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TAX REVENUE AND ECONOMIC DEVELOPMENT IN NIGERIA

Eze Emmanuel Ogbonnaya[1], Dike Chizalam Oguguo[2]
[1] *Department of Accounting, Rhema University, Nigeria*
[2] *Rhema University Library, Nigeria.*

ABSTRACT: Numerous prior literatures revealed show widespread adoption of economic growth indicator to measure economic development. This research was therefore carried out to examine the effect of tax revenue on economic development in Nigeria, using human development index and unemployment rate as dependent variables and personal income tax, company income tax, petroleum profit tax and value added tax as independent variables. Panel data set covering 2004 - 2019 were sourced from the Federal Inland Revenue Service (FIRS) and the National Bureau of Statistics (NBS) bulletin. Result obtained from the application of the co-integration and error correction modeling techniques on disaggregated data covering the study period revealed that tax revenue has not significantly influenced human development and unemployment rate in Nigeria. Based on this outcome, it was recommended among other things that the fiscal indiscipline which has eaten deep into the lives of Nigerians at the high and low places should be effectively discouraged while those in authority should channel the revenue to provide infrastructure, education, security and sustainable programs that will improve the standard of living of the people and mitigate the rate of unemployment in the country.

KEY WORDS: *Economic Development, Human Development Index, Economic Growth, Tax Revenue and Taxation.*

I. INTRODUCTION

1.1 INTRODUCTION

Blood circulation in human beings sustains lives in the same way adequate funding sustains an economy and leads to sustained development. This maxim is a paradigm that relates to every economic system all over the world. The funding cost of activities by the government is increasingly shifting to the right due to population explosion and technological changes, especially in the developing countries of the world of which Nigeria is one. Despite meager revenue from other sources, Nigeria is notably a mono-economy whose dependency on oil constitutes more than 80% of the budget. Unfortunately, revenue from this source started tumbling precariously in the 1980s as a result of the glut in the oil market. The excess supply of oil brought about the fall in price with the attendant reduction in revenue generation. However, the cost of executing government's primary functions and other economic programmes grows by the day. This economic downturn, coupled with the outbreak of the global deadly disease tagged Corona virus (Covid 19) pandemic continue to exacerbate the revenue problem of Nigeria. Scholars have observed that these developments have greatly affected the economy and suggested that alternative sources of revenue should be sought by all tiers of government.

The huge fund needed to finance societal needs cannot be borne by individuals but by the government using revenue derived from tax sources which consists of personal income tax, companies' income tax, value added tax among others (Reed, 2008). Tax is a compulsory payment imposed by government on the citizens of a society as another source of revenue to finance the primary functions and programmes of the state. Taxes are of various components such as personal income consisting of salaries, business profits, interest, royalties, etc.), companies' profits, petroleum profits, capital gains and capital transfers. Income derived from taxes has been the source of revenue to the Nigerian government from the early stages of her existence and also acts as instrument of income re-distribution and re-adjustment of the economy. It is also applied in pursuit of the critical developmental programmes of any government.

There is a plethora of literature on tax revenue and economic growth in Nigeria (Bukie, Adejumo & Edame, 2013). However, some researchers have employed economic growth indicator to estimate economic development (Okafor, 2012; Worlu & Emeka, 2012). There could be growth in gross domestic product which is a measure of economic growth without a corresponding development (Tejvan, 2015). According to the World

Bank Group (2015), development occurs when there is improvement in the living standard of its citizens such as access to education, improved healthcare delivery, employment opportunities, clean air, safe drinking water, security of life and property among others. Against this backdrop, the main objective of this study is to examine the effect of tax revenue on economic development in Nigeria using human development index and unemployment rate as measures of economic development.

1.2 STATEMENT OF THE PROBLEM

In the early stages of Nigerian tax history, the revenue generated from tax was little and could not impact on any physical development that could improve the standard of living of the citizens. However, as the years go by, business activities increased with a corresponding increase in tax net and the earnings from taxation improved significantly but the proceeds could not be applied to better the lives of the people. Research findings show that economic growth can occur without the corresponding economic development as a result of frauds and mismanagement of the revenue by the tax officials and those in position of authority in government.

Prior studies reviewed show voluminous literature on tax revenue and economic growth and scanty work on tax revenue and economic development. While some scholars employed human development index which measures economic development, others adopted gross domestic product which measures economic growth to measure economic development. From the findings in different studies reviewed, tax revenue either showed a positive effect, negative effect or no effect on economic development. This could be attributed to the use of different measuring metrics, time period and control for different independent variables. The conflicting views and lack of uniformity in findings and submissions by prior scholars called for this study as additional evidence to determine whether tax revenue positively affects the economic development of Nigeria or not.

II. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Nature and Concept of Taxation

The Institute of Chartered Accountants of Nigeria (2006) and the Chartered Institute of Taxation of Nigeria (2002) define tax as an enforced contribution of money pursuant to legislative enactment. Thus, tax is an imposition of levy on the citizens by the government to derive revenue needed to prosecute government's programme including the achievement of the nation's goals (Okpe, 2000). Omotosho (2001) also defines taxation as an imposition of a compulsory charge by a public authority on the income and property of individuals and companies as spelt out by decrees, laws and Act without consideration of return of adequate amount of services to the payer. Tax is indeed an important fiscal policy tool employed by the government to mobilize revenue and promote economic growth and development. The traditional functions of government are performed by the use of tax revenue and these among others include the provision of public goods and services; maintenance of law and order; defense against external aggression; and regulation of trade and business to ensure social and economic stability. Research findings show that economic growth can occur without the corresponding economic development as a result of frauds and mismanagement of the revenue by the tax officials and those in position of authority in government. Tax consists of various components such as Personal income tax, Value Added tax, companies' income tax, petroleum profit tax among others (Reed, 2008; Orji, 2001; Akrani, 2010). According to Anyaduba (2014), different types, forms and classes of taxes exist but the commonest classification in Nigeria is according to the tax payer categorized as direct or indirect. The direct tax is a levy on personal, corporate income or property referred to as Personal income tax, company income tax, petroleum profit tax, and capital gains tax. When the imposition is on the price of goods and services, then it is called an indirect tax. Indirect tax is incident on the consumers of products and services associated with import duties/tariffs, export duties, value added tax and excise duties. In Nigeria, the government can emphasize on any one of the tax forms depending on its policy thrust. There are different legislations that allow the government to tax its citizens and to increase the tax revenue such legislations are the Personal Income Tax Amendment Act 2011, Companies Income Tax Amendment Act 2007, and the Petroleum Profit Tax Amendment Act 2004. Others are the Capital Gains Tax Amendment Act 2004, the Value Added Tax Amendment Act 2007 and the Education Tax Amendment Act 2004. The agency of the federal government in charge of the administration and collection of these taxes with the exception of customs/excise duties is the Federal Inland Revenue Services (FIRS). However, this study focuses on personal income (PIT), company income tax (CIT), petroleum profit tax (PPT) and value added tax (VAT). Sequel to the colonial era, man has to pay one form of tax or the other to his chieftain and later, to a form of organized government. Thus prior to the advent of the British to West Africa, there were Empires, Kingdom and Emirates governed by the Obas, chiefs, Emirs and Sultans who administered, executed projects, provided securities and sometimes went to war all of these were financed by the provisions from the subject who were ruled either voluntarily or by compulsion (Agbetunde, 2004). The modern day taxation is a consequence of the informal local taxation setting which has continued to change as a result of changing circumstances and policies of the government.

2.2 Personal Income Tax

Personal income tax relates to income tax of individuals, families or communities, employment, business, trade, profession, or vocation. This tax is imposed by the government on the incomes of individuals and corporation soles in accordance with part two of the schedule contained in the 1998 Decree which had undergone several amendments. Schedule two specifies that the relevant tax authority responsible for the collection of Personal Income Tax (PIT) is the State Internal Revenue Service of the respective states and the Federal Inland Revenue Services respectively. Currently, personal income tax (PIT) is governed by the Personal Income Tax Act Cap P8 LFN 2004 (as amended). While the State Internal Revenue Service is responsible for the collection of taxes of individuals, body of individuals or corporation soles who are deemed to be residents that year in their respective states, the Federal Inland Revenue Service collects personal income taxes of individuals, body of individuals or corporation soles resident in the Federal Capital Territory (FCT), members of the military and police, Nigerians on foreign mission, and non-resident individuals. The personal income tax can thus be subdivided into Self assessment and Pay-As- You-Earn (PAYE). Self assessment is filed every 31st January and that of PAYE is every 10th day of the following month without which a penalty of N50,000 or N500,000 in the case of PAYE is paid.

A study conducted by Olusanya, Peter and Oyebo (2012) revealed that taxation as a fiscal policy instrument is used for income redistribution and welfare improvement. In a similar study, Thomas (2016) explored the relationship between taxation and human development index using secondary data obtained from international organization and found a negative relationship between taxation system and human development index. In light of this, our first hypothesis is stated thus:

$H_{O1:}$ Personal income tax has no significant effect on economic development in Nigeria.

