \theta_3 \Delta EXR_{t-i} \\ & + \sum_{i=0}^d \theta_4 \Delta \ln INR_{t-i} + \sum_{i=0}^e \theta_5 \Delta \ln CF_{t-i} + \delta_1 \ln RGDP_{t-1} + \delta_2 \ln TPDS_{t-1} \\ & + \delta_3 EXR_{t-1} + \delta_4 \ln INR_{t-1} + \delta_5 \ln CF_{t-1} + \mu_t \end{aligned} \quad (9)$$

Where;  $\Delta$  denotes the first difference operator,  $\theta_0$  is the intercept and  $\mu_t$  is the error term. The  $\delta_s$  represents the long run coefficients to be estimated whereas the  $\theta_s$  represents the short-run coefficients of the respective variables in the model. Again, from equation (9) in applying co-integration test, the study tests the null hypothesis of no co-integration  $H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = 0$  against the alternative hypothesis  $H_1 = \delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq \delta_5 \neq 0$

## **CHAPTER FOUR**

### **PRESENTATION AND DISCUSSION OF RESULTS**

#### **4.1 Introduction**

This chapter presents the results of the analysis and is divided into six sections. Section 4.2 details the results of the unit root and the lag length selection criteria tests. It also reveals the test for co-integration among the variables used in the study. While Sections 4.3, 4.4 and 4.5 contains the empirical results of the study's objectives, Section 4.6 presents the discussion of the results from the analysis carried out.

#### **4.2 Results of Unit Root, Lag Length Selection Criteria and Co-Integration Tests**

##### **4.2.1 Unit Root Test Results**

Prior to detail analysis of ARDL models 7-9, the Augmented Dickey-Fuller (ADF) and the Phillip Perron tests were employed to determine the order of integration for each variable in the models. The stationary test was performed to avoid spurious regression problems normally associated with time series econometric model.

As can be seen from Table 4.1, the ADF unit root test result reveal that for intercept only, all variables are stationary at first difference (integrated of order I (1)) but only RGDP, INF, INR are stationary at level (integrated at order I(0)). For trend and intercept, all variables are also stationary at first difference, showing integration of order I(1) but only RGDP, INF, lnFDI and INR were stationary at level, showing integration of order I(0).

Table 4.2 shows the results for the Phillip Perron test which has some similarities with the ADF test results. At intercept only, while all variables are at stationary at first difference indicating the integration of order I(1), only RGDP, lnDMD, INF, TRD, TOP and INR are stationary at level showing an integration of order I(0). For trend and intercept, all variables are stationary at first

difference indicating integration of order I (1) but for level, only RGDP, lnDMD and lnFDI are stationary depicting integration of order I (0). Since the stationarity property of the variables under consideration is a mixture of I(1) and I(0), the ARDL bound testing technique was deemed appropriate for estimation.

**TABLE 4.1: Augmented Dickey-Fuller Unit Root Test Results**

Augmented Dickey-Fuller Test (intercept only)												
Variable	Level					First difference						
	ADF				Prob.	Remarks	ADF				Prob.	Remarks
	Statistic	Critical values					Statistic	Critical Values				
		1%	*5%	10%			1%	*5%	10%			
RGDP	-5.6295	-3.5713	-2.9224	-2.5992	0.0000	I(0)	-10.6263	-3.5744	-2.9238	-2.5999	0.0000	I(1)
lnDMD	-2.5463	-3.5744	-2.9238	-2.5999	0.1113	NS	-4.6524	-3.5744	-2.9238	-2.5999	0.0004	I(1)
INF	-3.4421	-3.5713	-2.9224	-2.5992	0.0141	I(0)	-7.1807	-3.5777	-2.9252	-2.6007	0.0000	I(1)
TRD	-2.8381	-3.5713	-2.9224	-2.5992	0.0604	NS	-7.8635	-3.5744	-2.9238	-2.5999	0.0000	I(1)
lnFGTE	-0.3865	-3.5744	-2.9238	-2.5999	0.9031	NS	-3.5366	-3.5777	-2.9252	-2.6007	0.0112	I(1)
lnEXD	-2.7632	-3.5713	-2.9224	-2.5992	0.0711	NS	-5.2544	-3.5744	-2.9238	-2.5999	0.0001	I(1)
POP	-0.6977	-3.5744	-2.9238	-2.5999	0.8375	NS	-3.9873	-3.5744	-2.9238	-2.5999	0.0032	I(1)
lnFDI	-1.7912	-3.5777	-2.9252	-2.6007	0.3802	NS	-11.6159	-3.5847	-2.9281	-2.6022	0.0000	I(1)
TOP	-2.8381	-3.5713	-2.9224	-2.5992	0.0604	NS	-7.8635	-3.5744	-2.9238	-2.5999	0.0000	I(1)
TPDS	-2.2349	-3.5713	-2.9224	-2.5992	0.1970	NS	-7.1007	-3.5744	-2.9238	-2.5999	0.0000	I(1)
EXR	2.101334	-3.5713	-2.9224	-2.5992	0.9999	NS	-4.7038	-3.5744	-2.9238	-2.5999	0.0004	I(1)
INR	-5.4875	-3.5713	-2.9224	-2.5992	0.0000	I(0)	-4.8396	-3.6105	-2.9390	-2.6079	0.0003	I(1)
lnCF	-1.2800	-3.5713	-2.9224	-2.5992	0.6317	NS	-5.7514	-3.5744	-2.9238	-2.5999	0.0000	I(1)

