Impact of Taxation on Human Capital Development in Nigeria: 1994-2022

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ABSTRACT

Infrastructure development, robust government institutions, and public spending on health and education are some of the possible catalysts for the growth of human capital. However, from the government's point of view, taxation and tax policy seem to be the most effective means of promoting the development of human capital, since taxes affect both the efficient utilization of production resources (people and capital). Thus, the paper used the Autoregressive Distributed Lag (ARDL) to examine the impact of taxation on human capital development in Nigeria from 1994 to 2022. The estimated regression result demonstrated that the company income tax, one period-lagged company income tax, petroleum profit tax, value-added tax, and customs and excise taxes are the main short-run determinants of human capital development. In a similar vein, value-added tax and petroleum profit tax are long-term drivers of human capital development. The paper's a priori expectations of a positive relationship are met in terms of each individual independent variable. The coefficient estimates and t-statistic of company income tax, one period lagged company income tax, one period lagged petroleum profit tax, value added tax, and one period lagged customs and excise duties all have the expected sign. But when viewed statistically, petroleum profit tax, value added tax, one period lagged value added tax, customs and excise duties and one period lagged customs and excise duties contributes to human capital development in the short-run. Because human capital, which is measured using the Human Development Index, is recognized to be quantitatively and qualitatively measurable, the paper recommended tax authorities such as the Federal Inland Revenue Services to support development-driven tax policies. The paper also urges the Federal government, acting through the Nigeria Customs Service, to ensure that indirect tax revenues, such as VAT and Customs and Excise Duty, are sufficiently utilized to enhance human well-being through the implementation of efficient policies and the maintenance of accountability regarding tax revenues obtained.

Keywords: Taxation, Human Capital, Growth, ARDL, Nigeria

JEL Codes: H2. H21,N3, C30 and N47

INTRODUCTION

Assessed as a result of the intended investments, human capital can be thought of as an individual's aptitudes, expertise, and knowledge. People invest a lot of money on their education, health, and skills because they view human capital as a form of wealth that may be used for future goals or as a source of profit (Jurušset al. 2023).Countries must prioritize investing in human capital if they hope to achieve high and sustained economic growth, equitable income distribution, poverty reduction, and the economic, social, and environmental goals of sustainable development.

The process of acquiring human resources is an investment because the returns on that capital are not realized right away. The social return on investment in human capital is the benefit society receives from increasing the value of human capital. These benefits include non-financial gains like decreased crime rates and positive effects on people's health and birth rates, as well as monetary rewards like growing economies and productivity levels.

A person's abilities, qualifications, education, preference for working from home, other sustainability indicators, health, social security, and managerial and staff capacity are some of the variables that affect the development of human capital. For instance, research by Cinnirella and Streb (2017) and Kornieievaet al. (2022) has shown that raising productivity in the human capital sector will alter how skilled and unskilled people are used in relation to one another and have a long-term positive effect on growth rates. Still, it's critical to think about how to enhance human capital.

Furthermore, from the literature that is currently available, public spending on health and education, the development of infrastructure, and strong government institutions are some potential drivers of the growth of human capital. For instance, education level is important since higher education affects welfare by improving labor's ability to contribute to overall output. Public spending on health and education is predicted to improve economic performance and enhance human capital. Through its influence on the discipline of fiscal policy and the effective allocation of resources towards infrastructure development, institutions also have a significant impact on human capital development (Shuaibu & Oladayo, 2016).Enhanced institutional quality is essential for fostering individual potential and increasing productivity. The reason for this is that just institutions foster opportunities for fair development (De Muro & Tridico, 2008; Balcerzak, 2009; Balcerza & Pietrzak, 2016). Infrastructure can influence human development in two ways: directly by providing essential services like electricity and portable drinking water, and indirectly by boosting economic growth, opening up new income-earning opportunities for the most vulnerable populations, and bolstering governance (Sapkota, 2014).

As can be seen from the above, there are various possible catalysts for the growth of human capital. However, from the government's point of view, tax policy is the most effective way to boost the development of human capital (Jurušset al. 2022). For example, as part of the tax reforms exercise to improve tax compliance and efficiency in revenue mobilization, the FIRS (Establishment Act) of 2007 which increased its fiscal autonomy from the Ministry of Finance and granted it autonomy in human management resource decisions was introduced. The grant of autonomy to FIRS is expected to broaden its capacity to collect taxes. However, despite earlier tax reforms, tax yield is not still buoyant as Nigeria's tax-to-GDP ratio in 2021 (6.7%) was lower than the average of the 33 African countries in 2023 (15.6%) by 8.9 percentage point. This implies that tax reforms in Nigeria have not been given a holistic coverage and drive. Hence, the paper examined the impact of taxation on human capital development focusing on several tax components, including company income tax (CIT), petroleum profit tax (PPT), value-added tax (VAT), and customs and excise duty (CED), in Nigeria between 1994 and 2022.

