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Domestic Debt and Infrastructure Financing in Nigeria: A Multi-Variant Analysis of Transportation Expenditure

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Abstract
This study investigated the relationship between domestic debt and infrastructural financing of public transportation expenditure in Nigeria from 1986 to 2023.Time series data were sourced from Central Bank of Nigeria Statistical Bulletin, Nigeria Bureau of Statistics and Debt Management Office. Public transportation expenditure was used as dependent variables while Treasury Bonds, Treasury Bills and FGN Bonds are the independent variables. The study employed Unit Root, Co-integration, Error Correction Model and Granger Causality techniques in analysing secondary data. The unit root test revealed that Domestic Debt and transportation expenditure were integrated as order 1 or I (1), meaning it is non-stationary at original level. The estimated model found that 63 per cent variation in public expenditure on transport was detected from the domestic debt variables; the model is statistically significant by the value of f-probability. The results further found that federal government Treasury bond have positive effect while treasury bills and federal government bonds have positive effect on public expenditure on transport. From the findings, we conclude that domestic debt affects the growth of public expenditure on transportation. We recommend improve fiscal discipline and efficiency in public spending to ensure that funds allocated for infrastructure projects are used effectively. Implement robust project appraisal, monitoring, and evaluation mechanisms to reduce wastage and corruption in public spending. Given the bidirectional causality between transportation Expenditure and FGN Bonds, prioritize healthcare financing to meet the growing healthcare needs of the population. Explore ways to enhance healthcare infrastructure and service delivery without overreliance on debt financing.
Keywords: *Domestic Debt, Infrastructure Financing, Multi-Variant Analysis Transportation Expenditure*

INTRODUCTION

Public debt is a very essential factor in the economic growth and development of any nation. It is argued that debt dates back to some 5000 years of human existence. The first known records of debt is said to be from Sumer in 3000 BC. Graeber (2011) opined in his book “debt: the first 5000 years” that contrary to standard accounts of the history of money, debt is likely the oldest means of trade, with cash and barter transactions being later developments. Public debt refers to the total amount of money a government owes to meet its development budget. Public debt is used to fund

public spending especially when government revenue falls short of its expenditure. Public debt can either be domestic or external debt.

Domestic debts are those debts incurred within the country while external debts are those debts incurred outside the country. In recent time, government borrowing has being on the increase largely due to huge infrastructural deficit and the need to close the gap. Globally, infrastructure financing has raised major concerns for national governments, public policy analyst, creditors to mention a few, with significant research work. World Economic Forum (2013) recognises infrastructure deficit as one of the major supply chain challenges to trade that hampers world GDP. Reasonable and responsible borrowings to finance public infrastructure development are the key to faster development and economic growth. Nwankwo (2014) expressed that the free market economy that drives the world is debt based economy. He further posited that in the past, wars and other extraordinary events were financed through debt but most recently, Public Debts have been used for more peaceful ends, such as real investments, health care, education, public works, public transport system, communication systems and the establishment of a social security system that in turn can accelerate economic growth and development.

Government financial and economic reforms of 1950's saw the emergence of government borrowing, Adofu and Abula (2010). Following these reforms, the Central Bank of Nigeria (CBN) was established to oversee the creation of saleable public securities to finance fiscal deficit. Nzotta (2004), opined that specifically in Nigeria, the sources of domestic public debt are the Central Bank of Nigeria (CBN), commercial banks, merchant banks and the non-bank public. Charles (2012), expressed that the instruments of domestic debt are designated in local currency and they include Treasury Bills, Treasury Certificates, Federal Government of Nigeria Bonds, Promissory notes. To fund the increase in government expenditures is described to be the reason for the fast rise of Nigeria's domestic debt, Adofu *et al.* (2010).

The treasury bills of ₦8 million and the treasury certificates valued at ₦20million were issued in 1960 and 1968 respectively. Since then, the volume of government domestic debt has risen from N784.81billion in 1999 to ₦2, 320.31 billion in 2008. This figure had a quantum leap to ₦14,272.6 trillion in 2019. Alison (2003) in Adofu *et al.* (2010) found three reasons for government domestic debt. Firstly, is for spending plan shortfall financing, secondly, is for executing money related arrangement (purchasing and offering of treasury bills in the open business sector operation) and the third is to enhance the monetary instrument in order to grow the financial markets. Ajayi (1984) expressed that Nigeria's debt is based partly on the fall in the oil price that occurred in 1981, domestic errors and the continuous crumbling of the international oil market. The drop in crude oil price caused government revenue to fall, hence, government had to borrow to maintain her expenditure.

Odozi (1996) and Rapu (2003) posited that the major factors that have changed Nigeria's debt profile from the 1980s are high budget deficits, increased spending, huge rise of inflation rate, low output growth and reduction in earnings. Alison (2003) stated output growth reduced as the annual average values recorded in 1980-1984, 1990-1994 and 1998-1999 periods were 5.9%, 4%

and 2.8% respectively, however, growth was recorded in 2003. It is assessed that as the yield of nations expands, it is normal that they additionally have the propensity to depend all the more incredibly on domestic debt issuance to finance growth. Public expenditure as a percentage of GDP increased from 13% in the 1980-1989 periods to 29.7% in the 1990-1994 periods. This enhanced public expenditures to GDP proportion resulted by monetary strategy improvement set out during the oil boom of the 1970s.

Unfortunately, as the oil price dropped in the 1980s, needs of government expenditure did not drop, but rather continued to increase. The continued rise in Nigeria's debt profile could deter the nation's economy from attaining its desired growth and development. Sanusi (2003), expressed that the debt stock of the nation might grow to the extent where it becomes a burden and the government would find it difficult to service the loan, thereby adversely influence the economic policies. He further opined that a heavy debt burden is likely to taunt government's ability to embark on more developmental programmes in infrastructure, education and public health. Okonjo-Iwela (2011) expressed that domestic debt profile of Nigeria has been on the rise and could cause some negative situations like crowding out private sector investment, reduction in total output growth if not checked. Pattillo, Poirson and Ricci (2002) economic theory submits that reasonable levels of federal government debts are likely to facilitate the growth of the economy. Federal government normally purchases debt instruments for a specified period of time to finance both its capital expenditure and recurrent expenditure. In all, it is not wrong for a country to borrow, as long as the funds are properly invested to create returns on investment that will service and ultimately liquidate the debt. This study examined the structure of domestic debt and finance of public infrastructure in Nigeria.

LITERATURE REVIEW

Domestic Debt

This is also known as internal debt. It is the part of the aggregate government debt stock in a country that is owed to lenders within the country. The main sources of domestic debts are commercial banks and other financial institutions. It is a form of fiat creation of money, in which the government obtains finance not by creating it *de novo*, but by borrowing it (Reinhart, and Rogoff, 2011). The money created is in the form of treasury securities or securities borrowed from the central bank. The debt instruments are issued under the authority of debt management office (DMO).

