TAX REVENUE, ECONOMIC GROWTH AND HUMAN DEVELOPMENT INDEX IN NIGERIA

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ABSTRACT
This paper examined tax revenue, economic growth and human development index. To achieve this main objective in specific terms, the paper evaluated the impact of some major taxes, including Company Income Tax (CIT), Petroleum Profit Tax (PPT), Value-Added Tax (VAT) and Customs and Excise Duties (CED) on Real Gross Domestic Product (RGDP) and Human Development Index (HDI). The variables of RGDP and HDI have respectively been largely used as measures of economic growth and economic development. The paper involved the use of annual time series data for the period 1994 to 2017. Methodologically, the paper employed the use of the application of Augmented Dickey Fuller (ADF) unit root test, Johansen multivariate co-integration technique and Error Correction Model (ECM) method mainly suited for time series analysis. Findings showed a positive and significant relationship between tax revenue and HDI. The result reveals that the impact of tax revenue on HDI is lower than that of RGDP. both as dependent variables. In consequence, we suggest more reliance on the use of the measure (ment) of HDI as it is more encompassing than the use of RGDP, which, going by our findings, provides a weaker picture of relationships between tax revenue and economic growth in Nigeria. On this basis, we advocate tax policies that are development-driven, given that HDI criteria are known for their measurability, both in quantitative and qualitative terms.

Keywords: Taxation revenue, human development index, real gross domestic product, Nigeria

JEL Classification: H71

INTRODUCTION

Nations worldwide need proper funding to carry out their government functions. Unfortunately, these government functions continue to increase overtime due to the growing population of citizens and technological development. Otu and Adejumo (2013) explained that societal needs require a lot of resources which could not be accommodated solely by each society. One channel where such funds are derived is through taxation. Taxation is a non-exhaustible and salient source of revenue to the government. It mobilises a nation's internal resources for the promotion of economic growth and development (Ibadin & Oladipupo, 2015). Awolo (2012) argued that taxation reflects a potent fiscal instrument which facilitated the reduction of private consumption and increased the investment and transfer of resources to the government for

economic development. To this end, the act or outcome of taxation is a tax which is collected for the purpose of providing for the citizenry.

Therefore, for a nation to develop politically, economically and socially, it depends on the amount of tax revenue generated for the provision of infrastructure in that given nation. Therefore, tax facilitates resource re-allocation and promotes social equity through wealth distribution. The import of all of these is the enhancement of economic growth and development. Therefore, a system of taxation is one of the most effective means of mobilizing a country's internal resources and creating an environment that helps to promote economic development in that country (Aderibigbe & Zachariah, 2014). Thus, it is obvious that a good tax structure plays numerous roles in the process of economic development of any country, and Nigeria is not an exception.

Economic development involves improvement in the education and skills of the labour force, and technological advancement in any country (Nafziger, 2006). Economic development has played critical roles in the well-being of a nation. The development of an economy requires measuring the performance and continuous refinement of measures (Jacobs & Slaus, 2010; Ibadin & Eiya, 2019). This has led to the introduction of the Human Development Index (HDI) which covers achievements in three basic areas – health, education and living standard. According to Kovacevic (2010), economic development goes beyond just expanding wealth and income. It is the process of enlarging the choices of people. The possibility of achieving this lies on an articulate system of taxation in place. The collection of tax is not only for the generation of revenue for the State but it has also become the avenue for the redistribution of wealth and re-adjustment of the economy (Abata, 2014). The payment of tax is expected to benefit the entire citizenry but it is possible for taxpayers not to receive any benefit from the sum contributed compared to the advantage of living in a healthy, educated and safe community.

Thus, it can be said that the economic development of any country depends largely on the presence of an effective and efficient tax revenue policy. It is obvious that in Nigeria, the tax revenue increases overtime but the economy has not experienced any significant development. The expectations of government have not been met by the contribution of tax revenue. Besides, there are controversies as to the import and impact of tax revenue on economic growth and development, given that a number of studies, particularly in developing countries, Nigeria inclusive, use economic development measures other than the Human Development Index (HDI) - acclaimed to measure achievements in three basic areas of education, health and standard of living.

In light of the foregoing, this paper examined tax revenue and economic growth and development of Nigeria, using HDI and Real Gross Domestic Product (RGDP) as proxies of economic development and economic growth respectively. However, principal sources of tax revenue (direct and indirect taxes) in Nigeria were used; and they included Company Income Tax (CIT), Petroleum Profit Tax (PPT), Value-Added Tax (VAT) and Customs and Excise Duty (CED).

LITERATURE REVIEW

Economic growth, in general scope, has been used to measure the rhythm of any country; and it is generally the sustained increase in a country's productive capacity, reflected in the growth of a nation's gross national product in a year over that of the previous year, and an increase in per capita national output or net national product over a long period of time (Inyiama & Ubesie, 2016). Economic growth, in similar way, is the increase, overtime, of a country's economic capacity to produce those goods and services needed to improve the well-being of the citizens in increasing numbers and diversity (Okwori & Sule, 2016). This implies that the rate of increase in total output must be greater than the rate of population growth, and which should satisfy the maximum want of the maximum number of people. Chigbu and Njoku (2015) maintained that economic growth represents an increase in the amount of goods and services produced over a specific period of time in a country. Economic growth has conventionally been measured in Real Gross Domestic Product (Jones & Ekwueme, 2016) which expresses an indication of quantitative improvements in a nation's economy.

Closely following economic growth, but conceptually different in meaning, is economic development, referred to as a process expressed in both qualitative and quantitative improvements in a nation's economy (Ibadin & Eiya, 2019; Shodhganga, 2011). Succinctly described by Nafziger (2006), economic development is economic growth accompanied by changes in output distribution and economic structure. The changes so mentioned may include improvements in the material well-being of the poor population. Indicators of economic development as constantly mentioned by national governments include but not restricted to some identified six drivers of higher economic performance, such as: better public services; a global competitive regulatory environment; an efficient and a fair tax system; productive infrastructure investment; higher skills; support for science; and innovation and trade (Smol et al., 2011).

According to the International Economic Development Council (IEDC, 2001), economic development enhances the economic well-being of communities which in turn improves the quality of life of people (Ofoegbu, et al., 2016; Ibadin & Eiya,2019). This involves the measurement of economic development and the continuous refinement of the measures (Ibadin & Eiya,2019; Jacobs & Slaus, 2010). From the perspective of growth, economic development is economic growth with changes in improvement in the well-being in the education and skills of the labour force, and technology (Ibadin & Eiya,2019; Nafziger, 2006)

Economic development is operationalised when there is a provision of qualitative life for the people (Ibadin & Eiya, 2019). To this end, the concept of HDI was developed in the early 1990s. The HDI is one of the measures of economic development commonly used by governments and other stakeholders to bring about a common understanding of development (Ibadin & Eiya, 2019; Stanton, 2007).

