



Threshold Effects of Oil Rents on Economic Growth in Nigeria: Does Institutional Quality Matter?

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Abstract

This study examined the link between oil resource rents and economic growth in Nigeria, aiming to identify the oil rent threshold below which natural resources contribute to economic growth, both with and without accounting for institutional quality. Furthermore, the study sought to determine the threshold values for institutional quality indicators below which oil rents fail to enhance economic growth. Time-series secondary data from 1990 to 2023 were sourced from World Development indicators of World Bank. The study employed the Threshold Regression and Granger Causality Test methods. The results showed that oil rents below a threshold of 11.14% of GDP boost economic growth when institutional quality is not considered. However, when oil rents exceed 11.14%, they begin to hinder growth, highlighting the need for economic diversification and reduced dependence on crude oil. Interestingly, once oil rents surpass 11.14%, the negative impact on GDP lessens if institutional quality is included in the analysis. We also identified thresholds for the institutional quality variables: -1.18 for control of corruption, -1.02 for regulatory quality, and -1.35 for rule of law. Oil rents negatively affect economic growth when these variables fall below their respective thresholds. The study therefore recommended that the government should diversify the economy by investing in sectors like manufacturing and agriculture, and also tapping into non-oil natural resources such as forest, natural gas, and mineral rents. Moreover, anti-corruption measures and adherence to the rule of law should be strengthened. Improving government effectiveness should be a priority to ensure transparency, accountability, and efficient use of oil revenue for economic development.

Keywords: Economic Diversification, Economic Growth, Governance Variables, Granger Causality, Oil Rents, Threshold Regression

JEL Classification: O13, Q4, O10, O17, O47

1.0 Introduction

Many resource-rich countries, including Nigeria, Venezuela, Angola, and the Democratic Republic of Congo, have recorded low levels of development despite their abundance of natural resources. In contrast, natural resources have been a blessing in countries such as Botswana (World Bank, 2024). This paradox is commonly explained by the resource-curse hypothesis or the “Dutch disease.” In line with Sachs and Warner’s theory, resource curse hypothesis proposes that a negative relationship exist between natural resources abundance and economic growth (Sachs & Warner, 1997) indicating that having natural resources alone is not a sufficient condition for economic growth and development. The impact of natural resources on economic growth depends on other factors, such as the quality of institutions and the level of economic diversification. (Amare et al., 2024, Mohammadi & Sadeghi, 2022; Acemoglu & Robinson, 2012).

Over the years, lack of diversification of the export base of Nigeria has made the economy vulnerable to fluctuations in crude oil prices (Banjo et al., 2024). For instance, the share of oil



rent to GDP fell from 22% in 2000 to 11% in 2002 rose again to 17% in 2005 and then continue to fluctuate until it reached 8.7% in 2009. Due to the hike in oil price in 2010, oil rent contribution to GDP rose to 15.5%. This was followed by a period of oil glut in 2014-2016 which led to a steep decline in the oil rent contribution to a record low of 2.68% in 2016. It rose slightly after that to 7.69% in 2018 and then continued to drop until it reached 3.3% in 2021 (World Bank, 2024).

The country would not have felt the negative impact of the fluctuations in oil prices if emphasis had been given to other variants of natural resources other than oil. For instance, over the years, the contribution of non-oil aspect of resource rent to GDP (Comprising of mineral resources rent, forest rent, coal rent and natural- gas rent) has been very small ranging from a record low of 0.791% in 1981 to an all-time high of 5.5% in 1995. As at 2021, their contribution was around 2.3% (World Bank, 2024). The lack of diversification of the economy from crude oil has led to high level of poverty and unemployment rate in the country. It is worrisome that the GDP per capita still hovers around a low figure of \$2,000, with unemployment rate at 33.3% as at 2021 (World Bank, 2024).