Elements of Debt

The different components of liabilities and different responsibilities acquired by public bodies or by companies supported by such bodies may be considered as lying on a range that reaches out from direct borrowing through a scope of other financial commitments from exchange creditor liabilities to different contingencies and commitments (Nwinee and Tobira, 2012a). These responsibilities might be recorded as liabilities in financial articulations. Be that as it may, they

requests on the nation's financial assets. These responsibilities as posited by Nwinee and Tobira (2012a) may incorporate the following:

a. Securities: These are comprised of conventional borrowings from creditors, including those inside of government, under formal understandings which typically indicate the sum borrowed, the interest rate charged or markdown needed, the security to be given if any, and the period over which reimbursement is to be made. Securities incorporate those executed for the short, medium and long term.
b. Bank loans.
c. Proceeds of public funds savings plans; they incorporate sums on deposit in savings banks worked by a government and other comparable projects.
d. Accounts that are payable for products.
e. Liabilities under long term leases that broaden past one year and that may be for either capital or working purposes.
f. Pension liabilities and medicinal services advantages for public employees.
g. Other advantages gave by public sector elements, similar to social duties that include unequivocal or certain commitments by a government to pay future claims under an assortment of programmes. While they may be hard to evaluate, they are quite often huge and ought to in this way be considered, maybe on a best estimates premise, in any appraisal of public sector obligation.
h. Guarantees to outsiders, and including, where fitting, guarantees of acquiring,' both by other public segment bodies and by private or semi-public bodies, together with certifications for a mixed bag of different purposes, for example, financing for exports and exchange rates.
i. Comfort letters or different types of lawfully non-tying assurances.
j. Insurance and reinsurance programmes.
k. Other -duties and commitments emerging from existing contracts, understandings or legislative establishments or regulations that could get to be genuine endless supply of determined conditions.

Nevertheless, public debt is seen to be a vital avenue by which government generate income. But if revenue generated from taxes and from some other avenues is insufficient for the expenditure of government, it may decide to borrow. These borrowings are important in a period of recession or emergencies like droughts, earthquake or war, etc. Public debt may be raised internally (domestic debt) or externally. Domestic debt or internal debt refers to public debt' floated within the country; while external debt (foreign debt) refers to debts floated outside the country. The mechanisms of public debt are bonds or securities issued by the governments. These securities are in form of contract between the lenders and the government. When the government issues the securities, it raises a public loan and acquires a liability to reimburse the principal and as well as the interest of each contract. Treasury bills, treasury certificates, and the Federal Government Development Loan stock are issued all Nigeria as instruments of public borrowings. Taking all things together, total public debt is a measure of government obligation. It incorporates all government and government ensured obligations named in the local currency. It is an important means of bridging government

financing gaps. Though, too much dependence on public debt and unsuitable public debt administration elevate macroeconomic risks, hamper economic growth, and deter economic development (Nwinee and Tobira, 2012a).

Treasury Bonds

It is generally expected that developing countries facing a scarcity of capital will acquire domestic debt to supplement domestic savings (Safdari and Mehrizi, 2011). Ajayi and Oke (2012) opined that the rate at which developing countries borrow, that is, the "sustainable" level of domestic borrowing depends on the links between saving and investment. While Audu and Abula (2001) suggested that the main lesson of the standard “growth with debt" literature is that a country should borrow from home and abroad as long as the capital acquired produces a rate of return that is higher than the cost of the borrowings. In this light, the borrowing country is expected to increase capacity and expand output with the aid of domestic debt.

In Nigeria, treasury certificates, which were first issued in 1968, constituted one of the largest securities between 1983 and 1988. It even surpassed treasury bills issued to further deepen the domestic financial market by increasing short–term investment options available. In 1989, the monetary authorities initiated the action bid system for the flotation of treasury bonds as another instrument in the portfolio of domestic debt. The objective was to minimize the service obligation on domestic debt arising from the liberalization policies. Thus in 1989, N20 million worth of treasury bills representing 58.6% of treasury bills outstanding were converted to treasury bonds, hence the abolishing of treasury certificates in 1996 and the institutionalization of treasury bonds (Audu and Abula, 2001)

Ude and Ekesiobi (2014) study observes that the domestic debt has grown astronomically from N407 billion in 1994 to N3228 billion in 2009 and the main instruments of the domestic debt are the treasury bills and bonds and federal government bonds and stocks. The debt instrument issued is highly short-term in nature as treasury bills and bonds controlled over 70 per cent of the issues until 2005 when the issue of long-term bonds became significant. The investor base of the Nigerian debt market is well diversified as both banks and non-bank public are active in the market, especially since 2002 but the domestic debt holding of the government is far above a healthy threshold of 35 per cent of bank deposits as the average over the period of study is 114.98 per cent of bank deposit and there is evidence of crowding out of private investments (Ude and Ekesiobi, 2014).

Porter and Richtymer (2022) explained the facts of treasury bonds in the report titled “Treasury bonds are securities that offer stability for your investment portfolio.” They assert that a treasury bond is a government-backed debt security that's issued by the US Treasury. Several types of securities including bills, notes, bonds, and more fall into this category. Depending on the type of bond you buy, maturities range from four weeks to 30 years, and interest might be paid regularly or at maturity. Treasury bonds are all fairly secure, but they don't yield high results. The key is to

find a Treasury bond that keeps your money safe while simultaneously keeping you current with inflation.

Before buying a Treasury bond, it's important to understand the different types, how they work, and some of their pros and cons. When you buy a Treasury bond, you're essentially lending money to the government, which promises to repay you at a certain date (Porter and Richtymer, 2022). The wide range of maturities available allows you to choose the type of security that aligns with your investing goals. Once you purchase a Treasury bond, you'll need to hold it for at least 45 days but can redeem it any time after that. Of course, investors receive the maximum return by waiting until the maturity date. Investors earn interest while they hold the security, either periodically (such as every six months) or upon redemption.

The interest you earn on a Treasury bond is subject to federal income taxes. Increases in principal value may be taxed, too. But you won't pay state or local income taxes. Some investors stash their emergency funds in Treasury securities because they're safe and liquid. However, you may pay a penalty if you redeem before maturity (Porter and Richtymer, 2022). Therefore, this study adopts treasury bonds as a measure of domestic debts.

Treasury Bills

A central bank is to stabilize prices through monetary policy. Therefore, a central bank issues either treasury bills for the government to finance public expenditures. Thus, Treasury bills are issued by governments through their central banks to resolve temporarily insufficient budget. Yet, treasury bills are also employed as one of open market operations (OMO) forms for monetary policy. Hence, by issuing treasury bills, central banks can raise short-term fund for governments and absorb surplus liquidity from financial markets simultaneously. For that reason, it becomes prerequisite for treasury bills to be issued with clear or well-defined objectives to forestall confusion for financial market participants as issuance of treasury bills for the purpose of raising fund for governments may lead to unintended liquidity drain. In this case, an essential function of central banks, that is, price stabilization for monetary policy may be destroyed.

