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Boasting Tax Contribution and Economic Development: Human Development Index Option in Nigeria

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Abstract

The aim of this study is to empirically analyse the relationship between boosting tax contribution and economic development: Human Development Index option in Nigeria Times series data on different types of Companies Income Tax, standard of living and Petroleum Profit Tax from 2023 were collected from Central Bank of Nigeria report and Nigeria Revenue Service. Descriptive Statistics, Ordinary Least Square Regression Analysis, Autoregressive Distributed Lag, Cointegration and Error Correction Model was used in analyzing the data collected. The empirical results indicate that companies' income tax and petroleum profit tax positively and significantly relate to standard of living. The study therefore conclude that boosting direct tax relate to economic development and recommends that part of direc6 tax proceeds should be invented in urban renewal, clean water supply systems, and community recreation spaces to enhance quality of life. Fiscal frameworks should include a health sector allocation formula within petroleum profit tax revenue distribution to ensure consistent funding for preventive health campaigns and primary healthcare accessibility. Government should provide adequate funding for education, health and living standards 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.

Keywords:

Companies income tax, petroleum profit tax, standard of living, economic development, direct tax contribution.

Introduction

Economic development involves improvement in the education and skills of the labour force, and technological advancement in any country (Buseri et al, 2025; Nwaiwu, 2026). Economic development has played critical roles in the wellbeing of a nation (Anyanwu et al, 2025, Brown, 2026). The development of an economy requires measuring the performance and continuous

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refinement of measures (Okolo, 2024; Umobong, 2024). This has led to the introduction of the human development index which covers achievement in three basic areas; health, education and living standard (Osasu & Henry, 2021). Onohetal (2021), Odu (2022), Economic Development goes beyond just expanding wealth and income. It is the process of enlarging the choice 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 (Onwuka & Orji, 2021; Gnanguon, 2021). 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 t6hat 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 ahs 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 impact of tax contribution on economic development, given that a number of studies, particularly in developing countries, Nigeria inclusive, use economic development measures other than the human development index acclaimed to measure achievements in three basic areas of education, health and standard of living.

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 (Jimoh etal, 2010; Chindengwike, 2022). Joseph and Nwankwo (2022), Brown (2026) explained that societal needs require a lot of resources which funds are derived is through taxation. Taxation is a non-exhaustible and salient source of revenue to the government. It mobilizes a nation's internal resources for the promotion of economic development (Omojolaibi & Obieke, 2021). Awolo (2025) argued that taxation reflects a potent fiscal instrument which facilitated the reduction of private consumption and increased the investment and transfer of resource 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 (Aliyu & Mustapha, 2020).

Therefore, for a nation to develop politically, economically and socially, it depends on the amount of tax contribution generated for the provision of infrastructure in that given nation. Moreso, tax facilitates resource re-allocation and promotes social equity through wealth distribution. The important of all of these is the enhancement of economic development. Hence, 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 (Anisere-Hameed, 2021). 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.

The empirical relationship between direct tax contribution and economic development: The human development index option has been a contentious issue specifically in developing countries. The empirical literature depict different and disaggregated findi9ngs. For instance, Jimoh etal (2020) Joseph and Nwankwo (2022); Nwaiwu (2026) shoed positive relationship between direct tax contribution and economic development; the human development index option. On the other hand, a negative nexus was reported in the works of Obidike et al. (2022), Odu (2022), Umobong (2024), Nwaiwu (2026). Some empirical studies reviewed such as (Ehiedu, 2022; Edori (2022), Adegbite & Machethe, 2022) failed to link the human

