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An Assessment of the Impact of Public Debts on Development in Nigeria (2003-2020)

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Abstract: This study assessed the impact of public debt on development of Nigeria. It specifically investigated the relationship between human development index, per capital income, growth rate and public debt in Nigeria from 2003 to 2020. This study adopted quantitative research design. Relevant data regarding the variable's under-study were extracted from the Debt Management Office (DMO-2020) and UNESCO Institute of Statistics (2020) while regression model was used to analyze the data. The study revealed among other things that; there is presence of co-integration (long-run relationship) among the variables in the model. The t-statistics of -2.297997 with 0.0388 p-value implies negative and significant relationship exists between foreign debt and human development index, t-statistics of 2.557340 with 0.0239 p-values implies positive and significant relationship exists between foreign debt and per capital income and also t-statistics of -0.658730 with p-value of 0.5216 implies negative and insignificant relationship existence between foreign debt and growth rate. The overall result of the f-statistics of 4.109504 with Prob.(F-statistic) of0.029617 shows that all the explanatory variables jointly have significant impact on foreign debt both in the short and long run. The study concluded that there is significant relationship between public debt and development in Nigeria, depending on the variable of interest. Likewise, the study recommended among other things that government should ensure efficiency and effectiveness in the public debt management due to the negative and significant influence

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of human development index on development both in the long run and short run, also the negative and insignificant influence of foreign debt on development in Nigeria which is a pure indication of poor public debt management in the country. Also, the component governments in Nigeria should reduce it public borrowing as it has a significant inverse effect on the development of the country in the long run.

Keywords: Public debt; Per capital income; Human Development Index; Growth rate; Development

JEL Classification: H41

1. Introduction

In contemporary law, there is no exact meaning for the word "debt", but it could be regarded as that which someone legally owes another person or an onus backed by the law on one's part to make the payment of a particular sum of money. It is usually stated that countries borrow for two main categories of which are: macro-economic reasons, which literally states that a higher investment will lead to a higher consumption i.e., health and education or finance transitory balance or deficit in payment to lower nominal interest rates abroad lack of domestic long-term credit or to avoid hand budget constraint(Ajayi & Oke, 2012). This is to say that countries indulge in debt to develop the economy and alleviate poverty and they do not suffer from macro-economic instability policies which hinders economic incentive or sizeable adverse shocks. With this, we can say that growth is likely to increase and allow for timely debt payment. Macroeconomic polices has many important objectives but the most impactful one is that it allows for the attainment of sustainable economic growth and development of an economy most especially the Less Developed Countries (LDCs), a country lie Nigeria, of which these countries are characterized by low capital formation due to low levels of domestic investment and savings. It's no gain saying to state that no country can help itself, it needs aid to perform efficiently and effectively. Whenever these set of countries are faced with scarcity of capital, they would have to resort to borrowing from external or internal sources so as to supplement what we it is they have domestically. Hence, borrowing may be considered as the second-best alternative to formation of capital during periods of economy recession. When this becomes a regular thing for a period of time growth, it will affect per capital positively which is a requisite for poverty alleviation. The predictions are known to hold even on realistic assumptions that countries may have the capacity to borrow freely because of the risk of debt denial(Matthew & Mordecai, 2016).

Theories in economy suggest that levels at which developing countries borrow, should be reasonable and if it is, it is likely to enhance economic growth and when this happens, at least more than 5% growth rate, the economy's poverty situation is likely to be affected positively(Udoka & Ogege, 2012). To increase growth, countries at early developing stages, borrow to augment what they have as at that time because of dominance of small stocks of capital, hence, there is the chance that they have investment opportunities with rates of higher return than that of their counterparts in developed countries. This will happen as long as borrowed funds and some internally ploughed back funds are effectively and properly utilizedfor productive investment, and do not face a setback from macroeconomic instability, policies that hinder economic incentives, or sizable adverse shocks. Therefore, growth is likely to come in place and allow for timely debt repayments. When this cycle is maintained for a period of time, growth will affect per capita income positively of which this is necessary to alleviate poverty. These predictions are known to happen in theories based on the more realistic assumption that country may not be able to borrow when they need to do because of the risk of debt denial (Egbetunde, 2012).

One most important objective of macroeconomic policies in recent years has been the at tainment of sustainable economic growth and development of an economy most especially the Less Developed Countries (LDCs) (like Nigeria) which are characterized by low capital formation due to low levels of domestic savings and investment. No government is an island on its own; it would require aid so as to perform efficiently and effectively. It is expected that these LDCs, when facing a scarcity of capital would resort to borrowing from either internal or external sources so as to supplement domestic saving. Hence, borrowing may be considered as a second-best alternative to capital formation during periods of depression in an economy. When the circle is maintained for a period of time growth will affect per capital positively which is a prerequisite for poverty reduction. The predictions are known to hold even in theories base on the more realistic assumption that countries may not be able to borrow freely because of the risk of debt denial (Ashinye & Onwiodulait, 1996).

