Oil Tax Revenue and Infrastructural Development: The Nigerian Context

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Abstract

The study investigated oil tax revenue and infrastructural development in Nigeria. Specifically, the study investigated the relationship between oil tax revenue and road construction, education facilities and healthcare facilities in Nigeria. The study adopted ex-post-factor research design. The population of this study was the entire Nigerian economy where the properties of data used for this research were extracted covering 1981 to 2022. A sample is a part or unit of the population. Using judgmental sampling technique, a sample of 42years' period from 1981 to 2022 was used. Time series secondary data obtained basically from the CBN bulletin for a period of 42years (1981 to 2022) were used. Simple linear regression analysis was used to test the hypothesis on the strength of relationship between the predictor and criterion variables (Road construction, healthcare facilities, and education facilities). Co-integration test was used to determine the long-run effect of the predictor on the criterion variables (Road construction, health facilities, and education facilities). The study further suggested that Policymakers should implement transparent mechanisms to ensure efficient allocation and utilization of oil tax revenue for infrastructure projects, with regular monitoring and evaluation to track progress. Policymakers should also focus on diversifying revenue sources beyond oil taxes to reduce dependency on oil-related fluctuations and ensure a stable funding base for infrastructure development.

Keywords: Oil Tax Revenue, Road Construction, Education Facilities, Healthcare Facilities.

1. INTRODUCTION

Every accountable and competent government has a primary responsibility to provide appropriate public goods and basic infrastructure to improve the level of living of its population. Taxation is one of the available sources of revenue for delivering essential services to the majority of people in a given location. Nigeria, often referred to as the "Giant of Africa," boasts one of the continent's largest economies, primarily fueled by its abundant oil reserves. Since the discovery of oil in the Niger Delta region in the late 1950s, petroleum has become the cornerstone of Nigeria's economy, contributing significantly to its gross domestic product (GDP) and government revenue. The nexus between oil tax revenue and infrastructural development in Nigeria is a critical aspect of the country's economic landscape, one that has far-reaching implications for its socio-economic progress and stability. Infrastructural development in Nigeria is a critical facet of the country's socio-economic landscape, pivotal for driving sustainable growth and enhancing the quality of life for its citizens. Over the years, Nigeria has grappled with significant infrastructural challenges, ranging from inadequate road networks and unreliable power supply to limited access to healthcare

and education facilities. Despite being rich in natural resources, the country's infrastructural deficiencies have hindered its economic potential and perpetuated socio-economic inequalities (Slimane, 2024). Recognizing the importance of addressing these challenges, the Nigerian government, in collaboration with various stakeholders, has embarked on ambitious infrastructural projects aimed at modernizing and expanding the country's infrastructure network. However, tackling Nigeria's infrastructural deficit requires not only substantial investment but also effective planning, implementation, and maintenance strategies to ensure long-term sustainability and equitable access to essential services across the nation.

Nigeria's reliance on oil tax revenue underscores the importance of efficient tax collection mechanisms and prudent fiscal management. The government heavily depends on oil revenues to finance its budgetary allocations, including crucial infrastructure projects across the nation. However, the volatility of oil prices in the global market poses a constant challenge, as fluctuations directly impact the government's revenue streams. Muojekwu and Udeh (2023) highlighted the significant and positive effects of various tax sources, including petroleum profit tax, company income tax, value-added tax, and customs and excise duty, on capital expenditure. These findings emphasized the critical role of tax revenue diversification in funding infrastructural projects, thereby driving economic growth. Similarly, Oladapo and Olalekan (2023) identified petroleum profit tax as a strong contributor to economic growth, signifying the importance of specific tax policies in stimulating sustainable development. Therefore, diversifying the tax base beyond oil and gas sectors becomes imperative to ensure sustainable funding for infrastructure development.

