NEXUS BETWEEN VALUE ADDED TAX (VAT) AND ECONOMIC DEVELOPMENT IN NIGERIA: IMPLICATION OF CORONAVIRUS DISEASE (COVID-19) DESTRUCTION

EYIDE Michael Ugeoritse[1], Andrew A. UGHAH[2] and Imuetinyan EGUAVOEN[3]
[1&2]Department of Accounting, Faculty of Management Sciences, University of Delta, Agbor, Delta State, Nigeria.
[3]Department of Accounting and Finance, Faculty of Management Sciences, Western Delta University, Delta State, Nigeria.
Correspondent Author: eyidemichael@yahoo.com, kingmueti@yahoo.com

Abstract

This study examined the implication of Coronavirus Disease (COVID-19) disruption on the effect of Value Added Tax (VAT) revenue on economic development in Nigeria. Specifically, the study determined the effect of VAT revenue on human development index of Nigeria and whether Covid-19 disruption has a significant implication on the relationship between VAT revenue and human development index of Nigeria. The study employed ex-post facto research design and secondary data were gleaned from the Central Bank of Nigerian (CBN) statistical bulletin as well as tax report of Federal Inland Revenue Service (FIRS) from the year 2011 to 2022. The inferential statistical analysis for this study involved the analysis of the Ordinary Least Square (OLS) regression which was employed to test the first hypothesis. Also, the Chow breakpoint test was employed to find out whether there is a structural break in the time series dataset as a result of Covid-19 disruption in 2020. The study found that: VAT revenue has a significant positive effect on the human development index of Nigeria (p-value = 0.0392); Covid-19 has a significant implication on the relationship between VAT revenue and the human development index of Nigeria, indicating a structural change in this relationship around the year 2020 (p-value = 0.0161). In conclusion, Covid-19 disruption undermined the effectiveness of VAT revenue in driving human development outcomes. The study recommends that policymakers and stakeholders should adopt a holistic approach to economic recovery and development by diversifying revenue sources, implementing targeted social protection measures and fostering innovation and resilience in response to emerging challenges.

Keywords: Covid-19 disruption, Economic development, VAT revenue, Human development, Index of Nigeria.

1. Introduction

Value Added Tax (VAT) is one of the most important forms of indirect taxation worldwide, including in Nigeria. Since its introduction in Nigeria in 1993, VAT has played an essential

role in revenue generation for the government and shaping economic activities. Nigeria adopted VAT as part of its tax reform efforts to diversify government revenue sources away from heavy reliance on oil revenues. VAT replaced the outdated sales tax system and was designed to capture value addition at each stage of production and distribution (Umenweke & Nwoke, 2023). Initially set at 5%, the VAT rate has undergone revisions over the years, reaching 7.5% in 2020 (Oto & Wayas, 2024). One of the primary purposes of VAT implementation was to boost government revenue and reduce dependence on oil revenues. It has indeed become an important revenue generator for the Nigerian government, contributing a substantial portion to total tax revenue. The revenue derived from VAT is crucial for financing public expenditure like infrastructural development, healthcare, education and social welfare programs. VAT affects consumer behaviour and consumption patterns due to its impact on prices. As businesses pass the burden of VAT to various consumers through higher prices, households may also experience a decline in purchasing power, particularly for goods and services that are essential (Ogonda, 2023). This can bring about changes in consumption patterns, with consumers prioritizing necessities over discretionary spending. Additionally, VAT may contribute to inflationary pressures, especially when coupled with other factors such as exchange rate fluctuations and supply chain disruptions (Omondi, 2020; Oto & Wayas, 2024).

The overall effect of VAT on Nigeria economic development is complex because on one hand, VAT contributes to government revenue, which can be channeled towards productive investments in infrastructure, education and healthcare, thereby supporting long-term economic growth (Ogonda, 2023). Similarly, the regressive nature of VAT may intensify income inequality, as low-income households bear an unpredictable burden of VAT relative to their income levels. Moreover, excessive VAT rates or poor administration can stifle consumption and investment, hampering economic development (Ávila-López et al., 2024). To maximize the positive effects of VAT on economic development while mitigating its potential drawbacks, policymakers often focus on improving VAT administration, enhancing compliance mechanisms and rationalizing VAT exemptions and. Additionally, measures to alleviate the impact of VAT on low-income households, such as targeted social safety nets and subsidies, tremendously help promote inclusive growth. thresholds This is because VAT has emerged as a critical component of Nigeria's tax system, playing an essential role in government revenue generation and economic development (Oghogho et al., 2023). While VAT has the possibility to contribute to economic growth through enhanced public

investment, its impact on consumption patterns, business operations and income distribution must be carefully managed. By implementing appropriate policies and reforms, Nigeria can harness the benefits of VAT while addressing its challenges, thereby fostering sustainable and inclusive economic development.

