

Taxation Potency on Human Capital Development: Verdict from Panel Fixed Effect Model

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Abstract

This study examined taxation impact on human capital development in North Central States in Nigeria. The data emanated from the state boards of internal revenue, office of Accountants general, state planning commission of the selected states in North Central Nigeria and the National Bureau of Statistics' document from 2010 to 2020. The selected states are Kwara, Niger, Kogi, Benue, Nasarawa and Plateau states. The study used econometric model to examine how taxes affect growth of human capital development. The numerical estimate of the co-efficient in various equations was obtained using panel data analysis through pooled regression, fixed model, random effect model and Hausman test. The findings showed that personal income tax and value added tax have positive and significant effect on human capital development. Road tax has positive and insignificant effect on human capital development. More so, external loan has positive and significant effect on human capital development in North central states Nigeria. It is concluded that taxation significantly impacted human capital development in north central states, Nigeria. It is recommended that taxation funds should be fully channeled by government into development of human capital properly, and meticulously utilized and managed efficiently to absolutely attain and improve human capital in North central states, Nigeria. Also, government should involve the usage of electronic means for collection of taxes from road users in order to track or drive all the road users into tax net, and to reduce or eradicate road tax evaders so as to enhance revenue drive.

Keywords: Human Capital Development, Taxation, Road Tax, VAT, Personal Income Tax



Introduction

North Central States' government are saddled with the responsibilities of providing the public with economic and social services at reasonable and subsidized rates. In order to finance economic and social services, one of the various sources available for the North Central States is taxation. Guerra and Harrington (2022) averred that revenue can be generated through internal and external tax system to finance both economic and social services. The level of revenue generated has immensely contributed on the economic growth of every nation. In contrast to Nigeria, modern nations have well-designed tax systems that enable them to raise substantial amounts of money via taxes. The United States of America (USA), the United Kingdom (UK), Canada, Germany, China, and the Netherlands are a few examples of such nations. As a result, these developed nations' economies have grown faster. Nigeria's tax contribution is one of the lowest in comparison to other nations, despite the fact that taxes makes up a significant portion of the GDP of the North Central States. According to PricewaterhouseCoopers (PwC), when compared to other countries, Nigeria has the lowest global tax share of GDP. Tax as a percentage of GDP was 3.37 percent in 2008, while it reduced to 3.14 percent (CBN, 2021).

One of the main sources of income for the North Central States is taxation administered by the State Board of Internal Revenue [SBIR] of the six states that make up the North central Nigeria. Taxes administered by the North Central States of Nigeria includes value added tax, Personal Income Tax (PIT), Road tax etc. Previously, the major revenue generated by the state is through oil which is also faced with several obstacles ranging from the exchange rate fluctuations, inability to fix our refineries, fluctuation in international oil prices to mention but few. This was admitted by the submission of Imandojemu et al., (2020a) that human capital is the bedrock of any economy, especially the Africa economy. Most advanced economies have their foundation from the use of its natural resources to attain its capacity building, including technologically developed countries like Japan. Capacity building can be retained through effective, efficient, productive and proactive human capital development (Ojokuku and Adegbite, 2014; Adegbite, 2016). Human Capital Development (HCD) is one of the pre-requisite for a countries socio economic and political transformation and development. Hence, among the most widely agreed factors responsible for remarkable performance of the economies of all developed and developing nations is human capital development, which can be acquired through continuous training and education (Adegbite, 2016).

Government in Nigeria for long time regards North Central States as less developed states in education. In 2019, state government like Kwara and Niger state, expended more than ₦3billion in Education in their respective state which were spent on the payment of teachers in both primary and secondary school, rehabilitation of school building, payment of bursary for all indigene of each state. This was also extended to empowerment and training of artisan and staff of state government respectively. Unexpectedly, education in North central state in Nigeria has been increasing at decreasing rate, that is, education has generally dwindled, retarded and unproductive because of persistent strike embarked by all state tertiary institution, and secondary school teacher in North central states. Besides, despite the income expended always on education, trainings, workshops, and seminars, North central states still experience students' protest, teachers strikes, brain drain, insufficient teachers in both secondary and primary schools, students poor performance, and youth idle which generally downplaying development of human capital. The question in the mind of the researchers is that, is income realized from taxation (PIT, Road tax and VAT) sufficient to manage or

running the education system in the states? Has HCD benefited from income realized from taxes in the states?

Therefore, this study is expected to provide answers to the aforementioned question by delving the effect on taxation in human capital development in North Central States. This research also focuses on the potency of taxation especially those taxes within the purview of North central states in Nigeria on the development of human capital from 2010 to 2020. In addition, this study focuses on how taxes affect the growth of human capital development in the North Central States which has not received much attention in the existing literatures. This study contributed to existing knowledge by examining the impact of taxes' income on HCD in North central states, Nigeria with the involvement of econometric analyses which have not been in existence.