Although the implications of debts on growth is not properly analyzed by debt overhang models, the effect still remains that large debt pins down growth by partly reducing investment which will in turn have a negative effect on poverty. Also, the incentive effects connected with debt stocks tends to decrease the benefits from policy reforms which on a norm would have enhanced efficiency and growth in the economy, such as trade liberalization and fiscal adjustment. When this happens, the government will take measures with the motive that they won't incur current costs if there is the possibility that the future benefits in terms of higher output will accrue one way or the other to foreign lenders. Many are of the opinion that when government borrow, it crowds investment, which will in turn reduce future output and wages and when this occurs, the welfare of the citizens will be susceptible (Emmanuel, 2012).

For the past two decades, Nigeria has borrowed large amounts of money from external sources, often at high interest rate with the hope of putting them on a faster route to the development of the nation through higher investment, poverty reduction but on the contrast, all these programs were unable to be undertaken leading to excess debt of which was not the initial intention. It is at this stage that it is obvious that the debt on the country has gone beyond limit and it is striking if such limits is affecting the economy positively in their pursuit towards debt. Public debt is an amount of money owed by the government of a country to institutions, government bodies', government agencies resident in or outside the country owing the money. There have been controversies on what debt and internal debt actually means. The IMF defined it as a liability by a financial apparatus or other form of instruments owed to other parties. The World Bank defined gross external debt as the amount and outstanding contractual liabilities of residents of a particular country to non-residents to repay principal with or without interest, or to pay interest, with or without principal. Thus, the major aim of this paper is to evaluate the degree of public debt burden on Nigeria's development from 1999- 2020 and to assess its efficacy in developing the country (Soludo, 2003).

In Nigeria, increasing public debt has become worrisome and a source of concern. Debt profile has consistently been on the increase without significant positive impact on the citizenry. It is sad to note that the standard of living of the population do not reflect the national huge debt profile. It not a sin to incur public debts but misappropriation and misapplication of such loan by various administrations has vitiated the good purposes. The concept of public debt and how much it affects the development of any country has been a topic for ages. Public debt is useful to any nation, as it helps to bridge the financing gaps such country might be facing. Economic growth and development are usually resulting effects of well managed public debt. It is also essential that national government manages its own public debt portfolio properly to prevent economic instability. This study therefore evaluated the impacts of public debts on development in Nigeriacovering the period of 2003 to 2020. Specifically, the study ascertained the impact of public debt on Human Development Index (HDI); the influence of public debt on growth rate; and the link between of public debt and standard of living (per capita income -PCI)

2. Literature Review

2.1. Conceptual Framework

2.1. Public Debt and Human Development Index (HDI)

Improving human skills, creating avenues for people to make better choices that provides for a better condition of living is a strategy of human development (Edeme, Nkalu, & Ifelunini, 2017). The main aim for governments spending and allocation of funds to different sector is to make sure their citizens are provided the basic amenities to life and enjoy a standard living. Allocation of funds to human development avails a country the opportunity of possessing a healthy and competent labor force and contribute effectively to the development of the country. This is so because the quality of human quality determines how the economy of such nation is sustainable and its level of development. A report by United Nations Development Program (UNDP) in 1990 which happens to be the first human development report stated that the main goal of development is to provide a suitable and enabling ambiance for the people to enjoying a healthy and comfortable life. Human Development Index (HDI) is the report published by the UNDP and its is usually used to make comparison on nations' level of economic development. It is also a geometric instrument that takes concentration off the growth of the economy but more attention on the standard of living and educational wellbeing of the human beings. Human Development Index was initiated by Amartya Sen, an Indian Nobel award winner and Mahbub Ul Haq, an economist from Pakistan with the adequate support from Gustav Ranis of Yale University and Lord Meghnad Desai of the London School of economics, of which after few years, the United Nations Development Program took into consideration and accepted the idea in their Human Development Report Office as the basis and yardstick for measuring he e on performances of nations(Okeke & Idike, 2016).

Since the discovery of a new pattern of development which is connected to growth and enhances quality of life of the people, public debt of some sectors of the economy has assumed an increasing importance compared to previous times. This is more so in the failure of most developing countries inability to achieve the Millennium Development Goals (MDG's) which have been rolled to them among the sustainability development goals of which they are expected to achieve within a target of 2030 when Africa countries should be boasting of meeting these specific targets in health, poverty, and inequality reduction, water, education and sustainable environment, housing, as well as food security that are important for human development which according to many opinions have aggravated government inability to carry out expenditure on education, agriculture. Health, environmental protection, water resources, rural development, transport and communication sectors. In Nigeria, government at the state and federal level have been taking huge steps to making sure there is improvement in human development to such an extent that one should expect a positive correlation between progress in expenditure in these sectors. This hope, however, may be suspected because despite the growth in public expenditure on those sectors listed above, the pace of human development has rather been slow so its growth has been unstable and eccentric. For Instance, the HDI grew positively by O.3% in 1986 but had a declining growth to O.1% in 1988. In 2015 and 2012, it grew negatively by – 0.2% and – 2.7% respectively (Omodero, 2019).