COVID-19 pandemic outbreak of 2020 brought about a unique challenge to economies worldwide, including Nigeria (Akpoveta & Ochuko. 2020). Amidst the economic disruptions, the impact of VAT on Nigerian economic development has undergone significant changes. The pandemic of COVID-19 led to a decline in economic activity (Ozili, 2021), resulting in reduced VAT collections for the Nigerian government. Lockdown measures, decreased consumer spending and supply chain disruptions contributed to lower VAT revenue. As a result, challenges in meeting budgetary commitments and financing essential expenditures, such as healthcare, social welfare and infrastructure projects are faced by the government (Adekoya et al., 2021). The decline in VAT revenue necessitated fiscal adjustments and increased reliance on alternative revenue sources to sustain government operations during the crisis.

According to Akpoveta and Ochuko (2020), the pandemic-induced economic slowdown affected consumer behavior and consumption patterns in Nigeria. Reduced household incomes, job losses, and uncertainty about the future prompted consumers to cut back on discretionary spending and prioritize essential goods and services. As a consequence, VAT-liable sectors, such as retail, hospitality, and entertainment, experienced a decline in sales and VAT collections. Additionally, supply chain disruptions and increased production costs contributed to inflationary pressures, further impacting consumer purchasing power and consumption patterns. The COVID-19 pandemic disrupted business operations across various sectors, posing challenges to VAT compliance and administration (Achanya & Mamman, 2024). Many businesses faced cash flow constraints, reduced demand, and operational disruptions, affecting their ability to make collection and remit VAT to the government (Abumere, 2023). SMEs, in particular, struggled to go through VAT regulations and compliance requirements, exacerbating their financial hardships. Moreover, the uncertainty surrounding the duration as well as the severity of the pandemic reduced investor confidence and deterred investment in the Nigerian economy, further hindering economic recovery and development. It is against this backdrop that this study examines the implication of Covid-19 disruption on the nexus between VAT and economic development in Nigeria.

Value Added Tax (VAT) serves as a crucial revenue source for the Nigerian government, supporting economic development initiatives and public expenditure in key sectors such as healthcare, education, and infrastructure (Oghogho et al., 2023). VAT is expected to contribute to sustainable economic growth by facilitating government revenue generation, promoting investment, and fostering consumption patterns conducive to overall development (Joseph et al., 2023).

But the COVID-19 pandemic disrupted economic activities in Nigeria, leading to significant challenges in VAT administration, revenue collection, and economic development (Achanya & Mamman, 2024). The pandemic-induced economic slowdown coupled with supply chain disruptions and reduced consumer spending, thus resulted in declining tax revenue for the government, including VAT (Abumere, 2023). Additionally, businesses, mostly the small and medium-sized enterprises (SMEs), faced operational challenges, cash flow constraints, and decreased investment, impacting their ability to comply with VAT regulations and contribute to economic growth.

Consequently, the actual situation poses serious implications for Nigeria economic development. The decline in VAT revenue constrains the government ability to finance essential expenditures as well stimulate economic recovery initiatives (Ogonda, 2023). Moreover, reduced consumer spending and business investment hinder efforts to revitalize economic activity and promote inclusive growth. Addressing the challenges arising from of COVID-19 impact on VAT and development of the economy is imperative to mitigate the adverse effects and chart a path towards sustainable recovery and development in Nigeria. This study is motivated by the above issue that solicits for attention more importantly now that no empirical study, to the best of the knowledge of the researcher, carry out a structural break-point analysis to assess how Covid-19 disruption influenced the nexus between VAT and economic development of Nigeria.

The main objective of this study is to investigate the impact of VAT revenue on the economic development of Nigeria, and the specific objectives are to investigate:

1) The impact of VAT revenue on the human development index of Nigeria.

2) Whether Covid-19 disruption has a significant implication on the association between VAT revenue and human development index of Nigeria.

The Hypotheses for the study include the following:

H01) VAT revenue has no significant effect on the human development index of Nigeria.

H02) Covid-19 has no significant implication on the association between VAT revenue and human development index of Nigeria.

2. Literature Review

Value Added Tax in Nigeria

Value-Added Tax (VAT) is a consumption tax that is imposed on the value added to goods and services at every stage of their production and distribution. (Umenweke & Nwoke, 2023). In Nigeria, VAT was introduced in 1993 as part of the fiscal reforms meant to diversify government revenue sources as well as reducing dependence on oil revenues. Since its inception, VAT has become a significant component of the country's tax system, contributing substantially to government revenue and financing public expenditure (Joseph et al., 2023). VAT in Nigeria is governed by the Value Added Tax Act of the 1993, as amended. Therefore, it provides a legal framework for its administration and collection. Under this Act, VAT is charged at a standard rate of 7.5% on the supply of taxable goods and services, with certain exemptions and zero-rated items (Oto & Wayas, 2024). Taxable goods and services include imports, locally produced goods, and services provided by registered businesses exceeding the threshold turnover. The Act also mandates companies with annual turnover above the registration threshold to register for VAT with the Federal Inland Revenue Service and remit the VAT collected to the government.