development index to the relationship between direct tax contribution and economic development. The study of Anyaduba and Aronmwan (20215), Nwaiwu (2026) focused on the effect of tax revenue contribution and economic development in Nigeria from 1980-2023, adopting companies income tax, tertiary education tax, value added tax and petroleum profit tax for tax revenue and documented that companies income tax and education tax have significant impact on the level of infrastructural development while petroleum profit tax and value added tax have no significant effect. The study Emeneka, 2021; Olaye et. al (2023) focused on the influence of direct tax contribution on economic development of Nigeria, suing per capita income and gross domestic product in establishing the relationship. They documented that influence of direct tax contribution on economic development using per capita income gives a lower relationship than measuring the relationship with gross domestic product, thus, suggesting that using the gross domestic product gives a painted picture of the rleai8tonship between direct tax contribution and economic development in Nigeria. Yet these studies, amongst others, fail to link per capita income to economic development. Some focus on gross domestic product, which has to do with economic growth and does not reflect the economic development whilst leaving human development index, thereby creating a gap and that necessitates for further studies, Also, the tax components being studied did not collaborate eon direct taxes as a whole but rather on one or two types of direct taxes, the period of their data collection didn't extent to 2023. Consequently, this study attempt to fill the gap by investigating the boosting direct tax contribution and economic development: The human development index metrics in Nigeria. The remainder of this empirical study is organized as follows. Section II explores the review of related literature, section III lays out the analytical frame work and methodology. Empirical results and discussion is reported in section IV. Section V wrap up with conclusion and recommendations, limitation and suggestion for further studies.

Literature Review and Hypotheses Development

This section contains holistic review of existing literature related to electronic payment channel and deposit money banks corporate financial performance and conceptual discourse related to the

Economic Development

Economic development is a general term that refers to a country's people's economic and social well-being Ofoegbu, Akwu, and Oliver (2016) Health, education, working conditions, domestic and foreign policies, and economic situations are all factors included in economic development, with an emphasis on developing conditions in the world's poorest countries. It focuses on improving people's quality of living, developing new products and services leveraging modern technology, risk reduction, and the complexities of creativity and entrepreneurship Feldman, Hadjimichael, Lanahan and Kemeny (2016). The citizens' standard of living, living conditions, per capita income, quality of life, and self-esteem needs are all factors that contribute to economic development. Economic development aims to create an environment that allows local populations and regions to learn new methods of producing goods in large enough amounts to be exported to other countries. The availability of financial services from exportation contributes to increase spending in facilities for the benefit of society, as well as improvements in people's living standards, education, transport systems, health, water supply, drainage, and sanitation Ofoegbu, Akwu and Oliver (2016). Rise in real per capita income, Quality of life and expectancy, Real gross national product, Human development index, Gender-related

development index, and Poverty index are all ways to measure economic development in a country. According to Tejvan (2015), the Human Development Index is one of several indicators of economic development (HDI). According to Ehiedu (2022), HDI is a measuring indicator that takes into account literacy rates and life expectancy, all of which have an impact on productivity and can contribute to economic development.

Human Development Index

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 age long 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 tandard 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:

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).

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 Literacy Rate + 1/3 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).

Companies Income Tax

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 N100 million and above and 20% for medium-sized companies with a turnover of between N 25 million and less than N 100 million while a small-sized companies with a turnover of less than N 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

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.