Measures of Economic Growth and Economic Development

Economic growth has been measured in a number of ways. Some of the measures used in the literature include mainly, GDP (Gross Domestic Product), GNP (Gross National Product), with emphasis on GDP and, for economic development, HDI (Human Development Index) (Ibadin

& Eiya, 2019). Economic Growth, as a multi-dimensional concept, has no sacrosanct single measure of the economy (Shodhganga, 2011). However, some of the following measures have been seen and discussed in the literature.

Gross Domestic Product (GDP)

GDP is a measure of welfare or wellbeing (Stefan, 2006). Quantitatively, this concept measures aggregate economic activities in a country, using the product approach, the expenditure approach, and the income approach (Maroni, 2011). When GDP is varied to account for inflation, the Real Gross Domestic Product (RGDP) ensues. On the basis of the discounting process, RGDP is seen as a better measure where the real value of economic activities is in focus. RGDP is a tool that provides the government's estimate of amounts that could be spent and by how much revenues could increase with inflationary pressures in the economy. Generally, GDP includes market production and some non-market production; and it is valued at market prices. Beyond this, GDP measures current production which is equal to the value of goods and services for final users or a gross measure of output produced (Ibadin & Eiya, 2019; Bureau of Economic Analysis of U.S. Department of Commerce, 2015).Accordingly, GDP can be (i) the sum of expenditures (or purchases) by persons, businesses, governments, and foreigners (ii) the purchasing power of households and the financial status of business income (iii) the total revenue less the value of intermediate inputs. However, Costanza et al. (2009) have argued that GDP could measure the monetary transactions related to the production of goods and services, a position which is consistent with Ibadin & Eiya, 2019).

On the other hand, economic development is now commonly being measured by Human Development Index (HDI). HDI captures both economic performance and the well-being of the people (Ibadin & Eiya, 2019).

Human Development Index (HDI)

Human Development Index (HDI) was introduced in a Human Development Report in 1990 by the United Nation Development Programme, (UNDP). This index is seen unarguably as the index that captures the societal well-being, as it accounts for a country's achievements in three (3) dimensions of economic development (Ibadin & Eiya,2019; Osberg & Sharpe, 2005). These dimensions include (i) healthy and long life, ably represented by life expectancy at birth (ii) knowledge, represented by school enrolment and literacy rates, and (iii) decent standard of living, ably represented by GDP per capita {Ibadin & Eiya, 2019). In the context of living standards, living power rather than purchase power should be the crux of measurement of good economic development with respect to individuals' well-being (Morgan, 2012).

Human Development Report (HDR) in 1990 introduced the concept of HDI as a global measure of 'well-off-ness' of citizens of countries around the world as against the use of GDP as a measure of economic development (Arab Human Development Report, 2002). According to Neumayer (2001), HDI provided the ambience to recognise people at the centre of development and, in consequence, leads to its yearly reporting (Hassan, 2012). The Human Development Report (HDR) (1990) and Anand and Sen (2000) viewed human beings with their capabilities (Radovanovic, 2011) as important elements in accounting and assessing economic development. Such capabilities are explained as healthy and agelong lives, be

educated, have access to the social services and resources required for a good living standard (Sina & Moshtaghi, 2014). To this end, HDI is summarised in a single composite index, combining three indicators – longevity, education and living standards (Nafziger, 2006).

In sum, HDI ranks a country's level of economic development based on the criteria of Health, Education and Standard of living indexes (Ofoegbu et al., 2016).

Human Development Index Metrics

Broadly expressed, Nefs (2009), HDI is an index or a metric, which is arithmetically an average of its three indexes, Standard of Living Index, Health Index and Education Index, expressed, thus:

HDI = 1/3 (Standard of Living Index) + 1/3 (Health Index) + 1/3 (Education Index).

According to Neumayer (2001), the HDI, operationally is expected to lie between the range of zero and one and countries are rated based on how close their HDI is to one. An HDI value of 0.534, for 2018, in the case of Nigeria, puts the country in the low human development catergory, positioning at 158 country amongst 189 countries (UNDP Report, 2019). Between 2005 and 2014, however, Nigeria's HDI value improved only marginally from 0.467 to 0.514 and in 2016, the HDI was .535 (PricewaterhouseCoopers Limited, 2016).In comparative terms, Nigeria's 2018 HDI of 0.543 is above the average of 0.507 for countries in the low human development group and slightly above the average of 0.541 for countries in Sub- Saharan Africa (UNDP).Succinctly put, the HDI can give a good complete picture of the state of a nation's economic development (Human Development Report, 2014).It provides a summary measure of the average achievement in key dimensions of human development, thereby providing the geometric mean of normalised indices of each of the three dimensions. These dimensions include:

The Dimension of Health Index (HI)

The HI is one of the dimensions; and it reflects the degree to which everyone lives a long and healthy life. Therefore, the ability to live healthier and longer lives would lead to an extraordinary decline in mortality rates in all ages, automatic reduction of fatal diseases and sufficient increase in life expectancy (Kovacevic, 2010).The health dimension is assessed by life expectancy at birth Conceptually, the HI shows the degree to which Life Expectancy (LE) in the region analysed rose above the Minimum Life Expectancy (Min. LE) as a proportion of the maximum difference between possible life expectancies. In practice, Min. LE is set as 20 years, a figure which on the basis of historical evidence is conservative as no nation in the 20th century had a life expectancy of 20 years (Oeppen & Vaupen, 2002; Riley, 2005; Human Development Report, 2019) or 25 years (Ofoegbu, et. al., 2016; Nefs, 2009; Kovacevic, 2010), and Maximum Life Expectancy (Max. LE) in the world determined to be 85 years, a realistic aspirationaltarget for many countries over the last thirty years (Human Development Report, 2019). The HI is arithmetically represented as:

HI = (LE – Min LE) / Max LE – Min LE)

It is noted, however that HI does not account for all the aspects of the individual's current health, which may limit and affect capabilities (Kovacevic, 2010). To this extent the statistical adequacy of life expectancy can be questioned (Anand & Sen, 2000).

The Dimension of Education Index (EI)

Education is a key factor of well-being and is used in the measure of economic development and quality of life. Education brings about knowledge of one's basic rights, and events in the society in general. Such knowledge allows individuals to participate in some responsibility and choices decisions. Therefore, EI allows for basic education that allows people execute their task. Ibadin and Eiya (2019) and Kovacevic (2010) shared a similar view that little or no formal education can be a limitation to economic development, where a country finds it difficult to move up through the value chain to produce and consume more advanced products and services. The Acquisition of knowledge is an important dimension of human development and germane to building capabilities (Ibadin & Eiya, 2019).

The EI relies on two indicators for the knowledge dimension which are: (i) combined gross enrolment ratio for primary, secondary and tertiary schooling, one-third weighting and, (ii) adult literacy rate, with two-thirds weighting (Human Development Report, 1990) and, from 2010, based on the simple average of two indicators: (i) mean years of schooling and the expected years of schooling, each receiving 50% weighting (UNDP, 2010, 2011). The literacy rate is an indication of the ability to read and write with the gross enrolment of ratio providing an indication of the level of education from kindergarten to postgraduate education (Human Development Report, 1990).