The implementation of VAT in Nigeria has several implications for the economy, businesses, and consumers. Firstly, VAT serves as a significant source of government revenue, contributing to fiscal sustainability and funding public expenditure, including infrastructure development, healthcare, and education (Ogonda, 2023). Secondly, VAT promotes fiscal equity by distributing the tax burden across different income groups based on consumption patterns (Omesi & Nzor, 2015). However, its regressive nature may disproportionately affect low-income earners that spend higher percentage of their own income on VAT-liable goods and services.

Despite its potential benefits, VAT implementation in Nigeria faces numerous challenges that hinder its efficiency and effectiveness. One challenge is the issue of tax evasion and avoidance, as some businesses engage in fraudulent practices to evade VAT obligations or exploit loopholes in the tax system (Okoli & Afolayan, 2015). This weakens the efforts of

mobilization of revenue and erodes public trust in the system of tax. Furthermore, administrative inefficiencies and capacity constraints within tax authorities, such as the FIRS, impede effective VAT administration, including registration, compliance enforcement and dispute resolution (Oghogho et al., 2023). Additionally, the complex and fragmented tax structure in Nigeria, characterized by overlapping taxes and multiple tax authorities, complicates VAT compliance and increases administrative burdens for businesses. Moreover, the lack of robust data collection and analysis mechanisms limits the government's ability to monitor VAT compliance, assess revenue performance, and evaluate the impact of VAT policies on the economy (Gatawa et al., 2016).

Value Added Tax plays a vital role in Nigeria's fiscal framework, providing a significant source of government revenue, promoting fiscal equity and encouraging formalization and compliance among businesses (Joseph et al., 2023). However, VAT implementation faces challenges related to tax evasion, administrative inefficiencies, and the complexity of the tax system. Tackling these challenges requires concerted efforts by policymakers, tax authorities, businesses and other stakeholders to strengthen VAT administration, enhance compliance and optimize the contribution of VAT to economic development and fiscal sustainability in Nigeria.

Economic Development

Economic development involves fostering economic growth, increasing productivity, reducing poverty, and promoting social progress over the long term (Schumpeter & Swedberg, 2021). Economic development and Economic growth are closely related concepts but differ in scope and focus. Economic growth refers to the rise in the production of goods and services within an economy over time, typically assessed by the growth rate of Gross Domestic Product (GDP) (Nwoye et al., 2023). While economic growth is a vital component of economic development, focusing solely on GDP growth may not necessarily translate into improved living standards or overall well-being for the population. Economic development, on the other hand, emphasizes broader socio-economic outcomes, including poverty reduction, inequality reduction, and improvements in education, healthcare, and infrastructure (Muojekwu & Udeh, 2023).

Economic development includes various aspects that represent the complex nature of human well-being and progress. These dimensions include income and employment, human capital, infrastructure, technology, and social inclusion. Economic development aims to increase incomes and create employment opportunities for individuals, households, and communities, thereby reducing poverty and improving living standards (Alade et al., 2021). It emphasizes investments in healthcare, education and skills development to improve the capabilities as well as the productivity of the workforce, leading to higher living standards and economic growth (Schumpeter & Swedberg, 2021).

Furthermore, adequate infrastructure, like transportation, communication, energy as well as water supply, is crucial for economic development, facilitating trade, investment, and access to basic services (Akinola & Akinrinola, 2023). Economic development involves promoting innovation, research and development, and the adoption of advanced technologies to increase productivity, drive economic growth, and enhance competitiveness. Economic development seeks to ensure that the advantages of growth are fairly distributed throughout society, reducing inequalities based on factors like income, ethnicity, gender and geography.

Human Development Index as a Measure of Economic Development

Human development index remains a composite statistic which measures and compares the overall level of human development in different countries (Ogonda, 2023). It takes into account three vital dimensions of human well-being: education, health and standard of living (Fahrika et al., 2020). The education dimension takes into account the average number of years of schooling for adults aged 25 and older, as well as the anticipated years of schooling for children who are starting school. The health dimension is indicated by life expectancy at birth, which represents the average number of years a person is projected to live. The standard of living dimension is assessed using gross national income per capita, adjusted for purchasing power parity to accommodate variations in the cost of living across different countries. When these three dimensions are combined into a single index, the Human Development Index (HDI) offers a holistic measure of human development that extends beyond mere economic indicators, enabling comparisons between countries and monitoring progress over time (Fahrika et al., 2020).

Implication of Covid-19 Disruption on the Nexus Between VAT and Economic Development

The implications of COVID-19 disruptions on the impact of VAT on economic development underscore the need for adaptive and responsive fiscal policies. During the pandemic, consumer behavior underwent significant shifts due to lockdowns, restrictions, and economic uncertainty (Akpoveta & Ochuko, 2020). People prioritized essential goods over non-essential ones, leading to changes in spending patterns. This alteration in consumer behavior directly impacts VAT revenue as VAT is typically charged on a wide range of goods and services. Reduced consumer spending on non-essential items resulted in a decline in VAT collections, affecting government revenues and potentially hindering economic development initiatives reliant on such funds. Many businesses faced operational challenges during the pandemic and this include the supply chain disruptions, reduced demand and closures (Ozil, 2021). SMEs in particular, were severely impacted. As businesses struggled to survive, they deferred VAT payments while some faced difficulties in complying with tax regulations. This might have led to reduced VAT revenue for governments, affecting their ability to finance development projects and initiatives.

