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Impact of Federal Government Tax Revenue on Economic Growth in Nigeria

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Abstract

The main objective of the study was to investigate the impact of Federal Government tax revenue on economic growth in Nigeria spanning from 1986 – 2024 and variables employed were; Petroleum Profit tax Revenue (PPTR), Company Income Tax Revenue (CITR), Value Added tax revenue (VATR), Excise Duties Tax Revenue (CEDTR), and Personal Income Tax Revenue (PITR). Data were sourced from the Federal Inland Revenue Services (FIRS) publications and the Central Bank of Nigeria (CBN) Statistical Bulletins. The study adopted an ex-post factor research design and the model was specified using Vector Error Correction Model (VECM) and Public Finance Economic Theory was used as a theoretical framework. Vector Error Correction Model (VECM) as an econometric technique of data was used in the estimation of the parameter estimates. The findings of the study revealed that Petroleum Profit tax Revenue (PPTR) had a statistically and insignificant positive (1.42662) impact on economic growth (GDP) in Nigeria in the short-run but it had a statistically and significant positive impact on (GDP) in the long run. The findings of the study revealed that Personal Income Tax Revenue (PITR) had a statistically and insignificant positive (1.890096) impact on economic growth (GDP) in the short-run and it had a statistically and significant positive (2.696599) long-run in Nigeria. Based on the findings of the study, the study recommended that the government should intensify efforts in sustaining the positive and significant impact of PPTR and PITR on economic growth in Nigeria for more revenue generation.

Keywords: Federal Government Tax, Revenue, Economic Growth, Petroleum Profit Tax and Value Added Tax.

Introduction

Achieving targeted economic growth especially in developing economies have become a major issue considered by economic agents due to high level of tax gap, over dependent on oil revenue, poor economic governance by political leaders, pressure from globalization and over importation (Nwobodo, Adegbie, Fakunmoju, 2022). Achieving economic growth can be pursued and achieved through good tax administration. Since the early twentieth century, governments across countries have undertaken extensive tax reforms to pursue growth goals, especially in low and middle-income countries where the tax revenue and gross domestic product ranges between 14% and 15% compared to 30% in developed countries (World Bank, 2021). Thus, policy makers in developing economies place more emphasis on raising tax revenue to fund public spending activities aimed at enhancing economic growth and sustainable development. The primary responsibility of every government all over the world is to ensure security, freedom, and welfare of its citizens (Ofoegbu, Akwu & Oliver, 2016).

Plancastelli and Thirwall (2020), stressed that taxes are used for government expenditures of a social nature and to provide public goods such as health, roads, education, maintenance of law and order and external defense in Indonesia. However, taxation is a very important tool for managing the economy. It represents the crucial component in contemporary business and its relevance is manifested through stability and productibility (Kalas, Pjanic, Milenkovic & Androsic, 2016). Tax revenues in Nigeria and Ghana are also used by the government to finance infrastructure and other social needs. Efficient tax management on government financing can enhance the realization of economic growth which in the long-run can improve economic performance in both countries (Egbunike, Emodainobwo, & Gunardi, 2018).

In Nigeria, more emphasis is laid on direct taxes and little consideration is given to indirect taxes. Muhammad (2020) argued that Nigeria regulators focused more on direct taxes as economic revenue generation while neglecting indirect taxes revenue, thus it had been pointed out that indirect taxes could serve as economic diversification revenue generation for Nigeria which in turn enhances economic growth.

Oil revenue forms a huge proportion of revenue generated in Nigeria because Nigeria significantly depends on oil. Nigeria's over-reliance on oil as a key source of revenue is perilous and detrimental for its economic growth (Oladipupo & Oladipupo, 2015). Globally, the price of oil has dropped dramatically in recent years; therefore, affecting the government earnings and putting Nigeria in a precarious position as there are no sufficient funds to be allocated between the three tiers of governments. This was evident in April 2020 when the price of crude oil was as low as $38 per barrel and compounded with the outbreak of the COVID-19 pandemic (Gbeke & Nkak, 2021).

The main types of tax collected by the Federal Inland Revenue Services (FIRS) are direct and indirect taxes. For the direct taxes, it is levied on individuals and factors of

production e.g. Personal Income Tax (PIT), Company Income Tax (CIT), Petroleum Profit Tax (PPT), Capital Gain Tax (CGT). However, indirect taxes are levied on goods and services for instance, import and export duties. Thus, the consumers bear the ultimate burden. Having realized that taxation is one of the most important sources of revenue for the various level of government and a major way of sourcing financial support to the Nigerian government at large, it is of paramount importance that tax evasion and tax avoidance is discouraged with every conceivable means. This will no doubt help to increase tax revenue for economic growth of the nation. (Nwezeaku, 2005).

Having realized that taxation is one of the most important sources of revenue for the various levels of government and a major way of sourcing financial support to the Nigerian government at large, it is of paramount importance that tax evasion and tax avoidance is discouraged with every conceivable means. This will no doubt help to increase tax revenue for economic growth of the nation. The need for the Nigerian government to surmount the challenges of bad tax administration and other related tax problems and harness all possible sources of tax revenue for purposeful economic growth is paramount. Achieving this is necessary and is possible if the institutions of the government take it with utmost seriousness, total commitment and determination for a holistic paradigm shift from the over-reliance on oil revenue. The Nigerian economy needs to be diversified for multiplicity of tax sources for increased tax revenue base and enhanced economic growth. The global challenges have made governments expenditure to increase and thus, harnessing all sources of tax revenue is relevant most especially in developing countries like Nigeria for economic growth.

Concept of Taxes

Taxes are mandatory, non – repayable remittance made to the government for products and service intermittently. It is normally paid by private businesses and consumers to the government. (Agunbiade & Idebi, 2020). Taxes are defined as a compulsory contribution imposed by the government to finance public expenditure, redistribute wealth, and influence economic behavior (Brauner & Pistone, 2021). This definition focuses on diverse functions taxes perform such as income redistribution and encouraging desired behaviors through tax incentives. Taxes are also defined as broad mechanisms for funding public needs without explicit returns and as social instruments to achieve governmental objectives which include environmental taxes aimed at modifying behavior (Heij, 2020). From a philosophical point of view, taxes are described as ethical tools of governance designed to balance individual liberty with societal wellbeing, ensuring equitable public good provision while shaping citizens behavior (O'Neill & Galligan, 2019).

The types of tax include, Petroleum profit tax which is a tax paid by or imposed on companies that are into the business of petroleum exploration. It is imposed on the profits of oil producing companies, operators in the petroleum downstream sector. Petroleum Profit Tax Act 1959 as amended described petroleum profit tax as a liability where a company disposes off chargeable oil and gas. Fasoranti (2013) affirmed that petroleum profit tax involves charging of tax on

income accruing from petroleum operations. Petroleum profit tax is a tax applicable to upstream operations in the oil industry as it is related to rent, royalties, oil mining prospecting and exploration leases. Appah and Oyandonghan (2011) affirmed that petroleum profit tax involved charging of tax on income accruing from petroleum operations.

