

Institutional Quality and the Transformation of Resource Rents into Economic Growth: Evidence from Resource-Rich Countries

Zahraa Khalil Ali¹, Mufeed D. Y. Almula-Dhanoon²

¹ Department of Economics, College of Administration and Economics, University of Mosul, Mosul- IRAQ.

Email: zahraa.khalil@uomosul.edu.iq

ORCID: 0009-0007-0963-7947

² Department of Economics, College of Administration and Economics, University of Mosul, Mosul- IRAQ.

Email: dr.mufeed@uomosul.edu.iq

ORCID: 0000-0002-9464-2674

Abstract: This study addresses the function of organizational quality in dealing the correlation between resource rentals and economic improvement in resource-rich countries through the period 1996–2024. Economic development is considered not only by the scale of resource rentals but owing to the stage of institutional standard to manage to achieve these means and direct them toward industrious actions. To attain this objective, the study engages a stable panel dataset which covers 27 resource-rich nations for a period 1996–2024, involving a total of 783 to be observed. Organizational quality is assessed via through a composite index built through Principal Component Analysis (PCA) reliant on the World Governance Indicators established by the World Bank. This study employs second-generation sort of panel unit root and cointegration tests, and the Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) and Common Correlated Effects Mean Group (CCEMG) estimators. Additionally a Panel Threshold Regression model is used to analyse the nonlinear nature of the connection among the set variables.

The findings displays the presence of a long-run symmetry correlation in the study variables. The findings again show both resource rents and organizational attributes utilize a positive impact on economic expansion. The threshold analysis also show two crucial stages of organizational. Resource rents indicates a negative impact with a relatively weak organizational domains. These outcomes suggest that organizations not only impact economic expansion directly but also regulate the capacity of resource-inclined nations to change resource rents through sustainable economic development. The study exhibits the essence of organizational change and enhanced leadership as vital basics for exploiting the developing gains of natural properties.

Keywords: Institutional Quality, Resource Rents, Economic Growth, Natural Resources, Governance, CS-ARDL, CCEMG.

1. Introduction

Natural endowments form the most vital sources of wealth in numerous modern economies, as revenues made from gas, oil, gas, minerals offer huge financial endowments that can be used to sponsor future investment and enhance economic expansion. However, international experience discloses substantial differences in the presentation of resource-inclined nations. There is a sluggish growth with regards to some nations and structural imbalances despite owning plentiful natural endowment. This departure has shaped the basis of the natural resource obscurity literature, which attempts to explain the variances in economic results among resource-inclined economies.

In recent years, researchers focused mainly on the availability of natural resources to examine the organizational factors that regulate their management. Based on the New Institutional Economics viewpoint, the economic results of natural endowment are dogged not only by their richness but also by the capacity of organizations to channel resource proceeds toward better investment, economic diversification, and productivity enhancement. Subsequently,



institutional excellence has appeared as one of the factors elucidating why natural endowments become an economic benediction in some nations whereas contributing to progressive distortions in others.

Notwithstanding the widespread literature on the resource blasphemy and the function of organizations towards relative economic growth other studies have directly scrutinized how institutions adjust the effect of resource rents on economic progress, predominantly within a nonlinear model that explores whether critical organizational inceptions exist far beyond the normal resources trends. Accordingly, this study uses a sort of composite organizational excellence index fabricated from numerous governance scopes, offering a more detailed manifestation of the institutional domain and allowing a deeper perceptions of the correlation between resource rents and economic expansion.

Against this development, the study seeks to analyse the function of organizational excellence to transform resource rentals into economic expansion in a sample of resource-inclined nations during the period 1996–2024. This is achieved by constructing a composite institutional quality index and assessing the direct effects of resource rents and institutions, as well as investigating whether institutional quality constitutes a decisive factor in moving resource-dependent economies from a state of “resource curse” to a state of “resource blessing.”

The involvement of this excellent study is dependent moving beyond the predictable method to examine direct interaction to identify critical organizational inceptions where the influence of resource rents on economic expansion changes from negative to positive part, and thus, provide an elucidation for the changes in economic role in resource-rich nations.

To attain these potential objectives, the study is prepared into five distinct sections. The first part presents the theoretic framework and pertinent literature. The second part presents the study methodology engaged as well as the data. Then the third section highlights the introductory numerical and econometric tests. The fourth part presents and argues the experimental findings. Lastly, the fifth section offers the conclusions and potential policy implications.

2. Theoretical Model and Related Literature

Natural resources form one of the main sources of income that will generate financing, investment economic expansion. In theory, revenues produced from gas, oil, and mineral resources are predictable to encourage capital buildup, finance infrastructure growth, and improve efficiency stages. Conversely, universal experience has discovered huge differences in the performance of resource-inclined nations. Whereas some nations have effectively used their natural endowments to attain sustainable commercial expansion, others have seen inactive development, severe economic volatility, and feeble economic expansion. This departure caused a natural resource blasphemy that is linked to studies of Auty (1993) and Sachs and Warner (1995). The to this hypothesis, extreme dependence on natural resources often lead to negative economic results owing to due to Dutch disease, inadequate economic divergence, unpredictability of resource incomes, and the extent of rent-seeking behavior (Van der Ploeg & Poelhekke, 2009).