Thus, adequate planning must go into the process of issuing treasury bills. Therefore, Central banks generally perform the issuance of treasury for monetary policy in three types. Firstly, central banks issue treasury bills classified by objective: bills for government funds and bills for monetary policy. Bills for government funds have relatively short-term maturity, e.g. one month or less. For instance, the United States issues two-week bills, named ‘cash management bills’. Brazil also distinguishes cash management bills with short-term maturity from conventional treasury bills. New Zealand issues treasury bills with non-standard maturities matched to the days when cash is expected to flow in. whereas in Nigeria treasury bills could last between 1-4 weeks. Secondly, central banks issue central bank bills instead of treasury bills for monetary policy to properly function. Most central banks that issue central bank bills directly lend fund to the government when it suffers budget deficit. That is, central banks use central bank bills as monetary policy instrument while they finance funds for government on a temporary basis.

Monetary stabilization bond (MSB) issued by the Bank of Korea is an example of central bank bills. Thirdly, central banks issue not only treasury bills but central bank bills. Central banks enforce monetary policy involuntarily and automatically by using treasury bills, and do it intentionally and deliberately by using central bank bills as well. In case of the two treasury- and central bank bills issuance, it is more likely to bring on several problems including market segmentation. The problems on the two different government bills and central bank bills are explained later in more details (Yi, 2014).

Also, debates on which bills are more effective for monetary policy have long been continuous in academia and practice. However, it comes to conclusion that the use of treasury bills needs to take priority over the use of central bank bills because the issuance of own bills is more likely to harm the independency of central bank in the performance of monetary policy. Namely, potential deterioration of central bank profit caused by issuing own bills results in financial support from government. Others reasons for using treasury bills prior to central bank bills are that it provides comprehensive sight with respect to public finance sector, contributes to development of short-term bond market, and creates brand new financial instruments based on treasury bills. Cho (2011) also explains the advantage in use of treasury bills that they can make daily liquidity management more easily, reduce volatility of short-term interest rate affecting the entire financial market, and apply money market instruments to be fine-tuning for liquidity. Therefore, advanced countries enforce monetary policy through treasury bills, which play a major role in monetary market. However, in Nigeria treasury bills are most issued by the Central bank with few cases when Central Bank Bills are introduced, and this may be due to the vast bonds collections of the Federal Government of Nigeria, hence, suppressing the need for central bank bills. Thus, this study selects Treasury Bills as a measure of domestic debt.

FGN Bonds

These are debt securities of the federal government of Nigeria issued via the debt management office (DMO) on behalf of the federal government at an agreed interest rate and repayment period. The federal government is obligated to pay the bond holder the principal and interest on the agreed terms. When you buy FGN Bonds, you are lending to the FGN for a specified period of time. The FGN Bonds are considered as the safest of all investments in domestic debt market because it is backed by the 'full faith and credit' of the Federal Government, and as such it is classified as a risk free debt instrument. They have no default risk, meaning that it is absolutely certain your interest and principal will be paid as and when due. The interest income earned from the securities are tax exempt (DMO, 2023).

According to DMO (2023) special purpose FGN bonds are bonds issued to meet specific needs of the federal government, such as special purpose bonds issued to selected banks for settlement of N75 billion pension arrears in 2006, five deposit money banks participated in the private placement arrangement. In addition, in 2006 FGN floated bonds for the payment of debt owed to local contractors worth N91.7 billion. Recently, FGN indicated interest to raise funds through bonds for funding specific projects such as Methanol plant, revival of textile industry, terminal

wages of workers, building of infrastructural facilities, etc. Others include Bonds issued for the funding of Abuja Express ways (Airport Road & Kubwa) and to settle Local Contractors Debts.

Features of FGN Bonds

The Federal Government of Nigeria (FGN) issues Bonds for the following reasons:

i. To finance government fiscal deficits in a non-inflationary and sustainable manner.
ii. To enhance fiscal discipline of the Government.
iii. To refinance maturing debt obligations of the Federal Government.
iv. To establish benchmark yield curve, this serves as reference for pricing bonds issued by other bodies, especially the private sector issuers.
v. To develop and ensure liquidity in the domestic bond market on a sustainable basis.
vi. To enhance and deepen the savings and investment opportunities of the populace.
vii. To sustain the development of other segments of the Bond market.
viii. To diversify government financing sources.

Other features of the FGN Bonds are:

i. **Denomination:** minimum subscription of N50, 001,000.00 + multiple of N1, 000.00 thereafter.
ii. Yield: - Interest payment
   a. Fixed interest rates: Most FGN bonds have fixed interest rates which are paid semi-annually.
   b. Floating interest rates: Some FGN bonds (e.g. 3rd & 4th tranches of the 1st FGN bonds) have floating rates of interest which fluctuates around a reference rate (NTB rates) on the basis of specified parameters.
   c. There are also zero-coupon bonds (not yet in issue in Nigeria) whereby both interest and principal are repaid at the final maturity date of the bond.
iii. **Tenor:** Minimum of two (2) years. There are bonds with maturities of 3. 5, 7 and 10 years, in issue and for the future we may have bonds with maturities of 15, 20, and 30 years or more.
iv. **Default Risk:** FGN bonds as a sovereign debt are the safest investment instrument. Default risk is nil. The Government always pays what is due to subscribers on the agreed date.

Public Transportation Sector Expenditure

The public transportation sector is a category of government works that provide services to move people or goods, as well as transportation infrastructure. Technically, transportation is a sub-group of the industrial sector according to Hayes and Scott (2021). The transportation sector consists of several industries including air freight and logistics, airlines, marine, road and rail, and transportation infrastructure. These industries are further broken down into the sub-industries air freight and logistics, airlines, marine, railroads, trucking, airport services, highways and rail tracks, and marine ports and services (Ota and Benjamin, 2021). According to Ologunagbe (2022), the Federal Ministry of Transport is to spend N70.45 billion on capital projects, N18.01 billion on recurring (non-debt) expenses, and N30.07 billion on projects financed by multilateral and bilateral

loans, according to a breakdown of the 2023 Appropriation Bill. According to the budget details, out of the N20.45 billion allocated to the Nigerian Railway Corporation budget, the federal government has proposed spending a total of N4.3 billion on the purchase of trains as part of its efforts to expand railway access across the country (Ologunagbe, 2022).

The breakdown of the sector's figure also indicates that the Ministry of Transportation headquarters got the sum of N93.66 billion, the National Inland Waterways Authority, NIWA, was allocated 5.397 billion, and, the Nigerian Institute of Transport was also allocated N4.69billion. Others are Maritime Academy, Oron, which got N1.55 billion; Council for the Regulation Freight Forwarding in Nigeria had over N775 million (Ologunagbe, 2022). The budget breakdown further shows that N85.23 billion was set aside for the development/provision of railroads, N1.14 billion for the development/provision of roads, and N15 million for the development/provision of waterways. The ministry is also to spend part of its allocation on the Anti-Corruption and Transparency Unit's (ACTU) work to establish transparency, compliance, and ethics within the ministry and its agencies, achieve zero tolerance for corruption in the workplace, create a code of conduct, and monitor projects for which it is proposing N30 million. The federal government proposed to spend N30.76 billion on the completion of the Abuja-Kaduna road, the completion of the Lagos-Ibadan rail line and related additional construction projects, the rehabilitation of the Itakpe-Ajaokuta rail line, the construction of 12 NOS station buildings, and the laying of tracks at the Agbor railway ancillary facilities area, among other projects. N18 million was provided for the construction of identification and the installation of 30-kilometre speed limits on road signage in high-risk zones (quarterly), while N10 billion was appropriated for railroad modernization (Ologunagbe, 2022).

