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INDIRECT TAX AND INCLUSIVE GROWTH IN NIGERIA

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Abstract:
This study carefully investigated the effect of indirect tax on inclusive growth in Nigeria from 1994-2019. To achieve the above objective, secondary data on the human development index, value-added tax, as well as customs and excise duties were sourced from the statistical bulletin of Nigeria's apex bank. Co-integration and ECM techniques were used as the main analytical tools. The regression result revealed that value-added tax has a positive and insignificant relationship with inclusive growth (human development index) in Nigeria during the period of study. At the same time, customs and excise duties have a negative and significant relationship with inclusive growth (human development index) in Nigeria during the studied period. Based on the findings, the study recommended that revenue from the various forms of indirect tax – value-added tax and customs and excise duties should be invested in social and community services - health, education, etc., economic services - agriculture, construction, transport and communication among others that will help the various sectors of the economy to function very well thereby improving the quality of life of people as measured by human development index. Government should boost indirect tax revenue. To achieve this, the government should identify and eradicate all administrative loopholes for indirect tax revenue to contribute meaningfully to the improvement of the quality of life of the inhabitants of Nigeria.

JEL: H20; H21; H71

Keywords: indirect tax, inclusive growth, VAT, ECM, customs and excise duties

1. Introduction

The responsibilities of government in any modern economy are substantial. These range from the traditional one of tax collection and spending on public goods to those of providing regulatory and supervisory services to the entire economy. In an economy that

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is well-diversified, taxation constitutes one of the major sources of revenue to governments (federal, state and local). Traditionally, taxes are classified into two categories namely, direct and indirect taxes. According to George-Anokwuru, Olisa and Obayori (2020), indirect tax is the most and efficient of these two types of taxes because it is very difficult for taxpayers to evade most forms of indirect tax such as Value Added Tax (VAT), as well as customs and excise duties. Since it is very difficult to evade VAT, as well as customs and excise duties, it helps to increase the revenue that accrues to the government. According to Inimino, Abuo, Bosco (2018), the entire essence of taxation is to generate revenue to advance the welfare of the inhabitants of a nation with a focus on promoting the growth and development of the country's economy through the provision of essential amenities for improved public services through proper managerial system and structures. Optimal deployment of government revenue will enable the government to invest in public and merit goods that can reduce poverty through its consumption by the poor folks in the country.

Over the years, the performance of value-added tax, as well as customs and excise duties have been impressive in terms of an increase in the revenue of the government. Value-added tax, as well as customs and excise duties, have become an increasing component of revenue in Nigeria (Umo, 2012; Inimino, Otubu & Akpan, 2018). For instance, available data reveals an undeniable improvement in value-added tax, as well as customs and excise duties, returns on yearly basis; a breakdown of non-oil revenue (gross) indicated that value-added tax and customs/excise duties rose by 4.1 and 0.5 per cent to N811.0 billion and N548.8 billion, respectively in 2016. In 2017, a breakdown of non-oil revenue (gross) indicated that VAT and customs/excise duties rose by 19.3 and 14.4 to N967.7 billion and N628.0 billion, respectively. In 2018, a breakdown of non-oil revenue (gross) indicated that VAT, customs & excise duties, rose by 13.4, 12.3 to N1, 097.4 billion, N705.5 billion respectively. In 2019, a breakdown of non-oil revenue (gross) indicated that Value Added Tax, as well as customs & excise duties, rose by 7.2%, 18.7% to ₦1,175.9 billion and ₦837.3 billion respectively. Therefore, there is no gain in saying that indirect taxes (VAT, customs and excise duties) are assisting in the diversification of revenue sources of the government in Nigeria (CBN, 2016, 2017, 2018 & 2019).

Despite the revenue that accrues into the governments' treasury from value-added tax (VAT), as well as customs and excise duties (CED) and other sources in Nigeria, the governments still complain of inadequate funds to make expenditures on housing, education, transportation, agriculture, health, power, road construction, national defense, etc. and inhabitants of Nigeria have expressed disappointment about poor infrastructural facilities, inadequate economic growth, high rate of unemployment, etc., which have resulted to the poor or pitiable standard of living. For instance, Emmanuel and Charles (2015) opined that a greater number of the inhabitants of Nigeria still wallow in abject poverty and the majority of the people live below one US Dollar per day.