Addressing the link between oil tax revenue and infrastructural development in Nigeria requires holistic reforms encompassing fiscal policies, governance structures, and institutional frameworks. Moreover, Tanko and Shishi (2020) provided insights into the regional dynamics of revenue generation and infrastructural development. Their findings demonstrated the positive impact of internally generated revenue and grants on infrastructural development, highlighting the significance of local revenue mobilization in addressing infrastructural deficits at the state level. Ajike et al. (2020) further emphasized the role of internally generated revenue components in enhancing specific sectors of infrastructural development, such as transport infrastructure in Lagos State. Furthermore, Okezie and Tunji (2020) revealed the significant positive effect of the tax structure on infrastructure in Nigeria, underscoring the importance of effective fiscal policies and administrative efficiency in leveraging tax revenues for development. Additionally, Omoniyi and Hassan (2020) highlighted the substantial contribution of internally generated revenue to infrastructural provision, emphasizing the importance of local-level revenue mobilization in addressing infrastructural deficits. Enhancing transparency and accountability in the management of oil revenues, diversifying the economy, and promoting inclusive growth are fundamental to ensuring that oil wealth translates into tangible improvements in infrastructure and living standards for all Nigerians. Additionally, fostering partnerships with the private sector and international organizations can complement government efforts in mobilizing resources and implementing sustainable infrastructure projects that contribute to Nigeria's long-term development goals.

The interplay between oil tax revenue and infrastructural development in Nigeria is complex, characterized by challenges and opportunities. While oil remains a vital source of revenue for the Nigerian government, over-reliance on it poses risks to the stability and sustainability of the economy. Therefore, adopting comprehensive strategies to harness oil revenues effectively, promote inclusive growth, and address infrastructural deficits is crucial for Nigeria to realize its full potential and achieve socio-economic prosperity for all its citizens.

1.2 Statement of the problem

The utilization of oil tax revenue for infrastructural development in Nigeria has been marred by challenges such as corruption, mismanagement, and lack of transparency. Despite the significant inflow of oil revenues over the years, the country continues to grapple with inadequate infrastructure, including roads, power supply, healthcare facilities, and educational institutions

(Slimane, 2024). This misalignment between revenue generation and infrastructure provision has hindered Nigeria's socio-economic progress and perpetuated socio-economic inequalities among its citizens.

Furthermore, the unequal distribution of oil tax revenue exacerbates regional disparities within Nigeria. The oil-producing regions, particularly the Niger Delta, often bear the brunt of environmental degradation and socio-economic neglect despite being the primary source of the country's wealth (Akinola & Akinrinola, 2023). The lack of equitable distribution of oil revenues has fueled discontent and social unrest in these regions, leading to conflicts and disruptions in oil production, which further exacerbate the challenges of infrastructural development (Mengstu, 2023). Hence, the need to investigate the effect of oil tax revenue on infrastructural development in Nigeria. Specifically, the study sought to investigate the relationship between oil tax revenue and road construction, education facilities and healthcare facilities in Nigeria.

2. LITERATURE REVIEW

2.1 Conceptual

2.1.2 Oil tax revenue

Oil tax revenue constitutes a significant component of government income in oil-producing nations like Nigeria, derived from taxes on oil-related activities such as petroleum profit tax, royalties, and levies on exploration and production. This revenue plays a crucial role in funding public expenditures, including infrastructure development, healthcare, and education. However, its reliance on volatile global oil prices underscores the need for diversification and prudent fiscal management. Previous studies have examined the impact of oil and non-oil tax revenue on economic growth and infrastructure development in Nigeria, revealing mixed findings. Otekunrin et al. (2023) found a positive relationship between petroleum profit tax (PPT) and economic growth but negative correlations with company income tax (CIT) and value-added tax (VAT). Tanko and Shishi (2020) highlighted the positive impact of internally generated revenue (IGR) on infrastructural development, emphasizing the importance of local revenue sources. Ajike et al. (2020) and Okezie and Tunji (2020) explored the relationship between tax revenue and infrastructure provision, advocating for effective taxation policies to drive economic growth. Omoniyi and Hassan (2020) similarly emphasized the significance of IGR in addressing infrastructural deficits at the state level. Collectively, these studies underscore the crucial role of tax revenue, both oil and non-oil, in fostering economic growth and infrastructure development in Nigeria, urging for effective taxation policies and prudent resource allocation to sustainably drive development.