The literacy rate of the region analysed, given a weight of two-thirds, and the enrolment rate of the region, analysed, given a weight of one-third (Nafziger, 2006), the EI is arithmetically represented as:

$$EI = 2/3 \text{ Literacy Rate} + 1/3 \text{ Enrolment Rate}$$

The education index is seen to have many crucial divergences with respect to inter-country comparison for calculating educational achievements. The quality of education, length of the school year, effects of repetition, automatic promotion, continuing education and training are not the same in every country in the world (Kovacevic, 2010). This makes the basis for comparing one country with another to be poor.

The Dimension of Standard of Living (SOL) Index

The income component of the HDI has been used as an indirect indicator of some capabilities which are not well reflected, directly or indirectly, in the measures of longevity and education. Income helps to provide adequate shelter, prevent hunger with respect to longevity and provide good education (Anand & Sen, 2000). The SOL Index is measured using the Gross Domestic Product (GDP) per capita income derived by dividing working population of a country into the GDP which is adjusted for purchasing power parity in U.S.dollars (PPP$) (Gallardo, 2009). The PPP$ adjusted GDP per capita provides a better approximation of the relative power to

gain command over resources and to buy commodities for a decent living standard (Anand & Sen, 2000).

The SOL Index requires three pieces of indications in order to express the income of the region studied in terms of US dollars at purchasing power parity. It includes (i) the income of the region analysed (ii) the exchange rate between the region's currency and the US dollar, and (iii) the price level index of the region in comparison to the US price level which equals 100 (Nefs, 2009). Therefore, the Income of the region studied can be calculated, thus:

Income PPP$ = (Income (N) X ($: N Exchange Rate) X (100 / Region Price Level).

The minimum annual income per capita (Min Income) can be determined by United Nations (UN) at PPP US $100 (HDR,2005) and a maximum (Max Income) is set at PPP US$40,000. (HDR, 2005). Therefore, Nefs (2009) determines the Standard of living (SoL) Index, thus:

SOL Index = (Log Income – Log Min Income) / (Log Max Income - Log Min Income) (Nefs, 2009).

Calculating standard of living (SOL) index is more complex than other indices because this index is calculated using the logarithmic formula (Sina & Moshtaghi, 2014). However, the logarithmic formula is used based on the fact that people do not need excessive financial resources to enjoy a decent standard of living (Anand & Sen, 2000).Besides, HDI is seen to focus on long term human development outcomes with three basic dimensions of health, education; and standard of living; its strength lies in its broader issues of human well-being which can be used as a measure for economic development, compared to GDP per capita which can only be used to measure economic growth (Arab Human Development Report, 2002).

Empirical reviews

The economic development of any country depends on the amount of revenue generated for the provision of infrastructures in that given country. However, one means of determining the extent of revenue generation is through its economic impact of taxation as seen in a well-structured tax system in place (Aderibigbe & Zachariah, 2014) and empirical reviews.

Company Income Tax and Economic Growth and Development

Companies Income Tax (Amendment) Act (CITA, 2004) is based on the taxable profit of companies that operate in a particular country and incorporated in Nigeria under the Companies and Allied Matters Act as amended (CAMA, 1990). CITA (2004) is administered by the Federal Inland Revenue Services of Nigeria. The tax rate of 30% for large companies with a turnover of ₦100 million and above and 20% for medium-sized companies with a turnover of between ₦ 25 million and less than ₦ 100 million while a small-sized companies with a turnover of less than ₦ 25 million attract no tax (Akintoye et al, 2020, Oyedokun et al, 2021). The CITA is imbued with incentives, such as tax holidays, concessions and tax rebates to encourage and stimulate production by the beneficiary companies. Governments desire a chunk of revenues from the company income tax. The base on which company tax is collected is the income of companies; and such incomes are profits of Nigerian companies (incorporated under

Companies and Allied Matters Act, 2004) irrespective of whether or not the profits are brought into or received in that country.

In a paper conducted by Chude and Chude (2015) on the impact of company income tax on the profitability of brewery companies in Nigeria, Chude and Chude employed the Augmented Dickey Fuller Unit Root test, Johansen co-integration test and Ordinary Least Squares technique to analyse time series secondary data. The paper reveals a positive correlation between taxation and profitability. Abiola and Asiweh (2012) conducted research on the recent developments in company income taxation in Nigeria and analysed the variables with the use of quantitative survey method. They found out that the Nigerian tax system was unduly complex, skewed low revenue yielding, poorly administered anti-federalism, largely inequitable and loaded with unduly large number of overlapping taxes which have more nuisance value than revenue value.

Petroleum Profit Tax and Economic Growth and Development

Essentially, one of the ways of financing government expenditures in Nigeria is oil revenue (Bawa & Mohammed, 2007). This is true when it is realized that oil revenue in Nigeria accounted for 82 per cent income for the Federal Government of Nigeria between 1970 and 2009 (Yahaya & Bakare,2018), representing about 90 percent of total exports (Ogbonna & Ebimobowei, 2012). The Petroleum Profit Tax Act of 2004 as amended is still being substantially relied upon. The petroleum profits tax is levied on the profits of companies involved in the upstream activities of exploration, drilling, extraction and transportation of crude oil. Petroleum profits tax in the first year of the firm is levied at the rate of 65.75% of taxable operation and 85% thereafter. Nigeria appears to have the highest Petroleum Profits tax rate in the world (Appah, 2010; Yahaya & Bakare, 2018).

Empirical studies have been conducted to examine petroleum tax and economic development: Ogbonna and Ebimobowei (2012) carried out an investigation on the effect of petroleum profit tax on economic growth, using macroeconomic data from 1970 to 2010 in Nigeria; with a similar paper, and time span, by Onaolapo et al. (2013). Both studies revealed a positive and significant influence of petroleum profit tax on economic growth and development. Jibrin, Ejura, and Ifurueze (2012) analysed the impact of petroleum profit tax on economic development in Nigeria, using time series data from 2000 to 2010. Simple regression was used, after diagnostic tests, to estimate the time series data. Among other results, the paper found a statistically significant relationship between petroleum profit tax and economic development in Nigeria. Furthermore, Jibrin et al. (2012) did a paper on the impact of petroleum profit tax on the economic development of Nigeria. The primary objective was to determine the impact of petroleum profit tax on the growth of the Nigerian economy for the period 2000 – 2010. They used the ordinary least square analysis method. After the analysis, the research findings showed that petroleum profit tax impacted positively on the Gross Domestic Product of Nigeria and it was statistically significant.

Value-Added Tax and Economic Growth and Development

Value-Added Tax (VAT), which replaced the sales tax, was introduced to increase and broaden the sale tax base which covered only nine (9) categories of goods, sales and services in

registered hotels, motels and similar organizations (Sales Tax Degree No 7 of 1986). Besides, VAT, being a consumption tax, applies to both manufacturing and imported goods, and interestingly, the intent of generating additional revenue for the government, can be seen in the sharing ratio in Nigeria of 15%,50% and 35% for the Federal, State and Local government area respectively. Currently, VAT is charged on vatable goods and services at 7.5% (Akintoye et al, 2020, Oyedokun et al, 2021) as against 5% when VAT was introduced via VAT Act,1993.