Augmented Dickey-Fuller Test (Intercept and Trend)												
Variable	Level					First difference						
	ADF				Prob.	Remarks	ADF				Prob.	Remarks
	statistic	Critical values					Statistic	Critical values				
		1%	*5%	10%			1%	*5%	10%			
RGDP	-5.6532	-4.1567	-3.5043	-3.1818	0.0001	I(0)	-10.5836	-4.1611	-3.5064	-3.1830	0.0000	I(1)
lnDMD	-0.7426	-4.1611	-3.5064	-3.1830	0.9637	NS	-5.4650	-4.1611	-3.5064	-3.1830	0.0002	I(1)
INF	-4.0323	-4.1611	-3.5064	-3.1830	0.0140	I(0)	-7.1273	-4.1658	-3.5085	-3.1842	0.0000	I(1)
TRD	-2.7923	-4.1567	-3.5043	-3.1818	0.2070	NS	-7.7898	-4.1611	-3.5064	-3.1830	0.0000	I(1)
lnFGTE	0.9515	-4.1611	-3.5064	-3.1830	0.9998	NS	-3.6964	-4.1658	-3.5085	-3.1842	0.0324	I(1)
lnEXD	-2.1813	-4.1611	-3.5064	-3.1830	0.4888	NS	-5.4914	-4.1611	-3.5064	-3.1830	0.0002	I(1)
POP	-1.2110	-4.1611	-3.5064	-3.1830	0.8968	NS	-4.0747	-4.1611	-3.5064	-3.1830	0.0125	I(1)
lnFDI	-3.5538	-4.1658	-3.5085	-3.1842	0.0451	I(0)	-11.4835	-4.1756	-3.5131	-3.1869	0.0000	I(1)
TOP	-2.7923	-4.1567	-3.5043	-3.1818	0.2070	NS	-7.7898	-4.1611	-3.5064	-3.1830	0.0000	I(1)
TPDS	-2.3315	-4.1567	-3.5043	-3.1818	0.4097	NS	-6.1640	-4.1706	-3.5107	-3.1855	0.0000	I(1)
EXR	-1.3213	-4.1611	-3.5064	-3.1830	0.8706	NS	-5.1597	-4.1611	-3.5064	-3.1830	0.0006	I(1)
INR	-6.1379	-4.2050	-3.5266	-3.1946	0.0000	I(0)	-4.7837	-4.2119	-3.5298	-3.1964	0.0022	I(1)
lnCF	-1.7095	-4.1567	-3.5043	-3.1818	0.7320	NS	-4.5441	-4.1706	-3.5107	-3.1855	0.0036	I(1)

**Source:** Author's Computation using Eviews 10 (2021)

**TABLE 4.2: Phillips-Perron Unit Root Test Results**

Phillips-Perron Test (intercept only)											
Variable	Level					First difference					
	P-VALUE	Critical values			Prob.	Remarks	P-VALUE	Critical Values			Prob. Remarks
		1%	*5%	10%				1%	*5%	10%	
RGDP	-5.6407	-3.5713	-2.9224	-2.5992	0.0000	I(0)	-11.7220	-3.5744	-2.9238	-2.5999	0.0000 I(1)
lnDMD	-3.3198	-3.5713	-2.9224	-2.5992	0.0193	I(0)	-4.6403	-3.5744	-2.9238	-2.5999	0.0004 I(1)
INF	-3.2743	-3.5713	-2.9224	-2.5992	0.0216	I(0)	-14.5686	-3.5744	-2.9238	-2.5999	0.0000 I(1)
TRD	-2.9370	-3.5713	-2.9224	-2.5992	0.0484	I(0)	-7.8635	-3.5744	-2.9238	-2.5999	0.0000 I(1)
lnFGTE	-0.9431	-3.5744	-2.9238	-2.5999	0.7657	NS	-3.7465	-3.5777	-2.9252	-2.6007	0.0063 I(1)
lnEXD	-2.6671	-3.5713	-2.9224	-2.5992	0.0870	NS	-5.1896	-3.5744	-2.9238	-2.5999	0.0001 I(1)
POP	-0.7265	-3.5713	-2.9224	-2.5992	0.8303	NS	-4.0681	-3.5744	-2.9238	-2.5999	0.0025 I(1)
lnFDI	-1.4370	-3.5777	-2.9252	-2.6007	0.5562	NS	-11.5976	-3.5847	-2.9281	-2.6022	0.0000 I(1)
TOP	-2.9370	-3.5713	-2.9224	-2.5992	0.0484	I(0)	-7.8635	-3.5744	-2.9238	-2.5999	0.0000 I(1)
TPDS	-2.2793	-3.5713	-2.9224	-2.5992	0.1825	NS	-9.9668	-3.5744	-2.9238	-2.5999	0.0000 I(1)
EXR	2.2050	-3.5713	-2.9224	-2.5992	0.9999	NS	-4.6641	-3.5744	-2.9238	-2.5999	0.0004 I(1)
INR	-5.4976	-3.5713	-2.9224	-2.5992	0.0000	I(0)	-38.6920	-3.5744	-2.9238	-2.5999	0.0001 I(1)
lnCF	-1.3514	-3.5713	-2.9224	-2.5992	0.5982	NS	-5.6226	-3.5744	-2.9238	-2.5999	0.0000 I(1)

  

