EXTERNAL DEBT DYNAMICS

NGI TERHEMBA SOLOMON
PG/SSC2016618

UNIVERSITY OF BENIN
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BEING A PROJECT SUBMITTED TO THE DEPARTMENT OF ECONOMICS, FACULTY OF SOCIAL SCIENCES, UNIVERSITY OF BENIN, BENIN CITY, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE (MSc) DEGREE IN ECONOMICS

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CERTIFICATION

We, the undersigned, certify that this research work was carried out by **NGI TERHEMBA SOLOMON** with matriculation number **PG/SSC2016618** and approved as adequate in scope and content for the partial fulfillment of the requirements for the award of Master of Science (M.Sc.) Degree in Economics.

_____ _____

Prof. S.O. Igbinedion **DATE**
(Project Supervisor)

_____ _____

Dr. (Mrs) F. Mogbolu **DATE**
(Programme Co-Ordinator)

_____ _____

Dr. N.L. Arodoye **DATE**
(Ag. Head of Department)

DEDICAION

This project is dedicated to my beloved aunty, Mama Rachael Chia Surma of blessed memory.

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ABSTRACT

Considering the dynamic nature of external debts and infrastructure development in Nigeria from 1981 to 2020 and the country's ever-increasing debt, this study was necessary. In particular, it examined how external debt dynamics and debt servicing impacted infrastructure development in Nigeria, and how the country's external debt stock related to infrastructure expansion. Drawing from the Neoclassical Growth Model, the Harrods-Domar Economic Growth Model, and the Two-Gap Model, the study sought to comprehend the workings of Nigeria's foreign debt and infrastructure development. The analysis relied on secondary data sourced from the World Development Indicator, 2020. We used ARDL, ADF, and Ordinary Least Square (OLS) to conduct the regression analysis. The E-views software, specifically edition 8.0, was used to analyze the data. Foreign loan servicing has a small negative impact on infrastructure development, as shown by the results. Therefore, our government must diversify our economy away from its reliance on oil if we are to lessen the blow of falling oil revenues, which usually force us to take on more debt.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Every country strives for Economic growth (*EG)*, and eventually maintains it, to improve the lives of its people and the economy overall. The term "economic development" refers to a state in which a country's GDP grows steadily over time. When the value of a country's net national product rises over time but prices remain unchanged, we say that the economy is growing. In order to do this, a country's economy may require a substantial amount of capital, which might come from anywhere: inside or outside the country. Developing economies, like Nigeria's, are forced to borrow money in order to fund massive infrastructure projects since there is simply not enough capital available (Olasode and Babatunde, 2016). They argued that developing countries, in contrast to industrialized ones, usually have to rely on additional sources of funding in addition to low tax and employment income. According to the Nigeria Bureau of Statistics (NBS) in 2021, the developing nation of Nigeria's enormous and ever-increasing foreign debt has drawn international attention.

This has impeded several efforts to achieve long-term *EG* through different initiatives. According to the CBN (2019), the most significant external debt (ED) obligations that Nigeria has contracted are those with the Paris Club of Creditors, the London Club of Creditors, the Multilateral Creditors, the Promissory Note Creditors, the Bilateral and Private Sector Creditors, and refinanced uninsured trade arrears.

The rising national debt started with the energy crises of the 1970s. During that time, the economy was severely dependent on imports and experienced oil price uncertainties, which led to a rather dangerous habit of chronic debt. Prior to the event, Nigeria had accrued a few small debts, such as a US$28 million loan from the World Bank in 1958

for railway development and an Italian government loan of US$13.1 million for the Niger River's Kainji Dam in 1964. From $21.73tn ($71bn) in December 2017 to $22.71tn ($74.28bn) at the end of the first quarter of 2018 (Punch, 2018), the first major borrowing rose. The Total Public Debt Stock, representing the Domestic and external debt Stocks of the Federal Government of Nigeria (FGN), and the Federal Capital Territory (FCT), was #42.84tn (USD103.31billion) as at June 30, 2022 (DMO) Debt Management Office.

This external debt has led to the annual depletion of the nation's limited resources to service the debt, which in turn promotes disinvestment in the economic infrastructure, resulting in a decrease in the overall rate of growth. Between 1985 and 2019, Nigeria's GDP experienced the highest rate of domestic *EG*. The GDP growth rate of Nigeria was 33.74% in 2004, while it reached its lowest point in 1987, when it experienced a negative growth rate of -10.75%. The economic development of Nigeria has been in decline over the past decade, resulting in two consecutive economic recessions (World Bank, 2019). 2016 saw a decline growth rate of -1.62% in the country.

Nigeria's infrastructure development and growth have been hindered by its persistent balance of payment deficit, which has impeded capital inflow. This is a result of the inadequacy of foreign exchange revenues to fund the essential investment required for infrastructure development. Sustainable infrastructural growth may necessitate external financing as the sole approach to acquiring the resources required. In spite of the apparent justification to borrow externally, Nigerians are left with an acute infrastructural deficit, a high levels of external dependence, falling living standards, depreciation of the currency, imbalances in the balance of payments, and escalating inflation. These economic implications are severe for both the immediate and future generations, as this burden is quickly discovered to be a perpetual lifeline (Ljirshar, Joseph, and Godoo, 2016). In order

to supervise Nigeria's debts in conjunction with the Federal Ministry of Finance and the CBN, the Debt Management Office (DMO) was established in October 2000. In an effort to mitigate the circumstances, this was implemented. The Paris Club group of creditors agreed to call off 60% of the US$30.85 billion owed to it by Nigeria in 2005, resulting in a significant victory for President Olusegun Obasanjo's administration. The national income of Nigeria has been steadily declining as the country's public debt—which stood at N5.787 trillion in March 2018 and reached a record high of $29.591.68 million in the third quarter before settling at $27 billion in 2019—has grown. This is happening despite debt relief, which released the country from the yearly burden of paying off its $2.3 billion (N345 billion) in debt (Usim (2018), Debt Management Office, 2019). According to Paul (2017), Amakom (2003), and Lyoha (1999), nations that are heavily indebted may end up expending more money on debt repayment than on essential economic projects. Considering that 65 percent of Nigerians are still living in poverty and that the country's infrastructure is in a sorry state despite the accumulated borrowing and debt reprieve that was given in 2005 and 2006, Amakom (2003) questions the need of external debt and the benefits it has brought to the Nigerian economy. Against this backdrop, this study is hinged on investigation into the impact of external debt on economic development in Nigeria with the objective of establishing a causal relationship between the dynamics of external debt and infrastructural growth in the country.

1.2 Statement of the Problem

The problem of external debt has taken center stage in Nigeria's national politics and economics. Developing nations, especially those in Sub-Saharan Africa, are increasingly using foreign aid as a weapon of repression and oppression rather than a tool of support.

A country's underdeveloped economy, unreliable domestic debt facilities, and the influence of external debt burden on GDP are only a few of the obstacles that could hinder

the acquisition of debt for infrastructure development. Underdevelopment in Nigeria is mostly attributable to the country's chronic cash flow crisis. As a result, foreign currency injections are required to sustain the country's *EG*. Foreign financial institutions can provide this because Nigeria's domestic debt is typically of a shorter duration. Instead of putting their money into government bonds, Nigerian businesses and investors would rather put it into corporate shares or treasury bills. As a result, initiatives aimed at fostering economic development and growth are considered to have a lengthy time horizon. As a major substitute for the usually high interest rates linked with domestic debt—which usually do not go beyond one year—external debt is crucial in this respect. Both the size and movement of Nigeria's external debt suggest that it is not significantly helping the country's economy grow. This is because principal and servicing costs tend to add up, leading to a build-up of debt. GDP, a gauge of economic growth and infrastructure development, could take a hit if Nigeria's external debt loads it up.

1.3 Research Question

Some of the research questions are:

1. What is the impact of external debt profile on infrastructural growth in Nigeria?
2. What is the relationship between the external debt dynamics and infrastructural growth in Nigeria?
3. What is the impact of interest rate on Nigeria's infrastructural growth?
4. What is the impact of inflation on Nigeria's infrastructural growth?

1.4 Objectives of Study

The key objective of this research is to determine the effect of changes in external debt on infrastructural growth in Nigeria.

The specific objectives of the study are to:

1. investigate the impact of changes in external debt profile on Nigeria's infrastructural growth;
2. determine the relationship between external debt dynamics and infrastructural growth in Nigeria;
3. examine the impact of interest rate on Nigeria's infrastructural growth;
4. ascertain the impact of inflation on Nigeria's infrastructural growth.

1.5 Statement of Hypothesis

Ho_1: Changes in external debt profile have no impact on infrastructural growth in Nigeria.

Ho_2: external debt dynamics have no effect on infrastructural growth in Nigeria.

Ho_3: Interest rate does not have any relationship with infrastructural growth in Nigeria.

Ho_4: Inflation rate has no impact on infrastructural growth in Nigeria.

1.6 Significance of the Study

The study on the effect of external debt s dynamics and infrastructural growth in Nigeria will be of immense benefit to government (local, state and federal government) and other researchers that desire to carry out similar research on the above topic as the findings of the study will educate the government agencies on how to control external debt s in Nigeria.

Having identified some causes of external debt and hindrance to infrastructural growth in Nigeria, there are different management approaches taken by different administrations and the state of the economy, this work would be of interest to many different types of people, including academics, government agencies, private individuals and businesses, international organizations, and future researchers.

Here are some ways that the importance of the research is highlighted:

1. to learn how the dynamics of Nigeria's external debt relate to the country's infrastructure expansion.

2. to serve as a point of reference for future government actions regarding debt reduction and management.
3. proposes an appropriate metric for further literature review and analysis of Nigeria's foreign debt disasters.
4. insights gained from the study will help residents improve their level of living by shedding light on the ways in which an economy's infrastructure development is affected by external debt and funding.

1.7 Scope of Study

The dynamics of Nigeria's external indebtedness and the country's infrastructure growth are the subjects of the investigation. The time frame that is being examined spans from 1981 to 2020. All of Nigeria will be covered by the study, which will only evaluate the dynamics of Nigeria's external loans and the country's infrastructure growth. The data was compiled from a variety of sources, including the World Bank, the CBN Bulletin, the National Bureau of Statistics, and the World Development Indicator (WDI).

1.8 Limitation of Study

This work witnessed several shortcomings, which are largely in the area of data collections. Much difficulty was encountered in obtaining the required data and variables for the work. However, such problems were eliminated by collations of data online (internet) from CBN Bulletin and by the National Bureau of Statistics sites.

1.9 Definition of Terms

How principles and terminologies are understood depends on the specific setting in which they are used. Here are the main operating terms defined for this investigation:

a) **External Debt:** When a country's government borrows money from other countries' banks or international organizations like the Paris Club, the IMF, or the World Bank, it incurs what is known as external debt . It could also mean that the

external resources needed for progress and financial stability assistance were not paid back when they were supposed to.

b) **Economic Growth:** This refers to an expansion in the nation's ability to produce a wide variety of goods and services for the general public over an extended period of time. The ideological and institutional shifts brought about by technological progress are the ones responsible for this growing capacity. Growth in any economy's real output, or real per capita output, is what this word refers to.

c) **Debt Crises**: A debt crisis happens when a government incurs more debt than it can pay back.

d) **Debt Servicing:** This implies paying back a loan's principle and interest over an agreed upon time frame, usually a year.

e) **Debt Management Office;** The executive treasury known as the Debt Management Office (DMO) is in charge of awarding grants to fund the borrowing operations of the government.

f) **Gross Domestic Product (GDP):** The overall monetary worth of all final goods and services Production in a nation in a specific year; it includes both private and public spending, as well as the difference between exports and imports.

g) **Capital Flight:** World Bank research from 1985 defines capital flight as total outflows of capital plus the current account deficit minus gains in authorized foreign reserves.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter we shall be reviewing some of the relevant literature relating to the subject matter "external debt Dynamics and Infrastructural Growth in Nigeria". The review will begin with brief discussion on government borrohwings. We shall examine the various ways that government borrows to finance projects and also the impacts of borrowing have on the infrastructural growth in Nigeria. This chapter will also give a brief history of Nigeria external debt, types of external debt, theoretical literature in *EG* and the ends with empirical literature reviews and knowledge gap.

2.2 Conceptual Review

2.2.1 Government Borrowing

A loan that the government has acquired is recorded as capital receipts in the budget statement. Total borrowings for governmental services and benefits amount to that amount. Because tax and non-tax revenue is inadequate to fund the government expenditures, the government publicises an annual borrowing programme in the budget (Economic Times. 2020). Government borrowing describes the need for loans from financial markets to fund non-tax purchases made by the government. In the framework of the recirculation of national income, the issuing of assets like bonds and bills is one of the two household saving demands that are directed into financial borrowing.

Inadequately rated states can borrow directly from multinational businesses (US Legal, 2021). Taking out reasonable-interest loans to improve public services and infrastructure is a tried-and-true method for stimulating growth and development. However, there are a number of negative economic outcomes that can occur from taking on too much debt without proper investment planning, including high interest payments and a heavy

financial load. Take Joy and Panda as an example (2020). Government investments in public health, education, and infrastructure development may be hindered by rising debt levels (Soludo, 2003).

2.2.2 Economic Growth

Growth in the economy is defined by Ijirshar, Joseph, and Godoo (2016) as an increase in a country's per capita income or output that is both quantitative and sustained. It also includes changes in the size of the labor force, capital, trade volume, and consumption. Furthermore, a persistent rise in either GDP or per capita output is indicative of economic expansion (Dwivendi, 2002). For this reason, producing goods and services that can meet the most basic needs of the largest number of people is crucial for *EG*. The counterargument put out by Anyanwu (1995) argues that rising national income is an inevitable consequence of an improving economy's productive capacity. Accelerated total factor productivity and per capita production growth, especially in the area of labor productivity, are defining features of this era. All of these reasons point to the same thing: *EG* is based on an economy's ability to produce more goods and services over time.

2.2.3 External Debt

Paying off foreign debt, funding infrastructure projects, recovering from natural disasters, and accommodating excessive spending are common reasons for countries to seek loans from overseas lenders. Any amount owing by a country to entities outside its borders, such as other governments, businesses, or financial institutions, is called external debt . But this could lead to a never-ending cycle of borrowing, with payments getting heavier and heavier until default occurs (Arnone, Bandiera, and Presbiterio, 2005). According to Ogbeifim (2007), a country's external debt arises when domestic savings fall short of investment. Debt increases, just as as the deficit increases, forcing the government to borrow ever-increasing amounts to keep its finances afloat.

Ogbefim went on to describe Nigeria's external debt as the sum total of money owing by the country's governmental and private sectors to individuals and entities outside of Nigeria, denominated in foreign currency, goods, and services. From its initial loan of 28 million USD secured from the World Bank to fund the construction of a railway in the pre-independence era, Nigeria's external debt profile had grown to 150 million USD by 1960 (Ayadi and Ayadi, 2016).

The pursuit of developmental objectives and the necessity to pay the Nigeria's luxurious ways government officials live caused the nation's external debt to climb to 1 billion USD by 1971 (Olasode and Babatunde, 2016). According to (Muhammad and Fayyaz, 2015), there are multiple ways in which external debt s impact the economy. A nation's economy can flourish with the right management of its external loans, but it can suffer devastating losses with the wrong approach. Essentially, the use of foreign loans in economic development is more critical than the amounts borrowed. But if these loans are used for immediate consumption, they won't affect the economy much in the long run. However, if they are wisely invested in productive areas of the economy, they can boost national productivity and lead to actual growth. So, for the sake of this inquiry, "external debt" means the sum total of money, goods, and services that the governmental and private sectors of Nigeria's economy owe foreigners and citizens.

2.3 History of Nigeria external debt

Borrowing money, in the form of loans, is included as a capital receipt in the budget sheet. In essence, it is the total amount of money borrowed by the federal government to pay for public services and benefits.

According to Economic Times (2020), the government publicizes its yearly borrowing program in the budget to pay the expenditure program because tax and non-tax revenue are insufficient. According to Abdulkarim and Saidatulakmal (2021), the need to borrow

money arises when tax revenues are insufficient to cover the growing cost of government services. Public and infrastructure projects may be funded via fair interest rate borrowing, which in turn boosts economic growth and development. Unplanned investment methods and repayment procedures, however, may cause significant difficulties for the economy in the form of interest payments and a heavy debt load. Much of the world's governments' massive debts have grown due to this procedure (Joy and Panda, 2020). Since the recession in 2016, when oil prices dropped, revenues have fallen along with them, leading to a greater debt service to revenue ratio in Nigeria. Spending $2.45 trillion on debt payment outweighed total receipts of #4.1 trillion in 2019, resulting in a debt service to revenue ratio of 59.6 percent. The proportion of Nigeria's revenue going toward debt servicing reached an all-time high of 83% in 2020. Worryingly, debt payments will consume 83% of 2020 income. In 2020, $1.76 trillion was spent on servicing the national debt, which was a significant portion of the total budget. Over and above the planned expenditure of N805.47 billion, the total amount absorbed by external debts was N553 billion. A number of factors, including historically low interest rates on borrowing from overseas and a dearth of borrowing from the foreign debt market during the year, are largely to blame for the decline. The sinking fund was only funded with $4.58 billion, instead of the $272.9 billion that was budgeted. Its purpose is to set aside money for the repayment of future loans, like bonds. The persistent borrowing from the domestic market prevented private companies in need of credit from obtaining the finance they needed for development and growth (Ogunjimi, 2019). Izuaka (2021) posited that Nigeria's debt position is expected to worsen in 2022 due to the government's plan to borrow #5.012 trillion to cover a deficit of #6.3 trillion and a total budget of #16.39 trillion. This is getting out of hand and adding stress to the nation's fiscal crisis. The government has spent most of its income paying down its mounting debt for a long time now, even though it claims the debt-to-GDP ratio

is manageable. Almost all of the government's income in the first half of 2021 (around #1.8 trillion) went toward paying down debt, making up approximately 98% of the total. As of March 31st, the total national debt was $33.11 trillion (lzuaka, 2021). Spending a large percentage of a country's income on debt service reduces the amount available for investments in vital infrastructure, stunting *EG* and development.

Plus, nearly 83 million people, or 40.1% of the population, live below the national poverty level of #137,430 ($381.75) per year, according to the National Bureau of Statistics (2019) Poverty and Inequality in Nigeria study. In the biggest economy in Sub-Saharan Africa, this highlights the country's lack of wealth (Abdulkarim and Saidatulakmal, 2021). Having a high level of domestic debt makes it harder for a country to flourish and advance economically. Rising debt service costs could overwhelm the economy's ability to absorb them, threatening the nation's ability to accomplish its monetary and fiscal policzey goals (Soludo, 2003). According to Pritchett, Woolcock, and Andrews (2013), development goals are usually linked to improvements in literacy rates, life expectancy, and per capita GDP, which the HDI is a composite index of. Therefore, it is plausible that the aforementioned claims did not actually promote *EG* and development in Nigeria. Economic development is the process of making a community more prosperous. In addition, the governance's ability to distribute resources more efficiently toward infrastructure, education, and public health could be hindered by an increasing debt burden (Soludo, 2003), as stated by the California Association for Local Economic Development (2021): "more than a job program; it is an investment in the growth of your economy and the enhancement of the quality of life and prosperity of all members of your community.". Nigeria is presently one of the most severely indebted nations in SSA due to its sluggish export development, stagnant GDP, rapidly declining per capita income, and rising poverty rates. Because of their rushed and distressed

borrowing, most of these nations, including Nigeria, have defaulted on their loan payments. They also have to keep borrowing money because their main exports are losing value on the global market (Ogunjimi, 2019).

The study's overarching goal is to learn how the dynamics of the nation's external debt and the development of its infrastructure are affected by the country's borrowing practices. Borrowing money at a fair rate to build public and crucial infrastructure is the secret to Nigeria's rapid economic development and prosperity. But a heavy debt load and interest payments from borrowing too much without adequate investment planning may have many negative consequences on the economy. Most governments have accumulated large amounts of unpaid debt as a result of this approach (Joy and Pandas 2020).

The growing amount of debt in Nigeria, along with the high costs of servicing it, has had a negative impact on the country's economy.