Four sections make up the remainder of the paper. A survey of the literature is included in the next section, along with the theoretical underpinnings, empirical issues, and concepts of taxation and human capital. The data, methods, and findings from the data analysis are covered in sections three and four. Section five concludes the paper with conclusion and recommendations.

MATERIALS AND METHODS

Conceptual Review

One way to think about human capital is as a population's collective abilities, knowledge, and skills. It can be assessed as a result of planned investments. People invest a lot of money on their education, health, and skills because they view human capital as a form of wealth that may be used for future goals or as a source of profit (Jurušset al. 2023).Comparably, human capital is the store of habits, social and psychological traits, knowledge, and creativity that are expressed in the capacity to work and generate economic value. According to Atoyebiet al. 2013), it is a collection of resources that includes all of the knowledge, skills, abilities, experience, intelligence, training, judgment, and wisdom that a people possesses both individually and collectively.

Taxation is a compulsory levy imposed on a subject or upon his property by the government to provide security, social amenities and create conditions for the economic wellbeing of the society (Ola, 1999). Almost all nations in the world levy taxes. Taxes are the primary source of government revenue in contemporary economy. In essence, there are two categories of taxes: indirect taxes and direct taxes. The taxes that citizens

pay directly to the government are known as direct taxes. Examples of direct taxes include income taxes, wealth taxes, corporate taxes, gift taxes, capital gains taxes, and expenditure taxes. An indirect tax is one in which the subject of the taxes does not have the same incidence and consequences. The taxpayer has the option to transfer the tax burden to another party. Indirect taxes include things like sales tax, excise tax, VAT, service tax, custom duty tax, entertainment tax, and so on (Ahmad & Awan, 2021). However, the main purpose of taxation is to fund government spending and fairly distribute revenue, which contributes to a nation's economic development and progress.

Empirical Review

The impact of value added tax (VAT) on Rivers State's human development index (HDI) was studied by Ogondaet al. (2023). The paper discovered that VAT is a significant factor, accounting for 91.2% of variations in the states' spending patterns in Rivers State. The data obtained from secondary sources attests to the impact of VAT on HDI.It is imperative for the governance of Rivers State, along with other emerging nations and states, to ensure that revenue allocations, namely Value Added Tax (VAT), not only have an influence on human development but also are seen positively by citizens. The removal of all observable administrative barriers is necessary, and VAT should continue to be maintained and allocated among the states based on their respective levels of VAT generation.

The impact of tax measures on labour productivity is evaluated by Jurušset al. (2023) through the use of multiple non-linear regression analysis. The study's conclusions suggest that in order to promote the advancement of human capital and raise labour productivity, personal income tax refunds should be changed more economically than socially.The findings for the Baltic States suggest that a one percent tax credit and a two to three percent rise in productivity might be achieved, whereas the effect is negligible or even neutral in nations with higher beginning productivity levels.The report suggested providing fiscal support in the form of incentives for higher education, with a focus on STEM fields and the development of digital skills, which improve human capital skills and increase productivity.

Obiano (2023) examined the impact of fiscal policy on the development of human capital in Nigeria from 1981 to 2019.The data were analyzed using the Johansen Cointegration Test and the Error Correction Model (ECM). The estimate techniques' results showed that Nigeria's human capital development was significantly benefited by nonoil revenue.While oil revenue, domestic and foreign debt, the budget deficit, and government recurrent expenditures had a negligible detrimental impact on Nigeria's development of human capital. The report said that in order to supply Nigeria with the necessary human capital and skills for economic development, the government should increase its spending in the fields of health and education.

Mondayet al. (2022) examined the impact of direct taxes on the development of human capital in Nigeria from 1980 to 2017.Human development index was utilized as a stand-in for human capacity development, and petroleum profit tax buoyancy and corporate income tax buoyancy were used as proxies for direct taxes.Because the buoyancy and elasticity coefficients are less than one (bt< 1), the conclusion demonstrates that petroleum profit and corporate income taxes are inefficient and not buoyant. It also demonstrates that human capital development and petroleum profit tax buoyancy have a positive, if small, relationship. Based on these findings, it was suggested that the mobilization tax be effectively used to provide the public with high-quality healthcare, education, and basic infrastructure in order to enhance the growth of human capital and the buoyancy of the petroleum profit tax.

