



# Public Debt, Export, Import and Economic Development in Nigeria

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## ABSTRACT

Borrowings by countries occur as a result of their inability to generate enough domestic savings to carry out their various activities. The main objective of the study is to examine the effect of public debt, exports, and imports on economic development in Nigeria. Specifically, the study investigated the effect of public debt, exports, and imports on the standard of living in Nigeria. The study adopted an *ex-post facto* research design, and data were sourced from the Central Bank of Nigeria Statistical Bulletin. Preliminary tests, including the Augmented Dickey-Fuller (ADF) test for unit roots and the Autoregressive Distributive Lag (ARDL), were used for the data analysis. Our findings revealed that public debt, exports, and imports have significant short-term policy effects but no significant long-term effects on standard of living. The study concludes that public debt, exports, and imports have been effective short-run policy instruments that have largely influenced economic development in Nigeria. The study recommends that external debt should be contracted solely for short-term investments with economic reasons and not for socio-political reasons or white elephant projects without economic justifications that can enhance human capital development in Nigeria. Nigeria should use her accumulated external foreign reserves instead of incurring more external debts.

**Keywords:** Public Debt, Export, Import, Economic Development, Nigeria

## INTRODUCTION

Developing countries, including Nigeria, are encouraged to seek external financing to augment their domestic resources for project financing. It is, however, expected that these borrowed funds should be channeled to priority projects that have the capacity to generate enough income to redeem the debt servicing obligations and also free resources for improvement in the nation's health care, education, reduction in unemployment, and ultimately improvement in the standard of living of an average citizen (Egungwu, 2018).

Government debt is the aggregate of all claims against the government held by the private sector of the economy or by foreigners, whether interest-bearing or not (Udeh, Ugwu, & Onwuka, 2016). A shortfall in domestic savings to finance productive activities compels nations to borrow (Ezeabasili, 2006). Government debt constitutes a medium used by countries to bridge their deficits and carry out economic projects that are able to increase the standard of living of their citizens and promote sustainable growth and development. Public debt, which is also referred to as national debt, is owed by the government or the aggregate of borrowings of all government units, such as the federal, state, and local governments (Osakwe, Anachedo, & Okonkwo, 2022). An export in international trade is a good or service produced in one country that is bought by someone in another country. The seller of such goods and services is an exporter; the foreign buyer is an importer (Rasak, 2022). Exports are goods and services

produced in one country and purchased by residents of another country. It has been theoretically argued that both exports and imports may play a crucial role in economic development. The theoretical and empirical studies mainly concentrate on either the relationship between export and growth, between import and growth, or the association between export, import, and economic growth (Adegbe, Emmanuel, Theophilus, & Ademola, 2022). Economic theory suggests that reasonable levels of borrowing by a developing country are likely to enhance its economic growth (Edeminam, 2021). Therefore, a developing country wishing to mobilize capital resources to foster economic growth and development may resort to borrowing to encourage growth. Countries at early stages of development like Nigeria borrow to augment the dominance of meager capital stocks. The anticipation is that the countries are likely to have investment opportunities with rates of return higher than those of their counterparts in developed economies. Enhanced economic growth has the potential to alleviate a country's poverty situation (Chukwuemeka & Agu, 2021).

The increasing fiscal deficits driven by the higher level of external debt servicing are a major threat to economic growth in Nigeria. The resultant effect of the large accumulation of debt is the exposure of the nation to a high debt burden. Nigeria is about the 'richest' in the continent of Africa, yet due to the numerous macro-economic problems, such as high inflation, unemployment, sole dependency on crude oil as a major source of revenue, corruption, and mounting external debt and debt service payments, the majority of her citizens live below the poverty line (Abula & Ben, 2016). However, the heavy external debt burden resulted in creating a great hindrance to the economic growth of Nigeria due to high interest payments on the external debt and heavy public expenditures. Hence, the study will explore the nexus among government debt, exports, and economic development: evidence from Nigeria.