Stylized facts suggest that the weak performance of GDP per capita growth over the study period (1990–2023) is closely associated with poor institutional quality. On average, key institutional indicators remained persistently negative, reflecting structural governance deficiencies. Specifically, the mean values for control of corruption (-1.18), regulatory quality (-0.92), government effectiveness (-1.04), and rule of law (-1.14) indicate weak enforcement of laws, ineffective public administration, and limited regulatory capacity. These consistently low institutional quality scores suggest an environment that is unfavorable to investment, innovation, and efficient resource allocation, thereby constraining productivity and long-term economic growth. The relationship between natural resources and economic growth has generated conflicting findings. In natural resources literatures, a growing body of studies have confirmed the resources curse hypothesis wherein they found natural resources to be detrimental to economic growth (Bah & Ouedraogo, 2022; Adamu et al., 2021). Some other studies negated it confirming that natural resources have a positive effect on growth (Hayat & Tahir, 2019; Ajie, 2019). Further studies found a mixed relationship (Banjo et al., 2024; Afolabi et al., 2023; Inuwa et al., 2022; Ofori & Grechyna, 2021). Dramani et al. (2022) confirmed an asymmetric effect among selected Sub Saharan African (SSA) Countries with the impact positive when its contribution to Gross Domestic Product (GDP) is above 15% and negative when its contribution is less than 6% of GDP. On the contrary, Dada and Abanikanda (2019) found a contribution below a threshold of 6.17% to be positive on growth in Nigeria. This lack of consensus among extant studies is a motivation for this study.

This study re-examined the link between natural resources and economic growth in Nigeria, aiming to identify the threshold for oil rent contribution below which economic growth can be improved, both with and without accounting for institutional quality. Furthermore, the study sought to determine the threshold values for institutional quality indicators below which oil rents fail to enhance economic growth.

The remainder of this work is structured as follows: section two deals with review of relevant literatures. The third section discusses the theoretical framework and methodology. The fourth section analyses the result while the last section concludes the investigation with robust policy recommendations.

2.0 Literature Review

The relationship between natural resources and economic growth is theoretically grounded in the Sachs and Warner resource curse hypothesis (Sachs & Warner, 1997), which argues that resource-abundant countries often experience slower economic growth than resource-poor economies. This paradox is attributed to factors such as rent-seeking behaviour, weak institutional frameworks, corruption, macroeconomic volatility, neglect of human capital development, and the crowding out of productive sectors. Resource rents are believed to distort economic incentives and undermine governance, thereby constraining long-term growth. However, alternative theoretical perspectives contend that natural resources can promote economic growth when supported by strong institutions, effective governance, human capital accumulation, and prudent macroeconomic management. Thus, the growth impact of natural resources is conditional rather than automatic, depending largely on institutional quality, economic structure, and the magnitude of resource rents in the economy.

Empirical evidence on the natural resources–economic growth nexus remains mixed and inconclusive. A substantial body of studies supports the resource curse hypothesis, particularly in developing economies. For example, Adamu et al. (2021) found a negative relationship between natural resources and economic growth in Nigeria using the ARDL approach, while Bah and Ouedraogo (2022) reported that natural resource rents hindered economic growth in West Africa using DOLS and panel VECM techniques. Their findings further revealed that higher human capital, especially tertiary education, enhances the growth-inducing role of natural resources. In contrast, other studies invalidate the resource curse hypothesis by documenting positive and significant effects of natural resources on growth. Hayat and Tahir (2019) found that natural resources contributed positively to economic growth in selected Middle Eastern countries, although resource price volatility exerted a negative effect. Similarly, Ajie (2019) reported a positive contribution of solid mineral development to Nigeria’s economic growth.

Another strand of literature reports mixed and resource-specific outcomes. Ofori and Grechyna (2021) found forest rents to be growth-enhancing, while oil and gas rents were growth-reducing in Sub-Saharan Africa. Adekunle et al. (2023) showed that oil and coal rents positively influenced growth in African countries, whereas forest rents had a negative effect. Evidence from Nigeria also reflects this mixed pattern, with studies showing that some resources such as coal and minerals promote growth, while oil and forest rents hinder it (Inuwa et al., 2022; Afolabi et al., 2023). Other studies found natural resource rents to be insignificant for growth, suggesting inefficiencies in resource utilization and the need for greater investment and sectoral reforms (Mangbon & Ojonye, 2017; Nnamaka & Nnana, 2021).

Recent empirical studies have shifted attention to non-linear and threshold effects of natural resources on economic growth. Dramani et al. (2022) identified a double-threshold effect for Sub-Saharan African countries, showing that the impact of natural resource rents on growth varies with their contribution to GDP. Conversely, Dada and Abanikanda (2019) found that oil rents enhance growth below a certain threshold in Nigeria but become detrimental beyond it. Additionally, a growing body of literature emphasizes institutional quality as a key moderating factor. Studies by Mohammadi and Sadeghi (2022), Nzie and Pepeah (2022), and Amare et al. (2024) show that weak institutions exacerbate the negative effects of natural resources, while stronger institutional frameworks mitigate the resource curse and improve growth outcomes.