Using the Non-Linear Autoregressive Distributed Lag Model of cointegration, Abubakar (2020) examined the effects of education taxes and investments in human capital on economic growth in Nigeria for 25 years, from 1995 to 2019.The results showed that investments in human capital and the tax on education had a favorable and considerable impact on the growth of the Nigerian economy during the sample period.The paper recommended that among other policy frameworks, Nigeria should create an environment that is conducive to maintaining macroeconomic stability by making efficient use of the money collected from the education tax, which will in turn stimulate more investment in human capital within the public sector.

The impact of tax income on the human development index of the West African Commonwealth countries—

Ghana, Nigeria, Sierra Leone, and the Gambia—is examined by Nwakaego and Chimobi (2021). The human development index of West African Commonwealth countries is significantly impacted negatively by indirect tax income, whereas direct tax revenue has a considerable positive effect, according to the results of an ordinary least squares regression study.The study comes to the conclusion that tax income offers a significant chance to raise the West African Commonwealth nations' human development index. Therefore, the report urges these nations' government administrations to make sure that indirect tax money is sufficiently used to raise living standards through the implementation of sensible policies and the maintenance of tax revenue responsibility.

Ibadin and Oluwatuyi (2021) assessed the effect of tax revenue and economic growth on human development index in Nigeria.Economic growth and development have been primarily measured by the RGDP and HDI indicators, respectively. The Johansen multivariate co-integration approach and the Error Correction Model (ECM) method, which are mostly appropriate for time series analysis, were utilized in the paper. The results indicated a strong and positive correlation between tax revenue and HDI.The outcome shows that, with both being dependent variables, the effect of tax revenue on HDI is less than that of RGDP. Given that HDI criteria are recognized for their quantitative and qualitative measurability, the article advocates for development-driven tax policies.

Using data from 2000 to 2015, Adegbite (2016) investigated the short- and long-term effects of education taxes on the development of human capital in Nigeria using the Granger causality tests and the Johansen co-integration method.The results showed that the education tax has a large and positive long- and short-term impact on Nigeria's growth of human capital. EDUTAX granger also contributes to HCDEV.In Nigeria, the tax on petroleum profits has a short-term positive large influence on the development of human capital, but a long-term positive insignificant impact. PPT granger- also contributes to HCDEV.The study also showed that company income tax has a short-term favorable effect on the development of human capital but a long-term negative, significant impact. But HCDEV is caused by CIT Granger. The report said that to improve Nigeria's human capital development, the government should make effective use of the money collected from the education tax.

Kizilkayaet al. (2015) examined how taxes, government spending, income, and infrastructure (such as energy use) affected the development of people in 14 OECD nations between 1998 and 2007. The study employed panel vector error correction-based causality approaches, panel unit root, panel co-integration, panel FMOLS, and panel DOLS.The research findings indicated that taxes have an adverse effect on human development, whereas government expenditures, as fiscal policy variables, have a noteworthy and positive impact on human development. Consequently, the government ought to prioritize public policy, particularly in the areas of education and healthcare.

In Nigeria, Nwakanma and Nnamdi (2013) examined the link between taxes and the human development index between 1970 and 2010. The study found a positive correlation between the level of HDI and the Petroleum Profit Tax, Company Income Tax, and Excise Tax, respectively, based on the Ordinary Least Squares approach. The study concluded that a federal fiscal framework that could ensure that taxes are fully utilized to help Nigeria achieve the Human Development Index (HDI) is put in place.

THEORETICAL FRAMEWORK

The augmented Solow human-capital-growth model, which is an advancement over the Solow growth model, provides the theoretical foundation for the model formulation. The human capital component was not specifically included in Solow's original model. Mankiw, Romer, and Weil (1992) developed the augmented Solow model in order to accomplish that. The fact that labour is not homogeneous in the production process within a country or across various economies because of differences in their levels of education and ability serves as rationale for including human capial in the model.By assuming that human capital depreciated at a constant rate and that people invest in it similarly to physical capital, they made two significant advances.

