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IMPACT OF TAXATION ON ECONOMIC GROWTH IN NIGERIA (1981 – 2022)

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Abstract

This study examined the impact of taxation on economic growth in Nigeria between the period 1981 and 2022 using an econometric methodology and a vector error correction estimation technique. The study sought to achieve the following objectives; to estimate the extent to which companies' income tax revenue impact on economic growth in Nigeria; to determine whether there is significant impact of petroleum profit tax revenue on economic growth in Nigeria; and to determine whether there is significant impact of customs and excise duty revenue on economic growth in Nigeria. The empirical analysis made use of time series data on real gross domestic product, company income tax revenue, Petroleum profit tax revenue and Custom and excise duty revenue all of which are sourced mainly from CBN publications. Vector error correction was used to estimate the parameters of economic relationship existing among the specified model and the result shows that company income tax revenue, Petroleum profit tax revenue and customs and excise duties revenue all exert positive and statistically significant impact on real gross domestic product in Nigeria. Based on the finding above, the study recommended among other things that government should ensure the tax revenue generated are channeled toward building capital stock that can create more jobs which will generate more revenue to government through other forms of tax.

Keywords: ***economic growth, job creation, profit tax, taxation,***

Introduction

Taxation is an important fiscal policy instrument at the disposal of governments to mobilise revenue and promote economic growth and development. Effective tax revenue mobilization reduces an economy's dependence on external flows which have been found to be highly volatile. Taxation also allows governments' greater flexibility in designing and controlling their development agenda; conditions states to improve their domestic economic policy environment, thus creating a conducive environment for the much-needed foreign direct investments; and strengthens the bonds of accountability between governments and the citizens (Babatunde &Adepeju, 2017).

The 2008/2009 global financial and economic crisis provided useful lessons for countries on the need to direct more attention to domestic resources mobilisation efforts, including through increasing tax revenues, and shift away from over-dependence on external financial flows and export revenues. Although tax structures vary considerably across countries, the primary objective of any tax structure is to attain maximum revenue and economic growth with

minimum distortions (Appah, 2020; Appah & Oyandonghan, 2017). A tax system is one of the most effective means of mobilizing a nation's internal resources and it lends itself to creating an enabling environment to promote economic growth. Towing this line of argument, Nzotta (2007), also argued that taxes constitute key sources of revenue to the federation account shared by the federal, state and local governments. Hence, a tax policy represents key resource allocator between the public and private sectors in a country. Nwakanma and Nnamdi (2021) stated that taxes are imposed to regulate the production of certain goods and services, protection of infant industries, control business and curb inflation, reduce income inequalities etc. Similarly, Adegbie and Fakile (2018) submitted that taxes are used as proxy for fiscal policy (negatively or positively). They outlined five possible mechanisms by which taxes can affect economic growth. First, taxes can inhibit investment rate through such taxes as corporate and personal income, capital gain taxes. Second, taxes can slow down growth in labour supply by disposing labour leisure choice in favour of leisure. Third, tax policy can affect productivity growth through its discouraging effect on research and development expenditures. Fourth, taxes can lead to a flow of resources to other sectors that may have lower productivity. Finally, high taxes on labour supply can distort the efficient use of human capital high tax burdens even though they have high social productivity.