Overall, the literature reveals persistent debate and lack of consensus regarding the growth effects of natural resources. While some studies validate the resource curse hypothesis, others report positive, mixed, or insignificant effects. Moreover, most existing studies rely on linear

models and fail to adequately capture non-linear dynamics and institutional thresholds. The few studies that applied threshold techniques did not sufficiently account for institutional quality. This study therefore contributes to the literature by employing a threshold regression approach to examine the non-linear effects of oil rents on economic growth in Nigeria, while explicitly incorporating institutional quality and identifying critical thresholds beyond which oil rents influence growth outcomes.

3.0 Methodology

3.1 Data and Sources

This study investigates the threshold effect of oil rents on economic growth in Nigeria using secondary time series data covering the period 1990 to 2023. The variables included Oil Rents (OILR), Non-oil Rents (NOILR), Gross Domestic Product per Capita Growth Rate (GDPPCGR), and External Debt Service Ratio (EDSR), along with institutional quality indicators such as Control of Corruption (COR), Regulatory Quality (REG), Rule of Law (ROL), and Government Effectiveness (GOV). All data were obtained from the World Development Indicators of the World Bank (2024).

3.2 Theoretical Framework and Model Specification

The relationship between oil rent and economic growth is explained through Sachs and Warner’s Resource Curse hypothesis (Sachs & Warner, 1997), which posits that resource abundance can negatively affect economic growth. Resource dependence may lead to real exchange rate appreciation, reducing competitiveness of other sectors (Dutch disease), while concentration of wealth in the oil sector encourages corruption and rent-seeking. It can also cause neglect of agriculture and manufacturing, hindering diversification and long-term development. Although widely accepted, some scholars argue that strong governance or institutions can mitigate the resource curse (Amare, 2024; Mohammadi & Sadeghi, 2022; Acemoglu & Robinson, 2012). In such cases, natural resources may enhance growth. Therefore, the impact of resources can be viewed from two lenses: the resource curse hypothesis and the resource blessing hypothesis. The resource blessing hypothesis emphasizes that natural resources support growth if quality institutions are in place.

Schematically, we can link the relationship as follows:



Merging these two hypotheses together, we can model the relationship as follows:

$$\text{Growth \& Development} = f(\text{Natural Resource, Institutional Quality}) \quad (1)$$

Relating this to our study,

$$GDPPCGR = f(OILR, NOILR, EXDSR) \tag{2}$$

Functional form with institutional quality

$$GDPPCGR = f(OILR, NOILR, EXDSR, INST) \tag{3}$$

Where:

GDPPCGR = Gross Domestic Product Per Capital Growth Rate

OILR = Oil Rents

NOILR = Non-oil Rents

EXDSR = External Debt Service Ratio

INST = Institutional Quality

Table 1: Variable Description and A priori

Variable	Description	Unit of Measurement	Expected Sign
GDPPCGR	The average value of goods and services produced in a country per individual in the population	Annual % change	-
OILR	The proceeds from the sale of crude oil	% of GDP	Positive/Negative
NOILR	The proceeds from the sale of non-oil products such as minerals, gas, forest.	% of GDP	Positive/Negative
EXDSR	Proportion of export earnings dedicated for debt servicing	% of Export Earnings	Negative
INST	This measures the effectiveness and overall quality of governance.	-2.5 to +2.5	Positive

3.5 Estimation Technique

This study employed the threshold regression technique developed by Hansen (1999) to capture the nonlinear and regime-dependent relationship between oil rents and economic growth. Unlike linear models, threshold regression allows the data to be split endogenously into different regimes, identifying points at which the effect of oil rents on GDP per capita growth changes. This method is suitable for natural resource economics, where resource dependence may have varying impacts across levels. The study also estimated institutional quality thresholds to determine when governance begins to significantly influence growth. Hansen’s (1999) approach provides both methodological rigor and theoretical relevance, revealing complex interactions that standard linear models cannot capture. The model without institutional quality is stated in equation 4:

$$GDPPCGR_t = \begin{cases} \alpha_0 + \alpha_1 OILR_t + \alpha_2 NOILR_t + \varepsilon_{1t}, & \text{if } OILR_t \leq \gamma \\ \beta_0 + \beta_1 OILR_t + \beta_2 NOILR_t + \varepsilon_{2t}, & \text{if } OILR_t > \gamma \end{cases} \tag{4}$$

Where:

t: time period

GDPPCGR_t = GDP per Capita Growth at time t

OILR_t = Oil rent at time t

γ = Threshold level of Oil rent that splits the relationship.

