

Tax Reforms Burden and Human Development Index in Nigeria

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Abstract

Purpose: This study investigates the effect of tax reform burden on human development index in Nigeria.

Methodology: The study used the Autoregressive Distributed Lag (ARDL) estimation technique to establish the long run effect of tax reform burden on human development index in Nigeria from 2005 to 2024. Tax reform burden is captured using the ratio of tax revenue to gross domestic product.

Results and conclusion: The study revealed that long run relationship exists among the variables in the estimated model. The results of the Error Correction Mechanism (ECM) showed that tax reform burden has negative and significant effect on human development index in Nigeria. It was further revealed that disposable income, aggregate household consumption expenditure and investment have positive and significant effects on human development index in Nigeria. Hence, it was concluded that effective and balanced tax reforms in Nigeria have the potential to enhance revenue collection, which can support investments in health, education and social services, thereby improving human development.

Implication of findings: The study reveals the nexus between tax reform burden and human development index suggesting that tax administration should be strengthened in order to achieve and harmonise tax reforms through the broadening of tax bases to improve compliance and support sustainable development. The government should streamline the tax system so as to reduce issue around tax evasion, hence widen the tax net.

Keywords: ARDL, human development index, Nigeria, tax burden, tax reforms.

1. Introduction

Taxation plays a fundamental role in any economy, especially in the context of a developing nation like Nigeria, where government primarily relies on tax collection as major source of its revenue. Taxes are essential to fund public goods and services, which in turn can impact the country's human capital development. Human capital development, which refers to the process of improving the economic value of individuals through education, health, skills development, and productivity, is vital for economic growth and development. In Nigeria, taxation and human capital development are intricately linked, as the efficient collection and allocation of tax revenue can either propel or hinder progress in education, healthcare, and other vital sectors of human development (Gbenga, 2025).

Tax reforms are essential aspect of fiscal policy aimed at enhancing revenue mobilization, broadening the tax base, and fostering sustainable economic development. In Nigeria, tax reforms have been ongoing for decades, with the government continually seeking ways to improve tax collection efficiency and reduce dependence on oil revenue, which is highly volatile and subject to global price fluctuations (Adegbe & Fagbemi, 2021). These reforms include "efforts to modernize tax administration, introduce digital tax collection systems, and amend tax laws to make them more effective and equitable" (Nwankwo & Eze, 2021). Despite these initiatives, Nigeria still faces significant challenges in mobilizing adequate domestic revenue, which hampers its ability to fund critical social services and infrastructure projects essential for human development.

The importance of tax reforms in Nigeria is underscored by the country's socio-economic challenges, including high poverty rates, unemployment, inadequate access to quality healthcare and education, and persistent income inequality (National Bureau of Statistics [NBS], 2020). The Human Development Index (HDI), which measures a country's progress in health, education, and income, provides a useful indicator of how tax policies influence overall social well-being (UNDP, 2020). Effective tax reforms can generate revenue that can be channeled to social programmes, thereby improving health and educational outcomes, reducing poverty, and promoting inclusive growth. Conversely, when tax reforms impose excessive burdens on taxpayers or are poorly implemented, they can lead to increased tax evasion, informality, and a decline in compliance, which ultimately reduce government revenue and hinder human development (Ogunleye & Ojo, 2020).

Recent studies have shown that Nigeria's tax system remains heavily reliant on indirect taxes, which tend to be regressive and disproportionately affect lower-income households (Adebayo & Osabuohien, 2022). Although reforms such as the implementation of the Voluntary Assets and Income Declaration Scheme (VAIDS) in 2017 aimed to increase voluntary compliance and broaden the tax base (Nwankwo & Eze, 2021), the overall tax-to-GDP ratio remains low compared to other developing countries. This limited revenue mobilization constrains the government's capacity to invest in social sectors that directly impact human development indicators, such as health, education, and social protection (UNDP, 2020).

The relationship between tax burden and human development is complex. While appropriate tax policies are necessary for sustainable development, excessive or poorly designed tax reforms can have unintended negative effects. For example, increased compliance costs and complex tax procedures may discourage small and medium-sized enterprises (SMEs) from formalizing, which reduces the tax base and revenue collection (Akinbobola & Akinboade, 2022). Additionally, high tax burdens can lead to increased informal economic activities, tax evasion, and a decline in government revenue, which limits budget allocation to social services (Olaoluwa & Olaleye, 2023; UNDP, 2020). These issues highlight the importance of designing tax reforms that are equitable, efficient, and supportive of human development goals.