2.4 Types of Debt Instruments

(a) General Obligation Bonds: These bonds are usually issued by municipalities and are backed by the full faith and credit of the community's taxing power. They are meant to serve the whole community. Principal and interest are guaranteed to be paid upon maturity by the municipality. Spending and upgrades with a lifespan of more than a year can be funded by the issuance of general obligation debt. Traditional methods of financing capital projects, such as the acquisition of property, institutions of learning, water and sewage infrastructure, and highways owned and controlled by the government, have relied on general obligations. Things like supplies, maintenance and repair (which are fairly expected), and needs that aren't inherent to a building are not included.

The taxing power and full-faith-and-credit security of the issuer are given different weights in the various General Obligation bond types. Following is a categorization of

these Unlimited Tax General Obligation (ULTGO) bonds based on their repayment source:

(i) ***Non self-supporting General Obligation Bonds:*** which is a representation of the debt load on the district's property, taxes on property or other sources are utilized to finance non-self and partially self-supporting General Obligation bonds.

(ii) ***Self-supporting General Obligation Bonds***: These bonds can be repaid using either the project's income or another, separate source of cash. They are utilized to build businesses or facilities that generate income. These may or may not be self-sufficient to varying degrees. Although bonds that are fully self-sufficient are not counted in the district's net bonded debt, they are nonetheless a part of both the Net Bonded Debt and the Gross Bonded Debt. You may hear these bonds referred to as Double-Barrel led Bonds as well.

(b) Appropriation Bonds: Less formal than bonds, documentations of participation (sometimes called lease purchase agreements) might be issued instead. They are often used to fund the building of public infrastructure, the purchase of land or machinery, and the upkeep and repair of existing facilities. There is no guaranteed revenue stream to cover the principle and interest (debt payments) on the participation certificate, and the government cannot raise taxes above what is allowed by the constitution in order to do so. Notably, neither the actual estate nor the equipment are being pledged as collateral. If the issuers go bankrupt and the government takes back the building or asset—which could be an important facility for the government's operations—investors will still be able to use it, which is why the instrument is considered secure.

A Certificate of Participation like this one is standard issue. Appropriation collateral is usually seen as a way to encourage the issuer to continue in appropriating or risk losing

access to a vital public asset; this is what differentiates certificate participation from full faith and credit obligations. Sometimes, highly regarded issuers would offer certificates of participation with little or no security, since the issuer's yearly appropriations serve as the true credit.

They risk having future access to financial markets cut off if they can't repay the participation certificate in a timely manner.

(c) Full Faith and Credit Obligations: In accordance with the provisions of sections II and Ibis of article XL of the Oregon constitution, the issuer's general revenue and taxing power are used to support full faith and credit obligation bonds. One common argument in favor of full faith and credit obligation bonds over certificates of participation is that they are not subject to the yearly appropriation process.

In the eyes of most investors, they pose a higher risk than unlimited tax general obligation bonds but a lower risk than certificates of participation. Rates of interest vary depending on a number of things, including the issuer's financial health and reputation, the collateral pledged, the type of asset being funded, and the source of income utilized to repay the loan. Full faith bonds and credit obligation bonds differ in the weight they give to the issuer's taxation power and credit security. Credit obligations and full faith and credit are both able to support themselves.

(d) Revenue Obligation and bonds: Payment for these is usually made from the profits made by the business or project. These bonds are subject to all federal and state restrictions and may only be issued in accordance with the Oregon Uniform Revenue Bond Act. Aside from the fact that investors outside of Oregon's markets are more familiar with revenue bonds, the security structure and concerns for both obligations and bonds are identical.

The government's full-faith and unlimited or limited taxing power is guaranteed to the holders of revenue bonds, and these bonds are expected to be entirely self-supporting.

There are also no pledges or levies of ad valorem property taxes. In most cases, user charges are used to repay the bonds. Their safety is not guaranteed by the government's ad valorem taxing powers; instead, they get funding from grants, excise taxes, or business earnings.

There are many different kinds of revenue bonds and obligations, including Enterprise Revenue Bonds, Special Revenue Bonds, Industrial Development Revenue Bonds, and Double Barreled Bonds.

(e) Urban Renewal Bonds: Cities, specified city agencies, and even countries can issue urban renewal bonds. Their repayment is not accomplished through property taxes, just like general obligation bonds. Also, similar infrastructure, like sewers and streets, might not get these upgrades. The issuance of home development permits, in contrast to property purchase permits, is conditional on the resolution of "blighted" conditions in a definite community. Bonds are repaid through taxes on any growth in evaluated value beyond a set level, as opposed to replacing the full assessed value as is done with general obligation bonds.

Creating an urban renewal area council and keeping property assessments in this region "frozen" at their current rates are prerequisites for using these bonds. A phrase for this would be "Divide the Tax Revenues."

(f) Private Activity Bonds: Bonds issued by the government with the express purpose of helping private companies are called Private Activity Bonds. Federal and state regulations place numerous limits on them. A prominent perk of private activity bonds is that they allow private entities to take advantage of tax-exempt interest rates by using the name of a municipality.

The fact that the government is not bound to return the private activity conduct bonds is an additional perk; instead, the private company's creditworthiness is used to secure the

debt financing and, in the end, the payback obligation. To promote suitable economic development and other public purposes while minimizing economic benefits to Oregonians is the primary consideration in the issue of private activity bonds in the Beaver State.

(g) Short Term Debt: Debt having a declared ultimate maturity of three months at the time of sale is considered short-term debt. The exceptions to this rule are revenue bonds and general obligations bonds, which are considered long-term debt. Common names for short-term debt instruments include warrants and notes. In order to get short-term loans from lending institutions, districts, municipalities, and agencies might use revenue projections, such as tax grants or bond proceeds, as collateral. The state treasurer's office does not keep tabs on municipal debts with maturities shorter than thirteen months. There is no oversight of short-term payments like revenue anticipation notes, tax anticipation notes, or bond anticipation notes.

(h) Refunding Bonds: Debt bond replacement or refinancing is the purpose of refunding bonds. Taking on further debt. Refunding is sometimes used to reorganize debt in order to lower interest rates and new legal constraints or covenants that make borrowing money cheaper. Current Refunding Bonds and Advance Refunding Bonds are the two main types of refunding bonds.

(I) Zero Coupon, Capital Appreciation, and Deferred interest Bonds: Fixed-interest, zero-coupon, and capital appreciation bonds: they pay interest semiannually until maturity and are also known as current-interest bonds. But they hold off on paying the investor any interest until the loan matures, rather than paying it at the present time. A more suitable repayment plan that takes into account the issuer's financial situation may be proposed.

(j) Variable Rate Bonds: Unlike fixed-rate bonds, variable-rate bonds allow interest rates to change based on certain market conditions. When an issuer hires a remarketing agent to remarket their bonds at the lowest possible rate, the interest rate is "reset" at regular intervals according to a commonly approved schedule.

2.5 Reasons for external debt

Considering the negative impact of debt on emerging nations, there has been an ongoing discussion about the rationale of Nigeria's borrowing as a developing nation (Nzotta, 1999). His latest research was an effort to make debt worse. According to him, there are four main reasons to take out loans:

i. To reduced usage
ii. Evaluate the local marginal product of capital in relation to the global cost of financing.
iii. To make banking transactions inside the firm easier
iv. There are other reasons to borrow money, such as adjusting the contract to a new economic situation (Aikhomu, 1988).

He says that loans are essential for economically viable infrastructure projects and that they are ethically justified because:

i. boost domestic savings, which in turn allows for a faster pace of capital development;
ii. improve a country's financial situation by boosting its position relative to other countries' reserves.
iii. To avoid the poor use of funds by countries with weak markets due to shock absorption, which may lead to deflation and stagnation. A "resource gap" between domestic savings and foreign cash is the root cause of affluent countries' reliance

on foreign assistance, according to the school of thought known as the economics of borrowing (Anyafor, 1996).

The criteria for borrowing have changed from economic to political, making it impossible to use the aforementioned viewpoints to support the relevance of debt in the present society. Since both domestic and foreign debt contribute to the total, the spotlight has shifted from the former to the latter. However, cleaning investment is taking precedence over sowing in a thriving economy. This is done to create a need for external financing to close the gap between saving and investment, which is a result of increased investments.

A portion of the debt accrued through multinational firms and foreign investments serves to shore up the government-organized match with the necessary components, such as more savings, foreign currency, or expertise, in order to hasten its takeoff.

2.6 External Debt Burden

In order to pay interest and amortize foreign debts, domestic production and consumption must be outsourced. This results in the burden of debt. The amount of current and contingent liabilities held by non-residents of a country by inhabitants of that country that require principal and interest payments from the debtor at a future date is called debt.

In a nutshell, there are four main types of debt:

i. Debts that are owned or guaranteed by the public sector

ii. Private loans without assurance.

iii. Savings held by central banks.

iv. Borrowed money from the IMF.

The Nigerian finance minister, Nenadi Usman, has announced that the country's foreign debt has jumped from $6.7 billion in 2013 to $9.38 billion, a huge increase of 40%. Foreign creditors, both bilateral and multilateral, such as the Islamic Development Bank, the China Exim Bank, and the French Development Bank, are the usual culprits when it comes to

foreign debt (The Punch Newspaper, August 14, 2013). Overstretched debt causes economic crises and social and political instability in debtor nations like Nigeria.

With as much as 70% to 90% of its Expor1 profits going toward debt payment, Nigeria clearly has very little money left over to pay its citizens' constitutional duties. It has also been noted with great precision that the countries of Sub-Saharan Africa have chosen to seek growth through foreign loans; they are hell-bent on escaping economic shackles and achieving social, political, and economic development. Industrialization, construction of schools and hospitals, installation of piped water, and the improvement of road safety are all examples of capital-intensive enterprises. This shows that the loan has been made. The loans are packaged with a number of conditionality, so the receiving country is required to engage in a firm that will provide profits for the loans' servicing and payback. Aluko and Arowolo (2010) pointed out that these social efforts are not profitable, and hence the borrowing results are almost nullified.

2.7 Benefits of External Financing

The goal of nations seeking perpetual funding is to enable them to fund massive economic projects that will help their economy prosper. It is crucial to maintain economic and financial liquidity, so this money can be used to buy big pieces of capital equipment that will help with growth.

For example, due to its high debt-to-GDP ratio and budget deficit, Nigeria may evaluate taking out a loan from an international institution. In order to revitalise the Gross Domestic Product (GDP), borrowed funds from other nations can be invested. On top of that, it's possible that Nigeria and other emerging economies won't be able to entice direct investments from outside investors. As a result, entities like the World Bank and the IMF may be utilised, or bilateral debt. According to Soludo (2003), governments take out loans for big-picture reasons like building public services like healthcare and education,

increasing investment, and covering short-term imbalances in their balance of payments. But "Soludo" insisted that governments get stuck on the wrong side of the debt-to-growth ratio (the Laffer Curve) as their debt loads increase, preventing them from investing and developing.

Lack of growth in either domestic or foreign exchange could limit a country's ability to reach a certain target growth rate. Foreign exchange or external sector gaps, according to Obadan (2001), are the primary drivers of the domestic debt resource gap, which in turn requires borrowing from outside to fill the greater gap. The main limitation is the availability of foreign currency.

The importance of foreign borrowing in bolstering foreign exchange, as highlighted by Dual Gap Analyses, can be used to convert a portion of domestic savings into foreign exchange. This is because importing the required inputs would be a major obstacle to actual growth.

2.8 Challenges of external debt Financing

Nigeria, like many other emerging nations in Sub-Saharan Africa, is struggling with mounting external debt. Prior to 1980, the public did not give much thought to Nigeria's external debt. In the late 1980s, this subject started circulating among the elite and academics.

When a nation spends more money than it brings in, it takes on a national or public debt. This debt adds up over time and affects all governments.

Because of our massive debt, we pay a high interest rate, which has an adverse consequence on the economy. What this means is that we'll have to shell out a pretty penny in interest and amortization fees to the lending institution.

Paying this interest is taking money out of the Nigerian government coffers that could be used to build essential infrastructure. As a result of its mounting foreign debt, Nigeria is

experiencing a high unemployment rate and a low investment rate as a consequence of its rising debt servicing commitments. Plus, the developed world no longer has faith in our economy and our reputation has taken a hit.

Because of this, fewer international investors are willing to put money into Nigeria's economy, which is bad news for the country's economic possibilities.

2.9 Types of External Debts

There are many different kinds of foreign debt, each reflecting the original intent of the borrower.

The types are as follows:

1. Trade arrear: A country has trade arrear if it is partially or totally unable to pay other countries for the goods and services it has delivered to them.
2. Balance of Payment Support Loans: a country's gross economic transactions with the rest of the world are categorized into current, recurrent expenditure, financial, and capital accounts. This classification determines the balance of payments position, which can appear as a surplus or deficit. The government may decide to seek a balance of payment assistance loan if the balance of payments remains continuously unfavorable.
3. Project Tied Loans: Investments with great promise and the ability to quicken economic development and expansion are eligible for project-tied loans approved by the government. Like its name implies, this kind of debt is meant to be liquidated in order to carry out a certain project.
4. Loans For Socio-Economic Needs: this is meant for helping people with their financial and social requirements by financing essential infrastructure and health care services. These programs, which improve society through education and other means, may necessitate borrowing money from private sources.

2.10 External Debt Management Strategies

Establishing the terms of issuance and redemption of foreign loans is what is known as external debt management. It deals with the management of debt in a way that causes no negative impact on the economy. Additionally, it comprises negotiating loans, keeping tabs on both public and private sector debt, controlling debt through measures such as measuring the ability to repay, managing risk related to currency exchange, interest rates, and commodity prices, debt institutions, and computer-based debt management systems.

In order to effectively manage external debt, authorities need to do the following: predict when payments will be due; accurately predict export earnings, domestic revenue, and upcoming access to financing; keep an eye on the possibility of repayment or refinancing the borrowed debt on better terms; use loan maturities to project revenue; and deal with unexpected import expenses or shortfalls in earnings. Stats on debt servicing obligations and the balance of payment projections are thus necessary for debt management. Reaching the advantages of external financing without causing serious problems with macroeconomic and balance of payment stability is the primary goal of external debt management policy. Klein, the year 1994. After a steady increase from 1992 to 1997, the stock of our external debt profit in Nigeria reversed course and fell from $325.813 million in December 1995 to $28.06 billion in 1997, marking the first sustained success for this strategy.

As a result, the government will keep the plans it has previously made to pay off its foreign debt. The CBN takes on the task of managing the country's external debt load in 1980.

In order to oversee the country's foreign debt, a department was established in conjunction with the Federal Ministry of Finance. Please take note that debt management tactics are one-of-a-kind approaches that have been specifically designed to assist debtors in handling their debt. Typically, a third party would devise and execute this plan on behalf of the debt

management organizations when the burdened country lacks the expertise or resources to adequately handle its debt management.

Debt management and the formulation of debt management strategies are currently the purview of Nigeria's bureau of debt optimization (DMO). For the purpose of coordinating the administration of Nigeria's debt, the office was set up on October 4, 2000. Prior to taking out loans from outside sources, the government follows these requirements.

Companies and other economic entities should aim for an Internal Rate of Return (RR) that is at least as high as their borrowing costs, or a low interest rate. Capital market loans for low-return public and private sector projects could be sought out from abroad, whilst concessional financial institutions should be approached for loans related to social services or infrastructure. Everyone from state governments to local authorities and businesses with borrowed funds should use the foreign exchange market to pay off their debts. The private sector and export-oriented industries should use their export earnings to pay off their debts, but everyone else should use the foreign exchange market facilities. The federal ministry of finance should be informed for record-keeping purposes.

2.11 Limit on Debt Servicing Payments

Keeping aside a percentage of export profits to fund internal development is necessary for this. Regarding this matter, in 1980, the state government was obligated by law to spend no more than 10 percent of their entire earnings on debt service payment, in accordance with the agreement with the federal ministry of finance.

It is possible to bail out a state government that is in default, but the amount by which it is in default is subtracted from its budget allocation at the beginning. Only thirty percent of the federal government's export profits might go toward pays down the debt.

2.12: Debt Servicing

It appears that most countries have settled on a debt service ratio of 30% as their optimum, according to Akinmade (1991). Due to unforeseen positive developments in the oil sector, the likelihood of paying off a large portion of our loans in the near to medium future is now low. The urgent requirement for more loan to close up our chronic resources deficit has made debt reduction through redemption the most likely course of action for the time being, even though the debts have certain inherent powers to rise. Nevertheless, the fact that the debt service ratio fluctuated between 29.1% in 1984 and 32.2% in 1985 means that this point still causes controversy.

2.13 Embargo on New Loans

This has not been very successful due to the aimless pursuit of external loans, despite the federal government's instructions to state governments to limit external borrowing to a minimum and the embargo on new loans meant to slow the growth of the total debt stock and limit the additional debt burden.

In 1981, this strategy was implemented for when the state government borrowed money from outside sources. There are occasions when the federal government sets a maximum amount that states and the federal government can borrow (CBN Annual Report Bulletin, 2000). There was a cap of $5 billion for the federal government in 1978 and $2 billion for the states in 1982. Despite temporary reprieve from debt service requirements brought about by rescheduling, the debt overhang remains unabated due to the continuous large increase in debt stock since the debt ceiling ban was removed in January 1999.

2.14 Debt Conversion and Capitalization

Trading one form of money (such as promissory notes) for another (such as physical assets) is what this term often refers to. Debt conversion is a way for a country to lessen its financial load by reclassifying its debt. The debt committee was established in February

1988, and by 1996, the program had attracted 138 applications totalling $438.9 million for conversion activities. However, compared to the previous year, Osiegbu, Onuorah, and Nnamdi (2010) found that the number of applications received and the value of those that were accepted declined.

Lately, debt conversion has taken center stage at the CBN, prompting the establishment of a dedicated department within the bank to handle the task.

In July 1988, the debt conversion project was thus set up to carry out the debt conversion programme in Nigeria.

The process of debt conversion, as highlighted by Akinmade (1991), entails exchanging foreign currency denoted by debts for local currency. This local currency is subsequently used to acquire equity capital in a domestic firm. In other words, external debt is exchanged for domestic debt or equity. (Akinmade) added that "the objective of a debt conversion programme to a debtor in a country is to reduce the stocks of its debt while simultaneously having *EG* and recovery" . Attracting the necessary foreign investment without a matching increase in foreign exchange inflow is possible under this scenario. To mitigate the impact of various limitations, the Nigerian debt program has been designed in a certain way. For example, the amount and kind of debt that can be converted are limited, and there is a system in place to effectively monitor the redemptions and invest the money in clearly defined endeavors. As a major drawback of the scheme, it does not provide much room for lowering the debt stock.

For instance, in Nigeria, where there are outstanding debts totaling more than 130 billion Naira, just 1% (#99 million) of the total debt was redeemed in the first year of the program (Akinmade, 1991). As of December 31, 1982, our foreign loan stock had been reduced by $306.7 million, with $138.3 million converted in 1998 and $188.4 million in 1989

making up the total. Based on what Onijoha (1996) said, the debt conversion program was able to discharge foreign loans worth USS153.7 million, or around #8.7 billion.

Worldwide debt totaling $649 million (#19.2 billion) has been canceled since the Debt Conversion Programme was initiated. While there are a variety of debt conversion strategies, Sanusi (1998) emphasized that there are specific ones. These include the following:

A. Debt for Equity Swap

In this, there is conversion of debt in face value and at the current exchange rate for the debtor's currency. The creditors have designated the proceeds as registered capital investment in the debtor country. New projects, existing project expansions, existing venture recapitalizations, and portfolio investments are the only recipients of the revenues. This program's overarching goal is to reduce the amount of the country's foreign debt so that repayment of that debt is more directly tied to the country's capacity to pay back investors for their capital outflows. This would depend on how much money the financed activity makes. The CBN Annual Bulletin Report from 1999 states that in January of that year, Nigeria purchased 60 percent of the $3.39 billion in commercial debt that the London Club owed. Benefits of debt-for-equity swaps include re-directing capital outflows, boosting local capital markets, and encouraging privatization on a smaller scale.

Inflation as a result of monetary expansion is one disadvantage that could affect the influx of foreign investment, notwithstanding the benefits described before.

B. Debt for Cash

Though the conversion's proceeds are not capitalized, this method is otherwise similar to a debt-for-equity transfer. On the contrary, they are earmarked for working capital purposes, such as paying back loans, paying back the municipality, and paying the church.

C. Debt for Export

This plan involves exchanging exports for debt. For example, the government might export goods worth US$80 million, in order to pay off such large amounts of foreign debt.