Literature Review

Human Capital Development (HCD)

Human capital is the human abilities and skill sets to enhance the growth of the country either through formal education, training and empowerment. It is also refers as the increment in the volume of people with expertise, experience and knowledge which is indispensable for development of the country's economy. According to Osoba, Mosunmola & Tella, (2017), a nation with low labor productivity per capita experiences slow economic growth, high unemployment, and a high rate of poverty. Over 1.3 billion people in Nigeria, Asia, Africa, and Latin America earn less than \$1 per day, and the welfare of their citizens is poor (Adegbite, 2016). The most efficient way to improve a people performance, competency, and resources is through human capital development. Government needs to ensure that the human resources division in every ministry is giving employees' development enough attention. Additionally, they must guarantee that people are aware, and taking advantage of any growth opportunities. The goal of any country through human resources ministries is to continuously offer member of any society in the state the opportunities to advance in their careers in order to boost country efficiency. According to Adegbite, (2016), the growth of any nation depends on the HCD, that is, the determinant of the growth of economy in the world are measured with the skill of the people dwelling in such country. If they are more productive through development level, the country are more productively gained, which invariably dispenses growth and stability of economy. Further, citizen are more efficient if the country invests on them. Also, country is enhanced, productive, developed and profitable when human capital are developed but any country that fails to invest on their citizen especially youth lacks development, growth and such country losses the global image and the workforces (Adegbite, 2016). In reality, Government who invests in their human capital incur direct costs as well as indirect losses from economy. The decision-makers consider the attraction of future tremendous income of any country as an output of future revenue spends on empowerment and training costs on human capital. Theoretically, returns on societal investments in human capital may be calculated similarly. Even in the sphere of economics, detractors of the human capital theory note how difficult it is to measure crucial concepts like future earnings and the fundamental idea of human capital.

Hypothesis Development

Personal Income Tax (PIT)

Under this system, the employer deducts the relevant tax from the employee total earns, include allowances in monthly basis and the employer remits such deductions to the SBIR.

According to Adegbite & Ishola, (2022) PIT splits into direct assessment and PAYE. Direct assessment refers as the tax collected from the income of self-employed people who falls within the formal and informal sectors. Formal sector is the set of self-employed people who registered their businesses but informal sector are also set of self-employed people whose their business are not registered with the government. PAYE falls within the categories of employed people who receive fixed income at the end of the month either they are employed by the private companies or government. Personal Income Tax is the levy on the income of individuals, trustees, and executors. The tax percentage increases from 7% to 24% of an employee's taxable income. Taxable income ranged from ₦300, 000 to ₦3million or more. Also, tax on individual income, as well as that of trustees and executors, is known as Personal Income Tax. Oladeji, (2015) investigated relationship amid PIT and HCD (through health care and education) in Nigeria employing data gathered from CBN from 1980 to 2012. The OLS result showed PIT had strong and positive implication on health policy and education sector in Nigeria. Olaniyi et al., (2019) who extracted data from Federal Inland Revenue Service and CBN Statistical Bulletin between 1994 and 2016 to investigate taxation impacts on capital expenditure of Nigeria government. The study exhibited PIT impacted capital expenditure of Nigeria government significantly and positively. Onwelumadu and Onuora, (2021) advocated that income realized from PIT increases the government potency in fulfilling all righteousness such as building of schools, payment of salaries, construction of road, and human capital enhancement through formal education, training and empowerment in the country. It is therefore projected that;

H₁: PIT significantly enhances human capital development in Nigeria

Road Tax

Government through FIRS Mulls Road Tax law to Increase Revenue Generation in order to boost the income realized from road tax in the country so as to fulfill all expenditure righteousness to the populaces by the government in the country. Road tax, as the name implies is levied on a moveable vehicles that ply on public roads every day. Consequently, to increase revenue from this tax, Federal Inland Revenue Service (FIRS) disclosed that the Service is working on a bill to track all the road taxes into tax net. According to Adegbite & Azeez, (2021) road tax positively significant to the income generated to either the state or the federal government positively in any country. It was further advocated that government monitoring efforts enhance the collection of the tax through law enforcement agencies and road blockage. That is with the involvement of relevant enforcement agencies and thorough monitoring as well as road blockage, the revenue from road tax is enhanced and productive. Therefore, with the assertion of the extant researcher, it is postulated that:

H₂: Road Tax enhances Human capital development significantly in Nigeria

Value Added Tax (VAT)

A tax charged on goods and services supplied, and all the production stages which eventually bear by the consumer as well as all distribution chain stages is referred as VAT. This tax applied to both the domestic and imported goods and services in Nigeria. Businesses are mandated to pay 7.5% VAT to the government purse in order to finance government expenditures. Individuals, and governmental organizations are all required to pay VAT, which is now assessed at a rate of 7.5 percent each year. Governmental organizations, private organisation, Domestic airline and other retailers as well as oil and gas firms must subtract the VAT from their purchases at source and remit it to the tax administration. FIRS has put in place a mechanism called FIRS VAT-Collect for automatic tracking and remittance of

VAT. The VAT Modification was released by the Minister of Finance Order 2021, which replaces VAT Modification Order 2020 and broadens the scope of the exempt goods listed in the first schedule to the VAT Act. Non-resident businesses that provide services to Nigerian clients are expected to bill, collect, and submit VAT to the FIRS in the relevant currency.

The management, administration, and assessment of VAT collection in Nigeria are within the purview of FIRS as an agency saddled with responsibilities by Federal Government. VAT policy of Nigeria is intended to achieve a number of specific goals, which include among others, revenue generation, and human capital enhancement that promote economic progress. Governments all around the world are tasked with the duty of giving their population certain fundamental infrastructure. These include building roads, bridges, dams, airports, seaports, railways, and schools and hospitals. More importantly, the nation must ensure that its residents are protected from both domestic and international attack. Bamidele, (2020) advocated that tax revenue impact on social, investment and Nigeria economic development. The study found that tax policies and taxation made positive contributions with Nigeria economic development. Nigerian government was advised to improve social infrastructures provision because public goods maintenance and availability are convinced ways tax payers employed as tax collection justification in the country. Olaniyi et al., (2019) concluded from his study that examined taxation impacts on capital expenditure of Nigeria government that VAT was insignificant to capital expenditure of Nigeria government. It is hypothesized that:

H₃: VAT significantly enhances human capital development in Nigeria

External Loan

This refers to the money borrowed from outside the country other than the country of resident. It is further refers as the income realized through debt other than domestic loan from other country. It may be through World Bank and IMF. External loan occurs when country borrows financial resources (money) to finance its expenditures when financial incapacitation set in. It has been perceived that external loan sustainability is unswerving with objective to enhance economic growth as well as to promote welfare, and human capital of populace when paucity of income persists. According to Igudia, (2021), Nigeria's external loan is an important solution to the development of human capital in Nigeria. All countries in the world become indebted because of inadequate financial resources required to finance national development. Thus, majority of the states are faced with deficit because of huge infrastructure investments, development financing, budget deficits, economic crises, human capital enhancement, and public expenditures increment. In order to get rid of financial incapacitation and paucity of financial resources, governments resort to external loan which can last for many years. Leonard, (2019) in his study established that external debt impacted HCD in Nigeria negatively but significantly while debt financing impacted HCD negatively and insignificantly. It is expected that if the loan secured outside the country is monitored, and utilized effectively, it enhances HCD. Therefore, it is postulated that:

H₄: External loan significantly enhances human capital development in Nigeria

Torruam & Abur, (2014) investigated human capital development (HCD) impacts on Nigeria economic growth. The causal connection between HCD and Nigeria economic growth from 1977 to 2012 was examined. ADF test was employed to test stationary and integration order for the data collected. Co-integration test was also involved to detect the long-run connection amidst the variables. The result gathered from co-integrating test showed that long run connection existed between HCD and Nigeria economic growth. It was also showed from Granger-causality test that bidirectional causality existed between HCD and Nigeria economic

growth. The conclusion from the study dispensed that HCD possessed positive impact on Nigeria economic growth. However, this study focused on economic growth which is not in consonance with the current study.

Oladeji, (2015) investigated relationship amid HCD (through health care and education) and Nigeria economic growth employing data gathered from CBN from 1980 to 2012. The OLS result showed that HCD had strong and positive implication on health policy and education sector in Nigeria. The study suggested that government and other policy makers should made concerted effort to enhance health and education investment for accelerated growth which invariably would engender and enhance Nigeria economic growth. Thus, the study was scoped to HCD and economic growth but unequivocally not in line with the taxation revenue and HCD.

Adegbite, (2016) investigated education tax effects on HCD in Nigeria. Causality direction amidst education tax, CIT, HCD and PPT was furthered investigated. Co-integration and Granger causality analytical tools were engaged from 2000 to 2015. The outcome of the analysis discovered that education tax impacted HCD positively. Education tax had been discovered granger- caused HCD, and vice versa in Nigeria. But the study was restricted to education tax only in Nigeria which consciously deviated from the current study.

The study of Osoba, Mosunmola & Tella, (2017) focused on the relationship amid human capital components (HCC) and Nigeria economic growth between 1986 and 2014. Data such as education expenditure, GDP, capital formation and health expenditure which were obtained through CBN bulletin and analyzed with Modified OLS technique showed that positive, significant and progressive relationship existed between HCC and Nigeria economic growth. The study invariably concluded that HCC was in conformity with the theoretical submission that an increment in human capital absolutely enhances growth. However, the focus of the study is not in line with the effect of taxes on HCD.

The relationship amidst inclusive growth and HCD was examined by Oluwadamilola et al., (2018). The study engaged NBS annual data between 1981 and 2015. The results from the Johansen co-integration and Error Correction Mechanism (ECM) showed that HCD statistically significant to inclusive growth, and also possessed good significant long run relationship with each other. The study absolutely concluded that HCD had positive impact on inclusive economy in Nigeria. However, the study focused on inclusive growth and HCD but taxation was not studied. Also, Ugbor & Agodo, (2019) examined education as a determinant and panacea for HCD in Nigeria. Data for the study were collected from six hundred (600) sampled respondents out of eight hundred targeted population which comprised Federal Universities Administrative Staff, faculties' Deans, Departments' Heads, and Quality Assurance and Institutes' Directors and Directors from selected twenty (20) Nigeria Federal Universities through questionnaire. Cronbach Alpha, standard deviation and Mean scores were used to analyse the data realized through administered questionnaire. The findings disclosed that education had significant effect in HCD in Nigeria through the skills' acquisition, knowledge enhancement and other potentials which invariably improved national development, ICT integration and health sector development among others. Nevertheless, the study majorly confined to education impact on HCD which is not in tandem with the taxation components and HCD.

Leonard, (2019) examined external debt effect on HCD in Nigeria. The study formulated three research objectives, and employed regression technique, Unit root test, error correction model (ECM), causality test, stability test and co-integration approach to analyse data collected through the statistical bulletin of Nigeria CBN. The data sourced were HCI, debt servicing,

external debts and gross fixed capital formation (GFCF). The study established that external debt impacted HCD in Nigeria negatively but significantly while debt financing impacted HCD negatively and insignificantly. It was further stated that GFCF exhibited positive insignificant impact on HCD in Nigeria. The current study is confined to taxes and HCD in North central states in Nigeria as against Leonard, (2019) study which was scoped to external debts and HCD in Nigeria.

Imandojemu et al., (2020) analyzed HCD determinant in Nigeria. The study methodologically employed ARDL to examine the relationship among HCD Index, education, health and life expectancy from 1990 to 2018. The results emanated from the useful data sourced from National Statistical Bulletin (NBS), WDI and CBN Statistical Bulletin showed that the formidable relationship existed between HCD and the enrolment of tertiary school. The study further stated that positive relationship also existed between education expenditure by government, health expenditure, life expectancy and HCD but negative relationship occurred between HCD and Fertility Rate in Nigeria. Nevertheless, the study scope was only focused HCD determinant which was not in consonance with taxation impact on HCD in North central states, Nigeria.