Phillips-Perron Test (Intercept and Trend)											
Variable	Level					First difference					
	P-VALUE	Critical values			Prob.	Remarks	P-VALUE	Critical values			Prob. Remarks
		1%	*5%	10%				1%	*5%	10%	
RGDP	-5.6533	-4.1567	-3.5043	-3.1818	0.0001	I(0)	-11.8691	-4.161	-3.5064	-3.1830	0.0000 I(1)
lnDMD	-0.6235	-4.1567	-3.5043	-3.1818	0.9730	I(0)	-5.4548	-4.161	-3.5064	-3.1830	0.0002 I(1)
INF	-3.2685	-4.1567	-3.5043	-3.1818	0.0836	NS	-15.3459	-4.161	-3.5064	-3.1830	0.0000 I(1)
TRD	-2.9094	-4.1567	-3.5043	-3.1818	0.1686	NS	-7.7898	-4.161	-3.5064	-3.1830	0.0000 I(1)
lnFGTE	-0.0636	-4.1611	-3.5064	-3.1830	0.9941	NS	-3.8565	-4.166	-3.509	-3.1842	0.022 I(1)
lnEXD	-1.9979	-4.1567	-3.5043	-3.1818	0.5879	NS	-5.4211	-4.161	-3.5064	-3.1830	0.0003 I(1)
POP	-1.1682	-4.1567	-3.5043	-3.1818	0.9059	NS	-4.0859	-4.161	-3.5064	-3.1830	0.0122 I(1)
lnFDI	-3.6202	-4.1658	-3.5085	-3.1842	0.0387	I(0)	-11.4669	-4.176	-3.5131	-3.1869	0.0000 I(1)
TOP	-2.9094	-4.1567	-3.5043	-3.1818	0.1686	NS	-7.7898	-4.161	-3.5064	-3.1830	0.0000 I(1)
TPDS	-2.2465	-4.1567	-3.5043	-3.1818	0.4541	NS	-11.8923	-4.161	-3.5064	-3.1830	0.0000 I(1)
EXR	-0.7468	-4.1567	-3.5043	-3.1818	0.9635	NS	-4.8923	-4.161	-3.5064	-3.1830	0.0013 I(1)
INR	-6.3688	-4.1567	-3.5043	-3.1818	0.0000	NS	-38.5597	-4.161	-3.5064	-3.1830	0.0000 I(1)
lnCF	-1.8655	-4.1567	-3.5043	-3.1818	0.6570	NS	-5.6008	-4.161	-3.5064	-3.1830	0.0002 I(1)

**Source:** Author's Computation using Eviews 10 (2021)

#### 4.2.2 VAR Lag Order Selection Criteria

Since the stationarity properties of the variables under consideration is a mixture of  $I(0)$  and  $I(1)$ , the ARDL bound testing technique was deemed appropriate for estimation. Thus, to estimate Equations (7), (8) and (9), a lag length test is conducted to estimate the ideal lag size for the variables as shown in table 4.3, 4.4 and 4.5. Following Pesaran and Shin (1995), the maximum order of lags was set as two in the ARDL. The decision is based democratically from the VAR lag order selection criteria attributed to Hanna-Quinn information criteria (HQ), Final Prediction Error (FPE), Log Likelihood (LL), Akaike Information Criteria (AIC) and the Schwarz Information Criteria (SC).

As shown in the tables below, the results show that all selection criteria selected the ideal lag size of one (1) for ARDL model (7). For the ARDL model (8), LR, FPE and AIC selected the ideal lag size of two (2) while the SC and HQ selected the ideal lag size of one (1), thus, lag length of two (2) will be used for the estimation. For the ARDL model (9), all selection criteria selected the ideal lag size of one (1). Therefore, the lag length chosen for models 7, 8 and 9 are one, two and one respectively.

**TABLE 4.3: Result of Optimal VAR Lag Selection for Objective 1**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-691.8193	NA	5191492	29.65188	29.84871	29.72595
1	-476.0115	376.5158*	1556.229*	21.53240*	22.71335*	21.97680*
2	-458.6938	26.52924	2239.749	21.85931	24.02438	22.67404

**Source:** Author's Computation using Eviews 10 (2021)

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

**TABLE 4.4: Result of Optimal VAR Lag Selection for Objective 2**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-269.86	NA	0.13899	12.216	12.41674	12.29083
1	-77.222	333.9057	8.14E-05	4.765423	5.969865*	5.214427*
2	-49.476	41.92670*	7.52e-05*	4.643396*	6.851539	5.46657

**Source:** Author's Computation using Eviews 10 (2021)

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion



**TABLE 4.5: Result of Optimal VAR Lag Selection for Objective 3**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-739.559	NA	20459201	31.0233	31.21822	31.09696
1	-582.022	275.6894*	82299.26*	25.50093*	26.67043*	25.94289*
2	-560.104	33.79079	96894.54	25.62933	27.77342	26.43959

**Source:** Author's Computation using Eviews 10 (2021)

\* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

### 4.2.3 Results of Bound Test Approach to Co-Integration

The co-integration test was carried out using the bound F-statistics to establish the co-integration relations among the variables. As the conventional Wald-test F-statistics is limited, Pesaran and Shin (1995, 1998) suggested two critical points, the lower bound and upper bound, to examine the relations. The decision criteria to accept or reject the null hypothesis (no levels relations) is based on the size of the F-statistic compared to these critical values.

If the computed F-statistic is less than the lower bound value at 5%, the null hypothesis is not rejected. If the F-statistic is greater than the upper bound value at 5%, it denotes the existence of a long-run relations among the variables. If the F-statistic is between the lower bound value and the upper bound value, then long run association between the variables becomes inconclusive.

As can be seen in table 4.6, the F-statistic (7.306277) is greater than the upper bound value at 5% (3.49), thus, rejecting the null hypothesis of no levels relations. This indicates that there exist a long run relations among domestic debt, inflation, trade, government expenditure and economic growth.

Again, the results in table 4.7 the F-statistic (4.825009) is greater than the upper bound value (3.49) at 5% signifying co-integration among external debt, population, foreign direct investment, trade openness and economic growth. Hence, rejecting the null hypothesis of no levels relations.

Equally, the bound test for the presence of long-run relations for objective three as stated in table 4.8 reveals that the F-statistic (10.12216) is greater the upper bound value (3.49) at 5%, rejecting the null hypothesis of no levels relations. This implies a long run relations among total public debt service, exchange rate, interest rate capital formation and economic growth.