D. Debt for Debt Swap

Without changing the conditions of repayment, the parties usually allocate loans or provide sub-participation to each other. This signifies a shift in the role of creditors with respect to loans.

E. Debt-Peso Swap

A debt-peso exchange is a way of describing a deal when locals, instead of foreigners, are involved in the currency exchange. When we talk about the peso, we're talking about the local currency. Capital flight repatriation is hence the goal of the debt-peso exchange. Investors from the home nation can buy their country's debt on the secondary market using their monies earned overseas or in the parallel market.

F. Use of Debt in Financial Investments

This involves buying stocks and bonds in the Debtor Country's Capital Market With Debt (Redeemable Proceeds). Also falling within this category might be government development securities. This will lead to a decline in debt and service liabilities and an increase in overseas portfolio investment.

G. Debt Rescheduling

Even before the federal government's launch of the Structural Adjustment Programme (SAP) in September 1986, Nigeria's external debt had grown to a considerable burden. Since trade arrears had accumulated, most foreign correspondent banks refused to provide credit lines to Nigeria, which would have aided the country's transition to self-sufficiency.

Even though Nigeria was able to get a lot of relief by restructuring their debt, the creditor clubs in Paris and London are still there. By taking this step, we want to negotiate a more favorable payback schedule, lower interest rates, and a longer term.

H. Debt Refinancing

A debtor can repay an existing debt, typically a short-term trade obligation, through a refinancing arrangement, in which the debtor gets a new loan. You can go back to the same lenders that gave you the first loan for your second one. It became imperative to seek relief by refinancing the trade arrears in order to address the issue of paying for imports, which was caused by accumulated trade debt. The government of Nigeria decided in 1984 to issue promissory notes in order to pay off the remaining trade arrears, especially those that were agreed through open accounts and bills for collection.

Interest payments of 1% or more are required by the terms of the promissory notes agreements, which are based on the average lending rates given by a number of prominent international banks in Paris, London, and New York. Plus, there's a 21-year maturity and 14 equal installments to redeem the notes starting in October 1986.

However, due to the difficulties in paying off the debts in this environment, the terms of the agreement were revised, and now the repayment time is about 22 years, with an effective annual return rate of 5%. Many see the revised conditions as the best relief package the country has gotten so far in return for favorable agreements. At the time, the promissory notes issued had a total value of $4.8 billion.

I. Debt Buy-Back, Collateralization and New Money Options;

In a buy-back arrangement, a current debt is repaid with a large discount. In February 1992, the deal was sealed when Nigeria purchased $3.39 billion worth of commercial debt from the London Club at a discount rate of 60%. In order to settle the business debt, Nigeria forked up $1.35 billion. Furthermore, the London Club has guaranteed each bond

for 30 years with US$2.054 billion in collateral. In this arrangement, the creditor or group of creditors uses the collateral amount as new loans. The bonds will help pay off the debt over 30 years.

J. Debt Overhang

A debt overhang is when the total amount of debt owed by a government exceeds its ability to repay. In order to pay off local and foreign creditors, taxes are suddenly hiked, which puts a damper on investment. As a result, the debtor nation reaps very little, if any, profit from the domestic production and export earnings. Muhammad et al. (2016). This suggests that, by generating a tax disincentive, debt accumulation has a negative impact on economic success. A tax disincentive exists when prospective investors believe that they would face higher taxes on their future earnings when asked to repay the borrowed money. Due to the increase in the debt stock, this causes investments to be impaired. Therefore, according to the debt overhang hypothesis, it is prudent to strategically invest borrowed funds in productive industries that can both service the loan and spur investment at home. In 2001, they were.

L. Crowding-Out Effect

When the cost of debt servicing exceeds public spending, economic stability is undermined, according to this concept. Previous research by Zaheer and colleagues (2019). More and more of the government's tax money is going toward paying down the national debt, which means less and less money for public projects. A drop in public investments leads to a decline in private investments through the crowding-out effect because some public and private projects complement each other. According to Todaro and Smith (2006), unindustrialized economies in their early stages of development often need to incur high levels of national debt. This is because, without it, the available financial resources may not be enough to support the growth and development that is

required. However, this debt can constrain liquidity and discourage domestic investments in the debtor country.

2.15 Monetary and Credit Policies

In monetary policy, the national bank or other monetary authority controls the money supply through interest rate regulation in an effort to keep prices stable and promote strong *EG*. When deciding who to lend money to or extend credit to, financial institutions follow a set of rules called credit policy.

2.16 Management of DMO

In an remarkable event, on 4th of October, 2000, the debt management office (DMO) was formally set up to consolidate the previously coordinated handling of Nigeria's debt across different departments. The operations of the DMO are supervised by the Director-General's office. These operations include the front, middle, and back offices, as well as the organizational Resourcing Department.

The Director-General's office also oversees the DMO secretariat's operations in regard to the DMO supervisory board; this board oversees the DMO's cooperation with all external and local stakeholders. The Director-General further regulates and oversees these responsibilities, which are coordinated by the Executive Services Unit (ESU). In addition to the DG's office, four other sections are located there.

The IT and ISU, PAU, M&E and SDU, and IA & CU units are responsible for various tasks related to information technology and information systems. Bonds and other securities are issued by the Federal Government of Nigeria pursuant to the directives of the DMO. The Federal Government of Nigeria bonds market has been overseen by DMO since 2003, while the issuing agency and registrar are the CBN. The bond market is also regulated by DMO, since they are the principal dealers. To ensure that Nigeria does not fall back into the same debt unsustainability it had before its 2005 and 2006 successful

exits from the Paris and London Clubs debt burdens, respectively, the organization set out to achieve its strategic objective of helping the country develop debt management institutions and capabilities.

2.17 International Debt Agencies

The bulk of Nigeria's $9.38 billion in foreign debt in 2003 came from loans from multilateral agencies, including the IMF, the World Bank, the African Development Bank, the China Development Bank, and so on. We have a total of $5.86 billion in debt to several international organizations: the World Bank, the AFDB, the EXIM Bank of China, the French Development Agency, Eurobonds totalling $1.5 billion, and ZTE for $5.88 million.

The five states with the highest levels of debt in Nigeria as of 2014 were Ogun, Lagos, Cross River, Kaduna, and Oyo. Before a state can borrow money from another entity, the federal government has to give its approval.

However, as of December 31, 2021, "Nigeria sinks deeper with external debt under Buhari watch with (#39.92. trillion) ($86.392) as at December 31" (from sources such as the DMO OFFICE and National Vanguard), while the debt-to-GDP ratio in Nigeria is at 20.2%.

a. Eurobond

In 2011, operations for the flotation of the Eurobond for $500 million started. Eurobond has improved Nigerian corporations' access to long-term financing on the global financial market.

Proceeds from the Eurobonds have already aided a number of important infrastructure projects, such as those in the electrical power, agricultural, and solid mineral industries; the second Niger bridge (Asaba/Onitsha); and the dual carriage runway at Abuja Airport. Revitalizing the economy requires these projects.

b. Paris Club and London Creditors

An informal group of official moneylenders, the Paris club first met in 1956 and has its secretariat in the French capital. It was founded with the aim of resolving the member states' payment issues in the long run by coordinating the handling of debt by developing nations by creditor nations. So this is the origin of Nigeria's debt. When the export credit agency or a similar organization of the creditor country guarantees a loan to the Federal Government of Nigeria (FGN), a state, or another public entity in Nigeria, that entity is considered to have incurred a Paris Club debt. Paris Club debts also include commercial loans or trade areas that private companies incur and that the Federal Government of Nigeria verifies. The dramatic drop in Nigeria's foreign exchange earnings in the 1980s led to a massive buildup of arrears, making it extremely difficult to meet external payment obligations. Foreign creditors responded by severing new loan lines, worsening the country's economic problems. Nigeria then went to the Paris Club to work out a payment arrangement after making that decision. Loans in Nigeria were postponed four times: in 1986, 1989, 1991, and 2000. The objective of rescheduling is to extend the payback duration and enhance the repayment mechanism. What it really means is that the bad times will have to wait. The Paris Club debts of Nigeria have continued to increase despite the rescheduling agreements because the country has never been able to pay in full each year. The following countries owed money to Nigeria as of December 31, 2004: Japan, the UK, Germany, and France. However, even the smallest creditors, like Spain and Finland, need to approve debt relief for Nigeria to be granted. Under Olusegun Obasanjo's presidency, the Nigerian government paid approximately $20 billion to the enormous International Financial Syndicate in 2006. This group is also known as the Paris Club and the London Club of Creditors. In order to satisfy the agreements and arrangements made with the Paris Club in June 2006, Nigeria settled $12.4 billion in arrears and loans on

Friday, April 21, 2006. Furthermore, the Nigerian federal government paid off the London Club's $2.15 billion loan in full. To settle its debts to the Paris Club and the London Club, Nigeria forked over around $20 billion. This is among the largest transfers of wealth from developing to wealthy nations that has ever occurred. Nigeria owed $35,916 in total foreign debt as of June 2005.

Fifteen of the Paris Club's nineteen member nations owed a disproportionately big chunk of the total $3.1 billion.

c. Bilateral Creditors

The Paris Club and the Non-Paris Club are the two categories of bilateral creditors. The Paris club is mainly composed of giving nations that are economically powerful members of the OECD. Eastern European and former Soviet Bloc countries, Arab states, and Russia (which has been a member since 1997) are among the non-Paris Club donors. Among the first groups to offer debt reprieve in the 1980s was the Bilateral Creditors. These days, Paris Club member nations can get some of their obligations reduced or restructured. Under the highly indebted poor country project, which has stringent conditions, participating countries can have a portion of their outstanding debt reduced by 67% and their overall debt reduced by up to 80%.

d. International Financial Institutions

All of the above are components of the IMF, the World Bank, and the regional development banks. They govern over nearly every country in the world because they are all members. The fact that all member nations guarantee their borrowing gives these institutions a triple (A) rating, which allows them to raise funds on the international financial markets at acceptable favourable conditions. Because of their superior status in the international monetary system and the excellent conditions they offer, international

financial institutions demand repayment priority over other lenders. If a country defaults on its loans, other creditors would likely refuse to lend it more money.

E. Multilateral or International Agencies

The following aid agencies, which are categorized as either national (mostly OECD) or international, offer development and assistance on both a regional and global scale. Development partners' agencies from developing economies such as those in the Middle East, India, South Africa, Mexico, Singapore, Thailand, and so on were not considered. A number of Multilateral Agencies rely on New Zealand for their primary funding. The board of directors has decided on core funding to support agency-wide operations and programs in developing nations.

Sometimes, in order for organizations to respond adequately and take on large new responsibilities in the aftermath of events like national disasters, health crises, or conflicts, more funding is required.

2.18 Economic and Debt Burden Measurement

World Bank debt ratings are based on a number of useful macroeconomic aggregates, including:

1. The total amount spent on foreign affairs expressed as a percentage of the GDP
2. The overall debt-to-export ratio, including employee remittances and goods and services exported (EDT/XGS).
3. TDS/XGS, which stands for "total debt service for export goods and services."
4. TNT/XOS is an abbreviation for "total interest payment to export of goods and services."
5. The share of GDP that goes toward interest payments
6. The International Reserve for the Import of goods and Services, also known as RES/MGS.

7. Total Debt to Shot Tern, Short-Term Debt to Total, and EDT
8. Confessional debt to total debt (confessional/EDT) is in the 8th percentile.
9. The multilateral debt-to-total debt ratio, expressed as a percentage of total debt.
10. International Reserves to Total External debt (RES/EDT).

When thinking about taking out a loan from a foreign institution, developing countries should keep in mind both the positive and negative aspects of their debt situation (lyola, 1998). Considering all of the debt indicators that apply to this set of nations, one is their ability to sustainably carry a debt load.

Thirdly, how these nations' enormous debt loads affect investment and economic development; and fourthly, the debt overhang theory and necessary actions to alleviate the debt overhang.

2.19 Relationship between external debt and GDP

Borrowing money from other nations to finance capital production is one strategy governments use to achieve their *EG* goals. One possible constraint for such a nation, according to Obadan (2001), is a dearth of local savings and foreign currency.

According to "(Obadan)" if foreign exchange is the main constraint, then foreign borrowing is necessary to cover the bigger gap. Dual gap analyses have shown that foreign borrowing also plays a role in providing supplementary foreign exchange, which is essential because growth would be limited without it and domestic savings would be wasted. Everyone agrees that developing countries' huge amounts of foreign debt are a constant threat to their ability to build stable economies.

It was common practice for developing countries to incur enormous debt at extraordinarily low interest rates in the 1970s. For instance, it became clear that many of these countries' dreams of faster growth rates were crushed in the 1980s, when debt servicing ratios reached exceptionally high levels. *EG* in Nigeria and similar nations will suffer as a result

of debt repayment. On top of that, they would have a very hard time paying back these debts and keeping their domestic economy afloat with a balance of payments that negative. Massive external debt represents a substantial portion of Nigeria's GDP, as is common for states in Sub-Saharan Africa. The failure to allocate loans towards development initiatives is a common cause of debt problems. For their personal political benefit, the loan is being handled in a most secretive manner.

Rather than being driven by a desire to see the country improve economically or socially, most borrowers are more concerned with furthering their own personal agendas through patronage, party politics, or the exaltation of base interests (Aluko and Arowolo, 2010).

EG is defined as an expansion of a country's economy that leads to a rise in the output capacity of that economy per capita. Eleje and Emeroje (2010) defined GDP growth as the increase in merchandise output inside a nation. In addition, studies have shown that reducing a country's external debt does not impede *EG*. However, when the stock of external debt continues to rise, servicing costs surpass the debt sustainability limit, which in turn slows down Nigeria's *EG*. A number of people think that the bad effects are due to a lack of investment (Ezeabasili, 2011). When a nation's debt payment obligations are expected to expand in line with its GDP, a phenomenon known as debt overhang happens, which is a popular reason for this negative link. When interest payments on debt are high, capital that might be invested in the economy is instead going toward paying off debt. Since the advantages of growth are constrained by the enormous debt servicing costs and investment is discouraged, this strains the country's fiscal policies and slows down growth. Sulaiman (2012) argues that national debt has two primary effects: first, the liquidity effect, which happens when individuals are attempting to allocate scarce resources like savings or loan interest, and second, the disincentive effect, which happens when domestic investment becomes a daunting prospect due to concerns about the impact of domestic

debt. The government is less likely to invest in infrastructure or implement fiscal reforms when the debt level is high, despite the fact that these actions would enhance the economy and the government's financial situation.

A debt overhang happens when a nation's capacity to repay its previous obligations is jeopardized due to its massive accumulation of debt. This dampens economic development and progress because investors are more wary of the country's capacity to pay. Governments that are getting their finances in order must, therefore, figure out how to pay back their creditors. Foreign direct investment and investment from other countries would be discouraged if this were not done.

2.20 Foreign Debt Servicing/Relief

A long-standing objective of economists has been the attainment of sustained *EG* for nations. Paying back debt, which includes interest and principle payments (together called "Debt Service Payment"), is considered as a big roadblock to *EG* for any country, everything else being equal. A problem for many countries, especially those with low incomes, is repaying debt, which is sometimes called "Debt Servicing," because it drains a country's limited resources, making it harder to meet domestic requirements.

When nations borrow money at exorbitant interest rates and other conditions, their economies suffer, which in turn causes tax increases and lower returns on investment, which deters investors. The crowding out effect describes this phenomenon.

Debt servicing can contribute to *EG* in a number of ways, including maintaining cordial relationships with creditors and successfully negotiating repayment terms, cancelation, extensions, or forgiveness of debt. According to (Oke and Sulaiman, 2012), emerging countries like Nigeria borrowed much, frequently at extremely low interest rates, in the 1970s in particular, in the hope that this would spur investment and speed up their economic development.

When debt service ratios soared in the 1980s, it became apparent to many debtor nations that repaying their loans would significantly slow *EG*. As a result, it became highly doubtful that these nations would be able to leave a positive balance payment to support their domestic economy.

Two options exist for getting out from under financial obligations: rescheduling, which entails changing the repayment terms of an existing loan to make it take longer to repay, and cancellation, which is completely eliminating the debt.

All outstanding debts owing by Paris Club were paid off when Nigeria sent the last payment on April 21, 2006. Debt relief totaling Sl8 billion and a total reduction of $30 billion in Nigeria's debt stock were part of the agreement, which was announced on June 29, 2005.

More and more politicians are on board with debt relief programs, whether that's through helping people better manage their debt or just writing it off.

So, debt relief is all the rage in the realms of international relations and development right now. There are numerous arguments in favor of debt relief, such as humanitarian concerns and the necessity to manage and stabilize the global financial system. However, it is evident that nations without accountability have not benefited from debt relief, and better-governed nations have lost out on opportunities to combat poverty. Immediate benefit of the debt settlement was to stabilise Nigeria's stock of foreign debt.

When talking about the money saved by paying down the national debt and, by extension, foreign debt, the phrases "debt relief expenditure" or "debt relief funds" come to mind. Relying on government funding that were no longer linked to debt repayments, this type of debt relief differed from others in that it did not entail outside financial aid.

When a nation can pay its foreign loans on schedule, avoid arrears or rescheduling them, and keep economic progress intact, it has achieved debt sustainability (IMF, 1996).

2.21 Comparison between Domestic and Foreign Debt

In its most basic aspects, internal debt differs greatly from external debt . There is a tangible transfer of monies when foreign debt is settled. Borrowed from individuals and corporations within the country, repaying internal debt has no effect on the community's overall resources. Too high domestic interest rates lead to a buildup of foreign debt, while too low rates promote borrowing and investment within the country.

Borrowing domestically lets the country retain more of its economic autonomy, whereas borrowing internationally exposes the borrower to interest rate changes.

Nigeria borrows internally rather than risk its external borrowings due to rising government spending. Contrarily, taxation and other forms of government income management help pay for productive endeavors like expanding and improving the country's infrastructure (Adofu and Abula, 2010). One example is the 2013 federal budget, which allocated $543 billion to pay down domestic debt, out of a total of $592 billion in debt servicing costs. Nevertheless, an increase of around #7 trillion, or $45 billion, was projected in the stock of domestic debt by the end of 2013. Audu and Abula (2001) state that growth is only affected by local debt and not by international debt. If policymakers sought more precise suggestions, they could have examined the combined and individual consequences of Nigeria's domestic and external debt , rather than relying solely on Osuji and Ozurumba's study of the effects of foreign debt financing on economic development from 1990 to 2020. Africa is allegedly unable to advance in its development due to the continent's high levels of debt. According to studies conducted in Nigeria, GDP growth was positively affected by London-based debt financing but negatively affected by Paris-based debt financing, multilateral agreements, and promissory notes.

2.22 Maturity Period

According to the formal criterion of original maturity, which has been upheld, long-term debt liabilities are distinct from short-term debt liabilities. Debts with initial maturities of one year or more are considered long-term debts, whilst liquid cash and debts with original maturities of one year or less or repayable upon demand are considered short-term debts. If the original maturity was one year or less, then the instrument is considered short-term.

2.23 Theoretical Literature

A. Neoclassical Growth Theory

Several models and theories have attempted to describe and explain *EG*; one of these is the neoclassical growth theory of Robert Solow and Trevor Swan, which dates back to the 1950s. This theory states that an increase in output can be explained by a rise in either capital, the quantity or quality of workers, or technological advancements. Output per capita (growth per unit of capital) is on the rise, but growth per worker (growth per unit of labor) is declining, according to this hypothesis that analyzes the relationship between capital, labor, and technical advancement. Theoretically, a country can calculate the quantity of labor and capital needed to stay at that constant point, therefore technological advancements do affect *EG*. Diminutive marginal returns describes this situation. Capital and labor will be in a condition of equilibrium after a specific moment. Consequently, the theory states that advancements in technology are essential for *EG*, and that these advancements can only happen by pure chance. As soon as progress is made, changes to labor and capital must be made. Additionally, it suggests that when all nations have access to the same technology, living standards will equal off globally.

The neoclassical growth model's production functions relied on capital and labor as their primary factors. The introduction of technology as an external, determining factor further complicated the production function.

With this production function, the neoclassical growth model achieves its goals:

The value of Y is defined by the function f(K,L,t).

There are four variables: output (Y), input (K), labor (L), and technical development (t).

This model is based on a number of assumptions, including that there will be infinite returns to scale, that labor will always be fully employed, that prices and wages are variable, and that capital and labor are interchangeable.