α₀ and α₁ are the intercepts and slope for the low oil rent regime (OILR_t ≤ γ)

β₀ and β₁ are the intercepts and slope for the high oil rent regime (OILR_t > γ)

ε_{1t} and ε_{2t} are the error terms for each regime.

When institutional quality is considered in the model, Equation 4 can be re written as:

$$GDPPCGR_t = \begin{cases} \alpha_0 + \alpha_1 OILR_t + \alpha_2 NOILR_t + \alpha_3 EXDSR_t + \alpha_4 INST_t + \varepsilon_{1t}, & \text{if } INST_t \leq \gamma \\ \beta_0 + \beta_1 OILR_t + \beta_2 NOILR_t + \beta_3 EXDSR_t + \beta_4 INST_t + \varepsilon_{2t}, & \text{if } INST_t > \gamma \end{cases} \quad (5)$$

To get the threshold for institutional quality above which the growth of GDPPCGR can improve, we can re-write Equation 5 as follows:

$$GDPPCGR_t = \begin{cases} \alpha_0 + \alpha_1 OILR_t + \alpha_2 NOILR_t + \alpha_3 EXDSR_t + \alpha_4 INST_t + \varepsilon_{1t}, & \text{if } OILR_t \leq \gamma \\ \beta_0 + \beta_1 OILR_t + \beta_2 NOILR_t + \beta_3 EXDSR_t + \beta_4 INST_t + \varepsilon_{2t}, & \text{if } OILR_t > \gamma \end{cases} \quad (6)$$

All the variables are as previously defined. However, γ now represents the threshold level of Institutional quality.

3.5.2 Granger Causality Test

This test was carried out to determine if a causal relationship exist between oil rents and economic growth. It was used to see if oil rents actually cause economic growth to increase or not.

$$GDPPCGR_t = \alpha_0 + \sum_{i=1}^p \alpha_i GDPPCGR_{t-i} + \sum_{j=1}^p \beta_j OILR_{t-j} + \varepsilon_{1t} \quad (7)$$

$$OILR_t = \gamma_0 + \sum_{i=1}^p \gamma_i OILR_{t-i} + \sum_{j=1}^p \omega_j GDPPCGR_{t-j} + \varepsilon_{2t} \quad (8)$$

We test whether the coefficients β_j are jointly significantly different from zero.

4.0 Results and Discussions

4.1 Preliminary Analysis

Table 2: Descriptive Statistics

	GDPP CGR	OILR	NOILR	COR	REG	GOV	ROL
Mean	2.117	11.015	2.422	-1.182	-0.92	-1.042	-1.136
Med.	2.377	11.622	2.059	-1.161	-0.907	-1.024	-1.147
Max.	12.276	22.05	4.705	-0.901	-0.682	-0.897	-0.843
Min.	-4.162	2.684	1.692	-1.502	-1.293	-1.213	-1.513
Std. Dev.	3.435	5.022	0.849	0.145	0.159	0.096	0.182
Skew.	0.556	0.04	1.471	-0.753	-0.736	-0.27	-0.414
Kurt.	4.431	2.291	4.106	3.215	3.074	1.838	2.614

Jarque - B	3.554	0.551	10.701	2.507	2.352	1.777	0.905
Prob.	0.169	0.759	0.005	0.286	0.309	0.411	0.636

Author's Compilation, 2025

From Table 2, GDPPCGR on the average was 2.1% over the study period with a minimum value of -4.2% and maximum of 12.3%. The average contribution of oil rents to GDP over the study period was 11.01% with a minimum value of 2.684 and maximum of 22.05%. A standard deviation of 5.0 shows high spread of oil rents contribution around its mean. The contribution of non-oil rent on the other hand was 2.4% on the average with minimum value of 1.69% and a maximum of 4.71% over the study period. The average, minimum and maximum values of all the institutional quality variables are negative indicating how poor the quality of institutions is in Nigeria.

