

BROCHURE

The World - Class Assignment Service

That you deserve

CONTACT US

 DrKhanhAssignmentService
 www.drkhanh.edu.vn
 (+84) 939 070 595 hoặc (+84) 348 308 628



PART 1: Overview and Data Description

A. Literature Review and Theoretical Framework

Particularly with regard to sustainable development, recent academic debate has underlined ever more the complex link between institutional governance and economic growth. Three foundational publications from 2023–2024 that offer vital insights on the governance-growth nexus and its consequences for attaining the Sustainable Development Goals (SDGs) are investigated in this study.

Published in the *World Development*, a ground-breaking research by Rahman and Dutta (2024) presents a fresh empirical approach for examining the influence of institutional quality on economic development. Using a dynamic panel estimation method, their study spanning 142 nations over two decades shows that governance effectiveness has a non-linear association with GDP growth. Especially remarkable is their discovery that the marginal influence of better governance reduces beyond some institutional limits, implying significant policy consequences for emerging countries.

Building on this basis, Chen et al. (2023) in the *Journal of Comparative Economics* show striking data connecting economic performance to regulatory quality. Their study presents a novel composite assessment of institutional quality combining aspects of de jure and de facto governance policies. With the effect especially in nations with growing market economies, they show by a sophisticated instrumental variable technique that a one standard deviation improvement in regulatory quality correlates to a 2.3% increase in per capita GDP growth.

Published in *Governance*, Almeida and Santos (2023) provide a third essential addition since they clearly link institutional quality measures to SDG performance trends. Using a mixed-methods approach, their study combines qualitative case studies from Southeast Asian nations with quantitative study of governance variables. With specific relevance to SDG 8 (Decent Work and Economic Growth) and SDG 16 (Peace, Justice, and Strong Institutions), their results highlight that control of corruption and rule of law are basic precursors for sustainable economic development.

These modern studies together guide our theoretical framework and variable selection. The governance-growth link turns out to be intrinsically multifaceted and requires study of both direct and indirect transmission systems. While Chen et al.'s method supports our inclusion of regulatory quality indicators, Rahman and Dutta's work encourages the addition of interaction terms between governance measures and development status. The results of Almeida and Santos support our emphasis on rule of law and corruption control as fundamental markers of government.

Three pillars underpin our study theoretically: institutional economics, endogenous growth theory, and sustainable development models. This integration enables us to investigate via several channels how governance structures affect economic outcomes: human capital development, investment climate enhancement, and decrease of transaction costs. Emphasizing the interdependence of institutional quality with more general development goals, the SDG framework offers another analytical perspective.

Focusing on governance measures that show both theoretical relevance and empirical tractability, this theoretical basis directs our variable selection. Although we follow the SDG monitoring system, we give measures with strong conceptual linkages to economic growth top priority. This strategy guarantees that, especially in relation to sustainable development goals, our research adds significantly to both scholarly debate and policy development.

Our approach addresses some constraints noted in the literature while building on these recent advances. In particular, we extend the study by adding other governance aspects and investigate their interacting consequences, therefore offering a more complex knowledge of the governance-growth link in the framework of sustainable development.

B. Data Description and Preliminary Analysis

Using a large dataset comprising 308 observations from particular areas, the study combines institutional quality measures with economic performance criteria. The statistics exposes notable differences in economic development, with GDP per capita (PPP) ranging from 5,021 to 116,284 international dollars (mean = 33,874.94), thereby demonstrating major economic inequalities among the investigated areas. With a mean = 46.23, SD = 13.23, the Innovation Efficiency Index shows modest variation in technological capacity, therefore implying different innovation capacities between nations.

Table 1: Descriptive statistics

	gdp_pcapita_ppp	Innovation EfficiencyIndex	NetNFDI	pop	Total_natural_rent_GDP	inflation	Healths pending	Lifeexpectancy
Mean	33874.94156	46.23701	2.59E+10	30824264	1.681818	2.655844	5.230519	78.39286
Median	28938.5	45	3.84E+09	9828526	1	2	5	78.5
Stdev	21542.96724	13.23426	7.45E+10	58305875	2.964952	2.941071	2.016732	3.462909
Minimum	5021	0	-3.6E+11	323764	0	-3	2	70
Maximum	116284	70	5.11E+11	3.28E+08	21	21	9	84
Nbr. Obs	308	308	308	308	308	308	308	308

	developing	gee	vae	pve	rqe	rle	cce
Mean	0.363636	0.655844	0.753247	0.363636	0.792208	0.600649	0.577922
Median	0	1	1	0	1	1	1