Empirical evidence indicates that Nigeria's tax reforms have had mixed effects on socio-economic development. For instance, Adegbe and Fagbemi (2021) found that reforms that prioritize administrative efficiency and taxpayer compliance tend to improve revenue and social spending, thereby positively influencing human development indicators. Conversely, Adebayo and Oladipo (2022) argued that overly burdensome tax policies negatively impact economic activities, especially in the informal sector, which hampers poverty reduction efforts. Furthermore, studies suggest that the effectiveness of tax reforms depends on the institutional capacity to enforce tax laws and the government's ability to utilize generated revenue effectively for social programs (Ogunleye & Ojo, 2020; Nwankwo & Eze, 2021; Aliyu et al., 2026).

The core problem facing Nigeria is the persistent gap between revenue generation and expenditure on social services, driven largely by inefficiencies in tax collection and implementation. Despite numerous reforms, the country continues to struggle with low tax compliance, high levels of tax evasion, and a tax system perceived as complex and unfair (Nwankwo & Eze, 2021). These issues raise critical questions about how tax reforms influence the distribution of resources for human development and whether the tax burden placed on individuals and businesses facilitates or hinders progress toward sustainable development goals (UNDP, 2020; Tuke & Oriavwote, 2025).

Furthermore, the inconsistent implementation of tax reforms across Nigerian states, coupled with weak institutional capacity and widespread tax evasion, exacerbates the challenge of achieving optimal human

development outcomes through taxation. As Nigeria continues to face socio-economic challenges heightened by policy summersault and unguided pronouncement, understanding the impact of tax reform burdens on human development becomes more critical (Ekpete et al., 2026). This study aims to add to extant literatures by empirically examining the effects of tax reform burdens on Nigeria’s social indicators, providing evidence-based insights that can inform more equitable and effective tax policies.

2. Literature review

Conceptual framework

A conceptual framework is a framework that shows the researcher’s understanding of how variables of the study connect with each other. Thus, it identifies the variables used in the research work. The dependent variable used in this study is human development index (HDI) while the independent variables are tax reform burden (TRB), with control variables such as disposable income (DSI), aggregate consumption (AGC) and investment (inv). This conceptual framework is shown in the diagram below:

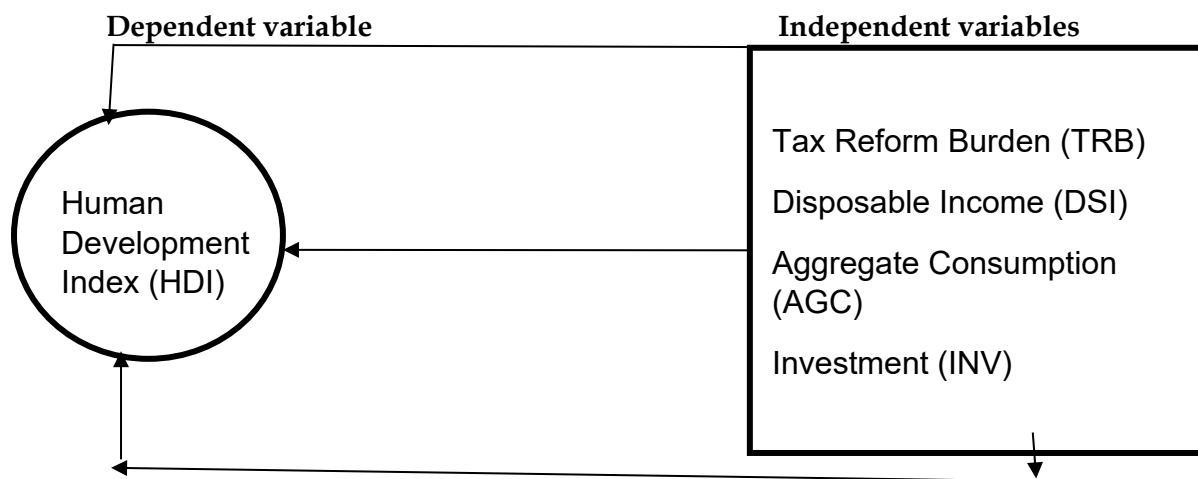


Fig1: Conceptual framework of tax reform burden and human development index
Source: Researcher’s model (2026)

Human development index

The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions (United Nations Development Programme, UNDP, 2025).