In Nigeria, the taxation system dates back to 1904 when the personal income tax was introduced in Northern Nigeria before the unification of the country by the colonial masters (Dickson & Presley, 2013). It was later implemented through the Native Revenue Ordinances to the Western and Eastern regions in 1917 and 1928, respectively. Among other amendments in the 1930s, it was later incorporated into Direct Taxation Ordinance No. 4 of 1940 (Dickson & Presley, 2013). Since then, different governments have continued to try to improve on Nigeria's taxation system. The general opinion among scholars is that Nigeria's fiscal regime is characterized by an unnecessarily complex, distortionary and largely inequitable taxation laws that have limited application in the formal sector that dominates the economy (Edame and Okoi, 2014). The Nigerian tax system is basically structured as a tool for revenue collection. This is a legacy from the pre-independence government based on 1948 British tax laws and have been mainly static since enactment. The need to tax personal incomes throughout the country prompted the Income Tax Management Act (ITMA) of 1961. In Nigeria, personal income tax (PIT) for salaried employment is based on a 'pay as you earn' (PAYE) system, and several amendments have been made to the 1961 ITMA Act. For instance, in 1985 PIT was increased from ₦600 or 10 per cent of earned income to ₦2,000 plus 12.5 per cent of income exceeding ₦6,000. In 1989, a 15 per cent withholding tax was applied to savings deposits valued at ₦50,000 or more while tax on rental income was extended to cover chartered vessels, ships or aircraft (Nwakanma & Nnamdi, 2021). In addition, tax on the fees of directors was fixed at 15 per cent. These policies were geared towards achieving effective protection for local industries, greater use of local raw materials, redistributing income, generating increased government revenue among others.

Economic growth is a gradual and steady change in the long-run which comes about by a general increase in the rate of savings and population (Akwe, 2018). It has also been described as a positive change in the level of production of goods and services by a country over a certain period of time. However, economic growth is measured by the increase in the amount of goods and services produced in a country. An economy is said to be growing when it increases its productive capacity which later yield more in production of goods and services (Akwe, 2018). Economic growth is usually brought about by technological innovation and positive external forces. It is the yardstick for raising the standard of living of the people. It also implies reduction of inequalities of income distribution. Taxation therefore, plays a

crucial role in promoting economic activity and growth. Taxation plays a crucial role in promoting economic and social activities and growth. Through taxation, government ensures that resources are channeled towards important projects in the society while giving support to the weak. In support of this, Edame and Okoi (2014) stated that taxation is useful in raising revenue, controlling the consumption of certain commodities, controlling monopoly, reducing income inequalities, improving the balance of payments as well as protecting infant industries. Taxation is therefore seen as the transfer of resources as income from the private sector to the public sector for its utilization to achieve some if not all the nation's economic and social goals such as provision of basic amenities, social services, educational facilities, public health, transportation, capital formation etc. In essence, taxation is a core pillar of a country's regulatory framework for investment and growth. In the light of all that have been said, this study looks at the econometric consequences of tax revenue in Nigeria, with a large part of the empirical analysis devoted to assessing the effects of different forms of petroleum profit tax, company income tax and custom & excise duties on productivity and growth of the Nigerian economy.

Statement of the Problem

Taxation is expected to play this role through resources mobilization, reduction in inequalities of income, improvement in social welfare, inflation control and overall macroeconomic stabilization. Theoretically, the classical economists hold that the only objective of taxation was to raise government revenue. But with the change in circumstances and ideologies, the aims and objectives of taxation has recently increased. Hence, apart from the objective of raising public revenue, taxes presently affect consumption, production and distribution with a view to ensuring societal welfare through the economic development of a country.

The need for governments at all levels to generate adequate revenue from internal sources has therefore become a matter of extreme urgency and importance (Otu & Theophilus, 2015). Over the past three decades, revenue sources in Nigeria have always been heavily skewed and concentrated as they are just petroleum tax and company income tax, the Nigeria tax system is highly unstable, dependent largely on oil and the system is deceptively characterised by the predominance of direct tax which is usually high (Saibu, 2015). There is ample scope to increase the rate of some of the existing taxes not directly related to benefits received by the taxpayer. Recently the Nigerian government undertook various tax law reforms to improve tax administration and to increase tax yield.