Recently, literature no longer outlooks natural endowment as integrally a blessing or otherwise. But, how these resources are achieved (Van der Ploeg, 2011). Within this purview, the New Institutional Economics viewpoint stresses that organizations offer the model to control economic actions in elucidating variations in economic performance across nations. Acemoglu, Johnson, and Robinson (2002) contest that organizations constitute the central determinant of sustained economic expansion to improve resource distribution efficacy, and lessen corruption, while weak organizations misrepresent economic inducements and inspire rent-seeking activities.

In resource-reliant economies, for instance, Mehlum, Moene, and Torvik (2006) founded a conceptual model that links natural resources to organizational quality by differentiating between producer-inclined organizations and grabber-friendly organizations. This aspect is in agreement with most recent studies signifying that the influence of natural resources on economic expansion is conveyed to a series of economic and organizational channels that address how resource revenues are used. Organizational decline may expressively limit the evolving gains resultant from natural endowment, predominantly in less advanced economies (Al-Jomard et al., 2025).

Experimental proof has progressively enhanced this assertion. Boschini, Pettersson, and Roine (2007) establish that the development impacts of natural endowment relies heavily on organization quality. Likewise, Bhattacharyya and Hodler (2014) indicated that natural resource affluence is connected with advanced corruption stages in weak institutional domains, whereas Arezki and van der Ploeg (2011) showed that the positive impacts of natural endowments are more marked in countries categorized by good supremacy. Badeeb, Lean, and Clark (2017) again resolved that institutions embody one of the essential aspects to indicate variations in resource outcomes across

nations. Similarly, Venables (2016) stressed that the success of resource-inclined nations be contingent largely on their organizational capacity to maintain resource incomes and channel them into future investment.

The present-day institutional literature states all levels of institutional expansion. Rather, it proposes the reality of critical organizational inceptions at which the correlation between natural endowment and economic development may be adjusted. Steady institutional expansion improves the efficacy of resource apportionment and advances the economic domain to support growth as the administrative and legal schemes of institutions become really efficient (North, 1990). Furthermore, the ecological impacts of organizations do not appear to become powerful after several institutions reach a specific level of efficiency and steadiness (Rodrik, Subramanian, & Trebbi, 2004). Accordingly, the impact of resource rents may be different based on the stage of organizational quality, offering a theoretic validation for testing the presence of institutional inceptions that detached situations of “resource curse” from the aspects of “resource blessing.”

Building on this aspect, this study presumes that the impact of resource rents on economic expansion is not reliant basically on the copiousness of natural endowment but also by the excellence of the institutions handling these properties. To assess this proposal, the study concepts a composite organizational excellence index to represent the general institutional domain and uses an interface between resource rents and organizational excellence, in addition to some trial for the presence of institutional inceptions that may determine the evolution from a resource obscurity to a resource benediction. This viewpoint is in line with recent literature stressing that the involvement of natural endowment to sustainable growth depends principally on organizational efficiency and the capability to channel resource incomes toward long-term venture, human capital establishment, and infrastructure expansion (Rana, 2025).

Numerous recent studies stress that the economic findings of natural resources are mainly resolute by the organizational domain via which these resources are accomplished. Sibanda (2023) establish that enhancements in organizational excellence lessen the adversative effects connected with resource reliance and improve the efficacy of resource income utilization. Correspondingly, Belloumi (2025) established that the impact of resource rents on economic expansion in oil-producing nations is deeply connected to the superiority of authority and institutions. Farih (2025) further exhibited that the impacts of natural resource richness vary based on the institutional conditions and levels of economic growth.

3. Research Methodology and Data

3.1 Data

The research uses a balanced panel dataset encompassing 27 resource-inclined nations over the specific period 1996–2024, producing around 783 observations. The sample was chosen according to the World Bank’s Total Natural Resources Rents (% of GDP) indicator and the accessibility of whole and reliable data for all study variables all through the study period. The designated nations are considered by the noteworthy contribution of natural resources to economic action and national revenue, making them necessary to examine resource dependence. Additionally, the assortment of the sample in relation to both established excellence and the degree of dependence on natural resources offers a suitable setting for exploring how institutional excellence shapes the correlation between resource rents and economic development.

The sample of these countries may include the following: Angola, Algeria, Azerbaijan, Brunnei, Botswana, Darussalam, Chad, Cameroon, Chile, Columbia, the Democratic Republic of the Congo, Ecuador, Indonesia, Gabon, Indonesia, Iran, Kazakhstan, Kuwait, Libya, Malaysia, Mali, Malaysia, Mongolia, Mexico, Norway, Oman, Qatar, Peru, Saudi Arabia, and the Soviet Russian Federation.