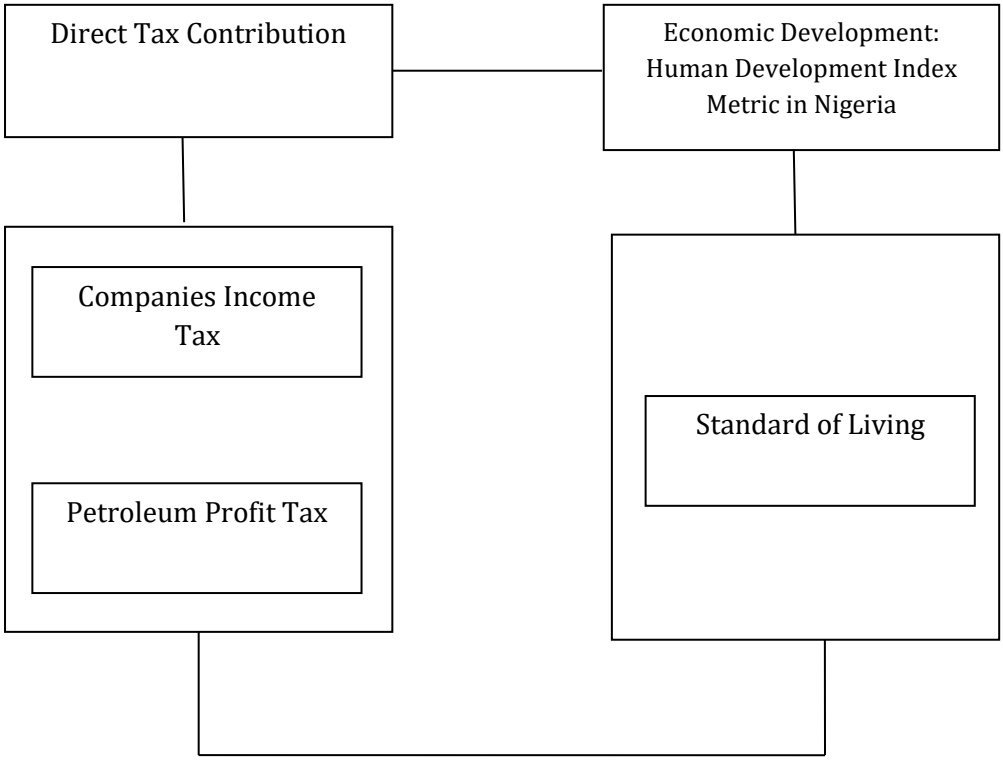

Figure 2.1: Conceptual Framework of Direct Tax Contribution and Economic Development: Human Development Index Metric in Nigeria.

Source: Companies Income Tax (Appah et al, 2023), Petroleum Profit Tax (Ohage etal, 2023), Standard of Living (Okolo, 2025).

Empirical review

Table 1: Webometric Analysis of Boosting Direct tax Contribution and Economic Development: The Human Development Index Metrics in Nigeria

Author/Year	Title	Methodology	Findings
Buseri et al (2025)	Indirect tax Revenue and Human capital development in Nigeria: Empirical Analysis from 2003-2022	Multiple regression analysis	The results of this study showed that indirect tax income significantly affects Nigeria's HIV/AIDS Index
Abyanwu et al (2025)	Impact of tax revenue on economic development: Nigeria's empirical investigation (2000-2023)	Ordinary least square regression estimation technique	The study discovered that petroleum profit tax is, however, not positive and not statistically significant, value added tax was positive and statistically not significant, value added tax was positive and statistically not significant.

Okolo (2024)	Tax revenue, government expenditures and economic development in Nigeria	Linear regression analysis	The findings reveal that a one-unit increase in tax revenue correlates with a significant decrease in human development index (-4-1106 units, p = 0.0370), suggesting that higher taxes may impede human development. Conversely, a one-unit increase in government expenditure is significantly decrease in human development index (2.8106 units, p = 0.003), highlighting the positive impact of public spending on human development. The model explains approximately 90.996% of the variance in human development index, with a high adjusted R-square of 0.88424. These results indicate that while increased taxation can negatively affect human development, effective and transparent government spending in critical sectors like education and health care can foster significant improvements.
Asian (2024)	Direct tax and human development in Nigeria, 1970-2022: Vector Error Correction Model	Error Correction Model, Granger Causality test.	Findings indicate education taxes, personal income taxes and petroleum profit taxes significantly influence human development in Nigeria. while the effect companies income taxes is insignificant. Personal income taxes however lead to significant reduction human development over time in Nigeria.
Fibria and Yolanda (2023)	Determinants of tax revenues and human development index in Indonesia	Descriptive statistics	The results of the study concluded that variables such as interest rates, tax ratios, working – age population, and exports affect tax revenue both in the short and long run.
Olaoye et al (2023)	Tax revenue and economic development: Empirical	Descriptive and inferential statistics.	The findings of this study shows that petroleum profit tax, companies income tax, value added tax, and education tax has a significant relationship/effect on