The Value Added Tax (Amendment) Act, 2007; was for instance intended to widen the value added tax base and improve the machinery for its collection. Similarly, the Company`s Income Tax (Amendment) Act. 2007; the Federal Inland Revenue Services (Establishment) Act, 2007 and The Personal Income tax (Amendment) Act, 2011, were all aimed at encouraging tax compliance and increasing tax yield (Aguolu, 2010). Despite the constant review and enforcement of taxes on the citizens, it has been observed over the years that income tax revenue has generally been grossly understated due to improper tax administration arising from under assessment and inefficient machinery for collection. In Nigeria revenue derived from income taxes has been grossly understated due to improper tax administration, assessment and collection. Persons and companies are known to routinely evade and avoid taxes due to corrupt practices and the existence of various loopholes in the tax laws. The implication is that social goods which are necessities to Nigerians such as acceptable quality of infrastructure, industrial plants, roads, power stadiums, railways and ports, affordable medical services, access to clean drinking water, and education are still

grossly inadequate while leaving the country to battle with unmitigated macroeconomic instabilities including unemployment, poverty, inflation rate and depreciating currency. The serious decline in price of oil in recent years has led to a decrease in the funds available for distribution from federal to state and local governments.

The need for governments at all levels to generate adequate revenue from internal sources has therefore become a matter of extreme urgency and importance. This need underscores the eagerness on the part of local, state and the federal governments to explore various sources of revenue with the view to innovating the mode of collecting revenue from existing sources. This is an economic issue that requires investigation. Several studies have been carried out in the past on this subject but a review of previous empirical literature revealed most of the studies were majorly partitioned in the effects of oil and non-oil tax revenue on economic growth. This present study partitioned tax revenue into companies' income tax revenue, petroleum profit tax revenue and customs and excise duty revenue with the view to understanding their relative impacts towards the overall growth of the country. This paper sought to examine the impact of taxation on Nigeria's economic growth and therefore attempts to answer these research questions: To what extent does companies' income tax revenue impact on economic growth in Nigeria?, Is there any significant impact of petroleum profit tax revenue on economic growth of Nigeria? and Is there any significant impact of customs and excise duty revenue on economic growth of Nigeria?

Literature Review

Theoretical Review

Khaldun's Theory of Taxation

Published in 1990 by Ibn Khaldun, the theory identifies two different effects: the arithmetic and the economic effect which the tax rates have on revenues. The two effects have opposite results on revenue in case the rates are increased or decreased. According to the arithmetic effect, if tax rates are lowered, tax revenues will be lowered by the amount of the decrease in the rate. The reverse is true for an increase in tax rates. The economic effect however recognized the positive impact that lower tax rate has on work, output and employment and thereby the tax rate base used in providing incentives to increase these activities whereas raising tax rates here the opposite economic effect is used by penalizing participation in the taxed activities. At a very high tax rate, negative economic effect dominates positive arithmetic effect, thereby, the tax revenue declines (Ogbonna and Appah, 2019). The core of Ibn Khaldun's theory of taxation, in his own words, is: "to lower as much as possible the amounts of individual imposts levied upon persons capable of undertaking cultural enterprises. In this manner, such persons will be psychologically disposed to undertake them, because they can be confident of making a profit from them" (Ogbonna and Appah, 2019). Thus, he advocates for decreasing the burden of taxation on businessmen and producers, in order to encourage enterprise by ensuring greater profits to entrepreneur and revenue to the government. In practice, he found that at the initial stage, the government relies on low taxes, in keeping with Islamic law. As a result, enterprises increase in number and size and thus permit tax base, tax revenue, and governmental surplus to grow. He says: "At the beginning of a dynasty, taxation yields a large revenue from small assessment. At the end of a dynasty, taxation yields a small revenue from large assessment.