The study time starts in 1996 because the Worldwide Governance Indicators (WGI) that serve as the basis to assess organizational excellence are not available before that year. The year 2024 signifies the most recent period for which comprehensive information are available for all variables encompassed in the analysis.

Data for this research were accessed from their unique sources in the World Bank’s World Development Indicators (WDI) database, excluding the Mean Years of Schooling, which was produced from the Barro-Lee Educational Attainment Dataset. Institutional quality was assessed through using a composite index built via Principal Component Analysis (PCA) based on the six governance scopes described by the World Bank’s Worldwide Governance Indicators: Control of Corruption, Government Effectiveness, Political Stability and Absence of Violence, Regulatory Quality, Rule of Law, and Voice and Accountability. The PCA method was approved to decrease dimension and obtain the major share of the common difference across these authoritative indicators within a single organizational excellence measure.

Table 1. Definition of Variables

Symbol	Variable	Variable Type	Unit of Measurement	Source
GDPG	Gross Domestic Product Growth Rate	Dependent	%	World Bank (WDI)
R	Total Natural Resource Rents as a Percentage of GDP	Independent	%	World Bank (WDI)
PCA	Composite Institutional Quality Index	Independent	Index	Calculated from WGI Indicators
RPCA	Interaction Term ($R \times PCA$)	Independent	Index	Author's Calculation
GCF	Gross Fixed Capital Formation	Control	% of GDP	World Bank (WDI)
EDU	Mean Years of Schooling for the Adult Population (Aged 25 and above)	Control	Years	Barro-Lee Educational Attainment Dataset
TRA	Trade Openness (External Trade as a Percentage of GDP)	Control	%	World Bank (WDI)
INF	Inflation Rate (Consumer Prices)	Control	%	World Bank (WDI)

Source: Organized by the author according to the data accessed from the World Bank (WDI), the Worldwide Governance Indicators (WGI), as well as the Barro-Lee Educational Attainment Dataset.

3.2 Econometric Model and Approximation Methodology

To examine the function of organizational excellence to moderate the effect of resource rents on economic expansion, the following econometric classic tenet is detailed:

$$GDPG_{it} = \alpha_i + \beta_1 R_{it} + \beta_2 PCA_{it} + \beta_3 RPCA_{it} + \beta_4 GCF_{it} + \beta_5 EDU_{it} + \beta_6 TRA_{it} + \beta_7 INF_{it} + \varepsilon_{it}$$

Wherever **RPCA** signifies the interface term used to study the diminishing function of organizational excellence in the association between resource rents and economic expansion:

$$RPCA_{it} = R_{it} \times PCA_{it}$$

The presence of this interface term is inspired by the model produced by Mehlum, Moene, and Torvik (2006), which stresses that the economic consequences of natural endowments depend principally on the excellence of principal institutions. The control variables were designated based on the economic development literature to account for other features affecting economic development.

Additionally, **i** signifies the nation, **t** symbolizes time, α_i denotes the country-inclined impact, and ε_{it} is the casual error term.

The study uses a series of panel data method due to its capability to integrate both the cross-sectional and time-series proportions, rise the number of annotations and points of freedom, and enhance the estimation efficacy. These may arise from common economic shockwaves and comparable variations in natural endowments markets, cross-sectional necessity was first scrutinized through the Pesaran CD test.

The findings of this test, second-generation inclined panel data tests were used because they are suitable in cross-sectional dependency. To scrutinize the stationary elements of the said variables, the Cross-Sectional Augmented Dickey–Fuller (CADF) and Cross-Sectional Amplified IPS (CIPS) tests advanced by Pesaran (2007) were utilized. Additionally, the Westerlund cointegration test was applied to examine the presence of a long-run symmetry correlation among the variables of the study.

After founding the time-series elements of the variables to confirm the presence of cointegration, the Cross-Sectional Augmented Autoregressive Distributed Lag (CS-ARDL) method was used as the major procedure for both short-run and long-run interactions among the variables. This method was chosen because of its capability to address the cross-sectional dependency and heterogeneity across nations, whereas also offering an error-correction term that reproduces the speed of alteration toward long-run symmetry following economic shockwaves. Additionally, the Common Correlated Effects Mean Group (CCEMG) estimator was used for stability and robust results as it seeks to control for unobserved shared influences and cross-sectional correlations.

To investigate the nonlinear relationship among resource rents, institutional quality, and economic growth, a Panel Threshold Regression model was also employed. This approach allows the assessment of whether the impact of resource rents on economic growth varies across different levels of institutional quality.

4. Preliminary Statistical and Econometric Tests

4.1 Cross-Section Dependence Test

The Pesaran Cross-Section Dependence (CD) test was employed to examine the presence of cross-sectional dependence among the countries included in the study. This test is widely used in modern panel data analysis to detect correlations across cross-sectional units. Conducting this test is particularly important because ignoring cross-sectional dependence may lead to inconsistent estimates and misleading inferences.