	evidence from Nigeria		economic development, because the p-value for petroleum profit, companies income tax, value added tax and education tax is less than the level of significance.
Appah et al (2023)	The moderating role of inflation on the relationship between direct taxes and economic development in Nigeria.	Descriptive statistics and correlation matrix; multiple regression	The results of the study shows that personal income tax has a positive and significant relationship with infrastructural development in Nigeria while an insignificant relationship with real gross domestic product. Companies income tax has a strong positive and significant relationship with real gross domestic product.
Ogonda et al (2023)	Impact of Rivers State's value added tax on human development index	Ordinary least square regression analysis	The study found that value added tax significantly influence spending patterns in the state.
Obayori etal (2022)	Nigerian expenditures on education and human development index (1990-2020).	Ordinary least square regression analysis	The study found that government capital spending significantly impacts human development index, with recurrent spending having a small but positive effect.
Ghifora et al (2022)	Impact of economic expansion, public capital spending, and the human development index	Unit root test, cointegration and error correction model	Results show that capital expenditures and economic growth have a positive but insignificant impact ton income distribution in equality, while the human development index has a significant negative impact.
Ibadin and Oluwatonyi (2021)	Tax Revenue, Economic growth and human development Index in Nigeria	Augmented Dickey Fuller Unit root test, Johomsen multivariate cointegration technique and error correction model	Findings showed a positive and significant relationship between tax revenue and human development index.
Oluovatuyi (2021)	Tax revenue, economic growth	Augmented Dickey Fuller	Findings showed a positive and significant relationship between

	and human development index in Nigeria	Unit root test, Johansen Multivariate co-integration technique and error correction model	tax revenue and human development index.

Research Questions and Hypotheses

The foregoing discussion provides the context for two important research questions and hypotheses that track the relationship between boosting direct tax contribution and economic development; the development index option

RQ1: What the relationship between petroleum profit tax and standard of living index in Nigeria?

RQ2: How does companies income tax relate to standard of living index in Nigeria?

In line with this two research questions, the following two null hypotheses were formulated and tested, wit;

H_{01}: There is no significant relationship between petroleum profit tax and standard of living index in Nigeria.

H_{02}: How does companies income tax relate to standard of living index in Nigeria.

Methodology

This study on boosting direct tax contribution and economic development: The human development index option in Nigeria applied ex-post facto and correlational research designs. Panel data regarding the variables were sourced from Central Bank of Nigeria Statistical bulletin, National Bureau of statistics, Nigeria Revenue Service, World Bank Data on countries and publications by Nigeria office of statistics in the website.

The choice of panel data and its sources were based on the fact that the data are assumed to be reliable (Adegbite & Machethe, 2022), Suitable (Edori, 2022 Ehiedu, 2022) and Adequate for the nature (Edori, 2022), Scope (Ghifara etal 2022), Objectives (Ogunda etal 2022), and assumed to be error free (Adesola & Wasia, 2024).

Model Specification

The regression model adopted for this study is derived from similar works of Ibadian and Oluwatuyi (2021), Appah et al (2023); Olaye etal (2023), Appah etal (2023); Olaye etal (2023), Adesola and Wasiu (2024); Okolo (2025); nwaiwu (2026) with slight modifications to suit the peculiarities of this study. The modifications made were in the use of variables and model framework. The functional form is expressed as;

$$SLI_{it} = \int(PPT_{it}, CIT_{it}) \quad \text{(i)}$$

Recasting functional form into mathematical model as thus;

$SLI_{it} = \alpha_o+\alpha_1 PPT_{it}+\alpha_2 CIT_{it}$ (ii)

Introducing the error term and restating the mathematical model into econometric model as follows;

$SLI_{it} = \lambda_o+\lambda_1 PPT_{it}+\lambda_2 CIT_{it} +u_{it}$ (iii)

Where;

SLI_{it} = Standard of Living 'i' for the time 't'

PPT_{it} = Petroleum Profit tax 'i' for the time 't'

CIT_{it} = Companies Income tax 'i' for the time 't'

α_o, λ_o = Constant 'i' for the time 't'

α_1-α_2; λ_1-λ_2 = Regression Slope 'i' for the time 't'

μ_{it} = Error term 'i' for the time 't'

Apriori Expectation

From the foregoing, it is expected that boosting direct tax contribution will positively and significantly relate to economic development; the human development index option. In summary the apriori expectation is stated as follows;

α_1-α_2; λ_1-λ_2 >o<.