**TABLE 4.6: Bound Test Results for Objective one**

Significance	Critical value Bonds		Computed F-statistics
	Lower Bound I(0)	Higher Bound I(1)	<b>7.306227</b>
10%	2.2	3.09	
5%	2.56	3.49	
2.50%	2.88	3.87	
1%	3.29	4.37	

**Source:** Author's Computation using Eviews 10 (2021)

**TABLE 4.7: Bound Test Results for Objective two**

Significance	Critical value Bonds		Computed F-statistics
	Lower Bound I(0)	Higher Bound I(1)	<b>4.825009</b>
10%	2.2	3.09	
5%	2.56	3.49	
2.50%	2.88	3.87	
1%	3.29	4.37	

**Source:** Author's Computation using Eviews 10 (2021)

**TABLE 4.8: Bound Test Results for Objective three**

Significance	Critical value Bonds		Computed F-statistics
	Lower Bound I(0)	Higher Bound I(1)	<b>10.12216</b>
10%	2.2	3.09	
5%	2.56	3.49	
2.50%	2.88	3.87	
1%	3.29	4.37	

**Source:** Author's Computation using Eviews 10 (2021)

### **4.3 Empirical Results on the Impact of Domestic Debt on Economic Growth**

#### **4.3.1 Long Run Impact of Domestic Debt on Growth**

An analysis of the results depicted in table 4.9 reveals that on the part of individual significance of each explanatory variable, it is evident that, domestic debt is not a key determinant of economic growth in Nigeria. Taking note of the t-statistics (0.8482) and the p-value (-0.1926), it is observed that domestic debt has an insignificant long run relations with economic growth. Specifically, a one percent increase in domestic debt will bring about a decrease of 0.08304 in economic growth. Hence, domestic debt has a negative but insignificant relations with economic growth. The negative effect of domestic debt on growth can be attributed to high implicit domestic interest rate relative to foreign ones, corruption and misallocation of funds. However, this finding contradicts the work of Mba, Yuni and Oburota (2013) but is compatible with the findings of Abbas (2010) as well as those of Christensen (2004).

As shown in the table, the impact of inflation on economic growth is negative and statistically insignificant at 5% level of significance as its t-statistics is -1.6297 and its p-value is 0.1108. Hence, all else being equal, a one percent increase in inflation will lead to a decrease of 0.0775 percent in RGDP. The possible reason advanced for this finding is that inflation creates uncertainty and also lead to a decrease in purchasing ability, thereby affecting economic growth. This finding agrees with the findings of Erbarykal and Okuyan (2008) that there is an inverse relations between inflation and economic growth.

The results also show that the relations between trade and economic growth is direct and statistically significant in the long run. The result implies that, all other things equal, a one percent increase in trade will yield a 0.1854 percent increase in economic growth. Trade will affect economic growth via the increase in income and level of investment which will lead to increased

productivity and further increase trade and income. This positive feedback continues and brings about a vicious circle of increased trade, rising income and economic growth. This findings of this result in in agreement with that of Iyaho and Okim (2017).

Further, the result reveals that the coefficient of government expenditure is direct and has a statistically insignificant relations with economic growth. This suggests that a one percent increase in government expenditure will bring about an increase of 0.8944 percent in the RGDP. Theoretically, it is expected. However, the fact that it is not significant opines that government have not inserted enough efforts since capital expenditure is one of the fundamentals of sustainable development. This is contrary to the submission of Akinlo (2004) but compatible with the findings of Adelegan (2000).

From the results, the coefficient of RGDP for the previous year is negative indicating a significant negative relations between economic growth of previous year and that of present year. This denotes that, holding all other variables constant, a unit of increase in the GDP of previous year will decrease economic growth of present year by 0.8095 percent. The findings contradict that of Olasode and Babatunde, 2016.

Similarly, the coefficient of trade from the previous year depicts an insignificant direct relations between trade of previous year and economic growth of present year. This implies that an increase of one percent in trade of previous year will lead to an increase of 0.0490 percent in economic growth of present year, almost in harmony with the findings of Iyaho and Okim (2017).

From the panel B result in table 4.9, the computed coefficient of multiple determination ( $R^2$ ) showed that 31% of total change in economic growth is accounted for, by the explanatory variables: domestic debt (DMD), inflation (INF), trade (TRD) and federal government total

expenditure (FGTE) while 69% of the changes in economic growth (RGDP) can be attributed to other factors not included in the regression equation.

From the result, the adjusted R-Square stood at 31% which is not acceptable because the R-squared must be above 60% to fit the data reasonably well on the regression line, provided that most of the important exogenous variables were captured by the model. The adjusted R-Square in the model can be interpreted as being able to explain 21% of the variation in Real GDP in the long run while the other 79% was unaccounted for.

Following Gujarati, to ascertain if a model is adequate and well specified, the prob(f-statistics) used, such that, the significance of all independent variables can be checked. Since the prob(f-statistics) is approximately equal to 0.01, then it can be said that DMD, INF, TRD and FTGE jointly affect RGDP at 1% significance level.

Finally, the Durbin-Watson value (2.3431) indicates absence of positive serial Auto-correlation among RGDP, DMD, INF, TRD and FGTE.

#### **4.3.2 Short Run Impact of Domestic Debt on Growth**

Table 4.10 shows that the result of the ECM satisfied the essential conditions (to be inverse and statistically significant) for any disequilibrium to be corrected. The coefficient (0.9146) indicates that the speed of adjustment is 91%, thus, adequately acting to correct any deviations of the short run dynamics to its long run equilibrium by 91% annually. Hence, a stable long run relations exist among RGDP, DMD, INF, TRD and FGTE.

From the table, the coefficient of domestic debt reveals like in the long run, an inverse and statistically significant relations with economic growth in the short run. All things being equal, a one percent in domestic debt will deplete economic growth by 11.8018 percent. Generally, public debt may not necessarily yield an inverse impact on economic growth given that it is well managed



and appropriately channeled into improving the real sector of the economy. However, this finding is not surprising but rather, an indication of the prevailing appropriation of public funds in Nigeria. This result is compatible with the findings of Onifade, Savas, Asongu and Festus (2020).