In an attempt to improve the quality of life of people in Nigeria, policymakers have formulated and implemented several macroeconomic policies. For instance, in 2016, a report by the Central Bank of Nigeria (CBN) revealed that Nigeria's 2016 budget was anchored on macroeconomic policies and growth strategies that would enhance the

welfare of the citizens and reflate the economy through investment in critical infrastructure and social development. Again, CBN report of 2019 revealed that Nigeria's 2019 budget was intended to place the economy on the path of inclusive, diversified and sustainable growth, to lift a significant proportion of Nigerians out of poverty. Yet, the growth recorded in the country has not been able to have a meaningful influence on the improvement of the quality of life of the inhabitants of the country. This state of affairs raises an important question: what is the relationship between value-added tax and inclusive growth in Nigeria?; What is the relationship between customs and excise duties and inclusive growth in Nigeria? Answers to these questions were the major concern of this study.

Importantly, existing empirical literatures have reported a plethora of findings on the efficacy of indirect tax on various macroeconomic endogenous variables, but hardly is there any empirical record on the effect of indirect tax (VAT, customs and excise duties) on inclusive growth (human development index) in Nigeria from 1994 to 2019. What is rather easily found in existing literatures were indirect tax and employment generation, tax structure and inclusive growth in developing countries: A case of Nigeria, taxation and income inequality in Nigeria, taxation and income inequality in Nigeria among others (George-Anokwuru, Olisa, and Obayori, 2020; etc.).; Ugondah and Amadi, 2019; Anyaduba and Otulugbu, 2019; Hauwa, 2021; etc.). While some of these studies adopted the ordinary least squares (OLS), others applied error correction mechanism (ECM), vector error correction mechanism (VECM) or vector auto-regression estimation techniques for data analysis, thereby recording incongruent empirical results.

In view of the apparent gap in empirics, this study investigated the influence of indirect tax on inclusive growth in Nigeria from 1994 to 2019. The study specifically examined the effects of value-added tax, as well as customs and excise duties on inclusive growth (human development index) in Nigeria from 1994 to 2019. Other sections of this study are organized as follows: the review of related literature and the study methodology are presented in sections two and three respectively. Section four puts forward the empirical results and discussion whilst section five concentrated on the conclusion and policy recommendations.

2. Literature Review

2.1 Conceptual Clarification

2.1.1 Indirect Taxes

Indirect taxes are taxes levied on goods and services. They are sometimes called expenditure, outlay, or consumption taxes. As the name implies, the tax-paying ability of the taxpayer is assessed indirectly. Indirect taxes are advocated for on the grounds that they are easy to pay, difficult to evade, highly productive, effective for discouraging the consumption of harmful products, promote capital formation, protect domestic and infant industries, and as an effective tool of discrimination in consumption pattern (Ezirim, 2005). According to Tom-Ekine (2013), indirect taxes may be specific or ad valorem. When they are imposed at a rate per unit of quantity, independent of the price,

they are called specific. On the other hand, when the tax amount is scheduled according to the value of the item being taxed, it is ad valorem. Examples of indirect taxes include Value Added Tax (VAT), custom and excise duties.

VAT represents a tax on value added in the process of producing/consuming goods or services at various stages. As reported by Umo (2012), VAT may be imposed for the purpose of encouraging or discouraging the consumption of particular items and to enhance government revenue or both. Tom-Ekine (2013) opined that VAT is a tax on the value added to a commodity or service. It is imposed on the value that a business firm added to the goods and services that it purchases from other firms. The business firm added value by processing or handling these purchased items with its own labour or its own machinery, building or other capital goods. It then sells the resulting product to consumers or to other firms. Thus, the difference between the sales proceeds and the cost of materials that it has purchased from other firms is its value added. That is, this form of taxation is determined when the cost of raw material is subtracted from the value of the finished product.

In Nigeria, VAT was introduced in 1994. Until the year 1994, sales tax was one of the major sources of revenue for the governments (federal, state and local). However, for the purpose of ensuring unvarying rates and increasing receipts, the federal government introduced VAT in its stead, with wider coverage and assumed responsibility for its administration and collection of its proceeds from 1994. Firstly, VAT revenue was initially to be distributed in the proportion of 20; 50; 30 per cent to federal, state and local governments respectively. But the formula was changed to 35: 40: 25 for federal, state and local governments respectively in 1996. At present, the formula is 15, 50 and 35 percent to the federal, states and local governments respectively (Abiola, 2012). VAT revenue has demonstrated some measure of buoyancy and has been one of the major factors in the improved performance of non-oil revenue. As reported by Umo (2012), the introduction of VAT has been impressive in terms of an increase in government revenue. In 1994, VAT receipts were ₦ 7.26 billion representing an increase of 21% over the budget estimate of that year; and in 1995 it increased to ₦ 20.7 billion or by 185%. It has become an increasing component of Nigerian government revenue since its introduction in the year 1994.