#### **Statement of the Problem**

Nigeria has been bewildered with huge external debt capable of slow economic development. A nation's inability to meet her debt service obligations is largely caused by inadequate knowledge of the nature, structure, and magnitude of the debt in question. The Nigerian economy is faced with high cost of debt repayment, mismanagement of loans, growing public expenditure profile, with decline in oil earnings and over dependence on imports, that has creates a mismatch between government revenue and expenditure. The Nigerian economy today has unprecedented debt crises. The magnitude of the debt and its associated effects have become a great concern for the government. The effect of government debt on Nigeria's economic development is a complex, interrelated problem. Despite the government's continuous effort to manage debt by embarking on several measures such as debt rescheduling, debt conversion, debt equity swap, debt forgiveness, and cancellation, there are still a number of gaps and problems in respect of the needs, causes, and effects of debt and exports on Nigeria's economic development.

Previous studies on the nexus between government debt, exports, and economic development in Nigeria have resulted in conflicting opinions. A number of the findings, such as those by Ajayi and Edewusi (2020), Naeem (2017), and Ndieupa (2018), highlight the significant influence of government debt and export variables, especially export. Despite agreeing that economic development acts in response to government debt and export variables, Holden, Ndieupa (2018) Chinonso, Karen, and Akujuobi (2021) argued that all the government debt variables they employed have a negative effect on economic growth and development in both the long and short run, suggesting that growing government debt hampers development in Nigeria, as against the belief from studies like Muhammad, Ruhaini, Nathan, and Arshad (2017) and Muhammad (2017), which found that government debt and export variables enhance economic growth and development. A number of studies have outright argued that government debt and export variables have no effect on economic growth (Mwaniki, 2016). Alagba and Eferakeya (2019) noted that domestic debt and external debt are not statistically significant tools for enhancing economic growth and development. These shortcomings have somehow contributed to the knowledge gap in the literature, which this study intends to close by using data from 1987–2021, a period of 34 years, thus increasing the number of observations. The study therefore seeks to examine the effect of public debt, exports, and imports on economic development in Nigeria.

## REVIEW OF RELATED LITERATURE

### Conceptual Framework

#### Debt

Public debt also referred to as government debt or external debt is conceptualized as the aggregate debts owed by a certain country to individuals, corporations and countries within the country or abroad. Government debts typify all forms of government borrowings at all levels of government (Christabel, 2013). Public debt forms part of the finance approach adopted by governments all over the world, although this approach is often resorted to when all measures have been exhausted, in fact the measure is considered favorable relative to other measures which includes the creation of money and the sale of national assets (Edeminam, 2021).

Notwithstanding, it has been observed that an increased level of external debt impacts negatively on the trade ability and economic prosperity of most nations (Chukwuemeka, & Agu, 2021). Also, debt overhangs influences economic improvement and the effectiveness of monetary policies, export growth and reduces the severity of trade policies thereby enhancing the friendliness of the market and by implication increasing trade openness. Despite this, debt if not adequately utilized reduces the level of economics development (Ajayi & Edewusi, 2020).

#### Domestic Debt (Internal)

Attapattu, and Padmasiri, (2018) defined domestic Government debt as debt instruments issued by the Federal Government and denominated in local currency. In principles, state and local government can also issue debt instrument, but limited in their ability to issue such. Debt instrument consist of Nigerian Treasury certificates, Federal government development stocks and treasury bonds. Out of these, treasury bills, treasury certificates and development stocks are marketable ad negotiable while treasury bonds; ways and means advances are not marketable but held solely by the central Bank of Nigeria. Christabell, (2013), in his opinion sees domestic debt as the gross liability of Government, and properly considered should include Federal, State and Local governments transfer obligations to the citizens and corporate firms within the country. Consequently, the Central Bank of Nigeria (CBN) as banker and financial adviser to the Federal Government is charged with the responsibility for managing the domestic Public debt.

Domestic Public Debt is mainly debt owed to holders of Government securities such as Treasury Bills and Treasury Bonds. Governments usually borrow by issuing securities, government bonds and bills. Governments borrow for two reasons namely: when the projected revenue targets fall short of the projected expenditure and to pay off maturing loans (Ponzi games) which is typical with domestic debt (Christabell, 2013).

#### External Debt

External debt is conceptualized as the aggregate debts owed by a certain country to individuals, corporations and countries within the country or abroad. Government debts typify all forms of government borrowings at all levels of government (Nwakuche & Anele, 2020). Public debt forms part of the finance approach adopted by governments all over the world, although this approach is often resorted to when all measures have been exhausted, in fact the measure is considered favorable relative to other measures which includes the creation of money and the sale of national assets (Edeminam, 2021).