Companies Income Tax is one of the taxes administered and collected by the Federal Inland Revenue Service (FIRS) and the tax contributes significantly to the revenue profile of the government. Such profits shall be deemed to accrue in Nigeria wherever they have arisen (worldwide) and whether or not they have been brought into or received in Nigeria (Ugochukwu & Azubike, 2015). Company Income Tax includes profits in respect of any trade or business, rent on use of property, dividends, interest, royalty, discounts, charges, annuities, fees for services rendered and other sources of annual profits or gains. Other types of tax include the Value-Added Tax which has been given different definitions by different authors and writers. According to Abata (2014) Value Added Tax is described as a consumption tax whereby the consumers bear the tax burden. Tax burden is passed from the manufacturer to wholesaler to retailer and finally to the consumer who ultimately bears the burden.

Ogbonna and Oguguo (2021) defined value added tax as a multi-stage tax that is charged on the additional value of goods produced or services rendered as they advance through numerous stages of production and distribution and the rendering of services which is ultimately borne by the last consumer but collected at each phase of production and service chain. Value Added Tax (VAT) is an indirect consumption tax imposed on all products and services manufactured or rendered within a country (Omodero, 2020). VAT could also be called the Goods and Services Tax (GST), which is imposed on chain process-value added (Owino, 2019). According to Oseni (2017), the objectives of VAT in Nigeria include (i) to elongate the tax base by bringing in those who ordinarily cannot be reached through direct taxation; (ii) to improve revenue profile of the government; (iii) to encourage rewards by reducing the burden of direct taxes and services) as it is collected at each sales point and the burden of the tax is transferred from the producer to the ultimate consumer.

Custom and Excise Duties which is an indirect tax, dating from the nineteenth century also known as custom duties (Chigbu & Njoku, 2015). An indirect tax is a tax on expenditure or outlay that can be shifted (partially or entirely) to someone else (Obayori & Omekwe 2019). Custom duties are the most profitable indirect taxes. Fasoranti, (2013) described import duty as a levy on imports by custom authorities in Nigeria to raise revenue for the government and protect domestic industries from predator competitors abroad. Oladipupo and Oladipupo (2015), import duty is generally on the value of goods or the weight, dimensions or some other criteria that are determined by the government. They are charged as a percentage of the value of import or a fixed amount of specific quantity. Import duties are either fixed or calculated as a percentage of the product's value, which can change (Olurotimi, 2013).

Personal Income Tax (PIT) is a statutory obligation imposed by the government on the incomes of individuals, communities and families, trustees or executors of any settlement. In Nigeria, PIT is guided by the Personal Income Tax Act Cap P8 LFN 2004 (as amended). PIT

is a direct tax charged on the income of a person. It is levied on an individual's wages, salaries, and other types of income (FIRS, 2022). An individual is entitled to a consolidated relief allowance of N200,000 or 1% of gross income whichever is higher plus 20% of gross income. Individuals are subject to minimum tax of 1% of gross income where the income is less than N300,000 per annum (FIRS, 2022). Personal income tax is a direct tax on the income from all sources of an adult, communities and families, and on executors and trustees. Personal income tax is calculated after some reliefs have been given and or certain expenses exempted according to a graduated rate specified by Personal Income Tax (Aruna, Oshiole & Amahalu, 2020). According to Abu (2012), personal income taxes are based on Pay-As-you-Earn (PAYE). In other words, the amount of tax paid depends on the amount of income of the taxpayer. Taxes are withheld by relevant authorities, unlike the private sector, which must be filed on a taxpayer basis, so officials can easily collect them, but it is not done in most cases.

Concept of Tax Revenue

Tax revenue is the income that is collected by governments through taxation. Taxation is the primary source of government revenue. Revenue may be extracted from sources such as individuals, public enterprises, trade, royalties on natural resources and/or foreign aid (Sitharaman, 2022). Taxes collected from both direct tax and indirect tax are the revenue. It includes collections from income tax, corporation tax, customs, wealth tax, tax on land revenue, petroleum profit tax, value added tax, custom and excise duties and so on (Ashiedu, Okafor, Amahalu & Obi, 2022).

Tax revenue is the income that is gainedss by government through taxation. It is the receipt from tax structures. Revenues accruing to an economy such as Nigeria can be divided into two main categories, which are; oil revenue (includes revenue from royalties, Petroleum Profit Tax (PPT), gas tax) and non-oil revenue (includes trade, loans, direct and indirect taxes paid by other sectors of the economy, etc). An inefficient collection of taxes is greater in countries characterized by poverty, a large agricultural sector and large amounts of foreign aid. Tax revenue is basically government revenue generated from taxation. Tax revenue is the process of administering the tax laws in the way that achieves government aims and objectives.

Concept of Federal Government Tax Revenue

Federal government tax revenue is defined as a compulsory financial contribution collected by the government from individuals and businesses to fund public expenditures for sustainable economic development. It includes various tax forms such as income tax, corporate tax and value added tax (Jibril & Salihi, 2023). This is one of the major sources of revenue generation to the government. Federal government tax revenue in Nigeria helps in funding dilapidated infrastructure and services which propels economic growth. Osamor et al (2023), described federal government tax revenue as the primary source of income of government derived from various taxes levied on individuals and corporations for funding public operations. According to Abu & Theophilus (2023), federal government tax revenue refers to the funds collected

through various tax mechanisms which are important for economic stability and development in Nigeria. Effective tax reforms and administration are necessary in maximizing these revenues. Tax reforms must be implemented effectively to enhance a sustainable and stable economy with emphasis on broadening the tax revenue base while trying to minimize cost of tax collection. Federal tax revenue is currently the highest source of income to the government of Nigeria, more than other streams. It plays a vital role in funding government activities across all tiers (Madein, 2023). The tax revenue includes the funds collected from various taxes which are influenced by macroeconomic factors such as GDP growth, inflation, and trade openness. These revenues are important for public sector financing towards sustainable economic growth and development (Ikpesu, 2022). Mankiw (2020) described federal tax revenue as money the federal government collects from households and businesses to finance its outlays. In this context, it may include individual income taxes, payroll taxes, and corporate income taxes. Federal government tax revenue is also defined as the financial inflows derived from the taxing authorities of the federal government which enables it to embark on various public policies to fulfil its economic responsibilities (Stiglitz & Rosengard, 2015).

Concept of Economic Growth

Economic growth is defined as an increase in economic activity that leads to an increase in a country's prospective GDP or productivity. It can also be defined as a long-term increase in per capita national output or net national product. It also means that the rate of rise in total productivity must be greater than the rate of rise in the population (Egbunike, Emudainohwo & Gunardi, 2018). John (2022) defines economic growth as the process by which a nation's wealth increases over time. The term economic growth is frequently used in discussion of short-term economic performance, and besides this it generally refers to an increase in wealth over a long period of time in the context of economic theory. According to Roser (2021), economic growth is an increase in the quantity and quality of economic goods and services produced by a society.