Table 3: Correlation Matrix

	GDPPCGR	OILR	NOILR	EXDSR	COR	REG	GOV	ROL
GDPPCGR	1							
OILR	0.575	1						
NOILR	-0.067	0.279	1					
EXDSR	-0.641	-0.034	-0.412	1				
COR	-0.485	-0.319	-0.290	-0.22	1			
REG	-0.201	-0.001	-0.355	-0.033	0.627	1		
GOV	0.277	0.595	0.363	-0.301	-0.376	-0.347	1	
ROL	-0.649	-0.555	-0.432	0.412	0.639	0.398	-0.503	1

From Table 3, there is a moderate positive correlation between Oil rents and GDPPCGR while a weak negative relationship exists between Non -oil Rents and GDPPCGR. EXDSR shows a strong negative correlation with GDPPCGR. There is also a weak negative correlation between GDPPCGR and two governance indicators (COR and REG). However, government effectiveness showed a weak positive correlation while Rule of Law showed a strong positive correlation with GDPPCGR. In addition, there is no evidence of multicollinearity since the explanatory variables are not highly correlated.

4.2 Pre-Estimation Test

Table 4: Summary of Unit Root Test

Variables	ADF Statistic		DF-GLS Statistic		Breakpoint	
	Level	First Diff.	Level	First Diff.	Level	First Diff.
GDPPCGR	-2.641	-3.946	-2.69**	-	-3.73	-8.92***
OILR	-2.33	-5.04***	-2.19**	-	-6.74***	-
NOILR	-3.13**	-	-1.70	-5.62***	-4.02	-6.23***
EXDSR	-1.98**	-	2.08**	-	6.34***	-
COR	-1.64	-4.98***	-1.68	-4.07***	-6.40***	-
REG	-2.23	-5.93***	-2.26**	-	-3.82	-8.63***
GOV	-3.37**	-	-3.08***	-	-4.59**	-
ROL	-1.21	-4.54***	-1.16	-4.60***	-2.45	-6.02***

***, **, * Indicate stationarity at 1%, 5% & 10% respectively

From Table 4, the Augmented Dickey Fuller Statistics shows that GDPPCGR, OILR, COR, REG, ROL are not stationary at levels but stationary at first difference. On the other hand, NOILR, EXDSR and GOV are stationary at levels. For Dickey-Fuller GLS, GDPPCGR, OILR,



EXDSR, REG, GOV are all stationary at Levels while NOILR, COR and ROL are non-stationary at levels but are stationary at first difference. Lastly, the Unit root with Breakpoints shows that GDPPCGR, NOILR, REG, ROL are non-stationary at levels but are stationary at first difference. On the other hand, OILR, EXDSR, REG, ROL are all stationary at levels. Since all the variables are stationary at most at first difference.

4.3 Model Estimation

Table 5: Threshold Regression Estimation

Variable	Coefficients	t-statistic	p-value
Regime 1: OILR < 11.14			
OILR	0.6824	2.7426**	0.0125
Regime 2: 11.14 ≤ OILR < 13.09			
OILR	-7.7683	-2.9210***	0.0084
Regime 3: OILR ≥ 13.09			
OILR	-0.0543	-0.1999	0.8436

***, **, * Indicate stationarity at 1%, 5% & 10% respectively

From Table 5, there were three thresholds for oil rents. Oil rents improve growth rate by 0.682 units when its contribution is below 11.14%. However, when the contribution is between 11.14% and 13.09%, GDPPCGR falls by 7.768 units. Both impacts are statistically significant by 5%. Lastly, when the contribution is above the threshold of 11.14%, it reduces growth by 0.054 units. However, the impact is not statistically significant at that level.

Table 6: Threshold Regression with Institutional Quality

Variable	Coefficients	t-statistic	p-value
Threshold for Oil Rents			
Regime 1: OILR < 11.14			
OILR	0.6868	2.2085**	0.0379
COR	3.8214	2.0116*	0.0567
Regime 2: OILR ≥ 11.14			
OILR	-0.3871	-2.0265*	0.0550
COR	-7.0896	-3.3467***	0.0029
Threshold for Control of Corruption			
Regime 1: COR < -1.1808			
OILR	-0.3743	-2.1635**	0.0416
COR	-7.0687	-3.7598***	0.0011
Regime 2: COR > -1.1808			
OILR	0.4775	3.9076***	0.0008
COR	3.2143	2.7933**	0.0106