Imandojemu et al., (2020b) investigated the relationship amid HCD and Nigeria economic growth within 1990 and 2018 periods. The components of HCD examined on GDP are Human Capital, education expenditure, health expenditure, fertility rate, and life expectancy. The results gathered from the useful data sourced from National Statistical Bulletin (NBS), WDI and CBN Statistical Bulletin which was analyzed with Augmented Dickey Fuller, Philip Perron and vector autoregressive showed a progressive, significant and productive effect of HCD on Nigeria economic growth. However, the study laid emphasis on HCD and Nigeria economic growth which was not commensurate with the taxation. In a related study, Anyanwu et al., (2020) examined HCD impact on Nigeria economic growth from 1981 to 2010. Endogenous modeling and ARDL method were Adopting to analyse the data collected through CBN Nigeria statistical bulletin in 2010. Findings displayed that there was indication of long run relationship between HCD and Nigeria economic growth. It was also discovered that HCD indicators positively impacted on Nigeria economic growth statistically but insignificantly.

Bamidele, (2020) assessed tax revenue effects on social, investment, and Nigeria economic development. Several tax incentives presently available were also examined and evaluated by employing data on taxation and Nigeria economic development. The results generated through time series, multivariable regression, and correlation analyses found that tax policies and taxation made positive contributions to Nigeria economic development. Nigerian government was advised to improve social infrastructures provision because public goods maintenance and availability are convinced ways tax payers employed as tax collection justification in the country. However, the study limited its coverage to tax revenue and economic development but HCD was not included. In another study conducted by Olaniyi et al., (2019) which extracted data from Federal Inland Revenue Service and CBN Statistical Bulletin between 1994 and 2016 to investigate taxation impacts on capital expenditure of Nigeria government. Descriptive statistics, Johansen Co-integration and Unit Root Test as well as Augmented Dickey Fuller (ADF) were engaged to analyse the data and establish stationary as well as long run association amongst the variables employed. The study exhibited that Company Income Tax, Petroleum Profit Tax, Personal Income Tax and Education Tax jointly impacted capital expenditure of Nigeria government significantly and positively. But VAT and Capital Gains Tax were insignificant to capital expenditure of Nigeria government. The study ultimately concluded that the revenue realized by government from taxation greatly, positively and

progressively impacted capital expenditure of Nigeria government. In fact, the study was limited to taxation and capital expenditure of Nigeria government but was not in connection with taxes income in North central of Nigeria.

The research of Monday et al., (2022) determined the direct taxes effect on HCD in Nigeria. The study employed data sourced from Federal Inland Revenue Service, CBN and NBS Statistical Bulletin between 1980 and 2017 to achieve the study objective. Petroleum profit tax, and company income tax aggregatively proxied direct taxes while HCD was also proxied by human development index. The result showed that insignificant but positive relationship existed amid petroleum profit tax and HCD but companies' income tax possessed positive and significant impact on HCD. But the study was not limited to North central as against the current study. The study of Okumoko et al., (2018) provided empirical evidence on HCD impact on Nigeria industrial growth by using CBN data spanning 1976 to 2016 for analysis. Both econometric and descriptive techniques such as ADF procedures and regression were engaged. The results showed that health and education recurrent expenditure had negative effect on Nigeria industrial growth. This study asserted that rigorous acquirement of skill acquisition program for graduates, and adhered percent minimum budgetary allocation for education, as required by UNESCO, enhanced HCD which invariably impacted Nigeria industrial growth progressively and positively. The study however was on the impact of HCD on Nigeria industrial growth which was distanced to the policy of taxation and HCD in North central states.

Adegbite et al., (2022) econometrically examined the contributions of taxation income on social services which was scoped to Nigeria education services financing. The study engaged regression model, granger causality wald test, Cointegration, and VECM to thoroughly analyse data collected through CBN and FIRS bulletin from 1981 to 2020. The data sourced were PPT, CIT, VAT and CED which were discovered having positive, strong, significant, and progressive effect on Nigeria education financing both in short run and long run. It was concluded by the study that taxation positively dispensed funds for education services in Nigeria. The study further displayed that bidirectional causality existed amid taxation and education financing. According to the study, the huge income earned through taxation by federal government supported the government financially to develop Nigeria education services. Therefore, the study was restricted to tax income and education financing in the country as contrarily to the current study which absolutely related to North central zone, only one zone out of six zones in Nigeria.

Gaps in Literature

According to the reviewed extant studies, some empirical research conducted in Nigeria scoped their studies to the whole country. Even the empirical researches that were done in Nigeria focused on Nigeria economic growth contrarily to this study which focuses on taxes income impact on HCD in North central states, Nigeria. Majority of the research reviewed such as Torruam & Abur, (2014); Oladeji, (2015); Osoba, Mosunmola & Tella, (2017); Imandojemu et al., (2020b); and Bamidele, (2020) absolutely limited their scope to 2019 as against this study which is extended to 2021 while other empirical studies which were conducted both inside and outside of Nigeria limited their concepts to external loan and HCD, education, tax and HCD, economic growth and HCD, capital expenditure and HCD (Leonard, (2019); Olaniyi et al., (2019); Adegbite et al., (2022)). But this study focuses on how taxes affect the growth of human capital development in the North Central States which has not received much attention in the existing literatures. This study therefore contributed to existing knowledge by examining the impact of taxes' income on HCD in North central states, Nigeria

with the involvement of econometric analyses which extricate this study among the extant studies.