In Nigeria, custom and excise duties are classified together because they are both administered through the Nigerian Customs Services. Custom duties are taxes levied on imported and exported items while excise duties are taxes levied on the manufacture of domestic commodities. Put differently, excise duties are taxes imposed on some goods that are manufactured in a country, such as cigarettes, tobacco, furniture, etc. they are imposed to generate money for the government and to discourage the manufacturing and consumption of certain goods deemed harmful to people's health. Custom duties can be used to defend domestic industries from well-organized industries abroad (Inimino, Abuo & Bosco, 2018). Customs duty is based usually on the worth of goods or upon the weight, dimensions, or some other criteria that will be determined by the government. Customs and excise duties are the oldest forms of modern taxation. They are charged either as a percentage of the value of import or a fixed amount on a specific quantity. Custom and excise duties are important sources of revenue for the Nigerian government.

2.1.2 Inclusive Growth

This concept - Inclusive Growth (IG), begins from the idea that economic growth is very important but not sufficient to trigger an improvement in social welfare. This is because a country can record a high level of economic growth without a meaningful improvement in the welfare of citizens. The dividends of economic growth may not be distributed equitably among the inhabitants of the country. This means that a country can achieve sustained economic growth over a decade, without a substantial reduction in the rate of poverty in the country. The basic idea behind the idea of inclusive growth is to raise the welfare or standards of living of people in the country. That is, countries strive to achieve and maintain sustainable economic growth as a means of raising the standard of living and improve the wellbeing of citizens but sustainable economic growth is not necessarily inclusive (Ikharo-Kadiri, 2021).

Habitat (2009) defined the inclusiveness of economic growth as gross domestic product growth that leads to a meaningful reduction in poverty. Elena and Susana (2010) see inclusive growth as the growth that can reduce poverty and allow people to contribute to economic growth and at the same time benefit from the growth process. Elena and Susana (2010) further argued that the rapid pace of growth is unquestionably essential for a substantial reduction in poverty but for growth to be sustainable in the long run, it should be broad-based across the sectors and inclusive of the large part of the country's labour force. According to Ikharo-Kadiri (2021), inclusiveness is a concept that encompasses equity, equality of opportunity and protection in market and employment transitions.

In 2013, Asian Development Bank defined inclusive growth as economic growth that results in wider access to sustainable socio-economic opportunities for a broader number of people, regions or countries while protecting the vulnerable, all being done in an environment of fairness, equal justice and political plurality. Ikharo-Kadiri (2021) argued that the major emphasis of inclusive growth include; a) sustainable economic growth, b) diminution in poverty, c) attenuation of income and equal opportunity in decision making, improvement of income inequality and removal of inequalities for access to health services, as well as, equal opportunities for education. d) creation of gainful employment for neglected segments of society. It is important to note that above mentioned results can't be achieved without embracing a system with a strong institutional structure. Inclusive growth deals with the idea that economic growth is important but not sufficient to generate sustained improvements in welfare unless the dividends of growth are distributed equitably among individuals and social groups. Growth can be said to be inclusive if it is reoriented in a development-friendly direction. For example, if a growth strategy is designed to move in pro-poor, pro-employment and pro-equity direction, through appropriate measures it can guarantee inclusiveness or development.

To measure inclusive growth, Obayori, Briggs and Yusuf (2021) used GDP per capita as a proxy for inclusive growth in their study of tax incentives and inclusive growth in the Nigerian economy. Meanwhile, GDP per capita is the GDP per head of the population of the country concerned. It is obtained by dividing the GDP by the total

population of the country. By relating the GDP (i.e., the total output of the economy) to the population, this measure, GDP per capita, provides a better indicator of the welfare implications of the output of the economy than the growth of total output alone, but, Akpakpan (1999) argued that GDP per capita alone is not enough to promote social welfare. Society needs GDP per capita and other desirable changes in the system.