2.1.3 Infrastructural development

Infrastructural development encompasses the enhancement and expansion of physical structures and facilities to support economic activities and improve living standards. It plays a vital role in facilitating economic growth by providing essential services and reducing transportation costs, among other benefits. Oladapo and Olalekan (2023) explored the nexus between tax revenue, infrastructural development, and economic growth in Nigeria, revealing a significant relationship between petroleum profit tax (PPT) and economic growth. Muojekwu and Udeh (2023) further investigated the impact of tax revenue on infrastructural development, finding that various taxes, including petroleum profit tax, company income tax, value-added tax, and customs and excise duty, significantly contribute to capital expenditure in Nigeria. Meanwhile, Olugbade and Adegbie (2020) focused on the contributions of personal income tax to infrastructural development, highlighting its significant effect on various infrastructural provisions, particularly in education, health, and road infrastructure. These studies collectively emphasize the importance of effective taxation policies and strategic resource allocation in driving infrastructural development and fostering economic growth in Nigeria.

2.2 Theoretical review

2.2.1 The Benefit Received Theory

The Theory, as elucidated by Adam Smith (1776) and further developed in modern public finance literature, posits that taxpayers should receive commensurate benefits from the taxes they pay, particularly in the form of public goods and services provided by the government. In the context of oil tax revenue and infrastructural development in Nigeria, this theory underscores the importance of effective utilization of tax revenue to enhance economic and social facilities for the populace. Akinola and Akinrinola (2023), highlights the presumed relationship between the state and taxpayers, wherein the state is obligated to provide essential goods and services in return for the taxes paid by citizens. This implies that the Nigerian government, buoyed by revenue from oil taxes, should allocate resources towards improving infrastructure, such as roads, railways, power plants, and healthcare facilities, to benefit the society at large. Mengstu (2023), further emphasizes that increased spending on infrastructural amenities can contribute to economic development by fostering a shift from low productivity and low savings to a state of high steady growth. Therefore, adhering to the Benefit Received Theory implies that the Nigerian government should prioritize infrastructural development projects funded by oil tax revenue to ensure that citizens receive tangible benefits from their tax contributions, ultimately fostering economic growth and development.

2.3 Empirical review

Empirical review critically examines existing research findings and studies related to a particular topic or area of interest, providing insights, analysis, and synthesis of empirical evidence to inform and contribute to the understanding of the subject matter. Consequently, Oladapo and Olalekan (2023) investigated the impact of tax revenue and infrastructural development on economic growth in Nigeria. They utilized data from the World Development Indicator Database 2022, with tax revenue proxied by actual total tax revenue collected from VAT, CIT, and PPT, while GCF represented infrastructural development. Employing the ARDL model, they found a significant long-run relationship among the variables, with PPT identified as a strong contributor to economic growth. However, VAT was only positively significant at 15%, while GCF and CIT showed no significance, indicating the need for more focused economic policies to harness these components for growth.

Muojekwu and Udeh (2023) conducted a study to analyze the impact of tax revenue on infrastructural development in Nigeria. Employing an ex-post facto research design, they collected time series data spanning from 1995 to 2021 from various sources including the Federal Ministry of Finance and the National Bureau of Statistics. The study employed descriptive statistics and inferential statistics using Pearson correlation and Ordinary Least Square (OLS) regression analysis. Their findings revealed that petroleum profit tax, company income tax, value-added tax, and customs and excise duty all had significant and positive effects on capital expenditure in Nigeria at a 5% level of significance. They recommended that the government should implement adequate measures to ensure that tax revenue is effectively utilized to promote infrastructural development and economic growth.