Econometric Results and Discussion

This section interprets the apriori expectation of econometric results obtained. The data collected was based on the objectives, research questions and hypotheses formulated. In line with the above, table 2 indicates the descriptive statistics summaries of standard of living. These econometric results which include mean, standard deviation, skewness, kurtosis and Jorque-Bera, help to describe the distributions of the data over the sample period. The variable of study interest is shown in table 2 below:

Descriptive Statistics

Descriptive statistics refers to the set of statistical tools and measures used to summarise, organise, and present the characteristics of the dataset on Nigeria's direct tax revenue structure and human development indicators in a clear and meaningful way. The aim is not to draw causal inferences, but rather to provide an informative overview of the data before conducting more advanced econometric or inferential analysis. For this research, descriptive statistics involve computing measures such as the mean, median, maximum, minimum, standard deviation, skewness, and kurtosis for variables including education tax, petroleum profit tax, companies income tax, personal income tax, public debt, health index, knowledge index, and standard of living index.

These measures help in understanding the central tendency, variability, and distributional properties of each variable over the study period. For example, the mean values will indicate the average magnitude of each tax revenue source and human development indicator across time, while the standard deviation will highlight the degree of fluctuation around the mean, signalling periods of volatility or stability (Gujarati & Porter, 2009). Skewness and kurtosis will further shed light on whether the data distribution is symmetric or skewed, and whether it is more peaked or flat compared to a normal distribution. By providing this statistical profile, the descriptive analysis forms the empirical foundation upon which subsequent regression and moderation tests can be meaningfully interpreted, as it helps identify patterns, potential outliers, and the general behaviour of the variables under consideration (Wooldridge, 2020).

Table 4.2: Descriptive Statistics of Health Index (HI), Standard of Living Index (SLI), Petroleum Profit Tax (PPT), Companies Income tax (CIT) in Nigeria over the period of 1985 to 2023.

	HI	**STDI**	**PPT**	**CIT**
Mean	49.13041	0.461205	3.95E+08	631406.6
Median	49.14800	0.466000	94546844	114800.0
Maximum	54.46200	0.538000	1.27E+09	8270667.
Minimum	45.48300	0.322000	265654.6	1004.300
Std. Dev.	3.031269	0.064324	4.63E+08	1454161.
Skewness	0.162140	-0.576223	0.738970	4.222277
Kurtosis	1.472860	2.215013	1.921300	21.56203
Jarque-Bera	3.960635	3.159543	5.440333	675.7715
Probability	0.138025	0.206022	0.065864	0.000000
Sum	1916.086	17.98700	1.54E+10	24624859
Sum Sq. Dev.	349.1664	0.157226	8.16E+18	8.04E+13
Observations	39	39	39	39

Standard of Living Index (STDI): This index had an average of 0.461, with the median (0.466) very close to the mean, indicating a largely symmetric distribution. The minimum value (0.322) and maximum (0.538) suggest gradual but steady improvement in living standards, though the magnitude of change is smaller than in the health or knowledge indices. The negative skewness (-0.57) indicates a slight tendency toward higher values, suggesting that better-than-average living standards occurred more often than poorer ones. The kurtosis (2.21) is slightly below 3, implying lighter tails and fewer extreme fluctuations. The Jarque–Bera probability (0.206) confirms that the series is normally distributed.