Contrary to its long run, the coefficient of inflation depicts a direct and statistically insignificant relations with economic growth. *Ceteris paribus*, a one percent increase in inflation will boost economic growth by 0.0968 percent. Although, inflation directly influences growth in the short run, it is a threat to economic condition by increasing cost of living and the debt services within the economy. This finding is compatible with that of Ogbonna et al (2019).

The table also reveal that trade influences economic growth directly but insignificantly like in its long run. In the short run, a one percent increase in trade brings about a 0.088454 percent increase in economic growth, *ceteris paribus*. This is compatible with economic theory as increase in trade yields more income and thereby, inducing growth.

The coefficient of government expenditure depicts that unlike in its long run, it has an inverse and statistically insignificant influence on economic growth. A one percent increase in government expenditure will reduce growth 0.9146 percent. This could be because of corruption, mismanagement of public funds and wastage of resources on elephant projects.

**TABLE 4.9: Estimated Long Run Dynamics Results for Objective One**

Regressand: DRGDP				
<b>Panel A: Long Run Coefficients</b>				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-16.6342	13.0755	-1.2722	0.2105
RGDP(-1)	-0.8095	0.1274	-6.3557	0.0000
DMD	-0.0830	0.4312	-0.1926	0.8482
INF	-0.0775	0.0475	-1.6297	0.1108
TRD(-1)	0.0490	0.0802	0.6108	0.5447
FGTE	0.8944	0.7357	1.2158	0.2310
D(TRD)	0.1854	0.0934	1.9864	0.0537
<b>Panel B: Goodness-of-fit Measures</b>				
$R^2$			0.310692	
Adjusted $R^2$			0.209817	
F-statistic			3.079986	
Prob(F-statistic)			0.013947	
Durbin-Watson stat			2.343071	

**Source:** Author's Computation using Eviews 10 (2021)

**TABLE 4.10: Estimated Short Run Dynamics Results for Objective One**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.3081	1.2010	1.0891	0.2825
D(RGDP(-1))	0.0361	0.1420	0.2544	0.8004
D(DMD(-1))	-11.8018	5.7668	-2.0465	0.0472
D(INF(-1))	0.0968	0.0555	1.7442	0.0886
D(TRD(-1))	0.0885	0.0876	1.0102	0.3183
D(FGTE(-1))	-0.2989	1.4868	-0.2010	0.8417
ECT(-1)	-0.9146	0.1902	-4.8077	0.0000

**Source:** Author's Computation using Eviews 10 (2021)

## **4.4 Empirical Results on the Impact of External Debt on Economic Growth**

### **4.4.1 Long Run Impact of External Debt on Growth**

Based on the result in table 4.11, the long run coefficient of External Debt Stock portrayed a direct but insignificant relations with economic growth. This implies that in the long run, keeping all other things constant, a one percent increase in the external Debt stock will lead to an increase of 0.2610 percent in economic growth. This implies that while external borrowing is helpful to Nigeria, it does not play a significant influence in the country's growth. This could be explained by the fact that foreign borrowing has primarily been used to fund capital projects rather than highly productive activities that would improve the economy's overall production. This result is almost similar with the findings of Ezike and Mojekum, (2011) who reported that external debt stock has a direct and significant relations with economic growth.

Likewise, the results shows that population has a direct but insignificant relations with economic growth. In other words, all things being equal, a one percent increase in population will cause an 8.5414 percent increase in economic growth. This could be explained by the fact that quantity of population is increasing without adding enough increase in the quality in order to boost economic growth significantly. This result is contrary to the findings of Alimi, Fagbohun and Abubakar (2021).

Furthermore, the results depicts that Foreign Direct Investment has a direct but statistically insignificant relations with economic growth. Hence, a one percent increase in Foreign Direct Investment will increase economic growth by 0.5532 percent, *ceteris paribus*. The implication of the finding is that the inflow of FDI into the economy has direct effect on the economy. According to researchers, Foreign Direct Investment tend to boost economic growth via the spillover effect on total factor productivity and technology transfer. Increased productivity benefits both the

manufacturing and service sectors which in turn creates job and reduces unemployment. Increased employment leads to higher earnings, thereby increasing economic growth. This findings is compatible with the works of Oyegoke and Aras (2021)

Similarly, the result reveals that Trade Openness reflects a direct but also, statistically insignificant relations with economic growth. Thus, a one percent increase in Trade Openness degree will motivate RGDP to increase by 9.7515 percent. It implies that trade openness has been beneficial to Nigeria's economic growth but insignificantly. In the long run, trade openness has the potential to boost economic growth by increasing access to goods and services, increasing resource efficiency, and increasing total factor productivity through technological diffusion and knowledge dissemination. This finding is compatible with Ijirsha (2019) conclusions from its study of the influence of trade openness on economic growth in ECOWAS countries.

From the results, the coefficient of RGDP for the previous year is negative and statistically significant indicating that, holding all other variables constant, a unit of increase in the GDP of previous year will decrease economic growth of present year by 12.92327 percent. This result contradicts the findings of Olasode and Babatunde, 2016.

Similarly, the coefficient of population from the previous year depicts an insignificant negative relations between population of previous year and economic growth of present year. This implies that an increase of one percent in population of previous year will lead to a decrease of 0.3732 percent in economic growth of present year, contrary to the findings of Alimi, Fagbohun and Abubakar (2021).

From the panel B result in table 4.11, the computed coefficient of multiple determination ( $R^2$ ) showed that 30.2% of total change in economic growth is accounted for, by the explanatory variables: external debt (EXD), population (POP), Foreign Direct Investment (FDI) and Trade

openness (TOP) while 69.8% of the changes in economic growth (RGDP) can be attributed to other factors not included in the regression equation.