Olugbade and Adegbie (2020) conducted a study to examine the contributions of personal income tax to infrastructural development in Lagos state, aiming to determine the effect of personal income tax on the state's infrastructural provisions. Employing an ex-post facto research design, the study covered the period from 1997 to 2018, analyzing data obtained from Lagos State Internal Revenue Services, the Ministry of Budget and Planning, and the Ministry of Finance. Utilizing descriptive and inferential statistics, the study found that personal income tax has a significant effect on infrastructural development in the state, particularly regarding infrastructural provisions related to education, health (EDH), and roads (EDR).

Hammayo et al. (2020) investigated the impact of the efforts made by the Bauchi State Government in infrastructure development, represented by the level of capital expenditure incurred through the utilization of various revenue sources. Secondary data from the government's Annual Financial Statements spanning from 2006 to 2018 were analyzed using Ordinary Least Square regression. The findings revealed that the share of allocation received from the federation account and debt had a positive and significant influence on infrastructure provision. However, internally generated revenue showed a negative and significant relationship. Other receipts, including contributions from local governments and grants, indicated a positive but insignificant relationship.

Ayeni and Afolabi (2020) explored the dynamic relationship between tax revenue, infrastructural development, and economic growth in Nigeria using annual secondary time series data from 1981 to 2018. Employing unit root tests, cointegration tests, and vector autoregression (VAR) causality tests, they found that tax revenue has a unidirectional causality with economic growth and a bi-directional causality with infrastructural development. Furthermore, their impulse response results suggested that while tax revenue influences economic growth and infrastructure, infrastructure does not directly influence economic growth but significantly impacts tax revenue collected.

Olugbemi et al. (2019) conducted a study to investigate the impact of tax income on Nigerian economic growth. Employing an exploratory approach, they analyzed the relationship between tax revenue and economic growth using a multiple regression model. Using GDP as an index of the economy, their results revealed a favorable link between tax revenue and economic growth. The study emphasizes the importance of appropriately utilizing public funds to positively impact the growth of the Nigerian economy.

Otekunrin et al. (2023) examined the impact of both oil and non-oil tax revenue on economic growth in Nigeria. Adopting an ex-post facto research design, they analyzed data drawn from the annual reports of the Central Bank of Nigeria and publications of the Federal Inland Revenue Services. Employing an Error Correction Model after subjecting the data to unit root and cointegration tests, their findings indicated that petroleum profit tax (PPT) and custom and excise duties tax (CED) had a positive and significant relationship with economic growth. Conversely, company income tax (CIT) and value-added tax (VAT) had a negative and significant relationship with economic growth. The study recommended appropriate taxation control to boost economic growth, lower inflation, and create jobs, with particular emphasis on channeling revenue from PPT and CED towards infrastructural development for overall economic growth in Nigeria.

Tanko and Shishi (2020) examined the effect of revenue generation on infrastructural development in Taraba State. Using secondary data and a descriptive research design, they found that IGR had a positive impact on infrastructural development, alongside grants received by the Taraba State Government, indicating the importance of local revenue sources in driving infrastructure improvements at the state level.

Ajike et al. (2020) investigated the impact of internally generated revenue on infrastructural development in Lagos State, Nigeria. Through a twenty-one-year evaluation, they found significant effects of internally generated revenue components on transport infrastructure, emphasizing the role of local revenue in enhancing specific infrastructural sectors.

Okezie and Tunji (2020) focused on Nigeria's tax structure and economic development, employing a survey research design. They discovered a significant positive effect of the tax structure on infrastructure, suggesting that effective tax policies can contribute to infrastructure provision and overall economic growth.

Omoniyi and Hassan (2020) assessed internally generated revenue and infrastructural development in Ogun State, finding a significant contribution of IGR to infrastructure provision. This highlights the importance of local revenue sources in addressing infrastructural deficits at the state level.