The augmented Solow model by Mankiw, Romer, Weil (1992) is represented below

$$Y_t = AK_t^\alpha H_t^\beta \qquad (1)$$

Thus, linearizing equation (3.1), we obtain:

$$InY_t = InA + \alpha InK_t + \beta InH_t + \mu \qquad (2)$$

where A is the efficiency parameter or constant, α and β are parameter coefficients, H is human capital, K is physical capital, and Y is real GDP. However, the taxes variable was not specifically included in the Mankiw, Romer, and Weil (1992) model. By introducing taxation variable, the augmented Solow model by Mankiw, Romer, Weil (1992) now becomes:

$$InY_t = InA + \alpha InK_t + \beta InH_t + \beta InT_t + \mu \qquad (3)$$

Where T is taxation components such as Company Income Tax (CIT), Petroleum Profit Tax (PPT), Value-Added Tax (VAT) and Customs and Excise Duty (CED) that affecthuman capital development.

METHODOLOGY

Ex-post-facto research methodology was used in this research. Backlund and Suikki (2015) clarified that the goal of an ex-post-facto research strategy is for the researcher to identify the problem's essential components for a comprehensive examination.Furthermore, by employing an ex post facto research strategy, the investigator can concentrate the investigation on these crucial elements and obtain a thorough picture of the problem from other related sources.

Model Specification

The theoretical framework of Mankiw, Romer, and Weil (1992) and a modified model of Abubakar (2020), who examined the effects of education taxes and investments in human capital on economic growth in Nigeria from 1995 to 2019, serve as the foundation for the model used in this paper. The paper model, however, is different from the previous one in that it considers the impact of both direct and indirect taxes as significant drivers of the growth of human capital, including Company Income Tax (CIT), Petroleum Profit Tax (PPT), Value-Added Tax (VAT), and Customs and Excise Duty (CED).Based on the foregoing, the relationship between human capital development and taxation is specified as follows:

$$HCD = f (CIT, PPT, VAT, CED) \qquad (4)$$

Where:

HCD = Human capital development measured by human development index;

CIT =Company income tax;

PPT = Petroleum profit tax;

CED = Customs and excise duty;

To estimate equation (3.4), we take the natural logs of both sides which will result in the following equation (3.4)

$$InHCD = \beta_0 + \beta_1 InCIT + \beta_2 InPPT + \beta_3 InVAT + \beta_4 InCED + \mu \qquad (5)$$

Where μ denotes the white noise error term, In: Natural logarithm, $\beta_0 =$ intercept or autonomous parameter estimate and $\beta_1...\beta_4 =$ Parameter estimate representing the coefficient of CIT, PPT VAT and CED,

respectively. The expressions for each variable are all logarithmic. Furthermore, a positive coefficient for each is anticipated.

However, to examine the impact of taxation on human capital development in Nigeria between 1994 and 2022, the paper employed Autoregressive Distribution Lag Technique (ARDL). The augmented ARDL model provided by Pesaran et al. (2001) is given as:

$$\Delta Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \alpha_2 X_{t-1} + \sum_{i-1}^{i} \beta_{1i} \Delta Y_{t-i} + \sum_{i-0}^{j} \beta_{2i} \Delta X_{t-i} + \varepsilon_t \ -------------------(6)$$

Incorporating policy variables model into the ARDL model framework, we have

$$\Delta InHCD_t = \beta_0 + \sum_{i=1}^{m} \beta_{1i} InHCD_{t-i} + \sum_{j=0}^{n} \beta_{2i} \Delta InCIT_{t-j} + \sum_{k=0}^{o} \beta_{3i} \Delta InPPT_{t-k} + \sum_{l=0}^{p} \beta_{4i} \Delta InVAT_{t-l} + \sum_{l=0}^{q} \beta_{5i} \Delta InCED_{t-l}$$

$$+ \beta_6 InHCD_{t-1} + \beta_7 InCIT_{t-1} + \beta_8 InPPT_{t-1} + \beta_9 InVAT_{t-1} + \beta_{10} InCED_{t-1} + \varepsilon_t \ -----------(7)$$

The bound test involves two main stages. We first estimate the ARDL equation to see if there is a long-term relationship between the variables. In the second step, the F-statistic is computed, and the subsequent decision rule is utilized:

The null hypothesis ($H_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$) of no long-run relationship is rejected if the calculated F-statistic is greater than the critical value for the upper bound I(1). In this case, the alternative decision($H_0 \neq \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$) is accepted, we conclude that there is cointegration or a long-run relationship. If the F-statistic is less than the critical value for the lower bound I(0), we cannot reject the null hypothesis ($H_0 \neq \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$), this means that no cointegration and the long-run relationship cannot be established. Finally, an inconclusive result occurs where the F-statistic falls below between the lower bound I(0) and upper bound I(1). Hence, the short-run and long-run can be conducted. Finally, the series error correction is as follows:

$$\Delta InHCD_t = \beta_0 + \sum_{i=1}^{m} \beta_{1i} \Delta InHCD_{t-i} + \sum_{j=0}^{n} \beta_{2i} \Delta InCIT_{t-j} + \sum_{k=0}^{o} \beta_{3i} \Delta InPPT_{t-k} + \sum_{l=0}^{p} \beta_{4i} \Delta InVAT_{t-l}$$

$$+ \sum_{l=0}^{q} \beta_{5i} \Delta InCED_{t-l} + ECT_{t-1} + \varepsilon_t \ ------------------------(8)$$

Where;

ECT_{t-1} = lagged Error correction term. The output evolution process that agents use to react to the prior period of prediction errors is captured by the ECT.