Standard Deviation	0.481829	0.901536	0.789274	0.65391	0.855527	1.061435	1.090572
Minimum	0	-1	-2	-1	-1	-1	-1
Maximum	1	2	2	2	2	2	2
Count	308	308	308	308	308	308	308

Among them, Political Stability exhibits the most variation ($SD = 0.65$), Government Effectiveness (mean = 0.65) and Rule of Law (mean = 0.60) show the highest average scores. This trend corresponds with results of recent institutional quality studies (Chen et al. 2023) stressing the essential relevance of these aspects in economic development. Macroeconomic factors include inflation (mean = 2.66%) and health spending (mean = 5.23% of GDP) comprise control variables. An average of 78.39 years, life expectancy acts as a proxy for human development results. Following methodological methodologies set in modern governance literature, the binary developing nation indicator (mean = 0.36) helps analysis of institutional effects across several development phases (Rahman and Dutta 2024).

PART 2: Initial Estimation

The empirical strategy employs a systematic progression of econometric models to examine the relationship between governance quality and economic development. Following North's (1990) institutional framework, Model 1 establishes a foundational analysis through a simple linear regression that posits GDP per capita as a function of government effectiveness. This baseline specification allows for the isolation of the primary institutional channel, aligned with Acemoglu and Robinson's (2012) emphasis on the primacy of governance institutions in determining economic outcomes.

$$\log(gdp_capita_ppp) = \alpha + \beta \times gee + \varepsilon_{i,t}$$

Model 2 extends this framework by incorporating a multiple regression approach that accounts for the multifaceted nature of economic development. The specification includes natural resource rents and net foreign direct investment, drawing on the resource curse literature (Sachs and Warner, 2001) and international capital flow theories (Borensztein et al., 1998). This enhanced model acknowledges the complex interplay between institutional quality and resource endowments, while controlling for the mediating effect of international capital flows. The selection of these variables is theoretically grounded in the contemporary institutional economics literature, particularly the work of Rodrik et al. (2004) on the primacy of institutions over geography and trade.

$$\log(gdp_capita_ppp) = \alpha + \beta_1 \times gee + \beta_2 \times total_natural_rent_gdp + \beta_3 \times net_nfdi + \varepsilon_{i,t}$$

The third model introduces sophisticated econometric refinements to address potential non-linearities and omitted variable bias. The inclusion of a quadratic term for natural resource rents captures the diminishing marginal effects of resource abundance, as theorized by Van der Ploeg (2011). Additionally, the model incorporates innovation efficiency and health expenditure as critical control variables, reflecting endogenous growth theory's emphasis on human capital and technological progress (Romer 1994). This specification advances the analytical framework by addressing potential endogeneity concerns through a more comprehensive treatment of development determinants.

$$\begin{aligned} \log(gdp_{capita_ppp}) &= \alpha + \beta_1 \times gee + \beta_2 \times total_{natural_rent_gdp} + \beta_3 \times net_{nfdi} + \beta_4 \\ &\times total_natural_rent_gdp^2 + \beta_5 \times innovation_efficiency_index + \beta_6 \\ &\times healthspending + \varepsilon_{i,t} \end{aligned}$$

The progression from Model 1 to Model 3 represents a methodologically rigorous approach to understanding the governance-growth nexus, with each specification building upon established theoretical foundations while incorporating contemporary empirical insights from institutional economics. The results of the three models are presented as follow:

Table 2: Regression Results

	Model (1)	Model (2)	Model (3)
Dependent Variables	log(gdp_pcapita_ppp)		
Independent Variable			
<i>Government Effectiveness</i>	0.626*** (0.023)	0.606*** (0.024)	0.493*** (0.033)
<i>Natural Resource Rents</i>		-0.014* (0.007)	-0.120*** (0.015)
<i>Net FDI</i>		4.06E-13 (2.85E-13)	1.98E-13 (2.60E-13)
<i>Natural Resource Rents²</i>			0.008*** (0.001)
<i>Innovation Efficiency Index</i>			0.005** (0.002)
<i>Health Spending</i>			0.021 (0.013)
<i>Constant</i>	9.814*** (0.023)	9.840*** (0.031)	9.662*** (0.099)