2.4 Gap in Literature

The previous studies have provided valuable insights into the relationship between tax revenue, infrastructural development, and economic growth in Nigeria, highlighting the significance of effective revenue generation and allocation strategies. However, several gaps remain in the existing literature. Firstly, while some studies have focused on the impact of tax revenue on economic growth and infrastructural development, there is limited research specifically addressing the role of oil-tax revenue in driving infrastructural development in Nigeria. Additionally, there is a gap in the literature regarding the long-term effects of oil-tax revenue on specific infrastructural sectors such as road construction, healthcare facilities, and education facilities. The present study addresses these gaps by specifically focusing on oil-tax revenue and its impact on infrastructural development in Nigeria over a 42-year period, utilizing Simple linear regression analysis and co-integration tests to provide a comprehensive understanding of the relationship between oil-tax revenue and infrastructural development in the country, thereby contributing to filling the identified gaps in previous research.

3. METHODOLOGY

The study adopted ex-post-factor research design targeted at determining the relationship between oil-tax revenue and infrastructural development in Nigeria. Appah (2020), opined that the target population is the entire population to which the findings of the study are applicable. He noted that the target population is the entire group of items which the researcher wishes to study and generalize. The population of this study was the entire Nigerian economy where the properties of data used for this research were extracted covering 1981 to 2022. A sample is a part or unit of the population. Using judgmental sampling technique, a sample of 42years' period from 1981 to 2022 was used. Time series secondary data obtained basically from the CBN bulletin for a period of 42years (1981 to 2022) were used. Simple linear regression analysis was used to test the hypothesis on the strength of relationship between the predictor and criterion variables (Road construction, healthcare facilities, and education facilities). Co-integration test was used to determine the long-run effect of the predictor on the criterion variables (Road construction, health facilities, and education facilities). The mathematical representations of the functional relationship that represents our stated hypotheses are expressed as follows:

MODEL1: RC= f (OTR) ………………………………… (1)

Their econometric expression becomes

RC t = β0 + β1 OTR et + et …………………………… (2)

MODEL2: HF= f (OTR) ………………………………… (3)

Their econometric expression becomes

HFt = β0 + β1 OTR et + …………………………………(4)

MODEL3: EF= f (OTR) ………………………………… (5)

Their econometric expression becomes

EFt = β0 + β1 OTR et + …………………………………(6)

Where;

OTR = Oil tax revenue (Predictor)

ID = Road construction (Proxy for Infrastructural development)

HF = Healthcare facilities (Proxy for Infrastructural development)

EF = Education facilities (Proxy for Infrastructural development)

$\beta 0$ = Constant

$\beta 1$= Coefficients attached to explanatory variables

t = Time Period

e = Stochastic Error Term

4. DATA ANALYSIS AND DISCUSSION

4.1. Data Analysis

Data analysed here the properties of oil tax revenue and infrastructural development variables (Road construction, healthcare facilities, and education facilities). Co-integration test and simple linear regression were used to estimate the available annual time series data to ascertain whether or not there is an existence of causal and long-run relationship between the variables.

Table 4.1: Johanson's Co-integration test of the variables

Date: 03/10/24 Time: 12:38

Sample (adjusted): 3 42

Included observations: 40 after adjustments

Trend assumption: Linear deterministic trend

Series: OTR RC HF EF

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.370910	38.20997	47.85613	0.2929
At most 1	0.216053	19.67074	29.79707	0.4454
At most 2	0.185301	9.934204	15.49471	0.2858
At most 3	0.042489	1.736735	3.841466	0.1876

Trace test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.370910	18.53923	27.58434	0.4509
At most 1	0.216053	9.736539	21.13162	0.7690

| At most 2 | 0.185301 | 8.197469 | 14.26460 | 0.3590 |
| At most 3 | 0.042489 | 1.736735 | 3.841466 | 0.1876 |

Max-eigenvalue test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

The provided co-integration tests assess whether there exists a long-term relationship among the variables-oil tax revenue and infrastructural development indicators (road construction, healthcare facilities, and education facilities). The Trace and Maximum Eigenvalue tests both yield results suggesting no cointegration among the variables at the 0.05 significance level. This implies that there is no stable, long-term relationship among the variables within the specified model and lag structure. Consequently, based on these results, it seems that changes in oil tax revenue has not significantly impact infrastructural development variables over the long run, as indicated by the absence of cointegration.

