

FEDERAL GOVERNMENT TAXES AND INFRASTRUCTURAL DEVELOPMENT IN NIGERIA

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ABSTRACT

The study determined the relationship between federal government taxes and infrastructural development in Nigeria. The study employed ex-post facto research design. The population of this study was the entire Nigerian economy where the elements of the data used for this research were extracted. Using judgmental sampling technique, a sample of 33 years' period were used. However, relevant data for the study were obtained from Central Bank of Nigeria (CBN) Statistical Bulletins and Federal Inland Revenue Services Bulletins. Regression analysis technique was used to measure the effects of the predictor variables on the criterion variables. The regression analysis revealed a significant relationship between health infrastructure (HI) and petroleum profit tax (PPT), company income tax (CIT), and value added tax (VAT). The results also showed that the independent variables (PPT, CIT, and VAT) did not significantly explain the variation in Transport Infrastructure. The results also showed that PPT is a statistically significant and positive predictor of PI, while VAT may have a marginally significant negative effect. The results finally suggest that government policy significantly influences federal taxes and ID, explaining a significant portion of the variance. The investigator thus concluded that there is a significant relationship between federal government taxes and infrastructural development in Nigeria. Consequently, the researcher suggested that policymakers and authorities should allocate a portion of PPT revenue towards health infrastructure projects, enhancing healthcare facilities, equipment, and services, ultimately enhancing population well-being. Further research should explore additional factors like public funding, private investments, regional demographics, and policy measures to better understand the impact of transport infrastructure development. Policymakers should create incentives for petroleum industry companies to invest in power infrastructure projects, as PPT is a significant predictor of PI, improving regional power supply and distribution. Government policymakers should consider the impact of federal taxes and infrastructural development on economic development, as targeted policies can promote growth, increase revenue, and stimulate infrastructure.

Keywords: Federal government taxes, value added tax, company income tax and petroleum profit tax, infrastructural development, Healthcare infrastructure, Transport infrastructure, Power infrastructure.

INTRODUCTION

Background to the Study

Revenue earned by government are received from sources such as taxes levied on the income and wealth accumulation of individuals and corporations, and on goods and services produced, exports and imports, non-taxable sources such as government owned corporation's income, central bank revenue and capital receipt in the form of external loans

and debts from international financial institutions. Majorly, oil revenue has been and still is the backbone of the Nigerian foreign exchange earnings. Babatunde (2015), noted that oil accounts for about 90 per cent of total foreign exchange revenue to the economy, though oil revenue as a share of total government revenue declined from about 75 per cent in 2012 to about 47 per cent in 2016 (CBN, 2017). Oil revenue contributed about 70% (\$50.3 billion) of government revenue in 2022. Thus, making the country's economy heavily reliant on the petroleum sector. This dominant role coupled with inadequate management of oil revenue during the periods of windfall, has pushed other productive sector like agriculture- the traditional mainstay of the economy from the early fifties and sixties to the background; thus, exposing the country to volatility in the crude oil market.

The role of taxes in a nation's fiscal policy cannot be overemphasized. Taxes are the primary source of government revenue and are vital in financing public expenditures, such as infrastructural development, health care, education, and defence (Bird & Zolt, 2018). In Nigeria, the role of taxes is even more critical given the nation's striving economy and infrastructural deficits. As the largest economy in Africa with a population of over 201 million people, Nigeria presents a unique case study for examining the impact of federal government taxes on infrastructural development. The World Bank (2020) stated that tax revenue contributes 50% to 60% of the annual income of developed countries like the United States of America (USA), The United Kingdom (UK), Japan and China.

A government that is working to promote economic development relies on taxes to operate. The provision of social security, comforts, safety, and justice for all are only a few of the duties that the government must carry out, therefore it only seems sense that the people would contribute to the common good. Different people define tax differently. Tax, as described by the Oxford Advanced Learner's Dictionary of 2016, is money that you must pay to the government in order for it to fund public services. According to Akinbobola et al. (2013), tax itself is the amount of money that must be paid by all the citizen and non-citizen of a particular country to the government based on their income, properties, goods etc which will be used to provide social services to entire citizens of the country. Ugoh and Ukpere (2019), stated that tax revenue is the fund realized by the government, either federal, state or local government, from various sources, like petroleum tax (hydrocarbon tax), education tax, capital gain tax, personal income tax, tenement rate and rent, social security contributions.