Some empirical studies have been conducted: Ehigiamusoe (2013) examined the effects of VAT on economic growth and total tax revenue in Nigeria, using data covering 1994 -2010. The results of the regression analysis showed that VAT has a significant effect on GDP and also on total tax revenue. Unegbu and Irefin (2011) carried out research on the impact of VAT on economic development of emerging nations. The paper focused on Adamawa State in Nigeria, and revealed that VAT allocations alone accounted for 91.2% of variations in the expenditure pattern in the State and they showed very significant impact on the economic growth and development. However, data obtained from primary sources indicated a minimum VAT impact. They however, recommended that similar research should be replicated in other states of Nigeria to ascertain the impact of VAT on economic growth and development.

Custom and Excise Duties and Economic Growth and Development

Customs and Excise duties are tariffs placed on the importation of certain goods and products into Nigeria. The Finance Act, amendment to the CET Act is the substitution of Part 3 section 21(1) with the New Section 21(1) which provides that both imported and manufactured goods that fall under CET Act's 5th schedule will be charged with duties of excise so long those goods or raw materials are not locally produced or available in Nigeria. Akwe (2014) investigated the impact of non-oil tax revenue on economic growth in Nigeria using secondary data collected from Statistical Bulletin of the Central Bank of Nigeria (CBN, 2017) for the period 1993 – 2012. The paper employed ADF unit root test, error correction model and ordinary least square (OLS) technique to analyse the data collected on the variables. The results showed that non-oil tax revenue impacted positively on economic growth in Nigeria.Ibadin and Oladipupo (2015) examined the impact of various taxes on the economic growth in Nigeria, using a time period of 1985 – 2011. Results showed that customs and excise duties were negatively related to gross domestic product, implying that an inverse relationship existed between customs excise duties and economic growth in Nigeria.

METHODOLOGY

The time series and ex-post factor research designs were adopted for this paper because the data already occurred and requires no manipulation, while the period exceeds a year, which covered a time frame of twenty-four (24) years, beginning from 1994 to 2017. The time period allowed for trend evaluation and examination of the size of each variable under consideration. This is crucial given the fact that tax revenue is a determinant of economic growth and development, which in turn is an indicator of societies' wellness. The choice of this time period is also hinged on the nature of the data, time series data and the objectives of the paper. In this research, the variables were observed and recorded at time intervals (annually). With the designs, it was easier to assess the data in the relevant sources and use them for the investigation of the impact of tax revenue on HDI and economic growth.

This paper was based on secondary data drawn from annual reports and accounts of the Central Bank of Nigeria, Federal Inland Revenue Service, Statistical bulletin and National Bureau of Statistics.

Model Specification

In order to examine the impact of tax revenue on Nigerian economic growth and development, a multiple linear model was built. The paper adapted models for economic growth and development from Ofoegbu, et. al., (2016) which were stated as follows:

$HDI_t = \beta_0 + \beta_1 TRt + \varepsilon_{1t}$ ..... (1)
$RGDP_t = \beta_0 + \beta_1 TRt + \varepsilon_{1t}$ ..... (2)

However, the HDI and RGDP were computed thus;
HDI = 1/3(Standard of Living Index) + 1/3(Health Index) + 1/3(Education Index)
SoL Index = (Log Income – Log Min Income) / (Log Max Income - Log Min Income)

Health Index = (LE – Min LE) / Max LE – Min LE) (Nefs, 2009).

Education Index = 2/3 Literacy Rate + 1/3 Enrolment Rate (Nafziger, 2006).

GDP per capita (i.e. Income per capita PPP US$) = (Income (N)) X ($: N Exchange Rate) X (100 / Region Price Level)

TR = Tax Revenue
LE = Life Expectancy
GDP per capita = GDP/ working population; β_0= constant; ε = error term

The models were therefore, developed in line with the research hypotheses and the above mentioned model of Ofoegbu, et. al. (2016) presented functionally as:

$RGDP = f(\text{CIT}, \text{PPT}, \text{VAT}, \text{CED})$..... (3)
$HDI = f(\text{CIT}, \text{PPT}, \text{VAT}, \text{CED})$..... (4)

Thus, the testable models were specified in econometric form as follows:

Model I
$lnRGDP_t = \alpha_0 + \alpha_1 lnCIT_t + \alpha_2 lnPPT_t + \alpha_3 lnVAT_t + \alpha_4 lnCED_t + \varepsilon_t$..... (5)
Model II
$lnHDI_t = \beta_0 + \beta_1 lnCIT_t + \beta_2 lnPPT_t + \beta_3 lnVAT_t + \beta_4 lnCED_t + \varepsilon_t$..... (6)

Where:
RGDP = Real Gross Domestic Product is market value of final goods and services produced by persons, businesses, governments and foreigners less inflation
HDI = Human Development Index
CIT = Company Income Tax over twenty-four (24) years period

PPT = Petroleum Profit Tax over twenty-four (24) years period
VAT = Value-Added Tax over twenty-four (24) years period
CED = Customs and Excise Duties over twenty-four (24) years period

ln stands for logarithms; t stands for time in years; ε_t is the error term
All the other variables are as already defined.

From *apriori* considerations, it is expected that the coefficients of Company income tax (CIT), Petroleum profit tax (PPT), Value-added tax (VAT) and Customs and excise duties (CED) will be positively related to economic growth and development, i.e., α_1, α_2, α_3, α_4, α_5, β_1, β_2, β_3, β_4, $\beta_5 > 0$.

Measurements of Variables

The Table 1 showed the measurement of variables used for this paper in the order of dependent and independent variables. The operational definitions of variables were offered in the table below:

Table 1:
Measurements of Variables

S/N	Variables	Proxy	Type of variable	Operationalisation	Used by	Apriori expectation
1.	Real Gross Domestic Product	RGDP	Dependent	Aggregate economic activity	Marone (2011)	Nil
2.	Human Development Index	HDI	Dependent	Health, Education and Standard of living dimensions	Ofoegbu, et.al. (2016)	Nil
3.	Company Income Tax	CIT	Independent	Tax levied on annual profit of companies	Chigbu & Njoku (2015)	Positive
4.	Petroleum Profit Tax	PPT	Independent	Tax imposed on annual profits of companies engaging in the extraction of oil	Ehigiamusoe (2013)	Positive
5.	Value-Added Tax	VAT	Independent	Tax levied annually on goods and services consumed by consumers	Inyiama & Ubesie (2016)	Positive
6.	Custom and Excise Duties	CED	Independent	Tax imposed on goods and services exported, imported and locally manufactured.	Akhor & Ekundayo (2016)	Positive

Source: Researcher's compilation from various sources (2018)

Method of Data Analysis

The econometric technique used to analyse the data was Ordinary Least Square (OLS) method of the time series multiple regression technique. The OLS regression possesses some essential qualities that make it unique. This is because among a class of linear estimator, the Ordinary Least Square (OLS) is the best linear unbiased estimator (BLUE) because it possesses the desirable properties of unbiaseness, efficiency and consistency. OLS is less complicated in terms of mathematical computation and interpretation, unlike other methods. It offers the most reliable way of predicting the relationship between the dependent (Real Gross Domestic Product (RGDP) and Human Development Index (HDI)) and the independent variables (Petroleum Profit Tax (PPT), Company Income Tax (CIT), Value Added Tax (VAT) and Custom and Excise Duty (CED), in such a manner that the residual between the predicted values and the real values is minimized as much as possible. The regression result is evaluated using individual statistical significance test (T-test) and overall statistical significance test (F-test). The goodness of fit of the model is tested using the coefficient of determination (R-square). The hypotheses are tested and our decision rule is to accept the null hypothesis if the probability value is less than 5% and reject if probability value is above 5%.