Table 4.2: Estimation Oil Tax Revenue on Road construction

Dependent Variable: RC

Method: Least Squares

Date: 03/10/24 Time: 12:40

Sample: 1 42

Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.118106	0.074070	28.59589	0.0000
OTR	0.067192	0.025055	2.681810	0.0106

R-squared	0.512401	Mean dependent var	2.303631
Adjusted R-squared	0.431211	S.D. dependent var	0.184046
S.E. of regression	0.171547	Akaike info criterion	-0.641466
Sum squared resid	1.177140	Schwarz criterion	-0.558720
Log likelihood	15.47079	Hannan-Quinn criter.	-0.611137
F-statistic	7.192106	Durbin-Watson stat	1.492331
Prob(F-statistic)	0.010590		

The provided simple linear regression model examines the relationship between oil tax revenue (OTR) and road construction (RC). The coefficient estimate for OTR is 0.0672, with a standard error of 0.0251 and a t-statistic of 2.682, resulting in a p-value of 0.0106, indicating a statistically

significant positive relationship between oil tax revenue and road construction at the 0.05 significance level. The R-squared value of 0.512 suggests that approximately 51.24% of the variance in road construction can be explained by changes in oil tax revenue, indicating a moderate explanatory power of the model. However, the adjusted R-squared of 0.431 indicates that the model might not fully capture the variation in road construction explained by other factors. The Durbin-Watson statistic of 1.492 suggests no significant autocorrelation in the residuals. Overall, the analysis indicates a significant positive association between oil tax revenue and road construction, suggesting that higher oil tax revenue tends to correlate with increased investment in road infrastructure.

Table 4.3: Estimation Oil Tax Revenue on Health Facilities

Dependent Variable: HF

Method: Least Squares

Date: 03/10/24 Time: 12:41

Sample: 1 42

Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.817056	0.061454	29.56772	0.0000
OTR	0.184720	0.020787	8.886220	0.0000
R-squared	0.663766	Mean dependent var		2.327088
Adjusted R-squared	0.655361	S.D. dependent var		0.242442
S.E. of regression	0.142328	Akaike info criterion		-1.014915
Sum squared resid	0.810292	Schwarz criterion		-0.932169
Log likelihood	23.31322	Hannan-Quinn criter.		-0.984586
F-statistic	78.96490	Durbin-Watson stat		0.064806
Prob(F-statistic)	0.000000			

The simple linear regression analysis investigates the relationship between oil tax revenue (OTR) and healthcare facilities (HF). The coefficient estimate for OTR is 0.1847, with a standard error of 0.0208 and a t-statistic of 8.886, resulting in a p-value of 0.0000, indicating a highly significant positive relationship between oil tax revenue and healthcare facilities. The R-squared value of 0.664 implies that approximately 66.38% of the variance in healthcare facilities can be explained by changes in oil tax revenue, suggesting a strong explanatory power of the model. However, the low Durbin-Watson statistic of 0.065 indicates potential autocorrelation in the residuals, suggesting that further diagnostics are necessary. Overall, the analysis suggests a robust positive association between oil tax revenue and the provision of healthcare facilities, indicating that higher oil tax revenue tends to correlate with increased investment in healthcare infrastructure.

Table 4.4: Estimation Oil Tax Revenue on Education Facilities

Dependent Variable: EF

Method: Least Squares

Date: 03/10/24 Time: 12:42

Sample: 1 42

Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.105499	0.074525	28.25217	0.0000
OTR	0.222552	0.025209	8.828408	0.0000
R-squared	0.660847	Mean dependent var		2.719990
Adjusted R-squared	0.652368	S.D. dependent var		0.292741
S.E. of regression	0.172601	Akaike info criterion		-0.629220
Sum squared resid	1.191644	Schwarz criterion		-0.546474
Log likelihood	15.21362	Hannan-Quinn criter.		-0.598890
F-statistic	77.94078	Durbin-Watson stat		0.068342
Prob(F-statistic)	0.000000			