Methodology

The source of data for this study was secondary data, and the data was panel in nature. This study covered periods from 2010 to 2020. The data emanated from the state boards of internal revenue, office of Accountants general, state planning commission of the selected states in North Central Nigeria and National Bureau of Statistics' document from 2010 to 2020. The selected states are Kwara, Niger, Kogi, Benue, Nasarawa and Plateau states. The study used econometric model to examine how taxes affect development and the growth of HCD. The numerical estimate of the co-efficient in various equations was obtained using panel data analysis through pooled regression, fixed model, random effect model and Hausman test. Socio-Political Theory of Taxation was engaged as anchor to this study, Adolph Wagner opined that when addressing taxation, social and political goals should take precedence. Wagner opposed the use of an individualist approach to solving issues. He desired that each economic issue be examined in the context of its social and political environment and that a suitable solution be found. Although the society was made up of individual members which was also greater than the sum of the parts. It had a life and a self-contained existence that required protection and upkeep. As a result, every tax system are created to eradicate societal problems that wholly but not to create concession for specific individuals in respective to their position in society. To implement and develop tax policy, contemporary welfare strategy was promoted by Wagner which was specifically implemented in favour of employing taxation to reduce income inequalities. Wagner further stated that private inheritance and property were not by right given by God but the output of the state. Therefore, the state possessed the property ownership control and inheritance which is in favour of the society. This theory is in favour of this study because government has the almighty control of the property and inheritance to achieve and attain HCD in Nigeria. The right to control financial allocation to achieve HCD is possessed by the state government. Therefore, this study adopted this theory to achieve the motive behind the study.

Also, theory of Human Capital Development was considered in this study, according to economists like Gary S. Becker and Jacob Mincer, government incomes differ depending on how much is spent on human capital or the education and training of their people. Another expectation is that significant expenditures in human capital gives the labor force the skill needed to increase productivity, attract and enable growth in the economy. According to the theory, educational investments guarantee a rise in productivity, economic growth, sustainability and country efficiency as determined and monitored by the country or by government. HCD theory predicted that investment in human capital increases economic outputs. Thus, its accuracy is occasionally conflicting and disputed. Previously, economy was seriously depended on movable property such as land, machinery, and factories. But, investment on human capital is a crucial component to any capital equipment's investments which invariably increase the country' worth significantly. Education is pertinent for enhancing human capital and, ultimately, raising the nation's economic outputs. This study also stand in connection with this theory of HCD.

Model Specification

This model was used to examine the impact of taxes on human capital development in Nigeria's North Central States. To examine the effect of taxes on HCD, PIT, RTAX, VAT, and EXLOAN were employed as independent variables, while human capital development (HCD) was taken as dependent variable. It is stated as:

$$\text{HCD} = f(\text{PIT}, \text{RTAX}, \text{VAT}, \text{EXLOAN}) \quad (1)$$

Fixed effect model

$$\text{HCD}_{it} = \beta_0 + \beta_1 \text{PIT}_{it} + \beta_2 \text{RTAX}_{it} + \beta_3 \text{VAT}_{it} + \beta_4 \text{EXLOAN}_{it} + y_2 E_2 + \dots + y_n E_n + u_{it} \quad (2)$$

$$\text{HCD}_{it} = \beta_0 + \beta_1 \text{PIT}_{it} + \beta_2 \text{RTAX}_{it} + \beta_3 \text{VAT}_{it} + \beta_4 \text{EXLOAN}_{it} + y_2 E_2 + \dots + y_n E_n + \delta_2 T_2 + \dots + \delta_t T_t + u_{it} \quad (3)$$

Random effect model

$$\text{HCD}_{it} = \beta_0 + \beta_1 \text{PIT}_{it} + \beta_2 \text{RTAX}_{it} + \beta_3 \text{VAT}_{it} + \beta_4 \text{EXLOAN}_{it} + y_2 E_2 + \dots + y_n E_n + u_{it} + \varepsilon_{it} \quad (4)$$

Findings and Discussion

Table I: Descriptive Analysis of the Effect of Taxes on Human capital Development in North Central States, Nigeria.

Variables	Mean	Standard Deviation	Minimum	Maximum
EXLOAN	1.53e+08	1.57e+08	0	7.47e+08
RTAX	1.04e+09	2.94e+09	1.58e+07	1.84e+10
VAT	6.15e+09	4.74e+09	4.33e+07	1.59e+10
PIT	5.55e+09	2.78e+09	1.47e+09	1.39e+10
HCD	9.14e+09	5.46e+09	1.85e+09	3.06e+10

Source: Researchers' Computation (2022)

Standard deviation, maximum, minimum, and Mean values of all the variables incorporated in this study together with sixty-six (66) observations related to six North Central States within eleven (11) years are reported in Table I. EXLOAN has mean and standard deviation values of 1.53e+08 and 1.57e+08 with minimum and maximum values of 0 and 7.47e+08 respectively. Likewise, the mean and standard deviation values of RTAX were 1.04e+09 and 2.94e+09 which showed a wide dispersion of mean from the standard deviation value. The minimum and maximum values were 1.58e+07 and 1.84e+10. Similarly, VAT has the minimum and maximum values of 4.33e+07 and 1.59e+10 with mean and standard deviation values of 6.15e+09 and 4.74e+09 which displayed a large deviation from the mean value. In addition, PIT has mean and standard deviation values of 5.55e+09 and 2.78e+09, while the minimum and the maximum values were 1.47e+09 and 1.39e+10 respectively. Lastly, the mean and standard deviation values of HCD were 9.14e+09 and 5.46e+09 respectively, while the maximum and the minimum values were 3.06e+10 and 1.85e+09 respectively.