Table 2. Cross-Section Dependence Test Results

Cross-Section Dependence Test		
Sample: 1996-2024		
Periods Included: 29		
Cross-Section Included: 27		
T * N = 783		
Test	Statistic	d.f
Pesaran CD	24.12416	351
Prob.	(0.0000) ***	
Notes: (*) (**) (***) (^{n.s}) indicate significant at 10%, 5%, 1% and not significant respectively.		

Source: Authors' Calculations based on Stata 19.5.

Table 2 reports the results of the Pesaran CD test. The test statistic is 24.12 with a probability value of 0.0000, leading to the rejection of the null hypothesis of cross-sectional independence and the acceptance of the alternative hypothesis that cross-sectional dependence exists among the countries included in the sample. This finding suggests the presence of common shocks and shared influences linking the economies of resource-rich countries. Consequently, the use of second-generation panel unit root and cointegration tests is justified, as well as the application of econometric techniques that explicitly account for cross-sectional dependence and heterogeneity across cross-sectional units.

4.2 Unit Root Test

After confirming the presence of cross-sectional dependence among the countries included in the study, the second-generation Cross-Sectionally Augmented IPS (CIPS) test was employed to examine the stationarity properties of the study variables and determine their order of integration.

Table 3. Unit Root Test Results

Variable	Intercept	Trend	Order of Integration
GDPG	I(0)	I(0)	I(0)
R	I(0)	I(0)	I(0)
PCA	I(1)	I(0)	I(1)
RPCA	I(0)	I(0)	I(0)

GCF	I(0)	I(0)	I(0)
EDU	I(1)	I(1)	I(1)
TRA	I(0)	I(0)	I(0)
INF	I(0)	I(0)	I(0)

Source: Authors' Calculations based on Stata 19.5.

The results of the CIPS unit root test indicate that most of the study variables are stationary at levels, i.e., integrated of order zero, I(0). In contrast, the institutional quality index (PCA) and education (EDU) are found to be non-stationary at levels but become stationary after first differencing, implying that they are integrated of order one, I(1). Accordingly, the study variables consist of a mixture of I(0) and I(1) series, which confirms the suitability of the CS-ARDL approach for estimating both the short-run and long-run relationships among the variables.

4.3 Westerlund Cointegration Test

After establishing that the variables are stationary either at levels or after first differencing, the Westerlund cointegration test was employed to examine the existence of a long-run equilibrium relationship among the study variables while accounting for cross-sectional dependence and heterogeneity across countries.

Table 4. Westerlund Cointegration Test Results

Westerlund ECM panel cointegration tests				
H0: no cointegration				
With 27 series and 4 covariates				
Statistic	Value	Z-value	P-value	Robust P-value
Gt Group-t statistic)	-3.093	-5.631	(0.000)	(0.000)***
Ga Group-alpha statistic)	-6.088	-2.770	(0.997)	(0.000)***
Pt (Panel-t statistic)	-10.847	-1.931	(0.027)	(0.070)*
Pa (Panel-alpha statistic)	-6.472	-0.254	0.400)(	(0.010)**
Notes: (*) (**) (***) (n.s) indicate significant at 10%, 5%, 1% and not significant respectively.				

Source: Authors' Calculations based on Stata 19.5.

The results of the Westerlund cointegration test led to the rejection of the null hypothesis of no cointegration. The group statistics (Gt and Ga) as well as the panel statistics (Pt and Pa) are statistically significant based on the robust p-values. These findings provide strong evidence of a long-run equilibrium relationship between economic growth and the explanatory variables in the sample of resource-rich countries. Consequently, the results justify proceeding with the estimation of both short-run and long-run relationships using the CS-ARDL methodology.

4.4 Optimal Lag Length Selection

Before estimating the dynamic models, the optimal lag length was determined using a Panel Vector Autoregression (Panel VAR) framework and several information criteria in order to identify the most appropriate temporal structure of the relationships among the study variables.

Table 5. Optimal Lag Length Selection

Panel VAR Model for lag Order Selection

Selection order criteria						
Sample: 1996 – 2024						
No. of obs = 783						
No. of panels = 27						
Ave. no. of T = 29						
Lag	CD	J	J P-Value	MBIC	MAIC	MQIC
1	.9999978	86.02409	0.1805486	399.5177	63.97591	194.1425
2	.999998	40.83623	0.8189646	282.8583	59.16377	145.9415
3	.9999985	11.92275	0.9871787	149.9245	38.07725	81.46612
Notes: (*) indicates lag order selected by the criterion.						

Source: Authors' Calculations based on Stata 19.5.

Table 5 presents the results of the optimal lag length selection based on the MBIC, MAIC, and MQIC information criteria. The results indicate that a lag length of three periods (Lag = 3) is the optimal specification, as it yields the lowest values of all information criteria compared with the alternative lag structures. Accordingly, three lags were adopted in the subsequent estimations to ensure a more accurate representation of the dynamic relationships and temporal adjustments among the study variables.