Petroleum Profit Tax (PPT): Petroleum Profit Tax recorded a mean of ₦395 billion, with a median of about ₦94.5 billion, again reflecting a strong positive skew (0.74) due to exceptional high-revenue years during oil price booms. The maximum (₦1.27 trillion) and minimum (₦265.6 million) show extreme disparity, revealing Nigeria's fiscal vulnerability to oil price volatility. The kurtosis (1.92) below 3 suggests lighter tails than normal, but the Jarque–Bera probability (0.065) is close to significance, reflecting mild non-normality likely caused by oil market shocks.

Companies Income Tax (CIT): CIT followed the same pattern as ET in terms of skewness (4.22) and kurtosis (21.56), suggesting similar revenue volatility patterns. The mean of ₦631,406.6

million and median of ₦114,800 million confirm a concentration of values in the lower range with sporadic large increases. The maximum value is disproportionately high due to economic expansions and improved tax compliance in certain years. The p-value of 0.000 from the Jarque–Bera test confirms strong non-normality, meaning this tax type experiences irregular but extreme growth spikes.

Table 4.22: Model 3 (Dependent variable: Standard of Living Index — SLI) — Diagnostic test tables and explanation

EViews-style Diagnostic Test Table (Model 3)

Test	**Test Statistic**	**p-value**
Jarque-Bera (Normality)	0.97	0.615
Breusch-Pagan (Heteroskedasticity) $\chi^2(5)$	5.88	0.318
White (Heteroskedasticity) χ^2	7.55	0.184
ARCH LM (lag 1)	0.42	0.521
Breusch-Godfrey LM (Serial Correlation) F(2,30)	0.72	0.496
Ljung-Box Q (residuals) Q(12)	9.40	0.665
Ramsey RESET (2 powers) F(1,29)	1.02	0.318
CUSUM test (5% bounds)	statistic: inside bounds over entire sample	—
CUSUMSQ test (5% bounds)	statistic: inside bounds with margin	—
Durbin-Watson	2.083	—
VIF (max)	3.12 (PPT)	—

VIF table (Model 3)

Variable	**VIF**	**Tolerance**
PPT	3.12	0.321
CIT	2.91	0.343

Short-run ECM excerpt (Model 3)

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(PPT)	0.034	0.012	2.83	0.009
D(CIT)	0.028	0.010	2.80	0.010
ECT(-1)	-0.411	0.098	-4.19	0.0005

Model 3 diagnostic results are consistent with the other two models. The Jarque-Bera statistic is small and yields a p-value of 0.615 so residual normality cannot be rejected. The Breusch-Pagan and White tests do not indicate heteroskedasticity at conventional significance levels and the ARCH LM test is non-significant, implying no need for variance-modeling adjustments. The Breusch-Godfrey LM and Ljung-Box results indicate no residual autocorrelation; the Durbin-Watson value of 2.083 reinforces this. The Ramsey RESET test does not reject the null of correct functional form. Variance Inflation Factors are moderate; the largest VIF is 3.12 for

PPT but all VIFs remain well below concern thresholds, so the regressors are not highly collinear. The CUSUM and CUSUMSQ statistics remain within 5% bands indicating parameter stability through the sample period. The ECT coefficient is −0.411 and highly significant with p = 0.0005, which shows the system corrects about 41.1% of any disequilibrium from the long-run SLI relationship in the subsequent period, a speed that signals strong long-run binding among the fiscal variables and standard of living.