Trend Analysis between Human Capital Development and Taxes' Revenue in North Central States, Nigeria

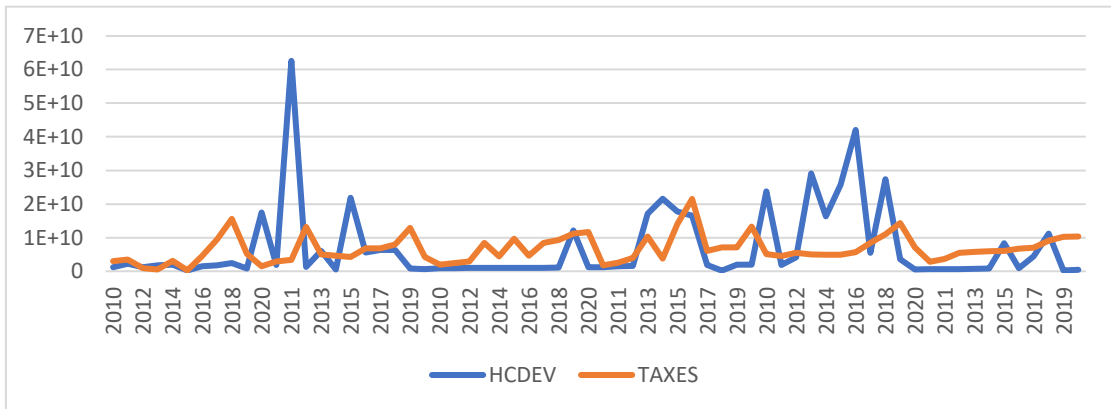


Figure I: Trend Analysis between Human Capital Development and Taxes' Revenue in North Central States, Nigeria.

In order to examine the trend between taxation and human capital development in selected North Central States (Benue, Niger, Nasarawa, Plateau, Kogi and Kwara) from 2010-2020, trend analysis was employed and the result is as presented in Fig. I. From 2010 to 2014, a proportional movement was observed in Kwara state taxation and human capital development from 2010 to 2015 which implies that an increase in taxation brings about a proportionate increase in human capital development. However, from 2016 to 2020, an increase in taxation resulted to more than a proportional increment in human capital development. In Kogi state, there was a sharp decrement in human capital development as a result of decline in taxation from 2011 to 2012, after which there was an increment in human capital development as a result of progress in taxation income from 2012-2013. Also, from 2014 to 2016, there was a rise in human capital development above taxation which was as a result of additional income from other sources such as external loan which later fall from 2017 to 2019 as a result of paucity of taxation income. In Nasarawa state, human capital development remains constant regardless of the movement in taxation from 2010 to 2018, after which a proportional growth is noticed from 2018 to 2020.

In Benue state, a dwindle movement of taxation and human capital development was seen throughout the period of the study which was as a result of taxation decrement which resulted to fall in expenditure on human capital. Furthermore, in Niger state, there was a decline in human capital development due to the fact that taxation income was very low from 2010 to 2011. Subsequently, human capital development started rising significantly above taxation from 2012 to 2018 due to the support of other incomes such as external loans but later downplayed from 2019 to 2020 because of covid'19 lockdown. In Plateau state, human capital development remains constant regardless of the dwindle movement in taxation from 2010 to 2014. However, 2014, there was a sharp upward and downward movement in human capital development as a result of fluctuation in taxation revenue. Nevertheless, HCD is moving according to the fluctuation of taxation revenue, this displays that the states government of North central have been trying in the development of human capital despite there is low income from taxes in the region.

Table II: Correlation Results on the Relationship between Taxes and Human Capital Development in North Central States in Nigeria.

	HCD	PIT	RTAX	VAT	EXT.LOAN
HCD	1.0000				
PIT	0.1511*	1.0000			
RTAX	0.0934*	0.0832	1.0000		
VAT	0.4280*	0.3280*	0.2886*	1.0000	
EXLOAN	0.1630*	0.0224	0.5139*	0.0916	1.0000

Source: Researchers' Computation (2022)

Table II shows the correlation results of taxation and human capital development in North Central States in Nigeria. There was a strong and statistical significant positive correlation between PIT and HCD of the states covered during the period at 5% significant level (.151), this implied that the higher the PIT, the higher the impact on HCD. Also positive relationship established amid HCD and RTAX which is very weak but significant (0.0934). Similarly, a strong and positive correlation were reported between EXLOAN and RTAX ($r=.5139$). Furthermore, a moderate and statistical significant positive relationship exist between VAT and HCD ($r=.428$), VAT and PIT ($r=.328$). There was a weak and statistical significant relationship between VAT and RTAX ($r=.289$). Lastly, HCD and EXLOAN possessed weak but significant relationship with each other ($R=.163$). Collectively, there is no traces of multicollinearity amongst the variables.

Table III: Variance Inflation Factor Result

Variable	VIF	1/VIF
RTAX	1.48	0.676912
EXLOAN	1.37	0.730388
VAT	1.33	0.751140
PIT	1.23	0.812877
Mean VIF	1.35	

Source: Researchers' Computation (2022)

In order to establish the existence or otherwise of multicollinearity among the independent variables, the study conducted Variance Inflation Factor (VIF). According to decision rule, VIF is acceptable when $VIF < 10$. As shown in Table III, the mean VIF is 1.35 which is less than the threshold value of 10 and all the variables possessed VIF numbers less than 10 which is a good omen of no traces of multicollinearity among the variables. This implies no multicollinearity is visible among the independent variables.