The simple linear regression analysis explores the relationship between oil tax revenue (OTR) and education facilities (EF). The coefficient estimate for OTR is 0.2226, with a standard error of 0.0252 and a t-statistic of 8.828, yielding a p-value of 0.0000, indicating a highly significant positive relationship between oil tax revenue and education facilities. The R-squared value of 0.661 suggests that approximately 66.18% of the variance in education facilities can be explained by changes in oil tax revenue, demonstrating a strong explanatory power of the model. However, similar to the previous analyses, the low Durbin-Watson statistic of 0.068 implies potential autocorrelation in the residuals, warranting further investigation. Overall, the findings suggest a robust positive association between oil tax revenue and the provision of education facilities, indicating that higher oil tax revenue tends to correlate with increased investment in educational infrastructure.

4.2 Discussion of findings

The present study's findings align with several previous studies regarding the positive relationship between tax revenue, infrastructural development, and economic growth, particularly in the Nigerian context. Specifically, the present study's identification of a statistically significant positive association between oil tax revenue and road construction echoes the findings of Oladapo and Olalekan (2023), Muojekwu and Udeh (2023), and Ayeni and Afolabi (2020), who also found significant positive impacts of various tax revenue components on infrastructural development. Moreover, the present study's observation of a highly significant positive relationship between oil tax revenue and healthcare and education facilities concurs with the findings of Olugbade and

Adegbie (2020), who highlighted the significant contributions of personal income tax to infrastructural development, particularly in healthcare and education sectors. However, potential autocorrelation in residuals, as indicated in the present study's analysis of healthcare and education facilities, calls for further scrutiny, similar to the cautionary notes raised by Otekunrin et al. (2023) regarding the interpretation of results amidst potential biases in taxation policies. Overall, while the present study corroborates the general consensus on the positive impact of tax revenue on infrastructural development, it underscores the importance of careful analysis and consideration of potential biases or limitations in tax policies when interpreting findings.

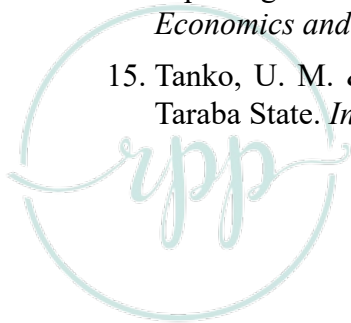## 5. CONCLUSION AND RECOMMENDATIONS

The study adopted ex-post-factor research design targeted at determining the relationship between oil-tax revenue and infrastructural development in Nigeria. Simple linear regression analysis was used to test the hypothesis on the strength of relationship between the predictor and criterion variables (Road construction, healthcare facilities, and education facilities). Co-integration test was used to determine the long-run effect of the predictor on the criterion variables (Road construction, health facilities, and education facilities). The simple linear regression between oil tax revenue and road construction reveals a statistically significant positive relationship, with oil tax revenue explaining approximately 51.24% of the variance in road construction. For healthcare facilities, the analysis shows a highly significant positive association with oil tax revenue, explaining around 66.38% of the variation, but potential autocorrelation in residuals requires further investigation. Similarly, education facilities display a highly significant positive correlation with oil tax revenue, explaining approximately 66.18% of the variance, although the presence of potential autocorrelation in residuals necessitates additional scrutiny. The study further suggested that;

1. Macro policymakers should implement transparent mechanisms to ensure efficient allocation and utilization of oil tax revenue for infrastructure projects, with regular monitoring and evaluation to track progress.

2. Macro policymakers should focus on diversifying revenue sources beyond oil taxes to reduce dependency on oil-related fluctuations and ensure a stable funding base for infrastructure development.

3. Macro policymakers should conduct further research to address potential biases and autocorrelation in tax policies, enhancing data reliability and accuracy to inform more robust conclusions regarding the impact of tax revenue on infrastructural development.

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