Statement of the Problem

The critical role of taxation as a primary source of government revenue and the engine of infrastructural development cannot be understated (Bird & Zolt, 2018). Nigeria depends mainly on revenue from oil production, which is presently not sufficient for the economic development of the nation. According to Olaoye et al. (2019), oil production has been reduced in Nigeria due to political, geographical and other factors like oil bunkering, for the past years.

Today, inadequate infrastructure is holding back Nigeria's economic growth per capital by 2% each year and reducing firms' productivity by as much as 40%. The largest deficit in infrastructure in Nigeria can be found in the power sector, where only one in four Nigerian can have access to electricity, with a large percentage of Nigerians estimated to be experiencing regular blackouts due to power shortages. Even though firms struggle to cope by installing their own backup generators, this cost three to four times as much as the cost of grid electricity. The lack of affordable and reliable power is cited by investor as the

number one constraint to doing business in most African countries, Nigeria inclusive. Another short coming in infrastructure can be found in roads in Nigeria.

Despite its vast potential, Nigeria, the largest economy in Africa, has been grappling with the challenge of infrastructural deficits for several decades. Inadequate road networks, limited power supply, substandard health and educational facilities, and a lack of basic amenities persistently hinder the country's socio-economic development (Ijaiya et al., 2011). This gap in infrastructural development has significantly stifled Nigeria's economic growth and the overall quality of life of its citizens. Given the direct link between taxation and infrastructure, an investigation into the role of federal government taxes in infrastructural development in Nigeria is both timely and essential.

Aim and Objectives of the study

The aim of this study is to determine the relationship between federal government taxes and infrastructural development in Nigeria. However, the specific objectives were to:

1. evaluate the effect of petroleum profit tax on healthcare infrastructure in Nigeria
2. determine the effect of companies income tax on healthcare infrastructure in Nigeria
3. evaluate the effect of value added tax on healthcare infrastructure in Nigeria

Based on the research objectives, the following questions were formulated for the study:

1. What is the effect of petroleum profit tax on healthcare infrastructure in Nigeria?
2. What is the effect of companies income tax on healthcare infrastructure in Nigeria?
3. What is the effect of value added tax on healthcare infrastructure in Nigeria?

Research Hypotheses

In order to achieve the above objectives, the following hypotheses stated in null form were tested for the purpose of the study. The hypotheses are as follows:

H₀₁: There is no significant effect of petroleum profit tax on healthcare infrastructure in Nigeria.

H₀₂: There is no significant effect of companies income tax on healthcare infrastructure in Nigeria.

H₀₃: There is no significant effect of value added tax on healthcare infrastructure in Nigeria.

REVIEW OF RELATED LITERATURE

Conceptual Review

Federal Government Taxes

Federal government taxes in Nigeria are a crucial source of revenue that support various government functions, including public services, infrastructure development, and social programs. These taxes are levied and collected by the federal government to finance its operations and responsibilities. In this discussion, we will explore the major federal government taxes in Nigeria and provide citations and references to support the discussion. VAT is a consumption tax imposed on the value added to goods and services at each stage of production and distribution. The Federal Inland Revenue Service (FIRS) is responsible for the administration and collection of VAT at the federal level in Nigeria. VAT revenue plays a significant role in the federal government's budget. CIT is a direct tax levied on the income of companies operating in Nigeria. The Federal Inland Revenue Service (FIRS) also administers CIT collection at the federal level. CIT revenue contributes substantially to federal government revenue and is used to fund various programs and services. PPT is a

tax specifically imposed on the profits generated by companies involved in the exploration and production of petroleum and other hydrocarbon resources. PPT revenue is a vital source of income for the federal government, particularly in Nigeria, an oil-producing country.

Nigeria's tax system has faced challenges related to tax evasion, tax avoidance, and a large informal economy. The federal government has initiated several tax reforms to improve tax administration, increase revenue collection, and enhance transparency in tax management (PwC, 2022). The federal government taxes in Nigeria are essential for financing government operations and public services. Effective tax administration, reforms, and transparency are essential to maximize revenue collection and ensure it is used for the development and welfare of the Nigerian population.