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Debts have been categorized into two broad forms such as the external debt which is contracted outside the country and domestic debt which is described as debts raised from individual and corporations within the country. Furthermore, the reproductive debt and dead weight debt are other classification of debts. The former is referred to as a loan raised to cause the acquisition of assets that is urgently required for productive activities e.g. borrowing for electricity, refineries, acquisition of factors etc. Meanwhile, the latter - deadweight debt is referred to as debts contracted to execute unproductive activities e.g. debt undertaken to promote war or finance current expenses (Chinonso- Karen & Akujuobi, 2021).

### **Debt Servicing**

Debt servicing generally refers to that compelling need and obligation on a borrower to pay the interest on a loan as at when due and also to effect repayment of principal amount when it falls due and if a nation has the capacity to redeem these obligations, accumulation of arrears will be nonexistent and thus no cases of “debt overhang” which cripples economic growth (Catherine, & Lucia 2014).

Egbetunde, (2012) opined that the major issue that aggravated the Nigeria debt problem is that some of the debt service obligations were in the form of contingent liabilities resulting from Government guarantee of private sector trade transactions that had to be taken on board without adequate planning, due to mismanagement, wide-scale corruption and default by private sector operators, obligations which fell on the Federal Government as explicit contingent liabilities in those instances where it had guaranteed the loans. External debt therefore is that part of the total debt of a country that is owed to creditors outside the country. The debtors can be the government, corporations or private households. One of the major goals of a public debt policy is to create debt continuously and maintain it over time. This can be described as debt sustainability.

### **Exports**

An export in international trade is a good or service produced in one country that is bought by someone in another country. The seller of such goods and services is an exporter; the foreign buyer is an importer. Exports are the goods and services produced in one country and purchased by residents of another country. It doesn't matter what the good or service is. It doesn't matter how it is sent. It can be shipped, sent by email, or carried in personal luggage on a plane. If it is produced domestically and sold to someone in a foreign country, it is an export (Serhat & Sinemis, 2016).

Exports are one component of international trade. The other component is import. They are the goods and services bought by a country's residents that are produced in a foreign country. Combined, they make up a country's trade balance. When the country exports more than it imports, it has a trade surplus. When it imports more than it exports, it has a trade deficit (Rummana, 2014)

Exports, along with imports, are key elements in a country's trade balance as the sale of exported goods increases a nation's gross output. Many countries encourage exports as a way to increase employment, disposable income, and consumer spending. Furthermore, the more products a country exports, the greater the comparative advantage as it gains expertise in producing goods and services that foreign countries want to use (Velnampy & Achchuthan, 2013).

### **Imports**

An import is a good brought into a jurisdiction, especially across a national border, from an external source. The party bringing in the good is called an importer. An import in the receiving country is an export from the sending country. Imports are foreign goods and services bought by residents of a country. Residents include citizens, businesses, and the government. It doesn't matter what the imports are or how they are sent. They can be shipped, sent by email, or even hand-carried in personal luggage on a plane. If they are produced in a foreign country and sold to domestic residents, they are imports. Even tourism products and services are imports. When you travel outside the country, you are importing any souvenirs you bought on your trip (Sayef & Mohamed, 2017).

If a country imports more than it exports it runs a trade deficit. If it imports less than it exports, that creates a trade surplus. When a country has a trade deficit, it must borrow from other countries to pay for the extra imports. It's like a household that's just starting out. The couple must borrow to pay for a car, house, and furniture. Their income isn't enough to cover the necessary expenses that improve their standard of living. But, like the young couple, a country should not continue to borrow to finance its trade

deficit. At some point, a mature economy should become a net exporter. At that point, a trade surplus is healthier than a deficit (Sachin 2015).

### **Per Capita Income**

Per-capita income is a measure of economic well-being. Through its effect on economic development, it can indirectly affect sustainable development. Over the years, income per-capita was commonly used to describe the wellbeing of individuals in a specific period of time. This was usually done without putting into consideration the inter-temporal dimension in which sustainable development can also be affected by income per-capita level. Income per-capita level can indirectly affect sustainable development through its effect on economic development. This can be through the effect of income per-capita on education, health, migration and sanitation levels. Having low levels of income per-capita is more likely to reduce the individuals' access to high levels of education and knowledge. In addition, it deprives individuals from better nutrition which negatively affect their health status and productivity as well as it encourages migration from the country whenever possible. Also, low income per capita is associated with poor environmental conditions such as poor sanitation, high levels of pollution and lack of access to clean water. In particular, the literature is rich in tracing the effect of low levels of income per-capita on pollution emissions level as illustrated by the Environmental Kuznets Inverted U hypothesis (EKC) (Kolawole, 2013). Putting all these effects into consideration will result in adverse effects on sustainable development.