In a related study by Yusufu *et al.* (2018), the study examined the impact of government expenditure on the transportation sector and economic growth in Nigeria. Time series data for real gross domestic product (RGDP), capital expenditure (CEX), government expenditure on transport (GEXT) and interest rate (INTR) from 1980 to 2016 are used. Unit root test result indicated that all the variables are none stationary at level but become stationary at first difference necessitating the use of ECM to determine the short and the long run relationship of the variables. The result of the analysis reveals that there is a long-run relationship among the variables. It is therefore recommended that government should ensure that capital expenditure and recurrent expenditure are properly managed in a manner that will raise the nation's production capacity and accelerate economic growth.

Learner's Theory

The theory states that when the government obtains debt from its own particular resident, then, domestic or internal obligation is employed to fund government expenditures, no burden is kept for the future generation (Illeris, 2004). Perhaps, the individuals from the future generation just owe it to one another. In other words, when the debt is paid off, there is an exchange of income

from one group of citizens (the lenders) to another (the borrowers). This leaves the future generation in no worse off situation since the utilisation level is the same as it would have been. Conversely, when a nation borrows from the external economy to finance its expenditures which is referred to as foreign debt, the future generation bears a burden due to capital flight as a result of interest payable for the sum borrowed. In the same vein, if the loan is used to mobilise capital for public expenditures, the effect depends on the project profitability. The view that domestic debt does not put burden on future generations was prominent in the economics profession in the 1940s and 1950s. There are now, some views that accumulated domestic debt places burden on the future generations.

The Neoclassical Model of Deficit Finance in a Closed Economy

This model of debt financing in a closed economy holds that when the government initiates a project, whether financed by taxes or debts, resources are removed from the private sector. It is assumed that when tax finance is used, most of the resources removed come at the expense of consumption (Barro, 1989). Conversely, when the government borrows, it contends for funds with individuals and firms who want the money for their own investment projects. Therefore, it generally assumed that debt has most of its effect on private investment. To the extent that these assumptions are correct, debt finance leaves the future generation with a smaller capital stock. Its members therefore, are less productive and have smaller real incomes than otherwise would have been the case. Thus, even in Learner's model, the debt can have a burden. The mechanism through which it works is the reduction of capital formation.

Empirical Review

Nworji and Oluwalalye (2012) in their work, *'Government Spending on Road Infrastructure and the Effects on the Growth of Nigerian Economy'* explored the effect of government spending on road infrastructure enhancement on economic increase in the economy of Nigeria ranging from 1980-2009 periods. The study utilized multiple regression model determined on the premise of hypothesized practical relationship between government spending on infrastructure improvement and growth of the economy. The pointers used for government spending are qualities for protection, transport/communication, and rate of inflation as the independent variables, while GDP constituted the dependent variable. The model for the study was assessed utilizing the Unit Root Test method, and further assessment was done utilizing the coefficient of determination to clarify the difference between the independent and dependent variables. The results demonstrated that transportation and communication, including defence, exclusively applied significant 'effect on the economic growth; on the other hand, inflation proved to be positive in the periods under study. Nonetheless, the variables mutually showed significant effect on economic growth. Moreover, the model showed a high explanatory power. In view of the findings the study prescribed that better co-ordination in the terms of private inclusiveness in funding and repair of road infrastructure framework could enhance economy growth.

Also, Jacqueline and Astrid (2008) in a study on *"Local Sources of Financing for Infrastructure in Africa: A Cross-Country Analysis*" posits that aside from in South Africa; domestic financial markets in Sub-Saharan Africa are still at the maturing stage and little. Funding with maturing terms proportionate with the medium-to long term prospects of infrastructure projects is especially rare. Be that as it may, as financial market related business sector gather momentum in the region, there is developing attention to the chance of tapping domestic and regional sources of funding. Taking it from an extensive new database, we evaluate the genuine and potential part of domestic financial system frameworks in funding infrastructure for 24 nations of Sub-Saharan Africa. Exhaustive stocks of domestic sources of infrastructure funding in the 24 nations gives a benchmark against which promote developments are measured. They looked at national financial segments for their capacity to produce domestic funding for projects in particular infrastructure segments such as telecommunications, electric generation, water and sanitation and transport.

They (Jacqueline and Astrid, 2008) concluded by prescribing strategies for reinforcing domestic ability for funding for infrastructure. More so, the capacity of domestic markets in the 24 nations to give long term funding is surveyed by evaluating macroeconomic fundamentals, financial intermediation, and the intensity of domestic capital markets. They drew their indicators from a complete data obtained at the national and sub-regional levels. The chosen pointers spread domestic-and sub-regional banking systems, corporate and government security (bond) markets, equity markets, and institutional financial investors, and additionally general macroeconomic conditions. They also recognize which nations' domestic and regional funding sources are best ready to finance infrastructure and which are most extremely constrained.

They compared Chile and Malaysia, as comparator nations. It was observed that the financial system framework in most of the countries is shallow. The proportion of financial intermediaries' resources to Gross Domestic Product (GDP) is under 25 percent in 15 out of the 24. The major challenge is scale. With the exception of South Africa, none of the 24 nations has a Gross Domestic Product (GDP) even near those of the comparator nations. It was also observed that half of the nations are seriously having some challenges in their capacity to put domestic funds toward infrastructure improvement. In a few, savings funds rates are among the most minimal worldwide. It is only in oil economies (Nigeria, Chad, Cameroon, and Cöte d'Ivoire) and asset rich non-oil producers (Namibia and Zambia) that there are exceptions. They also concluded that that further advancement and more suitable regulation of domestic institutional investors would offer them some assistance with realizing their potential as funding sources.

They are more qualified than local banks to give such funding in light of the fact that their liabilities would better fit prolonged terms of infrastructure. There exist obvious indications of positive change: private pension providers are rising in Africa; there is a movement from defined advantage toward defined contribution arrangements; and African institutional financial investors have started enhancing their portfolios. Notwithstanding capital markets tends to be at the stage of maturity and those that are latest in the segment of infrastructure especially of corporate securities (bonds) are coming to market in a few nations. It was noticed that greater than half of the corporate securities (bonds) recorded at end of 2006 on these nations' markets sectors were by organizations

in infrastructural segments. Nevertheless additional cross-border postings and investment inside of the region in both corporate securities (bonds) and equity issues, including by domestic institutional investors can assist to defeat the obstacles of domestic capital markets and may hold significant pledge for funding cross country infrastructure ventures. Nonetheless, it will be very important to incorporate activities of capital markets across sub regions including the Pan-African Infrastructure Development Fund.