Comparing this method against Johansen co-integration methods reveals some benefits. First off, the ARDL model is the most practical way to find out whether cointegration exists in small samples, unlike the Johansen techniques, which require big data samples—a luxury that most developing economies do not have (Ghatak & Siddiki 2001).

The second benefit of the ARDL approach is that it can be used with variables in the regression that are either purely I(I) or purely I(0), or a combination of the two. This is in contrast to other cointegration techniques that need all of the regressors to be of the same order. By not requiring the variables to be previously classified into I(I), the ARDL approach appears to circumvent the pre-testing issue that is linked to standard cointegration (Pesaran et al. 2001).

Thirdly, because the ARDL approach to cointegration avoids the issue of having to make too many decisions, it is superior to the Johansen approach. These include how deterministic elements are handled, the VAR's

order, and the ideal lag duration. Lastly, variables may have varied lag lengths in the ARDL approach, while this is not allowed in the Johansen method.

Variables Description and Measurements

Table 1 gives specific summary ofvariables description, measurements and source of data.

Table 1: Variables Description and Measurements

Variable	Description	Source
Human Capital	The three dimensions of human development—a long and healthy life, access to information, and a reasonable level of living—measured by the HDI.	WDI
CIT (Company Income Tax)	The tax levied on a business's entire profit. Certain gains not resulting from trade or business operations, such as cooperative societies, are exempt from CIT.	FIRS
PPT (Petroleum Profit Tax)	A tax required from companies that operate in the petroleum industry.	FIRS
VAT (Value Added Tax)	A consumable tax applied to products at each point in the supply chain where value is added.	NBS
Customs & Excise Duties	Levies applied to items imported into the nation.	CBN

Source: Researchers' Compilation, 2024

Notes: CBN: Central Bank of Nigeria Statistical Bulletin; NBS: National Bureau of Statistics; WDI: World Development Indicators for Nigeria, and FIRS: Federal Inland Revenue Services

RESULTS AND DISCUSSIONS

Descriptive Statistics

Table 2 presents the descriptive statistics for human capital development measured by human development index (HDI), Company income tax (CIT), Petroleum profit tax (PPT), Value Added Tax (VAT) and Customs and excise duties (CED). The four explanatory variables are all denominated in Naira Billion.

Table 2: Descriptive Statistics

Statistic	HDI	CIT	PPT	VAT	CED
Mean	0.475807	562.6592	1025.999	3506.588	6153.682
Std. Dev.	0.050076	714.7833	1235.943	8962.233	16505.1
Skewness	-0.771395	1.118031	0.973637	2.702296	2.644445
Kurtosis	3.298932	3.494439	2.748174	8.757355	8.542015
Jarque-Bera	2.984051	6.337032	4.658479	75.34776	70.9126

Probability	0.224917	0.042066	0.09737	0	0
Observations	29	29	29	29	29

Source: Authors Computation, 2024 (Eviews-12)

The human development index (HDI) has an approximate average of 0.48 percent and a corresponding standard deviation of 0.050 percent, based on the descriptive statistics presented in Table 2. This demonstrates why the country is ranked low on the human development index. Comparably, the value added tax, or VAT, has an approximate average of ₦3506.6 billion and a standard deviation of ₦8962.2 billion. Customs and excise duties (CUD) have an approximate average of ₦6153.7 billion and a corresponding standard deviation of ₦16505.1 billion.

Table 2 displays the skewness coefficient, a measure of how far a distribution deviates from symmetry. All of the data variables have skewness values greater than one, with the exception of the petroleum profit tax and the human development index, which have coefficients of less than one (-0.771395) and (0.973637), respectively.The entire data series are not platykurtic (not having negative values), as confirmed by the kurtosis result, which measures a distribution's degree of peakedness in relation to a normal distribution. The exception is the petroleum profit tax (PPT), which has a kurtosis coefficient of less than two (2.748174).Additionally, the probability value of Jarque-Bera statistics indicates a potential deviation from a normal distribution because the p-values for the variables related to company income tax (CIT), petroleum profit tax (PPT), and customs and excise taxes (CED) were less than 5%.To ensure that the collected data are fit for the paper, the stationarity test was conducted on the data.