An important conclusion of the model is that, at steady state, the pace of growth in production is determined by factors outside the system. An increase in the saving rate does not impact the rate of growth in output, but it does increase capital per worker, which in turn increases output per worker. Two further options to increase per capita income are to decrease the rate of population growth or to increase savings. Assuming the model takes depreciation into consideration, this will hold true.

The model predicts that growth per worker will eventually level off unless technological advancements continue. Based on the concept of diminishing returns on investment, this prediction is made. The model predicts that all nations will aggregate to the same steady state level if they have comparable saving rates, population growth rates, technical breakthroughs, etc., that effect growth.

A country's long-term wealth can be predicted using this model, especially when a portion of the economy is invested. However, the model has some limitations, such as an overemphasis on investment and capital and an inability to address the question of why various nations have varying rates of investment and productivity. The model's usefulness is dependent on several factors, one of which is the convergence forecasts. We can achieve convergence if international finance markets open up and economies become more transparent. This is why we can anticipate a convergence of production per capita levels in developed and emerging countries. However, there is evidence that the per capita

output of rich nations does tend to converge, while the per capita productivity of poor nations does not. All the while, the gap between rich and poor countries has been widening.

B. Modernization Theory

Harvard sociologist Talcott Parsons's (1902–1979) modernization paradigm was based on the work of German sociologist Max Weber (1864–1920). The process by which civilizations evolve into modern ones can be better understood with this concept. According to Knöbl (2003), the study is based on the premise that less developed nations can achieve development through help just like more developed nations. Traditional societies can thrive by embracing modern practices, as stated in modernization theory.

People who hold the view that modern states are more powerful and wealthy and that their citizens have more freedom to enjoy better living conditions are ardent proponents of the modernization idea. Because of developments in data technology and the pressing need to update long-standing systems in transportation, communication, and industry, modernization is now seen as either essential or desirable. This viewpoint makes criticism difficult since it suggests that technological advancements, and not people, set the boundaries of human connection.

Ironically, it also suggests that human action dictates the pace and degree of modernity. Societies, the theory goes, will figure out how to administer things based on abstract principles rather than tradition as they move toward modernity. Conventional cultural practices and religious beliefs, the argument continues, will eventually become extinct as modernity takes root.

At this point in time, three definitions of modernization have emerged:

(1). Discusses the internal evolution of North America and the Western Hemisphere in reaction to the New Era in Europe.

(2). so that countries that didn't make the cut at first can try to catch up.

Finally, reforestation is a continuously evolving form of modernization, much like the most advanced cultures in North America and Western Europe have been throughout their evolutionary history (Gavrov, and Klyukanov, 2015). According to historians, "urbanization accompanied modernization and the rapid process of industrialization (Kendall, 2007)." In sociological critical theory, industry, the expansion of education, and urbanization all play a role in modernization and the larger process of rationalization.

A society's emphasis on the individual rises as it moves toward modernity, while the value of community and family declines. This is also a common topic in Advanced Placement (AP) World History courses.

C. Human Development Theory

Human development theory incorporates findings from several disciplines, including ecologies, sustainable development, feminism, and welfare economics. Refraining from PC nonsense, it seeks to maximize social and instructional capital in order to raise human capital's value. Notable human development thinkers include Amartya Sen and Mahbub ul Haq. Sen argues that democratic rule and respect of human rights are conducive to development. People are more likely to have an honest, clean, and good government if they are free to speak their minds, form groups, and publish their opinions.

One component of maturation is the expansion of individual agency. An individual's ability to pursue their values is best served by "the expansion of freedoms that enable them." Sen identifies five interconnected freedoms-political freedom, economic opportunity, social possibilities, transparency, and security—that allow people to live their lives as they see fit. Access to public healthcare, education, and social safety nets; strong macroeconomic policies; increased finances/output; and environmental protection are all ways the state may help promote freedoms. When we talk about freedom, we're talking

about the ability to start something and the agency to finish it. "What people can achieve on their potential is influenced by economic possibilities, political liberties, social powers, and the enabling condition of good health, basic education, and the support and growth of initiatives."

Sen, who had an even greater impact on UNDP's perspective on human development, developed a composite index that takes into account a nation's average performance in three fundamental areas of human development: the length and health of its citizens' lives, the level of education their citizens receive (as measured by the combined gross enrollment ratio for primary, secondary, and higher education), and the percentage of adults literate in the population. Human development is more expansive than any composite index can capture, yet the HDI is a helpful adjunct to income as a summary measure of human well-being. In order for the many diverse cultures that will define modernity to thrive, it is vital to recognize cultural liberties as basic human rights. The right to one's own language, religion, and culture is a fundamental human right. Adopting policies that recognize and safeguard multiple identities is the sole means of cultivating progress in diverse communities. Preserving and protecting cultural liberty and confronting and finally defeating xenophobic objections to cultural variation are crucial for economic globalization to succeed (Sen, 2001).

D. Dual Gap Analysis Theory

Harrod (1939) and Domar (1946) created the Two-Gap Models of Growth and Development to try to figure out what has to be there for an industrialized economy to thrive.

The research shows that in a Harrod-Domar universe, short-term instabilities always threaten the steady state. Cyclical inflation during economic booms and cyclical unemployment during economic downturns are symptoms of these instability, which are

generated by changes in aggregate demand. In the early 1960s, a number of writers—including Little (1960), Chenery and Bruno (1962), McKinnon (1964), and Chenery and Strout (1966)—adapted the Harrod-Domar methodology for application in the open economies of so-called "third world" countries.

Instead of concentrating on the labor demand gap, the diagnostic is now analyzing the savings gap and the foreign currency imbalance as potential growth targets.

To start, the amount of investment needed is higher than what can be saved.

The second issue is the foreign currency gap, which occurs when revenue falls short of the cost of necessary capital goods. It should be easy to compute the amount of foreign aid or net capital imports a specific country needs to reach a growth target, given that the Two-Gap Models predict that these gaps can be closed by these two sources, respectively.

In order to determine what factors must be present in order for an economy to become industrialized, Harrod (1939) and Domar (1946) created the Two-Gap Models of Growth and Development. Regional Development Banks and the International Monetary Fund both still utilize these models (Easterly, 1999).

Possible growth limits at different times can be identified using the Two-Gap Model. The Two-Gap Model is also known as a Dual Gap Analysis. According to this theory, developing nations can benefit economically from borrowing money or getting aid from other nations.

It figures out how fast investment needs to shift in order for the economy to grow at the target rate.

Development is dictated by two variables—the savings rate and the capital-output ratio—because savings is an essential component of investment. But savings and international aid are not the same thing. Even if savings rates were to increase, the requisite capital goods would still need to be imported in order to satisfy the investment goals that have been set.

If there isn't enough money to purchase capital goods, then saving additional money won't help.

Because of this, a gap will form between foreign exchange and savings if the required rate of growth is to be achieved. Developing countries bear a disproportionate share of this deficit since they are unable to enhance their exports. According to the Two-Gap Model, one cannot replace savings with foreign exchange.

When examining the savings and foreign exchange problems of emerging nations, "Two-Gap Models" are disregarded due to the assumptions made by the models themselves.

• They fail to see the importance of maximizing the use of savings and foreign exchange for growth-inducing goals; secondly, they are too focused on the resources' availability to think about how they could be allocated; and thirdly, they wrongly assume that investments and aid inflows are directly proportional to each other, disregarding any other potential uses for these resources.

• It presupposes that the capital-output ratio will stay constant, which means that capital's average and marginal productivity will also be constant.

When looking at emerging nations' long-term growth dynamics through the lens of the Two-Gap Model, the idea that production elements are non-substitutable starts to sound quite unlikely.

With the exception of the one about the presumed one-to-one link, most of its criticisms are put into context by the fact that it is used by International Monetary Institutions (IMIs) to make their unconventional growth predictions for the near future.

F. The Harrod-Domar (Model) Theory

In 1946, Evsey Domar and Roy F. Harrod worked separately to establish the model, which is utilized in the field of *EG* and development to describe the pace of expansion of an economy in relation to the level of saving and capital. It is worth noting that Gustav Cassel

had previously presented a similar model in 1924. According to the model, a balanced growth rate is not necessary for an economy. One of the models that came before the exogenous growth model was the Harrod-Domar model.

There are three different kinds of development according to the Harrod-Domar paradigm: i) Growth that shows promise; ii) Growth that really occurs; and iii) The rate of natural growth.

Warranted growth rate refers to the rate of growth that keeps the economy from either continuously expanding or entering a recession.

The proportion by which a country's natural GDP or GDP grows each year is known as its real growth rate.

For example, if the work force were to continue growing at a pace of 3% per year, full employment could be maintained if the economy grew at the same rate, a phenomenon called natural growth.

Definitions

Total saving (S), savings rate (s), investment (I), and capital stock depreciation rate (o) are defined in relation to output (Y) and capital stock (K), where Y represents income and K represents capital stock, respectively.

The a priori assumptions of the Harrod-Domar model are as follows:

Mathematical formalities

1. Production is unrelated to labor and is instead affected solely by capital assets.

Since the production function demonstrates continuous returns to scale and the marginal product of capital is constant, the marginal and average products of capital are comparable.

3. Without capital, production would not be possible.
4. The rate of investment can be calculated by multiplying production by the savings rate.
5. Capital stock change is the result of investment minus depreciation of capital stock.

While the business cycle was the initial target of the Harrod-Domar model, its applicability to *EG* was a later development. Increased investment causes capital accumulations, which in turn cause *EG*, according to the model's implications. In developing nations, where human capital is plentiful but physical capital is sparse, the approach could have a similar effect, reducing *EG*. The reason behind this is that due to low revenues, LDCs are unable to save enough money to invest much in physical capital. The model posits that policies targeted at boosting investment, in the form of higher saving rates and more efficient utilization of that investment, are essential for *EG*, as economies do not "naturally" attain full employment and consistent growth rates.

The degree of assumption is the most typical point of criticism for the model. In particular, the assumption that growth alone will not be sufficient to maintain full employment is rooted in the fixed relative prices of labor and capital and their equal proportional utilization. Additionally, the model is based on the dubious premise that both savings rates and marginal returns to capital remain constant. As a last point, it has taken heat for supposing the unattainable relationship between capital stock and productive capability, an assumption that Domar himself acknowledged was flawed.

2.24 Empirical Literature Review

Studies by Developed Countries

Gomez-Puig and Sosvilla-Rivero (2015) looked at the effect of public debt on the economic performance of EMU member states from 1960 to 2012. We used the ARDL bounds testing approach for this data. Despite the positive effects on the near term, the research found that EMU members' long-term economic performance was negatively affected by public debt. Dritsaki (2013) examined the relationships between Greece's GDP growth, exports, and state debt from 1960 to 2011 using the Granger Causality Approach and the Vector Error Correction Model (VECM). Exports lead to development, and GDP

growth leads to government debt, according to the data, but the relationship is one-way only. A linear relationship existed between *EG* and the accumulation of government debt.

Studies by Developing Countries

The impact of Zimbabwe's national debt on GDP growth from 1970 to 2017 was recently examined by Saungweme and Odhiambo (2020). According to the results of the Autoregressive Distributed Lag (ARDL) study, both local and foreign debt negatively affected *EG*, both in the short and long run. Njoroge (2020) asserts that in the long run, public debt and real GDP growth in Kenya are positively causally related. Utilizing monthly data spanning 1998:M6 to 2015:M12, Zaheer et al. (2019) investigated how Pakistan's government debt affected private sector loans. The study's authors concluded that, relative to foreign debt, domestic debt slowed *EG* more. A study conducted by Daka et al. (2017) utilized ARDL to examine the impact of foreign borrowing on the Zambian economy from 1980 to 2014. The results showed that a 1% increase in government debt borrowing reduced the availability of private sector credit. The research did establish a positive relationship between short-term borrowing and GDP growth, but it also shown that debt servicing significantly and negatively affected Zambia's GDP.

In his analysis of time series data from 1974 to 2014, Saifuddin (2016) looked at how public debt affected economic development. For this estimation, we used Two Stage Least Squares (TSLS). The TSLS found that government debt encouraged investment, which boosted GDP growth (Anning et al., 2016). Government debt, however, impeded *EG*, according to Ghanaian academics who utilized the straightforward OLS methodology and data collected between 1990 and 2015.

Hussain et al. (2015) offered estimates of the effects of government loans on GDP growth from 1995 to 2012 in Sub-Saharan Africa. Using panel OLS, the researchers discovered that mounting debt caused a downward trend in *EG* rate. An analysis of four South Asian

nations—Sri Lanka, Bangladesh, India, and Pakistan—was conducted from 1975 to 2011 using panel data estimate methodologies to determine the correlation between public debt and economic progress (Akram, 2013). Research showed that two effects were at play here: the crowding-out effect and the debt overhang effect. The former reduced investment and GDP growth, while the latter increased the cost of debt servicing.

This study seeks to fill a gap in the literature by empirically analyzing the relationship between the dynamics of Nigeria's external debt and the growth of the country's infrastructure, rather than just looking at the consequences of the debt on the economy.

Borrowing money from other entities allows the government to support domestic *EG* and development without negatively impacting other parts of the system. However, developing economies often face the challenge of underreported and ongoing overspending and embezzlement, which brings them closer to mounting amounts of external debt. Economists have therefore developed a diverse array of views and theories in their quest to comprehend how nations' economies are impacted by their accumulation of foreign debt.

Divided the total governmental debt into foreign debt and local debt, (Didia and Ayokunle, 2020) sought to determine whether the two forms of debt impact Nigeria's *EG* differently. Udoh et al. (2020) used the Vector Error Correction Model (VECM) to analyze data from 1980 to 2016. They discovered that domestic debt and long-term *EG* were positively and statistically significantly related, but external debt and growth were negatively and non-significantly related. Using quarterly data from 2006 to 2018, the study also looked at how the burden of intergenerational debt affected economic prosperity in Nigeria. To test our theories, we turned to the ARDL model. Paying salaries and allowances with borrowed money has slowed Nigeria's *EG* and put a strain on the country's finances.

Omodero (2019) shown that there is a negative and statistically significant relationship between capital investment and loans from foreign lenders. In contrast, Ochuko and Idowu (2019) looked at the data from 1981–2018 to determine how Nigeria's national debt affected GDP growth. Their research showed that domestic debt significantly increased GDP growth, whereas foreign debt had a minor but discernible effect. On the other hand, *EG* was severely impacted by the cost of debt payment.

Researchers looked at GDP growth in Nigeria and the impact of the country's external public debt from 1990 to 2016 (Ezema et al., 2018). For long-term relationships, the research employed Johansson Cointegration, and for short-term ones, the OLSs Regression Model. According to the findings, external debt significantly boosted Nigeria's *EG*, but the services associated with it significantly stunted it. The Granger causality result showed that the various debt stocks granger caused the performance of the Nigerian economy (Oti et al., 2016), and the Johansen test for Cointegration showed that economic development and debt stocks had a long-run equilibrium relationship.

Nwali and Nkwede (2016) looked at data from 1961 to 2013 to see how the internal and foreign debts of Nigeria affected the economy. The method of data analysis was put into place based on the VECM. Using statistics spanning 1970–2010, Egbetude (2012) investigated the connection between government debt and GDP growth. The results demonstrated that the two variables were causally related in both directions. It appears that the weight of Nigeria's internal and external debt significantly hampered economic progress.

Ibi and Aganyi (2015) looked at the impact of Nigeria's foreign debt on GDP growth. Impulse response and variance decomposition, features of VAR, are utilized by them. Inflation, public investment, GDP, real exchange rate, and the ratio of foreign debt to exports were among the economic indicators covered in the study. Using a Two-Stage data

processing approach, we find that the correlation between Nigeria's external debt and GDP growth is poor. Therefore, it is not possible to use Nigeria's external debt to forecast the country's *EG* rate. Therefore, changes in external debt cannot be used to predict changes in GDP. The effect of Nigeria's public debt on the country's *EG* from 1985 to 2015 was examined using the ECM approach. We included variables like GDP per capita, domestic debt stock, external debt servicing, and external debt stock as well as variables for external debt and its servicing. If debt may spur *EG* in Nigeria, then the country's leaders must exercise strict fiscal discipline and a deep sense of personal responsibility when dealing with public finances. In a 2016 study, Abula et al. Udofia and Akpanah (2016) examined the impact of Nigeria's external debt on GDP growth. They discovered that the ECM indicated a weak negative association between the stock and service of external debt and GDP growth and infrastructure development in the country. The authors of the paper urged the government debt agency, the Debt Management Office (DMO), to closely monitor and report any external loans contracted by institutions and organizations, as well as their overseas borrowing activities. Data used for this empirical analysis for Nigeria range from 1980 to 2015 and include the following: rate of GDP growth, ratio of external debt to gross national income, ratio of debt service to export earnings, ratio of private investment to GDP, rate of enrollment in primary school, inflation, real exchange rate, population, and trade openness. This study arrived at two conclusions: first, that external debt slows *EG*; and second, that debt overhang is not a problem in Nigeria. According to what Mbah, Umunna, and Agu found when they looked at how Nigeria's foreign debt affected GDP growth. (2019) found that the best long-term approach to finance national development projects would be to increase export profits via an export-led growth plan and to invest in human resources. An extensive set of time series data, spanning 1980–2018, was utilized.

The research employed the econometric Error Correction Model, Johansen co-integration, and the ARDL bound testing approach to examine the data. The Granger Causality result suggests that the relationship between debt and economic development is unidirectional. Real exchange rate, national expenditure-to-GDP ratio, external debt -to-GDP ratio, and annual growth rate of GDP are all indicators that exhibit the same long-term link. At the same time, there is substantial proof that foreign debt reduces GDP. Thus, the study concluded that Nigeria has failed to reap the benefits of its external borrowing, which were supposed to assist in bridging the savings-investment gap. Consequently, Olasode and Babatunde (2021) modeled various economic theories to clarify the link between Nigeria's external debt and GDP growth. In their view, the government should encourage export-oriented growth and borrow cautiously. They empirically used the Autoregressive Distributed Lag model to investigate data from 1981 to 2021 using variables such as GDP from the previous year, GDP from the current year, GDP, external debt from the previous year, and external debt from the current year. They employed the Augmented Dickey Fuller and Phillips-Perron unit Root Test to account for inaccurate data. The Johansen Cointegration method was used to test the relationship among the variables. Ugwuegbe, Okafor, and Azino (2016) used annual time series data to look at how foreign aid and external borrowing affected Nigeria's GDP growth from 1986 to 2015. Their research showed that while current-year foreign debt hurts economic performance, debt from a year ago really helped. The writers suggest that the borrowed funds be invested in something useful. In order to account for external factors including foreign aid, exchange rate regime, foreign reserve, and external debt, the researchers used GDP as a growth statistic. Several econometric techniques, including augmented Dickey-Fuller (ADF), multiple regression, the error correction method, and a normal distribution, were employed. Foreign assistance had a moderate correlation with GDP growth in Nigeria, whereas

external debt had a strong and statistically significant positive correlation. It recommends, among other things, that lawmakers put constraints on foreign borrowings through programs like "the debt for equality swap programmes." It also says that lawmakers should set regulations to encourage the efficient use of public monies. Paul (2017) looked at the effects of Nigeria's foreign debt on GDP growth. Data from 1985 to 2015 were analyzed using OLS Regression, Augmented Dickey Fuller Unit Root Test, Johansen Co-integration, and Error Correction Test. Variables such as GDP were used in the study. The study found that after accounting for external debt stock, foreign reserve, and currency rate, Nigeria's growth index was positively affected, but debt service payment had a small negative influence. A long-run relationship between GDP and external debt is shown by Johansen Co-integration, and at levels other than first difference, none of the variables are stationary, according to the Augmented Dickey Fuller Unit Root Test. The causality test indicates that the relationship between GDP and external debt is unidirectional. Researchers Getinet and Ersumo (2020) examined the impact of Ethiopia's public foreign debt on GDP growth using an ARDL methodology. The model took into account the yearly GDP growth rate as the dependent variable, using time series data from 1983 to 2018. The report stated that infrastructure development should be funded by foreign loans, that legislation should be enacted to improve the business environment, that adequate debt management regulations should be put in place, and that human capital development should be prioritized above foreign borrowing. As explanatory variables, we utilized debt variables such as public external debt stock to GDP (PEDSGD), debt service stock to GDP (DSSGD), and debt service stock to export (DSSEXP). Other macroeconomic factors that were considered were trade openness (TRD), inflation rate (INFL), and public spending to GDP ratio (NEXPGD). For the short-run dynamics, the study used ECM, and for the long-run co-integration, bound testing. The study revealed long-run co-integration by the

coefficient of error correction term analysis, and it indicated that the disequilibrium from past years' bad management of external funds returns to long-term equilibrium at a rate of 60.96% in the present year. The paper concludes that the government should prudently invest the funds from its foreign debt while also maintaining control over its debt management policies. Although the reviewed work is connected to it, this study would domesticate it by using Nigeria as a case study. The fundamental justification for this study comes from the findings of the literature evaluations of the consequences of Nigeria's external debt on economic development and growth. Prior research on the subject has yielded conflicting results about the impact of public debt on GDP growth, according to the researcher. For instance, the effect is insignificant, according to Ezeabasili, Isu and Mojekwu (2011), Obademi (2012), and Hassan, Sule and Abu (2015). While Oduabasi, Uzoka, and Anichebe (2018) and Paul (2017) hold different views, they agree that the stock of external debt significantly affects GDP for the better. The bulk of evaluations employ theories of development and foreign debt as their base, while this one uses *EG* theory.