Dimensions of Federal Government Taxes

Petroleum Profit Tax (PPT)/Hydrocarbon Tax

Petroleum Profit Tax (PPT), also referred to as Hydrocarbon Tax, is a significant source of revenue for many oil-producing countries. This tax is specifically levied on the profits generated by companies engaged in the exploration and production of petroleum and other hydrocarbon resources. The revenue collected from PPT is often earmarked for various purposes, including infrastructural development.

PPT is a fiscal instrument used by governments to capture a share of the profits generated by oil and gas companies operating within their jurisdiction. The tax rate and structure can vary significantly from one country to another. It is typically calculated as a percentage of the company's profits from hydrocarbon production. For instance, Nigeria imposes a PPT rate of 50% on offshore and deep water projects and 85% on onshore projects (Federal Inland Revenue Service Nigeria, 2011).

PPT revenue can be a crucial source of income for governments, particularly in oil-dependent economies. For example, the Nigerian government heavily relies on PPT revenue to fund various projects and programs. A study conducted by Oyakhilome and Igbinovia (2019) found that PPT contributed significantly to government revenue and played a vital role in funding public infrastructure in Nigeria.

Governments often allocate a portion of the PPT revenue to support infrastructural development. Infrastructure projects can include roads, bridges, schools, healthcare facilities, and more. In Nigeria, for instance, PPT revenue has been channeled into improving transportation networks and the energy sector (Aregbeyen, 2017).

It's essential for governments to manage PPT revenue effectively and transparently to ensure that it is used for infrastructural development. Mismanagement and corruption can hinder the intended benefits. The Nigerian Extractive Industries Transparency Initiative (NEITI) has made efforts to promote transparency and accountability in the management of oil and gas revenues, including PPT (NEITI, 2020).

Companies Income Tax (CIT)

CIT is a direct tax levied on the profits or income of companies operating in a particular jurisdiction. The rate at which CIT is applied can vary from one country to another, and it is typically based on a percentage of a company's taxable income. For instance, the United States has a federal corporate tax rate, and individual states may impose additional taxes, resulting in varying rates. Companies Income Tax (CIT) is a significant source of revenue for governments, and it can play a crucial role in financing infrastructural development. CIT is a tax imposed on the income of companies operating within a country. In this discussion,

we will explore the concept of CIT, its significance in funding infrastructure, and provide citations and references to support the discussion.

CIT revenue is a critical source of income for governments and can fund various public services, including infrastructural development. In many countries, CIT contributes significantly to government revenue. For example, a study by Ayodele and Okunnu (2013), found that CIT was one of the major sources of government revenue in Nigeria. Revenue generated from CIT can be used to support a wide range of infrastructure projects. These projects can include the construction and maintenance of roads, bridges, airports, schools, healthcare facilities, and public utilities. For instance, in the United States, federal and state governments use CIT revenue to invest in transportation infrastructure, education, and other public services (U.S. Department of the Treasury, 2021).

Effective management of CIT revenue is crucial to ensure that it is allocated to infrastructure projects efficiently and transparently. Mismanagement, tax evasion, and tax avoidance can diminish the funds available for development. Robust tax administration and anti-corruption measures are important in addressing these challenges. CIT is an important revenue source for governments and can significantly contribute to the development of critical infrastructure, but effective tax policies and sound fiscal management are essential to ensure that the revenue is used efficiently for this purpose.

Value Added Tax (VAT)

This is a consumption tax levied on the value added at each stage of production and distribution of goods and services. VAT is a significant source of government revenue, and it can play a vital role in funding infrastructural development. Businesses collect the tax on behalf of the government and remit it to tax authorities. VAT is a widely adopted taxation system and is used by many countries globally. VAT contributes substantially to government revenue. It is considered a stable and predictable source of income, making it a reliable funding mechanism for various public services, including infrastructural development. The revenue generated from VAT is typically substantial, especially in countries with a well-established tax collection system.