***, **, * Indicate stationarity at 1%, 5% & 10% respectively

In considering the role of institutional quality proxy by estimate of control of corruption, Table 6 shows that when COR is included in the model, a contribution of less than the threshold of 11.14% leads to a slight improvement in growth rate of GDP (from 0.6824 units to 0.6868 units). Moreover, when the contribution is above 11.14%, the negative impact is drastically reduced to 0.3871 units as against the previous 7.768 units. Table 6 also shows a threshold for control of corruption. When COR is less than a threshold of -1.181, Oil rents reduces growth by 0.374 units. On the other hand, when the estimate is above the threshold of -1.181, there is 0.478 unit increase in the growth rate of GDP.

4.4 Robustness Checks

Table 7: Threshold Regression with Rule of Law

Variable	Coefficients	t-statistic	p-value
Threshold for Oil Rents			
Regime 1: OILR < 11.14			
OILR	0.7224	2.1039**	0.0470
ROL	4.4271	1.9104*	0.0692
Regime 2: OILR ≥ 11.14			
OILR	-0.3730	-2.0337*	0.0542
ROL	-7.5950	-3.4145***	0.0025
Threshold for Rule of Law			
Regime 1: ROL < -1.3542			
OILR	-0.9125	-1.0453	0.3072
ROL	-12.9102	-1.7356*	0.0966
Regime 2: ROL > -1.3542			
OILR	0.3157	2.7198**	0.0125
ROL	1.8250	1.4416	0.1635

***, **, * Indicate stationarity at 1%, 5% & 10% respectively

From Table 7, we used Rule of Law as an institutional quality variable to check if our result is consistent. From the result, when rule of law is included in the model, Oil rents contribute 0.722 units to growth rate of GDP when its contribution is less than 11.14% of GDP. This is an improvement from 0.682 units when institutional quality was not considered. On the other hand, a contribution greater than a threshold of 11.14% reduces the negative impact of GDP on growth to 0.3730 which is an improvement from -7.768.

A threshold for rule of law was also estimated. When the estimate is less than -1.3542, oil rent reduces GDP growth rate by 0.913 units, though the impact is not statistically significant. However, when the estimate is above the threshold of -1.3542, oil rent contributes 0.316 units to growth rate of GDP.

Table 8: Threshold Regression with Governance Effectiveness

Variable	Coefficients	t-statistic	p-value
Threshold for Oil Rents			
Regime 1: OILR < 9.8801			
OILR	1.1059	3.6796***	0.0015
GOV	5.7623	3.5179***	0.0022
Regime 2: 9.8801 ≤ OILR < 12.0986			
OILR	7.2414	5.8154***	0.0000
GOV	67.3379	5.4484***	0.0000
Regime 3: OILR > 12.0986			
OILR	-0.1045	-0.6460	0.5256
GOV	-4.8596	-1.9234*	0.0688
Threshold for Government Effectiveness			
No Threshold for Government Effectiveness			

***, **, * Indicate stationarity at 1%, 5% & 10% respectively.

Table 8 shows the threshold effect of Oil rent on growth when government effectiveness is used as a proxy for institutional quality. When government effectiveness is included in the model, the study found three thresholds for Oil rents. A contribution of oil rent to GDP below



9.88% will significantly improve GDP by 1.106 units. However, a contribution greater than 9.88% but less than 12.1% will significantly increase the growth rate by 7.24 units. However, when the contribution is greater than 12.1%, the impact is negative and insignificant on growth of GDP. We did not find threshold for government effectiveness that will improve or reduce economic growth.

Table 9: Threshold Regression with Regulatory Quality

Variable	Coefficients	t-statistic	p-value
Threshold for Oil Rents			
Regime 1: OILR < 11.14			
OILR	0.6511	2.7269**	0.0123
REG	4.7413	2.5564**	0.0180
Regime 2: OILR ≥ 11.14			
OILR	-0.2298	-1.5902	0.1261
REG	-7.5984	-3.3646***	0.0028
Threshold for Regulatory Quality			
Regime 1: REG < -1.0244			
OILR	-1.4703	-2.1635*	0.0541
REG	-21.2895	-2.6977**	0.0131
Regime 2: REG > -1.0244			
OILR	0.3198	3.6452***	0.0014
REG	2.5258	2.1207**	0.0455

***, **, * Indicate stationarity at 1%, 5% & 10% respectively

Table 9 shows the threshold effect of oil rents on economic growth when regulatory quality is included in the model. When oil rents contribution is less than 11.14% threshold, it significantly improves GDP by 0.651 units. However, a contribution greater than a threshold of 11.14 reduces growth by 0.23 units.