Economic growth can be simply be defined as an increase of the national income per capital, and involves the analysis, especially in quantitative terms. Economic growth is a process related to increasing economic indicators related to the size of the national economy, gross income per capita, and macroeconomic indicators in a country (Haller, 2012). International Monetary Fund (IMF, 2020) described Gross Domestic Product (GDP) in terms of the total monetary value of goods and services produced in a country within residents of the country, irrespective of countries of origin. Okwara & Amori (2017) identified four wheels of economic growth as (a) human resources (labour supply), (b) natural resources (land, minerals & environment quality), (c) capital formation (machines, factories & roads), and (d) technology (science, engineering, management and entrepreneurship). These enable economies to provide more of everything to their citizens such as better food and homes, more resources for medical care and pollution control, universal education for children, more resources for military and

pension for retirees. Conceptually, across the globe economic growth could be proxied with real gross domestic product (real GDP).

Salami, Apelogun, Omodiya, and Ojoye (2015) posited that economic growth involves a sustained increase in a country's productive capacity, increase in per capita income, national product or net national product over a long period of time which occurs when the production possibility frontier of a nation shifts upward. This shows that economic growth has to do with the ability of an economy to produce goods and services which are usually associated with technological improvements. However, these goods and services produced should satisfy the maximum want of the larger number of people. Economic growth can be determined by four essential factors namely, human resources, natural resources, capital formation and technological development (Ogbonna & Appah, 2012).

Classical Growth Theory

The classical economic theory of tax revenue originated from Adams Smith in the Wealth of Nations in 1776. Other economists that contributed to the work were David Ricardo and John Stuart Mill. The theory formed the foundation for how government collects and manages public revenue for sustainable economic growth. The theory posits that taxation can bring about distortions in the economy by changing the behaviours of individuals and firms. It further stated that high taxes may discourage investment and savings leading to stagnation in economic growth.

The theory assumes that the government should limit its function to the provision of essential public goods such as property protection and enforcement of contracts because of the belief that the market is self – regulatory and taxes should not distort this process. The theory presumes that individuals and businesses behave rationally aimed at utility maximization and profit and this should not be disrupted by tax policy (Smith, 1776). The theory also assumes that taxes should encourage savings and capital accumulation and economic growth with the assertion that investment drives productivity (Pigou, 1920). The theory further assumes that taxes should have neutral effects on consumption, production, and investment decisions in the economy (Smith, 1776).

However, (Mirrlees, 1971) argued that the classical economic theory of tax revenue underestimates the complexities of modern economies such as inequalities, market failures, and externalities. The classical approach pays little attention to the role of taxation in addressing income inequality and wealth. Progressive taxation is now the bases of modern tax systems which was not key to this theory which emphasized more on proportional tax (Piketty, 2014). The assumption that individuals and firms act rationally and predictably has been criticized by behavioural. Empirical evidence reveals that economic agents are often influence by factors such as biases, misinformation and social norms (Simon, 1955). Samuelson (1954) argued that the assumption of minimal government role fails to address the importance of public spending in the provision of services such as healthcare, education, and infrastructure. Critics argue that public investment financed by taxes is important for long-term economic

growth.

Despite the criticisms, the theory emphasizes the potential negative effect of taxation on economic behaviour and growth, making it important for examining the designs of tax policies and implementation. Smiths (1776) highlighted fairness, certainty, convenience and efficiency in taxation which serves as a foundation for contemporary tax system which emphasizes equity and simplicity. The theory emphasizes minimal taxation to allow capital accumulation, investment and economic growth. Its focus on free – market efficiency is relevant in modern pro – growth tax reforms especially in developing economies where growth is critical (Ricardo,1817). Developing countries adapt the classical focus on low taxes and limited government intervention to attract foreign investments and promote industrialisation. These principles serve as a foundation for early-stage economic policy designs (Mankiw, 2007).

EMPIRICAL REVIEW

Otekunrin, Fakile, Eluyela, Onabote, John & Ifeanyichukwu (2023) examined the impact of tax revenue on economic growth in Nigeria. The study used annual time series data obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin for the period of 39 years (1980-2019). Error Correction Model technique was employed to analyse the data. The result showed that petroleum profit tax, custom and excise duties had positive impact on economic growth in Nigeria while company income tax impacted negatively on economic growth in Nigeria and likewise Value added Tax. The study recommends that taxation should be appropriately controlled to boost economic growth, lower inflation, and create jobs in the country. Luljeta & Esat (2023) analysed the impact of direct and indirect tax revenues on economic growth in the Transition Countries of Southeast Europe (Albania, Bosnia-Herzegovina, Kosovo, North Macedonia, Montenegro and Serbia) using a Panel data for the period of 2005-2019. The study used OLS regression analysis, random effect and fixed regressions. Autocorrelation, normal distribution and heteroscedasticity were employed to test the reliability of the model. The result of the Breusch-Pagan LM and Hausman test suggested that the model is a regression with fixed effects. This confirmed that the revenues from indirect taxes resulted in a positive and statistically significant effect while direct taxes are positive but has no significant effect on economic growth.

Imamoglu (2023) analysed the relationship between tax revenue and economic growth using quantile regression analysis with annual data for 37 OECD Countries from 1995-2020. The results from the quantile regression analysis showed that tax revenues have a negative and statistically significant effect on economic growth in countries with low economic growth and also on panel average. Furthermore, tax revenues are found to have a positive effect on economic growth in Countries with high economic growth but statistically insignificant effect in other quantile. Based on these findings, the study concludes that tax increases in OECD Countries with low economic activities will reduce economic growth. Therefore, the study recommended that these Countries should restructure their fiscal policies to facilitate economic growth.

Irekponor & Ebieri (2023) examined the effect of tax revenue on economic growth of developing Countries categorized into three regions: namely; Africa, Asia and South America from 1990-2019 with specific objectives to determine the effect of tax revenue on gross domestic product (GDP) of the regions collectively and provided comparative analysis of the three regions. Secondary data was extracted from the World Bank and Organization of Economic Development. Panel regression technique was employed for the analysis. The study established clear evidence that each of the regions and collective tax revenue have positive and significant effect on their GDP. It further revealed that the positive effect of tax revenue on GDP of Asian regions is more significant than the Africa and South American Countries sampled. The study therefor, concluded that tax revenue has significant effect on economic growth of developing countries and recommended that government of such countries should intensify efforts to improve their tax revenue base for a sustain economic growth.

Osamor, Omoregbee, Ajasa-Adeoye, & Mawuyon (2023) empirically investigated the relationship between tax revenue and economic growth in Nigeria using data gathered from the Central Bank of Nigeria spanning from 2011-2023. The study employed Autoregressive distributive Lag (ARDL) bounds test to analyse the data. The result revealed that petroleum profit tax, company income tax, custom and excise duties, and value added tax had positive insignificant effects on economic growth in Nigeria. Both short-run and long-run relationships exited between the variables of study during the study period.