Revenue generated from VAT can be allocated to various infrastructure projects. These projects may include the construction and maintenance of roads, bridges, schools, healthcare facilities, public utilities, and more. Governments often use VAT revenue to improve the quality of public services and develop essential infrastructure that enhances economic growth and the well-being of citizens.

While VAT can be a valuable source of revenue for infrastructure development, its regressive nature (impacting low-income individuals more than high-income individuals) can be a concern. To address this issue, governments often implement policies and programs to mitigate the impact on vulnerable populations. Additionally, the efficiency and transparency of tax collection and allocation are crucial to ensure that VAT revenue is effectively utilized for infrastructure projects.

VAT is an important and reliable source of revenue for governments and can significantly contribute to the development of critical infrastructure. Effective tax policies and transparent financial management are essential to ensure that VAT revenue is used efficiently for this purpose while addressing potential equity concerns.

Criterion Variable

Infrastructural Development

Infrastructure development in Nigeria is a critical aspect of the country's economic growth and development. It encompasses various sectors, including transportation, energy, water supply, healthcare, and education. Despite challenges and limitations, Nigeria has made efforts to improve its infrastructure to support economic development and enhance the quality of life for its citizens.

The state of transportation infrastructure, including roads, railways, ports, and airports, has been a focus of development efforts. Nigerian roads have faced challenges in terms of quality, maintenance, and connectivity. The Nigerian government has initiated various projects to upgrade and expand the road network, such as the Second Niger Bridge and the Lagos-Ibadan Expressway (The Presidency, 2021).

Energy infrastructure, particularly the power sector, has been a critical concern in Nigeria. Frequent power outages and inadequate electricity supply have hindered economic growth. Initiatives like the Presidential Power Initiative (PPI) and privatization efforts have aimed to improve the power sector's efficiency and reliability (Vanguard, 2020).

Access to clean water and sanitation remains a challenge in Nigeria, particularly in rural areas. The National Water Supply and Sanitation Policy has sought to address this issue by providing a framework for the development of water supply and sanitation infrastructure (Nigeria Federal Ministry of Water Resources, 2010).

Nigeria has been working on improving healthcare facilities and education infrastructure to enhance the quality of services. Investments have been made in the construction and upgrading of healthcare centers and educational institutions, including universities and schools (World Bank, 2021). Challenges in infrastructure development in Nigeria include funding constraints, corruption, inadequate maintenance, and population growth. There is a need for sustained efforts and improved governance to address these challenges and ensure the effective development and maintenance of infrastructure (Vanguard, 2021).

Infrastructure development is a critical component of Nigeria's path to economic growth and improved living standards. While progress has been made in various sectors, continued investment and reforms are essential to address existing challenges and meet the infrastructure needs of a growing and dynamic population. Please note that the situation may have evolved since my last knowledge update in 2022, and I recommend checking for the most recent developments in academic publications and government reports for the latest information.

Measures of Infrastructural Development

Health Care Infrastructure

The healthcare sector consists of businesses that provide medical services, manufacture medical equipment or drugs, provide medical insurance, or otherwise facilitate the provision of healthcare to patients. However, Useni et al. (2022), discovered that government expenditure in education and health impacted insignificantly on human capital development. While human resources are essential to the health sector, physical resources are also a key factor in the production of health services. How much a country invests in new health facilities, diagnostic and therapeutic equipment, and information and communications technology (ICT) can have an important impact on the capacity of a health system to meet the health care needs of the population (OECD, 2020). The COVID-19 crisis has shone a spotlight on some of the infrastructure challenges. Health systems and hospitals in particular

have been placed under immense strain. Some countries have lacked the necessary physical resources to respond to the sudden influx of seriously ill COVID-19 patients (ECD, 2021). Having sufficient equipment in intensive care units and other health settings helps to avoid potentially catastrophic delays in diagnosing and treating patients. Non-medical equipment is also important, notably the ICT infrastructure needed to monitor population health, both in acute situations and in the long term. Investing in capital equipment is therefore a prerequisite to strengthening overall health system resilience.