Heidi (2014) stated in his work *'Infrastructure Finance in America—How We Get Smarter'* that the United States has a problem in investment infrastructure. An era of roads, bridges, air terminals, and water and sewer pipes manufactured a large portion of a century back is nearing the end of its valuable life. It was observed that public funds are no more sufficiently generous to finance the projects. Financial investors from the United States and around the globe 4re passionate to fund infrastructural development that could offer constant, long term proceeds, which will be done through public private partnerships (PPPs) or some other creative ventures. However, it' takes aptitude to direct this investment in a way that ensures citizens can gives worth to money ability that numerous state and local policymakers need. The government ought to close this loop hole by making another admonitory unit under the protection of the Treasury Department known "Infrastructure USA." In fact, this particular part will augment both the state and local governments in choosing how best to utilize private venture to allow for the infrastructure spending gap. Different nations have made different bodies inside of, or working intimately with, finance ministries or treasuries that impart specialized skill and best practices to local leaders. A decent model as of now exists inside of the government: a little unit in the U.S. Treasury Department prompts external governments on the best way to utilize private venture for infrastructure projects in their own particular nations. This system can be recreated effortlessly and reasonably to empower infrastructure investment in the United States.

Cecilia Karlis and Vivien (2008) in their paper, *'Financing Public Infrastructure in Sub-Saharan Africa: Patterns, Issues, and Options'* stated that in order to be reliable, any arrangement for extending infrastructure in Africa must begin on a careful assessment of how financial resources are dispensed and financed. Since in each conceivable situation the public segment holds the greater part of infrastructural funding, with private support staying restricted, a focal reason for such an assessment is to distinguish where and how monetary resources can be better utilized if not expanded without endangering macroeconomic and financial firmness. A lot is on the line, in light of the fact that the size of Africa's infrastructure needs conveys a comparable potential for mishandling of rare financial resources. They break down the recent public spending patterns to recognize approaches to make more financial resources accessible for infrastructural development did that using three approaches. To start with, they evaluated the level and composition of public expenditure on infrastructural development in order to coordinate financial distributions to the specific qualities of individual subsectors and to nations' macroeconomic sort (exporting of oil, fragile, middle income, and low-income). Secondly, they assess public budgetary expenditure for infrastructure against macroeconomic conditions to get a feeling of the degree for making extra financial assets accessible. Furthermore, thirdly, they search for approaches to make public

expenditure for infrastructure more productive, in order to better utilize existing assets. It was observed that the Government Finance Statistics of the International Monetary Fund are neither complete nor disaggregated enough to strengthen the investigation of the financial costs of infrastructure ranging from the year 2001 2006. Consequently, our assessment depends on a new, institutionalized cross country data-set of financial pointers for infrastructure which spans, additionally extended further than, spending from central government budgets. Enterprises owned State (SOEs) and additional budgetary financing means are covered likewise, as are private operators, the length of the benefits they work have a place with the state or the operator keeps on depending on public endowments. The jurisdiction of expenditure by the sun-nationals is partially covered. Data are gathered so as to allow cross-grouping by monetary classifications (together with capital and current expenditure) and also functional classifications—data and communication technologies (ICT), power, roads, water, and as well as sanitation. Beyond what many would consider possible, both budgeted and actual spending are documented.It is obvious that any activity of this kind experiences limitation of data collection. Initially, in light of the fact that it was not plausible to visit all sub national parastatals, some decentralized infrastructural spending likely have been presented fully, with specific ramifications for the water sector. Second, it was not generally conceivable to completely distinguish which things of the financial backing are financed by providers and donors by nongovernmental organisations (NGOs) to infrastructural ventures are liable to have been missed totally. Third, it was not generally conceivable to acquire full financial statements for the majority of the infrastructure unique funds which they distinguished Fourth, exact •recording of yearly changes in fixed capital formation (capital spending) of State Owned Enterprise (SOEs) remains a methodological test. Fifth, precise estimation of existing public infrastructural inventory will require additional methodological advancement.

Adesoye, Maku and Atanda (2011) in their work, *'Strategic Development Financing Mix and Economic Growth in Nigeria'* show that expansion of the economy has been a notable worry of most developing countries, for instance, Nigeria in the procurement of infrastructural facilities and projects that are for development have the possibilities of improving the way of life of the subjects and the outputs of the nation. Be that as it may, these aims can't be accomplished without sufficient wellspring of infrastructural funds. As a consequence of different basis of choices of infrastructural funding, the work explored the impact of obligation financing blend on economic development and growth in Nigeria from 10 years after independence 1970 - 2007 financial years. Real obligation financing alternatives were considered in the estimation of this study and the long-run relationship between chosen obligations financing blend and economic growth represented as Real Gross Domestic Product (RGDP) was recognized through the Augmented Engle Granger (AEG) Co integration test. "The whole time series variables data used for regression are treasury bill, development stocks, treasury bond and certificate, multilateral obligation source, international loaning clubs and real gross domestic product were discovered stationary at first difference with exception of series on international loaning clubs which was discovered unstable. The evaluated co-integrated regression model uncovered the best economic agreeable obligations financing blend

to accomplished major macroeconomic focuses of the governments. Vital approach recommendations were proffered in view of the discoveries derived from the study.

Literature Gap

There have been studies from several researchers both cross country and country-specific on the impact domestic debt and gross domestic product (GDP) as well as looking at the nexus that exist between them, however, not much study has been done on domestic debt and infrastructure financing biased in sector by sector basis, therefore, created one of the gaps for further study. Hence, this study is focused on the relationship that exists between domestic debt and the development of transportation sector in Nigeria.

METHODOLOGY

The quasi-experimental research design was used to specify the appropriate value of information required, select the sample, and determine the appropriate objects to measure and the analytical approach to adopt and interpret results, give meaning and add to knowledge. In this research, secondary data were sourced from the Central Bank of Nigeria's (CBN)Statistical Bulletin (various issues), National Bureau of Statistics (NBS) and Debt Management Office (DMO). Data for this research was the annual time series data ranging from 1986 to 2023 and presented in tables.

Empirical Model Specification

Based on the theoretical groundwork and the empirical review made by Adofu *et al.* (2010), Charles (2012), Carlos *et al.* (2013), and Harley *et al.* (2014), it is our view that Domestic Debt can be explained by unrelated factors. The model thus, is specified in its functional form as follows:

TE = f(TB, FGNTB, FGNBD) (1)

Transforming equation 1 to as econometrics forms

$$TE = \beta_0 + \beta 1TB + \beta_2 FGNTB + \beta_3 FGNBD + \mu \quad (2)$$

Where

TE = Public Transport expenditure

TB = Treasury bonds

FGNTB = Federal government of Nigeria treasury bills

FGNBD = Federal government of Nigeria bonds

β_0 = Intercept

$\beta_1 - \beta_3$ = Coefficient of the explanatory variable

μ = Error term

$\phi_0 \alpha_0$ = Constant

$\beta_1 - \beta_5$ = Coefficients of independent variables

μ_{it} = Error Term

A priori expectation

Treasury Bonds (TB): This is first of the measure of domestic debt. It contains treasury bonds sold by the government. It is expected that an increase in treasury bonds will cause an increase in the infrastructure financing.

Treasury Bills (TBs): This is second of the measure of domestic debt. It contains Central bank bills. It is expected that an increase in Central bank bill will cause an increase in the infrastructure financing.