2.2. Public Debt and Growth Rate

Public debt is always on the increase as many developing countries experience this following thefall in oil prices, variation on exchange rate etc. of which has led to negative effects in the economies of such nations. Also, taking into consideration the implication of the nation's economy on its growing debt should be well studied. The rate of country's indebtedness is a major problem that many growing nations face since the beginning of the 21st century. It is very important to note that the increasing levels of debt of a country is a very harmful factor to the growth of the country if not well utilized (Elom-Obed, Idenyi, Oge, & Charity, 2017). Public debt, therefore refers to the amount of money the federal, state and local government owes to internal and external authorities at that particular time. Public debt increases when the government is facing budget deficit. In other words, the amount of money the government owes at all levels is called public debt, it could be in form of services like payment of pension to her employee both within or externally, or any contract that the government had entered and could not pay. If a government is facing budget deficit and prior to then, it has gained the trust of the world, more like the more economically stable countries, and the economy facing the deficit has a very strong economy, such government can raise money through issuing bonds for other nations, then individuals, group of individuals can come to buy. This is accompanied with promises to pay back the money at a certain period of time at a fairly interest rate. But if a nation doesn't have the trust in the world to issue bonds for people to purchase, such nation is left with no other option than to borrow from either external or internal institutions which may come with favorable or unfavorable interest rate(Ogunmuyiwa, 2011).

There is no doubt that government get loans to fill the vacuum created by fiscal gaps in the proposed expenditure and the revenue set to be generated within a fiscal period (Ijirshar, Joseph, & Godoo, 2016). Compromising macroeconomic stability, like printing more money and limiting government taxation capability, might not be a step some country will love to take, if not, their only option is to borrow money to provide social overhead capital for the citizenry. The issue of external borrowing as a policy to promote the growth of the economy has created a great uproar among economist and policy makers. The main reason for the debate is whether or not borrowing from external sources leads to economic growth in debtor countries. This particular debate as two face in explaining the relationship between external debt and economic debt. On one hand, the Neoclassical and the Endogenous growth models argued in favor that there is a positive relationship between those two factors. They stressed the point that debt is one of the sources for financing the formation of capital, and if capital formation is financed through this means and it bongs about positive effect on investment, it could aid the growth of the economy. Domestic debt is defined as the debt a country owes internal institutions and obviously, it is in the same currency. Therefore, all debts owed internally such as federal government development stick, treasury bills, treasury certificates all regarded as domestic debt. Economic growth according to many economists refer to a situation where the total value of the final output that a nation can produce within a year valued at market prices by which it is adjusted for price changes plus the inputted value of the economy's produced goods and services do not pass market channel minus the net income from abroad. There are about three ways by which the growth rate of a country can be measured which include output or product method, income method, and expenditure method. The economy of a country can either be said to be growing upwardly or downwardly. An economy is said to be growing upwardly when there is an increase in the output of that particular economy of which is commonly called a boom. A downwardly growing economy occurs when the total output of goods and services produced in a particular year keeps falling when compared to its value the previous year. To compare a nation's economy to the economy of another nation, Gross National Output (GNP) is used as a tool for measuring. In this case, the monetary value of those countries involves will be stated in one particular currency to ensure uniformity in the measurement as guided by the purchasing power of the countries at that particular period (Adesola, 2009).

2.3. Public Debt and Standard of Living (Per Capita Income – PCI)

Accumulation of public debt is slowly becoming a major problem in recent times, fortunately for the emerging nations, it has ceased to be an issue, but it has extended to the industrialized nations such as Greece, Japan and even the United States who are now contending with debt crisis. Debt is referred to as the payout of funds by a rich entity or institution to a rather inferior country who do so for the development and economic consumption purposes, based on repayment terms agreed by both parties. Public debt refers to a nation's total debt record which includes both local and foreign debt. In Nigeria, borrowing from internal or domestic sources is a method to source for funds locally by giving room for the public to invest in government securities such as treasury bills, development stock, treasury certificates and bonds among others. These method of sourcing for funds locally helps to enhance economic growth on a nation since most of them are securities that can be placed for sale in the market which in turn boost the operation of the capital market of a country. It is commonly said that borrowing from external or foreign sources can be dangerous to the economy of that nation, however, the nation goes into such when domestic savings fail and it becomes important for them to finance budget deficit, investment opportunities and other forms of public services, leaving them with no other choice than to borrow from external sources. Public debt, which includes both foreign and domestic debts is a major source of financing the nation which the government relies on to pursue and attain its economic aims. This is very important when there is a need to fill a gap existing between investment and savings of the nation. When domestic saving is not sufficient to match with the investment need of a nation, a situation calls for the nation to borrow, which might be from either source. Economist have a tendency to believe in the short run, a rise in the public debt which is as a result of fiscal growth stimulating aggregate demand, which in turn enhances economic growth but its long run effect is still under scrutiny and deliberation on how it affects the nation's economy(Cordelia, 2020).