Theoretical Review

The Benefit Received Theory

Adam Smith in *The Wealth of Nations* (1776) wrote: "Such things as defending the country and maintaining the institutions of good government are of general benefit to the public. Thus, it is reasonable that the population as a whole should contribute to the tax costs. It is also reasonable to demand certain other things of a tax system. In modern public-finance literature, there have been two main issues: who can pay and who can benefit (Benefit principle). The benefit received theory formed the framework for this study. The theory derived from the presumed relationship between the state and taxpayers, and in which the state is obligated to provide certain goods and services so the members of the society in compensation for taxes paid for such supplies (Muojekwu & Udeh, 2023). This theory addresses the need for government to effectively utilize tax revenue in providing economic and social facilities to the populace, and by extension contribute to economic development (Ihendinihu, 2014). This theory therefore presupposes that improvements in tax revenue should be accompanied by increased spending on infrastructural amenities. Increased spending in turn may facilitate shift from low productivity and low savings, to high steady growth state.

Empirical review

Empirical reviews are commonly used in academic and scientific research to summarize the state of knowledge, identify gaps in the literature, and suggest directions for future research. Muojekwu and Udeh (2023) conducted a study on the impact of tax revenue on infrastructural development in Nigeria, using petroleum profit tax, company income tax, value added tax, and custom and excise duties tax as proxy for tax revenue. The study spanned from 1995 to 2021 and used time series data from various sources, including the Federal Ministry of Finance, Federal Inland Revenue Services, Central Bank of Nigeria, National Bureau of Statistics, and World Bank Publications. The findings showed that petroleum profit tax had a significant and positive effect on capital expenditure, while company income tax had a significant and positive effect on capital expenditure. Value added tax and customs and excise duty also had a significant and positive effect on capital expenditure at a 5% level of significance. The study recommended that the government should implement adequate measures to ensure that tax revenue is effectively utilized for economic growth through proper infrastructural development.

Obi et al. (2021), investigated the effect of internally generated revenue on the infrastructural development of local governments in Anambra state from 2014-2018. The study adopted a descriptive survey research design and collected data from various sources, including Taro Yamane's formula, Taraba State Planning Commission, Treasury Division, Central Bank of Nigeria Bulletin, newspapers, and Taraba State Board of Internal Revenue (TSBIR).

Tanko and Shishi (2020), investigated the effect of revenue generation on infrastructural development in Taraba State from 2010-2019. The study used secondary data from the National Bureau of Statistics, Office of Accountant General of Taraba State, Taraba State Planning Commission, Treasury Division, Central Bank of Nigeria Bulletin, newspapers, and Taraba State Board of Internal Revenue (TSBIR). The data was analyzed using regression with Newey-West standard error.

Danbeki et al. (2020) investigated the trend of internally generated revenue and its effect on infrastructural development in Taraba State from secondary data collected from the Taraba State Ministry of Finance 2011-2019. The ex post facto research design was used, and the findings revealed that the actual generated IGR fell below the budgeted IGR for the years covered, suggesting that the actual IGR stands insufficient in funding infrastructural development in the state.

Ajike et al. (2020) investigated the impact of internally generated revenue on infrastructural development in Lagos State, Nigeria (1998-2018). The study used stamp duty, capital gains tax, education tax, and petroleum profit tax as proxy for revenue and transport infrastructure, concluding that internally generated revenue components had a significant effect on transport infrastructure in Lagos State.

Okezie and Tunji (2020) conducted a study on Nigeria's tax structure and economic development, focusing on infrastructural deficiencies. The study involved 4,200 tax practitioners and senior management staff of the Federal Inland Revenue Service in Lagos State, with a sample size of 365. The results showed that the tax structure had a significant positive effect on infrastructure in Nigeria.

Omoniyi and Hassan (2020) assessed internally generated revenue and infrastructural development in Ogun State using secondary data from journals, articles, books, internet, and data obtained from the National Bureau of Statistics, Joint Tax Board, and State Boards of Internal Revenue from 2011 to 2016. The study revealed that Internally Generated Revenue (IGR) has significantly contributed to the provision of infrastructure in the state.

Awofeso and Irabor (2020) examined the socioeconomic challenges of the Covid-19 pandemic in Nigeria, analyzing and evaluating government response to curb its effect on livelihood. Results found that the pandemic led to low socioeconomic livelihood in Nigeria, with palliative measures introduced by the government being largely ineffective due to poor coordination, human rights violations, and inadequate fiscal policy. Recommendations from the study suggest the need for the government to diversify the economy by promoting the informal and agricultural sectors.