METHODOLOGY

This study adopted an ex-post factor research design which combined theoretical (*apriori*criterion) and empirical observations in analysing relationship between tax revenue and economic growth It employed secondary data which involves the use of already existing data on researched variables to explain the extent to which they relate to the event. According to Onwumeri (2009), ex-post factor research design is the type of research involving events that have already taken place. The ex-post factor research design is relevant to the study because it offers are liable approach to explore cause – and – effect relationships based on already existing data by examining past tax revenue figures with corresponding GDP growth rates. The findings derived from ex-post factor design can support evidence-based policymaking.

Model Specification

This study adapted the Vector Error Correction Model (VECM) used by Adefolake and Omodero (2022) who examined the impact of tax revenue on economic growth in Nigeria with some modifications. Their model was specified as:

GDP = f (PPTR, CITR, VATR) ……..... (3.2)

Where: GDP = Gross Domestic Product, PPTR = Petroleum Profit Tax Revenue, CITR = Company Income Tax Revenue, and VATR = Value Added Tax Revenue.

Equation 3.2 was modified by introducing Custom and Excise Duties Revenue (CEDR) and Personal Income Tax Revenue (PITR) as other tax revenue components are written in functional form as:

$$GDP = f(PPTR, CITR, VATR, CEDR, PITR) \quad (3.3)$$

Where:
GDP = Economic growth
PPTR = Petroleum Profit Tax Revenue
CITR = Company Income Tax Revenue
VATR = Value Added Tax Revenue.
CEDR = Custom and Excise Duties Revenue
PITR = Personal Income Tax Revenue
The econometric form of equation 3.3 is written as;

$$GDP = \beta 0 + \beta 1PPTR + \beta 2CITR + \beta 3VATR + \beta 4CEDR + \beta 5PITR + Ut \quad (3.4)$$

Since the variables are expressed in different units (either in millions or billions of naira), they are logged and bring them to the same unit as:

$$\Delta GDPt = \beta 0 + \Sigma_{i=1} \beta 1 \Delta GDPt\text{-}1 + \Sigma_{i=1} \beta 2 \Delta PPTRt\text{-}1 + \Sigma_{i=1} \beta 3 \Delta CITRt\text{-}1 + \Sigma_{i=1} \beta 4 \Delta VATRt\text{-}1 + \Sigma_{i=1} \beta 5 \Delta CEDRt\text{-}1 + \Sigma_{i=1} \beta 6 \Delta PITRt\text{-}1 + \xi t1 \quad (3.5)$$

$$\Delta PPTRt = \alpha 0 + \Sigma_{i=1} \alpha 1 \Delta GDPt\text{-}1 + \Sigma_{i=1} \alpha 2 \Delta PPTRt\text{-}1 + \Sigma_{i=1} \alpha 3 \Delta CITRt\text{-}1 + \Sigma_{i=1} \alpha 4 \Delta VATRt\text{-}1 + \Sigma_{i=1} \alpha 5 \Delta CEDRt\text{-}1 + \Sigma_{i=1} \alpha 6 \Delta PITRt\text{-}1 + \xi t2 \quad (3.6)$$

$$\Delta CITRt = \delta 0 + \Sigma_{i=1} \delta 1 \Delta GDPt\text{-}1 + \Sigma_{i=1} \delta 2 \Delta CITRt\text{-}1 + \Sigma_{i=1} \delta 3 \Delta PPTRt\text{-}1 + \Sigma_{i=1} \delta 4 \Delta VATRt\text{-}1 + \Sigma_{i=1} \delta 5 \Delta CEDRt\text{-}1 + \Sigma_{i=1} \delta 6 \Delta PITRt\text{-}1 + \xi t3 \quad (3.7)$$

$$\Delta VATRt = \theta 0 + \Sigma_{i=1} \theta 1 \Delta GDPt\text{-}1 + \Sigma_{i=1} \theta 2 \Delta VATRt\text{-}1 + \Sigma_{i=1} \theta 3 \Delta PPTRt\text{-}1 + \Sigma_{i=1} \theta 4 \Delta LnCITR\ t\text{-}1 + \Sigma_{i=1} \theta 5 \Delta LnCEDRt\text{-}1 + \Sigma_{i=1} \theta 6 \Delta PITRt\text{-}1 + \xi t4 \quad (3.8)$$

$$\Delta CEDRt = \text{þ}0 + \Sigma_{i=1} \text{þ}1 \Delta GDPt\text{-}1 + \Sigma_{i=1} \text{þ}2 \Delta CEDRt\text{-}1 + \Sigma_{i=1} \text{þ}3 \Delta PPTRt\text{-}1 + \Sigma_{i=1} \text{þ}4 \Delta CITR\ t\text{-}1 + \Sigma_{i=1} \text{þ}5 \Delta VATRt\text{-}1 + \Sigma_{i=1} \text{þ}6 \Delta PITRt\text{-}1 + \xi t5 \quad (3.9)$$

$$\Delta PITRt = \Upsilon 0 + \Sigma_{i=1} \Upsilon 1 \Delta GDPt\text{-}1 + \Sigma_{i=1} \Upsilon 2 \Delta PITRt\text{-}1 + \Sigma_{i=1} \Upsilon 3 \Delta PPTRt\text{-}1 + \Sigma_{i=1} \Upsilon 4 \Delta CITR\ t\text{-}1 + \Sigma_{i=1} \Upsilon 5 \Delta VATRt\text{-}1 + \Sigma_{i=1} \Upsilon 6 \Delta CEDRt\text{-}1 + \xi t6 \quad (3.10)$$

Where:
Δ = First difference operator;

β0, α0, δ0, θ0, þ0, ϒ0 are intercepts;
β1-6, α1-6, δ1-6, θ1-6, þ1-6, ϒ1-6 are parameters, and ɛt1-ɛt6 are the error terms.
The model *a priori* expectations are that β1- β6 > 0, α1- α6 > 0, δ1- δ6 > 0, θ1- θ6 > 0, þ1- þ6 > 0 and ϒ1-ϒ6 > 0
ℇ = Error term

***A Priori* Expectations**

The parameters of the variables, Value Added Tax Revenue (VATR) and Custom and Excise Duties Revenue (CEDR) are expected to have positive signs, indicating the existence of a direct relationship between Value Added Tax Revenue (VATR), Custom and Excise Duties Revenue (CEDR) and Gross Domestic Product (GDP). This is because increase in value added tax and custom and excise duties imply higher revenue to the government and if channelled properly particularly in productive sectors would translate into higher Gross Domestic Growth (GDP) growth. Conversely, dwindling value added tax revenue and custom and excise duties reduces government's earnings thereby causing Gross Domestic Product (GDP) to fall.

The coefficient of CITR is expected to have a positive sign, implying a direct relationship between company income tax and GDP. Company income tax rises revenue generation of the country and if used properly would translate into higher GDP growth. On the other hand, lower company income tax all things being equal reduces revenue available for government to finance its budget, hence lower GDP growth.