Because of this, we were able to accomplish our objectives by simulating the Nigerian economy via the lens of its external debt.

Knowledge Gap

A literature survey revealed that multiple writers have investigated external debt. Nonetheless, the majority of these research looked at the relationship between external debt and GDP growth. Although numerous studies have examined the impact of government borrowing on GDP growth in Nigeria, the correlation between government borrowing and GDP infrastructure development has largely gone unexplored. This paper fills a need in the current literature as a result. Last but not least, the growing national debt of Nigeria is a serious and worrisome problem.

Getting academics and politicians interested in the topic at the right moment was justified because borrowing money for infrastructure development and growth, rather than for personal consumption, is the key to speeding up *EG* and development.

CHAPTER THREE

METHODOLOGY

3.1 Theoretical Framework

The key to accelerating economic growth and development is borrowing at a reasonable rate to fund public and infrastructural development that leads to *EG*. This view point is consistent with the neoclassical economic growth model-the Keynesian theory, which views capital accumulation as a stimulus for economic expansion, the Asian

Tigers which comprise Hong Kong, Singapore, SouthKorea, and Taiwan. All four economies have been fueled by export and rapid industrialization and have achieved high levels of *EG* since the 1960s; using external debt, these nations were able to transform their economies (Momodu, 2012). Excessive borrowing without adequate investment planning, notwithstanding, can lead to overburdened debt and interest payments, which can have dire adverse economic consequences (Joy & Panda, 2020).

The government's ability to invest more productively in infrastructure, education, and public health may be hampered by rising debt levels (Soludo, 2003). In order to aptly capture the impact of external debt and its dynamics on infrastructural growth in Nigeria, this study adopted the neoclassical growth model as a framework on which the related empirical model was developed, (Solow, 1956) presented a model of economic growth that breaks the rigidity of Harrod -Domars model by replacing the fixed coefficient production function with a neoclassical production function. This model permits substitution between the factors of production so that the relative endowments of capital and labour could be reflected rather than the fixed ratios required by Harrod-Domars model.

According to (Boianovsky and Hoover, 2009), the Solow growth model assumes a production function with the property of diminishing returns where each additional

increment in capital per worker results in less output. The neoclassical growth model, therefore, is expressed as follows:

Y=f (K, AL) (3.1)

Where:

Y=Growth

K= capital stock

L= labour

A= technological progress

AL = labour augmented with technology which implies effective labour

Divide equation (1) by labour augmented with technology, AL to have

y = f (k) (3.2)

Where:

$y = \frac{Y}{AL} = output$ per effective labour

$K = \frac{K}{AL} = capitalI$ per effective labour

Thus, equation (3.2) is an intensive form of the simple production function showing that output per effective labour, y is a function of capital per effective labour k. The intensive form equation satisfies the assumptions of diminishing marginal product and constant returns to scale, that is $f'(k) > 0$ and $f''(k) < 0$

To illustrate how the economy behaves in this model, let us analyse the dynamics of capital per effective labour, K.

Recall that $k = \frac{K}{AL}$ (3.3)

Differentiate equation (3.3) with respect to time

$\Delta K = \frac{\Delta K}{AL} - \frac{AK\Delta L + KL\Delta A}{(AL)^2}$ (3.4)

Expression (3.4) simplifies to:

$$\Delta k = \frac{\Delta k}{AL} - \left(\frac{K\Delta L}{AL^2} + \frac{\Delta AK}{A^2 L}\right) \quad (3.5)$$

Given that change in capital stock (investment) is ΔK=sY-δK. Where s=savings rate and δ=depreciation rate. And the growth rate of labour is expressed as $\frac{\Delta L}{L} = n$ and the growth rate of technological progress is $\frac{\Delta A}{A} = g$.It follows that the growth rate of labour is constant and equal to n and that of technological progress is a constant and is equal to g.

By substitution and rearrangement, equation (3.5) can be rewritten as:

Δk=sy-(δ-n-g)k (3.6)

This is the fundamental equation of the Solow growth model.

It shows that the rate of change of capital per effective labour is the difference between actual investment per effective labour, sy and break-even investment (δ-n-g) k. According to the model, when the actual investment per effective labour exceeds the investment needed to break even, capital per effective labour will rise. On the other hand, Solow argued that when the actual investment per effective labour falls short of the investment needed to break-even, capital per effective labour will fall. Thus, equilibrium (steady state) is attained when the actual investment per effective labour equals the investment needed to break-even, that is Δk=0 which implies the following equilibrium equation:

(δ-n-g)k=sy (3.7)

From equation (4.7), the capita per effective labour equation can be stated as:

$$k = \frac{1}{(\delta - n - g)} Sy \quad (3.8)$$

Thus, the basic Solow model as modified in equation (3.8) states that capital stock depends on saving ratio, s; depreciation rate, δ; growth rate of labour, n; growth rate of

technological progress and output, y (Solow, 1956). Equation (3.8). therefore, serves as the fundamental equation on which the empirical model of this study is built.

3.2 Model Specification

Based on the theoretical framework explained in the preceding section, the study augmented the basic modified Solow model as stated in equation (3.8) using the external debt stock, external debt service and external debt variability to explain changes in capital stock. Accordingly, this study augmented the model using the external debt components. This is because aggregate savings, parametric component of the model, in an economy determine the level of investment in the economy.

If the domestic savings ratio falls short of the desired level of investment in the economy, it is often augmented through external borrowings. Therefore, external debt stock and its dynamics affect capital accumulation in the economy. In this regard, the empirical model of this study is stated in its functional form as:

GFCF = f (CFC, DD, ED, EDS, EDV, EXR, FDI, INF, INT, RGDP) (3.9)

Where:

GFCF= Grossfixed capital formation

CFC= Consumption of fixed capital

DD= Domestic debt stock

ED= External debtstock

EDS= External debt service

EDV = External debt volatility measured by the conditional standard deviations of external debt stock

EXR= Exchange rate

FDI= Foreign direct investment

INF= inflation rate

INT= Interest rate

RGDP= Real gross domestic product

Thus, we can specify our empirical models in econometric form as follows:

$$GFCF_t = \alpha_0 = \alpha_1 CFC_t + \alpha_2 DD_t + \alpha_3 ED_t + \alpha_4 EDS_t + \alpha_5 EDV_t + \alpha_6 EXR_t +$$

$$\alpha_7 INF_t + \alpha_8 INT_t + \alpha_9 RGDP_t + \varepsilon_t \quad (3.10)$$

Where:

t stands for time in years

$\epsilon_t$is the error term

All the other variables are as already defined.

From a priori considerations, it is expected that consumption of fixed capital, domestic debt, external debt stock, and real GDP are positively related to gross fixed capital formation while debt service, external debt variation, exchange rate, inflation rate, and interest rate are negatively related to gross fixed capital formation, i.e.,$\alpha_1, \alpha_2, \alpha_3, \alpha_9 > 0; \alpha_4, \alpha_5, \alpha_6, \alpha_7, \alpha_8 < 0.$

The error correction model is specified as:

$$D(GFCF)_t = \beta_0 + \beta_1 D(CFC_t) + \beta_2 D(DD_t) + \beta_3 D(ED_{t-1}) + \beta_4 D(EDS_{t-1}) +$$

$$\beta_5 D(EDV_{t-1}) + \beta_6 D(EXR_t) + \beta_7 D(NF_{t-1}) + \beta_8 D(NT_{t-2}) + \beta_9 D(RGDP_t) +$$

$$\beta_{10} ecm(-1) + \mu_t$$

Here,$\beta_1, \cdots, \beta_9$ are the short run dynamic coefficients of the gross fixed capital formation model's convergence to its long run equilibrium, Δ denotes differencing, β_{10} is the coefficient of adjustment expected to be negative.

3.3 Definition of Variables

Domestic debt (DD): Domestic debt or internal debt is the component of the total government debt of a country owed to lenders within the country.

External debt (ED): External debt or foreign debt is the component of the total government in a country that is owed to lenders outside the country, including commercial banks, governments, or international financial institutions (Kenton, 2021).

External debt service: It is the amount of appropriation in the fiscal budget to finance external debt stock owed to creditors outside the domestic country.

External Debt Volatility: It is a measure to capture the variation or volatility in external debt stock. It is used to proxy external debt dynamics in the economy. external debt volatility was measured using the conditional standard deviations of external debt stock obtained from Generalized Autoregressive Conditional Heteroskedasticity (GARCH) technique.

Inflation Rate (INF): When the general price level rises, each unit of currency buys fewer goods and services; consequently, inflation corresponds to a reduction in the purchasing power of money (Walgenbach, Dittrich, & Hanson, 1973). .

Interest Rate (INT); Interest rate is defined as a price that a borrower or a loan client the fee which is paid for the use of an asset that is borrowed from a lender (Maigua & Gekara, 2016).

3.4 Estimation Technique

In econometric literature, most time series variables are non-stationary and utilising such non-stationary variable in estimations might lead to spurious regression (Granger and Newbold, (1977). To avoid this pitfall, the study investigated the stationarity status of the time series using both the ADF and Phillip Peron (PP) tests. The purpose of these tests is to establish if he time series has a stationary trend and if not stationary, to show the order of integration differencing. In economic analysis the ADF and PP tests are commonly used to test for unit roots in time series by comparing the test statistic with the critical statistic values. If the former is greater than the latter in absolute terms,

it is then concluded that the series is stationary. Thus, a time series is stationary if the mea and variance is constant over time and the value of covariance between two time periods depends only on the distance between the two time periods and not the actual time at which one covariance is computed. Once the stationarity properties of the individual series are established, linear combination of the integrated series are tested for co-integration using the Johansen Cointegration method. Should a linear combination of individual non-stationary series produce a stationary data series, then the variables arevco-integrated. Again, when co-integration is established, the long run regression model is estimated using the Ordinary Least Squares (OLS) technique to obtain the long run parameters.

The next step is to obtain the short run dynamic parameters using the Error Correction Model (ECM) technique.

3.5 Economic Criteria: A priori Expectation

The conformance of each independent variable's coefficient with economic theory postulates is displayed here, that is, whether the sign and size of the parameters of economic interactions between the dependent and independent variables match the predictions of economic theory.

3.6 Statistical Criteria: First Order Test

This is for determining the statistical reliability of the model's calculated parameters. The F-statistic, t-statistic, Coefficient of determination (R2) and Adjusted R2 are used here.

3.7 Coefficient of Determination (R2)/Adjusted R2

TheR2 or adjusted R2 assesses the model's goodness of fit and is used to assess the explanatory power of explanatory variables on dependent variables. As a result, the higher the R2 and R2 adjusted values are, or the closer they are to 1, the better the model can

explain variations in the dependent variable. As a result, the better the OLS regression, which is why the R2 is known as the coefficient of determination because it reveals the amount of variance in the dependent variable explained by explanatory variables.

3.8 F-test

The F-statistic is used to determine if the independent factors have a combined or overall significant impact on the dependent variable. If the estimated F-value is greater than the F-table value, the independent variables in the regression equation are jointly significant to the dependent variable, otherwise, they are not.

3.9 T-test

This is used to assess the dependability and statistical significance of each independent variable on independent variable. Each coefficient's absolute t-value is compared to 1.96, and if more than 1.96, the variable containing the coefficient is considered statistically significant and suitable for inferences and maybe forecasts.

3.10 Econometric Criteria: Second-Order Test

The goal of this study is to see if the assumptions of the econometric technique are met or not in any given scenario. They determine the consistency and unbiasedness of statistical criteria, as well as if the estimates have desirable features such as consistency and unbiasedness. It also uses the Durbin-Watson (D.W) statistic, heteroscedasticity test, and multicollinearity test to determine the validity of non-auto correlated disturbances.

(a) If d* is approximately equal to 2(d* = 2), we accept that there is not autocorrelation in the function

(b) If d*= 0, there exist perfect positive auto-correlation. Furthermore, if $0 < d < 2$, that is if d* is less than two but greater than zero, it denotes that there is some degreevof positive autocorrelation, which is stronger, the closer d* is to zero and

(c) If d* is equal to there exists a perfect negative auto-correlation, while if d* is less than four but greater than two ($2 < d^* < 4$),it means that there exists some degree of negative autocorrelation, which is stronger and higher than value of d*.

3.11 Sources of Data

The data used for the study were sourced from the Centra Bank of Nigeria (CBN) Statistical Bulletin (2020), World Bank Database (2020) and Nigerian Bureau of Statistics (2020).

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter presents the empirical results and the analysis. The analysis of results starts with the presentation of the unit root tests results using the Augmented Dickey Fuller and the Phillips-Perron tests. These are followed by the co-integration test result using the Johansen approach. The short run and long run models are reported. Finally, the hypotheses of the study are tested.

4.2 Unit Root Tests

The time series properties of the variables using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests were conducted for each series. The results are presented in Table 4.1. The tests were done with the following hypothesis: Null hypothesis variable contains unit root and hence is non-stationary. Alternative hypothesis (H1): Variable does not contain unit root and hence is stationary. The decision rule was to reject the null hypothesis if the calculated the test statistic is greater than test critical values.

Table 4.2(a): Results of Augmented Dickey-Fuller and Phillips-Perron Unit Root Tests at Levels

Variable	ADF Test Statistic	5% Critical Value	PP Test Statistic	5% Critical Value	Remarks
GFCF	-2.4376	-2.9434	-4.0906	-2.9390	Non-Stationary*
CFC	-2.2824	-2.9390	-3.2892	-2.9390	Non-Stationary*
DD	2.9859	-3.5629	3.8526	-3.5298	Non-Stationary
ED	0.1032	-3.5331	1.5894	-2.9390	Non-Stationary
EDS	-2.5478	-2.9390	-2.3618	-2,9390	Non-Stationary
EDV	7.4794	-3.5298	6.6229	-3.5298	Non-Stationary
EXR	-0.4494	-3.5298	-0.6443	-3.5298	Non- Stationary
INF	-2.2516	-2.9390	-2.2214	-2.9390	Non-Stationary
INT	-2.3099	-2.9434	-2.4064	-2.9390	Non-Stationary
RGDP	-2.3937	-3.5443	-2.2229	-3.5298	Non-Stationary

Source: Author's Results using Eviews 8.0

Note. *The remark is based on the outcome of the Augmented Dickey-Fuller unit root test.

Table 4.2(b) Results of Augmented Dickey-Fuller and Phillips-Perron Unit Root Tests at First Difference

Variable	ADF Test Statistic	5% Critical Value	PP Test Statistic	5% Critical Value	Order of Integration	Remarks
D(GFCF)	-5.1063	-2.9434	-	-	I(1)	Stationary
D(CFC)	-3.7807	-2.9458	-	-	1(1)	Stationary
D(DD)	-4.0263	-3.5366	-3.8848	-3.5330	I(1)	Stationary
D(ED)	-6.1473	-2.9458	-6.1077	-2.9434	I(1)	Stationary
D(EDS)	-6.8270	-2.9411	-11.3546	-2.9411	I(1)	Stationary
D(EDV)	-5.1558	-3.5366	-5.6067	-3.5366	I(1)	Stationary
D(EXR)	-4.7189	-3.5331	-4.5229	-3.5330	I(1)	Stationary
D(INF)	-3.3454	-2.9571	-12.3759	-2.9411	I(1)	Stationary
D(INT)	-5.9470	-2.9434	-9.6696	-2.9411	I(1)	Stationary
D(RGDP)	-6.0286	-3.5443	-13.3334	-3.5366	I(1)	Stationary

Source: Author's Results using Eviews 8.0

Note: "D"denotes first difference.

From Table 4.2(A), it was found that gross fixed factor formation (GFCF), consumption of fixed capital (CFCS), domestic debt stock (DD), external debt stock (ED), external debt service (EDS), external debt volatility (EDV), exchange rate (EXR), inflation rate (INF), interest rate (INT), and real gross domestic product (RGDP) are all non-stationary at the 5 percent significance level. That is, all the variables are not stable at their levels. This is because the ADF statistics for these variables are greater than their critical values in absolute terms at 5 percent level of significance. Thus, they are all non-stationary at levels. From Table 4.2(b) the unit root tests of the variables at their first differences show that they are all stationary after their first differencing. In other words, all the variables are stable at their first differences. Thus, all the variables are difference stationary, that is integrated of order one, symbolically denoted as:I(1).

4.3 Cointegration Tests

Having established the time series are stationary at the same order of integration, the study proceeded to conduct the cointegration tests using the Johansen multivariate co-integration test. The results of the Johansen cointegration test are presented in Tables 4.3 and 4.4.

Table 4.3(a) Unrestricted Co-integration Rank Test (Trace)

Hypothesized	Eigen value	Trace Statistic	0.05 Critical Value	Probability**
None*	0.972950	465.6848	239.2354	0.0000
At most 1*	0.929111	328.5028	197.3709	0.0000
At most 2 *	0.756758	227.9302	159.5297	0.0000
At most 3 *	0.726576	174.2097	125.6154	0.0000
At most 4*	0.593642	124.9339	95.75366	0.0001
At most 5*	0.556923	90.71417	69.81889	0.0005
At most 6*	0.469209	59.78172	47.85613	0.0026
At most 7*	0.401976	35.71299	29.79707	0.0093
At most 8*	0.274085	16.17627	15.49471	0.0394
At most 9*	0.100007	4.004008	3.841466	0.0454

Trace test indicates 10 co-integrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis a the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Results Extract from Eviews 8.0

Table 4.3(b) Unrestricted Co-integration Rank Test (Maximum Eigen value)

Hypothesized No.of CE(s)	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Probability**
None*	0.972950	137.1820	64.50472	0.0000
At most 1*	0.929111	100.5726	58.43354	0.0000
At most 2*	0.756758	53.72050	52.36261	0.0361
At most 3*	0.726576	49.27578	46.23142	0.0229
At most 4	0.593642	34.21977	40.07757	0.1970
At most 5	0.556923	30.93245	33.87687	0.1080
At most 6	0.469209	24.06873	27.58434	0.1324
At most 7	0.401976	19.53672	21.13162	0.0823
At most 8	0.274085	12.17226	14.26460	0.1043
At most 9*	0.100007	4.004008	3.841466	0.0454

Max-Eigen value test indicates 4 co-integrating eqn(s) at the 0.05 level

*denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999)p-values

Source: Results Extract f rom Eviews 8.0

The cointegration test based on the trace test indicates that there are ten co-integrating equations at the 5 percent level. However, the maximum Eigen value test indicates only four co-integrating equations at the 5 percent level. These results show that a long run relationship exists among gross fixed capital formation and its set of determinants in the model. Hence, the study proceeded with the estimation of the error correction model.

4.4 Results of the Estimated Short Run (Error Correction) Model

Since long run relationships have been established among the variables, the Error Correction Model (ECM) was estimated using the OLSs regression method. The results of the Error Correction model are presented in Table 4.4.