Ewa (2021) appraised the self-assessment tax policy in Nigeria by exploring income streams from CIT, PPT, VAT against GDP and annual budgets from 2002 to 2019. The study found that the pre-assessment period performed better than the post-assessment period, with a tax to GDP ratio of 6.63% and 119.62% respectively.

Adefeso (2018) examined the influence of government corporate tax policy on the performance of 54 randomly selected listed companies in Nigeria over a period of 1990-2002. The study found a positive relationship between corporate tax policy and output performance of quoted manufacturing firms, suggesting that government revenue from corporate tax was judiciously expended on productive government expenditure, particularly in Lagos State. The study recommended that the Federal Government should either minimize or completely remove tax incentives, tax waivers, and tax holidays to some manufacturing firms in Nigeria.

GAP in literature

Geographic Scope: Most of the studies are limited to specific states or regions in Nigeria, such as Anambra State, Lagos State, Taraba State, Ogun State, and more. There is a need for research that provides a broader, nationwide perspective on the impact of federal government taxes on infrastructural development in Nigeria. A comparative analysis of different states or regions could yield important insights.

Time Period Variation: The studies span different time periods, which makes it challenging to draw comprehensive conclusions about the long-term effects of federal government taxes on infrastructure. A more extensive and consistent time frame of analysis could help in understanding the trends and patterns over time.

Tax Types: The studies focus on different tax types, such as petroleum profit tax, company income tax, value-added tax, custom and excise duties, internally generated revenue, corporate tax, and more. However, there is limited research that integrates the effects of multiple tax types comprehensively. An analysis that considers various tax types simultaneously and their cumulative impact on infrastructure is lacking.

Data Sources and Methodologies: The studies employ various data sources and research methodologies, making it challenging to make direct comparisons and generalizations. Our study could benefit from standardizing data sources and research methods to enhance the robustness and comparability of findings.

Causality and Direction of Impact: Many of the studies find a positive relationship between tax revenue and infrastructure development, but they do not delve into the causality or the direction of the impact. Future research could explore whether increased tax revenue leads to improved infrastructure or if the presence of better infrastructure attracts more economic activities and, consequently, more taxes.

Micro-Level Analysis: Some studies focus on macro-level data and outcomes, such as state-level or national-level statistics. More granular, micro-level analyses could provide insights into the distribution of infrastructure development across different sectors and regions within the states or the country.

Policy Implications: While some studies offer policy recommendations, a more in-depth exploration of the specific policy measures that can enhance the impact of federal government taxes on infrastructural development is needed. This could include an examination of tax collection efficiency, revenue allocation mechanisms, and the effectiveness of government spending in infrastructure projects.

External Factors: The studies discussed do not extensively consider external factors or global economic conditions that may affect the relationship between taxes and infrastructure. An analysis of how global economic trends or external shocks, such as the COVID-19 pandemic, impact this relationship could be valuable.

METHODOLOGY

Research Design: This study employed ex-post facto research design. This design is chosen and applied because of the fact that the various elements of the design are not under the control of the researcher. The data for this study already exists hence; it is used for secondary data study.

Population of the Study: Appah (2020), opined that the target population is the entire population to which the findings of the study are applicable. He noted that the target population is the entire group of items which the researcher wishes to study and generalize.

Hence, the population of this study was the entire Nigerian economy where the elements of data used for this research were extracted.

Sampling Size and Sampling Technique: Sampling is a technique of selecting individual members or a subset of the population to make statistical inferences from them and estimate characteristics of the whole population. This study employed the judgment sampling technique because of its low-cost appeal, ease of convenience, less time-consuming nature and ideal for exploratory research design. Using judgmental sampling technique, a sample of 33 years' period were used.

Source of Data: However, relevant data for the study were obtained from Central Bank of Nigeria (CBN) Statistical Bulletins and Federal Inland Revenue Services Bulletins.