The estimated coefficient of the variable PPTR is expected to be a positive sign. This is because Petroleum Profit Tax Revenue (PPTR) and Real Gross Domestic Product (RGDP) are positively and directly related. Increase in petroleum profit tax boost revenue generation of the government which in turn promote the financing of government budgets, reduce government borrowing and consequently causes Real Gross Domestic Product (RGDP) to rise. But a fall in petroleum profit tax lower tax revenue all things being equal, thus, adversely affects government funding of both recurrent and capital expenditures and this result to a fall in Real Gross Domestic Product (RGDP).

Descriptive Statistics Results

Variable	Mean	Std. D	Skewness	Kurtosis	Jar.-Bera	Prob.	Obs.
GDP	3460065	13195729	5.598395	33.67500	1732.776	0.000000	39
PPTR	3419245	7734790	3.055910	10.62839	155.2633	0.000000	39
CITR	984798.3	1416929	1.007431	2.093090	7.933495	0.018935	39
VATR	16631.81	31654.64	2.477891	8.469275	88.51823	0.000000	39
CEDR	607516.8	609876.9	0.288968	1.215231	5.719040	0.057296	39
PITR	76750.93	172384.8	2.674342	8.767659	100.5457	0.000000	39

Source: Author's Computation from E-views 12, 2024

Gross Domestic Product (GDP) as shown in Table 4.1 has a mean value of 478343. The standard deviation which measures the spread in the series is 3188942 implying that the series

is widely dispersed from the mean. The skewness value of 3.261715 indicated that the distribution is positively skewed while a kurtosis value of 12.18420 indicated that the distribution is leptokurtic in nature. The Jarque-Bera statistic had p-value of 0.000000 which showed that residuals are not normally distributed. Petroleum Profit Tax Revenue (PPTR) has a mean value of 3576583. The standard deviation which measures the spread in the series is 8309328 implying that the series is widely dispersed from the mean. The skewness value of 3.025706 indicated that the distribution is positively skewed while a kurtosis value of 10.40682 indicated that the distribution is leptokurtic in nature. The Jarque-Bera statistic had p-value of 0.000000 which indicated that residuals are not normally distributed. Company income Tax Revenue (CITR) has a mean value of 957199.1. The standard deviation which measures the spread in the series is 1445948 implying that the series is widely dispersed from the mean. The skewness value of 1.43817 indicated that the distribution is positively skewed while a kurtosis value of 2.424819 indicated that the distribution is leptokurtic in nature. The Jarque-Bera statistic had p-value of 0.012217 which showed that residuals are not normally distributed.

Value Added Tax Revenue (VATR) has a mean value of 17065.75. The standard deviation which measures the spread in the series is 31962.23 implying that the series is widely dispersed from the mean. The skewness value of 2.435389 indicated that the distribution is positively skewed while a kurtosis value of 8.236849 indicated that the distribution is leptokurtic in nature. The Jarque-Bera statistic had p-value of 0.00000 which indicated that residuals are not normally distributed. Custom and Excise Duties Revenue (CEDR) has a mean value of 592106.2 The standard deviation which measures the spread in the series is 610319.7 implying that the series is widely dispersed from the mean. The skewness value of 0.348824 indicated that the distribution is positively skewed while a kurtosis value of 1.253567 indicated that the distribution is leptokurtic in nature. The Jarque-Bera statistic had p-value of 0.060815 which showed that residuals are not normally distributed.

Personal Income Tax Revenue (PITR) has a mean value of 78727.82 The standard deviation which measures the spread in the series is 174250.2 implying that the series is widely dispersed from the mean. The skewness value of 2.627974 indicated that the distribution is positively skewed while a kurtosis value of 8.508547 indicated that the distribution is leptokurtic in nature. The Jarque-Bera statistic had p-value of 0.000000 which indicated that residuals are not normally distributed. The series generally exhibited characteristics of a distribution with a high peak called leptokurtic ($k > 3$), they also did not have substantially flat-topped curves called platykurtic ($k < 3$) but they had not generally exhibited mesokurtosis ($k = 3$) suggesting none normal distribution.

Unit Root Test

In order to avoid spurious results from the estimation, stationarity properties of the series used in this study were subjected to test using the Augment Dickey Fuller (ADF) unit root test. Augment Dickey Fuller (ADF) unit root test results are presented in the table below.

Augmented Dickey Fuller (ADF) Unit Root Tests Results

Variables	ADF test	C.V (5%) At level	Prob.	ADF test	C.V (5%) At 1st Dif.	Prob	Order of Integration
GDP	-2.300882	-3.533083	0.0652	-3.47409	-3.562882	0.0313	1(1)
PPTR	0.563607	-1.949856	0.8336	-2.943427	-6.088423	0.0000	1(1)
CITR	-2.398970	-3.533083	0.3742	-7.459842	-2.943427	0.0000	1(1)
VATR	-2.129158	-1.949856	0.0336	-6.084389	-2.943427	0.0000	1(1)
CEDR	-2.300886	-1.949856	0.0151	-5.819502	-2.945842	0.0000	1(1)
PITR	-2.464321	-2.943427	0.0878	-7.995300	-2.943427	0.0000	1(1)

Note: * denotes significant at 5% level

Source: Author's Computation from (E-views 12), 2024

The ADF results in Table 4.2 showed that the P-value of all the variables are greater than 5% level of significance (P > 0.05). Therefore, the null hypothesis was accepted and the study concluded that the time series were non-stationarity at level. Further tests conducted at first difference revealed that the P-value for the variables were less than 5% level of significance (P < 0.05) at first difference and hence, the null hypothesis was rejected and concluded that the time series variables were stationary and could be used for VECM regression analysis.

Johansen Co-integration Test

Johansen Co-integration Test using Trace and Max-Eigen Value

Hypothesized No. of CE(S)	Trace Statistic	@5% Critical Value	Prob.	Max Eigen Statistic	@5% Critical Value	Prob.
None*	384.3438	95.75366	0.0000	163.8183	40.07757	0.0000
At most 1*	220.5255	69.81889	0.0000	129.2011	33.87687	0.0000
At most 2*	91.32442	47.85613	0.0000	71.04678	27.58434	0.0000
At most 3	20.27764	29.79707	0.4042	13.83896	21.13162	0.3784
At most 4	6.438684	15.49471	0.6437	6.183800	14.26460	0.5897
At most 5	0.254883	3.841465	0.6137	0.254883	3.841465	0.6137

Trace test indicates 2 cointegration eqn(s) at the 0.05 level

*Denotes rejection of the hypothesis at the 0.05 level

Source: Researcher's Computation from (E-views 12), 2024

From the results in Table 4.3, it was observed that there exist three evidence of cointegration equation (row1,row2 and row6). The trace statistic values of 324.7469, 106.3285, and 4.993830

were greater than the 5% critical values of 95.75366, 69.81889, and 3.841465 respectively. Similarly, the P-values are less than 0.05 (column7). The study therefore, rejected H0 and concluded that there exist cointegration between the time series variables. At the same point, the Max-Eigen values (218.4184, 68.25260, and 4.993830) were greater than the critical

values (40.07757, 33.87687, and 3.841465) and P-values are also all less than 0.05. These are also in consonance with the probability values of the trace statistic. Therefore, the H0 was rejected and concluded that there is cointegration between the time series variables under study.