Asserting whether borrowing from sources is right or wrong depends on the purpose for which the fund will be used and the conditions the funds are subject to. In the early seventies, the undeveloped countries were encouraged by developed countries to take loan from abroad to finance their current account deficit thereby aiding their economic development. From 1980s, the international financial bodies have been providing financial help to debtor country to help reduce poverty and attain their set goals and objectives. However, some nations have been unable to do away from poverty, civil unrest, high external debt and low economic growth. In the second half of the 1990s, policy makers and opinions of economic analyst around the world have been on the increase on the subject that debt on the shoulders of developing counties is seriously limiting their growth. As a result of this debate, a lot of studies were made to understand the impact of foreign debt on growth and the performance of their economy. Going into debt mainly for the purpose of infrastructural development, such as erecting refineries, factories and power stations, such debt becomes reproductive. Some school of though advocate that the main aim for government going into debt includes: the need to address emergency cases like war, financing of recurrent and capital expenditure and generally for delivering services to the public. This is to say countries that have challenges with generation of revenue usually borrow in other to meet the recurrent and capital expenditure. The citizens' condition of living should be the major criterion in assessing growth of a nation. In a country like Nigeria, when all economic determinants are being considered, the living condition of the people is very vital to be addressed. Determining a nation's economic growth, the quality of living of the people in that country is mainly measured, focusing on education, health care services, and employment opportunity to ensure income earning. This study is of the motive of addressing the extent at which public borrowing affects the quality of life in Nigeria and this is represented by per capita in none which explains the income each Nigerian is assumed to earn in the period of time covered by this study (Mojekwu & Ogege, 2012).

2.4. Theoretical Framework

2.4.1. The Profligacy Theory

This theory makes effort to correct the shortcomings of growth – cum debt theory by taking into consideration the institutional environment under which a loan was contracted. The profligacy thesis, a constituent of the stability theory system, states that crisis in debt came all from weak policy system and feeble institutions that have wasted the state's resources through uncontrolled corruption in state's offices and damaged living standards and development of the nation. These policies made way for alteration in prices, thereby encouraging capital flights. In short, many issues are responsible for the disagreement between debt and economic growth in developing countries with low income. These factors include, waste of funds and resources due to policy shortages, hostile terms of trade, ineffective government, weak institutions in economies mostly dominated by public sector, laughable debt management obvious in continuous borrowing at unfavorable terms, careless lending and in financing policies which is mostly driven by the desire of lenders to encourage their own exports, and political motives such as social tension with subsequent devastating economic consequences(Udoka & Ogege, 2012).

2.5. The Dependency Theory

The Dependency theory sprung up from developing countries in the 1770s, this theory is based on the assumption that resources flow from poor and undeveloped nations to a wealthy state which in turn enriches the wealthy states at the expense of the poor nations. The theory clearly states that the poverty of the countries in the 'periphery' is not as a result of them not being fully integrated into the world system, as many free-market economists will argue, but the theory emphasizes that these set of nations are in situations like this because of how they are integrated into the system. To them, the state of undeveloped states and their constant dependence on developed countries in the world is as a result of their domestic mishaps. They believe that the issue can be explained by issues like, bad leadership, low state of technology, poor institutional organization, corruption, mismanagement of public funds, diffusion of capital to unnecessary project, lack of close integration. They see the reason for these countries remaining undeveloped and depending on other developed countries as internally inflicted and not externally inflicted. To the Dependency theory advocate, a solution to bring nations in situations like this is toseek foreign assistance in forms of aid, loan, investment etc. and allow a free-flowing operation from of the Multinational Corporations (MNCs). Due to the dependency nature of underdeveloped nations, they depend on developed nations for virtually everything ranging from technical assistance, aid, culture, technology etc. thereby making undeveloped nations vulnerable to the products of the Western Metropolitan countries and Breton Woods institutions. The theory spells out a detailed account on the factors responsible for incessant dependence on external forces for the development of their economy (Matthew & Mordecai, 2016).

2.6. The Keynesian Theory

The Keynes theory views fiscal theory as the best policy in developing the economy since it acts in the best interest of the general public. According to this theory, when the government decides to go into lending money, unused funds are withdrawn from the private pockets such that the level at which private individuals consume remain untouched. When these funds are injected back into the economy, it leads to an increase in the aggregate demand which in turn leads to an increase in employment and output. Hence, the borrowed funds can be used to help the economy performance of macroeconomics. Whereas, the indirect repercussion of public lending is its effect on investment. The slow effect of debts affecting growth is its reduction on the resource available on investment. Also, public debt can act as implicit tax on the resources generated during a period of time, thereby creating problem on future generations which might come in the form of reduced flow of income from a lower stock of private capital. This might later on lead to an increase in interest rate on the long run, shrinking private investment which might have led to productivity growth(Matthew & Mordecai, 2016).

2.7. Empirical Review

Panizza and Presbitero (2013) looked at several literatures on the connection between public debt and economic growth of developed countries. The findings in those literatures explained that the effect of public debt on advanced countries comes out on the negative side but these effects were very minute. However, the study made the suggestion that expansionary fiscal policies could affect economic growth positively in the long run. Dinca and Dinca (2013) evaluated relationship between public debt and GDP growth of five countries who were formerly communist bloc countries, namely: Romania, Hungary, Bulgaria, The Czech Republic, and Slovakia for a period covering 1996 to 2010. The study brought out results explaining that public debt affected economic growth negatively when it rose 44.42 percent above GDP. These findings were very significant in the countries taken into study as a result of the structural lapses and the complication of having access to financial markets during recession. Panizza and Presbitero (2014) in a separate study employed the use of variable approach to discover how economic growth is been affected by public debt on economic growth using as ample of OECD countries. The study clearly confirmed there was a relationship but the correlation between debt and economic growth is on a negative scale.