The health dimension is assessed by life expectancy at birth, the education dimension is measured by mean of years of schooling for adults aged 25 years and more and expected years of schooling for children of school entering age. The standard of living dimension is measured by gross national income per capita. The HDI uses the logarithm of income, to reflect the diminishing importance of income with increasing gross national income (GNI). The scores for the three HDI dimension indices are then aggregated into a composite index using geometric mean. It is used as a dependent variable in this study.

Tax reform burden

The concept of tax reform burden refers to the shift in total tax liability, compliance requirements, and economic impact on individuals and businesses resulting from changes in tax legislation. Reforms often aim to balance increased revenue generation with equity, shifting burdens away from low-income

earners and SMEs through tax exemptions and progressive rates, while potentially increasing burdens on larger firms and consumers via higher VAT or taxes on digital assets (Salaudeen & Atoyebi, 2018). In this study, tax reform burden is captured as the ratio tax revenue to gross domestic product.

Theoretical framework

This study is premised on the *tax burden and human capital development theory*. The foundation of this theory can be traced back to the work of Musgrave and Musgrave (1989), who argued that fiscal policy, particularly taxation, plays a crucial role in determining a country's ability to invest in health, education, and social welfare, as key components of human capital. The theory explores the intricate relationship between tax policies and investments in human capital, emphasizing that the level and structure of taxes significantly influence a nation's capacity to fund social services that foster human development. The perspective of this theory suggests that an optimal tax burden must strike a balance: it should generate sufficient revenue to finance human capital development without stifling economic productivity or discouraging compliance among taxpayers.

The theory assumes that tax policy is a critical determinant of the availability of resources necessary for human capital development, and that governments can influence socio-economic progress through well-designed tax systems that promote fairness and efficiency. It also presumes that economic agents respond predictably to tax incentives, adjusting their investment behaviours accordingly, and that governments have the capacity to effectively utilize tax revenues for social investments. A key assumption of the theory is that a balanced tax burden can facilitate both fiscal sustainability and socio-economic development. It presumes that excessive taxation can hinder economic activity and reduce incentives for investment, while too low a tax burden may result in inadequate funding for social programs. The theory also assumes that political will and institutional capacity are sufficient to implement tax policies that support human capital development. Furthermore, it presumes that investments in human capital such as education and health are directly correlated with economic growth and structural transformation, especially in developing economies.

Despite its practical appeal, the theory has faced several criticisms. Critics argue that the relationship between taxation and human capital investment is complex and influenced by numerous other factors, including governance quality, administrative capacity, and socio-political stability. Some scholars contend that high tax burdens do not necessarily translate into better social services if tax revenues are mismanaged or squandered (Tanzi & Zee, 2000). Others point out that excessive reliance on taxation may discourage formal sector growth and lead to tax evasion, thereby reducing the overall effectiveness of fiscal policies aimed at human development. Additionally, the theory tends to oversimplify the causal linkages, neglecting the roles of private investment, international aid, and broader economic reforms in fostering human capital and structural transformation.

Applying the theory to the context of Nigeria reveals critical insights. Nigeria, as a developing country, faces challenges related to tax collection efficiency, high levels of informal economic activities, and governance deficits, all of which impact its capacity to fund human capital development. The theory suggests that if Nigeria can reform its tax system to broaden the tax base, improve compliance, and ensure transparent utilization of revenues, all things being equal, it could significantly enhance investments in education, healthcare, and social infrastructure. In Nigeria's case, tax reforms could support the development of a more inclusive financial sector by providing the government with the fiscal

space needed to promote financial literacy, expand banking services, and support entrepreneurial ventures.

Empirical studies

Nguyen and Tran (2021) examined the impact of tax policies on human capital investment in Southeast Asian countries. The study analyzed how variations in tax burden influence government spending on education and health. Using panel data from 2010 to 2019 and employing fixed-effects regression analysis, the results revealed that higher tax burdens are positively associated with increased allocation of public resources to human capital sectors. The study concluded that sustainable tax reforms can significantly bolster human capital development, fostering long-term economic growth in developing countries.