2.1.3 Companies' Income Tax (CIT)

A company is defined by the Company Income Tax Act (CITA) as any company or corporation (other than corporation sole) established by or under any law in force in Nigeria or elsewhere. It is registered by the Corporate Affairs Commission. Companies income tax (CIT) is defined by Ogbonna and Appah (2016) as a tax levied on the profit of companies (excluding profit from companies engaged in upstream operations of the petroleum industry) accruing in, derived from, brought into or received in Nigeria in respect of any trade or business, rent, premium, dividends, interest, loyalties and any other source of annual profit.

Company Taxes are traced to part one of the 1998 Decrees which had as well undergone several amendments. Among the amendments is the Companies Income Tax Act (CITA) CAP C21 2004 LFN, amended further in 2011 and 2020 respectively for both resident and non-resident companies in Nigeria. CIT is one of the direct taxes collected by FIRS. It is a 30% tax charged on profits made by companies registered in Nigeria and includes all sources of income of the company. Nevertheless, profits made from business activities outside Nigeria are exempted from CIT. Companies operating in the downstream sub-sector of the oil industry are grouped under this category of tax payers. According to the Act, CIT must be paid to FIRS not later than three months from the beginning of each year of assessment. New companies are expected to file returns within eighteen (18) months from the date of incorporation or not later than six (6) months after the end of its accounting period, whichever is earlier. Similarly, companies that have been in existence must file returns within six (6) months from the end of the accounting year.

An empirical study by Nwakanma and Nnamdi (2013) on taxation and national development employing the least square methodology and specification on the Lin-log model of human development index revealed an existence of a positive relationship between company income tax and human development index. In a related study by Okonkwo and Chukwu (2019) on government tax revenue and economic development in Nigeria, findings revealed an insignificant effect of tax on human development index in Nigeria. Our second hypothesis is stated thus:

$H_{O2:}$ Company income tax has no significant effect on economic development in Nigeria.

2.1.4 Petroleum Profit Tax (PPT)

PPT is governed by Petroleum Profit Tax Act, Cap P13 LFN 2004 (as amended). It is levied on the income of companies involved in upstream petroleum operations, implying that a company that pays petroleum profit tax is exempted from paying Companies Income Tax on the same income. The rate is 65.75% for joint ventures in the first five years of operation. But, joint ventures in operation for more than five years are liable to 85% of chargeable profit. Also, companies under production sharing contract are liable to 50% of chargeable profit. The returns for each accounting period are to be submitted not later than two months after the commencement of the accounting period. Furthermore, final returns for each accounting period are expected to be filed within five months after the expiration of the accounting period. Failure to submit the returns as at when due attracts N10, 000 for the first month and N2, 000 for every day the failure continues. Education Tax is a deductible expense in computation of assessable profits of petroleum companies. Returns of estimated tax for each accounting period are to be submitted not later than two months after the commencement of the accounting period. Any installment of tax not paid on the due date shall attract a penalty of ten percent (10%) and interest at prevailing minimum rediscount rate of the CBN and if payment is not made within one month, enforcement shall take place.

In an analysis of the effect of petroleum profit tax on Nigerian economy by Onaolapo, Fasina, and Adegbite, (2018), findings revealed that petroleum profit tax has a positive influence on economic growth and development. Adesola (2013) investigated the effect of tax revenue and unemployment in Nigeria using the weighted least square regression techniques and found a negative relationship between unemployment and petroleum profit tax. In view of this, we state our third hypothesis as follows:

H_{O3}: Petroleum profit tax revenue has no significant effect on economic development in Nigeria.

2.1.5 Value Added Tax (VAT)

Value added tax is 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. Okoye and Gbegi (2013) reported that value added tax was first proposed in 1918 by a German Industrialist, Wilhelm Van Siemens but it became applicable in France in 1954. In many developing countries including sub-Saharan Africa, VAT has become a major source of revenue (Adereti, Sanni & Adesina, 2011). According to Ajakaiye (2000), VAT was introduced into the Nigerian tax system in 1994 fiscal year with the promulgation of VAT Decree No. 102 of 1993 to replace the Sales Tax Act, 1986 at the 5% rate and is being administered by the Federal Inland Revenue Services. The value added of a firm is the difference between a firm's sales (output) and purchases (input) from other firms. There are exempted goods such as medical products and services, pharmaceutical products, basic food items, books and educational materials, plants and machinery for use in export processing zones (EPZs) or free trade zones (FTZs) and commissions on stock market transactions. Like the other types of tax, VAT rules must be complied with otherwise, failure has been constituted and this include failure to register, failure to charge VAT, failure to issue tax invoice, failure to remit VAT charged and failure to file returns. Prior studies on VAT revenue and economic development have presented varying results.