### **Economic Development**

Economic development encompasses progress in providing livelihood on a sustainable basis, access to education and basic healthcare for the majority of the population (Belshaw & Livingstone, 2002). Economic development' is a process in which a nation is improving in the sector of the economic, political, and social well being of its people. The term has been used frequently by economists, politicians, and others in the 20th and 21st centuries. The concept, however, has been in existence in the West for centuries. "Modernization, westernization and especially industrialization, are other terms often used while discussing economic development. Economic development has a direct relationship with the environment and environmental issues Economic development is very often confused with industrial development, even in some academic sources. Whereas economic development is a policy intervention Endeavour with aims of improving the economic and social well being of people, economic growth is a phenomenon of market productivity and rise in GDP. Consequently, economic growth is one aspect of the process of economic development.

The meaning of the term "development" becomes clearer with the understanding of the term "economic growth". By economic growth, economists generally mean the increase over time in a country's real output. Though other measures can be used, output is most conveniently measured by the gross national product (GNP). This implies that economic growth is measured by the increase in a country's GNP.

Economic growth is thus sustained expansion of production possibilities measured as an increase in the real GDP over a given period. Rapid economic growth maintained over a number of years can transform a poor nation into a rich one, as has been the experiences of Hong Kong, South Korea, Taiwan and other Asian economies (Bade & Parkin, 2002). According to Malizia and Feser (2000), growth and development is complementary, because one makes the other possible. They are also alternating processes that occur sequentially. Growth is an increase in output, development is a structural change, for example technological or legal. Growth expands the economy, while development must lead to more equal distribution of income and wealth. Overall, growth and development lead to a greater range of economic choices (Lewis, 2003).

### **Theoretical Framework**

This study is anchored on Solow's Growth Theory. Robert Solow and Swan introduced the Growth Solow's model in 1956. Their model is also known as Solow-Swan model or simply Solows model. In Solow's model, other things being equal, states that saving, investment and population growth rates are important determinants of economic growth. Higher saving, investment rates, lead to accumulation of more capital per worker and hence more output per worker. On the other hand, high population growth

has a negative effect on economic growth simply because a higher fraction of saving in economies with high population growth has to go to keep the capital-labour ratio constant. In the absence of technological change and innovation, an increase in capital per worker would not be matched by a proportional increase in output per worker because of diminishing returns. Hence capital deepening would lower the rate of return on capital.

Solow's neoclassical growth model is an extension of the theory of Cobb Douglas, explaining that the output or gross domestic product depends on the technology, employees, physical capital, human capital as well as the amount of natural resources. So it can be written by the following equation.

$$Y = A f(L, K, H, N)$$

where  $f$  is the function that shows how the inputs are combined to produce output.  $A$  is a variable that indicates the availability of production technology.  $L$  is the labor.  $K$  is the physical capital.  $H$  is the human capital, and  $N$  is the natural resources.

The first factor that determines the output of a country is labor. Economists argue that population growth will affect life in society. The most impact is the change in the total labor force. Large population will have a large labor force in producing goods and services. In addition, economists believe that growth is the engine of the world's population in technological progress and economic prosperity

The second factor is the physical capital. Physical capital is the completeness of the equipment and structures used to produce goods and services (Ogbonna, Ibenta, Chris-Ejiogu & Atsanan, (2019).

Investment is one form of physical capital in the production function. Both domestic and foreign investment holds the contribution in accelerating the economic growth of a country (Ogunjimi.2019).

Human capital is the third factor in the neoclassical growth model. Human capital acquired knowledge and skills of workers through education, training, and experience. Quality human capital will enhance the ability of a country to produce goods and services (Pattillo, Poirson, & Ricci, 2004).

The fourth factor is the natural resources. Natural resources are inputs in the production activities provided by nature, such as land, rivers and mineral content in the earth. Many countries have good natural resources, bringing the country towards economic development.