The reason for this is that when the dynasty follows the way of the religion, it imposes only such taxes as are stipulated by the religious law, such as charity taxes, the land tax, and the

poll tax. They mean small assessments, because, as everyone knows the charity tax on property is low. The same applies on charity tax on grain and cattle, and also to the poll tax, the land tax and all other taxes required by the religious law. They have fixed limits that cannot be overstepped" (Osundina and Olanrewaju, 2017). He describes the advantages of low taxes: "When the tax assessments and imposts upon the subjects are low, the latter have energy and desire to do things. Cultural enterprises grow and increase, because the low taxes bring satisfaction. When the cultural enterprises grow, the number of individual imposts and assessments mounts. In consequence, the tax revenue, which is the sum total (of the individual assessments), increases" (Ravindra, Ambalika and Sweta, 2011).

In the course of time, however, royal expenditure increases, with the result that private expenditure, especially upon non-necessities, also increases and intensifies the money cost of manpower and other objects of royal expenditure. It then becomes necessary for the government, if it has to continue expenditure at a high and rising rate, to increase assessments and tax rates and to levy more and higher customs duties. In this way the government is caught in a vicious circle of financial crisis. Enough money is not forthcoming, and the dynasty, its money foundation being undermined, would presently find itself unable any longer to support its soldiery (i.e., its military foundation) to their satisfaction. Hence, its disintegration, already under way, would be accelerated. The adverse effect is intensified when the now frustrated government, still bent upon continuing an insupportable rate of expenditure, not only increases taxes and tax rates but also engages in commercial enterprise and undertakes "to buy monopolistically and sell monopolistically,"2 with the result that business activity is discouraged and tax revenue shrinks further. Many passages of the Muqaddimah deal with several aspects of this analysis.

Ability to Pay Theory

Ability-to-pay taxation is a progressive taxation principle that maintains that taxes should be levied according to a taxpayer's ability to pay. This progressive taxation approach places an increased tax burden on individuals, partnerships, companies, corporations, trusts, and certain estates with higher incomes. Advocates of ability-to-pay taxation argue that it allows those with the most resources the ability to pool together the fund required to provide services needed by many. People and businesses rely on these services, either indirectly or directly, such as snow removal, schools, scientific research, police, and libraries. Additionally, using ability-to-pay taxation has the potential to increase a government's revenues. Arguably, if a government uses a flat tax instead of the ability-to-pay taxation, it must use relatively low tax rates to accommodate low-wage earners. Following the theory of deadweight loss of taxation, if the same rate applies to everyone, it will cause a loss of revenue due to a lack of fund remaining after paying taxes. Also, as low-wage earners are more likely to need all their earnings, allowing them to keep a larger percentage of it helps to stimulate the economy. This theory requires that for a given level of public expenditure, the total cost of financing it should be divided among individuals according to their ‘ability to pay’. This ability to pay is guided by the income which an individual earns and that determines their contribution towards public expenditure.

The common measure of ability to pay is income though it is also possible to consider the use of expenditure and wealth of an individual in determining their ability to pay tax. This indicates that ‘ability to pay’ is measured in terms of monetary resources of an individual in the sense that income, expenditure and wealth are an indication of the use of resources which can be expressed in monetary terms. The other school of thought in support of ability to pay

theory supports the use of expenditure rather than income as a test of ability to pay. The taxpayer's ability to pay is measured by spending his earnings. This means the level of a taxpayer's expenditure is the determining factor as to whether the taxpayer is liable to pay tax or not. The fact that the taxpayer may not have income is not relevant. Tax liability arises only from expenditure taxes such as VAT which is paid by the consumer on all taxable goods and services. This means that the taxpayer who enjoys spending most of his income earnings is disadvantaged, whereas one who saves his income is likely to escape taxation according to this school of thought.