5. Econometric Results and Discussion

Based on the results of the preliminary diagnostic tests, the Cross-Sectionally Augmented Autoregressive Distributed Lag (CS-ARDL) model was employed to estimate both the short-run and long-run relationships among the study variables. In addition, the Common Correlated Effects Mean Group (CCEMG) estimator was used to assess the robustness of the results in the presence of cross-sectional dependence and heterogeneity across the countries included in the sample.

5.1 Cross-Sectionally Augmented ARDL (CS-ARDL) Estimation

Table 6. CS-ARDL Estimation Results

Cross-Sectionally Augmented ARDL				
Long-run coefficients				
Variables	Coefficient	Std. Error	Z-Statistic	Prob.
R	0.133855	0.035988	3.719468	0.0002
PCA	1.094854	0.518619	2.111096	0.0355
RPCA	-0.022776	0.011277	-2.019603	0.0443
INF	-0.037013	0.011630	-3.182603	0.0016
EDU	-2.791411	0.506564	-5.510479	0.0000
GCF	0.145303	0.031844	4.562985	0.0000
TRA	0.012180	0.021554	0.565099	0.5724
Short-run coefficients				
Error Correction Form	-0.828770	0.078709	-10.52952	0.0000
Δ GCF	0.237356	0.111178	2.134922	0.0335

ΔR	0.219133	0.091135	2.404489	0.0168
Constant	12.40471	1.659998	7.472727	0.0000
Dependent Variable	GDPG	F(297, 459) = 1.03 Prob > F = 0.00 R-squared (MG)=0.60		
Countries	27			
Years	29			
Observation	N*T = 783			
Notes: (*) (**) (***) ^(n.s) indicate significant at 10%, 5%, 1%, and not significant respectively.				

Source: Authors' Calculations based on Stata 19.5.

5.2 CS-ARDL Estimation Results

The results of the CS-ARDL model indicate the existence of a statistically significant long-run relationship between economic growth, resource rents, institutional quality, and the control variables in the selected resource-rich countries. The negative and statistically significant error-correction coefficient (-0.829) further confirms the existence of a long-run equilibrium relationship among the study variables. This coefficient implies that approximately 82.9% of short-run disequilibria are corrected in the subsequent period, reflecting a relatively rapid adjustment process toward the long-run equilibrium path following economic shocks.

Consequently, the findings indicate that resource rents (R) exercise a positive and numerically essential impact on economic expansion containing a coefficient of 0.134. This result recommends an increase in resource rentals. Similarly, institutional quality (PCA) also displays a constructive and numerically essential impact on economic expansion containing a coefficient of 1.095. This result shows an improvement of resource allocation efficacy, improving the investment climate, and endorsing economic steadiness. It is dependable with the organizational standpoint progressive by Acemoglu, Johnson, and Robinson (2002), that aligns with institutions as a central determinant of variances in economic presentation across nations.

Though the interface term between resource rentals and organizational quality (RPCA) is negative and numerically essential with coefficient of -0.023, this outcome does not mean that organizations deter economic development. Rather, the negative mark proposes that the correlation between resource rentals and expansion becomes more intricate as institutional excellence advances, thereby provided that a reasoning for examining the nonlinear nature of the correlation model. The result also show the key engine of growth, slowly flowing near more maintainable expansion sources based on venture, economic diversification and productivity enhancement. Conversely, efficient, institutions do not essentially expand the direct expansion effect of resource rents; in its place, they diminish unnecessary dependence on rents as the primary source of economic growth.

This clarification is dependable with elements of the recent literature signifying that efficient organizations can lessen the major results of extreme resource reliance and inspire the divergence of growth sources. It also supports with the model advanced by Mehlum, Moene, and Torvik (2006), which contends that the function of institutions can be extended beyond cumulative the economic returns from natural endowment to refocus economic action away from rent-seeking performance toward fruitful activities.

With regards to the mechanism variables, gross static capital development (GCF) applies an optimistic and numerically essential impact on economic expansion, in agreement with economic model that classifies venture as one of the major drivers of long-run development. By contrast, inflation (INF) has an adverse and numerically essential effect, to suggest that rising price levels unfavorably distress economic action by cumulative uncertainty, corroding acquiring power, and unpromising investment.

A noteworthy discovery is the negative and numerically essential coefficient connected with education (EDU). This findings may reflect a discrepancy between educational findings and labor market demands, or the inadequate absorptive capability to edification may endure low despite enhancements in edifying accomplishment. Preceding studies have likewise contended that the influence of schooling to economic expansion be contingent not only on years of teaching but also on instructive excellence, institutional efficiency, and the dominant economic structure.

Thus, trade openness (TRA) does not exercise a numerically essential on economic expansion to suggest, trade in resource-rich economies may be inadequate upon other features, such as the configuration of exports and the degree of economic divergence.

In the short run, the findings show that modifications indicate in resource rentals and venture contribute confidently to economic expansion. Additionally, the error-correction coefficient affirms the presence of a potent and rapid alteration device that reestablishes symmetry toward the long-run correlation following short-term instabilities.