The fifth factor that determines the output of a country is the mastery of science and technology. Technological knowledge is an understanding of the best ways to produce goods and services. When there is a technological development, it will need less labor. So most of the workforce will be able to produce other goods and services, the result will be increased productivity.

### **Empirical Review**

Osakwe, Anachedo and Okonkwo, (2022) investigated the effect of external debts on the Nigerian economy from a period of 1990 – 2020. This study used an ex post facto research design, Augmented Dickey Fuller (ADF) unit root was used for stationarity test and the Vector Auto Regressive Distributive Lags test was employed for the data analysis. The variables tested were External debt being the independent variable while Exchange rate, growth rate of GDP and Inflation rate are the dependent variables. Findings revealed that external debt impedes economic growth leading to deteriorating exchange rate which is followed by increase in inflation, which hampers economic growth.

Ohunmah, (2021) investigated the impact of external debt stock and debt servicing on human capital development (HCD) in Nigeria from 1960-2019. The Ordinary Least Squares (OLS) regression technique was used to test eight hypotheses. Results revealed that external debt servicing has an inverse relationship with HCD whereas external debt stock has a significantly positive impact on HCD.

Abiodun, Uwaleke and Umar, (2022) investigated the relationship between external debt service and economic growth in Nigeria from 1981 to 2020. A quantitative research approach was adopted for this study. The method for estimation was the Auto-Regressive Distributed Lags (ARDL) model. The ARDL bound test results showed there was co-integration. The speed of change between the short-run and long-run of the co-integrating equations was 88.86%. The result shows resource depletion effect of external debt services on growth. External debt stock has a positive but not significant relationship with growth. There is a positive but not significant relationship between external reserves to external debt ratio with growth. Debt service to export ratio has a positive relationship with growth.

Rasak , (2022) evaluated the growth effect of external debt and accounted for structural break in the external debt-growth nexus in Nigeria. Annual data spanning 1981-2020 were sourced from global databases and analysed using the dynamic ordinary least square (DOLS) estimator. The result showed that external debt has growth-inhibiting effects on the Nigerian economy and that structural break matter in the analysis of the growth effect of external debt in Nigeria.

Adegbie, Emmanuel, Theophilus and Ademola, (2022) investigated the effect of public debt management on economic growth in Nigeria. An *ex-post facto* research design was employed, while time-series data on the relevance of macroeconomic variables to public debt management and economic growth were sourced from secondary sources. The sample population purposively was chosen from data available from the 2020 edition of the Central Bank of Nigeria's (CBN) Statistical Bulletin, which covers 40 years (1981-2020). Results revealed that public debt management RGDP) had a positive significant effect on economic growth in Nigeria ( $AdjR^2 = 0.995$ ;  $F(5, 31) = 99.562$ ;  $p\text{-value} = 0.000$ ). The conclusion validated that effective public debt management tends to have a positive significant effect on economic growth in Nigeria.

John, Obot, Effiong, and Akaniyene, (2022) examined the effect of external debt on economic growth in Nigeria. The data were collected, analyzed and tested using the Ordinary Least Square (OLS) multiple. It was revealed that there is an insignificant relationship between external debt stock and gross domestic product in Nigeria. Furthermore, external debt service cost has a significant impact on gross domestic product in Nigeria.

Yusuf, Aminu and Ismaila, (2021) examined the effect of external debt trap on economic growth in Nigeria. ADF and PP were employed in testing the unit root property of the series, Ordinary least square method, Johansen cointegration test and Error Correction Model were used to establish the short and long run relationship between the variables under investigation. The study revealed that increase in external debt service ratio, export, and exchange rate affect RGDP positively, while external debt is negatively related to RGDP in Nigeria. Meanwhile, exchange rate has significant impact on economic growth in Nigeria while external debt, external debt service ratio and export were insignificant. Johansen cointegration test shows that there is long run relationship between the variables of the model at 5% level of significance. The estimated coefficient of the error correction term (-1.052231) is significantly different from zero at 5 per cent level and with the appropriate negative sign. This suggests the validity of long-run equilibrium, at an adjustment speed of 105 per cent of the system (economy) in a year to its previous equilibrium.

George-Anokwuru, and Inimino, (2021) focused on the impact of external debt on economic growth in Nigeria from 1980 to 2017. The Augmented Dickey-Fuller unit root test and Autoregressive Distributed Lag techniques were used as the main analytical tools. The result of the unit root test revealed that the variables were stationary at order zero and one, which satisfied the requirement to employ the ARDL Bounds testing approach. The ARDL Bounds test revealed the existence of long run relationship among the variables. Furthermore, the result revealed that external debt and external debt service have negative and significant relationship with economic growth in Nigeria both in the long run and short run.