Obaretin and Uwaifo (2020) reported a positive relationship between VAT and economic development while Owolabi and Adegbite (2013) reported a negative relationship between VAT and economic development where VAT rate was reported to decrease the disposable income of the consumers. From these findings, our fourth hypothesis is stated thus:

H_{O4}: Value added tax has no significant effect on economic development in Nigeria.

2.1.6 Economic Development

Economic development has not been given a close knit definition by researchers; rather, the visible effect of development is very common. However, a brief definition of this concept can be gleaned from the plethora of effects as the application of the increase in growth to improve the social well-being of people through the introduction of new products, services and technology that empower the people to make the environment at the local and regional dwellings to develop other better ways of doing things that will affect life positively. According to Salmon Valley Business Innovation Centre (2014), it is a policy intervention efforts aimed at improving the economic and social well-being of people. Some of the previous administrations in Nigeria have tried to create this visible output such as the structural adjustment programme (SAP) by Ibrahim Badamosi Babangida, the Sure-P programme by the Jonathan administration and the current N-Power programme of President Mohammed Buhari's administration. The aim of these strategies centres on the way that would help to create the conditions for long-run economic growth by aligning the economy on a higher growth path (Hadjimichael, Kemenyy & Lanahan 2014). Prior research by Feldman and Francis (2003) as cited by Okeke, Mbaonu and Ndubuisi (2018) were of the opinion that economic development involves actions that would engender long term investment. Economic development is thus seen as collective actions that lead to progress in providing livelihood on a sustainable basis, access to education and basic healthcare for the common group of the society. In this study economic development will be measured with human development index (HDI).

2. 1. 7 Human Development Index (HDI)

From the UNDP's perspective, human development is an observable fact because their assessment is based on three key parameter indicators that rank countries' social and economic well-being by way of Health Index, Education Index, and Standard of Living Index. The health index is represented by life expectancy or longevity of a particular region or country being studied. It succinctly describes the degree of longevity which a study group or country outlives the minimum benchmark of life expectancy. The education index is determined by the literacy level and enrolment of people in school in a given environment or country while the standard of living index is based on the per capita income under the purchasing power parity mechanism expressed in the universally conversion currency, the United States Dollar, US$ (UNDP, 2014). The human capital development index is therefore more encompassing and is a better indicator when compared to the previous use of per capita income as a holistic measure.

2.1.8 Unemployment Rate in Nigeria

Unemployment refers to that part of the population that does not have work but is actively seeking for it and is available for employment which means that unemployment rate is the share, portion or ratio of the labour force that is without work and is ready to accept job.

According to Jame, Angel and Alfonso (2017), unemployment can be categorized into different forms: Frictional unemployment representing those who are handicapped for employment and those who hop from one job to another in a dynamic system.

Structural unemployment results from lack of the needed skill which will take time to be trained before fitting into the job.

Demand deficit unemployment occurs where production is below full capacity as a result of low demand such that some workers are laid-off or not employed.

Classical unemployment is another form where the wage is higher that the market determined equilibrium wage rate.

Nairametrics.com reports that about 28% of Nigerians are both unemployed and underemployed as at the second quarter of 2020. This is increase of 5% of 2018 unemployment rate. In the third quarter of the reviewed period a more than proportionate increase was recorded among the youth between the ages of 15 and 34 years. besides, of the 35.5 million fully employed Nigerians, about 28% does not have tertiary education knowledge.

2.1.8 Taxation and Economic Development

The government is faced with numerous developmental requirements which determine the extent of tax basis that can be introduced in a jurisdiction. Thus the fiscal ability is a sine qua non to cause development to thrive. In Nigeria, the government derives its revenue through two major classes of tax, one from oil and the other from the non-oil sources. Much as these sources have been generating revenue to the country supposedly applied to positively influence the quality of lives through some appropriate indices in economic, social, political and environmental terms, scholars bare their minds to the success in this direction if a well designed tax plans and administration is not in place (Ogbonna & Ebimobowei (2012). These submissions are in the right direction since the major objective of taxation is to finance government expenditure and to redistribute wealth which will have a positive multiplier effect on development of the country (Ogbonna & Ebimobowei, 2012; Musgrave & Musgrave, 2004; Bhantia 2009). However, the flipside depends on the behavioural responses and patriotism of the governed anchored on the political will power of the government to fight corruption and embark on expenditures that will boost the economy (Gordon (2010). In Nigeria, tax revenue has been heavily tilted to oil revenue which has accounted for not less than 70% of the total tax revenue (Odusola, 2006). According to Bird (2004), effective implementation of tax policy through efficient administration is the right instrument so as to give maximum attention to other tax bases that will increase the fiscal capacity and hence step up economic development of Nigeria.