5.3 Common Correlated Impacts Mean Group (CCEMG) Estimation

To evaluate the sturdiness of the results found from the CS-ARDL model, the long-run correlation was re-assessed through the Common Interrelated Effects Mean Group (CCEMG) estimator. This estimator is reflected as one of the most suitable methods in the presence of cross-sectional dependency and heterogeneity across nations, as it efficiently controls for the inspiration of unnoticed common issues shared among cross-sectional units.

Table 7. CCEMG Estimation Results

Common Correlated Effects Estimator				
Mean group estimation				
Variables	Coefficient	Std. err.	Z-Statistic	P> z
R	.2476391	.1190898	2.08	0.038
PCA	2.857238	1.28203	2.23	0.026
RPCA	-0.33037	0.234675	-1.40777	0.1592
EDU	.1379239	1.537573	0.09	0.929
TRA	-.0400229	.0463603	-0.86	0.388
GCF	.3075087	.0808729	3.80	0.000
INF	-0.09047	0.088829	-1.01843	0.308472
GDPG_csa	.8897272	.3028786	2.94	0.003
R_csa	-.3278376	.259511	-1.26	0.206
PCA_csa	-5.149045	9.935601	-0.52	0.604
RPCA_csa	-0.28373	0.346273	-0.81937	0.412
EDU_csa	-.2173337	1.531694	-0.14	0.887
TRA_csa	-.0120351	.1333424	-0.09	0.928
GCF_csa	-.3657311	.2910194	-1.26	0.209
INF_csa	0.015811	0.010773	1.46758	0.142218
constant	9.437992	17.1727	0.55	0.583
Dependent Variable	GDPG	Number of obs = 783 = 28.9 Wald chi2(5) Prob > chi2 = 0.0000		
Countries	27			
Years	29			
Observation	N*T = 783			
Notes: (*) (**) (***) ^(n.s) indicate significant at 10%, 5%, 1% and, not significant respectively.				

Source: Authors' Calculations based on Stata 19.5

The CCEMG approximation findings described in Table 7 show that resource rents (R) retain a optimistic and numerically essential impact with a coefficient of 0.248 at the 5% consequence stage. This result is in line with the results realized from the CS-ARDL framework, which equally exposed a positive and noteworthy effect of resource rents on economic growth. Such steadiness reinforces the consistency of the supposition that natural resources endure to signify an imperative source of support for economic action in resource-rich nations.

The results again indicate that organizational excellence (PCA) exercises a positive and numerical growth of 2.857. This result is also in accordance with the CS-ARDL results, which emphasized a confident and momentous role for organizations in endorsing expansion. The result is dependable with the established literature, which stresses that efficient institutions improve resource distribution competence, advance the venture climate, and support long-term economic presentation.

In relation to the interface term between resource rents and organizational excellence (RPCA), the coefficient maintains its negative mark, as in the CS-ARDL classical, but loses its numerical consequence in the CCEMG estimations. This advocates that the negative interface effect recognized in the standard model is not correspondingly strong when an option estimator is used, suggesting that caution is justified when addressing conclusions. Nonetheless, the tenacity of the negative sign across both representations offers proof evidence of a general trend whereby reliance on resource rents as a driver of development failures as organizational excellence improves.

With regards to the control variables, gross fixed capital formation (GCF) holds its constructive and numerically substantial effect on economic development, dependable with the CS-ARDL results and underpinning the central role of venture to promote sustainable economic expansion. In contrast, education (EDU), trade openness (TRA), and inflation (INF) do not show essential impacts in the CCEMG evaluations, notwithstanding some of these variables being weighty in the CS-ARDL model.

Generally, the contrast between the CS-ARDL and CCEMG outcomes show a high extend of reliability of resource rents, institutional excellence, and venture. This reliability improves the powerful of the findings and affirms that the main suppositions of the study are not reliant on a precise estimate procedure. Consequently, economic expansion in resource-rich nations emerge to be absolutely predisposed by both resource rents and organizational excellence, while the interface influence between the two remains less steady from a numerical viewpoint and therefore needs a more careful clarification when developing policy inferences. The instability of the interaction coefficient across alternative estimators also provides an additional justification for testing the nonlinear relationship through an institutional threshold model.

5.4 Cross-Sectional Effects

The CCEMG estimator incorporates a set of cross-sectional averages to capture unobserved common factors and shocks that simultaneously affect all countries included in the sample. The results indicate that the cross-sectional average of economic growth (**GDPG_csa**) is positive and statistically significant, suggesting the presence of strong common influences among resource-rich countries. This finding implies that economic growth in each country is partially affected by shared economic trends and global shocks, such as fluctuations in energy and natural resource prices, as well as international business cycles.

By contrast, the cross-sectional averages of the remaining variables are not statistically significant, indicating that their common components do not exert an independent effect on economic growth once unobserved common factors have been adequately controlled for. This result highlights the importance of incorporating cross-sectional averages into the estimation process in order to account for cross-sectional dependence and improve the efficiency and reliability of long-run parameter estimates.