Table IV: Pooled Regression Result on the Effect of Taxes on Human Capital Development in North Central States, Nigeria

Dependent Variable	Independent Variables	Coefficient	Robust Standard Error	T	P> t	[95% Conf. Interval]
HCD	PIT	1.346102	.1821675	7.39	0.000	.9818352 1.710368
	RTAX	.2094307	.1202357	1.74	0.087	-.449856 955.0309
	VAT	.1412793	.0330091	4.28	0.009	-.0788359 946.3613
	EXLOAN	7.562288	3.485573	2.17	0.034	.5924546 14.53212
	CONSTANT	1.27e+08	1.57E+07	8.10	0.007	-2.55e+09 2.30e+09
R ² = 0.6124 F-value 13.68				p value = 0000		

Source: Researchers' Computation (2022)

The result in Table IV shows the effect of PIT, RTAX, VAT and EXLOAN on HCD. It was revealed that PIT, RTAX, VAT and EXLOAN jointly accounted for 61% (adjusted R-square) of variations in HCD of North Central States in Nigeria during the study while the remaining 39% was accounted for other variables not included in the model. Furthermore, the F-value of 13.68 and the significance level (p value) of 0.0000 showed the goodness of fit of the model. The coefficient of the constant is 1.27e+08, which determines the value of HCD as given by a unit increase or decrease in any of the independent variables, while all others are rendered zero. PIT had positive and significant effects on HCD ($\beta=1.346102$, $P=0.000$). This showed that 1% increase in PIT increases HCD by 1.35%. RTAX had positive and insignificant effect on HCD ($\beta=0.2094307$, $P=0.087$). Also, VAT had positive and significant effect on HCD ($\beta=.1412793$, $P=0.009$). More so, EXLOAN has positive and significant effect on HCD ($\beta=7.562288$, $P=0.034$).

Table V: Fixed Effect Result on the Effect of Taxes on Human Capital Development in North Central States in Nigeria.

Dependent Variable	Independent Variables	Coefficient	Standard Error	T	P> t	[95% Conf. Interval]
HCD						1.114812
	PIT	1.511546	.198046	7.63	0.000	1.908279 -.3858703
	RTAX	.0586065	.1633672	0.36	0.721	573.2686 -.3283244
	VAT	.0448396	.0138393	3.24	0.003	452.2386 -2.048449
	EXLOAN	4.948957	2.045024	2.42	0.005	11.94636 -1.89e+09
	CONSTANT	3.41e+08	6.42E+07	5.31	0.001	2.58e+09

R-Square:

Within = 0.6238

Overall = 0.5812 Prob > F=

Overall = 0.5812 0.0000 F(4,56) = 23.21

Source: Researchers' Computation (2022)

Table V showed the fixed effect results of PIT, RTAX, VAT and EXLOAN on HCD of selected North Central States. PIT has positive and significant effect on HCD as 1% increase in PIT increases HCD by 1.51% ($\beta=1.511546$, $P=0.000$). RTAX has positive and insignificant effect on HCD ($\beta=.0586065$, $P=0.721$). Furthermore, there is positive and insignificant effect of VAT on HCD ($\beta=.0448396$, $P=3.24$). More so, EXLOAN has positive and significant effect on HCD ($\beta=4.948957$, $P=0.005$). This indicated that 1% increase in VAT and EXLOAN increases HCD by 0.044% and 4.95% respectively. The coefficient of the constant was $3.41e+08$, which determined the value of HCD as a unit increase or decrease in any of the independent variables, while all others are rendered zero. Furthermore, the overall R^2 of 0.5812 implied that jointly, the independent variables accounted for 58% of the variation in dependent variable. Also, F-statistics and F-probability values are 23.21 and 0.0000 indicates the goodness of fit of the model.

Table VI: Random Effect Result on the Effect of Taxes on Human Capital Development in North Central States in Nigeria

Dependent Variable	Independent Variables	Coefficient	Standard Error	T	P> t	[95% Conf. Interval]	
HCD	PIT	1.346102	1738597	7.74	0.000	1.005343	1.68686
	RTAX	.2094307	.1802345	-1.16	0.245	-.5626838	.1438224
	VAT	.1412793	.0421729	3.35	0.003	-.0666468	.3492055
	EXLOAN	7.562288	3.251858	2.33	0.020	1.188763	13.93581
	CONSTANT	1.27e+08	3.18E+07	3.99	0.002	-2.26e+09	2.00e+09
R-squares Within = 0.6025 Between = 0.6566 Overall = 0.6125		Wald chi2 197.13			Prob > chi2 0.0000		

Source: Researchers' Computation (2022)

Table VI showed the random effect results of PIT, RTAX, VAT and EXLOAN on HCD of selected North Central States. From the table, PIT has positive and significant effect on HCD ($\beta=1.346102$, $P=0.000$) which implies that 1% increase in PIT increases HCD by 1.15%. RTAX has positive but insignificant effect on HCD ($\beta=.2094307$, $P=0.245$). Also, VAT has positive and significant effect on HCD ($\beta=0.1412793$, $P=3.35$). Furthermore, EXLOAN has positive and significant effect on HCD ($\beta=7.562288$, $P=0.020$). These implied that 1% increase in VAT and EXLOAN increases HCD by 0.14% and 7.5% respectively. The constant coefficient was $1.64e+09$, which further determined the value of HCD as a unit increase or decrease in any of the independent variables, while all others are rendered zero. Furthermore, the overall R^2 of 0.6125 indicates that the independent variables jointly accounted for 61% of the variation in dependent variable. Also, the Wald chi2 value of 96.40 and F-probability value of 0.0000 indicates that the model is statistically significance.