2.2 Theoritical Framework

The theory supporting this work is the ability to pay theory which was propounded by KS Kendrick in 1939. The major trust of the theory is that citizens must pay their taxes which are needed by the government to carry out its administration effectively and efficiently including the provision of infrastructure needed to accelerate development. However, the payment of the taxes is progressive in nature whereby the higher income earners pay more than the lower income group without regard to any proportionate benefit accruing to each group of. Thus, this theory considers tax liability in its true form as a compulsory payment to the state without quid pro quo. This theory wins the support of socialist thinkers because of its conformity with the ideas and concepts of justice and equity, the burden of taxation which is its basic tenet.

2.3 Empirical Review

Raimi (2021) examined the impact of taxation on the growth and development of the Nigerian economy. The study adopted the ex post facto research design and the ordinary least square regression method for the analysis of the data. From the three income streams employed: petroleum profit tax, capital gains tax and company income tax, findings show that petroleum profit tax and capital gains tax are insignificant while company income tax is effective.

Uket, Wasiu, and Etim (2020) determined the impact of taxation proceeds on the development of Nigerian economy from 1994 to 2018. The ex post facto study obtained data from the CBN Statistical Bulletin and employed the ordinary least square statistical tool with the help of SPSS 20.0. There was a significant positive relationship on company income tax, value added tax but little or no significant impact of taxes on petroleum profit tax on gross domestic product growth in Nigeria.

Awa (2020) investigated the relevance of tax revenue in driving economic growth in emerging market economy context. The study was conducted using data extracted from the CBN statistical Bulletin for various years and analysed with auto – regression estimation model. Result of the study revealed the existence of a positive relationship between petroleum profit tax and company income tax but value added tax and customs and excise duty indicated negative relationship.

Adeyemi and Mieseigha (2019) investigated the effect of personal income tax on economic growth and development in Nigeria. The study adopted the ex-facto-research design; time series data of personal income tax and gross domestic product from the federal Inland Revenue Service and the CBN Statistical Bulletin covering 1987-2017 were used for the analysis. Result of the Vector Autoregression model via STATA 13.0 revealed that personal income tax has contributed significantly to the growth of Nigerian economy in a negative way.

Olaoye, Ogundipe and Oluwadare (2019) investigated the impact of taxation and economic development in Nigeria from 2003 to 2017. Vector Error Correction Model (VECM), Augmented Dickey-Fuller (ADF) unit root test, Autoregressive Distributed Lag (ARDL) bounds test, Jarque-Bera Normality Test and Eigenvalue stability condition were utilised in this study and the result revealed that taxation has a significant long relationship with Nigeria's economic development.

Irena and Berislav (2017) conducted a similar study on personal income tax and economic development in Croatia employing Johansen Co integration approach. An examination of the existence of cointegression and estimation of error correction model were done using monthly data from January 2000 to March, 2016, the result showed a significant negative impact on the economy in the long run.

Thomas (2016) explored the relationship between taxation and human development index using secondary data obtained from international organization. Employing descriptive analysis and correlation, his finding revealed a negative relationship between taxation system and human development index.

An empirical study by Nwakanma and Nnamdi (2013) on taxation and national development employing the least square methodology and specification on the Lin-log model of human development index revealed an existence of a positive relationship between company income tax and human development index.

Okafor (2012) carried out a study on the relationship between federally generated revenue and economic development in Nigeria using Gross Domestic Product (GDP) for 1981 to 2007. The result of the study showed a positive and significant relationship between Income Tax Revenue and Economic Development of Nigeria. A related study was conducted by Ramot and Ichihashi (2012) who examined the effects of tax structure on economic growth and income inequality using panel data from 65 countries during the period 1970 to 2006 and discovered that company income tax (CIT) rates have a negative impact both on economic growth and income inequality.