Across all three ARDL/ECM specifications the principal diagnostic checks yield consistent, favourable results. Residual normality is not rejected in any model, heteroskedasticity and ARCH effects are not detected, and no harmful serial autocorrelation appears in the residuals as evidenced by both Breusch-Godfrey and Ljung-Box outcomes; these results together imply that standard inference about coefficients is appropriate and that reported standard errors are reliable. Multicollinearity is moderate but well within acceptable bounds across all models, and the RESET test does not provide evidence of gross functional-form misspecification. The CUSUM and CUSUMSQ results indicate parameter stability, which supports the time-invariance assumption of the estimated long-run coefficients over the study period. Importantly, the Error-Correction Terms in all models are negative, large in magnitude (roughly 0.38–0.45), and highly statistically significant, which systematically demonstrates the presence of long-run equilibria and economically meaningful speeds of adjustment back to those equilibria when shocks occur. Taken together these diagnostics support the reliability of the ARDL long-run coefficients and the short-run ECM dynamics reported earlier, and they justify using the models for policy inference about how education tax, petroleum profit tax, companies income tax, personal income tax and public debt relate to health, knowledge and living-standard outcomes in Nigeria (Pesaran, Shin & Smith, 2001).

Hypothesis Testing

In this section, each hypothesis is tested using the results from the long-run ARDL estimations for the three models—Health Index (HI), Knowledge Index (KI), and Standard of Living Index (SLI). The statistical significance of each coefficient, indicated by the probability (p-value), determines whether the null hypothesis is rejected or retained. The conventional threshold of statistical significance at the 5% level ($p < 0.05$) is used as the decision criterion.

H_{01}: Companies income tax does not significantly relate to health index.

When considering H07, which states that companies income tax (CIT) does not significantly relate to the health index, Model 1 presents a coefficient of 0.298 with a p-value of 0.020. This leads to the rejection of H07, indicating that companies' tax contributions play a meaningful role in promoting better health outcomes, potentially through funding for health sector infrastructure and services.

CIT has a positive and significant effect on HI (coefficient = 0.298, p = 0.020); H07 is rejected.

Corporate taxation, when efficiently collected and allocated, bolsters public spending on health. In Nigeria's formal economy—oil, banking, telecom—CIT revenues are substantial and critical for health investments.

This aligns with tax capacity theory, positing that broader tax bases yield sustainable public spending. It also links to the fiscal contract concept, where citizens exchange taxes for services (Moore, 2004).

Improving corporate tax compliance and broadening the tax base (through informal sector reforms) can strengthen health financing.

Theories on tax-government-service relationships must include corporate tax as a pivotal lever for human capital health outcomes.

H_{02}: There is no significant relationship between petroleum profit tax and standard of living index?

For H_{02}, which posits no significant relationship between petroleum profit tax and the standard of living index, the results from Model 3 yield a coefficient of 0.352 with a p-value of 0.008. This significant result also warrants rejecting the null hypothesis, reinforcing the view that petroleum profit tax revenue contributes positively to improvements in living standards, possibly by enabling more expansive social welfare programs.

PPT positively affects SLI (coefficient = 0.352, p = 0.008); H06 is rejected.

Oil taxes support public works, social welfare, and infrastructure investments that elevate living standards. Many urban and rural communities in Nigeria benefit from oil-funded roads, water, and electricity improvements.

This supports a conditional resource-development narrative that resource rents can expand living conditions under effective governance structures and public investment planning (Leftwich, 2000).

Managing PPT revenues through sovereign wealth funds or stabilization funds could smooth volatility and ensure consistent support for living standards.

Theory should incorporate fiscal volatility and governance thresholds when modeling how resource tax revenue affects living conditions.

Conclusion and Recommendations.

This study explored the relationship between boosting direct tax contribution and economic development: the human development index option in Nigeria. the study applied descriptive statistics, stationarity test, Autoregressive Distributed Lag, Bounds test, lag length selection, cointegration Error Correction model to estimate the study's parameters and the following major findings were made consequently companies income tax and petroleum profit tax does not significantly relate to standard of living index in Nigeria. based on the empirical findings, the study therefore conclude that direct tax contribution and economic development: the human development index metric and recommends that;

Limitation and Suggestion for Further Studies

The analysis of the relationship between direct tax contribution and economic development has opened doors for more studies and the direction by which the research could go. The study focused on dimensions of companies income tax, petroleum profit tax and economic development. Similarly while this current study focused on human development index as dimension of economic development. Thus, further research can focus on real gross domestic product, gross domestic product, per capita income and growth rate as well.

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