Causality Test

Granger Causality Test Results

Null Hypothesis	Obs.	F-statistic	Prob.	Causality	Causality Nature
PPTR does not Granger Cause GDP **GDP does not Granger Cause PPTR**	37	0.63839 1908.81	0.5347 5.E-34	No causality Causality exist	Unidirectional
CITR does not Granger Cause GDP **GDP does not Granger Cause CITR**	37	5.34505 0.00128	0.0099 0.9987	Causality exist No Causality	Unidirectional
CEDR does not Granger Cause CITR **CITR does not Granger Cause CEDR**	37	3.49556 0.02322	0.0424 0.9771	No Causality Causality exist	Unidirectional
PITR does not Granger Cause VATR **VATR does not Granger Cause PITR**	37	54.9371 0.47962	4.E-11 0.6232	Causality exist No Causality	Unidirectional

Source: Researcher's Computation from (E-views 12), 2024

The Granger Causality tests results obtained is shown in the table above. The causal relationship between PPTR and GDP, the p-value is greater than 0.05, (0.6585 > 0.05). The study therefore, accepts H0 and concluded that PPTR does not cause GDP. On the reverse, the causal relationship between GDP and PPTR shows that the p-value (3.E-28) is less than 0.05. Therefore, the study rejects H0 and concludes that GDP cause PPTR and is unidirectional. The causal relationship between CITR and GDP, the p-value is less than 0.05, (0.0113 < 0.05). The study rejects H0 and concludes that CITR cause GDP. On the reverse, the causal relationship between GDP and CITR shows that the p-value (0.0545) is greater than 0.05. Therefore, the study rejects H0 and concludes that GDP does not cause CITR. and is unidirectional.

The causal relationship between CEDR and PPTR, the p-value is greater than 0.05, (0.7515 > 0.05). The study accepts H0 and concludes that CEDR does not cause PPTR. On the reverse, the causal relationship between PPTR and CEDR shows that the p-value (0.0006) is less than 0.05. Therefore, the study rejects H0 and concludes that PPTR cause CEDR. and is unidirectional. The causal relationship between CEDR and CITR, the p-value is less than 0.05,

(0.0005 < 0.05). The study rejects H0 and concludes that CEDR cause CITR. On the reverse, the causal relationship between CITR and CEDR shows that the p-value (0.9999) is greater than 0.05. Therefore, the study accepts H0 and concludes that CITR does not cause CEDR and is unidirectional. The causal relationship between CEDR and VATR, the p-value is greater than 0.05, (0.7979 > 0.05). The study accepts H0 and concludes that CEDR does not cause VATR. On the reverse, the causal relationship between VATR and CEDR shows that the p-value (2.E-18) is less than 0.05. Therefore, the study rejects H0 and concludes that VATR cause CEDR and is unidirectional. The causal relationship between PITR and VATR, the p-value is less than 0.05, (1.E-13 < 0.05). The study rejects H0 and concludes that PITR cause VATR. On the reverse, the causal relationship between VATR and PITR shows that the p-value (3.E-10) is less than 0.05. Therefore, the study rejects H0 and concludes that VATR cause PITR and is bidirectional.

Lag Selection Test

Lag Length Selection Test Results

Lag	LogL	LR	FPE	AIC	SIC	HQ
0	-3311.460	NA	3.05e+70	179.3222	179.5834	179.4143
1	-3185.075	204.9498	2.37e+68	174.4365	176.2651	175.0811
2	-3075.112	142.6548*	5.09e+66*	170.4385*	173.8345*	171.6357*

Source: Researcher's Computation using (E-views 12), 2024.

The lag length selected result in table above revealed that at lag 2 all the lag length criteria (Modified Likelihood Ratio (LR), Akaike Information Criterion (AIC), Hannan-Quinn Information Criterion (HQIC), Final Prediction Error (FPE), and Schwarz Information Criterion (SIC) met the *a priori* expectations of the lowest. Therefore, lag 2 was chosen as an optimal lag length for the study.

Model Estimation Results

Short-Run VECM Estimated Result

Dependent Variable: Gross Domestic Product (GDP)

Variables	Coefficients	Standard Error	t-statistic
Constant	-1517135	1.2E+07	-0.12399
D(GDP(-1)	0.001455	2.45444	0.00059
D(GDP(-2)	-0.043471	2.41974	-0.01796
D(PPTR(-1)	1.229060	10.1306	0.12132
D(PPTR(-2)	1.344743	3.53228	0.38070
D(CITR(-1)	-0.899580	4.98522	-0.18045
D(CITR(-2)	-0.110670	4.78641	-0.02312
D(VATR (-1)	6.337737	216.764	0.02924
D(VATR(-2)	0.516690	122.210	0.00423

Variables	Coefficients	Standard Error	t-statistic
D(CEDR (-1)	-1.460186	19.9460	-0.07321
D(CEDR(-2)	-1.979421	19.3827	-0.10213
D(PITR(-1)	1.890096	21.2391	0.08899
D(PITR (-2)	-0.626291	37.1772	-0.38918
R-Squared	0.477372	Lg lik.hood	-641.2938
Adj. R-Squared	0.168546	Akaike AIC	36.40521
Sum Sq. Resids	6.26E+15	Schwarz SC	37.02103
S.E. Equation	16869487	Mean Dept	338483.7
F-Statistic	1.545764	S.D Dept	18500469
ECTt-1	-0.942987	2.42299	-0.38918

GDP = -1517135 + 0.001455GDP +1.229060PPTR - 0.110670CITR + 6.337737VATR - 1.460186 CEDR +1.890096PITR. The short-run results of VECM is presented in Table 4.6. The value of the constant (-1517135) signified that if explanatory variables are constant, GDP was - N-1517135 billion in the short-run. The coefficient (0.001455) of lag GDP in the previous year is positive and implies that a unit increase in the value of GDP (-1) increased GDP in the current year by N0.001455 billion within the study period. This is statistically insignificant because the t-calculated (0.00059) is less than the t-tabulated (2.015) at 5% level of significance.

The coefficient of the past value of Petroleum Profit Tax Revenue (PPTR) is positive (1.344743) and it met the *apriori* expectation of a positive sign. This implies that a unit increase in the value of PPTR (-2) increased current GDP in the short-run by N1.344743 billion during the study period. This is statistically insignificant because the t-calculated (0.38070) is less than the t-tabulated (2.015) at 5% level of significance.

The coefficient of the past value of Company Income Tax Revenue (CITR) Petroleum Profit Tax is negative (-0.110670) and it did not meet the *apriori* expectation of a positive sign. This implies that a unit increase in the value of CITR (-2) reduced current GDP in the short-run by N0.110670 billion during the study period. This is statistically insignificant because the t-calculated (-0.02312) is less than the t-tabulated (2.015) at 5% level of significance. The coefficient of the past value of Value Added Tax Revenue (VATR) is positive (6.337737) and it met the *apriori* expectation of a positive sign. This implies that a unit increase in the past value of VATR at lag (2) increased current GDP in the short-run by N6.337737 billion during the study period. This is statistically insignificant because the t-calculated (0.02924) is less than the t-tabulated (2.015) at 5% level of significance.