Awa (2020)

Ekeocha, Ekeocha, Malaolu and Oduh (2012) examined the properties of the Nigeria's tax system from 1970 to 2008 particularly the bases of the company income tax, value added tax and personal income tax. The result shows that company income tax base is not persistent, volatile, but sensitive, or pro-cyclical to the state of the economy. The value added tax base is not sensitive to the current state of the economy, not persistent and relatively volatile. It was also discovered that the base of the personal income tax is so volatile, and not persistent, but sensitive to the state of the economy. The policy implication of their finding supports the recent government tax policy reform of a shift in focus in the tax system from direct taxation to indirect taxation. Worlu and Emeka (2012) examined the impact of Tax Revenue on the economic growth of Nigeria between 1980 and 2007 using its effect on infrastructural development in Lagos state. They reported that tax revenue has direct and indirect relationships with the infrastructural development and the gross domestic product respectively (GDP). An investigation of the effect of tax revenue and unemployment in Nigeria was conducted by Adesola (2013) using the weighted least square regression techniques. The result showed a positive relationship between unemployment, company income tax and Customs and Excise duty while a negative relationship exists between unemployment, petroleum profit tax and value added tax. Owolabi and Adegbite (2013) examined the effect of VAT in Nigerian economy using secondary data obtained from the CBN Bulletin covering 1994 – 2010. Multiple regressions were employed in the analysis of the data and the result showed negative effects on aggregate consumption occasioned by a rise in VAT rate which decreased people's disposable income.

III. METHODOLOGY

The ex-post-facto research design was adopted in this study because the required data are not manipulated. The panel data set covering 2004 - 2019 were sourced from the Federal Inland Revenue Service (FIRS) and the National Bureau of Statistics (NBS) bulletin. The statistical technique and the advanced econometric analysis were adopted for this study. The dynamic nature of the panel data used in this study are in line with Minnick and Noga (2010) as cited by Salawu and Adedeji (2017), imposed a linear relationship between economic development and the explanatory variables. Relationship was established between HDI, UMR and Companies' Income Tax (CIT), Personal Income Tax (PIT), Value Added Tax (VAT) and Petroleum Profit Tax (PPT). The Koutsoyiannis (1977) model was adopted as specified below in this study.

HDI= bo + ßln +TR + ε…………………………………......(3.1)

Where:

HDI = Human development index

B_o = Constant

ß = Regression coefficient,

Using a linear regression of Human Development Index and Unemployment on the described exogenous variables, the Koutsoyiannis (1977) model is modified and expressed functionally in two folds as:

HDI = *f* (CIT, PIT, PPT, VAT)………………………… (3.2)

UMR = *f* (CIT, PIT, PPT, VAT)……………………….. (3.3)

The econometric models are expressed thus:

$HDI = b_0 + b_1CIT + b_2PIT + b_3PPT + b_4VAT + et$……….. (3.4)

$UMR = b_0 + b_1CIT + b_2PIT + b_3PPT + b_4VAT + et$……..... (3.5)

Where;

HDI = Human Development Index (proxy for economic development)

UMR = Unemployment Rate (proxy for economic development)

CIT = Companies Income Tax

PIT = Personal Income Tax

PPT = Petroleum Profit Tax

VAT = Value Added Tax

b_0 = Constant

b_1, b_2, b_3, b_4 = coefficients

et = Error term

The dimensions of tax compositions in Nigeria are shown further in the specified model equation:

$HDI = a_0 + a_1DTAX + a_2INDTAX + U_t$…………………….(3.6)

$UMR= a_0 + a_1DTAX + a_2INDTAX + U_t$…………………….(3.7)

Where: DTAX = share of direct taxes in total HDI

INDTAX = share of indirect taxes in total HDI

DTAX = share of direct taxes in total UMR

INDTAX = share of indirect taxes in total UMR

In order to obtain the objectives of this study, the co-integration and error correction modeling (ECM) technique was used for the estimation of the relationships specified in the models. Four processes are involved in this technique; unit root testing, co-integration analysis, the dynamic short run model and the long run estimation.

The fixed and random effect variables of the study are:

$HDI = b_0 + b_1CIT + b_2PIT + b_3PPT + b_4VAT + et$………….(3.8)

$UMR = b_0 + b_1CIT + b_2PIT + b_3PPT + b_4VAT + et$…………(3.9)

y_{it}= α + Xit ß + (μi + Vit)………………….........................(3.10)

Where: Vit И IID (0, δ2)

y_{it}= the dependent variable for the i_{th}firm (i.e. economic development proxies), these include HDI and UMR.