Table VII: Hausman Test Result on the Effect of Taxes on Human Capital Development in North Central States in Nigeria

Dependent Variable	Independent variables	Coefficient (b) fe	Coefficient (B) re	(b-B) Difference	Sqrt (diag (v-b-v-B)) S.E
HCD	PIT	1.511546	1.346102	.165444	.0948421
	RTAX	.0586065	.2094307	.1508242	.
	VAT	.0448396	.1412793	.1861189	.0936566

	EXLOAN	4.948957	7.562288	-2.613331	1.275449				
b =	B =								
consistent	inconsistent								
under Ho	under Ha,								
and	efficient								
Ha;	under								
	Ho	Test: Ho: difference in coefficients not systematic Chi2 (7) = (b-B)' [(v-b-v-B)^ (-1)] (b-B) = 15.94 Prob>Chi2=0.0031							
Source: Researchers' Computation (2022)									

To determine the most appropriate model between the two estimators (fixed effect model and random effect model), Hausman specification was conducted. The Hausman test result of 0.0031 revealed that fixed effect estimates is appropriate in examining the effect of taxes on human capital development in North Central States in Nigeria.

Table VIII: Hypotheses Testing

Dependent Variable	Independent Variables	Coefficient	T	P> t 	Significance
HCD	PIT	1.511546	7.63	0.000	Significant
HCD	RTAX	.0586065	0.36	0.721	Not Significant
HCD	VAT	.0448396	3.24	0.003	Significant
HCD	EXLOAN	4.948957	2.42	0.005	Significant

Source: Researchers' Computation (2022)

Hypothesis (H1) to hypothesis (H4) were tested in Table VIII to achieve the motive of this study. This displayed that Hypotheses were articulated based on the connection and relationship among dependent variable and independent variables which were tested using 0.05 sig. level as displayed in Table VIII above. When $P>|t|$ is below 0.05, such hypotheses is considered significant. Further, statistical, and econometric decision rule to accept hypothesis is $P>|t|$ must below 0.05 sig. level. Therefore, H1, H3, and H4 were found having positive significant effect on HCD. That is $P>|t|$ of PIT (H1) is 0.000 with the estimated coefficient value of 1.511546 which displayed that PIT has positive and significant effect (0.000) on HCD, as 1% increase in PIT increases HCD by 1.51% indicating that PPT displays significant and positive impact on HCD in Nigeria. Also, hypothesis H3 was also advocated for having significant impact on HCD as p -value ($P>|t|$) of 0.03, signifying that VAT significantly displaying positive impact on HCD. In the same vein, H4 was absolutely accepted due to the fact that $P>|t|$ of 2.42 is below 0.05. That is external loan significantly enhances human capital development in Nigeria. Contrarily, H2 is rejected because $P>|t|$ of 0.721 is greater than 0.05 which showed that road tax (RTAX) possessed insignificant but positive impact on Human capital development in Nigeria.

Discussion of Findings

This study examined taxation impact on HCD in North Central States in Nigeria. This was achieved using trend analysis where movement dwindle was observed in taxation and human capital development. In Kwara state, lower taxation resulted to higher human capital development. This implies that high income from taxation resulted to a more than efficient investment in human capital. In Kogi, lower taxation was seen to have led to sharp increase in human capital development. In Benue state, human capital development increases as taxation revenue increases that is increase in efficiency of human capital development as a result of increase in taxation revenue. Furthermore, in Niger state and Nasarawa state, lower

taxation rate brings about more than a proportionate increment in human capital development. Taxation in Plateau state is high but resulted to moderate human capital development.

PIT has positive and significant effect on human capital development which implies that through increment in PIT revenue, government of the selected North Central States successfully achieved increment in investment of human capital development which result to increase in innovation and empowerment. This result substantiates the findings of Adegbite, (2016); and Odogu et al., (2020). Also, VAT has been seen having positive effect on HCD coupled with the effect that is significant. This justified that part of VAT income is expended on HCD in North central states, Nigeria. That is, significant attention is given to HCD with VAT revenue. The outcome is in line with submission Adegbite, (2016); Torruam & Abur, (2014); Imandojemu et al., (2020b); and Monday et al., (2022). Furthermore, road tax has positive insignificant effect on HCD, this shows that road tax income has irrelevant impact on the implementation of HCD due to the low income from road tax or mismanagement of the road tax revenue. This submission refuted the submission of Olaniyi et al., (2019); Adegbite & Azeez, (2021); and Adegbite et al., (2022) but in consonance with the view of Bamidele, (2020); and Odogu et al., (2020). Lastly, external loan has positive and significant effect on human capital development in North central states, Nigeria, this dispensed that North central states in Nigeria exploited foreign loan to finance HCD significantly. This abrogated the submission of Leonard, (2019); and Igudia, (2021) that established that external debt impacted HCD in Nigeria negatively and significantly but concurred to the submission of Egungwu, (2018); and Vyacheslav et al., (2017)

Conclusion

This study looked into how tax income in Nigeria's North central state affected the growth of human capital from 2010 to 2021. The data emanated from the state boards of internal revenue, office of Accountants general, state planning commission of the selected states in North Central Nigeria and National Bureau of Statistics' document from 2010 to 2020. Panel data estimation analysis was used to analyze the data obtained from relevant sources. Following the empirical analysis, the study concluded that taxes significantly contributed to human capital development in North Central States. That is tax income in Nigeria's North Central States affected the growth of human capital positively, significantly and productively. When taxes income are effectively directed toward vital education, empowerment, and training enhancement, tax resources ultimately enhance the growth of human capital, and country productivity. The study further reveals that tax revenue has indispensable effect on Nigeria's human capital development. That is taxes income are expended on human capital development, the crucial element of nation-building, which invariably resulted to economic globalization enhancement and youth empowerment. Human capital development is a unified antidote to the problems that associated with nation-building globally. Therefore, it is recommended that taxation funds should be fully channeled by government into development of human capital properly, and meticulously utilized and managed efficiently to absolutely attain and improve Human capital in Nigeria. Also, government should involve the usage of electronic means for collection of taxes from road users in order to track or drive all the road users into tax net, and to reduce or eradicate road tax evaders so as to enhance revenue drive.

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