Endogenous Growth Theory

Taking a leap from the neo classical growth model in which economic growth was viewed as being dependent on the rate of labour growth and capital accumulation given the state of technology which is been treated as an exogenous factor, and in which human capital was completely excluded from the definition of "capital", Romer (1986, 1987) developed another model which is named the "endogenous growth model. In this new model, labour as a factor of production was added to capital as the man factors affecting growth. This is in due recognition that labour is a viable part of human capital. In the endogenous growth model, "human and social capital accumulation are the main factors responsible for the growth of an economy" (Bedir, 2016). Equally, the recognition of the state of technology as an exogenous factor was equally discarded as erroneous by the new endogenous model. In fact, according to Romer (1986), the state of technology is not something that can be viewed as a "manna which comes from heaven" but instead should be seen as something which can be altered and whose degree can as well be redirected (Muftaudeen and Bello, 2014).

In this case, instead of being regarded as exogenous factor of production, technology according to Romer was made an endogenous factor. Endogenous theory the theory holds that growth is primarily a function of endogenous (internal) and not exogenous (external) factors. These internal factors according to him are usually determined by government policies through researches. Hence, the long run growth of the economy depends on governmental policies. This means that the growth factors are determined within the system and not outside the system. In its simplest term, this theory holds that if a firm employ both capitals alongside skilled, educated and healthy individuals, the skilled labour so employed will be able to utilize the capital and technology more efficiently to grow the economy (Ayuba, 2014). In summary, "the conventional growth theory as modeled by Romer in 1986 holds that what increases productivity is not an exogenous factor but rather endogenous factors which are assumed to be related to the knowledge and behaviour of the people responsible for the accumulation of physical capital, thus human capital becomes one of the main enhancers of economic growth.

The theoretical framework of this study is based on the Endogenous growth theory. This is because the theory recognized human capital hitherto neglected by the exogenous growth theories as one of the factors necessary for growth. The endogenous growth theory did not limit the definition of capital to physical capital as was done by the neoclassical theorist but rather expanded the definition to include human capital which can further be decomposed into skills, knowledge, experiences and capabilities which are usually regarded as components of human capital usually possessed by labour factors. The enhancement of these components of human capital sometimes requires financial resources which can be generated through taxation. Having shown theoretically that sustainable growth can arise from enhancement of human capital through government expenditure, it suffices therefore to say

that government tax revenue will to a large extent exert a significant impact on economic growth of Nigeria.

Review of Empirical Studies

Adesola (2021) investigated the long-run equilibrium relationships between tax revenue and economic growth in Nigerian between 1986 and 2017 using ordinary least square methodology. Their results indicated that, total tax revenue has a significant effect on economic growth; explaining about73.4% of the total variation in RGDP. CIT, EDT and OTR were discovered to have significant effects on economic growth; sustaining long-run equilibrium relationships with RGDP.

Nwakanma and Nnamdi (2021) concentrated on company income tax and Nigeria's economic development relationship. Using Chi-square and Multiple Linear Regression analysis in analyzing the primary and secondary data respectively and concluded that there is a significant relationship between company income tax and Nigerian economic development. And that tax evasion and avoidance are major hindrances to revenue generation.

Jibrin, Blessing and Ifurueze (2021) examined the impact of companies' income tax and value-added tax on economic growth (proxy by gross domestic product) in Nigeria, using secondary time series panel data covered the period 2005 to 2018 and an econometric methodology. The results of the analysis showed that, both company income tax and value-added tax have positive impact on economic growth.

Ogbonna and Appah (2019) observed the impact of tax reforms on economic growth in Nigeria using Autoregressive distribution lag methodology and data collected from the Statistical Bulletin of the Central Bank of Nigeria (CBN) for the period 1994 - 2009.They found that, tax reform variables such as petroleum profit tax, companies' income tax, value-added tax, education tax, personal income tax, and custom and excise duties had significantly impact on economic growth in Nigeria. They concluded that, tax reforms improved government revenue.

In a related study, Umoru & Anyiwe (2020) investigated the correlation between the New National Tax Policy and economic growth in Nigeria using co-integration technique and error correction model to analyze data. The results of their analysis revealed that, direct taxation revenue had significant positive relationship with economic growth, while indirect tax revenue had insignificant but negative impact on economic growth in Nigeria. They concluded that, Nigeria's tax policy towards indirect taxation lack justification, rather the country should strengthen the structures of direct taxation.