However, a widely used indicator of inclusive growth is Human Development Index (HDI). This is because it brings in education and health alongside income in constructing an overall measure of well-being or performance for a country. The Human Development Index (HDI) is a statistical measure (composite index) developed by the United Nations to assess inclusive growth which takes into consideration social and economic development (UNDP, 2020). HDI is an index measuring national socio-economic development, based on combining measures of education, health, and adjusted real income per capita. Specifically, HDI attempts to rank all countries on a scale of 0 (lowest human development) to 1(highest human development) based on three goals or end products of development: longevity as measured by life expectancy at birth, knowledge as measured by a weighted average of adult literacy (two-thirds) and gross school enrollment ratio (one-third), and standard of living as measured by real per capita gross domestic product adjusted for the differing purchasing power parity of each country's currency to reflect the cost of living and for the assumption of diminishing marginal utility of income. It ranks countries into four groups: low human development (0.0 to 0.499), medium human development (0.50 to 0.799), high human development (0.80 to 0.90), and very high human development (0.90 to 1.0).

Importantly, human development should improve the availability and widen the distribution of basic life-sustaining needs including decent living, longer life, personal protection; improved living standard and environmental sustainability which ultimately improve well-being through the provision of better education, jobs and other humanistic values (Todaro and Smith, 2011, and Edeme, 2014). Human development (HDI) is about expanding the richness of human life rather than simply the richness of the economy in which people live. HDI grew out of global discussions on the links between economic growth and development. In terms of showing human well-being, the HDI value is an important indicator.

One major advantage of the HDI is that it reveals that a country can do much better than might be expected at a low level of income and that substantial income gains can still accomplish relatively little in human development. Further, the HDI points up that disparities in income are greater than disparities in other indicators of development, at least in health and education. Also, it reminds us that by development we clearly mean broad human development, not just higher per capita income. It could be argued from the above therefore that per capita income is a necessary but not a sufficient measure of human development, but the enhanced quality of life as manifested in higher educational attainment, easier access to employment and healthier life, food security and access to potable water, affordable housing, sustainable environment and greater life expectancy. Strictly speaking, it is necessary for an economy to grow over time. The reason for this is simple, without economic growth the average citizen will have fewer goods and services

to consume over the years. Furthermore, one must eat well to be healthy and eating well guarantees long life. But eating well takes good money and it is only someone who is gainfully employed in productive activities can earn money. In addition, access to knowledge (quality education) and a decent standard of living to reduce or eliminate poverty also need money.

In attaining all these, tax revenue has a great role to play. At a policy level, in view of the low level of economic growth, human development, increase in unemployment, increase in the incidence of poverty and because of the critical role of employment generation, human development in the growth process of an economy which in turn will reduce the incidence of poverty, much responsibility is often placed on the government to spend on various sectors of the economy to promote human development. Therefore, this study used HDI as a measure of inclusive growth.

3. Theoretical Framework

Developed by Knut Wicksell (1896) and Erik Lindahl (1919), the benefit theory of taxation holds that people should be taxed according to the benefits they receive from tax-financed projects. What this means is that, the more an individual enjoys government tax-financed projects the more the individual should be taxed. If for instance, free health care is publicly financed, the recipients should be taxed in the proportion to the benefits they obtain. This theory has been criticized on the ground that; (i) it is very difficult to assign quantitative benefits in relation to the tax paid. Another problem of the benefit theory is that some people like the physically handicapped, benefit from a programme without having the financial ability to pay taxes. However, despite the criticism faced by the benefit theory of taxation, Tom-Ekine (2013) argued that the benefit theory of taxation is good because it leaves the taxpayers free to opt out of state service and the total supply of public goods will be determined through this principle by the demand for them as a measured by what taxpayers are willing to bear.

4. Review of Related Empirical Literatures

Nwakanma and Nnamdi (2013) investigated taxation and HDI from 1970-2010. Based on the least squares methodology, they specified a linear-log model of HDI as a proxy for national development. The findings revealed that petroleum profit tax exhibits a positive relationship with the HDI. Also, a negative relationship exists between corporate tax and HDI.

Using time series data from 1976 to 2006, Salami, Apelogun, Omidiya and Ojoye (2015) studied the impact of taxation on the growth of the Nigerian economy. Specifically, the study employed the ordinary least squares technique to determine the impact between the endogenous variable real GDP and the exogenous variables, petroleum profit tax, corporate income tax, custom and excise duties and value-added tax. It was discovered that all exogenous variables had a significant impact on RGDP.