Adebayo and Oladipo (2022) focused on Nigeria's tax system and its effect on human capital expenditure. The study evaluated whether tax revenue mobilization directly correlates with investments in education and healthcare. Utilizing time-series data from 2000 to 2020 and applying cointegration and error correction models, it discovered a positive long-term effect of tax revenue on human capital expenditure, although short-term fluctuations were noted. The authors argued that improving tax compliance and broadening the tax base are crucial for financing human capital development in Nigeria.

Chen and Li (2023) investigated the causal impact of tax burden on human capital accumulation in East Asian economies. Their objective was to determine whether increases in tax revenue led to enhanced social spending. They used Granger causality tests and vector autoregression (VAR) models on data from 2005 to 2022, revealing that higher tax burdens causally influence increased investments in education and health sectors. Their findings emphasized that prudent tax policies could serve as catalysts for human capital growth, especially in emerging economies.

Ojo and Adeyemi (2024) explored the relationship between tax burden and human capital development in Nigeria and Ghana. They employed a comparative case study approach, analyzing panel data from 2000 to 2023 with dynamic panel estimation techniques such as GMM. Results indicated that in both countries, higher tax burdens are significantly associated with increased government expenditure on education and health. They concluded that effective tax policy reforms are essential to enhance human capital investment, which ultimately drives structural transformation.

Kumar and Singh (2022) focused on the influence of tax policy on social sector spending in India. The objective was to analyze how different tax structures impact resource allocation to human capital development. Using cross-sectional data from 2010 to 2018 and applying multiple regression analysis, they found a positive association between the overall tax burden and expenditure on education and healthcare. The study emphasized that progressive tax reforms could improve resource mobilization for human capital enhancement.

Musharraf and Khan (2022) examined the role of tax revenue in human capital development in Pakistan. Their aim was to assess whether increased tax collection correlates with improvements in social indicators. Employing time-series analysis and ARDL bounds testing from 2000 to 2021, they observed that higher tax revenues have a significant positive impact on health and education expenditure. They concluded that strengthening tax administration is vital for achieving sustainable human capital growth.

Foster and Williams (2023) studied the relationship between tax burden and social spending in Latin America. Their objective was to analyze whether fiscal policy adjustments could enhance human capital outcomes. Using panel data and applying the system GMM estimator from 2005 to 2020, they found that

increased tax burdens are associated with higher investments in social sectors. They emphasized the importance of efficient tax collection systems to facilitate sustainable human capital development in the region.

Yilmaz and Demir (2024) investigated the impact of tax burdens on education and health spending in Turkey. Their goal was to evaluate the effectiveness of recent tax reforms. They employed structural vector autoregression (SVAR) models on data from 2000 to 2022, revealing that increases in tax revenue positively influence human capital expenditure. The authors argued that tax policy stability and transparency are key to mobilizing resources for human capital growth.

Obi and Eze (2025) analyzed the causal relationship between tax burden and human capital development in Nigeria using a Granger causality approach. Their aim was to determine whether tax revenue growth precedes increases in education and health expenditures. They used quarterly data from 2010 to 2024 and found bidirectional causality, indicating that enhancing tax revenue can stimulate human capital investment, while excessive burden reduces human development. They recommended reforms to broaden the tax base and improve compliance to support sustainable development.

Santos and Almeida (2020) explored the link between tax policy and social welfare spending in Latin America. Their objective was to assess how tax burden variations influence human capital investment. Using panel data from 2000 to 2018 and applying dynamic panel GMM techniques, they found a robust positive correlation between tax burden and expenditures on education and health. They concluded that effective fiscal policies are necessary to promote human capital development and accelerate economic transformation.

However, the empirical nexus between tax reform burden and human development index is unsettled. Whereas some studies report a positive and significant effect of tax burden on human development (e.g., Nguyen and Tran, 2021; Adebayo and Oladipo, 2022; Chen and Li, 2023; Ojo and Adeyemi, 2024), others document negative or insignificant effects, which suggests that excessive burden of tax reform retards human development (Obi and Eze, 2025).