The COVID-19 pandemic has had profound consequences on Nigeria's economic growth and development, influencing the role of VAT in the process. The contraction of economic activity, reduced government revenue, and challenges facing businesses have hampered efforts to stimulate growth and achieve development objectives (Adekoya et al., 2021). While VAT remains a significant source of revenue for the government, its effectiveness in supporting economic development has been compromised by the pandemic-induced disruptions (John, 2024). As the economy gradually recovers from the crisis, policymakers face the challenge of balancing fiscal sustainability with the imperative of promoting inclusive and resilient economic growth. Responding to the challenges posed by the COVID-19 pandemic, policymakers adopted targeted measures to mitigate the adverse effects on VAT and economic development in Nigeria. These include providing fiscal incentives to support businesses, enhancing VAT compliance and enforcement mechanisms, and implementing social protection programs to support vulnerable households (Abumere, 2023). Moreover, efforts to diversify the economy, improve healthcare infrastructure, and strengthen resilience to future shocks are essential for promoting sustainable economic development in the post-pandemic era.

Theoretical Framework:

Theory of Excess Burden of Tax

The origin of this is traced to eminent economists like Arthur Pigou, Henry George, and Frank Ramsey. Nevertheless, the formal elucidation of this theory commenced during the 1920s and 1930s through the contributions of economists including Knut Wicksell, Harold Hotelling, and Frank Knight. Termed alternatively as the theory of deadweight loss, the excess burden of tax delineates how taxes can introduce inefficiencies and skew economic choices (Omondi, 2020), ultimately diminishing economic welfare beyond the mere revenue garnered by the government.

As per the theory, whenever tax is imposed on goods or services, it triggers a rise in the price of the taxed item (Auerbach, 1985). This price hike prompts adjustments in the behavior of both consumers and producers, as they adapt their consumption and production choices in light of the altered prices (Omondi, 2020). Such distortions introduce inefficiencies into the market, resulting in a deadweight loss, wherein economic surplus is squandered due to the diminished quantity of goods and services produced and consumed. For instance, imposition of Value Added Tax (VAT) on a business escalates the production cost and the final price of goods and services. This surge in production cost might dissuade certain firms from entering the market or expanding their operations, thereby curtailing competition and innovation. Furthermore, the inflated price of goods and services could dampen consumer demand, leading to reduced sales and profitability for the business (Omondi, 2020). Such a downturn in economic activity manifests as a deadweight loss to the economy.

The theory of the excess burden of tax carries significant ramifications for economic policy, particularly concerning the formulation and execution of taxes like VAT. Policymakers are required to find a careful balance between the necessity of generating revenue for the government and the possible negative impacts of taxes on economic efficiency and growth, particularly during periods of economic upheaval such as the Covid-19 pandemic-induced disruption. It is against this backdrop that the study is grounded in the theory of the excess burden of tax.

Empirical Review

Adeyinka and Henry (2024) assessed the impact of VAT on economic growth in Nigeria. Ex-post-facto research design was adopted in the study. Through purposive sampling, a 33-year annual observation period was sampled. Secondary data gotten from the FIRS and CBN

bulletin along with annual statistical reports, were utilized. Analysis conducted using co-integration test and multiple regression analysis indicated positive as well as significant relationship between VAT and GDP in Nigeria.

Ávila-López et al. (2024) investigated the association VAT and economic growth in China and Mexico for the particular period of 1991 to 2021. Making use of GDP as dependent variable as well as VAT and tax revenue as independent variables, the study finds a positive and strong relationship between GDP and VAT in China, while in Mexico, although positive, the relationship was not as robust.

Ogonda (2023) investigated the impact of VAT on human development index in Rivers State. Adopting an ex-post facto research design and a positivist philosophy, the study encompassed the entire Rivers State economy. Multiple regression analysis conducted with the aid of STATA 12 revealed VAT's significance, accounting for 91.2% of fluctuations in pattern of expenditure in Rivers State. The study affirmed VAT's impact on HDI, emphasizing the importance for governance in Rivers State and other developing regions to ensure allocations of revenue, particularly VAT, positively contribute to human development.

Akinola and Akinrinola (2023) investigated the influence of VAT revenue and infrastructural investment on economic growth in Nigeria. The sources of data of the study were primarily from the World Development Indicator Database of 2022. Employing the ARDL model after ensuring variables' stationarity at both levels and first difference, the research revealed a significant long-run association among different variables, with VAT exhibiting positive significance.

Joseph et al. (2023) examined the association between VAT and Nigeria's economic growth, employing both exploratory and ex-post facto designs. The study covered the period of 28-years, with each year serving as the sample size. Utilizing the OLS regression technique, particularly the Vector Autoregressive model, the findings indicated a positive and significant impact of VAT on Nigeria's GDP.