Adaramola, and Ayeni-Agbaje (2015) examined the tax structure and economic growth in Nigeria: A disaggregated empirical evidence from 1986 to 2012. The Engel–Granger Co-integration and ECM methods were used. The result showed that tax revenue has a linear association with economic growth. Specifically, tax from petroleum profits and corporate income tax were found to be beneficial to growth. In the study, personal income tax and the custom and excise duties appear not to encourage economic growth.

Ibanichuka, Akani, and Ikebujo (2016) studied the effect of tax revenue on the economic development of Nigeria for the period 1993 to 2014 to find out if there is an association between VAT, and Human Development Index. The study made use of the ordinary least squares technique and found a positive but insignificant relationship between value-added tax and HDI.

Onakoya and Afintinni (2016) investigated the co-integration association between tax revenue and economic growth in Nigeria from 1980 to 2013. The Engle-Granger co-integration VECM techniques were used. The result revealed that a long-run association existed between taxation and economic growth. It also showed a significant positive relationship between taxes from petroleum profit, income from companies and GDP, but a negative association between GDP and customs and excise duties. Moreover, the tax variables were together not significant in influencing the country's economic growth.

Ogwuru and Agbaraevoh (2017) investigated the impact of VAT on economic growth and development in Nigeria using the regression technique. The result revealed a positive and significant relationship between VAT and economic growth. The result also revealed a negative and significant relationship between VAT and economic development (HDI). This negative relationship could be due to the non-utilization of the tax revenue from VAT on social services like education and health facilities.

Ugondah and Amadi (2019) investigated the difference between taxation and income inequality. The research design employed was the Quasi-experimental Design. Data for the study were analyzed using the Ordinary Least Square technique. The co-integration, unit root and error correction mechanisms were also employed. The findings revealed that company income tax has a positive relationship with income inequality.

Anyaduba and Otulugbu (2019) investigated the impact of taxes on income inequality (GINI), in Nigeria from 1990 to 2016. The Cointegration and Error Correction Models were utilized. They found that company income tax fundamentally affected GINI. In light of the discoveries, they infer that company income tax alone was largely responsible for inequality.

Using the ARDL technique, Ideh (2019) studied the relationship between components of tax revenue and economic development in Nigeria spanning 2003 – 2017. The results obtained revealed that petroleum profit tax stood as a major component of tax revenue, and its relationship with measures of economic development (real GDP and HDI) were negative; thus, suggesting that revenue generated from petroleum profit tax is not properly and directly channelled to the provision of the required infrastructure that will boost the economic development of Nigeria.

Obaretin and Uwaifo (2020) examined the impact of VAT on HDI in Nigeria for the period 1994 to 2018. The study employed a longitudinal research design. The data used in the study were generated from the office of the Federal Inland Revenue Service, and United Nation Data Bank and the data generated were analyzed using the Autoregressive Distribution (ARDL) regression estimation technique. The result from the finding unveils that VAT has a positive and significant impact on HDI in Nigeria.

Using an Autoregressive Distributed Lag (ARDL) model, Ikharo-Kadiri (2021) examined the impact of tax policy on inclusive growth in Nigeria from 1985 to 2020. The long-run ARDL results revealed the structural coefficients of the tax variables and their relationship with inclusive growth measured by HDI. The result revealed that company income tax has a negative and statistically significant impact on HDI at 5% level. VAT has a negative and statistically significant impact on inclusive growth at a 1% level. Petroleum profit tax has a negative and statistically significant impact on inclusive growth at a 5% level. In the same year, Okoh, Edo, Akhigbodemhe and Edeoghon (2021) investigated the impact of direct taxes on income redistribution in the context of Nigeria, using personal income tax. The study covered the period 1990 to 2019 using annualized data set from Federal Inland Revenue Service (FIRS) and Central Bank of Nigeria Statistical Bulletin. The study employed the Fully Modified Least Squares (FMOLS) to analyze the data. Empirical results revealed that personal income tax had significant positive effects on income redistribution, thus reducing income inequality in the context of Nigeria.