Method of Data Analysis: Regression analysis technique was used to measure the effects of the predictor variables on the criterion variables. This study used estimated technique of both descriptive statistics and Ordinary least square (OLS) regression analysis method with the help of E-view10 software. The statistical test for the measurement of the parameter estimate includes the co-efficient of determination R^2 , Durbin-Watson (DW), F-ratio and the t-test. The significance level at which the hypothesis is accepted is 5% (0.05).

Model Specification

In order to investigate the relationship between federal government taxes and infrastructural development in Nigeria moderated with government policy, thus, drawing from the Neo-classical syntheses of Sala-i-Martin (2002), the research analysis was guided in a functional effect established for the variables: the independent variable metrics (PPT, VAT, CIT). These independent variable metrics are used linearly in measuring healthcare infrastructure, transport infrastructure, power infrastructure. The model specification is as stated below;

Model 1: $HI = f(PPT, VAT, CIT) \dots\dots\dots 1$

Where,

HI= Healthcare infrastructure (proxy for infrastructural development)

PPT = Petroleum Profit Tax

CIT = Companies Income Tax

VAT = Value Added Tax

GP = Government Policy (proxy for the moderating variable)

f = functional relationship notation

DATA ANALYSIS AND DISCUSSION OF FINDINGS

Data Analysis

Data analyzed here are the properties of federal government taxes (value added tax (VAT), company income tax (CIT) and petroleum profit tax (PPT)) and to infrastructural development (Healthcare infrastructure (HI), Transport infrastructure (TI), Power infrastructure (PI). The data extracted from the CBN statistical bulletin, and tax Statistics/Report-Federal Inland Revenue service (FIRS) from 1990 to 2022 used for the purpose of this study is presented in appendix 1. This was done to ensure that the work is not clumsy.

Univariate analysis

Here, individual variables were analysed.

Table 4.1 Descriptive statistics

	PPT	CIT	VAT	HI	TI	PI	GP
Mean	2.732607	2.205381	4.167118	2.394129	2.397750	1.831001	2.161680
Median	2.972856	0.477121	4.567026	2.350519	2.343901	2.194098	2.189327
Maximum	3.505329	5.475686	6.274647	2.724268	2.813054	2.532652	2.370868
Minimum	1.429898	0.477121	1.429752	2.104146	2.160919	0.803457	1.935381
Std. Dev.	0.654791	2.095793	1.560954	0.231568	0.186227	0.711375	0.140942
Skewness	-0.709660	0.520149	-0.348133	0.176601	0.938289	-0.591613	-0.114805
Kurtosis	2.059865	1.481287	1.818626	1.332982	2.832666	1.493715	1.596143
Jarque-Bera	3.985193	4.659477	2.585593	3.992590	4.880628	5.044760	2.782361
Probability	0.136341	0.097321	0.274502	0.135838	0.087133	0.080268	0.248781
Sum	90.17605	72.77757	137.5149	79.00625	79.12574	60.42302	71.33543
Sum Sq. Dev.	13.72005	140.5552	77.97050	1.715962	1.109778	16.19373	0.635664
Observations	33	33	33	33	33	33	33

Source: Author's computation using Eview9

The data presented in this study is a combination of various statistical measures. The median is 2.97, suggesting a slight right-skewed distribution. The highest recorded PPT is 3.51, with the lowest recorded PPT being 1.43. The standard deviation is relatively low at 0.65, indicating closeness to the mean. The distribution is negatively skewed, suggesting a longer left tail. The kurtosis is 2.06, indicating a somewhat peaked distribution. The average CIT is approximately 2.21, with the median being low at 0.48. The highest recorded CIT is 5.48, with the standard deviation being high at 2.10, indicating greater variability. The data is not perfectly normally distributed. The average VAT is approximately 4.17, with the median being 4.57. The highest recorded VAT is 6.27, and the lowest recorded VAT is 1.43. The standard deviation is moderate at 1.56, slightly negatively skewed (-0.35) and slightly peaked. The data is not perfectly normally distributed. The average HI is approximately 2.39, with the median being 2.35. The highest recorded HI is 2.72, and the lowest recorded HI is 2.10. The data is not perfectly normally distributed. The average PI is approximately 2.40, with the highest recorded PI being 2.81 and the lowest recorded PI being 2.16. The data is not normally distributed. Lastly, the average GP is approximately 2.16, with the median being 2.19. The data is slightly negatively skewed and not normally distributed. These findings can guide further analysis and interpretation of the data.