Kurihara (2015) expounded the encounters Japan faced in handling public debt profile and the effect of the debt on economic growth of the nation. The extent at which debt in Japan was accumulated was studied and the evaluation established the fact that public debt in the nation was having a negative effect on the economy of the nation. Thus, the study recommended the use of export to reduce the way the nation depended on debt. Lee and Ng (2015) studied the relationship between economic growth and public debt in Malaysia. The study began from 1991 to 2013 with the use of other economic forces such as debt burden, budget deficit, budget expenditure, government consumption and external debt service. The study revealed that public had a negative effect on GDP for a long period of time.

Ntshakala (2015) surveyed the effect of public debt on economic growth in Swazilandusing Ordinary Least Squares (OLS) method to evaluate the data which covered a periodfrom 1988to 2013. The result discovered that there was no form of correlation between external debt and economic growth in Swaziland. On the contrary, domestic debt had a significant positive nexus on economic growth. Thus, the study recommended a maintainable domestic and foreign sourcing of funds. Savvides (1992) while trying to measure the influence of debt overhang on the country's economic performance encountered data problem, using a Two Stage Limited Dependent Variable model (2SLDV) procedure by cross section time series data from 43 Less Developing Countries (LDCs). The study concludes that debt overhang and decreasing foreign capital flows causes a negative effect on investment

Accepting Savvides (1992) theory, Deshpande (1997) in his own attempt, tried to explain the debt overhang proposition by an experimental examination of the investment involvement of 13 severely indebted countries. The writer contends that the alteration procedures, which are applied by many indebted countries, are massively impacted on indebted nations, since the investment crisis has naturally implied a growth disaster for the highly indebted countries. Bauerfreund's (1989) findings also made it known that the obligation on Turkey to pay external debts reduced investment levels in 1985. He emphasized that the debt overhang was caused by both internal and external economic policies.

Cohen (1993) projected an investment calculation for a model of 81 developing countries over three subperiods using O.L.S method. He showed that the slowdown of investment in highly rescheduling developing countries can't be described by the level of debt of the nation. Warner (1992) attempted to measure the effect of debt crisis on investment with Least Square estimation for 13 less developed countries over the period 1982-1989. He acknowledged the fact that the decline of many investment in nations is mostly caused by declining export prices, high world interest rates and sluggish growth in developed countries in these indebted countries. Rockerbie (1994)usedO.L.S for each of the 13 countries over a sample period 1965-1990, confirming that the debt crisis of 1982 had effects on the economy of less developed countries which was in form of dramatic slowdown of domestic investment.

3. Research and Methods

A quantitative research design was adopted having been found to be appropriate for the qualitative research model that underpins this study. The secondary data were sourced from the *Debt Management Office(DMO-2020)* and *UNESCO Institute of Statistics*(2020). This covers 2003 to 2020. To analyze the data so collected, a regression analysis was used. Moreover, the panel regression is a veritable for repeating the observation of the same variable for several times or periods (Pesaran, Shin, & Smith, 2000). Public debts*(Pbt*) are local*(LDt)* and Foreign Debts *(FDt)* components proxy as national debts and as independent variable, while the dependent variables are Human Development Index (HDI), Per capital Income *(PCI)* and Growth rate*(Gtr)* were represented as developmental variables. Further, to attain the reliability of the result, robustness tests that include panel regression analysis were carried out while all the assumptions surrounding regression were taken into consideration.

Models Specification

The following regression models were developed. The board objective was formulated as follow;

Pbt= f (Hdi, Pci, Gtr)………………………………………1

Where:

Pbt = *Public Debt*

Hdi = *Human Development Index.*

Pci = *Annual Per Capital Income*

Gtr = *Annual Growth rate*

$Pbt = \beta 0 + \beta_1 Hdit + \beta_2 Pcit + \beta_3 Gtrit + et$……………….2(Local Debts)

$Pbt_{it} = \beta_0 + \beta_1 Hdi_{it} + \beta_2 Pcit + \beta_3 Gtr_{it} + et$……………………3(Foreign Debts)

4. Analysis and Result

4.1. Analysis of Assumptions

4.1.1. Test for Normality

One of the assumptions of linear regression is even distribution of the residuals. Jarque-Bera value for figure 1 & 2 implies residuals are normally distributed since their respective probabilities were greater than 0.05 level of significance