Unit Root Test

By employing the Augmented Dickey-Fuller (ADF) unit roots test, which yields results displayed in Table 3, the variables' stochastic characteristics were examined to prevent spurious regression.

Table 3: Unit Root Test Result

Variable	ADF Test Statistics	ADF Critical Value	Order of Integration
HDI	-4.996778	-4.339330*	I(0)
CIT	-3.994445	-3.587527**	I(1)
PPT	-3.910336	-3.595026**	I(1)
VAT	-5.108308	-4.339330*	I(1)
CED	-5.251249	-4.339330*	I(1)
4o			

Note: *,** Indicates stationary at the 1% and 5% level.

Source: Authors Computation, 2024 (Eviews-12)

The Augmented Dickey-Fuller (ADF) test indicates that the human development index (HDI) variable tends to be stationary at level. Based on the traditional Augmented Dickey-Fuller (ADF) test, all other variables in

Table 2 are probably stationary at first difference.In the bounds method to cointegration, the stationarity properties of the variables are tested since, in the absence of I(1) and I(0) variables, or a combination of both, the (ARDL) bounds testing approach is not applicable.This indicates that the presence of an I(2) variable will cause the bounds testing assumption to collapse. However, given that all of the variables in this paper are combinations of I(1) and I(0), the findings of the Augmented Dickey-Fuller (ADF) unit root, which are shown in Table 2, suggest that the bounds testing approach is appropriate.

ARDL Cointegration- Bound Test Result

After determining the integration sequence, the study's next objective is to determine the long-term relationships between the variables. The question of whether taxation and human capital development have a long-run cointegration relationship is then answered using the ADRL-bounds testing methodology. Table 4 displays the outcome of the cointegration test:

Table 4: Result of ARDL Bounds Test for Cointegration

Test Statistic	Value	K	
F-Statistic	15.61447	5	
Critical Value Bounds	**Significance Level**	**Lower Bound**	**Upper Bound**
5%	2.56	3.49	

Source: Researcher's Computations based on E-Views 12

The results of the cointegration test demonstrate that, at the 5% significance level, the F-statistic is greater than the critical values at both the lower and upper bounds. At the 5% significance level, the null hypothesis—that there is no long-term relationship—is thus rejected. Thus, the conclusion that the variables are cointegrated can be formed.

Model Estimation Results

The paper estimates the long-term models and error correction in light of the dependent variable's cointegration with the regressors. The results of the estimates are shown in Table 5.

Table 5: ARDL Regression Results

Dependent Variable: DLOG(HDI)

ECM Estimates				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(CIT)	**0.001345**	**0.004882**	**0.275511**	0.8
DLOG(CIT(-1))	0.0027	0.00627	0.430651	0.7
DLOG(PPT)	-0.021269	0.003126	-6.803445	0.02
DLOG(PPT(-1))	0.002223	0.003352	0.663221	0.57

DLOG(VAT)	0.11519	0.00827	13.92828	0
DLOG(VAT(-1))	-0.039403	0.007888	-4.99519	0.03
DLOG(CED)	-0.03014	0.00583	-5.169719	0.03
DLOG(CED(-1))	0.057314	0.007496	7.64553	0.01
CointEq(-1)	-0.518038	0.101005	-5.128817	0
Adjusted R-squared	0.754585			
Durbin-Watson stat	2.05709			
Long Run Estimates				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(CIT)	-0.040214	0.038988	-1.031455	0.41
LOG(PPT)	0.015334	0.024759	0.619314	0.59
LOG(VAT)	0.165443	0.097077	1.704248	0.23
LOG(CED)	-0.107089	0.07967	-1.344166	0.31
C	-0.941503	0.100737	-9.346119	0.01

Source: Researcher's Computation Using EViews-12 (2023)

The estimated ARDL regression result suggested that the company income tax, one period lagged company income tax, petroleum profit tax, value added tax, and customs and excise duties are the main short-run determinants of human capital development as measured by the human development index (HDI).In a similar vein, value added tax and petroleum profit tax are long-term drivers of human capital development.