5. Material and Methods

The study employed Augmented Dickey Fuller (ADF) unit root test, Johansen Co-integration test and Error Correction Model (ECM). Precisely, this study used an econometric model aimed at capturing the influence of indirect tax on the inclusive growth of Nigeria (regressand) proxied by Human Development Index (HDI). Guided by the perceived functional association between the matrix of inclusive growth (HDI) and variables of indirect tax – value-added tax, customs and excise duties, a link is provided between the variables in line with the conceptual, theoretical and empirical literature reviewed. Specifically, this work adapted the model of Ikharo-Kadiri (2021) who investigated tax structure and inclusive growth in developing countries: a case of Nigeria**.** That is, the model was cast in agreement with that of Ikharo-Kadiri (2021)**,** whose model is in the form HDI = f(VAT, PPT, CIT, PIT) but with slight modification. Strictly speaking, the model for this study states that inclusive growth (HDI) depends on the growth rate of value-added tax (VAT), as well as the growth rate of customs and excise duties (CED). The functional relationship and the resultant model for this study are as specified below (i.e., the model for this study is presented thus):

$$HDI = F(VAT, CED) \quad (1)$$

$$HDI_t = a_o + a_1VAT_t + a_2CED + u_t \quad (2)$$

Where: HDI = Human Development Index, VAT = Growth Rate of Value Added Tax, CED = Growth Rate of Customs and Excise Duties, u = Error Term, a_0 = the constant parameter, a_1, and a_2 = the slope parameters. Apriori expectation: On the apriori: a_1 and $a_2 > 0$.

In addition, the unit root test encompasses testing the order of integration of the individual series in a model that precedes Co-integration and ECM. The unit root test used in this study is the Augmented Dickey-Fuller (ADF). The general form of ADF is estimated by the following regression:

$$\Delta HDI_t = \alpha_0 + \alpha_1 HDI_{t-1} + \Sigma \alpha_1 \Delta HDI_i + \delta_t + u_t \quad (3)$$

Where: HDI is a time series, t is a linear time trend, Δ is the first difference operator, α_0 is a constant, n is the optimum number of lags in the independent variables and u is a random error term. Co-integration is an econometric technique used for testing the correlation between non-stationary time series data. Two variables are said to be Co-integrated if they have a long-run or equilibrium relationship between them (Gujarati, 2007). This study used Johansen co-integration procedure. The basic argument of Johansen's procedure is that the rank of the matrix of variables can be used to determine whether or not the two variables are co-integrated. A lack of co-integration suggests that such variables have no long-run relationship. According to Johansen (1998), the general form of co-integration is given by:

$$HDI_t = \mu + \Delta_1 HDI_{t-1} + - - - + \Delta P\, y_{t-p} + u_t \quad (4)$$

Where: Y_t is an nx1 vector of variables that are integrated of order commonly denoted (1) and u_t is an nx1 vector of innovations. However, an extension of this in the co-integration technique is the Error Correction Mechanism (ECM) (Engle and Granger, 1987). These authors have established that Co-integration is a sufficient condition for an Error Correction Model formulation.

Furthermore, if co-integration is proven to exist, then the next step requires the construction of Error Correction Mechanism (ECM) to model dynamic relationships. The purpose of the ECM is to indicate the speed of adjustment from the short-run equilibrium to the long-run equilibrium state. The greater the coefficient of the parameter, the higher the speed of adjustment of the model from the short-run to the long-run. The study represents the model specification with an error correction form that allows for the inclusion of long-run information thus, the ECM can be formulated as follows:

$$\Delta Q_t = \beta_{10} + \Sigma\, \beta_{11t} \Delta Q_{t-1} + \Sigma\, \beta_{12t} \Delta Y_{t-1} + \Sigma\, \beta_{13t} \Delta Z_{t-1} + \delta_1 ECM_{t-1} + u_{1-t} \quad (5)$$

Where; Q is the dependent variable, $\beta_1 - \beta_2$ are the slope parameters, $Y_1 - Y_3$ are the set of explanatory variables, $\delta 1 ECM_{t-1}$ is the coefficient of ECM, Δ is change and μ is the disturbance term. Based on our model in 2, the dynamic (error correction) representation is given below:

$$\Delta HDI_t = \beta_0 + \Sigma\ \beta_1 \Delta HDI_{t-1} + \Sigma\beta_2 \Delta VAT_{t-1} + \Sigma\beta_3 \Delta CED_{t-1} + \delta_1 ECM_{t-1} + \mu_{1-t} \quad (6)$$

Note the variables as earlier defined. Furthermore, the data collected and utilized in this work were from the Statistical Bulletin of Nigeria's apex bank. It covers the period 1994-2019. It is taken that the data are a true representative of the Nigerian economy, trusting that the analysts and researchers of the apex bank in Nigeria are efficient with the content that human error allows. Thus, the data remain secondary in nature.