Table 1 Result of Descriptive Statistics

Variable	Mean	Max.	Min.	Std. Dev.	Skewness	Kurt.	J-B	Prob
HDI	0.50	0.53	0.47	0.02	0.12	1.35	1.74	0.42
UMR	12.48	19.70	5.10	4.36	0.20	2.40	0.32	0.85
GCIT	24.16	114.91	-51.47	42.86	0.44	2.78	0.51	0.77
GPIT	25.58	184.79	-48.35	61.41	1.08	4.09	3.68	0.16
GPPT	22.94	188.07	-80.95	65.32	0.74	3.96	1.93	0.38
GVAT	31.05	317.80	-75.31	84.86	2.69	10.18	50.28	0.00

Table 1 show that the mean human development index in the period is 0.50, an indication that Nigeria scored half in the HDI assessment over the period. The standard deviation is low, the minimum and maximum values hover around the mean and these point to low human development index in Nigeria. The mean unemployment rate of 12.48% poses a serious danger to the economy. The result shows acceptable growth rate in all the taxes with VAT assuming an impressive growth rate at 31.05 percent, an indication of efficient tax administration. However, the J-B statistic values mainly fail the significance tests at the 5 percent level, showing that the data series are normally distributed.

Table 2: ADF unit root test for variables in levels

Variable	ADF test statistic		Remark
	Without trend	With trend	
HDR	-3.798(-3.081)	-0.184(-3)	Non-stationary
UMR	-2.051(-3.081)	-1.478(-3.792)	”
CIT	-0.320(-3.0881)	-1.965(-3.791)	”
PIT	-0.644(-3.145)	-3.658(-3.833)	”
PPT	-1.307(-3.081)	-3.307(-3.791)	”
VAT	-1.867(-3.081)	-3.422(3.791)	”

Unit root test involves the test of stationary for variables used in regression analysis. This test is necessary to be able to make generalization or forecasting. The augmented Dickey Fuller (ADF) test is employed in the analysis of unit roots. In the result, the 95 percent critical ADF values are shown in parenthesis. From the result, all the variables have ADF values that are less than the respective 95 percent critical ADF values. The implication of this is that the time series are non-stationary in their levels.

Table 3: ADF unit root test for variables in first differences

Variable	ADF test statistic		Remark
	Without trend	With trend	
HDR	-4.619 (-3.098)	-4.299(-3.719)	Stationary: I(1)
UMR	-3.827(-3.119)	-3.922(-3.829)	“
CIT	(-4.940)(-3.098)	-4.667(-3.933)	“
PIT	-4.445(-4.144)	-4.888 (-3.875)	“
PPT	-3.957(-3.098)	-4.733 (-3.791)	“
VAT	-5.326(-3.098)	-3.984(-3.933)	“

Note: 95% critical ADF value in parenthesis

The first differences of the respective variables are taken to perform the unit root test on each of the resultant time series. Apart from the PIT variable, the ADF test statistic for each of the variables is greater than the 95 percent critical ADF values (in absolute values). With these results, these variables are adjudged to be stationary after the first differences of the variables signifying the hypothesis that the variables possess unit roots.

Table 4: Test for co-integration (Engle and Granger Two-Stage Method)

Model	ADF Lag	ADF Test Statistic	95% Critical ADF Value	Remark
HDI	1	-4.291	-3.801	Stationary
UMR		-3.979	-3.801	Stationary

Co integration test is done for long run estimation of the series with level variables that will produce reliable result using Engle and Granger (1987) formulation. The result shows that the residuals of both equations are stationary. Thus, we accept that the series are actually co-integrated. This implies that a long run relationship exists among the variables.

Table 5: Short run (ECM) Results

Variable	HDI			Unemployment rate		
	Coeff.	**t-val**	**Prob**	**Coeff.**	**t-val**	**Prob**
C	0.003	0.394	0.703	0.008	0.093	0.928
DLVAT	0.006	0.443	0.668	-0.012	-0.078	0.939
DLCIT	0.051	2.387	0.041	-0.031	-0.113	0.912
DLPIT	-0.029	-1.843	0.098	-0.213	-1.089	0.304
DLPPT	-0.005	-0.365	0.724	0.437	2.987	0.015
ECM1(-1)	-1.316	-3.445	0.007	-0.440	-2.209	0.041
Adj. R-sq	0.442			0.597		
F-stat	3.220			5.144		
D.W. stat	1.679			1.439		

In table 5, the short-run dynamic behaviour of the two economic development variables with respect to temporary changes in tax revenues variables is analyzed within the context of an error correction model (ECM). The Autoregressive Distributed Lags (ARDL) approach was used for the estimation of the ECM. The R-Bar squared criterion was used to select the parsimonious equation and the results show a moderately strong goodness of fit for the model. The R-squared value is0.422 for the HDI equation and 0.597 for the unemployment equation. This shows that 42 percent of the systematic short term variation in HDI is explained by movements in the explanatory variables including the ECM, while 59 percent of the variation in unemployment rate is also explained. The overall goodness of fit for the model is observed through the F -statistic. The F -value of 3.22 for the HDI equation fails the significance test at the 5 percent level, while the F-value of 5.14 for the unemployment equation passes the significance test at the 5 percent level since it is greater than the 5 percent critical value. Thus it is seen that a significant short run relationship exists between unemployment rate and all the explanatory variables combined.