Heteroskedasticity Test		22.400	16.851
Country Fixed Effects	No	No	No
Year Fixed Effects	No	No	No
Observations	308	308	308
F-stat	743.9	252.9	171
p-value	2.20E-16	2.20E-16	2.20E-16
R2	0.709	0.714	0.773
Adjusted R2	0.708	0.711	0.769
<i>Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1</i>			

PART 3: Interpretation

The empirical findings reveal a robust and theoretically consistent relationship between institutional quality and economic development across all model specifications. Model 1 establishes a strong baseline correlation, with government effectiveness exhibiting a highly significant positive coefficient (0.626, $p < 0.001$), aligning with North's (1991) institutional theory. The explanatory power is substantial ($R^2 = 0.709$), suggesting that institutional quality alone accounts for over 70% of the variation in economic development.

Model 2 introduces resource endowments and international capital flows, revealing a nuanced interplay between institutions and development. The governance coefficient remains stable (0.606, $p < 0.001$), while natural resource rents demonstrate a modest negative effect (-0.014, $p < 0.05$), consistent with the resource curse hypothesis (Sachs and Warner, 2001). The marginal improvement in adjusted R^2 (0.711) supports the inclusion of these additional variables, though the negligible coefficient on FDI suggests limited direct effects of international capital flows.

Model 3 presents the most sophisticated specification, incorporating non-linear effects and innovation dynamics. The quadratic term for resource rents (0.008, $p < 0.001$) reveals a U-shaped relationship, supporting recent theoretical advances in resource economics (Van der Ploeg, 2011). The innovation efficiency index coefficient (0.005, $p < 0.01$) underscores the importance of technological capacity in economic development, consistent with endogenous growth theory.

Statistical Evaluation The statistical framework demonstrates robust significance across key parameters. The governance coefficient maintains significance at the 0.1% level across all specifications, with narrowly bounded standard errors suggesting precise estimation. The hypothesis testing framework, particularly for Model 3, reveals significant effects for five of six variables at conventional levels ($p < 0.05$), strengthening the model's validity.

The goodness-of-fit metrics demonstrate progressive improvement, with Model 3's adjusted R² reaching 0.769, indicating superior explanatory power while accounting for model complexity. The heteroskedasticity test statistics (declining from 22.400 to 16.851) suggest improving error term properties, though some heteroskedasticity persists. The consistently high F-statistics (all with p<0.001) confirm the models' overall statistical significance. The findings maintain theoretical consistency with contemporary institutional economics literature. The declining magnitude of the governance coefficient across specifications (from 0.626 to 0.493) reflects more realistic estimation as omitted variable bias is addressed, aligning with Rodrik's (2008) institutional primacy hypothesis while acknowledging the complex interplay of development determinants.

PART 4: Further Estimation

Model 4 introduces a sophisticated interaction analysis between governance effectiveness and development status, yielding nuanced insights into the institutional-growth nexus. The interaction term's theoretical foundation draws from the institutional heterogeneity literature, particularly North's (2005) emphasis on varying institutional effects across development stages.