Table 4.2 Regression analysis of federal taxes and health infrastructure

Variable	Coefficient			
	t	Std. Error	t-Statistic	Prob.
C	1.651653	0.081366	20.29908	0.0000
PPT	0.380486	0.034905	10.90049	0.0000

CIT	-0.003523	0.009624	-0.366078	0.7170
VAT	-0.069466	0.015234	-4.559789	0.0001
R-squared	0.806889	Mean dependent var	2.394129	
Adjusted R-squared	0.786912	S.D. dependent var	0.231568	
S.E. of regression	0.106895	Akaike info criterion	1.520725	
Sum squared resid	0.331370	Schwarz criterion	1.339330	
Log likelihood	29.09196	Hannan-Quinn criter.	1.459691	
F-statistic	40.39100	Durbin-Watson stat	0.683295	
Prob(F-statistic)	0.000000			

Source: Eview9 output computed by the author

The regression equation is as follows:

$$HT = 1.651653 + 0.380486 * PPT - 0.003523 * CIT - 0.069466 * VAT$$

The regression analysis reveals a significant relationship between health infrastructure (HI) and petroleum profit tax (PPT), company income tax (CIT), and value added tax (VAT). The coefficients for PPT and CIT indicate a positive and negative relationship, respectively. For a one-unit increase in PPT, Health Infrastructure is expected to increase by 0.380486 units, while VAT is expected to decrease by 0.069466 units. The R-squared (R^2) is 0.806889, indicating that approximately 80.69% of the variance in Health Infrastructure can be explained by these independent variables. The F-statistic is 40.391, and the F-statistic is 0.000000, indicating statistical significance. The Standard Error of the regression is 0.106895, and the Durbin-Watson statistic is 0.683295, testing for autocorrelation in the residuals.

The overall model is statistically significant, explaining a substantial portion of the variance in health infrastructure. However, CIT does not appear to have a significant impact on Health Infrastructure, as its coefficient is very small and statistically insignificant. The Durbin-Watson statistic suggests the presence of autocorrelation in the residuals, which may require further investigation or correction.

Discussion of Findings

The regression analysis indicates that health infrastructure (HI) is significantly related to petroleum profit tax (PPT) and value added tax (VAT), with a strong positive relationship with PPT and a negative relationship with VAT. However, company income tax (CIT) does not appear to have a significant impact on health infrastructure, as its coefficient is very small and statistically insignificant. This result agreed with Muojekwu and Udeh (2023) whose findings showed that: Petroleum profit tax has a significant and positive effect on capital expenditure of Nigeria (Company income tax has a significant and positive effect on capital expenditure Value Added Tax has a significant and positive effect on capital expenditure, Customs and excise duty has a significant and positive effect on capital expenditure of Nigeria at 5% level of significance respectively. Obi et al. (2021), showed that the internally generated revenue have no impact on infrastructural development in the local governments, due to the smallness of the revenues generated. Tanko and Shishi

(2020), revealed that IGR has a positive impact on infrastructural development. Similarly, the grant received by the Taraba State Government improved infrastructural development.

CONCLUSIONS AND RECOMMENDATIONS

The study determined the relationship between federal government taxes and infrastructural development in Nigeria. The regression analysis revealed a significant relationship between health infrastructure (HI) and petroleum profit tax (PPT), company income tax (CIT), and value added tax (VAT). The investigated thus concluded that there is a significant relationship between federal government taxes and infrastructural development in Nigeria. Consequently, the following recommendations were made;

- i. Policymakers and authorities should allocate a portion of PPT revenue towards health infrastructure projects, enhancing healthcare facilities, equipment, and services, ultimately enhancing population well-being.
- ii. Re-evaluating VAT policies for healthcare is recommended, considering exemptions or reduced rates for healthcare-related goods and services to support health infrastructure growth.
- iii. Policymakers should evaluate CIT revenue's effectiveness in supporting healthcare development and consider potential adjustments if needed, considering alternative revenue sources for healthcare investments.

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