The paper's a priori expectations of a positive relationship are met in terms of each individual independent variable. The coefficient estimates and t-statistic for company income tax, one period lagged company income tax, one period lagged petroleum profit tax, value added tax, and one period lagged customs and excise duties all have the expected sign.In any case, statistical analysis revealed that the short-term development of human capital is aided by the petroleum profit tax, value-added tax, customs and excise taxes, and one period-lagged value-added tax. All the explanatory variables, however, have no statistically significant impact on the long-term development of human capital.

In the short run, company income tax in Nigeria is seen to have a positive effect on the development of human capital. This is consistent with theoretical prediction because it is anticipated that higher company income taxes will lead to greater development of human capital.To be more precise, there will be a short-term 0.013% rise in human capital development in Nigeria for every percentage increase in company income tax. On the other hand, in the long run, company income tax has an adverse impact on the development of human capital.The results of this analysis are consistent with past research by Ibadin and Oluwatuyi (2021) and Nwakaego and Chimobi (2021), who found that direct tax revenue significantly and favorably affects the

human development index in Nigeria and the West African Commonwealth countries, respectively.

Conversely, the results show that the short-term impacts of the petroleum profit tax on human capital development are negative. Ceteris paribus, means that a one percent increase in the petroleum profit tax will result in a short-term -0.021% decline in the growth of human capital.This result is in line with both the a priori predictions of the investigation and the observation made by Ibadin and Oluwatuyi (2021) that there is a strong and positive correlation between tax income and the development of human capital. However, the findings of Kizilkayaet al. (2015), who assert that taxes have a detrimental effect on human development in 14 OECD nations between 1998 and 2007, are not consistent with this finding.In the long term, however, the petroleum profit tax has a negative relationship with the development of human capital.

The estimated ARDL regression result showed a direct relationship between value-added tax and the growth of human capital over the long and short terms. Value-added tax makes up roughly 0.12% and 0.7% of the total in both the short and long run, respectively.This outcome is consistent with the study conducted by Ibadin and Oluwatuyi (2021), who discovered that tax income positively affects the development of human capital in Nigeria.However, this outcome is not the same as that of Kizilkayaet al. (2015), who found that between 1998 and 2007, taxes had a detrimental effect on human development in 14 OECD nations.

Both in the short and long terms, customs and excise duties are indirectly tied to the development of human capital. Customs and excise taxes contribute roughly -0.030% and -0.107 percent in the short- and long-term, respectively.

Since it is expected that higher Customs and Excise Duties (CED) will result in better human capital

development, this is inconsistent with theoretical expectations. This result is consistent with that of Nwakanma and Nnamdi (2013), who discovered that the excise tax shows a positive correlation with the Human Development Index level, which serves as a gauge of the growth of human capital.

This result, however, contradicts the findings of a study by Nwakaego and Chimobi (2021), who asserted that the human development index of West African Commonwealth nations is significantly and negatively impacted by indirect tax revenue.

At the one percent level, the Error Correction Model is highly statistically significant, negatively signed, and as expected. This provides more proof that the dependent variable and the regressors have a long-term relationship.The coefficient's absolute value, which ranges from zero to one, shows that, in order to keep the equilibrium, yearly corrections are made to roughly 52% of the short-run departure from the equilibrium (long-run) position.

The ARDL estimate's goodness of fit is sufficient. Regressor modifications account for around 75% of the variation in human capital development. In a similar vein, the DW figure of 2.1 shows that the serial correlation issue is not present. Therefore, the paper's conclusions can be relied upon for formulating policy recommendations.

Post-Estimation Test Results

The study conducted a few diagnostic tests to assess the model's stability and applicability as well as the validity of the results. The model did not display serial correlation or heteroskedasticity during the study period, according to Table 5's findings.

The heteroscedasticity tests indicate that the residuals are homoscedastic. The results of the diagnostic tests for serial correlation and heteroscedasticity suggest that the data is reasonably well behaved.Furthermore, the p-value for the normality test for the research period is greater than 0.05, indicating that the residues are distributed normally. This results in a uniform distribution of the residuals. As a result, the normal distribution null hypothesis was not rejected.