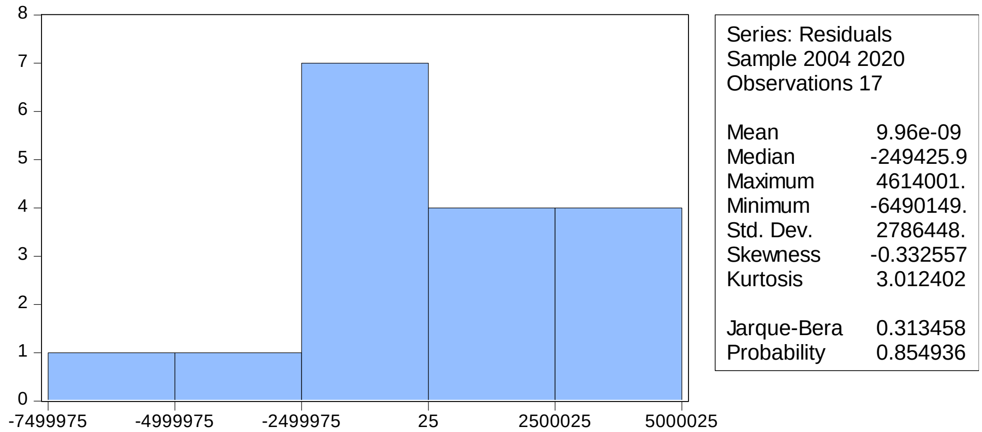

Figure 1. Normality Test

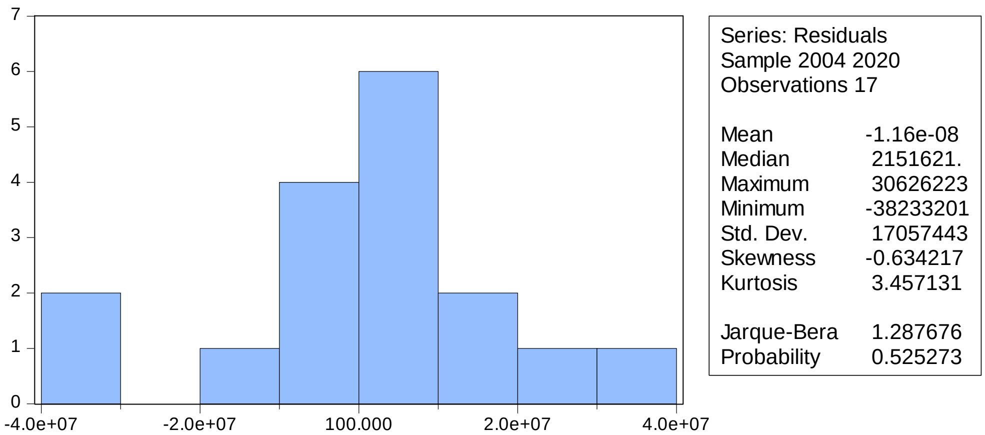

Figure 2. Normality Test

Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test was used to test the existence of autocorrelation among the error terms. It is evident in Breusch-Godfrey Serial Correlation LM Test tables that the models were free from autocorrelation problems since the p-values of Chi-square for the two models were higher than 5% significance level.

Table 1. Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.818748	Prob. F(2,11)	0.4661
Obs*R-squared	2.202765	Prob. Chi-Square(2)	0.3324

Table 2. Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.555577	Prob. F(2,11)	0.5890
Obs*R-squared	1.559688	Prob. Chi-Square(2)	0.4585

Test for Stationary

Unit Root Test

This is conducted using Dickey Fuller GLS (ERS) test on the data collected to determine whether there is existence of short run equilibrium relationship among the variable(s) in the model: The rule of thumb here is that, if the GLS value at level or first difference is greater than the critical values at 5% level. Then, we conclude that the variable(s) has a unit root. That is, there is existence of short run equilibrium relationship among the variables.

Unit Root Test at Level

Table 2 revealed that all the variables were not stationary at level since GLS test statistics value was less than the critical values at the 5% level of significance. Thus, the finding concluded that there existed no short run relationship between domestic debt, foreign debt, human development index, per capital income, and growth rate at level.

Table 3. Unit Root Test at Level

Variables	Test Statistic	5% Critical Value	REMARKS
DD	/1.524566/	/1.962813/	NS
FD	/1.689631/	/1.962813/	NS
HDI	/1.125050/	/1.966270/	NS
PCI	/1.656350/	/1.962813/	NS
GROWTH	/0.488553/	/1.966270/	NS

Unit Root Test at First Difference

Table 3 revealed that all the variables were stationary at level since GLS test statistics value was greater than the critical values at the 5% level of significance. Thus, the finding concluded that there existed short run relationship between domestic debt, foreign debt, human development index, per capital income, and growth rate at first difference.

Table 4. Unit Root Test at First Difference

Variables	Test Statistic	5% Critical Value	REMARKS
DD	/3.214288/	/1.964418/	S
FD	/4.009135/	/1.964418/	S
HDI	/2.709227/	/1.964418/	S
PCI	/2.744547/	/1.964418/	S
GROWTH	/4.491936/	/1.966270/	S

Cointegration Test

Again, the Jonanson and Juselius (1990) maximum likelihood estimation test was conducted. Specifically, the approach was employed to verify whether a stable longrunequilibra relationship exists between the decomposed dependent and independent variables. Result from Table 4 shows statistical long run relationship exists between the dependent variable and independent variables since both trace statistic and maximum Eigenvalue statistic were more than the critical values at 0.05 level of significance.