From the result, the adjusted R-Square stood at 18% which is not acceptable because the R-squared must be above 60% to fit the data reasonably well on the regression line, provided that most of the important exogenous variables were captured by the model. The adjusted R-Square in the model can be interpreted as being able to explain 18% of the variation in Real GDP in the long run while the other 82% was unaccounted for.

Following Gujarati, to ascertain if a model is adequate and well specified, the prob(f-statistics) used, such that, the significance of all independent variables can be checked. Since the prob(f-statistics) is approximately equal to 0.04, then it can be said that EXD, POP, FDI and TOP jointly affect RGDP at 5% significance level.

Finally, the Durbin-Watson value (1.7043) indicates absence of positive serial Auto-correlation among RGDP, EXD, POP, FDI and TOP.

#### **4.4.2 Short Run Impact of External Debt on Growth**

As seen in table 4.12, the results illustrates that the coefficient of the ECM is negative and statistically significant. This coefficient indicates that 71% of disequilibrium in the real GDP from previous years' shock adjusts back to the long run in current year. Hence, the ECM adjusts rapidly to changes in the long run, suggesting that EXD, POP, FDI and TOP taken together, have a significant linear relations with the dependent variable, RGDP.

From the results, the coefficients of external debt denotes that external debt of previous years have a direct but statistically insignificant relations economic growth of present year, as in its long run. This implies that in the short run, a percent increase in external debt increases economic growth approximately by 3.8593 percent.

The result also reveal that population, similar to its long run, has a direct but statistical insignificant influence on economic growth. This indicates in the short run, a one percent increase in population will cause an increase of 1.4983 percent in economic growth, *ceteris paribus*. As stated earlier, this insignificant increase is most likely due to the fact that there is no increase in quality accompanying the population growth, contrary to the findings of Alimi, Fagbohun and Abubakar (2021).

As can be seen in the table, contrary to its long run, foreign direct investment has an inverse and statistically insignificant relations with economic growth. All other variables made constant, as foreign direct investment increases by one percent, economic growth decreases by 0.4131 percent. This result contradicts the findings of Oyegoke and Aras (2021).

The results also show that the relations between trade openness and economic growth is negative and statistically insignificant, unlike its long run. The result implies that, all other things equal, a one percent increase in trade will yield a 0.1854 percent increase in economic growth in the short run. This finding contradicts the findings of ECOWAS from its analysis of the impact of trade openness on economic growth.

**TABLE 4.11: Estimated Long Run Dynamics Results for Objective Two**

Regressand: DRGDP				
<b>Panel A: Long Run Coefficients</b>				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-13.9327	22.4335	-0.6211	0.5382
RGDP(-1)	-0.8593	0.1886	-4.5552	0.0001
EXD	0.2610	1.1578	0.2254	0.8228
POP(-1)	-0.3732	1.2409	-0.3008	0.7652
FDI	0.5532	1.2917	0.4283	0.6708
TOP	9.7515	8.0611	1.2097	0.2337
D(RGDP(-1))	-0.1090	0.1452	-0.7511	0.4571
D(POP)	8.5414	4.7875	1.7841	0.0822
<b>Panel B: Goodness-of-fit Measures</b>				
$R^2$			0.301528	
Adjusted $R^2$			0.176161	
F-statistic			2.405163	
Prob(F-statistic)			0.037975	
Durbin-Watson stat			1.704329	

**Source:** Author's Computation using Eviews 10 (2021)



**TABLE 4.12: Estimated Short Run Dynamics Results for Objective Two**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.2595	0.8600	0.3017	0.7648
D(RGDP(-1))	-0.1420	0.2035	-0.6977	0.4904
D(RGDP(-2))	-0.0704	0.1519	-0.4636	0.6461
D(EXD(-1))	-2.3358	3.3299	-0.7014	0.4881
D(EXD(-2))	3.8953	3.4199	1.1390	0.2631
D(POP(-1))	-3.8017	5.2695	-0.7215	0.4759
D(POP(-2))	1.4983	5.3271	0.2813	0.7803
D(FDI(-1))	0.5433	1.5709	0.3459	0.7317
D(FDI(-2))	-0.4131	1.5383	-0.2685	0.7900
D(TOP(-1))	3.2803	9.7494	0.3365	0.7387
D(TOP(-2))	-5.3667	9.8304	-0.5459	0.5889
ECT(-1)	-0.7067	0.2422	-2.9181	0.0064

**Source:** Author's Computation using Eviews 10 (2021)

## **4.5 Empirical Results on the Impact of Debt Service on Economic Growth**

### **4.5.1 Long Run Impact of Debt Service on Growth**

Table 4.13 presents the results of the long run impact of debt service in growth. An examination of the result depicts that as expected, there is an inverse long run relations between Debt Service and Economic Growth. Although Debt service has an inverse coefficient (-0.4767), it is statistically insignificant as its t-statistic is -1.1606 and its p-value is 0.2525. This indicates that a one percent increase in public debt will cause RGDP to decrease by 0.4767 percent, *ceteris paribus*. This agrees with the expected *a priori* since debt service payment, being a resource drain exercise, is expected to be negatively related to economic growth. The crowding-out hypothesis suggested that public debt has an inverse effect on growth in developing countries because the resources used to service the debt amount to a loss of scarce foreign exchange that could have been used for productive investment in infrastructure hence, retarding growth. This result is compatible with the findings of Cunningham (1993) and Weeks (2000).