Adeyemi (2023) scrutinized the effect of VAT revenue on Nigeria's economic growth in Nigeria. Ex-post facto research design spanning 40 years (1980 – 2020) was adopted. Data from CBN, FIRS and NBS were analyzed using the autoregressive distributive lag Model (ARDL). The study concluded that VAT had significant and positive effect on real gross domestic product in Nigeria on the long run.

Osamor et al. (2023) conducted study on the effects of tax revenue on economic growth in Nigeria. Ex-post facto research design was employed in the study. Quarterly time series data spanning 10 years (2011-2020) were collected from the CBN statistical bulleting and FIRS. Analyzing the data through descriptive analysis, bounds cointegration test, unit root test and ARDL, the study finds that VAT was found to be positive but had insignificant effects on economic growth.

Nwosu et al. (2023) assessed the effect of VAT on economic growth in Nigeria. Ex-post-facto research design was employing in the study. Data analysis involved descriptive statistics and multiple regression, with the regression output revealing a positive and significant effect of VAT on GDP.

Muojekwu and Udeh (2023) investigated the impact of VAT revenue on the infrastructural development of Nigeria over a twenty-seven-year period from 1995 to 2021. Adopting an Ex-Post facto research design, the study utilized time series data obtained from various sources including the FMF, FIRS, CBN, NBS and WB Publications. Descriptive statistics as well as inferential statistics, including Pearson correlation and OLS regression analysis were employed. The study finds that Value Added Tax had a positive and significant effect on capital expenditure.

Oghogho et al. (2023) explored the effect VAT on economic growth in Nigeria using a longitudinal research design to observe trends and patterns of change over time. Data spanning from 1999 to 2021 were gathered from the CBN Statistical Bulletin. Regression Analysis of ARDL was employed for the testing hypothesis, revealing a significant negative effectt of VAT on Nigeria's economic growth during the study period.

3. Methodology

The researcher deployed ex-post facto research design to determine how VAT affects Nigeria economic development. This research design is suitable for the study because the researcher seeks to identify the strength and/or direction of the relationship between VAT and economic development (Human Development Index) using events that took place between 2011 to 2022.

The research employed a secondary data collection method, data sourced from CBN Statistical Bulletin and Tax Report of FIRS from 2011 to 2022. This twelve-year timeframe

was chosen to ensure a comprehensive dataset for analysis, allowing researchers to discern trends and patterns in the development of the Nigerian economy over an extensive period.

Equation I shows the linear regression model used to investigated the presumed effect of VAT on the development of the Nigeria economy. This model was adapted from Ugochukwu and Azubuike (2016).

$HDI_{it} = a_{it} + b_1(VAT)_{it} + e_{it}$……. eqn 1

Where,

HDI = Human Development Index

VAT = Value Added Tax

a_0 = constant

b_1 = regression coefficient

e = Error term

i = the firm in question

t = the time in question

Descriptive statistical analysis encompassed calculations of the mean, maximum value, minimum value and standard deviation. The inferential statistical analysis for this study involved the analysis of ordinary least square (OLS) regression which was used to test the first hypothesis. Utilizing OLS regression, the study aimed to find out the presence, intensity, as well as the nature of the relationships existing between VAT and economic development of Nigeria, with a significance level set at 5%. In addition to the above, the Chow breakpoint test was also employed to find out whether there is a structural break in time series dataset as a result of Covid-19 disruption in 2020. A structural break occurs when there is a significant change in the relationship existing between variables over time. The test is particularly useful in econometrics and time series analysis for identifying shifts or changes in the parameters of a regression model at a particular point in time.

In assessing the hypotheses at a 5% significance level, the study juxtaposed the p-value of the test statistics with the alpha level of 0.05. The p-value serves as the threshold for either not to reject or to reject the null hypotheses. Therefore, the decision rule employed in this investigation is not to reject the null hypothesis if the p-value exceeds 0.05; conversely, if the p-value is less than or equal to 0.05, the null hypothesis is therefore rejected to support the alternative hypothesis.

4. Data Presentation

Table 1, shows the data collected for the study.

Year	VAT In N'B	HDI
2011	659.20	.46
2012	710.60	.50
2013	802.70	.47
2014	802.96	.50
2015	767.33	.52
2016	828.20	.52
2017	972.35	.53
2018	1108.04	.53
2019	1189.98	.54
2020	1531.17	.54
2021	2072.85	.54
2022	2511.52	.53

Source: CBN Bulletin 2022, FIRS Tax Reports, 2011 to 2022, as compiled by the researchers, 2024.

Descriptive Analysis

The data in Table 1, were descriptively analyzed as shown below in Table 2.

Table 2: Descriptive Statistical Result.