5.5 Threshold Effects of Institutional Quality on the Resource Rents–Growth Relationship

To scrutinize whether the effect of resource rentals on economic expansion may differ across various stages of organizational quality, a Panel Threshold Regression model was used, through the organizational quality index (**PCA**) as the inception variable. The outcomes disclose the presence of two numerically essential organizational thresholds, leading to the arrangement of nations into three separate established regimes, as testified in Table 8.

Table 8. Institutional Quality Thresholds and the Resource Rents–Growth Relationship

Institutional Regime	Range of Institutional Quality	Impact of Resource Rents (R) on GDPG	Economic Interpretation
Regime I (Very Weak Institutions)	$-6 \leq PCA < -2.79$	Negative	Resource Curse: Weak governance, high corruption, and the use of resource rents for consumption rather than productive investment.
Regime II (Moderate Institutions)	$-2.79 \leq PCA \leq 2.55$	Weak / Inconclusive	Transitional Stage: Partial institutional improvement without a complete transformation of the economic structure.
Regime III (Stronger Institutions)	$2.55 < PCA \leq 6$	Positive	Resource Blessing: Resource rents are transformed into productive investment, leading to higher efficiency and economic growth.

Source: Authors' Calculations based on Stata 19.5.

The findings show that the effect of resource rentals on economic expansion is not relentless across nations but differs according to the level of organizational excellence. Under the initial regime, where the organizational quality index seems below -2.79, resource rents exercise a negative impact on economic development. This finding reveals a typical resource curse context categorized by frail authority, high levels of venality, unproductive resource allocation, and a dependence on intake and public spending rather than creative investment.

Under the second administration, where organizational excellence ranges between -2.79 and 2.55, the impact of resource rentals becomes weak or indecisive. This discovery replicates a provisional stage in which institutional superiority is gradually improving but has not yet reached the level required to transform natural resources into a clear driver of economic growth.

In the third administration, where the organizational excellence surpasses 2.55, the influence of resource rents converts positive. This result proposes that enhancements in organizational excellence to improve efficacy and reduce corruption and waste, and simplify the apportionment of resource incomes toward human capital advance and industrious investment, thereby associate supportable economic expansion.

These results are in line with organizational literature, particularly the model advanced by Mehlum, Moene, and Torvik (2006), which contends that the economic outcomes of natural resources depend fundamentally on the quality of prevailing institutions as identified by the quality recognized by the CS-ARDL and CCEMG estimators, illuminating that the correlation between these variables is not direct but differs transversely diverse levels of institutional growth.

The major support of the study is the demonstration of two crucial organizational thresholds at which the effect of resource rents moves from weak institutional domains to constructive in robust established settings. This finding highpoints the central function of institutional excellence in to change resource rents into supportable economic expansion.

6. Conclusions and Policy Implications

The study discloses that the correlation between resource rents and economic development is nonlinear and be contingent on the level of organized quality. Precisely, there are crucial organizational thresholds at which the result of resource rents moves from a resource curse to a resource blessing.

The results ratify the presence of a long-run symmetry correlation among economic development, resource rents, and organizational excellence in resource-rich countries.

Resource rents exert a positive and statistically significant effect on economic growth, suggesting that natural resources can serve as an important source of economic expansion when their revenues are effectively channeled into productive activities.

Institutional quality contributes independently and positively to economic growth, highlighting the importance of effective governance, the rule of law, and efficient public administration in improving long-term economic performance.

The threshold model identifies two critical levels of institutional quality at which the impact of resource rents shifts from a negative or weak effect to a positive effect on economic growth.

The threshold results indicate that improvements in the institutional environment alter the way resource revenues are utilized, shifting their role from supporting consumption and rent-seeking activities toward promoting investment and economic growth.

The findings suggest that institutions not only increase the economic returns generated by natural resources but also redirect the use of resource rents from consumption and rent-seeking activities toward investment, productivity enhancement, and economic diversification.

Institutional quality represents the key factor explaining differences in economic performance among resource-rich countries despite similarities in their levels of natural resource abundance.

Based on these findings, several policy implications can be derived to enhance the developmental benefits of natural resources in resource-rich countries:

- The results highlight the need to prioritize institutional reform as a long-term investment in the effective management of natural resources, given its potential to maximize their developmental returns and transform them into a more sustainable source of economic growth.
- Greater importance should be given to enhanced governance to combat corruption and strengthen regulatory excellence and reinforce the rule of law as indispensable demands for converting resource rents into justifiable economic development.
- The threshold examination shows that nations of low stages with regards to institutional excellence may not fully help from their natural resources, underlining the demand for slow organizational reform and dependence on resource revenues.
- Resource revenues should be sent to invest in human capital, infrastructure, and productive activities capable of varying the economic base and decreasing reliance on the extractive sector.
- The findings suggest that the success of countries such as Norway is attributable not merely to the abundance of natural resources but, more importantly, to the existence of institutions capable of managing those resources efficiently. This makes institution-inclined an evolving precedence that should head exertions to develop reserve extraction.
- The results enhance the management of natural resources toward plans aimed at consolidation the establishments that administer those resources, as institutional excellence establishes the pivotal condition for converting natural wealth into supportable economic expansion.