Table 6: Diagnostic Test Results

Test	Null Hypothesis	T-Statistic	Prob.
Jarque-Bera	There is a normal distribution	0.561	0.75
Breusch-Godfrey LM	No serial correlation	0.425	0.88
Heteroskedasticity: Breusch-Pagan-Godfrey	No conditional heteroscedasticity	0.467	0.68

Source: Researcher's Computations based on E-Views 12

Stability Test Result

The human capital development model was shown to be stable during the investigation period by the stability test in Figure 1 because the chart plots at the 5% significant level fall within the critical constraints.
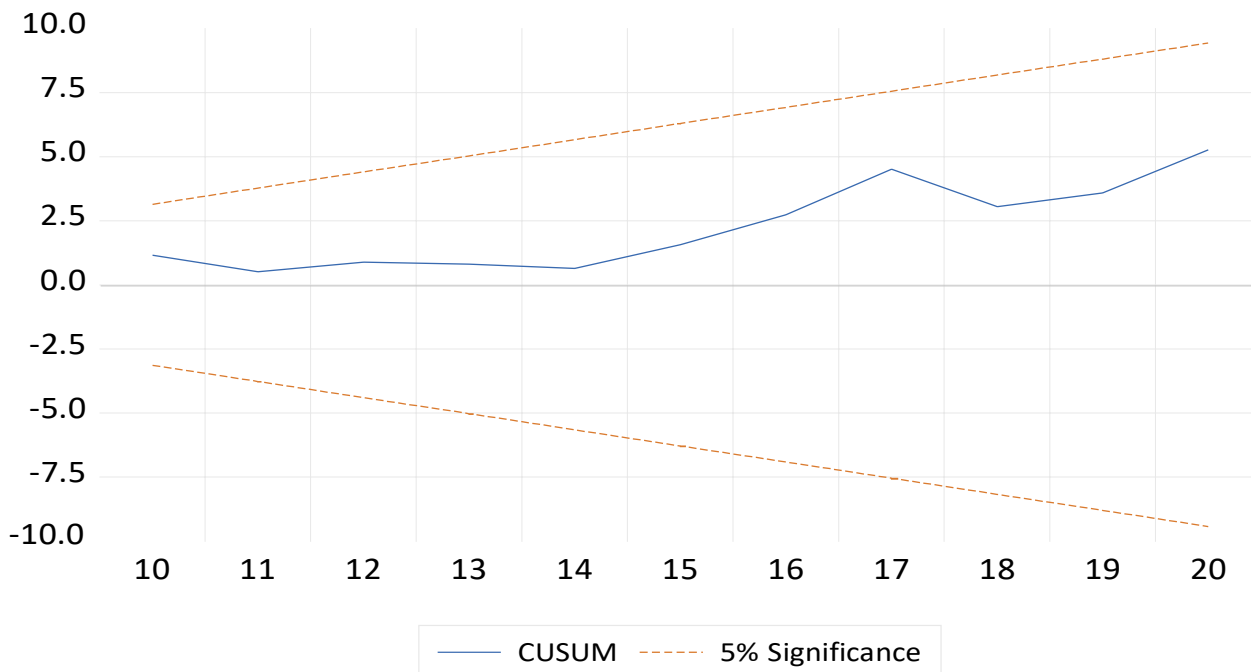
Figure 1: Stability Tests Result

Source: Researcher's Plot using E-Views 12

CONCLUSION AND RECOMMENDATIONS

The study examined the impact of taxation on the development of human capital in Nigeria between 1994 and 2022 using the Autoregressive Distributed Lag (ARDL).The estimated ARDL regression result demonstrated that the company income tax, one period lagged company income tax, petroleum profit tax, value added tax, and customs and excise duties are the main short-run determinants of human capital development as measured by the human development index (HDI).In a similar vein, value added tax and petroleum profit tax are long-term drivers of human capital development.

The paper's a priori expectations of a positive relationship are met in terms of each individual independent variable. The coefficient estimates and t-statistic for company income tax, one period lagged company income tax, one period lagged petroleum profit tax, value added tax, and one period lagged customs and excise duties

all have the expected sign.However, statistical examination shows that the following variables support the short-term development of human capital: petroleum profit tax, value-added tax, customs and excise taxes, and one period-lagged value-added tax.Nevertheless, over the long term, none of the explanatory variables has a statistically significant impact on the growth of human capital.

Furthermore, it is evident from the positive signs of variables such as value added tax, company income tax, one-period petroleum profit tax, one-period customs and excise duties, and one-period petroleum profit tax that these factors are important for the development of human capital in Nigeria during the study period.

In a similar vein, variables related to value-added tax and petroleum profit tax have the potential to be long-term drivers of human capital development.Because human capital, which is measured using the Human Development Index, is recognized to be quantitatively and qualitatively measurable, the paper advised tax authorities such as the Federal Inland Revenue Services to support development-driven tax policies.The paper also urges the Federal government, acting through the Nigeria Customs Service, to take steps to ensure that indirect tax revenues, such as VAT and Customs and Excise Duty, are sufficiently utilized to enhance human well-being through the implementation of efficient policies and the maintenance of accountability regarding tax revenues obtained.

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