FGN Bonds (FBs): As the third measure of domestic debt. It contains FGN Bonds sold by the government. It is expected that an increase in FGN Bonds will cause an increase in the infrastructure financing. In summary, the a priori expectation is stated thus;

$ß_1 > 0$, $ß_2 > 0$ and $ß_3 > 0$

Test for Stationarity (Unit Root Test)

The stationarity of the variables shall be investigated, since non stationarity could lead to bogus or nonsensical regression results and thus, bogus relationship among variables may be evident in time series data that exhibit non stationarity. It is true that most macroeconomic time series contain unit roots caused by the stochastic trends; therefore, variance and covariance of series change over time. Augmented Dickey-Fuller (ADF) (1981) technique is employed to check or test whether the time series of the data employed in this study are free from the presence of unit roots.

Test for Co-integration

The test for the presence of long-run equilibrium relationship is carried out based on the Johansson's (1991) multivariate co-integration technique. Usually, applying this technique, two statistics are involved — Trace statistic and maximum Eigen Statistic: when the sample size is smaller than forty, the Maximum Eigen statistic provides the more sophisticated results.

Error Correction Model

Error Correction Model is carried out to adjust the short run changes in the variables under study. Rejection of null hypothesis of non-stationarity implies that the residual is stationary and that the series y_t and x_t must be co-integrated. Econometric models are faced with the problem of possible convergence of the series variables in the long run. Such a convergence would imply that the model would have nothing to say about an equilibrium relationship between the series y and x. Brooks (2009) asserts that the Error Correction Model (ECM) overcomes this difficulty through the employment of combinations of first differenced and lagged levels of co-integrated variables as demonstrated in equation (3) below:

$$\Delta y_t = ß_1 \Delta X_t + ß_2 (y_{t-1} - Øx_{t-1}) + VT \quad (3)$$

Were:

y_{t-1} — $Øx_{t-1}$ denotes the error correction model. Provided that y_t and x_t are co-integrated with coefficient Ø, then it would imply that (y_{t-1} — $ØX_{t-1}$) will be integrated of order, I(0) irrespective of the fact that the constituents are integrated of order I(1). Further, in the above equation, Ø denotes the long run relationship between x and y, represents the short run relationship between changes in x and y, while ß$_2$ denotes the speed of adjustment of the series variables back to equilibrium.

Granger Causality

Granger Causality test offers a proper tool for this research. Maddala (2007), Gujarati and Porter (2009) perceived that the Granger Causality approach of whether X Granger Causes (promotes or supports) Y is simply to verify how much of present Y that can be described by previous values of X and also, to determine if by adding the lagged values of X can additionally improve the explanation. In other words, Y is reasonably Granger Caused by X if X assists the prediction of Y, or if the relevant coefficients of the lagged X's are found statistically significant in the equation. Subsequently from above statement, the Granger test is basically established on regression analyses as follows;

$$Y_t = \beta_0 + \sum_{i=1}^{n} \beta_i Y_{t-i} + \sum_{i=1}^{n} \beta_u X_{t-i} + \mu_t \quad (4)$$

$$X_t = \alpha_0 + \sum_{i=1}^{n} \alpha_i X_{t-i} + \sum_{i=1}^{n} \alpha_u Y_{t-i} + V_t \quad (5)$$

Where: t and X_t represent the time series variables to be tested. μ_t and V_t constitute the idiosyncratic terms (white noise errors) that capture all variations in Y_t and t not included in the lagged values. Maximum lag length of 2 was imputed.

ANALYSIS AND DISCUSSION OF FINDINGS

Trends of Domestic Debt in Nigeria

The Figure 1 represents the trend of domestic debt in Nigeria from 1986 to 2023. It shows the evolution of domestic debt over this period, categorized into Treasury Bonds, NGN Treasury Bills, FGN Bonds, and the total domestic debt. Treasury Bonds, NGN Treasury Bills, and FGN Bonds are individual components of domestic debt. These instruments represent different ways through which the Nigerian government borrows money from the domestic market (Omodero *et al.,* 2019). From 1980 to 1988, the data shows that Treasury Bonds remained at zero, while NGN Treasury Bills increased gradually. This suggests that the government primarily relied on Treasury Bills for domestic borrowing during this period. In 1989, Treasury Bonds were introduced, indicating a diversification in the government's borrowing instruments. FGN Bonds remained at zero throughout the entire period, suggesting they may not have been utilized for domestic debt until after 2002. Over the years, the total domestic debt shows a consistent upward trend, with some fluctuations. It increases from 2.89 billion Naira in 1980 to 13.3 trillion Naira in 2019.

In the 1980s, the total domestic debt remained relatively low, below 100 billion Naira, until the late 1980s. Starting in the late 1980s and continuing through the 1990s, there was a significant

increase in domestic debt, reaching over 700 billion Naira by the end of the decade. Domestic debt continued to rise in the 2000s, surpassing 1 trillion Naira by 2003 and doubling by the end of the decade. The 2010s saw a substantial acceleration in domestic debt, with the total debt exceeding 4 trillion Naira by 2011 and reaching over 13 trillion Naira by 2019.

The trend in domestic debt reflects the government's borrowing and financing strategies over the years. The substantial increase in domestic debt, particularly in the 2010s, may indicate the government's need for additional funds to finance various projects and budget deficits. It's important to note that the growth in domestic debt can have economic implications, including interest payments and potential crowding out of private sector borrowing. It's essential to consider inflation and the changing value of the Naira over this period when assessing the real impact of domestic debt. Further analysis, including an examination of the ratio of domestic debt to GDP and interest rate trends, is necessary to fully understand the implications of this debt trend.