Table 4.4: Estimated Coefficient of the Short Run Dynamic Error Correction Model

Dependent Variable: D(GFCF)				
Regressor	Coefficient	Standard Error	T-Ratio	Probability
D(CFC)	0.521460	0.077782	6.704088	0.0000
D(DD)	0.643141	0.265766	2.419956	0.0228
D(ED(-1))	0.511740	0.239960	2.132607	0.0426
D(EDS(-1))	1.30E-07	5.56E-08	2.334191	0.0276
D(EDV(-I))	-5.35E-05	3.43E-05	-1.558279	0.1313
D(EXR)	-21.09211	8.322220	-2.534432	0.0176
D(INF(-1))	-4.117083	6.231687	-0.660669	0.5146
D(INT(-2))	-32.49291	27.36947	-1.187195	0.2459
D(RGDP)	0.156217	0.081369	1.919850	0.0659
ECM(-I)	-0.681103	0.157363	-4.328233	0.0002
C	-251.4579	177.6415	-1.415536	0.1688
R-Squared 0.7744			R-Bar-Squared 0.6876	
F-Statistic 8.9225 (0.00004)			DW-S tatistic 1.9053	

(Source: Author's computation using Eview 8.0)

The coefficient of determination of the Error Correction Model, R-squared (R^2) is about 0.77 and the adjusted R-squared (R^2) is 0.69. The R-squared implies that about 77 percent of the systematic variations in first difference of gross fixed capital formation are explained by the regressors in the short run equation. The adjusted R-squared indicates that about 69 percent of the systematic changes in the dependent variable are attributable to the explanatory variables. The F-statistic($F(9,28) = 8.92$, $p < 0.01$) implies that the overall goodness of fit of the model is significant at the 1 percent level. Thus, all the independent variables do collectively account for variations in the dependent variable in the short run. The Durbin-Watson statistic(d=191) reveals that the short run model is free from the problem of autocorrelation.

The signs of the estimated coefficients of all the explanatory variables in the short run model conform to their theoretical expectations except external debt service. The coefficient of first difference of consumption of fixed capital D(CFC) is positive and important at the 1 percent level of importance. Its coefficient is 0.52 with a t-value of 6.71. Th t-statistic passed the

significance test at the 1 percent level. Therefore, consumption of fixed capital has a positive substantial impact on gross fixed capital formation in the short run.

The coefficient of first difference of domestic debt D(DD) is positive and significant in the 5percent equal of significance. Its coefficient is 0.64 with a t-value of 2.42. The t-statistic passed the significance test at the 5 percent level. Therefore, domestic debt has a positive importance impact on gross fixed capital formation in the short run in Nigeria. Similarly, the coefficient of first difference of external debt lagged value, D(ED(-1)) is positive and significant at 5percent level of significant (=2.13, p=0.04). The coefficient passed the statistical test of significance at the 5 percent level. Therefore external debt has a positive significant impact on gross fixed capital formation in the short run in Nigeria. However, the coefficient of first difference of external debt volatility lagged value, D(ED(-1)) is negative but insignificant at even at the 10 percent level of significance (t=-1.56, p= 0.13). Hence, the implication is that external debt dynamics have insignificant effect on gross fixed capital formation in the short run in Nigeria. The coefficient of first difference of exchange rate D(EXR) is negative and significant at 5 percent level of significance (t=-2.53, p=0.02). therefore, exchange rate has a significant adverse effect on gross fixed capital formation in the short run in Nigeria.

The coefficient of one year lagged value of first difference of inflation rate, D(INF(-1)) is negative. Its coefficient is -4.12 with a t-value of -0.66. The t-statistic failed the significance test at the 5 percent level. Therefore, inflation rate has an insignificant impact on gross fixed capital formation in the short run in Nigeria. In the same vein, the coefficient of first difference of interest rate lagged value, D (INT (-2)) is negative. The coefficient failed the statistical test of significance at the 10 percent level (t=-1.19,p=.25). Therefore, interest rate has an insignificant impact on gross fixed capital formation in the short run in Nigeria.

The coefficient of first difference of real gross domestic product D(RGDP) is positively signed. Its coefficient is 0.16 with a t-value of 1.91. It passed the test of statistical significance at the 10percent level. Thus, real GDP has a positive significant effect on gross fixed capital formation in the short run.

With the ECM, the sign of the adjustment coefficient is correct. At the percentage level, it is negative, indicating statistical significance. This is how it will achieve its goal of restoring the long-run equilibrium value of gross fixed capital formation. The value of it is -0.68. According to the adjustment coefficient, this indicates that gross fixed capital production will return to its initial equilibrium at a pace of 68% per year. This points to a rather quick shift to the long-term equilibrium.

4.5 Results of the Estimated Long Run Model

Having analyzed he short-run dynamics of the Error Correction Model, we estimated its associated long run model using the OLSs regression technique. The results of the estimated long run model are presented in Table 4.5.

Table 4.5: Estimated Coefficients of the Long Run Model

Dependent Variable: GFCF				
Regressor	Coefficient	Standard Error	T-Ratio	Probability
CFC	0.802557	0.070388	11.40186	0.0000
DD	0.537990	0.129315	4.160306	0.0002
ED	0.395594	0.228155	1.733879	0.0932
EDS	-2.43E-08	8.00E-08	-0.304182	0.7631
EDV	-2.19E-05	1.67E-05	-1.309300	0.2004
EXR	-27.72056	8.247104	-3.361248	0.0021
INF	-3.326817	8.562427	-0.388537	0.7004
INT	-44.63462	35.79822	-1.246839	0.2221
RGDP	0.113095	0.036473	3.100790	0.0042
C	400.1949	1222.594	0.327333	0.7457
R-Squared 0.8765		R-Bar-Squared 0.8394		
F-Statistic 23.6528[0.000]			DW- Statistic 1.5323	

Source: Author's computation using Eview 8.0

The general quality of fit is rather astounding when comparing the long run model to its short run equivalent. The corrected R-squared value is 0.84 and the R-squared value is

about 0.87. The long run equation's independent factors account for around 87% of the systematic changes in gross fixed capital creation, as shown by the R2 value. On the other hand, the dependent variable contains independent variables that account for roughly 84% of the systematic variations. A adjusted R-squared value of around 16% indicates that the dependent variable has some unexplained variation. All things considered, the model is very significant, as shown by the F-statistic, which passes the 1% significance test ($F(9,31) = 23.65$. $p < 0.01$). 1 This demonstrates that there is a linear relationship between the dependent variable in the model and each of the n independent variables. A Durbin-Watson statistic of around 1.53 indicates a long-run model that does not use serial correction. In terms of sign, all of the long-run model's explanatory variables' projected coefficients agreed with their a priori predictions. Consumption of fixed capital (CFC) has a positive and statistically significant coefficient. The significance test was passed at the 1% level with a t-statistic of -11.4 and a p-value less than 0.01. Hence, consumption of fixed capital has a substantial impact on gross fixed capital production in Nigeria over the long run. A positive and statistically significant coefficient for domestic debt (DD) is seen at the 1% level of significance. The coefficient is 0.54 at $t=4.16$, $p<0.01$. The significance level was met by the t-statistic, which was 1%. That is why, in the long run, domestic debt has a positive and substantial effect on gross fixed capital growth in Nigeria. There is a positive and statistically significant external debt (ED) coefficient at the 10% level as well ($t=1.73$, $p = 0.09$). Therefore, foreign debt has a long-term beneficial and substantial effect on Nigeria's gross fixed capital output.

Although the external debt service (EDS) coefficient is negative at the ten percent level of significance ($t=-0.30$, $p=0.76$), it is not statistically significant. So, reducing Nigeria's foreign debt won't hurt the country's gross fixed capital production in the long run. The external debt volatility (EDV) negative coefficient ($t=-1.31$, $p=0.20$) does not reach

statistical significance at the ten percent level. As a result, the ebb and flow of Nigeria's foreign debt has little impact on the country's gross fixed capital formation over the long run.

The coefficient of the exchange rate (EXR) is negative. The coefficient is -27.72 and the t-value is -3.36. There was a 1% threshold of significance for the t-statistic. Therefore, the long-term growth of Nigeria's gross fixed capital is severely and adversely impacted by the currency rate. Nonetheless, the INF coefficient indicates a negative inflation rate. The coefficient failed to pass the test at the ten percent level of significance (t=-0.39, p=0.70). Inflation in Nigeria has little effect on the long-term growth of gross fixed capital. A negative sign is associated with interest rate (INT) coefficients. The coefficient is -44.63, and the t-value is -1.24. They determined it was not significant at the 10% level. Therefore, long-term gross fixed capital production is slightly and negatively affected by interest rates. There is a positive coefficient for real GDP. A t-value of 3.10, a p-value of 0.004, and a coefficient of 0.11 characterize this statistic. This t-statistic went passed the test since it was significant at the 1% level. Over the long run, real GDP has a positive and substantial effect on Nigeria's gross fixed capital creation.

4.6 Test of Hypotheses

On the basis of the long run regression results, we can test the validity of the hypotheses presented in chapter one of this research.

Hypothesis 1: Changes in external debt profile has no effect on infrastructural growth in Nigeria.

From the regression results, the coefficient of external debt is significant at the 10% level (t=1.73, p=0.09). Accordingly, we fail to accept the null hypothesis that changes in external debt profile has no effect on infrastructural growth in Nigeria. This implies that

changes in Nigeria external debt profile significantly impacts on infrastructural development in the country.

Hypothesis 2: External debt dynamics have no effect on infrastructural growth in Nigeria.

As revealed in the regression results, the coefficient of external debt volatility is negative but insignificant at the 10% level. Hence, we cannot reject the null hypothesis that external debt dynamics have no effect on infrastructural growth in Nigeria. The implication is variations in external debt do not significantly affect infrastructural development in Nigeria.

Hypothesis 3: Interest rate does not have any relationship with infrastructural growth in Nigeria. As shown in the regression results, the coefficient of interest rate is negative. However, it is insignificant even at the 10% level(t=-1.25,p=0.70)). Thus, we cannot reject the null hypothesis that interest rate does not have any relationship with infrastructural growth in Nigeria. This indicates that interest rate does not significantly influence infrastructural growth in Nigeria.

Hypothesis 4: Inflation rate has no impact on infrastructural growth in Nigeria.

From the estimated long run model, the coefficient of inflation rate is negative but insignificant at the 10% 1evel (t=-0.38, p=0.70). Accordingly, we cannot reject the null hypothesis that-inflation rate has no impact on infrastructural growth in Nigeria. This implies that inflation rate does not significantly determine gross fixed capital formation in Nigeria.

4.7 Discussion of Findings

This research looked at the effects of Nigeria's foreign debt and how it has changed over time on the country's infrastructure development. This finding demonstrates that Nigeria's infrastructure has benefited greatly from the country's high level of foreign debt. This

suggests that Nigeria's infrastructure deficit is significantly reduced as a result of the buildup of foreign debt. According to Ogunmuyiwa (2011), this result does not make sense. But it's consistent with what (Ajayi and Oke, 2012) discovered—that EG is positively correlated with external debt. However, the research found that repaying foreign debt had a small but detrimental effect on Nigeria's infrastructure progress. Because of the little but unfavorable effect on infrastructure development caused by borrowing and servicing costs, the government should exercise caution when taking out loans. The research also shows that the inflation rate has a little but unfavorable effect on the development of Nigeria's infrastructure. Inflation has a small but noticeable negative impact on Nigeria's infrastructure development. Consequently, ensuring pricing stability is crucial. Also, there was a negative but negligible effect of interest rate on Nigeria's infrastructure development. It follows that a high interest rate may impede Nigeria's infrastructure development.

CHAPTER FIVE

SUMMARY, RECOMMENDATION AND CONCLUSION

5.1 Summary

This study is an empirical investigation of external debt dynamics and infrastructural growth in Nigeria. Chapter one introduces the subject matter by indicating the importance of infrastructural growth in Nigeria, this chapter goes further by exposing the poor state of external debt burden in the country, and questions the state of infrastructural progress and expansion of the nation with volumes of fund borrowed. The chapter raises the statement problem, which is an indication of the lapses the present study aims to cover, which other studies conducted with respect to have omitted. The areas to be covered include specific consideration at only external debt dynamics and infrastructural growth in Nigeria, which are two key economic outcomes. Also, the methodology chosen by the other studies in relation to the external debt dynamics and infrastructural advancement in Nigeria has not been effective and efficient in the results produced. The present work then borrowed for more improved statistical and econometrical techniques that would better explain infrastructural growth in Nigeria. Another gap aimed to cover is the time frame, which this present study considers the years 1981 -2020. More so the two economic outcomes - growth and infrastructural development have been closely and simultaneously looked at considering the poor record obtained from over the years. Chapter one ends with two hypothesis tests, which are not in favour of debt burden and borrowing of financing to national projects; because they have not yielded the required results for national growth and infrastructural development.

Chapter two reviews the several literatures written in respect to external debt dynamics and infrastructural growth in Nigeria with respect to grants and foreign borrowing. It was observed from the studies done with respect to *EG* in Nigeria, chapter two exposes some

of the measures adopted by the government through policy implementation of developing the nation economy in terms of both job creation and reducing unemployment's. However literature reviewed indicates that such policies have not been effective and productive to achieving the set goals and objectives. One of such factors that have contributed to the failure of successive policies is corruption, poor implementation in the public economic sector.

Chapter three reveals the theoretical framework on which model of the study was based. The regressions model was developed from the theoretical model. The methods of analyzing the model were also stated.

Chapter four involves the presentation and analysis of the empirical results with respect to the effects of external debt stock and its dynamics on infrastructural growth in Nigeria. Therein it was empirically discovered that borrowing and loans by the government to finance national projects statistically influence infrastructural growth and development in the short run and long run. It was observed from the Error Correction Method that the speed adjustment of the short run situation of infrastructural development to the targeted long run equilibrium is rather fast. Chapter four also tested the research hypotheses of the study developed in chapter one. It was observed from empirical findings that changes in Nigeria external debt profile impacts positively on infrastructural development and growth in the country. Also, variations in external debt had insignificant effect on infrastructural development in Nigeria. Interest rate did not significantly influence infrastructural growth in Nigeria. Furthermore, inflation rate did not significantly determine gross fixed capital formation in Nigeria.

5.2 Conclusion

In assessing the impact of external debt dynamic sand infrastructural growth in Nigeria, the study concluded that external debt has a positive significant impact on infrastructural

growth in Nigeria. This finding is in agreement with some reviewed literature, that government borrowing and grants from foreign partners could have impact positively on infrastructural growth and development with job creation to reduce poverty. Again, looking at the effect of external debt servicing on Nigeria's infrastructure growth, the study found that the likelihood of it happening is less than 5% and has a negative sign. So, it seems the null hypothesis is wrong, as Nigeria's infrastructure has grown with little to no help from paying down its foreign debt. Meanwhile, real GDP had a positive and statistically significant impact on infrastructural growth in Nigeria. However, the study found that exchange rate has a negative significant impact on Nigeria's infrastructural development. Although, interest rate and inflation rate were found to affect infrastructural growth negatively, their impacts were insignificant. This could be attributed to underdevelopment of the financial sector which hinder the effectiveness and efficiency of monetary policies in affecting the real sector of the Nigerian economy.

5.3 Recommendations

In accordance with the main findings of this study, the researcher issued the subsequent recommendations:

1. According to the investigation, the servicing of external debt has a negligible adverse effect on the expansion of infrastructure. Therefore, in order to generate additional revenue and mitigate the effects of the decline in oil revenue, which typically requires debt accumulation and servicing, the government must diversify our monolithic economy..
2. Secondly, the government through monetary authority (CBN) should carefully monitor the economy and make sure that inflation which pose worry is reduced to the barest minimum.

3. The government should employ effective monetary strategies to encourage capital inflows such as the foreign direct investment in order to bring more capital investment that will trigger infrastructural growth in Nigeria.
4. There should be enabling business environment (devoid of insecurity, high tax rates etcetera) so as to promote both local and foreign investment in order to increase capital formation and consequently *EG*.

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APPENDIX

	GFCF	CFC	DD	ED	EDS	EDV	EXR	INF	INT	RGDP
1981	15789.67	15789.67	11.19000	2.330000	1.79E+09	2937174.	0.610000	17.40000	7.750000	19748.53
1982	12893.80	12893.80	15.01000	8.820000	2.09E+09	2927608.	0.670000	6.940000	10.25000	18404.96
1983	10198.26	10198.26	22.22000	10.58000	2.57E+09	2925057.	0.720000	38.77000	10.00000	16394.39
1984	7121.280	7121.280	25.67000	14.81000	4.07E+09	2919471.	0.760000	22.63000	12.50000	16211.49
1985	6032.260	6032.260	27.95000	17.30000	4.43E+09	2917822.	0.890000	1.030000	9.250000	17170.08
1986	6045.460	6045.460	28.44000	41.45000	2.05E+09	2890973.	2.020000	13.67000	10.50000	17180.55
1987	5668.870	5668.870	36.79000	100.7900	1.11E+09	2818912.	4.020000	9.690000	17.50000	17730.34
1988	6047.750	6047.750	47.03000	133.9600	2.21E+09	2784618.	4.540000	61.21000	16.50000	19030.69
1989	6441.900	6441.900	47.05000	240.3900	2.12E+09	2679967.	7.390000	44.67000	26.80000	19395.96
1990	7331.160	7331.160	84.09000	298.6100	3.34E+09	2627282.	8.040000	3.610000	25.50000	21680.20
1991	7240.290	7240.290	116.2000	328.4500	2.94E+09	2612840.	9.910000	22.96000	20.01000	21757.90
1992	7277.430	7277.430	177.9600	544.2600	2.41E+09	2505430.	17.30000	48.80000	29.80000	22765.55
1993	7825.690	7825.690	273.8400	633.1400	1.49E+09	2484141.	22.05000	61.26000	18.32000	22302.24
1994	7633.270	7633.270	407.5800	648.8100	1.87E+09	2482710.	21.89000	76.76000	21.00000	21897.47
1995	7126.180	7126.180	477.7300	716.8700	1.83E+09	2484015.	21.89000	51.59000	20.18000	21881.56
1996	7610.320	7610.320	419.9800	617.3200	2.23E+09	2484377.	21.89000	14.32000	19.74000	22799.69
1997	8055.210	8055.210	501.7500	595.9300	1.42E+09	2487832.	21.89000	10.21000	13.54000	23469.34
1998	8167.450	8167.450	560.8300	633.0200	1.33E+09	2544456.	21.89000	11.91000	18.29000	24075.15
1999	8385.960	8385.960	794.8100	2577.370	1.07E+09	5710098.	92.69000	0.220000	21.32000	24215.78
2000	8996.910	8996.910	898.2500	3097.380	1.85E+09	8257919.	102.1100	14.52000	17.98000	25430.42
2001	6860.440	6860.440	1016.970	3176.290	2.52E+09	8570931.	111.9400	16.50000	18.29000	26935.32
2002	7559.730	7559.730	1166.000	3932.880	1.48E+09	12737105	120.9700	12.19000	24.85000	31064.27
2003	9178.170	9178.170	1329.680	4478.330	1.63E+09	16696215	129.3600	23.79000	20.71000	33346.62
2004	7348.340	7348.340	1370.330	4890.270	1.71E+09	21466032	133.5000	10.01000	19.18000	36431.37
2005	7520.470	7520.470	1525.910	2695.070	8.81E+09	8144938.	132.1500	11.60000	17.95000	38777.01
2006	10557.89	10557.89	1753.260	451.4600	6.71E+09	2613395.	128.6500	8.500000	17.26000	41126.68
2007	8246.210	8246.210	2169.640	438.8900	1.01E+09	2539014.	125.8300	6.600000	16.94000	43837.39
2008	8031.720	8031.720	2320.310	523.2500	6.86E+08	2507557.	118.5700	15.10000	15.14000	46802.76
2009	8828.810	8828.810	3228.030	590.4400	7.57E+08	2490785.	148.8800	13.90000	18.99000	50564.26
2010	9183.060	2450.720	4551.820	689.8400	1.26E+09	2483043.	150.3000	11.80000	17.59000	55469.35
2011	8425.760	2870.410	5622.840	896.8500	5.25E+08	2525772.	153.8600	10.30000	16.02000	58180.35
2012	8640.770	3414.160	6537.540	1026.900	1.34E+09	2591045.	157.5000	12.00000	16.79000	60670.05
2013	9320.350	3255.500	7118.980	1387.330	4.96E+08	2952395.	157.3100	7.960000	16.72000	63942.85
2014	10570.47	3550.160	7904.030	1631.500	4.55E+09	3334141.	158.5500	7.980000	16.55000	67977.46
2015	10432.23	3649.090	8837.000	2111.510	1.60E+09	4296769.	193.2800	9.550000	16.85000	69780.69
2016	9927.260	3676.680	11058.20	3478.920	2.49E+09	9387521.	253.4900	18.55000	16.87000	68652.43
2017	9631.700	3612.020	12589.49	5787.510	3.53E+09	26558744	305.7900	15.37000	17.58000	69205.69
2018	10569.60	3556.230	12774.41	7759.230	5.37E+09	50620677	306.0800	12.10000	16.72000	70536.35
2019	11445.86	2732.790	14272.64	9022.420	5.13E+09	68193543	306.9200	11.40000	15.21000	72094.09
2020	10581.27	2697.420	16023.89	12705.62	5.54E+09	1.36E+08	358.8100	15.80000	12.32000	70800.54

Unit Root Tests

Null Hypothesis: GFCF has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.437637	0.1388
Test critical values:	1% level	-3.621023	
	5% level	-2.943427	
	10% level	-2.610263	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(GFCF) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.106289	0.0002
Test critical values:	1% level	-3.621023	
	5% level	-2.943427	
	10% level	-2.610263	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: GFCF has a unit root
Exogenous: Constant
Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		Adj.t-Stat	Prob.*
Phillips-Perron test statistic		-4.090606	0.0028
Test critical values:	1% level	-3.610453	
	5% level	-2.938987	
	10% level	-2.607932	

*MacKinnon(1996) one-sided p-values.