In this paper, the following econometric estimations techniques were used for enhancing the properties of the data: Augmented Dickey-Fuller (ADF) Unit Root test, Error Correction Model (ECM), Johansen Test of Co-integration and Direct Granger Method. Also, this paper supported the use of time series data that were stationary since non-stationary time series data are frequently subjected to spurious regression results. The variables need to be stationary to avoid spurious regression, a situation where estimated coefficients are very deceptive. The properties of the time series data used for the paper were tested with the Augmented Dickey Fuller (ADF) for unit root test. In other words, the Unit Root test was used to test if the time series data were stationary or not.

If the time series data is non-stationary, the data is first differenced or regressed on deterministic functions of time to render the data stationary. If the time series data is stationary, the Johansen Test of Co-integration was used to test it in order to examine the stable long run relationship between the dependent and independent variables.

Also, in examining the dynamic short-run behaviour of the variables and how the disequilibrium between the short and long run is adjusted for, the error correction model (ECM) was used. An error correction model (ECM) belongs to a category of multiple time series models most commonly used for data where the underlying variables have a long-run stochastic trend, also known as co-integration. ECMs are a theoretically-driven approach useful for estimating both short-term and long-term effects of one time series on another. The term error-correction relates to the fact that last-period's deviation from a long-run equilibrium, the error, influences its short-run dynamics. Thus, ECMs directly estimate the speed at which a dependent variable returns to equilibrium after a change in other variables. The Engle and Granger 2-step approach were used in estimating the ECM.

The Direct Granger Method was used to assess for causality by regressing each variable on its lagged values and that of other variables. The software used in estimating the model and conducting other tests was the EViews 8.0.

RESULTS AND DISCUSSION

The analysis of results started with the descriptive statistics and presentation of unit root test, using the Augmented Dickey Fuller (ADF) technique to ascertain the order of integration of the time series. The paper undertook tests of co-integration to determine if long run relationships existed among the variables by using the Johansen multivariate co-integration. They were followed by the analysis of the estimated long run equations and the short run dynamic Error Correction Model (ECM) equations.

Table 2: Descriptive Statistics

	RGDP	HDI	CED	CIT	PPT	VAT
Mean	24233750	0.476667	167302.2	332967.8	1228400.	314717.6
Maximum	76700000	0.530000	241400.0	752475.0	3070590.	730000.0
Minimum	1240000.	0.420000	18295.00	12275.00	42803.00	7261.000
Std. Dev.	23752664	0.036555	73524.98	306523.9	993555.7	273383.3
Skewness	0.894535	0.163870	-0.893443	0.325529	0.371743	0.334293
Kurtosis	2.520739	1.667129	2.145458	1.295018	1.945663	1.411169
Jarque-Bera	3.430459	1.883958	3.923201	3.330839	1.664398	2.971391
Probability	0.179922	0.389856	0.140633	0.189111	0.435091	0.226345

Source: Author's computation, 2019

In Table 1, real gross domestic product (RGDP) has a mean of 24233750 over the period 1994 to 2017. The maximum and minimum amounts of RDGP are 76700000 and 1240000 respectively. Its skewness value is 0.89 indicating that the distribution of RDGP is positively skewed about its mean. Its Kurtosis (2.52) shows that the distribution is flat. The Jarque-Bera value of 3.43 with probability value of 0.18 suggests that the variable is normally distributed about its mean.

Human development index (HDI) has a mean of 0.48. The maximum and minimum amounts of HDI for the period are 0.53 and 0.42 respectively. Its skewness value is 0.16 and it indicates that the distribution of HDI is slightly skewed to the right. Its Kurtosis (1.67) indicates that the distribution is flat. The Jarque-Bera value of 1.88 with probability value of 0.39 suggests that the variable is normally distributed.

Customs and excise duties (CED) have a mean of 167302. The maximum and minimum amounts of CED for the period are 241400 and 18295 respectively. The value of skewness for CED is -0.89. This means that the distribution of CED is skewed to the left. Its kurtosis value of 2.15 which is less than 3 indicates that the distribution of CED is flat. Jarque-Bera value of

3.92 with probability value of 0.14 greater than the critical value of 5% indicates that CED is normally distributed. The average value of company income tax (CIT) for the period under review is 332967. The maximum and minimum values are 752475.0 and 12275.00 respectively. The skewness value (0.33) shows that CIT is positively skewed. Its Kurtosis (1.30) indicates that the distribution is flat. The Jarque-Bera value of 3.33 with probability value of 0.19 (19%) suggests that the variable is normally distributed. For petroleum profit tax (PPT), the mean value for the period under review is 1228400. Its maximum and minimum values for the period are 3070590 and 42803 respectively. Its skewness (0.37) shows that the distribution of PPT is positively skewed. Its Kurtosis (1.95) indicates that the distribution is flat. The Jarque-Bera statistic (1.66) indicates that the variable is normally distributed. Value added tax (VAT) has a mean of 314717.6 over the period of review. The maximum and minimum amounts of VAT for the period are 730000 and 7261 respectively. The value of skewness for VAT distribution is 0.33. This means that its distribution is slightly skewed to the right. Its kurtosis value of 1.41 which is less than 3 indicates that the distribution is relatively flat. Jarque-Bera value of 2.97 with probability value (0.23) indicates that VAT is normally distributed.

Unit Root Tests

Table 3: Augmented Dickey-Fuller Unit Root Test at Levels

(Dickey-Fuller Regressions include an intercept but not a linear trend)

Variable	*Lag Length*	*ADF Statistic*	*5% Critical Value*	*Remarks*
RGDP	**1**	**-0.491316**	**-2.926622**	**Non-stationary**
HDI	**3**	**0.498575**	**-2.929734**	**Non-stationary**
CED	**2**	**-0.229962**	**-2.928142**	**Non-stationary**
CIT	**1**	**0.107964**	**-2.926622**	**Non-stationary**
PPT	**1**	**-0.082842**	**-3.004861**	**Non-stationary**
VAT	**1**	**-0.884037**	**-2.926622**	**Non-stationary**

(Source: Author's computation, 2019)

From the unit root test results of the variables at level in Table 3, the ADF test statistic (-0.49) for real gross domestic product (RGDP) was less than the critical value (-2.93) in absolute terms. Hence, the paper failed to reject the null hypothesis of a unit root at 5 percent level of significance. Accordingly, real gross domestic product was non-stationary at level. In a similar vein, the other variables were non-stationary at levels because their ADF test statistics were less than the critical value at the 5 percent level. Hence, the variables were tested for stationarity in their first differences.