A threshold for was also found for Regulatory quality. When regulatory quality is less than -1.0244, oil rents reduce the growth rate of GDP by 1.47 units. However, an estimate of regulatory quality that is greater than -1.042 will significantly increase growth by 0.320 units.

Table 10: Granger Causality Test

Null Hypothesis:	Obs.	F-Statistic	Prob.
OILR does not Granger Cause GDPGR	32	4.6890**	0.0221
GDPGR does not Granger Cause OILR		0.5097	0.6087

***, **, * Indicate stationarity at 1%, 5% & 10% respectively

The granger causality test carried out shows that a unidirectional causality runs from OIL_RENT to GDP growth rate which implies that Oil rent granger causes GDP growth.

4.5 Discussion of Findings

This study analysed the intricate relationship between oil rents and economic growth in Nigeria, extending the analysis beyond conventional linear analyses, highlighting critical non-linear effects and the pivotal role of institutional factors in shaping how oil wealth impacts economic growth.

Our findings revealed a clear threshold effect of oil rents on Nigeria's economic growth, a crucial insight that explains some of the inconsistencies in extant studies. When oil rents constitute less than 11.14% of GDP, they have a statistically significant and positive impact on

growth, boosting GDP growth by 0.682 units. This initial positive effect aligns with studies that challenge the resource curse theory, such as Hayat and Tahir (2019), who found natural resources to be positive and significant on economic growth in UAE, Saudi Arabia, and Oman. Similarly, Ajie (2019) reported a positive and significant impact of solid mineral development on Nigeria's economy, suggesting that moderate levels of resource revenues can indeed stimulate economic activity. However, a stark contrast occurs once oil rents surpass this initial threshold. Our analysis indicated that when oil rents fall within the range of 11.14% to 13.09% of GDP, they significantly reduce GDP growth by a substantial 7.768 units. This sharp negative impact strongly supports the Sachs and Warner theory of the resource curse, which posits that abundant natural resources can paradoxically hinder economic growth. This finding is consistent with Adamu et al. (2021), who confirmed a negative relationship between natural resources and economic growth in Nigeria, and Bah and Ouedraogo (2022), who attributed low economic growth and development in West Africa to natural resource rent. This decline likely reflects issues like economic volatility and the "Dutch disease," where the booming resource sector causes neglect in other productive sectors. Interestingly, when oil rents exceed 13.09%, their negative impact becomes statistically insignificant, possibly indicating a saturation point where further accumulation doesn't significantly alter growth.

These multi-threshold outcomes help to reconcile the "mixed results" often found in the literature. For instance, Ofori and Grechyna (2021) observed varied impacts of different resource rents across SSA countries, while Adekunle et al. (2023) reported both positive and negative effects of various resource rents in African nations. In the Nigerian context, Inuwa et al. (2022) and Afolabi et al. (2023) also presented mixed findings. Our study, by identifying specific non-linear thresholds, offers a more precise explanation for these varied outcomes, suggesting that seemingly contradictory results might simply reflect different levels of resource dependency. Furthermore, our research advances previous threshold analyses, such as those by Dramani et al. (2022) and Dada and Abanikanda (2019). While these studies identified critical thresholds, they often lacked the crucial element of institutional quality, a gap our current investigation addresses comprehensively.

A cornerstone of our research is the unequivocal demonstration that institutional quality is a critical determinant in shaping the economic impact of oil rents. Robust institutions can substantially mitigate negative effects and amplify positive contributions, offering a path to navigate the resource curse. The inclusion of control of corruption significantly alters the dynamics. While the positive impact of oil rents below the 11.14% threshold slightly increases, the most dramatic effect is the sharp reduction of the negative impact of oil rents above this threshold, from a decline of 7.768 units to just 0.3871 units. This suggests that good governance and effective anti-corruption measures can transform a potentially harmful situation into a more manageable one. Moreover, the emergence of a specific corruption control threshold (below -1.181, oil rents reduce growth; above -1.181, they foster growth) provides actionable insights. This strongly corroborates earlier studies like Mohammadi and Sadeghi (2022) and Nzie and Pepeah (2022), which found that the interaction between natural resources and institutional quality could yield beneficial outcomes. Our study validates that weak institutional quality exacerbates the resource curse, reinforcing the perspective of Amare et al. (2024), who noted a more negative impact of natural resources on growth when institutional quality is poor.