Theoretically, there is an inverse relationship between tax reforms burden and human development, suggesting that increased tax reform burdens may negatively impact human development outcomes (Tanzi & Zee, 2000). This is because excessive or poorly designed tax reforms that increase the tax burden may discourage investment and productivity, reduce disposable income and hinder economic growth, ultimately negatively affecting human development outcomes. Additionally, a high tax burden might lead to increased evasion or informality, undermining the revenue base needed for social programmes. Therefore, the theoretical relationship suggests that a balanced and efficient tax reform, which optimizes revenue without overburdening taxpayers, can promote higher human development. However, overly burdensome tax reforms may impede economic progress and social well-being, thereby lowering the HDI. Nevertheless, the mix-evidence suggests that the impact of tax reforms burden on human development index is context-dependent, but generally, sustainable and equitable tax reforms are essential for fostering human development in emerging market economies (Obi & Eze, 2025). Predicated on the above findings, this study hypothesized that;

H1: There is no significant impact of tax reforms burden on human development index in Nigeria.

3. Methodology

The research design employed in this study is the ex-post facto design, a method that involves investigating cause-and-effect relationships between dependent and independent variables by

examining existing conditions and retrospectively searching for potential causal factors. This approach allows the researcher to explore relationships that naturally occurred, offering valuable insights into the factors influencing the observed outcomes and contributing to a deeper understanding of the research phenomena. A time series data spanning from 2005 to 2024 were used in this study. This study aims to employ both descriptive and econometric tools for comprehensive analysis. Descriptive tools, including measures such as maximum values, minimum values, standard deviations, skewness, and kurtosis, were utilized to assess the descriptive performance of the study variables. In parallel, econometric techniques, specifically multiple regression modelling, were employed to estimate the relevant equation, providing a more in-depth understanding of the relationships between the variables in the study.

Model specification

The model for this study is anchored on the *tax burden and human capital development theory*. The foundation of this theory can be traced back to the work of Musgrave and Musgrave (1989), who argued that fiscal policy, particularly taxation, plays a crucial role in determining a country's ability to invest in health, education, and social welfare. From the theoretical postulate, the empirical model of the nexus between tax burden and human development index in its functional form is specified and expressed as:

$$HDI = f(TRB, DSI, AGC, INV) \quad 1$$

The econometric model of equation (1) can be expressed as follows.

$$HDI = a_0 + a_1TRB + a_2DSI + a_3AGC + a_4INV + U_1 \quad 2$$

Where: HDI = Human development index (a summary measure of average achievement in key dimensions of human development; a long and healthy life, knowledge, and a decent standard of living. It is determined by life expectancy at birth, education levels (mean/expected years of schooling), and Gross National Income (GNI) per capita); TRB = Tax reform burden (measured as the ratio tax revenue to gross domestic product); DSI = Disposable income (measuring the amount of income of individual or household available to spend or save after deducting taxes and other mandatory expenses from their gross income and it stated in billion Naira); AGC = Aggregate consumption (aggregate consumption refers to the total amount of goods and services that all households in an economy collectively spend during a specific period of time and it stated in billion Naira); INV = Investment (which refers to the expenditure on goods and services that are used to generate future income or benefits and typically involves the purchase of capital goods such as machinery, buildings, infrastructure, and technology that contribute to productive capacity of a nation and it stated in billion Naira). It is measured by gross capital formation.

α_0 to α_5 are the parameters to be estimated and U_1 is the error term.

The relevant data for this study were obtained from the Central Bank of Nigeria Statistical Bulletin, Nigerian Revenue Service and the World Development Indicators (WDI, 2024). The data on human development index, disposable income and aggregate consumption were obtained from the World Development Indicators, while tax reform burden was assessed from Nigerian Revenue Service and investment was obtained from the Central Bank of Nigeria. Data were collected on annual basis from 2005 to 2024. It was estimated using the error correction mechanism (ECM) propounded by Engle and Granger (1987). An error correction model (ECM) is a type of time series model commonly applied when the underlying variables share a long-run stochastic trend, a property known as co-integration. ECMs provide a theoretically grounded framework for estimating both short-run dynamics and long-run relationships among variables.

4. Results and discussion

The descriptive statistics of the variables is reported in table 1. According to the table, the index of human development (HDI) which is the summary measure of average achievement in key dimensions of human development; a long and healthy life, knowledge, and a decent standard of living has been low within the period of this study. This is evidenced by the statistics of the mean, median and maximum for HDI of 0.51, 0.52 and 0.56 percent respectively. Likewise, tax reforms which is proxied by the ratio of tax revenue to GDP have been low. This is shown with the mean, median and maximum for TRB of 5.36, 5.53 and 13.50 percent respectively. Disposable income (DSI), aggregate consumption (AGC) and investment (INV) are shown with their means, medians and maximum values respectively.