In terms of the individual contribution of the explanatory variables to the behaviour of development factors through the coefficients of the estimated model in terms of their signs and magnitudes as well as their significance levels, only the coefficient of CIT passes the test at 5% significance level showing that only company income taxes have significant effect on short term changes in HDI. The positive coefficient of CIT further shows that an increase in CIT has the potential to boost short term performance of human development in Nigeria. On the right hand side (the unemployment rate), only PPT passes the significant test at 5% (0.034), others fail the test. The positive coefficient of PPT shows that it tends to increase unemployment in the short term. The short run results provide divergent outcomes, with different taxes influencing the two development variables and their respective effects being also divergent.

Table 6: Long run Results

Variable	HDI			Unemployment rate		
	Coeff.	**t-val**	**Prob**	**Coeff.**	**t-val**	**Prob**
C	-0.764	-5.218	0.000	0.424	0.270	0.794
LVAT	0.007	0.380	0.711	-0.013	-0.095	0.926
LCIT	0.065	4.387	0.001	0.197	0.893	0.395
LPIT	0.048	2.295	0.042	-0.335	-1.712	0.121
LPPT	-0.014	-0.817	0.431	0.376	2.493	0.034
Adj. R-sq	0.708			0.301		
F-stat	10.079			2.078		
D.W. stat	1.939			1.831		

From table 6, the adjusted R-squared value is high for HDI but quite low for unemployment equation. In terms of the individual roles of the variables in long run movements of the development variables, the results show that the coefficient of CIT passes the significance test at the 1 percent level for the HDI equation and the coefficient of PIT also passes the test at the 5 percent level. For the unemployment equation, only the coefficient of PIT passed the significance test at the 5 percent level. It can be observed that at this point, the CIT still exerts significant positive effect on HDI given that from the coefficient variable of 0.065, a percentage rise in CIT leads to 0.065 rises in HDI in the long run term. Equally, an increase in PIT increases the HDI by 0.048. The positive coefficient is an indication of overall improvement in HDI which implies that as personal income tax increases, there is improvement in human development instead of a discouragement to efforts. From the unemployment angle, the positive effect of PPT persists even in the long run while others could not pass the 5% test at the long run. It can be seen that the indirect tax component fails the significant test at the short and long run estimates.

IV. DISCUSSIONS OF FINDINGS

The study investigated the extent to which tax revenue can improve economic development in Nigeria viewed from human development and unemployment rate. The result obtained from the application of the co-integration and error correction modeling techniques on disaggregated data covering 2004 to 2019 revealed the following:

(1) That company income tax has a significant positive impact on HDI both in the short run and in the long run. This suggests that proper application of company income tax have the ability to improve the human development in terms of education and health both immediately and over time. This submission contrasts with the work of Ramot and Ichihashi (2012) whose finding documented a negative relationship between tax revenue, income inequality and economic growth but it is in tandem with the conclusion reached by Worlu and Emeka (2012).

(2) That personal income tax has a positive and significant impact on HDI only in the long run. This contrasts with Adeyemi and Mieseigha (2019); Irena and Berislav (2017). Thus, the effect of personal income taxes is delayed over time, a negation of the a priori expectation

(3) That petroleum tax revenue has significant positive impact on unemployment rates in Nigeria at the short and long run. Increasing petroleum taxes also tends to increase unemployment in the country.

(4) That VAT does not significantly affect economic development in Nigeria. This shows that changing the VAT tax rates and its relative share does not significantly affect the behaviour of the economy in Nigeria.

V. CONCLUSION AND RECOMMENDATIONS

The federal government tax revenue has not significantly influenced economic development in Nigeria. The revenue from taxes is on the increase but neither alleviates unemployment situation nor improves social infrastructure, education, security etc.

This work recommends that there should be proper utilization of the revenue by the provision of infrastructure, good education; improved security and implementation of sustainable program at the grass root level that will mitigate the teeming number of unemployed Nigerians. This should involve effective deployment of the unemployed in their areas of core competency. Besides, the fiscal indiscipline which has eaten deep into the lives of Nigerians at the high and low places should roundly be discouraged right from the top down to the bottom of the system. The present administration under the leadership of President Muhammad Buhari should develop the will power to deal with all forms of ethnic jaundice in resource management, bribery and corruption, embezzlement of government revenue in the high and low places, wasteful spending on foreign trips by the ruling class etc.

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