Null Hypothesis: CFC has a unit root
Exogenous: Constant Lag Length: 0 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.282350	0.1226
Test critical values:	1% level	-3.610453	
	5% level	-2.938987	
	10% level	-2.607932	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(CFC) has a unit root
Exogenous: Constant

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.780737	0.0067
Test critical values:	1% level	-3.626784	
	5% level	-2.945842	
	10% level	-2.611531	

*MacKinnon(1996) one-sided p-values.

Null Hypothesis: CFC has a unit root
Exogenous:Constant
Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

		Adj.t-Stat	Prob.*
Phillps-Perron test statistic		-3.289158	0.0223
Test critical values:	1% level	-3.610453	
	5% level	-2.938987	
	10% level	-2.607932	

***MacKinnon** (1996) one-sided p-values.

Null Hypothesis: DD has a unit root
Exogenous:Constant,Linea Trend
Lag Length: 8 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		2.985904	1.0000
Test critical values:	1% level	-4.284580	
	5% level	-3.562882	
	10% level	-3.215267	

*MacKinnon (1996) one-sided p-values.
Null Hypothesis: D(DD) has a unit root
Exogenous:Constant,Linear Trend Lag Length: 1 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.026339	0.0163
Test critical values:	1% level	-4.226815	
	5% level	-3.536601	
	10% level	-3.200320	

***MacKinnon(1996) one-sided p-values.**

Null Hypothesis: DD has a unit root
Exogenous:Constant,Linear Trend Bandwidth: 10 (Newey-West automatic) using Bartlett kernel

	Adj.t-Stat	Prob.

Phillips-Perron test statistic		3.852630	1.0000
Test critical values:	1% level	-4.211868	
	5% level	-3.529758	
	10% level	-3.196411	

***MacKinnon** (1996) one-sided p-values.
Null Hypothesis: D(DD) has a unit root
Exogenous: Constant,Linear Trend
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj.t-Stat	Prob.*
Phillips-Perron test statistic		-3.884818	0.0225
Test critical values:	1% level	-4.219126	
	5% level	-3.533083	
	10% level	-3,198312	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: external debt has a unit root
Exogenous:Constant,Linear Trend
Lag Length: 1 (Automatic-based on SIC,maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		0.103208	0.9962
Test critical values:	1% level	-4.219126	
	5% level	-3.533083	
	10% level	-3.198312	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(ED) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic-based on SIC,maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.147318	0.0000
Test critical values:	1% level	-3.626784	
	5% level	-2.945842	
	10% level	-2.611531	

***MacKinnon (1996) one-sided p-values.**

Null Hypothesis: external debt has a unit root

		Adj.t-Stat	Prob.*
Phillips-Perron test statistic		1.589389	0.9993

Test critical values:	1% level	-3.610453
	5% level	-2.938987
	10% level	-2.607932

*MacKinnon (1996) one-sided p-values.
Null Hypothesis: D(ED) has a unit root Exogenous: Constant
Bandwidth: 16 (Newey-West automatic) using Bartlett kernel

		Adj.t-Stat	Prob.*
Phillips-Perron test statistic		-6.107710	0.0000
Test critical values:	1% level	-3.621023	
	5% level	-2.943427	
	10% level	-2.610263	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: external debt S has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.547794	0.1117
Test critical values:	1% level	-3.610453	
	5% level	-2.938987	
	10% level	-2.607932	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(EDS) has a unit root
Exogenous:Constant
Lag Length: 0 (Automatic-based on SIC,maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.827026	0.0000
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

***MacKinnon** (1996) one-sided p-values.

Null Hypothesis: external debt S has a unit root
Exogenous: Constant
Bandwidth: 6 (Newey-West automatic) using Bartlett kernel

		Adj.t-Stat	Prob.*
Phillips-Perron test statistic		-2.361784	0.1187
Test critical values:	1% level	-3.610453	
	5% level	-2.938987	
	10% level	-2.607932	

*MacKinnon (1996) one-sided p-values.
Null Hypothesis: D(EDS) has a unit root Exogenous: Constant
Bandwidth: 27 (Newey-West automatic) using Bartlett kernel

		Adj.t-Stat	Prob.*
Phillips-Perron test statistic		-11.35460	0.0000
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

***MacKinnon (1996)** one-sided **p-values.**

Null Hypothesis: external debt V has a unit root
Exogenous:Constant,Linear Trend
Lag Length: 0 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		7.479416	1.0000
Test critical values:	1% level	-4.211868	
	5% level	-3.529758	
	10% level	-3.196411	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(EDV) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.155773	0.0009
Test critical values:	1% level	-4.226815	
	5% level	-3.536601	
	10% level	-3.200320	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: external debt V has a unit root
Exogenous: Constant,Linear Trend Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj.t-Stat	Prob.*
Phillips-Perron test statistic		6.622872	1.0000
Test critical values:	1% level	-4.211868	
	5% level	-3.529758	
	10% level	-3.196411	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(EDV,2) has a unit root Exogenous: Constant,Linear **Trend**
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj.t-Stat	Prob.*
Phillips-Perron test statistic		-5.606650	0.0003
Test critical values:	1% level	-4.226815	
	5% level	-3.536601	
	10% level	-3.200320	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: EXR has a unit root
Exogenous:Constant,Linear Trend
Lag Length: 0 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.449438	0.9819
Test critical values:	1% level	-4.211868	
	5% level	-3.529758	
	10% level	-3.196411	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(EXR) has a unit root
Exogenous: Constant,Linear Trend
Lag Length: 0 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.718895	0.0027
Test critical values:	1% level	-4.219126	
	5% level	-3.533083	
	10% level	-3.198312	

*MacKinnon (1996) one-sided p-values.
Null Hypothesis:EXR has a unit root
Exogenous: Constant,Linear Trend
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj.t-Stat	Prob.*
Phillips-Perron test sta tistic		-0.644313	0.9703
Test critical values:	1% level	-4.211868	
	5% level	-3.529758	
	10% level	-3.196411	

*MacKinnon (1996) one-sided p-values.
Null Hypothesis: D(EXR) has a unit root
Exogenous: Constant,Linear Trend

Bandwidth: 6(Newey-West automatic)using Bartlett kernel

		Adj.t-Stat	Prob.
Phillips-Perron test statistic		-4.522908	0.0046
Test critical values:	1% level	-4.219126	
	5% level	-3.533083	
	10% level	-3.198312	

*MacKinnon(1996)one-sided p-values.

Null Hypothesis: INF has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.251572	0.1244
Test critical values:	1% level	-3.610453	
	5% level	-2.938987	
	10% level	-2.607932	

*MacKinnon (1996) one-sided p-values.
Null Hypothesis: D(INF) has a unit root
Exogenous: Constant
Lag Length: 6 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.345362	0.0209
Test critical values:	1% level	-3.653730	
	5% level	-2.957110	
	10% level	-2.617434	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: INF has a unit root
Exogenous: Constant Bandwidth:3 (Newey-West automatic)using Bartlett kernel

		Adj.t-Stat	Prob.*
Phillips-Perron test statistic		-2.221369	0.1262
Test critical values:	1% level	-3.610453	
	5% level	-2.938987	
	10% level	-2.607932	

***MacKinnon (1996)** one-sided **p-values.**
Null Hypothesis: D(INF) has a unit root
Exogenous: Constant Bandwidth: 37 (Newey-West automatic) using Bartlett kemel

		Adj.t-Stat	Prob.*
Phillips-Perron test statist	ic	-12.37594	0.0000
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

*MacKinnon(1996) one-sided p-values.

Null Hypothesis: INT has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.309925	0.1743
Test critical values:	1% level	-3.621023	
	5% level	-2.943427	
	10% level	-2.610263	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(INT) has a unit root
Exogenous:Constant
Lag Length: 1 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.946992	0.0000
Test critical values:	1% level	-3.621023	
	5% level	-2.943427	
	10% level	-2.610263	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: INT has a unit root
Exogenous: Constant Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		Adj.t-Stat	Prob.*
Phillips-Perron test statistic		-2.406425	0.1167
Test critical values:	1% level	-3.610453	
	5% level	-2.938987	
	10% level	-2.607932	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(INT) has a unit root
Exogenous:Constant Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj.t-Stat	Prob.*
Phillips-Perron test statistic		-9.669572	0.0000
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

*MacKinnon **(1996) one-sided p-values.**

Null Hypothesis: RGDP has a unit root
Exogenous:Constant,Linear Trend
Lag Length: 4 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.393710	0.3763
Test critical values:	1% level	-4.243644	
	5% level	-3.544284	
	10% level	-3.204699	

***MacKinnon(1996)** one-sided p-values.

Null Hypothesis: D(RGDP) has a unit root
Exogenous: Constant,Linear Trend
Lag Length: 2 (Automatic-based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.028608	0.0001
Test critical values:	1% level	-4.243644	
	5% level	-3.544284	
	10% level	-3.204699	

***MacKinnon** (1996) one-sided p-values.
Null Hypothesis: RGDP has a unit root
Exogenous: Constant,Linear Trend Bandwidth: 4 (Newey-West automatic) using Bartlett kernel

		Adj.t-Stat	Prob.*
Phillips-Perron test statist ic		-2.222921	0.4642
Test critical values:	1% level	-4.211868	
	5% level	-3.529758	
	10% level	-3.196411	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(RGDP) has a unit root
Exogenous:Constant,Linear Trend
Bandwidth: 25 (Newey-West automatic) using Bartlett kernel

	Adj.t-Stat	Prob.*

1.000000	1.902505	11.00058	-4.424130	-1.89E-06	0.001335	-18.44824	104.5002	148.1358	-1.877290
	(0.21906)	(0.82968)	(0.66954)	(3.8E-07)	(8.7E-05)	(22.9663)	(23.3945)	(106.758)	(0.15982)

Phillips-Perron test statistic		-13.33349	0.0000
Test critical values:	1% level	-4.226815	
	5% level	-3.536601	
	10% level	-3.200320	

***MacKinnon (1996) one-sided p-value**

nrestricted Cointegrating Coefficients (normalized by b'*S11*b=1):

GFCF	CFC	DD	ED	EDS	EDV	EXR	INF	INT	RGDP
0.000142	0.000269	0.001558	-0.000627	-2.68E-10	1.89E-07	-0.002613	0.014800	0.020980	-0.000266
-0.001079	0.000448	-0.000540	7.30E-05	-1.60E-11	1.03E-07	0.003088	-0.003108	0.001465	0.000238
-0.001101	0.001022	8.43E-05	0.001044	-5.14E-10	-3.30E-08	-0.069235	-0.037927	-0.043591	0.000301
0.000200	-0.000260	0.001570	-0.000271	-1.07E-09	6.18E-09	-0.005832	-0.000510	0.132702	-0.000184
0.000368	-0.000366	-0.000407	0.000966	-1.39E-11	-7.35E-08	-0.015277	-0.070323	0.135567	8.08E-05
0.000703	-0.000517	-0.002023	0.000829	4.79E-10	4.47E-08	-0.035719	0.051436	-0.181265	0.000398
0.000472	-0.000468	-0.000754	-0.002004	7.45E-11	2.36E-07	0.045893	-0.016018	-0.074738	-9.95E-06
0.000786	-0.000324	0.000362	-0.001221	-9.31E-10	8.98E-08	0.067529	0.007017	0.091441	-0.000314
0.000295	-0.000688	-0.000699	0.000684	-3.12E-10	-3.35E-08	0.003652	0.017968	-0.302632	-1.19E-05
-0.000764	0.001099	0.001832	0.001080	1.24E-10	-2.02E-07	-0.005114	0.026991	-0.197784	-0.000138

Unrestricted Adjustment Coefficients (alpha):

D(GFCF)	8.117139	576.0080	-135.3450	296.1946	-168.6670	-334.1006	-67.81936	-222.4555	-7.671599	-32.68638
D(CFC)	58.48885	630.8210	-648.2464	135.2753	335.5703	-249.0986	-287.8129	-417.3228	80.32612	-12.44407
D(DD)	34.28781	65.67009	51.56814	167.7641	50.78521	130.2140	119.0118	-34.66468	-36.48243	36.82091
D(ED)	194.7229	-101.1782	-2.881870	-1.334475	87.36151	-125.8474	26.70478	-24.66061	-33.60471	135.7831
D(EDS)	1.06E+08	4.52E+08	4.60E+08	4.67E+08	90278830	3.04E+08	-4.40E+08	3.31E+08	2.25E+08	-1.80E+08
D(EDV)	5700336.	1130571.	-863833.2	-1127254.	704817.8	-847395.3	342935.6	109555.0	-54299.29	627878.5
D(EXR)	3.435366	1.601693	4.529450	1.304889	5.931417	2.230029	-0.910340	-3.519094	-0.521301	3.448700
D(INF)	3.272516	-3.062781	2.737145	0.726759	7.072730	-4.262874	3.410091	-1.767153	-2.758721	-2.343953
D(INT)	-0.414852	-0.011174	0.607178	0.509281	-0.076704	-0.850023	0.477278	-0.478330	1.166865	0.282654
D(RGDP)	-544.3659	400.2700	16.54672	-89.65095	-214.5271	-265.1640	154.1340	419.7454	152.3929	39.17477

1 Cointegrating Equation(s): Log likelihood -3310.494

Normalized cointegrating coefficients (standard error in parentheses)

GFCF	CFC	DD	ED	EDS	EDV	EXR	INF	INT	RGDP

Adjustment coefficients (standard error in parentheses

D(GFCF)	-0.620163	0.260095
	(0.16001)	(0.07686)
D(CFC)	-0.672153	0.298210
	(0.26536)	(0.12747)
D(DD)	-0.065979	0.038642
	(0.07663)	(0.03681)
D(ED)	0.136714	0.007164
	(0.10335)	(0.04964)
D(EDS)	-472084.1	230718.8
	(299273.)	(143754.)
D(EDV)	-412.1821	2042.126
	(677.902)	(325.626)
D(EXR)	-0.001241	0.001643
	(0.00338)	(0.00162)
D(INF)	0.003767	-0.000490
	(0.00333)	(0.00160)
D(INT)	-4.67E-05	-0.000117
	(0.00064)	(0.00031)
D(RGDP)	-0.508848	0.032546
	(0.19375)	(0.09307)

3 Cointegrating Equation(s): Log likelihood-3233.347

Normalized integrating coefficients (standard error in parentheses)

GFCF	CFC	DD	ED	EDS	EDV	EXR	INF	INT	RGDP
1.000000	0.000000	0.000000	1.667945	-3.67E-07	-0.000442	-90.58148	-52.62195	-75.53116	0.054184
			(0.52762)	(2.4E-07)	(7.0E-05)	(17.6608)	(18.6772)	(81.7835)	(0.05429)
0.000000	1.000000	0.000000	2.906101	-9.00E-07	-0.000529	-168.2788	-96.35827	-127.5273	0.372784
			(0.83513)	(3.9E-07)	(0.00011)	(27.9540)	(29.5629)	(129.449)	(0.08594)
0.000000	0.000000	1.000000	-1.056394	1.72E-08	0.000253	35.66034	30.94785	42.38761	-0.240051
			(0.20682)	(9.6E-08)	(2.8E-05)	(6.92281)	(7.32125)	(32.0582)	(0.02128)

Adjustment coefficients (standard error in parentheses)

D(GFCF)	-0.471104	0.121757	-0.310042
	(0.22395)	(0.16607)	(0.23886)
D(CFC)	0.041779	-0.364372	-0.304412
	(0.32226)	(0.23897)	(0.34373)
D(DD)	-0.122773	0.091351	0.022276
	(0.10791)	(0.08002)	(0.11510)
D(ED)	0.139888	0.004218	0.357805
	(0.14706)	(0.10905)	(0.15686)
D(EDS)	-978620.2	700821.4	-40300.38
	(402311.)	(298332.)	(429110.)
D(EDV)	539.1821	1159.190	8197.112
	(928.294)	(688.372)	(990.131)
D(EXR)	-0.006230	0.006272	0.004868
	(0.00461)	(0.00342)	(0.00491)
D(INF)	0.000753	0.002308	0.006984
	(0.00467)	(0.00346)	(0.00498)
D(INT)	-0.000715	0.000504	-0.000589
	(0.00089)	(0.00066)	(0.00095)
D(RGDP)	-0.527072	0.049458	-1.063016
	(0.27566)	(0.20441)	(0.29402)

4 Cointegrating Equation(s): Log likelihood -3208.710

Normalized ntegrating coefficients (standard error in parentheses)

GFCF	CFC	DD	ED	EDS	EDV	EXR	INF	INT	RGDP
1.000000	0.000000	0.000000	0.000000	7.93E-07	-3.59E-05	-9.948059	6.042182	-119.9002	-0.203410
				(1.7E-07)	(2.9E-05)	(8.52485)	(12.9279)	(54.6726)	(0.03135)
0.000000	1.000000	0.000000	0.000000	1.12E-06	0.000178	-27.78925	5.853642	-204.8325	-0.076029
				(2.7E-07)	(4.6E-05)	(13.5738)	(20.5847)	(87.0532)	(0.04992)
0.000000	0.000000	1.000000	0.000000	-7.18E-07	-4.11E-06	-15.40888	-6.207112	70.48876	-0.076903
				(9.4E-08)	(1.6E-05)	(4.76632)	(7.22813)	(30.5680)	(0.01753)
0.000000	0.000000	0.000000	1.000000	-6.96E-07	-0.000243	-48.34297	-35.17150	26.60101	0.154438
				(1.4E-07)	(2.4E-05)	(7.09322)	(10.7569)	(45.4911)	(0.02609)

D(GFCF)	-0.411942	0.044800	0.154923	-0.184819
		(0.15594)	(0.30185)	(0.16560)
D(CFC)	0.068799	-0.399519	-0.092057	-0.704361
		(0.24302)	(0.47041)	(0.25808)
D(DD)	-0.089263	0.047763	0.285632	-0.008379
	(0.09592)	(0.07233)	(0.14001)	(0.07681)
D(ED)	0.139621	0.004565	0.355710	-0.132037
	(0.14828)	(0.11181)	(0.21643)	(0.11874)
D(EDS)	-885371.7	579525.1	692558.1	320209.3
		(286267.)	(554127)	(304009.)