Table 1: Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
HDI	20	0.516000	0.028544	0.470000	0.560000
TRB	20	5.362000	2.965531	1.480000	9.400000
DSI	20	108325.6	71419.77	23121.88	277496.6
AGC	20	72959.78	45956.12	13848.74	173008.9
INV	20	26360.95	25587.30	5772.640	86206.22

Source: Researchers' computation (2026), using E-Views 9.

Table 2: Correlation matrix

	HDI	TRB	DSI	AGC	INV
HDI	1				
TRB	0.694314	1			
DSI	0.799992	0.729945	1		
AGC	0.738172	0.724282	0.784967	1	
INV	0.789091	0.710242	0.963987	0.912177	1

Source: Researchers' computation (2026), using E-Views 9.

The skewness result depicts that all the variables are positively skewed meaning the variables are all long right tail, except human development index. The kurtosis results show that tax reform burden and investment are all leptokurtic in their distribution since they are greater than three (3). The kurtosis estimates for human development index, tax reforms, disposable income and aggregate consumption are less than 3 and hence are platykurtic in nature. The Jarque-Bera test shows that the variables are normally distributed within the period of analysis. The values of the standard deviation depict the variation of the variables from their true values over the period under review.

The correlation matrix presented in table 2 shows that a number of the pairwise correlations are moderate. Given the result, variables that are highly correlated are not included in the equation to circumvent the issue of multi-collinearity that may affect the reliability of the results.

Table 3: Unit root test results, ADF unit root test results

Variables	Level	1 st Diff.	Order of integration
HDI	-4.006949**	-	I(0)
TRB	-0.215798	-3.703528**	I(1)
DSI	-1.607368	-4.685999**	I(1)
AGC	-1.695215	-5.082735	I(1)
INV	1.032541	-3.909759**	I(1)

Source: Researchers' computation (2026), using E-Views 9.

Note: Mackinnon critical values for ADF at 1, 5 and 10% levels are -3.85, -3.04

and -2.66 respectively. ** means significant at 5% level.

The Augmented Dickey Fuller (ADF) unit root test was conducted to examine the stationarity condition of the variables. As indicated in table 3, HDI was stationary at level. In other words, the variable was integrated of order zero (i.e., I (0)). However, all other variables were stationary after first differencing using the ADF test. The variables are therefore integrated of order one i.e., they are I (1).

Where some of the variables are I (0) while others are I (1) one suggests the problem of unit root in the equation. It becomes imperative to perform co-integration tests to determine the presence of equilibrium relationship amongst the variables in the model. Therefore, the study adopts the ARDL bound testing technique for co-integration, as the variables are integrated of diverse orders (i.e., order zero and order one).

Results/findings

The long run results of tax reforms burden and human development index is reported in table 4. From the results and in consonance with theoretical expectations, a negative relationship exists between tax reforms burden (TRB) and human development index (HDI) in Nigeria. The value of the coefficient of -0.0025 implies that an increase in tax reforms burden by 1 percent will result to a decrease in human development index by 0.0025 percent. The p-value indicates that the variable is statistically significant with a value of 0.0246. This simply means that the burden brought about by tax reforms hinders human development in Nigeria. Furthermore, the variable has negative short run impact on human development index at both current and one period lag with coefficients of 0.0019 and 0.0048 and statistically significant with p-value of 0.0074 after first period. The nexus between disposable income (DSI) and human development index is positive and statistically significant in the long run. Hence, a 1 percent increase in disposable income will lead to 0.12 and 0.24 percent rise in human development index in the long and short run respectively. The p-values shows that the variable is statistically significant with values of 0.0135 and 0.0038 respectively. According to the results, aggregate consumption (AGC) and investment (INV) have positive and significant long run impact on human development index. The magnitude of the coefficients showed that a 1 percent increase in these variables will instigate 0.12 and 0.03 percent increase in human development index in the long run, as well as 0.15 and 0.08 percent increase in the short run respectively.

Table 4: Long run coefficients of the results Dependent variable: HDI

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TRB	-0.002569	0.000732	-3.512186	0.0246
DSI	0.127703	0.030293	4.215610	0.0135
AGC	0.123162	0.021626	5.695010	0.0047
INV	0.038647	0.007508	5.147484	0.0068
C	0.261300	0.044128	5.921398	0.0041

Source: Researchers' computation (2026), using E-Views 9.