6. Results and Discussion

To avoid spurious regressions which may arise as a result of carrying out regressions on time series data, this study first subjected the data to a stationarity test by using the Augmented Dickey Fuller (ADF) tests. For detailed results of the Augmented Dickey Fuller (ADF) tests, see Table 1.

Table 1: Augmented Dickey-Fuller (ADF) Unit Root Test

Variables	Level form		First difference		Order of integration
	ADF Statistics	5% Critical Value	ADF Statistics	5% Critical Value	
HDI	-2.097943	-3.612199	-4.255540	-3.622033	1(1)
VAT	-2.097943	-3.612199	-4.255540	-3.622033	1(1)
CED	-2.827854	-3.603202	-6.582413	-3.612199	1(1)

Note: HDI, VAT and CED as earlier defined
Source: Authors' Computed Result from (E-views 10)

The result of the ADF test for each of the series presented in Table 1 reveals that at five per cent level of significance, HDI, VAT and CED were stationary at first difference 1(1). Given that the variables were integrated into order 1(1). The results of the variables being stationary at order 1(1) make it inappropriate for the application of the Ordinary Least Square (OLS) method, therefore the tests to determine the long-run relationship can be achieved with the aid of the Johansen Co-integration test which is presented in Table 2.

6.1 Test for Co-integration

Co-integration is conducted based on the test proposed by Johansen. According to Iyoha and Ekanem (2002), Co-integration deals with the methodology of modeling non-stationary time series variables. For detailed results of the Johansen Co-integration, see Table 2.

Table 2: Johansen Test for Co-integration

Eigen value	Trace Statistic	5% critical value	Prob. **	Hypothesis of CE(s)
0.720984	36.10553	29.79707	0.0082	None *
0.190595	6.746369	15.49471	0.6073	At most 1
0.078604	1.882893	3.841466	0.1700	At most 2

Source: Computed Result Using (E-Views 10).

Table 2 indicates that there is one Co- integrating equation because one of the Trace Statistic(s) is larger than the critical value at 5%. Therefore, there is a long-run relationship between HDI, VAT and CED, which prevent them from wandering apart without bound. Given that there is one Co-integrating equation, the requirement for fitting in an Error Correction Model is satisfied. The Error Correction Mechanism (ECM) intends to validate the presence of a long-run relationship and incorporate the short-run dynamics into the long-run equilibrium relationship.

Table 3: Parsimonious Error Correction Model

Regressors	**Coefficients**	**t-Statistic**	**P-Value**
DLOG(VAT)	0.001234	0.486788	0.6339
DLOG(CED)	-0.007607	-2.609052	0.0206
ECM (-1)	-0.147560	-1.242904	0.2343
R^2= 0.551261; **D-W stat. =** 1.822240; **Prob(F-statistic) =** 0.048979 **Akaike info criterion** = -6.813870; **Schwarz criterion** = -6.465695; **F-statistic** = 2.866422			

Source: Authors' Computed Result from (E-views 10)

Table 3 indicates that the dynamic model is a good fit. The reason is that the difference in predictors accounts for 55 percent of the overall disparity in the model looking at the R^2. Put differently, the R^2 value of 0.551261 indicates that the variation in inclusive growth – human development index (HDI) explained by value-added tax and customs and excise duties is 55 percent. Therefore, the explanatory power of the model estimated is 55 percent. The Durbin Watson (DW) value of 1.822240 which is approximately 2.0, suggests that the model is free from autocorrelation. The coefficient of the Error Correction Term appears with the right sign (i.e., negative). This shows that disequilibria in the HDI in the previous year were corrected for in the current year. It, therefore, follows that the ECM could rightly correct any deviations from short run to long-run equilibrium relationship between HDI and the explanatory variables.

Additionally, the coefficient of value-added tax appears with the right sign (i.e., positive) implying a positive relationship between value-added tax and the human development index. This conforms to the apriori expectation. This means that a percentage increase in VAT will increase the human development index by 0.001234 percent. However, the absolute value of the t-statistic for the slope coefficient is not significant at the conventional level (i.e., 5 %). Thus, the study accepts that there is no significant relationship between value-added tax and the human development index in Nigeria. The implication of this result is that revenue from value-added tax impacted on human development index but not meaningfully (significantly). That is, value-added tax as a fiscal policy tool has not significantly contributed to increasing the human development index during the period of study. What this also suggests is that though revenue from the value-added tax has a positive relationship with the human development index, but it has lesser implications in improving the quality of life of Nigerians as measured by the HDI during the period of study. Therefore, if government revenue from VAT is well managed in Nigeria it will help to improve the quality of life of Nigerians as measured by the HDI. This finding is not consistent with the study of

Ikharo-Kadiri (2021) who reported that value-added tax has a negative and significant effect on inclusive growth in Nigeria.