The coefficient of the past value of Custom and Excise Duties Revenue (CEDR) is negative (-1.460186) and it failed to meet the *a priori* expectation of a positive sign. This implies that a unit increase in the past value of CEDR (-1) reduced current GDP in the short-run by N1.460186 billion during the study period. This is statistically insignificant because the t-calculated (-0.07321) is less than the t-tabulated (2.015) at 5% level of significance.

The coefficient of the past value of Personal Income Tax Revenue (PITR) is positive (1.890096) and it met the *apriori* expectation of a positive sign. This implies that a unit increase in the past value of PITR (-2) increased current GDP in the short-run by N1.890096 billion during the study period. This is statistically insignificant because the t-calculated (0.08899) is less than the t-tabulated (2.015) at 5% level of significance.

The R2 showed that about 48 % of the total variation in economic growth (GDP) is determined by changes in the explanatory variables and 52% is attributed to the error term and the adjusted-R2 is about 17% Thus, it is a good fit. The F-statistic (1.545764) is greater than 0.05 and this indicates that all the variables are jointly statistically significant. The coefficient (alpha) of the Vector Error Correction Model (VECM) that is the value of ECTt-1 is -0.942987 and it is correctly signed. The VECM results showed a relatively high speed of adjustment (94%) of the short-run and long-run equilibrium behaviour of economic growth and the explanatory variables (components of tax revenue), indicating relatively quick adjustment trend. This indicated that short-run deviations towards long-run were corrected by 94% in economic growth function. In other words, it meant that the system corrected itself quickly within the study period.

Vector Error Correction Model (VECM) Estimation

Long Run Results of VECM

Dependent Variable: Gross Domestic Product (lgGDP)

Variables	Coefficients	Standard Error	t-statistic
Constant	-5277667	-	-
GDP (-1)	1.000000	-	-
PPTR (-1)	1.142662	0.11143	10.2544
CITR (-1)	-0.518394	0.05176	-10.0149
VATR (-1)	-4.281378	3.09731	-1.38229
CEDR (-1)	-1.675274	0.18601	-1.38229
PPTR (-1)	2.696599	0.55400	4.86751

Source: Author's Computation from (E-views 12), 2024

GDP = -5277667 + 1.000000 GDP + 1.42662 PPTR -0.518394 CITR - 4.281378 VATR - 1.675274 CEDR + 2.696599 PITR. The long-run results of VECM is presented in Table 4.7. The value of the constant (-5277667) signified that if explanatory variables are constant, GDP was - N5277667 billion during the study period. The coefficient (1.000000) of lag GDP in the previous year is positive and it implies that a unit increase in the value of GDP(-1) increased GDP in the current year by N1.000000 billion within the study period.

The coefficient of the past value of Petroleum Profit Tax Revenue (PPTR) is positive (1.142662) and it met the *apriori* expectation of a positive sign. This implies that a unit increase in the value of PPTR (-1) increased current GDP in the short-run by N1.142662 billion during the study period.

This is statistically significant because the t-calculated (10.2544) is greater than the t-tabulated (2.015) at 5% level of significance. The coefficient of the past value of Company Income Tax Revenue (CITR) Petroleum Profit Tax is negative (-0.518394) and it did not meet the *apriori* expectation of a positive sign. This implies that a unit increase in the value of CITR (-1) reduced current GDP in the short-run by N0.518394 billion during the study period. This is statistically insignificant because the t-calculated (-10.0149) is less than the t-tabulated (2.015) at 5% level of significance.

The coefficient of the past value of Value Added Tax Revenue (VATR) is positive (-4.281378) and it met the *apriori* expectation of a positive sign. This implies that a unit increase in the past value of VATR (-1) increased current GDP in the short-run by N4.28178 billion during the study period. This is statistically insignificant because the t-calculated (-1.38229) is less than the t-tabulated (2.015) at 5% level of significance.

The coefficient of the past value of Custom and Excise Duties Revenue (CEDR) is negative (-1.675274) and it failed to meet the *a priori* expectation of a positive sign. This implies that a unit increase in the past value of CEDR (-1) reduced current GDP in the short-run by N1.675274 billion during the study period. This is statistically insignificant because the t-calculated (-1.38229) is less than the t-tabulated (2.015) at 5% level of significance.

The coefficient of the past value of Personal Income Tax Revenue (PITR) is positive (2.696599) and it met the *apriori* expectation of a positive sign. This implies that a unit increase in the past value of PITR (-2) increased current GDP in the short-run by N2.696599 billion during the study period. This is statistically significant because the t-calculated (4.86751) is less than the t-tabulated (2.015) at 5% level of significance.

Serial Correlation Test

Results of Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test

F-Statistic	**0.913724**	**Prob F(2,31)**	**0.4116**
Obs R-Squared	2.171064	Prob. Chi-Square (2)	0.3377

Source: Author's Computation from (E-views 12), 2024

The result of the Breusch-Godfrey serial correlation LM or autocorrelation test revealed that F-statistical probability value (0.4116) is greater than 5% level of significance and likewise the probability of the chi-square (0.3377) is also greater than 5% level of significance. The null hypothesis (H0) is therefore, rejected and concluded that the model is free of serial correlation. This implies that the error terms are not related over time.

Heteroskedasticity Test

Results of Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-Statistic	**1.200157**	**Prob F(5,33)**		**0.3307**
Obš R-Squared	6.000666	Prob. Chi-Square	(5)	0.3062
Scaled Explained SS	57.59284	Prob. Chi-Square (5)		0.0000

Source: Author's Computation from (E-views 12), 2024

The result of the Breusch-Pagan-Godfrey heteroskedasticity test revealed that the probability value of F-statistic (0.3307) is greater than 5% level and likewise the probability of the chi-square (0.3062) is greater than 5% level of significance. The null hypothesis (H0) is therefore rejected and conclude that the model is free of heteroskedasticity. It implied that the parameter estimates have constant variance and therefore, reliable for prediction.

Discussion of Findings

The Vector Error Correction Model (VECM) regression results revealed that Petroleum Profit Tax Revenue (PPTR) has a positive and statistically insignificant impact on economic growth (GDP) in the short-run-run but it has a positive and statistically significant impact on GDP in the long-run. It means that increase in PPTR reduces GPD in the short-run but it increases GDP in the long-run. This implied that in the short-run, efforts made by the government to increase Petroleum Profit Tax Revenue led to decrease in GDP and this could be attributed to inadequate accountability and non-remittance of Petroleum Profit Tax Revenue into the Federation Account. The positive and significant impact of Petroleum Profit Tax Revenue on the ecnomic growth of Nigeria is best explained on the fact that in the long-run, checks and balances were put in place to monitor non-remittance of Petroleum Profit Tax Revenue. The findings of this study corroborated with the findings of other studies. For instance, Otekunrin, Fakile, Eluyela, Onabote and Ifeeanyichukwu (2023), Adefolake, Omodero **(**2022), and John and Dickson (2020) established that PPTR impacted positively on GDP in the long-run. On the other hand, Ogbonnaya and Oguguo (2021) found that PPTR had a significant but negative impact on GDP in the short-run. The positive long-run relationship between PPTR and GDP is a clear indication that oil price increase in the future will definitely lead to improvement and increase in Petroleum Profit Tax Revenue.