Ihenyen and Mieseigha (2019) employed the Ordinary Least Squares technique (OLS) in their analysis of taxation as a financial instrument for economic growth in Nigeria using data obtained from the Central Bank of Nigeria for the period 1980 - 2015. Findings from the study revealed that, corporate income tax and value-added tax impacted positively on gross domestic product. They concluded that, taxation is an instrument of economic growth in Nigeria. In a similar study, Edame & Okoi (2014) used vector error correction mechanism to examine the impact of taxation on investments and economic development in Nigeria, using data covering the period 1980 – 2010. From the study, they found that, corporate income tax and personal income tax were negatively related to investment, but positively related to government expenditure. They concluded that, taxation is an instrument for government expenditure.

Abubakar (2018) examined the impact of tax revenue on the Nigerian economy. The study covered the period from 1986 to 2010 using CIT, PPT and NOR as independent variable against GDP. Their findings revealed that, there was a significant relationship between petroleum profit tax and the growth of the Nigeria economy. It also showed that, there was a significant relationship between non-oil revenue and the growth of the Nigeria economy. They found that, there was no significant relationship between company income tax and the growth of the Nigeria economy.

Agbetunde(2018) used the ordinary least square methodology to examine the impact of tax revenue on the Nigerian economy. The study covered the period from 1986 to 2015 using CIT, PPT and NOR as independent variable against GDP. Their findings revealed that, there was a significant relationship between petroleum profit tax and the growth of the Nigeria economy. It also showed that, there was a significant relationship between non-oil revenue and the growth of the Nigeria economy. They found that, there was no significant relationship between company income tax and the growth of the Nigeria economy.

Methodology

Research Methods

The methodology of this study is essentially econometrics analysis which was used to estimate and analyze the influence of the explanatory variables; petroleum profit tax revenue (PPTR), company income tax revenue (CITR) and custom and excise duty revenue (CEDR) on real gross domestic product (RGDP). For this study, ex post facto research design is adopted. This is because the study attempts to explore cause and affect relationships where causes already exist and cannot be manipulated. Ex post facto research is a systematic empirical inquiry in which the scientist does not direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulated. Inferences about relations are made, without direct intervention from commitment variables of independent and dependent variables. This research work embraced the use of secondary time series in examining the growth effect of taxation revenue in Nigeria. Variables employed for the purpose of estimation of the parameters of the model specified in the specification section are sourced mainly from Central Bank of Nigeria (CBN) statistical bulletin for the period ranging between 1981 and 2022. Finally, estimation will be done with the help of E-view 10.0 econometric package.

Model Specification

To investigate empirically the effect of tax revenue on economic growth in Nigeria, this study will adopt the model employed by Akintoye (2017) wherein gross domestic product at constant price (RGDP) was used as a proxy for economic performance and which is modelled against petroleum profit tax revenue (PPTR), company income tax revenue (CITR), and custom and excise duty revenue (CEDR).

The model to be used can be explicitly specified as follows:

RGDP = F (CITR, PPTR, CEDR)

Where;

RGDP= Real gross domestic product (proxy for economic growth)

CITR= company income tax revenue

PPTR= Petroleum profit tax revenue

CEDR = Custom and excise duty revenue

The explicit form of equation 3.1 above is represented as:

$RGDP = a_0 + a_1 CITR + a_2 PPTR + a_3 VATR + U$

Where: a_0 = intercept of relationship in the model.