Ekor, Orekoya, Musa and Osikwemhe, (2021) examined the impact of foreign debt on the Nigerian economy. Applying a dynamic variant of the auto-regressive distributed lag model, the main result from this study is that in the long run, external debt accumulation and the associated service payments have negative effects on the economy. The policy implication is that government should always ensure that external debt accretion is sustainable and used for infrastructure development.

Okoye, Modebe, Erin and Evbuomwan, (2020) examined the effect of external debt on economic growth in Nigeria. Specifically, the study examines whether external borrowings and its major determinants like exchange rate, gross fixed capital formation and inflation rate have supported the growth of the Nigerian economy. The parameters of the model were estimated using the ordinary least squares method. The result shows evidence of significant positive correlation between economic growth and the explanatory variables namely external debt, exchange rate and inflation rate. A negative correlation was however observed between economic growth and gross fixed capital formation.

Humnath, Mitra Lal and Dhruva (2022) examined equilibrium relationships and dynamic causality between economic growth, exports, and imports in Nepal using time-series data between 1965 and 2020. The test results show no evidence favoring the exports-led growth and growth-led exports hypotheses in both the short and long run. The study finds evidence supporting the imports-led growth hypothesis in the short term and the growth-led imports hypothesis in the long term.

### Gap in Literature

The review pointed out a strong disagreement on the effects of public debt, export and imports on economic development in Nigeria. This disagreement comes in the form of the direction of relationship as well as the level of significance of the relationship. These shortcomings have contributed to the knowledge gap in the literature. Another gap in literature is the coverage of public debt, export and imports variables employed in the investigation of effects of public debt, export and imports on economic development in Nigeria. The present study includes all the core public debt, export and imports variables such as external debt, domestic debt, oil export, non oil export, imports and government borrowing to determine the actual effect of public debt, export and imports on economic development in Nigeria. (1988-2023).

## METHODOLOGY

### Research Design

The study adopted the *ex-post facto* research design because secondary data is sourced from the Central Bank of Nigeria Statistical Bulletin, the CBN Annual Report and Statement of Accounts, and the National Bureau of Statistics. Independent variables are external debt, domestic debt, oil exports, non-oil exports, and imports, while economic development is the dependent variable, which is also proxied by per capita income

### Model Specification

The models for this study were adopted and modified in line with each objective of the study. The model that we used for objective three is adapted from the work of Nwakuiche and Anele (2020) who examined the effect of public debt, export and imports on standard of living in Nigeria

#### The model is stated thus:

$$PCI = f(EXD, DMD, EPT)$$

Where:

PCI = Per Capita Income

EXD= External Debt

DMD= Domestic Debt

EPT= Total Export,

#### The modified Model is stated thus:

$$PCI = f(EXD, DMD, OE, NOE, IMPT)$$

Where:

f = Functional Relationship

PCI = Per Capita Income

EXD= External Debt

DMD= Domestic Debt

OE= Oil Export

NOE= Non Oil Export

IMPT=IMPORT

#### The Econometric Equation Form of the Model is:

$$PCI = \alpha_0 + \alpha_1 EXD + \alpha_2 DMD + \alpha_3 OE + \alpha_4 NOE + \alpha_5 IMPT + \varepsilon \quad (3 \text{ Eqn})$$

$\mu$  = Stochastic Disturbance (Error Term)

$\beta_0$  = Intercept of Relationship in the Model Constant

$\beta_1, \beta_2, \beta_3, \beta_4$  and  $\beta_5$  = are the Coefficients of the Independent Variables



**Estimation Techniques**

The method and tools for the analysis depend on the behavior of data when the preliminary test is conducted.

**Pre-Estimation Technique**

Data for the study were subjected to Pre-estimation test to confirm the behavior of the data set. The data was analyzed with preliminary test involving Descriptive Statistics and Augmented Dickey Fuller Tests for Stationarity.