Table 4. Cointegration Test

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.987699	165.7522	69.81889	0.0000
At most 1 *	0.945776	95.38283	47.85613	0.0000
At most 2 *	0.769946	48.74876	29.79707	0.0001
At most 3 *	0.709288	25.23772	15.49471	0.0013
At most 4 *	0.289606	5.470972	3.841466	0.0193

Trace test indicates 5 cointegratingeqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.987699	70.36938	33.87687	0.0000
At most 1 *	0.945776	46.63406	27.58434	0.0001
At most 2 *	0.769946	23.51104	21.13162	0.0227
At most 3 *	0.709288	19.76675	14.26460	0.0061
At most 4 *	0.289606	5.470972	3.841466	0.0193

Regression Analysis of Domestic Debt and Human Development Index (HDI), Per capital Income (PCI), and Growth Rate (Growth)

The coefficient value of -17163931 in tables 3.4 implies increase change in domestic debt when lagged once would result to a decrease change in human development index. The coefficient value of 35897.70 and 6.40 means positive relationship exists between domestic debt when lagged once and per capital income and growth rate respectively. Similarly, t-statistics of 0.038121 with -0.9702 p-values implies negative and insignificant relationship exists between domestic debt when lagged once and human development index. Also, t-statistics of 2.627217 with 0.0209 p-values shown in table 1 is an indication that positive and significant relationship exists between domestic debt when lagged once and per capital income. Still in the same vein, t-statistics of 2.146014 with p-value of 0.0513 implies positive and significant relationship exists between domestic debt when lagged once and growth rate.

The adjusted R-square of 0.616534 shows that change in domestic debts are 62% captured by the model while 38% of changes in the dependent variables are other factors affecting domestic debt outside the model. This shows the goodness fit of the model. The f-statistics of 9.574900 with Prob(F-statistic) of 0.001325 shows that all the explanatory variables jointly have impact on domestic debt. Also, the Durbin-Watson stat of 1.452894 approximately 1.5 is an indication that the model is free from autocorrelation problem.

Table 5. Regression Analysis of Domestic Debt and The explanatory Variables

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-67398831	2.18E+08	-0.309117	0.7621
HDI	-17163931	4.50E+08	-0.038121	0.9702
PCI	35897.70	13663.78	2.627217	0.0209
GROWTH	6.40E+08	2.98E+08	2.146014	0.0513

R-squared	0.688434	Mean dependent var	32815254
Adjusted R-squared	0.616534	S.D. dependent var	30558981
S.E. of regression	18923534	Akaike info criterion	36.55204
Sum squared resid	4.66E+15	Schwarz criterion	36.74809
Log likelihood	-306.6923	Hannan-Quinn criter.	36.57152
F-statistic	9.574900	Durbin-Watson stat	1.452894
Prob(F-statistic)	0.001325		

Regression Analysis of foreign Debt and, Human Development Index (HDI), Per capital Income (PCI), and Growth Rate (Growth)

The coefficient value of -1.53 shown in table 5 implies increase change in foreign debt would result to a decrease change in human development index when lagged once. The coefficient value of -32976525 means negative relationship exists between foreign debt and per capital income when lagged once. Also, the coefficient value of 5841.074 implies positive relationship exists between foreign debts per capital income. Similarly, t-statistics of -2.297997 with 0.0388 p-value implies negative and significant relationship exists between foreign debt and human development index when lagged once. Also, t-statistics of 2.557340 with 0.0239 p-values shown in table 1 is an indication that positive and significant relationship exists between foreign debt and per capital income. Also, t-statistics of -0.658730 with p-value of 0.5216 implies negative and insignificant relationship exists between foreign debt and growth rate when lagged once.

The adjusted R-square of 0.368301 shows that change in domestic debts are 37% captured by the model while 63% of changes in the dependent variable are other factors affecting foreign debt outside the model. The f-statistics of 4.109504 with Prob.(F-statistic) of0.029617 shows that all the explanatory variables jointly have significant impact on foreign debt. Also, the Durbin-Watson stat of 1.470596 approximately 1.5 is an indication that the model is free from autocorrelation problem.

Table 6. Regression Analysis of Foreign Debt and The explanatory Variables

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	69781474	31886098	2.188461	0.0475
HDI(-1)	-1.53E+08	66744381	-2.297997	0.0388
PCI	5841.074	2284.043	2.557340	0.0239
GROWTH(-1)	-32976525	50060772	-0.658730	0.5216

R-squared	0.486744	Mean dependent var	3773734.
Adjusted R-squared	0.368301	S.D. dependent var	3889413.
S.E. of regression	3091286.	Akaike info criterion	32.92840
Sum squared resid	1.24E+14	Schwarz criterion	33.12445
Log likelihood	-275.8914	Hannan-Quinn criter.	32.94788
F-statistic	4.109504	Durbin-Watson stat	1.470596
Prob(F-statistic)	0.029617		

Stability Test

Recursive coefficient measures the stability of data. The graph in figure 3 and 4 shows the stability analysis during the year 2008-2020. Figure 3 shows slight change in stability of data during the interval 2008-2014, while significant change occurred in the year 2015-2016, after 2017 the data looks more stable than before. Whereas, figure 4 shows slight change in the stability of data during the interval of 2008-2013, while significant change occurred in the year 2013-2020.