The result reflects an inverse and statistically insignificant equilibrium relations between exchange rate and economic growth. The coefficient of exchange rate (-0.0855) denotes that a one percent increase in exchange rate will bring about a 0.0855 percent decrease in economic growth, holding other factors constant. This demonstrates that the bad management of debt by the way of debt service tends to affect exchange rate, which in turn affects economic growth in the long run. This result is contrary to the findings of Ndubuisi (2017),

Interest Rate has a direct and statistically significant relations with Economic Growth, suggesting that a one percent increase in Interest Rate will activate an increase in RGDP by 0.2192 percent, *ceteris paribus*. Interest Rate appears to be an important determinant of economic Growth. This is attributed to the fact that a high interest rate would increase savings and bank credit thereby

stimulating economic growth. Thus result contradicts the findings of Okuneye and Sangosanya (2019)

The coefficient of Capital Formation (-0.3655) is negative depicting an inverse relations between Capital Formation and Economic Growth. The result shows that although Capital Formation influences RGDP negatively, it is statistically insignificant. Thus, all things being equal, a one percent increase in capital formation will reduce RGDP by 0.3655. Several reasons have been adduced to explain the negative contribution of gross capital formation to the growth of the Nigerian economy. Researchers suggested that while it is easy to capture public capital investments in the economy, it is usually difficult to collate information on private investment due to the inefficiencies associated with public institutions responsible for data collection and the xnegative and sharp practices by Nigerian business men who intentionally falsify records so as to evade taxes. Another reason is the endemic corruption in the public sector leading to over inflation of capital investments. This finding is at odd with previous findings like the works of Odo, Nweke and Anoke (2017).

From the results, the coefficient of RGDP and Capital Formation for the previous year are negative and statistically significant. This indicates the two variables are key determinants of growth, hence, a unit of increase in the GDP and CF of previous year will decrease economic growth of present year by 12.92327 and 4.6779 percent respectively, *ceteris paribus*, contrary to the findings of Olasode and Babatunde (2016).

While the coefficient of Exchange Rate from the previous year depicts a direct relations between Exchange Rate of previous year and economic growth of present year. This implies that an increase of one percent in population of previous year will lead to an increase of 0.0142 percent in economic growth of the present year, refuting the findings of Ndubuisi (2017).

From the panel B result in table 4.13, the computed coefficient of multiple determination ( $R^2$ ) showed that 46% of total change in economic growth is accounted for, by the explanatory variables: total public debt service (TPDS), exchange rate (EXR), interest rate (INR) and capital formation (CF) while 54% of the changes in economic growth (RGDP) can be attributed to other factors not included in the regression equation.

From the result, the adjusted R-Squared stood at 37% which is not acceptable because the R-squared must be above 60% to fit the data reasonably well on the regression line, provided that most of the important exogenous variables were captured by the model. The adjusted R-Squared in the model can be interpreted as being able to explain 37% of the variation in Real GDP in the long run while the other 63% was unaccounted for.

Following Gujarati, to ascertain if a model is adequate and well specified, the prob(f-statistics) used, such that, the significance of all independent variables can be checked. Since the prob(f-statistics) is less than 0.01, then it can be said that TPDS, EXR, INR and CF jointly affect RGDP at 1% significance level.

Finally, the Durbin-Watson value (2.4443) indicates absence of positive serial Auto-correlation among RGDP, TPDS, EXR, INR and CF.

#### **4.5.2 Short Run Impact of Debt Service on Growth**

The results presented in table 4.14 show that the Error Correction Term (ECT) is found to be negative and statistically significant. The implication is that the adjustment process to restore equilibrium is very effective. The co-efficient (-0.9150) suggests that the short-run disequilibrium will be reconciled in the long-run at an adjustment rate of approximately 91.5% annually. Hence, a stable long run relations exist among RGDP, TPDS, EXR, INR and CF.

The coefficient of debt service denotes that there is a direct but statistical insignificant relations between debt service and growth in the short run. *Ceteris paribus*, a percentage increase in debt service will increase economic growth by 0.5023 percent. This result contradicts its long run result and can be attributed to the fact that

The result reflects that just as in the long run, an inverse and statistically insignificant equilibrium relations between exchange rate and economic growth. The coefficient of exchange rate (-0.0419) denotes that a one percent increase in exchange rate will bring about a 0.0855 percent decrease in economic growth, holding other factors constant.

In contrast with the long run result, the interest rate was associated with an inverse and statistically insignificant impact on economic growth. *Ceteris paribus*, a one percent increase in the interest rate will decrease economic growth by 0.0329 percent.

The coefficient of capital formation reveals a direct but statistically insignificant relations between capital formation and economic growth, in contrast to its long run. All things being equal, economic growth will increase by 1.1154 percent when capital formation increases by a percent. This is compatible with economic theory and the findings of Odo, Nweke and Anoke (2017).

**TABLE 4.13: Estimated Long Run Dynamics Results for Objective Three**

Regressand: DRGDP				
<b>Panel A: Long Run Coefficients</b>				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	117.7092	40.7191	2.8908	0.0061
RGDP(-1)	-0.9044	0.1209	-7.4799	0.0000
TPDS	-0.4767	0.4107	-1.1606	0.2525
EXR(-1)	0.0142	0.0113	1.2507	0.2181
INR	0.2192	0.0676	3.2442	0.0023
CF(-1)	-4.6779	1.6597	-2.8184	0.0074
D(EXR)	-0.0855	0.0446	-1.9183	0.0621
D(CF)	-0.3655	3.2573	-0.1122	0.9112
<b>Panel B: Goodness-of-fit Measures</b>				
$R^2$			0.461228	
Adjusted $R^2$			0.369243	
F-statistic			5.014148	
Prob(F-statistic)			0.000362	
Durbin-Watson stat			2.444298	

**Source:** Author's Computation using Eviews 10 (2021)

**TABLE 4.14: Estimated Short Run Dynamics Results for Objective Three**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.4135	0.8343	-0.4956	0.6228
D(RGDP(-1))	-0.0495	0.1431	-0.3459	0.7312
D(TPDS(-1))	0.5023	0.6332	0.7932	0.4322
D(EXR(-1))	-0.0419	0.0509	-0.8226	0.4155
D(INR(-1))	-0.0329	0.0514	-0.6391	0.5263
D(CF(-1))	1.1154	3.2460	0.3436	0.7329
ECT(-1)	-0.9150	0.2041	-4.4820	0.0001

**Source:** Author's Computation using Eviews 10 (2021)

## 4.6 Discussion of Results

This study examined the impact of public debt on economic growth in Nigeria. Specifically, the impact of domestic debt, external debt and debt service on growth was investigated. The study covered the years from 1970 to 2019, using the annual time series data. To achieve objectives one, two and three, the ARDL co-integration approach was employed to determine the short run and long run relations among the variables.