**DATA ANALYSIS**

**Unit Root Test**

**Table 1: Summary Unit Root test for Stationarity**

Variables	At Level 1(0)	At First Difference 1(1)	At Second Difference	Order of Integration	Probability
EXD	-4.561864			1(0)	0.0112
DMD		-4.595801		1(1)	0.0016
OE	-5.814004			1(0)	0.0022
NOE	-4.340303			1(0)	0.0048
IMPT	-5.718454			1(0)	0.0127
PCI		-4.818888		1(1)	0.0029
EDI		-4.968378		1(1)	0.0018

**Source:** Researcher’s Estimation using Eviews 9.0

The study employed the Augmented Dickey Fuller (ADF) Unit root test technique to ascertain the stationarity of the variables of the time series data. The Augmented Dickey Fuller is one of the most prominent unit root test techniques and has been used to determine whether the variables are stationary series or non-stationary series.

From the summary of the result, it can be seen that there is a mixed order of integration, that is I(0) and I(1). In such circumstances, it becomes necessary to make use of the ARDL bound testing technique for cointegration test and ARDL estimation technique for estimating the coefficients of the econometric model. This is because the commonly used Engel- Granger, and Johansen cointegration techniques are only employed when the order of integration of each variable in the model is I(1).

Furthermore, Table 2 above showed that EXD, OE, NOE and IMPT, were stationary at level, I(0), while DMD and PCI were stationary at 1st difference, I(1).

**Cointegration Test -The ARDL Bound Test**

The ARDL bound testing technique was to test if the variables in the econometric model were cointegrated or not. The robustness of the ARDL cointegration bound test has been affirmed by many studies in establishing if long run relationship exists between the dependent variable and the independent variables in the econometric model. It is known to be superior to Engel- Grange, and Johansen cointegration techniques and employed in situations of mixed order integration (Pesaran and Shin, 1999, and Pesaran et al. 2001).

Its superiority is known to lie in its flexibility as it can be used with I(0) or I(1) variables, or both, works well with small sample data, and provides unbiased estimation of long run relationship and long run parameters. By Distributed Lag (DL) variables we imply lagged values of observed exogenous predictor variables while Autoregressive (AR) variables are lagged values of observed endogenous response variables.

Two sets of critical values were given by Pesaran and Pesaran (1996a), and Pesaran et al. (2001) in the bound test. These include a set for the lower bound I(0) values presuming that all the variables are I(0) and the other for the upper bound I(1) values presuming that all the variables are I(1). The variables in the model are said to be cointegrated if the F-statistic is greater than the upper bound values. The implication would be that a long run relationship exists between the variables. In the situation where the F-statistic so reported is lower than the lower bound values, then there is no cointegration. There is an inconclusive result if the F-statistic value lies in-between the lower and the upper bounds. The results of the ARDL bound testing cointegration technique is presented in table 3 below.

**ARDL (Bounds) Test for Cointegration**

**Table 2:. Result of the ARDL (Bounds) Test for Public Debt, Export, Imports and Standard of Living Model**

ARDL Bounds Test

Date: 04/10/23 Time: 02:41

Sample: 1988 2023

Included observations: 35

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	1.820823	5

**Critical Value Bounds**

Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Source: Eviews 9.0

The result of the study revealed that the F-statistics from the bound test is less than the lower and upper critical values for model three; public debt, export, imports and standard of living model

The implication is that there is no co-integration or long run relationship between public debt, export, imports and standard of living model

The value of F-statistic of 1.820823 is less than the upper and lower bound value of 2.62 and 3.79 at 5% level of significance respectively. This indicates that long run relationship does not exist between public debt, export, imports and standard of living