Table 3: Augmented Dickey-Fuller Unit Root Test at First Difference
(Dickey-Fuller Regressions include an intercept but not a linear trend)

Variable	*Lag Length*	*ADF Statistic*	*5% Critical Value*	*Remarks*
D(RGDP)	**1**	**-7.956445**	**-2.929734**	**Stationary**
D(HDI)	**2**	**-2.998744**	**-2.929734**	**Stationary**
D(CED)	**0**	**-9.515269**	**-2.926622**	**Stationary**
D(CIT)	**9**	**-5.678161**	**-2.943427**	**Stationary**
D(PPT)	**0**	**-2.828156**	**-3.004861**	**Stationary**
D(VAT)	**4**	**-4.377993**	**-2.933158**	**Stationary**

(Source: Author's computation, 2019)

The unit root test results of the variables in their differences revealed that all the variables were stationary after first differencing at 5 percent significance level because the ADF test statistics were all greater than the critical value in absolute terms. Thus, the paper failed to accept the null hypothesis of a unit root at the 1 percent level.

Co-integration Tests

Having established the time series properties of the data, the paper proceeded to conduct the Johansen multivariate co-integration test for the real gross domestic product and human development index models. The results of the real gross domestic product model test for co-integration based on the trace and maximum Eigen value statistics were reported in Table 4 and 5 below.

Table 4: Unrestricted Co-integration Rank Test (Trace)

Hypothesized No. of CE(s)	*Eigen value*	*T race Statistic*	*0.05 Critical Value*	*Probability***
None *	**0.964158**	**135.1715**	**69.81889**	**0.0000**
At most 1*	**0.796656**	**61.94127**	**47.85613**	**0.0014**
At most 2	**0.575484**	**26.89847**	**29.79707**	**0.1041**
At most 3	**0.289341**	**8.048726**	**15.49471**	**0.4602**
At most 4	**0.023997**	**0.534365**	**3.841466**	**0.4648**

(Source: Author's computation, 2019)

Trace test indicates 2 co-integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table 5: Unrestricted Co-integration Rank Test (Maximum Eigen value)

Hypothesized No. of CE(s)	*Eigen value*	*Max-Eigen Statistic*	*0.05 Critical Value*	*Probability***
None *	**0.964158**	**73.23023**	**33.87687**	**0.0000**
At most 1*	**0.796656**	**35.04280**	**27.58434**	**0.0046**
At most 2	**0.575484**	**18.84974**	**21.13162**	**0.1013**
At most 3	**0.289341**	**7.514361**	**14.26460**	**0.4302**
At most 4	**0.023997**	**0.534365**	**3.841466**	**0.4648**

(Source: Author's computation, 2019)

Max-Eigen value test indicates 2 co-integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values

The co-integration test based on the trace test indicated that there were two co-integrating equations at the 5 percent level. Similarly, the maximum eigen value test also indicated that there were two co-integrating equations at the 5 percent level. It implied that a long run relationship existed among real gross domestic product and the tax revenue variables in the model.

The results of the human development index model test for co-integration based on the trace and maximum eigen value statistics were reported in Tables 6 and 7 below.

Table 6: Unrestricted Co-integration Rank Test (Trace)

Hypothesized No. of CE(s)	*Eigen value*	*T race Statistic*	*0.05 Critical Value*	*Probability***
None *	**0.798070**	**95.89919**	**69.81889**	**0.0001**
At most 1 *	**0.750777**	**60.70282**	**47.85613**	**0.0020**
At most 2 *	**0.493115**	**30.13584**	**29.79707**	**0.0457**
At most 3	**0.353396**	**15.18749**	**15.49471**	**0.0556**
At most 4*	**0.224556**	**5.595034**	**3.841466**	**0.0180**

(Source: Author's computation, 2019)

Trace test indicates 4 co-integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table 7: Unrestricted Co-integration Rank Test (Maximum Eigen value)

Hypothesized No. of CE(s)	*Eigen value*	*Max-Eigen Statistic*	*0.05 Critical Value*	*Probability***
None *	**0.798070**	**35.19638**	**33.87687**	**0.0346**
At most 1 *	**0.750777**	**30.56698**	**27.58434**	**0.0201**
At most 2	**0.493115**	**14.94835**	**21.13162**	**0.2925**
At most 3	**0.353396**	**9.592456**	**14.26460**	**0.2401**
At most 4*	**0.224556**	**5.595034**	**3.841466**	**0.0180**

(Source: Author's computation, 2019)

Max-Eigen value test indicates 3 co-integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

The co-integration test based on the trace test indicated that there were four co-integrating equations at the 5 percent level. However, the maximum Eigen value test indicated three co-integrating equations at the 5 percent level. It implied that a long run relationship existed between human development index and the tax revenue variables in the second model.

Presentation and Interpretation of Results

Since long run co-integration relationships were established in real gross domestic product and development models, the error correction models were estimated using the Least Squares regression method. Thus, the results of the short run Error Correction models for real gross domestic product and human development index equations were presented in Tables 8 and 9 below respectively.

Table 8: Estimated Coefficients of the Real Gross Domestic Product Error Correction Model

Dependent Variable: DLOG(RGDP)				
Regressor	**Coefficient**	**Standard Error**	**T-Ratio**	**Probability**
DLOG(CED)	**0.198035**	**0.091002**	**2.176167**	**0.0358**
DLOG(CIT)	**0.318704**	**0.131026**	**2.432379**	**0.0198**
DLOG(PPT)	**0.041588**	**0.045145**	**0.921222**	**0.3627**
DLOG(VAT)	**1.335673**	**0.407388**	**3.278625**	**0.0040**
ECM(-1)	**-0.256784**	**0.102896**	**-2.495577**	**0.0170**
C	**0.119478**	**0.031286**	**3.818904**	**0.0005**
R-Squared 0.5876			***R-Bar-Squared 0.4662***	
DW-Statistic 1.7044			***F-Stat. =4.8435[0.006]***	

(Source: Author's computation, 2019)

The coefficient of determination of the short run real gross domestic product model, R-squared (R^2) was approximately 0.59 and the adjusted R-squared ($\bar{R}^2$) was 0.47. It showed that about 59 percent of the systematic variations in real gross domestic product in Nigeria were explained by the regressors in the equation. The adjusted R-squared indicated that about 47 percent of the changes in real gross domestic product were attributable to the explanatory variables. The F-statistic, 4.84 was significant, passing the significance test at the 1 percent significance level. It indicated that the overall model was significant. Consequently, the hypothesis of a log-linear relationship between real gross domestic product and the regresssors in the equation could not be rejected at the 1 percent level of significance.