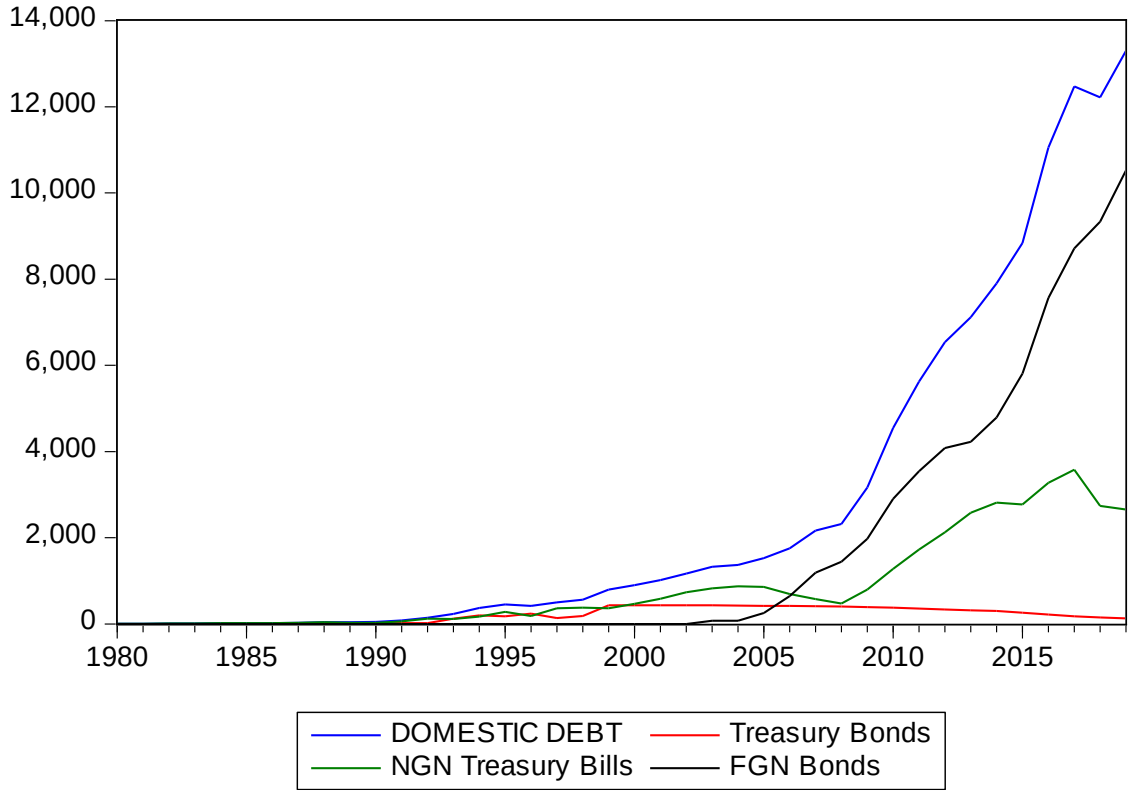

Figure 1: Trends of Domestic Debt

Source: Researcher's Computations using E-Views 9.0

Trend of Public Transport Sector Expenditure in Nigeria

The provided data represents the trend of Public Transport Expenditure in Nigeria from 1986 to 2023 as presented in Figure 2. This variable indicates the amount of government spending allocated towards transportation-related projects and infrastructure development. Analysing the trend in Public Transport Expenditure provides insights into the government's commitment to enhancing the transportation sector over the years.

Public Transport Expenditure was relatively modest during this period, ranging from 0.24 billion Naira in 1985 to 8.82 billion Naira in 1996. There were fluctuations, but the spending remained within this range. From 1997 onwards, there was an increase in Public Transport Expenditure, reaching 80.10 billion Naira in 2008. This period witnessed a substantial surge in government investment in transportation infrastructure. The late 2000s and early 2010s saw a continuation of high spending on transportation, with a peak of 137.60 billion Naira in 2019. This suggests a sustained commitment to transportation development.

The trend in Public Transport Expenditure reflects the government's emphasis on improving transportation infrastructure, which is crucial for economic growth, trade, and connectivity (Asiri and Odularu, 2020). Increased investment in transportation can lead to enhanced mobility, reduced transportation costs, and improved access to markets and services.

It's essential for policymakers to ensure that funds allocated to transportation projects are used efficiently and effectively, with a focus on priority areas that can have the most significant impact on economic development.

Further analysis, including a breakdown of specific transportation projects and their regional distribution, would provide a more comprehensive understanding of the transportation development landscape in Nigeria.

The trend of Public Transport Sector Expenditure in Nigeria from 1986 to 2022 demonstrates fluctuations in government investment in transportation infrastructure. Understanding these trends is crucial for policymakers, as a well-developed transportation sector is vital for the economic growth and development of a nation.

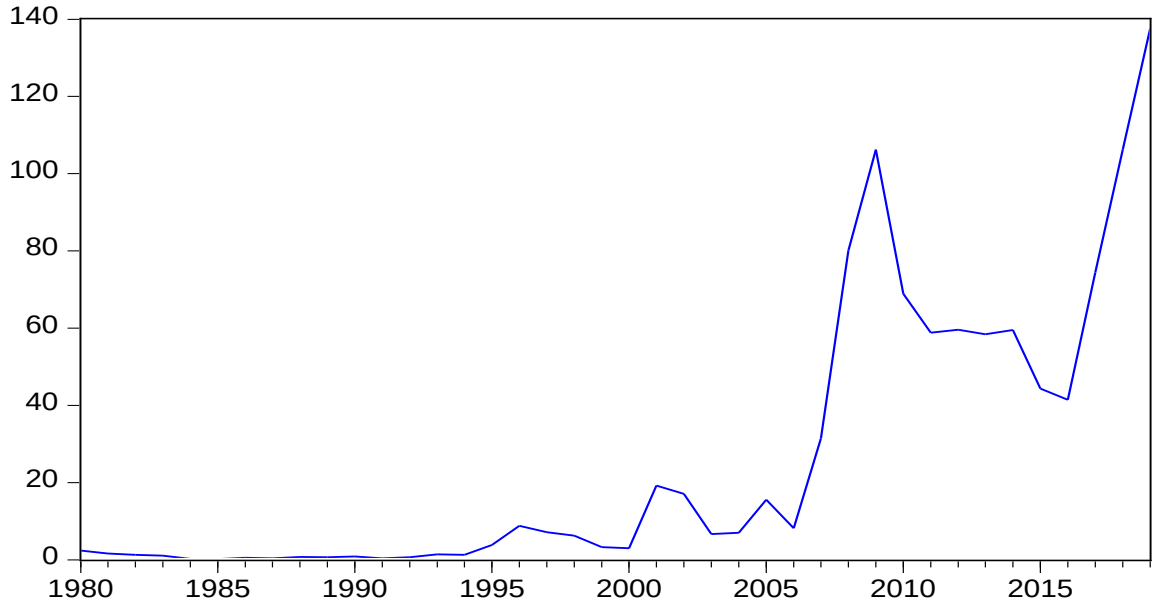

Figure 2: Trend of Public Transport Expenditure

Source: Researcher's Computations using E-Views 9.0

Table 1: ADF Unit Root Test

Variable	ADF	MacKinnon at 1%	MacKinnon at 5%	MacKinnon at 10%	Order of Int	Conclusion
Unit Root test at Level						
TE	-2.077359	-3.626784	-2.945842	-2.611531	1(0)	Not stationary
TB	-0.862817	-3.724070	-2.986225	-2.632604	1(0)	Not stationary
FGNTB	-1.516616	-3.626784	-2.945842	-2.611531	1(0)	Not stationary
FGNBD	-1.426149	-3.626784	-2.945842	-2.611531	1(0)	Not stationary
Unit Root test at Difference						

TE	-6.514581	-3.653730	-2.957110	-2.617434	1(1)	Stationary
TB	-6.634891	-3.699871	-2.976263	-2.627420	1(1)	Stationary
FGNTB	-11.50359	-2.951125	-2.951125	-2.614300	1(1)	Stationary
FGNBD	-5.879933	-3.661661	-2.960411	-2.619160	1(1)	Stationary

Source: Researcher's Computations using E-Views 9.0

From the Table 1 the empirical result of the unit root test for stationary of time series property of variables is shown. The criterion is that the Augmented Dickey Fuller results must be strictly greater than the critical at certain level of significance to confirm the presence of stationarity pattern of variables. The unit root values for the variables of understudy reveal that the variables are not stationary at difference except foreign portfolio investment in the money market. This is because the ADF values of the variables are all greater than the critical value at 10% the Null Hypothesis of the presence of unit root in all the variables is rejected.