$a_1 - a_3$ = coefficient of each of the parameters

U = the error term

By log linearising, the model becomes;

$Log\ RGDP = a_0 + a_1 \log CITR + a_2 PPTR + a_3 \log VATR + U$

Apriori expectation

$a_1 - a_3 > 0$

Results

Unit Root Test Result

This test was conducted to know whether the mean value, variance and covariance of the variables are constant overtime. Augmented Dickey-Fuller (ADF) was employed to test for the existence of unit roots in the data using trend and intercept. The test results are presented below:

Table 1: Augmented Dickey Fuller Unit Root Test (Trend and Intercept (Series at Level))

Series	ADF Test Statistic	5%critical values	Remarks
LRGDP	-2.219403	-3.552973	Not Stationary
LCITR	-2.340456	-3.548490	Not Stationary
LPPTR	-2.296442	-3.548490	Not Stationary
LCEDR	-2.371987	-3.548490	Not Stationary

Sources: Researcher's compilation from E-views 10

Table 2: Augmented Dickey Fuller Unit Root Test (Trend and Intercept (Series at 1st Diff.))

Series	ADF Test Statistic	5%critical values	Order	Remarks

LRGDP	-3.602984	-3.552973	1(1)	Stationary
LCITR	-6.519802	-3.557759	1(1)	Stationary
LPPTR	-5.712912	-3.552973	1(1)	Stationary
LCEDR	-6.706979	-3.552973	1(1)	Stationary

Sources: Researcher's compilation from E-views 10

Table 1 and 2 above contains the summary of unit root test results using Augmented Dickey-Fuller (ADF) test. The result shows that the variables (LRGDP, LCITR, LPPTR and LCEDR) are not stationary at level since their critical values were greater than ADF test statistics at the 5 percent level of significance. However, all the variables considered became stationary after first difference since their ADF test statistics were greater than their critical values in absolute value. The results show that the series are integrated of the order one; I (1) with the application of ADF test. Therefore, the variables are fit to be used for the analytical purpose for which they were gathered.

Cointegration Test

The basic idea behind cointegration is that if, in the long-run, two or more series move closely together, it is possible to regard these series as defining a long-run equilibrium relationship, as the difference between them is stationary. Johansen cointegration test was employed in the course of this study and the summary of the result is shown in the table 3 below.

Table 3: Johansen cointegration test for the series; LRGDP, LCITR, LPPTR and LCEDR (Trace statistics test)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.685153	70.11229	55.24578	0.0014
At most 1	0.504947	33.13093	35.01090	0.0785
At most 2	0.246781	10.63202	18.39771	0.4215
At most 3	0.047677	1.563241	3.841466	0.2112

Sources: Researcher's compilation from E-views 10

Table 4: Johansen cointegration test for the series; LRGDP, LCITR, LPPTR and LCEDR (Eigen value test)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.685153	70.11229	55.24578	0.0014
At most 1	0.504947	33.13093	35.01090	0.0785
At most 2	0.246781	10.63202	18.39771	0.4215
At most 3	0.047677	1.563241	3.841466	0.2112

Sources: Researcher's compilation from E-views 10

Under the Johansen cointegration test, cointegration is said to exist if the values of computed Eigen values are significantly different from zero or if the trace statistics is greater than the critical value at 5 percent level of significance. The results of the cointegration test presented in table 3 and 4 above indicate one cointegrated equation. This is because trace statistics is greater than the critical values at 5 percent level of significance in only one of the hypothesized equations from table 3. Similarly, in table, 4 the computed Eigen value is

significantly different from zero in one of the hypothesized equations. Hence, there is presence of long run equilibrium relationship among the variables specified.

Vector Error Correction Estimate

Given that the variables in question are found to be cointegrated as evidenced by the Johansen cointegration result presented above, the coefficients of their parameters were estimated using Vector error correction mechanism (VECM) as is presented in table 5 below.