	HDI	VAT
Mean	0.514083	1163.075
Median	0.523500	900.2738
Maximum	0.538000	2511.518
Minimum	0.459000	659.2000
Std. Dev.	0.026186	588.4138
Skewness	-1.082983	1.320881
Kurtosis	2.886428	3.464849
Jarque-Bera	2.352154	3.597493
Probability	0.308487	0.165506
Sum	6.169000	13956.91
Sum Sq. Dev.	0.007543	3808539.
Observations	12	12

Source: Researchers Computation, 2024.

For the Human Development Index (HDI), the mean value is 0.514, indicating the average level of human development across the observed entities. The maximum value of 0.538 suggests that some entities have achieved relatively high levels of human development, while the minimum value of 0.459 indicates areas with lower levels of development. The standard deviation of 0.026 reflects the variability of HDI scores around the mean, showing the degree of dispersion in human development levels. The negative skewness of -1.083 shows that the distribution of HDI scores is skewed towards the left, with a longer tail on the lower end, suggesting that more entities have lower HDI values. The positive kurtosis of 2.886 revealed that the distribution has heavier tails and is more peaked than a normal distribution, suggesting a degree of concentration around the mean with some outliers. The probability of Jarque-Bera test at 0.308 shows that the distribution of HDI scores does not significantly depart from normality at the 5% significance level.

Moving on to Value Added Tax (VAT), the mean value is 1163.075, representing the average amount of VAT collected across the observed entities. The maximum value of 2511.518 shows the maximum amount of VAT collected, while the minimum value of 659.2000 reflects the lowest amount collected. The standard deviation of 588.4138 demonstrates the variability in VAT collection among the entities. The positive skewness of 1.321 shows that the distribution of VAT collection is skewed towards the right, with a longer tail on the higher end, suggesting that more entities have higher VAT collection amounts. The positive kurtosis of 3.465 suggests that the distribution has heavier tails and is more peaked than a normal distribution, showing a degree of concentration around the mean with some outliers. The probability of Jarque-Bera test at 0.166 revealed that the distribution of VAT collection amounts does not significantly depart from normality at 5% significance level.

Test of Hypotheses

Test of Hypothesis I

H01) VAT revenue has no significant effect on the human development index of Nigeria.

Table 3 OLS Regression Result

Dependent variable: HDI.

Method: Least Squares.

Date: 04/21/24. Time: 11:37

Sample: 2011-2022.

Included observations: 12.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
VAT	0.000027	1.13E-05	2.371428	0.0392
C	0.483029	0.014550	33.19712	0.0000

R-squared	0.359946	Mean dependent var	0.514083
Adjusted R-squared	0.295940	S.D. dependent var	0.026186
S.E. of regression	0.021972	Akaike info criterion	-4.647045
Sum squared resid	0.004828	Schwarz criterion	-4.566227
Log likelihood	29.88227	Hannan-Quinn criter.	-4.676966
F-statistic	5.623673	Durbin-Watson stat	0.876433
Prob (F-statistic)	0.039182		

Source: Researcher Computation, 2024.

Table 3 indicates the estimated regression output on the effect of VAT on HDI. The R-squared value of 0.359946 indicated that approximately 36% of the variation in HDI can be explained by the independent variable included in the model. Furthermore, the probability associated with the F-statistic is 0.039182, showing that the overall regression model is statistically significant at the level of 5%, implying that the model has goodness-of-fit. Thus, the regression results indicate that the Human Development Index (HDI) is positively influenced by Value Added Tax (VAT) and the constant term (C). The constant term has a coefficient of 0.483029 with a p-value of 0.0000, indicating that even in the absence of VAT, there is a substantial positive impact on HDI.

Specifically, the coefficient of VAT (0.000027) shows that for every unit increase in VAT, the HDI is expected to increase by approximately 0.000027 units. The p-value of 0.0392 is less than 0.05, suggesting that this relationship is statistically significant at the 5% level.

Thus, we accepted the alternate hypothesis that VAT revenue has a significant positive effect on the human development index of Nigeria (p-value = 0.0392).

Test of Hypothesis II

H02) Covid-19 has no significant implication on the relationship between VAT revenue and human development index of Nigeria.

Table 4 Chow Breakpoint Test: 2020

Null Hypothesis: No breaks at specified breakpoints

Varying regressors: All equation variables

Equation Sample: 2011- 2022

Wald Statistic	8.255423	Prob. Chi-Square(2)	0.0161

Source: Researcher Computation, 2024.

The Test of Hypothesis II assessed whether the occurrence of Covid-19 has a significant implication on the relationship between VAT revenue and the human development index (HDI) in Nigeria. To investigate this hypothesis, a Chow Breakpoint Test was conducted with the breakpoint set at the year 2020. The aim of this test is to find out whether there is a structural break in the relationship between the variables at the specified breakpoint. The Wald Statistic, which measures the significance of the structural break, is 8.255423. The associated probability, derived from the Chi-Square distribution, is 0.0161. With a p-value below the conventional threshold of 0.05, the null hypothesis of no breaks at the specified breakpoint was rejected at 5% significance level while the alternate hypothesis was accepted. This suggests that there is evidence that Covid-19 has a significant implication on the relationship between VAT revenue and the human development index of Nigeria, indicating a structural change in this relationship around the year 2020 (p-value = 0.0161).