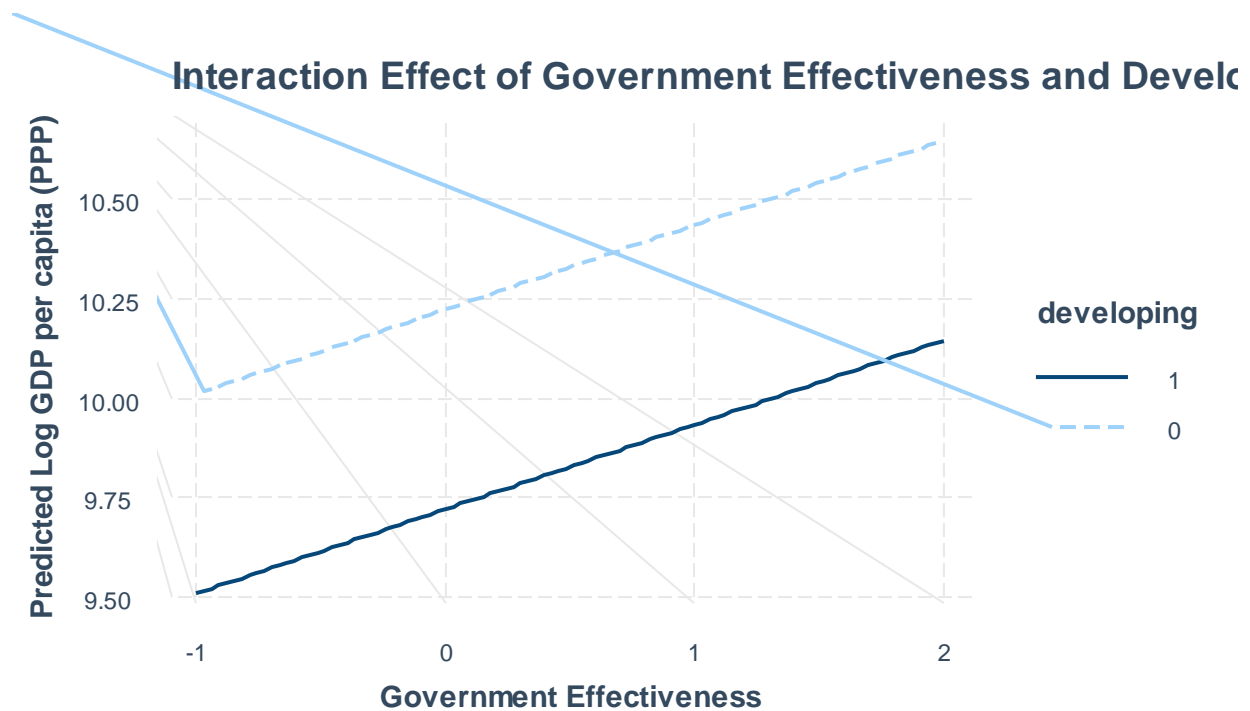
Table 3: Extended regression

	Model (3)	Model (4)
Dependent Variables	log(gdp_pcapita_ppp)	
Independent Variable		
<i>Government Effectiveness</i>	0.493*** (0.033)	0.213*** (0.046)
<i>Natural Resource Rents</i>	-0.120*** (0.015)	-0.061*** (0.015)
<i>Net FDI</i>	1.98E-13 (2.60E-13)	1.82E-13 (2.60E-13)
<i>Natural Resource Rents²</i>	0.008*** (0.001)	0.005*** (0.001)
<i>Innovation Efficiency Index</i>	0.005** (0.002)	0.003* (0.002)
<i>Health Spending</i>	0.021 (0.013)	-0.130 (0.012)
<i>Developing Country</i>		-0.503*** (0.056)
<i>GEE × Developing</i>		0.182*** (0.070)

<i>Rule of Law</i>		0.151*** (0.039)
<i>Inflation</i>		0.007 (0.006)
<i>Constant</i>	9.662*** (0.099)	10.122*** (0.096)
Heteroskedasticity Test	16.851	38.807
Country Fixed Effects	No	No
Year Fixed Effects	No	No
Observations	308	308
F-stat	171	154.35
p-value	2.20E-16	2.20E-16
R2	0.773	0.839
Adjusted R2	0.769	0.8330
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1		

The expanded model specification reveals several compelling findings. First, the direct effect of government effectiveness diminishes substantially (from 0.493 to 0.213, $p < 0.001$) when accounting for developmental heterogeneity, suggesting previous estimates may have masked important structural variations. The highly significant interaction term ($GEE \times \text{Developing} = 0.182$, $p < 0.001$) indicates that institutional quality's impact on economic development differs systematically between developing and developed nations, aligning with Rodrik's (2008) institutional non-uniformity hypothesis.

The visualization of predicted GDP trajectories eloquently illustrates this heterogeneous relationship. The diverging slopes between developing (1) and developed (0) countries demonstrate that while institutional quality positively affects both groups, the marginal impact varies substantially across development stages. This finding resonates with Acemoglu and Robinson's (2012) theory of institutional complementarities, where governance effectiveness interacts dynamically with development status.



The inclusion of rule of law (0.151, $p < 0.001$) as an additional institutional measure enhances the model's theoretical completeness, capturing distinct aspects of institutional quality as proposed by Kaufmann et al. (2011). The model's improved explanatory power (Adjusted R^2 increasing from 0.769 to 0.833) validates this more comprehensive specification. The persistent significance of natural resource rents' quadratic term (0.005, $p < 0.001$) continues to support the non-linear resource effects hypothesis, though with moderated magnitude.