Table 5: VECM Result Estimate

Cointegrating Eq:	**CointEq1**			
LRGDP (-1)	1.000000			
LPPTR (-1)	0.215043			
	(0.02056)			
LCITR (-1)	0.069600			
	(0.02567)			
LCEDR (-1)	0.154215			
	(0.04572)			
C	-6.926679			
Error Correction:	D(LRGDP)	D(LPPTR)	D(LCITR)	D(LCEDR)
CointEq1	-0.228205	0.880389	-3.020908	0.584655
	(0.07608)	(0.91540)	(1.68524)	(0.55269)
	[-2.99941]	[0.96175]	[-1.79257]	[1.05783]
R-squared	0.559065	0.118972	0.265669	0.298058
Adj. R-squared	0.458892	-0.044181	0.129681	0.168069

Sources: Researcher's compilation from E-views 10

From the estimated VEC result, the computed coefficient of multiple determination (R^2) value of 0.559065 indicates that the model satisfies the requirements for goodness of fit. The value shows that 56 % of changes in RGDP are adequately explained by the explanatory variables while the remaining 44 % of the variations in RGDP are attributable to the influence of other factors not included in the regression function.

From the estimated result, company income tax revenue (CITR) has positive coefficient and hence positive impact on real gross domestic product (RGDP) within the period reviewed. It was equally found that petroleum profit tax revenue (PPTR) and Custom and excise duty revenue (CEDR) have positive effects on real gross domestic product. On whether the estimated coefficients are statistically significant or not, the standard error values of the estimated coefficients were used such that if the estimated standard error is smaller than half of the estimated coefficient value, we accept that the coefficient is statistically significant and vice versa. From the estimated VEC, LPPTR has a standard error value of 0.02056, while LCITR and LCEDR have standard error values of 0.02567 and 0.04572 respectively. With estimated coefficients of 0.215043, 0.069600 and 0.154215 for LPPTR, LCITR and LCEDR respectively, it could be seen that when the coefficients are divided by two, the resultant value would still be greater than the standard error. Therefore, the estimated coefficients are all statistically significant.

As can be seen from the result, the cointegrating coefficient (CointEq1) otherwise designated as ECM (-1) equals -0.228205 which shows that the speed of adjustment between the short-run and long-run equilibrium is approximately 23 percent. This means that the system corrects its previous period disequilibrium at a speed of 23% annually. The sign of cointegrating coefficient is negative and with a standard error value of 0.07608 which is

smaller than (-0.228/2) shows that the coefficient of ECM (-1) is statistically significant. Hence, this conforms to theGranger representative theorem (GRT) which holds that a negative and statistically significant error correction coefficient is a necessary condition for the variables to be cointegrated.

Conclusion

This study examined the impact of taxation on economic growth in Nigeria between the period 1981 and 2022 using an econometric methodology and a vector error correction estimation technique. The empirical analysis made use of time series data on real gross domestic product (RGDP), company income tax revenue (CITR), Petroleum profit tax revenue (PPTR) and Custom and excise duty revenue (CEDR). Prior to the conduct of cointegration test, the variables were first of all tested for stationarity using Augmented Dickey-Fuller (ADF) and the results showed that all of them were stationary at first difference. Johansen Cointegration test was used to determine the presence or otherwise of a cointegrating vector in the variables and both trace statistics and Maximum Eigenvalue indicates existence of long run relationship with one cointegrated equation. Finally, Vector error correction was used to estimate the parameters of economic relationship existing among the specified model and the result shows that company income tax revenue, Petroleum profit tax revenue (LPPTR) and customs and excise duties revenue all exert positive and statistically significant impact on real gross domestic product in Nigeria.

Recommendation

The following recommendations were made.

1. Government should enhance tax collection mechanisms and broaden the tax base to ensure efficient collection of company income tax. Efforts should focus on improving tax compliance and closing loopholes that lead to tax evasion.
2. Government should ensure that petroleum profit taxes are properly managed and reinvested in diversifying the economy, particularly into non-oil sectors like agriculture, manufacturing, and renewable energy.
3. Government should adopt trade policies that facilitate exports while ensuring fair customs duties should be promoted to maintain the positive growth impact of customs revenue.

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