Discussion of Findings

The study found that VAT revenue has a significant positive effect on the human development index (HDI) of Nigeria. This underlines the importance of taxation in funding social programs and infrastructure development. VAT, being a consumption tax, generates revenue for the government, which can be channeled towards improving healthcare, education, and other aspects of human development. The positive relationship between VAT revenue and HDI suggests that higher VAT collections are associated with improvements in

human development indicators, such as life expectancy, education attainment, and standard of living. This finding aligns with the expectation that government revenue from VAT can contribute to enhancing the overall well-being and quality of life of the Nigerian population. This result agrees with the findings by Oto and Wayas (2024); Adeyinka and Henry (2024); Ávila-López et al. (2024); Ogonda (2023); Akinola and Akinrinola (2023); Adeyemi (2023). However, this result contradicts the negative effect which was found by Oghogho et al. (2023) and Obadiaru et al. (2024).

The finding also indicates that Covid-19 has a significant implication on the relationship between VAT revenue and the human development index in Nigeria. This highlights the disruptive impact of the pandemic on economic dynamics. The structural change observed around the year 2020 suggests that the Covid-19 pandemic has altered the traditional relationship between VAT revenue and economic development in Nigeria. This change could be attributed to various factors, including the economic downturn resulting from lockdown measures, reduced consumer spending, and disruptions in supply chains. The pandemic may have affected the effectiveness of VAT revenue in driving economic development initiatives, as resources may have been diverted to address immediate health and social needs arising from the crisis. Additionally, shifts in government priorities and policies in response to the pandemic may have influenced the allocation and utilization of VAT revenue, leading to changes in its impact on human development indicators.This corroborates the argument by Adekoya, Agbetunde et al. (2021); Akpoveta et al. (2020) and Ozili (2021).

5. Conclusion and Recommendation

The outbreak of the COVID-19 pandemic has triggered unprecedented disruptions across the globe, affecting economies, societies, and individual lives. Nigeria, like many other nations, has experienced significant challenges stemming from the pandemic, ranging from health crises to economic downturns. One critical aspect of economic development often studied is the impact of Value Added Tax (VAT) revenue on the Human Development Index (HDI). However, with the emergence of COVID-19, the dynamics of this relationship have likely undergone substantial changes, leading to structural shifts in how VAT revenue influences economic development, particularly in Nigeria.

Historically, VAT revenue has been considered a crucial source of government income, playing a vital role in funding essential services and infrastructure necessary for economic

development. In the context of Nigeria, the findings suggest a significant positive effect of VAT revenue on the Human Development Index (HDI). This implies that as VAT revenue increases, there is a corresponding improvement in the overall human development outcomes in the country. This result aligns with conventional economic theories, which posit that increased government revenue, when appropriately allocated, can contribute to enhanced socio-economic indicators such as education, healthcare, and living standards.

However, the emergence of the COVID-19 pandemic has introduced a new dimension to the relationship between VAT revenue and the Human Development Index of Nigeria. The findings indicate a significant implication of COVID-19 on this relationship, suggesting a structural change around the year 2020. This structural change implies that the traditional link between VAT revenue and economic development has been disrupted by the pandemic, leading to altered dynamics in how VAT revenue influences HDI. Therefore, the indirect effect of Covid-19 disruption, such as increased unemployment, poverty, and inequality, undermined the effectiveness of VAT revenue in driving human development outcomes.

The study therefore recommends the following:

1) Government should prioritize policies aimed at enhancing VAT collection efficiency and transparency by strengthening tax administration and compliance mechanisms which can ensure that VAT revenue is maximized and effectively utilized to fund critical sectors such as education, healthcare, and infrastructure, thereby contributing to sustainable human development outcomes in Nigeria.

2) Policymakers and stakeholders should adopt a holistic approach to economic recovery and development by diversifying revenue sources, implementing targeted social protection measures, and fostering innovation and resilience in response to emerging challenges.

References

Abumere, F. A. (2023). Taxation in the COVID-19 pandemic: To pay or not to pay. *Philosophia*, *51*(1), 5-17.

Adekoya, A. A., Agbetunde, L. A., & Akinrinola, O. A. (2021). Covid-19 pandemic and internally generated revenues in local governments: Nigeria experience. *International Journal of Applied Economics, Finance and Accounting*, *9*(2), 63-75.

Adeyemi, O. J. (2023). Re-Assessing the Relationship Between Tax Revenue and Economic Growth in Nigeria (1980-2020). *World Scientific News*, *176*, 1-26.

Adeyinka, I. G., & Henry, E. C. (2024). Federally collected tax revenue and economic growth in Nigeria. *Journal of Economy, Tourism and ServicE*, *3*(2), 57-66.

Akinola, O. M., & Akinrinola, O. (2023). Impact of tax revenue and infrastructural development on economic growth in Nigeria. *Journal of Economics, Management and Trade*, *29*(3), 1-15.