References

1. Acemoglu, D., Johnson, S., & Robinson, J. A. (2002). Reversal of fortune: Geography and institutions in the making of the modern world income distribution. *The Quarterly Journal of Economics*, 117(4), 1231–1294. https://economics.mit.edu/sites/default/files/publications/reversal-of-fortune.pdf?utm_source=chatgpt.com
2. Al-Jomard, A. A., et al. (2025). The impact of resources on economic growth through macroeconomic variables. *ECONOMICS*, 13(2), 161–177. <https://doi.org/10.2478/eoik-2025-0035>
3. Arezki, R., & van der Ploeg, F. (2011). Do natural resources depress income per capita? *Review of Development Economics*, 15(3), 504–521. <https://doi.org/10.1111/j.1467-9361.2011.00615.x>
4. Auty, R. M. (1993). *Sustaining development in mineral economies: The resource curse thesis*. Routledge. <https://api.taylorfrancis.com/content/books/mono/download?identifierName=doi&identifierValue=10.4324/9780203422595&type=googlepdf>
5. Badeeb, R. A., Lean, H. H., & Clark, J. (2017). The evolution of the natural resource curse thesis: A critical literature survey. *Resources Policy*, 51, 123–134. <https://doi.org/10.1016/j.resourpol.2016.10.015>
6. Bhattacharyya, S., & Hodler, R. (2014). Do natural resource revenues hinder financial development? *World Development*, 57, 101–113. <https://doi.org/10.1016/j.worlddev.2013.12.003>
7. Belloumi, M. (2025). Impact of Natural Resource Rents and Governance on Economic Growth in Oil-Producing Countries. *Energies*, 18(8), 2066. https://www.mdpi.com/1996-1073/18/8/2066?utm_source=chatgpt.com
8. Boschini, A. D., Pettersson, J., & Roine, J. (2007). Resource curse or not: A question of appropriability. *Scandinavian Journal of Economics*, 109(3), 593–617. <https://doi.org/10.1111/j.1467-9442.2007.00509.x>
9. Farih, N. (2025). Do Natural Resources Abundance and Institutional Quality Promote Economic Growth? A Study on the Resource Curse Hypothesis in Countries with Different Income Groups, *The Economic Research Guardian* – Vol. 15(2)2025 p199-218. https://www.researchgate.net/publication/395542865_Do_Natural_Resources_Abundance_and_Institutional_Quality_P

romote_Economic_Growth_A_Study_on_the_Resource_Curse_Hypothesis_in_Countries_with_Different_Income_Groups

10. Mehlum, H., Moene, K., & Torvik, R. (2006). Institutions and the resource curse. *The Economic Journal*, 116(508), 1–20. https://www.prio.org/publications/3514?utm_source=chatgpt.com
11. North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge University Press. http://epistemh.pbworks.com/f/8.%20Institutions_Institutional_Change_and_Economic_Performance.pdf
12. Rana, M. (2025). The Role of Natural Resource Rents in Achieving Sustainable Development Goals. *Discover Sustainability*. https://link.springer.com/article/10.1007/s44274-025-00258-y?utm_source=chatgpt.com
13. Rodrik, D., Subramanian, A., & Trebbi, F. (2004). Institutions rule: The primacy of institutions over geography and integration in economic development. *Journal of Economic Growth*, 9(2), 131–165. https://hanspeder-kirkegaard.squarespace.com/s/Rodrik_2004_Institutions-Rule.pdf
14. Sachs, J. D., & Warner, A. M. (1995). Natural resource abundance and economic growth (NBER Working Paper No. 5398). National Bureau of Economic Research. <https://doi.org/10.3386/w5398>
15. Sibanda, K. (2023). Natural resource rents, institutional quality, and environmental degradation in Sub-Saharan Africa. *Sustainability*, 15(2), 1141. <https://doi.org/10.3390/su15021141>
16. Van der Ploeg, F., & Poelhekke, S. (2009). Volatility and the Natural Resource Curse. OxCare Research Paper, No. 2008-03. University of Oxford. https://www.researchgate.net/publication/227358625_Volatility_And_The_Natural_Resource_Curse
17. Van der Ploeg, F. (2011). Natural resources: Curse or blessing? *Journal of Economic Literature*, 49(2), 366–420. https://eclass.aueb.gr/modules/document/file.php/DEOS422/%CE%92%CE%B9%CE%B2%CE%BB%CE%B9%CE%BF%CE%B3%CF%81%CE%B1%CF%86%CE%AF%CE%B1/Resource%20curse/ploeg-2011-natural-resources-curse-or-blessing.pdf?utm_source=chatgpt.com
18. Venables, A. J. (2016). Using natural resources for development: Why has it proven so difficult? *Journal of Economic Perspectives*, 30(1), 161–184. <https://doi.org/10.1257/jep.30.1.161>