**Short Run Relationship**

**Table 3: Short Run Model of the Relationship Between Public Debt, Export, Imports and Standard Of Living Model**

Dependent Variable: PCI

Method: ARDL

Date: 04/10/24 Time: 02:41

Sample (adjusted): 1988 2023

Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
PCI(-1)	0.748809	0.234299	3.195957	0.0187
PCI(-2)	-0.065457	0.142732	-0.458597	0.6627
PCI(-3)	0.164244	0.185715	0.884388	0.4105
PCI(-4)	0.742572	0.126022	5.892413	0.0011
EXD	0.150901	0.296412	3.509093	0.0289
EXD(-1)	-0.096903	0.292189	-0.331646	0.7514
EXD(-2)	-0.218407	0.186363	-1.171949	0.2856
EXD(-3)	-0.770338	0.225951	-3.409310	0.0143
DMD	0.871207	0.131973	5.601408	0.0006
DMD(-1)	0.865963	0.149637	5.787109	0.0012
DMD(-2)	-0.074281	0.096903	-0.766550	0.4724
DMD(-3)	-0.815029	0.124436	-6.549769	0.0006
OE	0.054999	0.013265	4.146080	0.0060
OE(-1)	0.181420	0.029306	6.190502	0.0008
OE(-2)	-0.134210	0.037428	-3.585817	0.0116
NOE	0.390838	0.062153	2.288324	0.0008
NOE(-1)	0.345025	0.070761	4.875919	0.0028
NOE(-2)	-0.269404	0.090901	-2.963707	0.0252
NOE(-3)	0.326465	0.082906	3.937744	0.0076
IMPT	0.162159	0.030358	2.443068	0.0732
IMPT(-1)	0.000346	0.000482	0.718408	0.4995
IMPT(-2)	-0.000255	0.000529	-0.482476	0.6466
IMPT(-3)	0.001109	0.000547	2.026938	0.0890
C	11.62174	5.287296	2.298021	0.0712
R-squared	0.688918	Mean dependent var		5.066000
Adjusted R-squared	0.646438	S.D. dependent var		3.755645
S.E. of regression	0.869190	Akaike info criterion		2.548053
Sum squared resid	4.532950	Schwarz criterion		3.669011
Log likelihood	-14.22079	Hannan-Quinn criter.		2.906657
F-statistic	5.327930	Durbin-Watson stat		2.815354
Prob(F-statistic)	0.000403			

**Source: Eviews 9.0**

**Per Capita Income:** The results showed that the coefficient of b per capita income is positive at 0.748809 with t-Statistic of 3.195957 and probability value of 0.0187 which suggest that per capita income has positive and significant effect on the model at 0.05 level of significance. This implies that per capita income is a significant variable in the explanation of the effects of monetary policy instrument and banking sector contribution to gross domestic product in the short run

**External Debt:** The coefficient of external debt is positive at 0.150901 in the first year and after one year is negative at -0.096903. Again, the value of the t-Statistic is 3.509093 and -0.331646 with probability values of 0.0289 and 0.7514. The implication is that external debt has significant short run effect on per

capita income within the first year and has insignificant short run effect on per capita income after one year

**Domestic Debt:** The coefficient of domestic debt in the first and second lag is positive at 0.871207 and 0.865963. The values show that domestic debt have positive effect on per capita income in Nigeria. The value of the t-Statistic is 5.601408 and 5.787109 with probability values of 0.0006 and 0.0012 which are less than 0.05 levels. The implication is that domestic debt have significant short run effect on per capita income in Nigeria

**Oil Export:** The coefficient of oil export in the first and second lag is positive at 0.054999 and 0.181420 with t-Statistics of 4.146080 and 6.190502 which means that oil export has positive and significant effect on per capita income in Nigeria

**Non Oil Export:** The coefficient of non oil export in the first and second lag is positive at 0.390838 and 0.345025 with t-Statistics of 2.288324 and 4.875919 which means that non oil export has positive and significant effect on per capita income

**Import:** The coefficient of import is positive at 0.162159 with t-Statistics of 2.443068 and p-value of 0.0732 which means that import has positive and significant effect on per capita income in Nigeria.

## CONCLUSION

A country's public debt profile, export and import positions would have huge implications for her human capital development and capacity utilization. This is only true with in the long run. The short run dynamics of public debt, export and imports revealed that they not not suitable for short term economic policies that would drive human capital development in Nigeria. This supposes human capital development is a long run economic policy. Thus, public debt, export and imports can be an effective long run policy instruments that can largely influence economic development in Nigeria.

## RECOMMENDATIONS

Amongst the study recommends is that external debt should be contracted solely for short term investments with economic reasons and not for socio-political reasons or white elephant projects without economic justifications that can enhance human capital development in Nigeria. Government should avoid accumulation of unserviceable external debt stock overtime because it leads to debt overhang. Nigeria should use her foreign reserves instead of incurring more external debts, as this will ensure increase in real economic growth and reduce capital flights through repayments of debts to external sources. External debt finance should be channelled to only projects with the highest priority. In doing so, defining the purpose, duration, moratorium requirements and commitments, negotiation fees, including the conditions under which the government can approve and guarantee external loans to improve standard of living in Nigeria

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