Similarly, the inclusion of the rule of law shows that oil rents below the 11.14% threshold increase growth more significantly (0.722 units), and the negative impact of higher rents diminishes to 0.3730 units. The presence of a rule of law threshold (below -1.0244 for slightly negative impact, above -1.0244 for positive impact) further emphasizes the importance of a fair and predictable legal framework. Our analysis of government effectiveness presents



compelling results, showing that oil rents below 9.88% of GDP boost growth significantly (1.106 units). Surprisingly, even when oil rents rise above this level but remain below 12.1%, growth still increases strongly (7.24 units), demonstrating that a capable government can turn oil rents into a powerful driver of growth. However, once oil rents surpass 12.1%, their impact becomes negative and insignificant, indicating limitations even for effective governance.

Finally, regulatory quality also plays a crucial role. When oil rents are below the 11.14% threshold, they raise growth by 0.651 units. Above this threshold, growth declines by 0.23 units. Poor regulatory quality (below -1.0244) leads to a sharp 1.47 unit drop in growth, while better regulatory quality (above -1.042) boosts growth by 0.320 units. This highlights the importance of clear and fair regulations in fostering a conducive environment for private investment and productive activity.

The Granger causality test further solidifies these findings, confirming that oil rents drive economic growth rather than the other way around. This underscores those policies on how to manage oil rents will have a direct and discernible impact on Nigeria's economic progress.

4.6 Policy Implications

The empirical evidence from our study yields vital policy implications for Nigeria. First, the identified threshold of 11.14% of GDP for oil rents suggests a critical need for economic diversification and prudent fiscal management during periods of high oil prices to maintain their positive impact. This means reducing over-reliance on oil and strategically investing in other sectors, utilizing tools like sovereign wealth funds and stabilization funds to manage oil windfalls and ensure more stable growth.

Secondly, the consistent findings across multiple institutional quality indicators underscore that strengthening institutions is paramount. Fighting corruption, enforcing the rule of law, and ensuring sound regulatory frameworks are essential. Anti-corruption agencies need real power, judicial reforms are crucial for contract enforcement and property rights, and improving government effectiveness through efficient, transparent, and accountable public services can channel oil rents into better education, healthcare, and infrastructure.

Finally, improving regulatory quality is important for reducing barriers to business activity and fostering an environment that attracts investment. Good regulations make it easier for businesses to grow and create jobs, helping to offset the harmful effects of relying too heavily on oil. In essence, for Nigeria to genuinely benefit from its oil wealth and overcome the resource curse, prioritizing and implementing comprehensive institutional reforms are not just recommended but are fundamental to achieving sustainable economic growth and stability.

5.0 Conclusion and Policy Recommendations

This study examined the threshold effect of oil rents on economic growth in Nigeria using the Threshold regression method. The findings showed that an oil rent that is below a threshold of 11.14% of GDP improves economic growth. However, any contribution greater than 13.09% reduces growth suggesting the need to diversify the economy and reduce the over-reliance on crude oil. Institutional quality emerged as a critical factor for turning oil rents into a source of economic progress suggesting the need to fight corruption, enforce the rule of law, and promote sound regulatory frameworks. Particularly, we found a threshold of -1.181, -1.024, -1.354 for control of corruption, regulatory quality and rule of law respectively and a value below these estimates makes the impact of oil rents to be negative on economic growth. On this basis, this study concludes that oil rents can help Nigeria grow, but only up to a point and only if the country has strong institutions in place. By managing the size of oil rents and improving the

quality of governance, Nigeria can ensure that its natural resources become a genuine driver of long-term economic growth. The study therefore recommends that government should diversify the economy by focusing on other sector of the economy such as the manufacturing and agricultural sector and also explore the non-oil aspect of natural resources such as forest rents, natural gas rents, and mineral rents. In addition, there should be mechanism to curb the level of corruption and uphold the rule of law. Anti-corruption agencies need real power and independence to investigate wrongdoing. In addition, improving government effectiveness should be a priority to ensure efficiency, transparency, and accountability in public offices so that the proceeds from oil can help improve the economy.

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