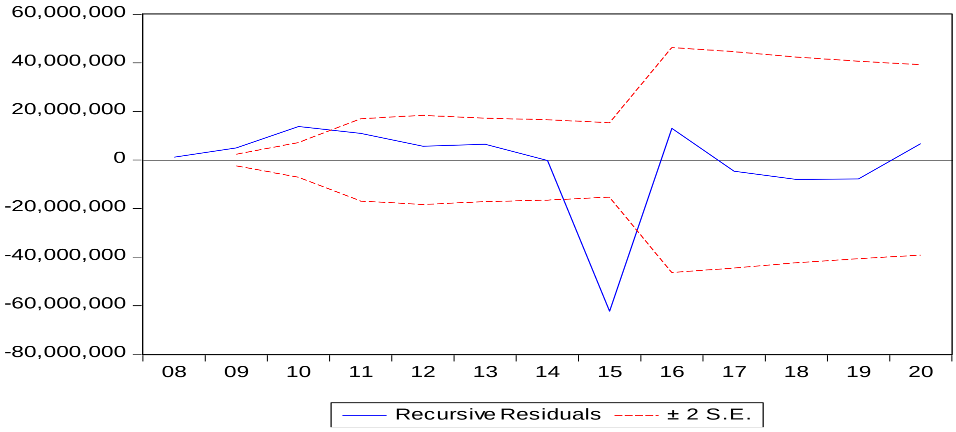

Figure 3.

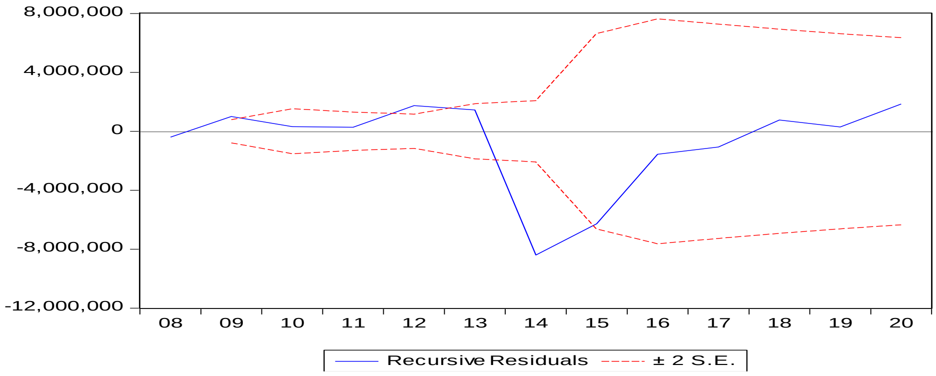

Figure 4.

5. Findings Discussion Summary and Recommendations

5.1. Findings and Discussion

The study established a relationship between public debts and development in Nigeria, depending on the variable of interest.

Public debt have a consistent influence on the development of Nigeria, as there is no disparity between its influence on the independent variables. Thus, the finding concluded that there existed short run relationship between domestic debt, foreign debt, human development index, per capital income, and growth rate, because based on the findings foreign debt exert positive influence of t-statistics of 2.557340 with 0.0239 p-values on per capital income .Also foreign debt exert negative and significant relationship of t-statistics -2.297997 with 0.0388 p-value on human development index in the short run and the long run respectively. This is an indication of public debt in Nigeria due to the inconsequential of effect on development of Nigeria. This is also the same with foreign debt of t-statistics of -0.658730 with p-value of 0.5216 as it exerts negative and insignificant effect on growth rate both in the short and long run equations.

Public debt is negatively and significantly related to development, which implies that Nigeria’s economy tends to improve as government ability to service public debt increases. The rate of Nigerian government borrowing over the years have negatively contributed to the development of the nation as the study found out that in the long run, the development of Nigeria has been negatively and significantly influenced by public debt.

6. Recommendations

In respect of the findings,

- The study recommends that government should ensure efficiency and effectiveness in the public debt management due to the insignificant influence of public foreign debt on development both in the long run and short run which is a pure indication of poor public debt management in country, contrary to the developed countries where their foreign debt causes development. This is as a result of lack of efficiency of the revenue collection agencies of the government,

- Therefore, the Nigerian government should reposition its revenue base to cover more sources of revenue as evident in the developed economies

- Also ensure that the agencies responsible for revenue collection are highly efficient by using a carrot and stick approach in which promotion and entitlement of individuals in such agencies correlates with their level of efficiency.

- The tiers of governments in Nigeria should reduce it public debt as it has a significant inverse effect on the development of the country. That is increase in public debt hinders the development in Nigeria. In other words, economic growth tends to reduce as government becomes more indebted to local and foreign debt. Government should engage in the servicing of its debt as it has a positive and significant influence on the development in Nigeria, which implies that an increase in actual public debt service would lead to development in Nigeria.

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