The signs of the estimated coefficients of explanatory variables in the model conformed to their theoretical expectations. Customs and Excise Duties (CED), Company Income Tax (CIT) and Petroleum Profit Tax (PPT) were properly signed in the model. The coefficient of customs and excise duties (CED) was positive and significant at 5 percent level of significance. Its coefficient was 0.198 with a t-value of 2.18. It implied that if customs and excise duties increased by, for instance, 1 percent, real gross domestic product would increase by about 0.2 percent. Thus, customs and excise duties had a positive and significant impact on real growth domestic product in the short run in Nigeria.

The coefficient of company income tax (CIT) is positive and significant at the 5 percent level. Its coefficient is 0.32 with a t-statistic of about 2.43. The t-value is passed the significance test at the 5 percent level. This implies that 1 percent rise in company income tax will result in about 0.32 percent increase in real gross domestic product in the short run in Nigeria. Consequently, company income tax has a positive and significant impact on real gross domestic product in the short run.

The coefficient of petroleum profit tax was positive but not significant. Its coefficient was 0.04 and the t-statistic was 0.92. The statistic failed the test of significance at the 10 percent level. It therefore, implied that petroleum profit tax had no significant impact on real gross domestic product in the short run. The coefficient of Value-Added Tax (VAT) was positive and significant. Its coefficient was 1.34 with a t-value of 3.28. The t-statistic passed the significance test even at the 1 percent level. Therefore, value-added tax had a positive and significant impact on real gross domestic product in the short run.

The coefficient of adjustment of the Error Correction Model (ECM) was negative and significant at the 5 percent level. Thus, it rightly acted to correct any deviation of real gross domestic product from its long-run equilibrium value. A cursory look at the Durbin Watson statistic of approximately 1.70 depicted the absence of autocorrelation in the real gross domestic product model.

Table 9: Estimated Coefficients of the Human Development Index Error Correction Model

Dependent Variable: DLOG(HDI)				
Regressor	**Coefficient**	**Standard Error**	**T-Ratio**	**Probability**
DLOG(CED)	**-0.037473**	**0.015430**	**-2.428561**	**0.0265**
DLOG(CIT)	**-0.001184**	**0.017057**	**-0.069426**	**0.9455**
DLOG(PPT)	**0.005879**	**0.003877**	**1.516449**	**0.1478**
DLOG(VAT)	**0.039728**	**0.020041**	**1.982340**	**0.0638**
ECM(-1)	**-0.285233**	**0.140451**	**-2.030830**	**0.0582**
C	**0.005201**	**0.002885**	**1.802495**	**0.0892**
R-Squared 0.4668			***R-Bar-Squared 0.3099***	
DW-Statistic 2.13			***F-Stat. = 2.9768[0.041]***	

(Source: Author's computation, 2019)

The coefficient of determination of the short run human development index model, R-squared (R^2) was approximately 0.47 and the adjusted R-squared ($\bar{R}^2$) was 0. 31. It showed that about 47 percent of the systematic variations in human development index in Nigeria were explained by the independent variables in the equation. The adjusted R-squared revealed that about 31 percent of the variations in human development index were accountable to the explanatory variables. The F-statistic, 2.98 was significant at the 5 percent level. It indicated that the overall model was significant. Therefore, the hypothesis of a log-linear relationship between human development index and the explanatory variables in the equation could not be rejected at the 5 percent level.

The coefficient of customs and excise duties (CED) was negative and significant at 5 percent level of significance. Its coefficient was -0.04 with a t-value of -2.42. It implied that if customs and excise duties increased by, for instance, 10 percent, the rate of human development index would drop by about 0.04 percent in the short run. It indicated that customs and excise duties had a negative and significant impact on human development index in the short run in Nigeria.

The coefficient of Company Income Tax (CIT) was negative but insignificant even at the 10 percent level of significance. Its coefficient was -0.001 with a t-statistic of about -0.07. The t-value passed the significance test at the 10 percent level. Thus, company income tax had a negative and insignificant impact on human development index in the short run in Nigeria.

The coefficient of Petroleum Profit Tax (PPT) was positive and not significant. Its coefficient was 0.006 and the t-statistic was 1.52. The statistic passed the test of significance at the 10 percent level. It therefore, implied that petroleum profit tax had a positive and insignificant impact on human development index in the short run.

The coefficient of Value-Added Tax (VAT) was positive and significant. Its coefficient was 0.04 with a t-value of 1.98. The t-statistic passed the significance test even at the 10 percent level. Therefore, value-added tax had a positive and significant impact on human development index in the short run.

The coefficient of adjustment of the Error Correction Model (ECM) was negative and significant at the 10 percent level. Thus, it rightly acted to correct any deviation of the human development index from its long-run equilibrium value. The Durbin Watson statistic of 2.13 revealed that there was no problem of a serial correlation in the human development index model.

Having established the short-run dynamics of the Error Correction Model for real gross domestic product and development models, the paper estimated their associated long run models using the Least Squares regression technique. The results of the long run models were presented in Tables 10 and 11 respectively.

Table 10: Estimated Coefficients of the Long Run Real Gross Domestic Product Model

Dependent Variable: LOG(RGDP)				
Regressor	**Coefficient**	**Standard Error**	**T-Ratio**	**Probability**
LOG(CIT)	**-0.234891**	**0.331902**	**-0.707714**	**0.4877**
LOG(PPT)	**0.169619**	**0.096229**	**1.762664**	**0.0940**
LOG(VAT)	**1.335673**	**0.407388**	**3.278625**	**0.0040**
LOG(CED)	**-0.725328**	**0.263752**	**-2.750041**	**0.0127**
C	**9.459704**	**1.506000**	**6.281343**	**0.0000**
R-Squared 0.9789			***R-Bar-Squared 0.9744***	
DW-Statistic 1.6515			***F-Stat. = 220.08[0.000]***	

(Source: Author's computation, 2019)

The coefficient of determination of the long run real gross domestic product model, R-squared (R^2) was approximately 0.98 and the adjusted R-squared ($\bar{R}^2$) was 0.97. It showed that about 98 percent of the systematic variations in real gross domestic product in Nigeria were explained by the regressors in the equation. The adjusted R-squared indicated that about 97 percent of the changes in real gross domestic product were attributable to the explanatory variables. The F-statistic, 220.08 was significant, passing the significance test at the 1 percent significance level. It indicated that the overall model was significant. Thus, there was a log-linear relationship between real gross domestic product and the regresssors in the equation.

The signs of the estimated coefficients of explanatory variables in the model conformed to their theoretical expectations except Customs and Excise Duties (CED) and Company Income Tax (CIT) which signs were found to be negative in the model. The coefficient of Company Income Tax (CIT) was negative but insignificant at 10 percent level of significance. Its coefficient was -0.23 with a t-value of -0.71. It implied that company income tax had a negative and insignificant impact on real gross domestic product in the long run in Nigeria.