The error correction mechanism (ECM) has the correct sign and size. The ECM coefficient of -2.53 indicates that, it takes about 2.5 percent for the short run disequilibrium to adjust to the long run equilibrium within the year. The p-value of -0.0362 shows that the error correction term is statistically significant at 5 percent level of significance. The R-squared value of 0.721012 and the value of R-squared adjusted of 0.664300 indicates that about 66 percent of variation in the tax reform burden-human development index model is explained by the current and first period lags of tax-to-GDP ratio, disposable income, aggregate consumption and investment and about 34 percent was unexplained which may be

accounted for by other factors not included in the model. The F-statistic of about 13.58 shows that all the variables in the model are together as a group statistically significant which means that the model has a good fit. The Durbin-Watson (D-W) statistic of 2.16 indicates no autocorrelation in the model. Therefore, the results can be used for forecasting and policy simulations.

Table 5: Short run coefficients of the results Dependent variable: D(HDI)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(HDI(-1))	1.303657	0.560891	2.324259	0.0408
D(TRB)	-0.001910	0.001763	-1.083691	0.3395
D(TRB(-1))	-0.004877	0.001845	-2.643504	0.0074
D(DSI)	0.241193	0.072969	3.305437	0.0038
D(AGC)	0.157643	0.062891	2.506599	0.0063
D(AGC(-1))	0.067434	0.042846	1.573869	0.1906
D(INV)	0.008993	0.016002	0.561984	0.6041
D(INV(-1))	0.055854	0.026419	2.114152	0.0520
CointEq(-1)	-2.532835	0.817048	-3.099982	0.0362

R2 = 0.721012 Adjusted R2 = 0.664300; F-Stat. = 13.58772; DW Stat. = 2.167967

Source: Researchers' computation (2026), using E-Views 9.

Discussion of findings

The model was estimated using the error correction mechanism (ECM) and the outcome revealed a negative and positive and significant relationship among the variables in both the short run and long run. From the results, a negative relationship exists between tax reforms burden and human development index (HDI) in Nigeria. This simply means that the burden brought about by tax reforms hinders human development in Nigeria. The nexus between disposable income and human development index is positive and statistically significant in the long run. Aggregate consumption and investment have positive and significant long run impact on human development index. Hence, an increase in these variables will increase human development index positively. These findings are in tandem with the views of Ojo and Adeyemi (2024) who explored the relationship between tax burden and human capital development in Nigeria and Ghana, and concluded that higher tax burdens are significantly associated with increased government expenditure on education and health. Hence, effective tax policy reforms are essential to enhance human capital investment, which ultimately drives structural transformation.

The error correction coefficient in the estimated model met the three criteria for its acceptability given that it is negative, fractional and statistically significant. Consequently, the estimated result confirms the presence of long run relationship among the variables in the model. It also shows that the speed of adjustments is high in the estimated model. The value of the adjusted R-squared implies that the model has good fit as the independent variables have high explanatory powers. The Durbin-Watson Statistic connotes absence of autocorrelation in the estimated equation. The study, therefore, accepts the null hypothesis of no serial correlation in the model. This further implies that the error terms of different periods are not serially correlated.

5. Conclusion

Effective and balanced tax reforms in Nigeria have the potential to enhance revenue collection, which can support investments in health, education, and social services, thereby improving the Human Development Index, but excessive tax burdens may hinder economic growth and human development if not carefully managed. Effective tax policy reforms are essential to enhance human capital investment, which ultimately drives structural transformation and the strengthening of tax administration is vital for

achieving sustainable human development in Nigeria. There should be tax policy stability and transparency as key to mobilizing resources for human capital growth. Hence, reforms to broaden the tax base and improve compliance to support sustainable development are necessary. There should be better institutions in Nigeria improve human capital development with more emphasis on effective governance. Policy makers should introduce and implement transparency and accountability oriented institutional reforms to improve efficient tax reforms.

Nigeria should streamline its tax administration to reduce evasion and broaden the tax base, ensuring more equitable and efficient revenue collection. Tax policies should be designed to balance revenue generation with minimizing the tax burden on individuals and businesses to promote economic growth. Revenues from tax reforms must be transparently and effectively invested in health, education, and social development programs to improve Nigeria's Human Development Index.

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