Furthermore, the coefficient of customs and excise duties appears with the wrong sign (i.e., negative) implying that customs and excise duties have a negative relationship with inclusive growth (human development index). This does not conform to the apriori expectation. This means that a percentage increase in customs and excise duties will decrease inclusive growth (human development index) by 0.007607 percent. However, the absolute value of the t-statistic for the slope coefficient is significant at the conventional level (i.e., 5 %). Thus, the study accepts that there is a significant relationship between customs and excise duties and inclusive growth (human development index) in Nigeria. The implication of this result is that if government revenue from customs and excise duties in Nigeria is well managed it will help to improve the quality of life of Nigerians as measured by the HDI.

6.2 Post-Estimation Diagnostic Tests Results

Diagnostic tests were conducted in this study to verify whether or not the estimated model is reliable for policy prediction or recommendation purposes. This study specifically employed the Wald test for the coefficient of restriction and Breusch-Godfrey (B-G) Lagrange Multiplier (LM) test for serial correlation. The various test results are hereby reported in Table 4 and 5.

6.3 Wald Test

The Wald test is applied to confirm if the coefficients of the causal variables in the ECM model are jointly significant. The F-statistic in Table 4 was utilized to ascertain this.

Table 4: Wald Test Result

Equation: Untitled			
Test Statistic	**Value**	**Df**	**Probability**
F-statistic	103.6647	(3, 14)	0.0000
Chi-square	310.9941	3	0.0000

Source: Authors' Computed Result from (E-views 10).

The result in Table 4 shows that the F-statistic is approximately 104 and the probability value of 0.0000 is less than 0.05 at the conventional 5 per cent level. Therefore, all the independent variables used in the model are jointly important in explaining inclusive growth in Nigeria during the period of study.

6.4 Test for Serial Correlation

The Breusch-Godfrey Serial Correlation LM test was used as a higher-order test statistic for testing the null hypothesis of no serial correlation against the inferred alternative hypothesis of serial correlation in the ECM results at 5 per cent level of significance.

Table 5: Breusch-Godfrey Test for Serial Correlation

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	0.901678	Prob. F(2,12)	0.4317
Obs*R-squared	2.743570	Prob. Chi-Square(2)	0.2537

Source: Computed by the researcher using E-Views 10.

The result as displayed in Table 5 reveals that the error correction model is not suffering from a serial autocorrelation problem. This is because the chi-square value and the corresponding probability value of the chi-square statistic surpass the 0.05.

7. Conclusion and Recommendations

This study investigated the effect of indirect tax on inclusive growth in Nigeria from 1994-2019 because improvement in the quality of life of Nigerians as measured by HDI through the revenue from the indirect tax is very important. With the utilization of data on the human development index, value added tax, as well as customs and excise duties from the statistical bulletin of Nigeria's apex bank and the use of Co-integration and ECM techniques of econometrics to analyze the data so as to know the association that exists among the variables. The regression result revealed that value-added tax has a positive and insignificant relationship with inclusive growth (human development index) in Nigeria during the period of study. This means that though value-added tax has a positive effect on the human development index (inclusive growth); it (i.e., revenue from VAT) has not been effectively utilized to improve the quality of life of people living in Nigeria. The result also revealed that customs and excise duties have a negative and significant relationship with inclusive growth (human development index) in Nigeria during the studied period. Based on the findings, the study recommended that revenue from the various forms of indirect tax – value-added tax and customs and excise duties should be invested in social and community services - health, education, etc., economic services - agriculture, construction, transport and communication among others that will help the various sectors of the economy to function very well thereby improving the quality of life of people as measured by HDI. Government should boost indirect tax revenue. To achieve this, the government should identify and eradicate all administrative loopholes for indirect tax revenue to contribute meaningfully to the improvement of the quality of life of the inhabitants of Nigeria.

Conflict of Interest Statement

The author declares no conflicts of interest.

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