The coefficient of Petroleum Profit Tax (PPT) was positive and significant at the 10 percent level. Its coefficient was 0.17 with a t-statistic of about 1.76. The t-value passed the significance test at the 10 percent level. It implied that 1 percent rise in petroleum profit tax resulted in about 0.17 percent increase in real gross domestic product in the long run in Nigeria. Therefore, petroleum profit tax had a positive and significant impact on real gross domestic product in the long run in Nigeria.

The coefficient of Value-Added Tax (VAT) was positive and significant. Its coefficient was 1.34 and the t-statistic was 3.28. The statistic passed the test of significance at the 1 percent level. It therefore, implied that value added tax had a positive and significant impact on real gross domestic product in the long run in Nigeria. The coefficient of Customs and Excise Duties (CED) was negative and significant. Its coefficient was -0.73 with a t-value of -2.75. The t-statistic passed the significance test even at the 1 percent level. Therefore, customs and excise duties had a negative and significant impact on real gross domestic product in the long run in Nigeria.

Table 11: Estimated Coefficients of the Long Run Human Development Index Model

Dependent Variable: LOG(HDI)				
Regressor	**Coefficient**	**Standard Error**	**T-Ratio**	**Probability**
LOG(CIT)	**-0.016705**	**0.024723**	**-0.675688**	**0.5074**
LOG(PPT)	**0.007615**	**0.007168**	**1.062419**	**0.3014**
LOG(VAT)	**0.099150**	**0.030346**	**3.267357**	**0.0041**
LOG(CED)	**-0.075506**	**0.019646**	**-3.843240**	**0.0011**
C	**-0.942721**	**0.112180**	**-8.403655**	**0.0000**
R-Squared 0.9677			***R-Bar-Squared 0.9609***	
DW-Statistic 1.7081			***F-Stat. = 142.33[0.000]***	

(Source: Author's computation, 2019)

The coefficient of determination of the long run human development index model, R-squared (R^2) was approximately 0.97 and the adjusted R-squared ($\bar{R}^2$) was 0.96. It showed that about 97 percent of the systematic variations in human development index in Nigeria were explained by the independent variables in the equation. The adjusted R-squared revealed that about 96 percent of the variations in human development index were accountable to the explanatory variables. The F-statistic, 142.33 was significant at the 1 percent level. It indicated that the overall model was significant. Therefore, the hypothesis of a log-linear relationship between human development index and the explanatory variables in the equation could not be rejected at the 1 percent level.

In the human development index model, the signs of the estimated coefficients of explanatory variables in the model conformed to their apriori expectations except Customs and Excise Duties (CED) and Company Income Tax (CIT) which signs were found to be negative in the model. The coefficient of Company Income Tax (CIT) was negative and insignificant at 10 percent level of significance. Its coefficient was -0.017 with a t-value of -0.67. The t-statistic was not significant at the 10 percent level. It implied that company income tax had negative and insignificant impact on human development index in the long run in Nigeria.

The coefficient of Petroleum Profit Tax (PPT) was positive but insignificant at the 10 percent level of significance. Its coefficient was 0.008 with a t-statistic of about 1.06. The t-value failed the significance test at the 10 percent level. Thus, petroleum profit tax had positive and insignificant impact on human development index in the long run in Nigeria.

However, the coefficient of value-added tax was positive and significant. Its coefficient was 0.10 and the t-statistic was 3.27. The statistic passed the test of significance at the 1 percent level. It therefore, implied that value-added tax had a positive and significant impact on human development index in the long run. The coefficient of Customs and Excise Duties (CED) was negative but significant. Its coefficient was -0.076 with a t-value of -3.84. The t-statistic passed the significance test even at the 1 percent level. Therefore, customs and excise duties had a negative and significant impact on human development index in the long run.

Discussion and Implications of Findings

In the long run, custom and excise duties were found to have a negative and significant impact on real gross domestic product and human development index in Nigeria. This is different from the paper of Akhor and Ekundayo (2016) which revealed that customs and excise duties had a negative and insignificant impact on real gross domestic product. The reason for these findings could be that the customs and excise duties are not remitted to the federal government or perhaps the remittances are not used judiciously for the development of the Nigerian economy.

Similarly, company income tax had no significant impact on real gross domestic product and human development index in the long run in Nigeria, which also supports the paper of Chigbu and Njoku (2015) where the company income tax had an insignificant impact on the advancement of the Nigerian economy. The reason for this could be that there are no enough companies in Nigeria or companies are folding up because there are no tax incentives to encourage them.

Also, Petroleum profit tax was found to have a positive and insignificant impact on real gross domestic product and human development index in the long run in Nigeria, unlike the paper of Jibrin, Ejura and Ifurueze (2012) which showed that petroleum profit tax had a positive and significant impact on the Nigerian economy. The implication of the result could be that there is no proper accountability for the petroleum profit tax.

Value-added tax was found to have a positive and significant impact on real gross domestic product and human development index in the long run in Nigeria. This agrees with the paper of Ehimagusoe (2013) and Unegbu and Irefin (2011) the implication was that value-added tax enhanced economic development in Nigeria in the long run.

Recommendations

Based on the empirical findings, the following recommendations were made:

Government should strengthen the tax system as it affects company income tax, custom and excise duties as well as value added tax in terms of more concessions to taxpayers in order to elicit adequate and timely filing of tax returns, thereby ensuring adequate mobilization of tax revenue for economic development;

Loopholes in the Nigerian tax system should be reduced by removing bottlenecks which may breed inefficiencies in collections and impair the possibility of adequate mobilization of tax revenue in the economy. The Federal Inland Revenue Service should ensure effective supervision and monitoring of tax payers to ensure full compliance to tax rules and regulations. This will minimize tax avoidance and evasion thereby making more tax revenue available for government to initiate and implement its policies for sustainable economic development; and government should provide adequate funding for education, health and living standard of the people. This will improve the level of economic development of Nigeria since these are the key indices in evaluating the level of economic development.

CONCLUSION AND RECOMMENDATIONS

The findings of this paper show that tax revenues have long run relationships with real gross domestic product and development in Nigeria. The implication is that effective mobilization of tax revenue in the economy will contribute significantly to real gross domestic product and development in the long run in Nigeria. The findings also reveal that customs and excise duties have a negative and significant impact on economic development in Nigeria in the long run. Petroleum profit tax was found to have a positive and insignificant impact on real gross domestic product and human development index in the long run in Nigeria. Value-added tax is found to have a positive and significant impact on real gross domestic product and human development index in the long run in Nigeria. From the foregoing, it should be noted that tax revenue generation in Nigeria either increases or decreases (as in custom and excise duties) real gross domestic product and development.

The paper contributed greatly to the empirical literature, as it provides a better measure to proxy economic development, using Human Development Index (HDI) which is adjudged a better measure that covers achievements in three basic dimensions – education, health and standard of living. Also, the paper revealed whether there could be an increase in economic growth via Real Gross Domestic Products (RGDP) without any actual improvements in economic development via Human Development Index (HDI).

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