On the impact of domestic debt on growth between 1970 and 2019, the findings from the study disclose that domestic debt has an inverse and statistically insignificant relations with economic growth both in the short and long run periods. *Ceteris paribus*, a percent increase in domestic debt will cut economic growth down by 0.0834 percent in the long run, attributed to high implicit domestic interest rate relative to foreign ones, corruption and misallocation of funds. This findings is compatible with the findings of Abbas (2005) as well as those of Christensen (2004).

The results reveals that both in the long and short run, a direct and statistically insignificant relations between external debt and economic growth for the period under consideration. Thus, in the long run, one percent increase of external debt reduces economic growth by 0.2610 percent. The findings suggests that external borrowing is beneficial to Nigeria but it does not play much of an important role in the growth process of Nigeria denoted in the findings of Ezike and Mojekum, (2011).

The results reflects that debt service has an insignificant negative relations with the growth of the economy in the long run but an insignificant direct relations in the short run period. All things being equal, in the long run, economic growth reduces by 0.4767 percent when debt service increases by a percent. This finding is compatible with the findings of Cunningham (1993) and Weeks (2000).



## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter summarizes the study's findings and its implications. It also covers the conclusions and recommendations postulated from the results, as well as the limitation to the study.

#### **5.2 Summary of Findings**

The broad objective of the study was to examine the impact of public debt on economic growth of Nigeria. The study used the annual time series data covering 50 years (1970-2019). Specifically, Economic growth (RGDP) was regressed on Domestic debt stock (DMD), on External debt (EXD) and on Total public debt service (TPDS), each model including other control variables (inflation, trade, federal government total expenditure, population, foreign direct investment, trade openness, exchange rate, interest rate and capital formation) that influences economic growth.

The study employed econometric techniques for analysis. The Augmented Dickey-Fuller and Phillip Perron tests were used to test the variables for stationarity and confirmed that all the variables were stationary at level, first difference or both. The VAR lag order selection criteria test was used to decide on the appropriate lag length to use for each model specified in the study. Furthermore, co-integration bound test was used to ascertain the existence of long run relations amongst the variables of each model. Finally, the Auto-Regressive Distributed Lag (ARDL) model was used to achieve objective one, two and three of the study.

From the results of the study, it was discovered that domestic debt stock (DMD) has an insignificant and negative relations with real GDP in Nigeria. However, external debt stock has

an insignificant and direct relations with economic growth while total public debt service was statistically insignificant and negatively related to RGDP in Nigeria.

The implication of this finding is that the domestic debt does not play any important role in the economic growth of Nigeria and has been unproductive in terms of its contribution to the Nigerian economic growth due to the mismanagement and embezzlement of public funds, corruption and challenges of debt sustainability. The accumulation of external debt contributes insignificantly to growth as it increases the level of government expenditure in the economy leading to an increase in aggregate demand, output and employment. However, servicing of these debts impedes growth in the economy as funds that should have been put into investment in the economy are been used in servicing the debt.

### **5.3 Conclusions**

It is therefore concluded based on the findings of this study that the domestic debt of Nigeria has not been instrumental in aiding economic growth in Nigeria and an increase in the level of total debt service to the various creditors to the economy would decrease the level of growth in Nigeria. It is also ascertained that the external debt is preferable to domestic debt in terms of the general economic growth. Although, statistically insignificant, accumulated external debt stock has contributed directly to the economy for the period 1970-2019.

### **5.4 Recommendations**

Based on the findings of this study, the following recommendations are made:

- To support more efficient and sustainable domestic debt levels, the Integrated Financial Management Information System, Public Expenditure tracking Surveys, and Treasury Single Accounts systems should be strengthened.

- There should be maintenance political tenacity to ensure fiscal balance and redirect borrowed funds into the tradable sector and high-yielding projects.
- Effective monitoring of government of government contingency liabilities to reduce fiscal risks (e.g., a full record and analysis of all sovereign guarantees).
- Prudent management of the content and structure of government debt in order to mitigate currency and maturity risks.
- Encouragement of Gross investment and savings growth by effectively monitoring and evaluating public sector investments to ensure that they are cost-effective; and establishing tax incentives to promote private sector engagement in the economy.
- Diversification of the economic base to avoid overdependence on borrowings to finance the budget deficits as debt servicing hinders the growth and development of the nation.

### **5.5 Contribution to Knowledge**

Only a few researchers have taken into account the effect of domestic debt and external debt with their servicing on economic growth in Nigeria. Moreover, this literature have not been updated to more recent years. This study, thus, address this gap and contribute to knowledge by assessing the impact of public debt and its service on economic growth in Nigeria.

### **5.6 Limitations of the Study**

All factors that influence economic growth are almost impossible to capture, thus the study was limited to a few, not considering other control variables as the results suggested that certain fundamental variables outside the ones employed are also responsible for economic growth in Nigeria. The study was also limited to the available dataset and the consequences of secondary data on debt in developing countries. Another limitation of the study is that it is confined to Nigeria alone and thus, the results may be irrelevant to other countries.

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