Table 2: Presentation of Johansen's Unrestricted Co-Integration Ran

Series: TE FGNTB TB FGNBD

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	**Eigenvalue**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None *	0.585691	60.70756	47.85613	0.0020
At most 1 *	0.410312	29.86754	29.79707	0.0491
At most 2	0.194846	11.38189	15.49471	0.1891
At most 3	0.102799	3.796646	3.841466	0.0513

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.585691	30.84002	27.58434	0.0184
At most 1	0.410312	18.48565	21.13162	0.1127
At most 2	0.194846	7.585243	14.26460	0.4224
At most 3	0.102799	3.796646	3.841466	0.0513

Source: Researcher's Computations using E-Views 9.0

Johansen co-integration test determines whether the long-term relationship occurs in variables or not. The test envisages that there can be just one relationship between variables in long term. In most cases, if two variables that are I(1) are linearly combined, the combination will also be I(1).

More generally, if variables with differing orders of integration are combined, then the combination will have an order of integration equal to the largest.

Johansen-Juselius Cointegration tests are presented in the tables above where the result shows that the variables are cointegrated and significant at the 5% level. Thus, these results suggest that a long run and stable relationship between the variables exists. The maximum Eigen and the trace statistics in the above table show the presence of one co-integrating equation at 5% significant level, which is an indication that there is a long run relationship among the variables

Table 3: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
FGNTB does not Granger Cause TE	35	3.43663	0.0453
TE does not Granger Cause FGNTB		1.87561	0.1708
TB does not Granger Cause TE	35	1.20725	0.3131
TE does not Granger Cause TB		0.81558	0.4520
FGNBD does not Granger Cause TE	35	0.56989	0.5716
TE does not Granger Cause FGNBD		2.32881	0.1148

Source: Researcher's Computations using E-Views 9.0

Using the pair wise granger causality test, there is a unidirectional causality from federal government Treasury bond and public expenditure on transport. The presence of causality implies the rejection of null hypothesis while the variable that has no causal relationship accepts the null hypothesis.

Table 4: Presentation of Parsimonious Error Correction Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FGNTB(-1))	-0.013072	0.007043	-1.856002	0.0733
TB(-1)	0.008559	0.001232	6.949270	0.0000
FGNBD(-1)	0.066875	0.025037	2.671060	0.0121
C	0.608845	7.567408	0.080456	0.9364
ECM(-1)	0.528697	0.208866	2.531278	0.0168
R-squared	0.673777	Mean dependent var		32.94971
Adjusted R-squared	0.630281	S.D. dependent var		36.16798
S.E. of regression	21.99177	Akaike info criterion		9.150777
Sum squared resid	14509.14	Schwarz criterion		9.372970
Log likelihood	-155.1386	Hannan-Quinn criter.		9.227478
F-statistic	15.49043	Durbin-Watson stat		1.458675
Prob(F-statistic)	0.000001			

Source: Researcher's Computations using E-Views 9.0

The existence of cointegration among the variables allows us to implement the Error Correction Modeling technique, which describes the systematic disequilibrium adjustment process and the short-run transmission mechanism. The result of the ECM is presented in Table 4.8 above. We observe that the estimated lagged error-correction term (ECMt-1) emerges as an important channel of influence. The statistically significant error-correction term (apart from that of the exchange rate equation), confirms the existence of long run relationships between domestic debt

and public expenditure on transport. In other words, the series quickly adjusts to eliminate any deviations from the long-run equilibrium relationships that they may share with each other. It is evidence that the coefficient of ECM prove that the variables can adjust at the speed of 52.8 per cent. The independent variables explained 63 per cent variation in public expenditure on transport; the model is statistically significant by the value of f-probability. the results further found that federal government treasury bond have positive effect while treasury bills and federal government bonds have positive effect on public expenditure on transport.

Domestic Debt and Public Expenditure on Transport

The estimated model found that the independent variables explained 63 per cent variation in public expenditure on transport; the model is statistically significant by the value of f-probability. The results further found that federal government Treasury bond have positive effect while treasury bills and federal government bonds have positive effect on public expenditure on transport. The positive effect variable effect of variables confirms the expectations of the results and in line with theoretical underpinnings of the study. The positive effect of the variables is in confirmation with the fiscal policy theory of the Keynesian while the negative effect contradicts expectations and invalidates theories. The findings are empirically supported by the findings of Jude and Ekundayo (2014) that the banks have funded much in financing -capital investments and stock market development in Nigeria, Anirudha (2012) public debt appears to be significantly related to both investment and output growth and thus has an indirect positive impact on economic growth through its positive influence on investment, the findings of Ademola and Oluwaseyi (2013) that long-run behaviour of the economy and difficulties of investment decision as it influences construction business; it prescribed that fitting direction and comprehension of macroeconomic approach is needed by speculators and policy makers for choice making and drawing investment to the construction sector of the Nigerian economy, Rabia and Kamran (2012) that external debt sum slows down economic growth more when compared with domestic debt sum. The negative impact of external debt was stronger on the economic growth in correlation to domestic debt, the findings of James (2007) that the 'real danger of government debt, internal or external, proceeded with its general size in respect to a nation's monetary, money related, and political organizations. In spite of the fact that government domestic debt can help the domestic private capital business sector, expansive internal debt, similar to extensive foreign obligation, has dangers.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The analysis on the relationship between domestic debt and public infrastructure financing in the Nigerian economy from 1986 to 2023 yields several key findings. Model two found that 63 per cent variation in public expenditure on transport; the model is statistically significant by the value

of f-probability. The results further found that federal government Treasury bond have positive effect while treasury bills and federal government bonds have positive effect on public expenditure on transport. From the findings, the probability value of 0.7039 is greater than the critical value of 0.05, the study conclude that there is no significant relationship between Treasury Bills and public works sector expenditure in Nigeria. The probability value of 0.0121 is less than the critical value of 0.05, the study conclude that there is significant relationship between Treasury Bills and public transport sector expenditure in Nigeria. The probability value of 0.6110 is greater than the critical value of 0.05, the study conclude that there is no significant relationship between Treasury Bills and public health sector expenditure in Nigeria.

Recommendations

Based on the findings of the study on the relationship between domestic debt and public infrastructure financing in the Nigerian economy from 1986 to 2022, several recommendations can be made to guide policymakers and stakeholders in shaping economic and fiscal policies:

i. Improve fiscal discipline and efficiency in public spending to ensure that funds allocated for infrastructure projects are used effectively. Implement robust project appraisal, monitoring, and evaluation mechanisms to reduce wastage and corruption in public spending.
ii. Given the bidirectional causality between Health Expenditure and FGN Bonds, prioritize healthcare financing to meet the growing healthcare needs of the population. Explore ways to enhance healthcare infrastructure and service delivery without overreliance on debt financing.
iii. Establish a comprehensive debt monitoring and forecasting system to manage debt sustainability effectively. Regularly assess the impact of debt on the overall economy, and adjust borrowing plans as needed to maintain fiscal responsibility.

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