The findings of the study revealed that Company Income Tax Revenue (CITR) impacted negatively on economic growth (GDP) both in the short-run and long-run**.** It means that increase in CITR reduces GPD both in the short-run and long-run. This implied that Company Income Tax Revenue were either not remitted or remitted but being sigphoned or diverted by tax revenue officials within the study period. This could be a reason for the negative impact of Company Income Tax Revenue on GDP in Nigeria during the period under review. It implied that any attempt made to increase CITR both in the short-run and long-run led to reduction in GDP in Nigeria. The findings of the study are not in consonance with economic

theory postulation of a positive impact. This is attributed to high level of non-remittance of Company Income Tax Revenue in Nigeria. The findings of Adefolake and Omodero (2022), John and Dickson (2020), Ogbonnaya and Oguguo (2021), and Otekunrin, Fakile, Eluyela, Onabote and Ifeanyichukwu (2023) corroborated with the findings of this study. The implication is that short-term policy regarding CITR will be replicated in the long-run in Nigeria.

The findings of the study showed that Value Added Tax Revenue (VATR) has a positive and statistically insignificant impact on economic growth (GDP) in the short-run and in the long-run it has a negative and statistically insignificant impact on economic growth (GDP). This implies that increase in VATR increases GDP in the short-run but it reduces GDP in the long-run. In other words, increase in VATR during the period under review led to increase in economic growth in Nigeria and this could be attributed to strict tax policy implementation of laws and regulations in the short-run by government and tax revenue agencies. The findings of Adeusi, Uniamikogbo, Erah & Aggreh (2020) established a positive impact of VATR on GDP in the short-run.On the other hand, the findings of Eneche (2020) established a negative impact of VATR on GDP in the long-run.

Also, the findings of the study revealed that Custom and Excise Duties Revenue (CEDR) has statistically insignificant negative impact impact on economic growth (GDP) both in the short-run and long-run. It means that increase in CEDR reduces GDP both in the short-run and long-run. The negative and insignificant impact of CEDR on GDP in both short-run and long-run could be attributed to partial or complete non-remittance of revenues generated by the custom officials. The finding of Otekunrin, Fakile, Eluyela, Onabote and Ifeanyichukwu (2023) agreed with the short-run negative impact of CEDR on GDP of this study while the study conducted by Dang and Bala (2018) collaborated with the long-run negative impact of CEDR on GDP. The negative impact of CEDR on GDP in Nigeria can be attributed to corruption that is experienced in the importation and exportation of goods in Nigeria.

More so, the findings of the study indicated that Personal Income Tax Revenue (PITR) has a positive and statistically insignificant impact on economic growth (GDP) in the short-run but in the long-run it has a positive and statistically significant impact on economic growth (GDP). Thus, it means that increase in PITR increases GDP insignificantly in the short-run but in the long-run PITR increases GDP significantly. This implied that PPTR contributed to increase in GDP in Nigeria within the study period. The study conducted by Metri (2018) agreed with the short-run finding of this study. The finding of Ogbonnaya and Oguguo (2021) of a positive and significant impact of PPTR on GDP is in consonance with the long-run finding of this study.

The post estimation tests further revealed that the estimates of the model of the results from the serial correlation test showed that the model was free from serial correlation. Also, the Breusch-Godfrey Pagan heteroscedasticity test revealed that the distribution of the error term had a constant variance. The normality test indicated that the residuals of the model were normally distributed while the CUSUM plot graph showed that the model was stable and free

of misspecification error. Generally, it therefore, implies that the estimates from the model were good, consistent and reliable in analysing the impact of tax revenue on economic growth in Nigeria during the period under review.

CONCLUSION

The rationale of the study was to investigate the impact of tax revenue on economic growth in Nigeria. The study employed Vector Error Correction Model (VECM) econometric technique of estimation. The findings of the study revealed that Petroleum Profit Tax Revenue (PPTR), and Personal Income Tax Revenue (PITR) separately impacted positively and statistically significant on economic growth in Nigeria. This shows that PPTR and PITR have the potential of increasing or boosting economic growth. Also, the study showed that Company Income Tax Revenue (CITR), Value-Added Tax Revenue (VATR), and Custom and Excise Duties Revenue (CEDR) impacted negatively on economic growth in Nigeria. Based on the findings of the study, it is concluded that both PPTR and PITR impacted positively and significantly on economic growth in the long-run.

RECOMMENDATIONS

The following recommendations are made based on the empirical results of the study.

1. The Nigerian government should intensify efforts in sustaining the positive and significant impact of petroleum profit tax revenue to enhance economic growth. This can be achieved by blocking avenues through which petroleum profit tax revenue can be siphoned or diverted by tax revenue officials. Establishment of refineries and petroleum pump stations should be encouraged by the government in order to increase petroleum profit tax revenue.
2. The Nigerian government in order to record a positive and significant impact of company income tax revenue on economic growth and avoid the negative and insignificant impact as revealed in this study, tax policies should be focused on improving the collection of company income tax revenue in Nigeria. The Federal Inland Revenue Services (FIRS) should be saddled with the responsibility of identifying unregistered companies, register and tax them accordingly and also ensure that company income tax revenues are collected and monitored. In-deed, with tis in place, company income tax revenue will become an instrument for stimulating economic growth in Nigeria.
3. The government of Nigeria can address the negative and insignificant impact of value added tax revenue on economic growth by expanding the base of value added tax revenue and ensuring effective and efficient compliance in tax collection. Also, the tax rate charged on goods and services should be reduced to encourage payment by the taxpayers. This can be achieved through creating awareness on structured and informed tax policies that will improve economic growth.
4. The Nigerian government in order to improve or increase custom and excise duties tax revenue to have significant impact on economic growth should endeavour to optimize

tariff structures, improve tax administration, and create enabling environment for investment. This can be achieved by providing a relatively secured environment, embarking on measures that reduce smuggling and remittance on duties are duly paid to the government. This will improve economic growth in Nigeria.

5. To sustain the positive and significant impact of personal income tax revenue on economic growth in Nigeria, the Nigerian government through the Federal Inland Revenue Services (FIRS) should device means of boosting personal income tax revenue. This can be done by enhancing compliance, improving efficiency, and expanding the tax net to ensure that personal income tax of both the public and the private sectors are fully remitted. This can also be achieved through monitoring non-remittances which are tax leakages that affect economic growth.

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