Akpoveta, O. A., & Ochuko O. J. (2020). COVID-19 pandemic: Nigeria's economic and business disruptions. *International Scholar Journal of Arts and Social Science Research*, *3*(2), 14-31.

Alade, O. B., Ifeoma, M. B. A., Aduku, E. B., & Ameh, C. A. (2021). Terrorism, human capital development and economic growth in Nigeria. *International Journal of Economics Development Research (IJEDR)*, *2*(2), 142-155.

Auerbach, A. J. (1985). The theory of excess burden and optimal taxation. In *Handbook of public economics 1*61-127.

Ávila-López, L. A., Zayas-Márquez, C., Vázquez, R. A. G., & León, J. A. G. (2024). A comparative study on value added tax and economic growth: The cases of China and Mexico. *Journal of Namibian Studies: History Politics Culture*, *40*, 706-718.

Fahrika, A. I., Salam, H., & Buhasyim, M. A. (2020). Effect of human development index (HDI), unemployment, and investment realization toward poverty in South Sulawesi-Indonesia. *The International Journal of Social Sciences World (TIJOSSW)*, *2*(2), 110-116.

Gatawa, N. M., Aliero, H. M., & Aishatu, A. M. (2016). Evaluating the impact of value added tax on the economic growth of Nigeria. *Journal of Accounting and Taxation*, *8*(6), 59-65.

Achanya J. J., & Mamman, R. (2024). Tax revenue: A sustainable means of financing government spending in post covid-19 Nigeria. *Nigerian Journal of Management Sciences*, *25*(1), 168-177.

Joseph, F. I., Chinyere, A. J., Nwankwo, K. C., & Uchechi, U. J. (2023). Effect of government expenditure and value added tax on economic growth in Nigeria. *Asian Journal of Economics, Business and Accounting*, *23*(16), 25-40.

Muojekwu, H. O., & Udeh, F. N. (2023). Effect of tax revenue on infrastructural development in Nigeria. *Journal of Global Accounting*, *9*(1), 161-189.

Nworie, G.O., Okafor, T.G. & John-Akamelu, C.R. (2022). Firm-level traits and the adoption of computerised accounting information system among listed manufacturing firms in Nigeria. *Journal of Global Accounting*, *8*(3), 128-148.

Nwosu, S. N., Ejinkonye, R. C., Obasi, A. I., & Iregha, M. A. (2023). Effect of taxation on economic growth in Nigeria. *Journal of Global Accounting*, *9*(4), 275-288.

Nwoye, U. J., Udunwoke, C. M., & Nworie, G. O. (2023). Debt level and economic performance of Nigeria: effects. *Journal of Global Accounting*, *9*(1), 214–247.

Obadiaru, E., Okon, B. K., & Ayeni, A. (2024). The impact of tax revenue on economic growth in Nigeria. *International Journal of Multidisciplinary Research and Growth Evaluation*, *5*(1), 566-571.

Oghogho, G., Damilola, F. S., & Cyril, U. (2023). Value added tax and economic growth: an empirical study of Nigerian economy. *Open Access Journal of Management Sciences Research*, *1*(2), 42-51.

Ogonda, G. O. (2023). Appropriate rationalization of value-added tax and human development index. *Nigerian journal of management sciences vol*, *24*, 78-88.

Okoli, M. N., & Afolayan, S. M. (2015). Correlation between value added tax (vat) and national revenue in Nigeria: An ECM model. *Research Journal of Finance and Accounting*, *6*(6), 230-238.

Omesi, I., & Nzor, N. P. (2015). Tax reforms in Nigeria: Case for value added tax (VAT). *African Research Review*, *9*(4), 277-287.

Omondi, F. (2020). *Effects of value added tax reforms on household welfare and collection efficiency and the determinants of its compliance gap in Kenya* (Doctoral dissertation, Kenyatta University).

Osamor, I., Omoregbee, G., Ajasa-Adeoye, F., & Olumuyiwa-Loko, J. (2023). Tax revenue and economic growth: empirical evidence from Nigeria. *Journal of Economics and Behavioral Studies*, *15*(1), 15-26.

Oto, T. E., & Wayas, S. (2024). Value added tax and economic growth of Nigeria. *Journal of Accounting and Finance Research*, *2*(1), 15-30.

Ozili, P. K. (2021). Covid-19 pandemic and economic crisis: The Nigerian experience and structural causes. *Journal of Economic and Administrative Sciences*, *37*(4), 401-418.

Salawu, M. (2023). Tax as a stimulus for economic growth and development in Nigeria. *Sustainability and Digitisation of Accounting and Finance for Development in Emerging Economies*, 1-12.

Schumpeter, J. A., & Swedberg, R. (2021). *The theory of economic development*. Routledge.

Umenweke, M. N., & Nwoke, T. W. (2023). Towards Effective Value Added Tax Administration in Nigeria. *Unizik Law Journal*, *19*(1), 118-133.