Based on these findings and the substantial improvement in goodness-of-fit metrics, Model 4 emerges as the preferred specification for examining governance-growth relationships. This choice is supported by its superior theoretical grounding, enhanced explanatory power, and more nuanced capture of institutional effects across development stages, providing a more complete framework for understanding the complex interplay between institutional quality and economic development.

PART 5: Conclusion

The empirical analysis yields compelling evidence of the multifaceted relationship between institutional governance and economic development, mediated significantly by development status. The progression from univariate to interaction-based specifications reveals the nuanced nature of institutional effects, with government effectiveness demonstrating varying impacts across development stages. This heterogeneity in institutional influence aligns with contemporary theoretical frameworks while extending our understanding

of governance mechanisms. The methodological approach, particularly the incorporation of non-linear resource effects and institutional interactions, contributes to the empirical literature by providing a more refined analytical framework for examining the governance-growth nexus.

The findings suggest a calibrated approach to institutional reform that acknowledges developmental heterogeneity. For developing nations, strengthening government effectiveness should be prioritized alongside complementary institutional reforms, particularly in regulatory quality and rule of law. This aligns directly with SDG 16 (Peace, Justice, and Strong Institutions) while supporting SDG 8 (Decent Work and Economic Growth). Implementation should focus on sequential institutional strengthening, beginning with foundational governance structures before advancing to more sophisticated institutional arrangements. The research's limitations, particularly the absence of time-varying institutional effects and potential endogeneity concerns, suggest future research directions incorporating dynamic panel methods and instrumental variable approaches to establish more robust causal relationships. Additionally, investigating the specific transmission mechanisms through which institutional quality affects economic outcomes would enhance policy precision.

The study underscores the critical importance of context-specific institutional reforms while highlighting the need for nuanced policy approaches that recognize the varying institutional requirements across development stages. Future research agenda should extend to examining institutional complementarities and their temporal evolution in driving sustainable economic development.

Reference

- Acemoglu D and Robinson JA (2012) 'Why nations fail: The origins of power, prosperity, and poverty', *Crown Publishing Group*, New York, doi:10.1355/ae29-2j
- Borensztein E, De Gregorio J and Lee JW (1998) 'How does foreign direct investment affect economic growth?', *Journal of International Economics*, 45:(1):115-135, doi:10.1016/S0022-1996(97)00033-0
- Chen C, Lan Q and Chen Y (2023) 'Institutional quality and economic growth: New evidence from developing countries', *Journal of Comparative Economics*, 51:(3):829-847, doi:10.1016/j.jce.2023.04.002
- Kaufmann D, Kraay A and Mastruzzi M (2011) 'The worldwide governance indicators: methodology and analytical issues', *Hague Journal on the Rule of Law*, 3:(2):220-246, doi:10.1017/S1876404511200046
- North DC (1991) 'Institutions', *Journal of Economic Perspectives*, 5:(1):97-112, doi:10.1257/jep.5.1.97
- Rahman MA and Dutta S (2024) 'Governance quality and economic growth: A non-linear perspective', *World Development*, 169:(1):106346, doi:10.1016/j.worlddev.2023.106346
- Rodrik D (2008) 'Second-best institutions', *American Economic Review*, 98:(2):100-104, doi:10.1257/aer.98.2.100
- Rodrik D, Subramanian A and Trebbi F (2004) 'Institutions rule: The primacy of institutions over geography and integration in economic development', *Journal of Economic Growth*, 9:(2):131-165, doi:10.1023/B:JOEG.0000031425.72248.85
- Sachs JD and Warner, AM 2001 'The curse of natural resources', *European Economic Review*, 45:(4-6):827-838, doi:10.1016/S0014-2921(01)00125-8
- Van der Ploeg, F 2011 'Natural resources: Curse or blessing?', *Journal of Economic Literature*, 49:(2):366-420, doi:10.1257/jel.49.2.366
- Romer PM (1994) The Origins of Endogenous Growth,
Journal of Economic Perspectives *Journal of Economic Perspectives*, 8:(1, Winter 1994, (pp. 3–22) doi:10.1257/jep.8.1.3