D(EDV)	314.0242	1452.072	6427.551	-4085.312
		(656.069)	(1269.95)	(696.731)
D(EXR)	-0.005969	0.005933	0.006917	0.002341
	(0.00463)	(0.00349)	(0.00675)	(0.00371)
D(INF)	0.000898	0.002119	0.008125	0.000387
		(0.00354)	(0.00686)	(0.00376)
D(INT)	-0.000614	0.000372	0.000210	0.000755
	(0.00088)	(0.00067)	(0.00129)	(0.00071)
D(RGDP)	-0.544978	0.072751	-1.203750	0.411906
	(0.27658)	(0.20856)	(0.40371)	(0.22148)

Normalized cointegrating coefficients (standard error in parentheses)

5 Cointegrating Equation(s): Log likelihood -3191.600

GFCF	CFC	DD	ED	EDS	EDV	EXR	INF	INT	RGDP
1.000000	0.000000	0.000000	0.000000	0.000000	-0.000426	-40.50102	69.85821	-295.9246	-0.112609
					(6.9E-05)	(20.6991)	(30.8869)	(132.926)	(0.07554)
0.000000	1.000000	0.000000	0.000000	0.000000	-0.000374	-71.01645	96.14236	454.7258	0.046056
					(9.4E-05)	(28.4133)	(42.3979)	(182.464)	(0.10369)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000349	12.23969	-63.95673	230.3231	-0.154990
					(5.7E-05)		(25.4229)	(109.411)	(0.06218)
0.000000	0.000000	0.000000	1.000000	0.000000	9.91E-05	-21.54334	-91.14794	181.5277	0.078749
					(5.1E-05)	(15.4545)	(23.0611)	(99.2461)	(0.05640)
0.000000	0.000000	0.000000	0.000000	1.000000	492.4658	38520102	-80456999	2.23E+08	-108790.9
							(3.8E+07)	(1.6E+08)	(93583.7)

Adjustment coefficients (standard error in parentheses)

D(GFCF)	-0.474070	0.106502	0.223637	-0.347776	-2.57E-07
	(0.20575)	(0.15812)	(0.29692)	(0.20268)	(1.6E-07)
D(CFC)	0.192406	-0.522277	-0.228765	-0.380151	1.58E-07
	(0.31386)	(0.24121)	(0.45294)	(0.30917)	(2.4E-07)
D(DD)	-0.070557	0.029184	0.264942	0.040687	-2.17E-07
	(0.09725)	(0.07474)	(0.14035)	(0.09580)	(7.4E-08)
D(ED)	0.171801	-0.027393	0.320120	-0.047633	-4.88E-08
	(0.14986)	(0.11517)	(0.21626)	(0.14762)	(1.1E-07)
D(EDS)	-852117.6	546499.4	655779.3	407431.8	-0.773044
	(389031.)	(298980.)	(561423.)	(383220.)	(0.29540)
D(EDV)	573.6432	1194.236	6140.414	-3404.355	9.75E-05
	(866.035)	(665.568)	(1249.80)	(853.098)	(0.00066)
D(EXR)	-0.003784	0.003764	0.004500	0.008071	-4.75E-09
	(0.00437)	(0.00336)	(0.00631)	(0.00431)	(3.3E-09)
D(INF)	0.003503	-0.000468	0.005244	0.007221	-3.11E-09
	(0.00429)	(0.00329)	(0.00619)	(0.00422)	(3.3E-09)
D(INT)	-0.000642	0.000400	0.000242	0.000681	-7.45E-10
	(0.00091)	(0.00070)	(0.00131)	(0.00089)	(6.9E-10)
D(RGDP)	-0.623999	0.151230	-1.116353	0.204642	2.30E-07
	(0.27605)	(0.21215)	(0.39838)	(0.27193)	(2.1E-07)

Normalized tegrating coef ficients (standa rd error in parentheses)

GFCF	CFC	DD	ED	EDS	EDV	EXR	INF	INT	RGDP
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-56.17073	98.96981	-295.9965	0.022905
						(13.2456)	(22.6827)	(98.1034)	(0.05034)
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	-84.77371	121.7009	-454.2621	0.168992
						(19.6948)	(33.7269)	(145.870)	(0.07484)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	25.07631	-87.80493	229.8905	-0.269699
						(11.2774)	(19.3122)	(83.5258)	(0.04286)
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-17.90126	-97.91429	181.4050	0.046203
						(12.0926)	(20.7083)	(89.5642)	(0.04595)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	56614577	-1.14E+08	2.22E+08	-270483.7
						(1.8E+07)	(3.0E+07)	(1.3E+08)	(67559.0)
					1.000000	-36742.60	68261.36	1238.309	328.3331

6 Cointegrating Equation(s): Log likelihood -3176.133

0.000000	0.000000	0.000000	0.000000	0.000000	(25507.6)	(43681.1)	(188922.)	(96.9330)

Adjustment coefficients (standard error in parentheses)

D(GFCF)	-0.708895	0.279248	0.899379	-0.624765	-4.17E-07	6.46E-05
	(0.19313)	(0.14742)	(0.33902)	(0.19679)	(1.4E-07)	(2.6E-05)
D(CFC)	0.017325	-0.393481	0.275055	-0.586668	3.83E-08	6.24E-05
	(0.33183)	(0.25329)	(0.58249)	(0.33811)	(2.5E-07)	(4.4E-05)
D(DD)	0.020965	-0.038143	0.001575	0.148642	-1.55E-07	1.47E-05
	(0.09631)	(0.07351)	(0.16905)	(0.09813)	(7.2E-08)	(1.3E-05)
D(ED)	0.083348	0.037676	0.574655	-0.151968	-1.09E-07	1.44E-05
	(0.15781)	(0.12046)	(0.27701)	(0.16079)	(1.2E-07)	(2.1E-05)
D(EDS)	-638762.2	389546.8	41819.15	659095.6	-0.627574	61.14501
	(411762.)	(314306.)	(722790.)	(419548.)	(0.30774)	(55.0941)
D(EDV)	-21.95520	1632.382	7854.332	-4106.894	-0.000309	1.126166
	(899.662)	(686.731)	(1579.23)	(916.675)	(0.00067)	(0.12038)
D(EXR)	-0.002217	0.002611	-1.01E-05	0.009920	-3.68E-09	3.37E-07
	(0.00471)	(0.00360)	(0.00827)	(0.00480)	(3.5E-09)	(6.3E-07)
D(INF)	0.000507	0.001736	0.013866	0.003687	-5.15E-09	-4.93E-07
	(0.00445)	(0.00339)	(0.00780)	(0.00453)	(3.3E-09)	(5.9E-07)
D(INT)	-0.001239	0.000839	0.001961	-2.38E-05	-1.15E-09	-1.29E-07
	(0.00095)	(0.00072)	(0.00166)	(0.00097)	(7.1E-10)	(1.3E-07)
D(RGDP)	-0.810372	0.288333	-0.580040	-0.015195	1.03E-07	-5.89E-05
	(0.28732)	(0.21931)	(0.50434)	(0.29275)	(2.1E-07)	(3.8E-05)

GFCF	CFC	DD	ED	SJ EDS	EDV	EXR	INF	INT	RGDP
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-667.0408	738.3099	-0.282567
							(120.389)	(512.042)	(0.17997)
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-1034.374	1106.728	-0.292031
							(183.698)	(781.308)	(0.27462)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	254.1653	-231.8551	-0.133327
							(45.3301)	(192.799)	(0.06777)
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	-342.0370	511.0318	-0.051149
							(61.6897)	(262.380)	(0.09222)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	6.58E+08	-8.20E+08	37401.84
							(1.1E+08)	(4.9E+08)	(171019.)
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	-432804.2	677802.5	128.5168
							(101358.)	(431099.)	(151.524)
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	-13.63718	18.41362	-0.005438
							(2.43223)	(10.3448)	(0.00364)

Adjustment coefficients (standard error in parentheses)

D(GFCF)	-0.740875	0.310972	0.950535	-0.488829	-4.22E-07	4.86E-05	20.79852
	(0.19855)	(0.15505)	(0.34653)	(0.29381)	(1.4E-07)	(3.6E-05)	(10.0705)
D(CFC)	-0.118390	-0.258852	0.492150	-0.009783	1.69E-08	-5.65E-06	36.44963
	(0.32806)	(0.25618)	(0.57255)	(0.48545)	(2.4E-07)	(6.0E-05)	(16.6388)
D(DD)	0.077084	-0.093812	-0.088195	-0.089902	-1.46E-07	4.28E-05	-4.400601
	(0.09031)	(0.07052)	(0.15762)	(0.13364)	(6.5E-08)	(1.7E-05)	(4.58056)
D(ED)	0.095940	0.025184	0.554512	-0.205494	-1.07E-07	2.08E-05	3.772199
	(0.16315)	(0.12740)	(0.28474)	(0.24143)	(1.2E-07)	(3.0E-05)	(8.27492)
D(EDS)	-846023.7	595149.5	373362.5	1540102.	-0.660319	-42.79273	-65842051
	(396747.)	(309818.)	(692430.)	(587092.)	(0.28678)	(72.8293)	(2.0E+07)
D(EDV)	139.7526	1471.968	7595.658	-4794.266	-0.000283	1.207259	90217.70
	(923.696)	(721.311)	(1612.10)	(1366.85)	(0.00067)	(0.16956)	(46849.2)
D(EXR)	-0.002646	0.003036	0.000677	0.011745	-3.75E-09	1.21E-07	-0.537282
	(0.00487)	(0.00380)	(0.00850)	(0.00721)	(3.5E-09)	(8.9E-07)	(0.24696)
D(INF)	0.002115	0.000141	0.011294	-0.003149	-4.90E-09	3.13E-07	-0.011037
	(0.00444)	(0.00347)	(0.00775)	(0.00657)	(3.2E-09)	(8.2E-07)	(0.22525)
D(INT)	-0.001014	0.000616	0.001601	-0.000980	-1.12E-09	-1.60E-08	0.009479
	(0.00097)	(0.00076)	(0.00169)	(0.00143)	(7.0E-10)	(1.8E-07)	(0.04905)
	92	0.216234	-0.696302	-0.324137	1.14E-07	-2.25E-05	21.8578

7 Cointegrating Equation(s): Log likelihood -3164.099

D(RGDP)	-0.7376 (0.29246)	(0.22838)	(0.51042)	(0.43277)	(2.1E-07)	(5.4E-05)	(14.8333)		

Normalized ntegrating ficients rd error in ntheses)

coi	coef	(standa	pare						
GFCF	CFC	DD	ED	EDS	EDV	EXR	INF	INT	RGDP
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-51.48593	-0.182165
								(53.6122)	(0.02319)
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-118.0002	-0.136339
								(90.0854)	(0.03896)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	69.08407	-0.171583
								(23.8086)	(0.01030)
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	106.0500	0.000334
								(55.3732)	(0.02395)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	-41327725	-61637.28
								(4.8E+07)	(20781.5
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	165349.6	193.6615
								(162759.)	(70.3871)
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	2.266793	-0.003386
								(1.18402)	(0.00051)
0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	-1.184029	0.000151
								(0.61603)	(0.00027)

Adjustment coefficients (standard error in parentheses)

D(GFCF)	-0.915756	0.383093	0.870007	-0.217298	-2.15E-07	2.86E-05	5.776340	-2.486183
	(0.19849)	(0.14589)	(0.31991)	(0.29605)	(1.6E-07)	(3.5E-05)	(11.4589)	(9.82133)
D(CFC)	-0.446463	-0.123553	0.341081	0.499605	4.05E-07	-4.31E-05	8.268272	-11.30708
	(0.31887)	(0.23437)	(0.51393)	(0.47561)	(2.6E-07)	(5.6E-05)	(18.4088)	(15.7781)
D(DD)	0.049833	-0.082574	-0.100743	-0.047590	-1.14E-07	3.97E-05	-6.741469	-0.761254
	(0.09751)	(0.07167)	(0.15716)	(0.14544)	(7.9E-08)	(1.7E-05)	(5.62942)	(4.82494)
D(ED)	0.076554	0.033180	0.545585	-0.175393	-8.42E-08	1.85E-05	2.106895	-9.911030
	(0.17757)	(0.13051)	(0.28619)	(0.26485)	(1.4E-07)	(3.1E-05)	(10.2510)	(8.78604)
D(EDS)	-586160.4	487981.0	493022.3	1136622.	-0.968077	-13.09779	-43519905	1106458.
	(413006.)	(303562.)	(665647.)	(616012.)	(0.33597)	(72.0472)	(2.4E+07)	(2.0E+07)
D(EDV)	225.8779	1436.450	7635.316	-4927.989	-0.000385	1.217101	97615.82	16311.60
	(1005.86)	(739.316)	(1621.16)	(1500.28)	(0.00082)	(0.17547)	(58069.1)	(49770.6)
D(EXR)	-0.005412	0.004177	-0.000597	0.016040	-4.74E-10	-1.95E-07	-0.774923	-0.439111
	(0.00513)	(0.00377)	(0.00827)	(0.00765)	(4.2E-09)	(8.9E-07)	(0.29609)	(0.25378)
D(INF)	0.000726	0.000714	0.010654	-0.000992	-3.25E-09	1.55E-07	-0.130371	-0.829891
	(0.00479)	(0.00352)	(0.00772)	(0.00715)	(3.9E-09)	(8.4E-07)	(0.27663)	(0.23710)
D(INT)	-0.001390	0.000771	0.001428	-0.000397	-6.71E-10	-5.89E-08	-0.022822	-0.078722

	(0.00104)	(0.00076)	(0.00167)	(0.00155)	(8.4E-10)	(1.8E-07)	(0.05990)	(0.05134)
D(RGDP)	-0.407714	0.080150	-0.544357	-0.836482	-2.77E-07	1.52E-05	50.20278	-7.958975
	(0.27411)	(0.20147)	(0.44179)	(0.40884)	(2.2E-07)	(4.8E-05)	(15.8245)	(13.5631)

9 Cointegrating Equation(s) Log likelihood -3148.245

Normalized cointegrating coefficients (standard error in parentheses)

D(GFCF)	CFC	D(CFC)	DD	D(DD)	ED	D(ED)	EDS	D(EDS)	EDV	D(EDV)	EXR	D(EXR)	INF	D(INF)	INT	D(INT)	RGDP	D(RGDP)
1.000000	0.0000000		0.000000		0.000000		0.000000		0.000000		0.000000		0.000000		0.000000		-0.158863	
																	(0.02336)	
0.000000	1.000000		0.000000		0.000000		0.000000		0.000000		0.000000		0.000000		0.000000		-0.082933	
																	(0.03888)	
0.000000	0.000000		1.000000		0.000000		0.000000		0.000000		0.000000		0.000000		0.000000		-0.202851	
																	(0.01301)	
0.000000	0.000000		0.000000		1.000000		0.000000		0.000000		0.000000		0.000000		0.000000		-0.047664	
																	(0.02363)	
0.000000	0.000000		0.000000		0.000000		1.000000		0.000000		0.000000		0.000000		0.000000		-42932.42	
																	(20068.1)	
0.000000	0.000000		0.000000		0.000000		0.000000		1.000000		0.000000		0.000000		0.000000		118.8245	
																	(66.4168)	
0.000000	0.000000		0.000000		0.000000		0.000000		0.000000		1.000000		0.000000		0.000000		-0.004412	
																	(0.00055)	
0.000000	0.000000		0.000000		0.000000		0.000000		0.000000		0.000000		1.000000		0.000000		0.000686	
																	(0.00032)	
0.000000	0.000000		0.000000		0.000000		0.000000		0.000000		0.000000		0.000000		1.000000		0.000453	
																	(0.00012)	

Adjustment coefficients (standard error in parentheses)

D(GFCF)	-0.918015	0.388375	0.875368	-0.222546	-2.12E-07	2.88E-05	5.748326	-2.624024	70.96326
	(0.20066)	(0.16143)	(0.32748)	(0.30389)	(1.6E-07)	(3.5E-05)	(11.4635)	(9.98459)	(42.2126)
D(CFC)	-0.422806	-0.178856	0.284955	0.554556	3.80E-07	-4.58E-05	8.561591	-9.863807	98.04578
	(0.32085)	(0.25812)	(0.52364)	(0.48592)	(2.6E-07)	(5.6E-05)	(18.3302)	(15.9655)	(67.4984)
D(DD)	0.039088	-0.057457	-0.075252	-0.072547	-1.02E-07	4.09E-05	-6.874689	-1.416759	3.088156
	(0.09755)	(0.07847)	(0.15920)	(0.14773)	(8.0E-08)	(1.7E-05)	(5.57276)	(4.85384)	(20.5209)
D(ED)	0.066656	0.056316	0.569066	-0.198382	-7.37E-08	1.97E-05	1.984184	-10.51483	44.45973
	(0.17904)	(0.14404)	(0.29220)	(0.27115)	(1.5E-07)	(3.1E-05)	(10.2286)	(8.90903)	(37.6654)
D(EDS)	-519950.9	333206.7	335944.7	1290411.	-1.038113	-20.63234	-42699002	5145708	-2955718
	(408166.)	(328365.)	(666132.)	(618146.)	(0.33451)	(70.7573)	(2.3E+07)	(2.0E+07)	(8.6E+07)
D(EDV)	209.8858	1473.834	7673.257	-4965.135	-0.000368	1.218921	97417.54	15335.97	259287.4
	(1016.75)	(817.962)	(1659.34)	(1539.81)	(0.00083)	(0.17626)	(58086.1)	(50592.6)	(213894.)
D(EXR)	-0.005566	0.004536	-0.000233	0.015684	-3.12E-10	-1.77E-07	-0.776827	-0.448478	0.354027
	(0.00518)	(0.00417)	(0.00846)	(0.00785)	(4.2E-09)	(9.0E-07)	(0.29601)	(0.25782)	(1.09002)
D(INF)	-8.69E-05	0.002613	0.012581	-0.002879	-2.39E-09	2.47E-07	-0.140444	-0.879459	2.191266
	(0.00472)	(0.00380)	(0.00771)	(0.00715)	(3.9E-09)	(8.2E-07)	(0.26980)	(0.23499)	(0.99349)
D(INT)	-0.001047	-3.25E-05	0.000612	0.000402	-1.04E-09	-9.80E-08	-0.018561	-0.057756	-0.256464
	(0.00094)	(0.00076)	(0.00154)	(0.00143)	(7.7E-10)	(1.6E-07)	(0.05393)	(0.04697)	(0.19860)
D(RGDP)	-0.362831	-0.024769	-0.650837	-0.732230	-3.24E-07	1.01E-05	50.75926	-5.220826	-23.72695
	(0.27062)	(0.21771)	(0.44166)	(0.40985)	(2.2E-07)	(4.7E-05)	(15.4606)	(13.4661)	(56.9316)

Dependent Variable: GFCF
Method:Least Squares
Date 03/10/23 Time: 15:11
Sample: 1981 2020
Included observations: 40

Variable	Coefficient	Std.Error	t-Statistic	Prob.
CFC	0.802557	0.070388	11.40186	0.0000
DD	0.537990	0.129315	4.160306	0.0002
ED	0.395594	0.228155	1.733879	0.0932
sEDS	-2.43E-08	8.00E-08	-0.304182	0.7631
EDV	-2.19E-05	1.67E-05	-1.309300	0.2004
EXR	-27.72056	8.247104	-3.361248	0.0021
INF	-3.326817	8.562427	-0.388537	0.7004
INT	-44.63462	35.79822	-1.246839	0.2221
RGDP	0.113095	0.036473	3.100790	0.0042
C	400.1949	1222.594	0.327333	0.7457
R-squared	0.876480	Mean dependent var		8618.731
Adjusted R-squared	0.839424	S.D.dependent var		2004.397
S.E. of regression	803.2015	Akaike info criterion		16.42741
Sum squared resid	19353980	Schwarz criterion		16.84963
Log likelihood	-318.5481	Hannan-Quinn criter.		16.58007
F-statistic	23.65279	Durbin-Watson stat		1.532263
Prob(F-statistic)	0.000000			

Dependent Variable: D(GFCF)
Method:Least Squares
Date:03/10/23 Time: 15:35
Sample (adjusted): 1984 2020
Included observations: 37 after adjustments

Variable	Coefficient	Std.Error	t-Statistic	Prob.
D(CFC)	0.521460	0.077782	6.704088	0.0000
D(DD)	0.643141	0.265766	2.419956	0.0228
D(ED(-1))	0.511740	0.239960	2.132607	0.0426
D(EDS(-1))	1.30E-07	5.56E-08	2.334191	0.0276
D(EDV(-1))	-5.35E-05	3.43E-05	-1.558279	0.1313
D(EXR)	-21.09211	8.322220	-2.534432	0.0176
D(INF(-1))	-4.117083	6.231687	-0.660669	0.5146
D(INT(-2))	-32.49291	27.36947	-1.187195	0.2459
D(RGDP)	0.156217	0.081369	1.919850	0.0659
ECM(-1)	-0.681103	0.157363	-4.328233	0.0002
C	-251.4579	177.6415	-1.415536	0.1688
R-squared	0.774354	Mean dependent var		10.35162
Adjusted R-squared	0.687567	S.D.dependent var		1120.268
S.E. of regression	626.1820	Akaike info criterion		15.95893
Sum squared resid	10194701	Schwarz criterion		16.43785
Log likelihood	-284.2402	Hannan-Quinn criter.		16.12777
F-statistic	8.922464	Durbin-Watson stat		1.905272
Prob(F-statistic)	0.000004			