

Analyzing the Impact of Institutional Quality on Economic Growth in Developing Countries in Asia: A Panel Data Approach

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ABSTRACT. This study examines the impact of institutional quality on economic growth in 34 Asian developing countries. To achieve this objective, a Bayesian approach is employed to estimate the research model, allowing for an in-depth assessment of the effects of the explanatory variables as well as the probability of these effects occurring. The results reveal that institutional quality has a positive effect on economic growth, with the probability being relatively certain. To test robustness, institutional quality is measured using two different approaches which both generate consistent results. In addition, economic growth is found to be positively influenced by foreign direct investment and inflation, while population growth exerts a negative impact. These findings provide reliable evidence for developing Asian countries in formulating appropriate policy measures to improve institutional quality in order to support sustainable economic growth.

1. INTRODUCTION

Institutional quality has increasingly attracted significant attention in empirical research, particularly in the context of countries worldwide pursuing sustainable economic growth. It can be understood as the effectiveness of governments in implementing political, economic, and social mechanisms and policies [1]. According to North [2], institutions are defined as “the humanly devised constraints that shape human interaction,” thereby emphasizing the role of human-designed constraints in shaping socio-economic interactions.

High institutional quality is widely regarded as a crucial driver of national development and a foundation in the process of achieving economic growth. From a theoretical perspective, advances in the modern growth theory emphasize that effective institutions and supportive policies play an essential role in promoting economic development. This role is demonstrated by

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facilitating the accumulation of production factors and the efficient utilization of resources [2]. According to Acemoglu [3], economic growth does not merely reflect a rise in aggregate output but also involves a fundamental structural transformation of the system, in which institutional factors are crucial. Institutional theory provides an important framework for explaining the role of institutions in economic growth, particularly through institutional arrangements that regulate interactions among economic agents [4]. Strong and well-functioning institutions are therefore recognized as a prerequisite for sustainable growth. Improvements in institutional quality contribute to a stable and predictable economic environment, thereby facilitating fair and efficient business activities [5]. In such a context, individuals and companies are incentivized to engage in capital accumulation, expand business activities, and promote innovation, thereby supporting sustainable economic growth. From the perspective of new institutional economics, North [2] emphasized that institutions comprise a set of rules that structure economic behavior and the allocation of resources. Consequently, institutional quality plays an important role in regulating resources within the economy. According to institutional economists, institutions represent a fundamental force underlying cross-country differences in economic growth [6].

The impact of institutional quality on economic growth has been examined in a majority of empirical studies. Most of them reveal that institutional quality positively influences economic growth by improving investment efficiency, enhancing productivity, and establishing a stable and transparent economic environment for business activities [7], [8], [9], [10]. Moreover, several studies have highlighted the importance of specific institutional dimensions, such as political stability, security of property rights, size of government, and political constraints, in shaping economic growth [11], [12], [13], [14], [15].

However, existing empirical evidence suggests that the impact of institutional quality on economic growth is not entirely consistent. Several studies indicate that the role of institutions may vary across different groups of countries and stages of development, depending on the specific examined institutional components [16]. In addition, other studies analyze corruption as a key dimension of institutional quality, proving that its predominant effect on economic growth is negative, as it can hinder investment, distort resource allocation, and increase economic costs [17], [18], [19], [20], [21], [22]. Moreover, some studies report that institutional quality may create mixed or even opposing effects, particularly in developing and emerging economies [6], [23], [24], [25], [26]. Moreover, several studies fail to find evidence that countries with higher institutional quality achieve faster economic growth [25], [27].

Overall, both theoretical frameworks and empirical findings indicate that institutions play a vital role in shaping the drivers of economic growth by influencing the macroeconomic environment, the behavior of economic agents, and the processes of resource allocation and utilization within an economy. However, the existing literature remains fragmented and inconclusive, with results depending on the measurements of institutional quality, size and

characteristics of the sample, period of analysis, estimation techniques, and specific research contexts.

From this background, the present paper aims to examine the impact of institutional quality on economic growth in developing countries in Asia. By adopting a panel data approach, this study is expected to provide meaningful empirical evidence that clarifies the role of institutional quality in explaining economic growth patterns in the sampled countries, while also offering a scientific foundation for the design and improvement of institutional policies to promote sustainable economic growth.

The remainder of the paper is organized as follows. The next section reviews the current literature. This is followed by a detailed description of the research methodology and data. Subsequently, the empirical results are presented and discussed. The final section concludes the paper and offers several policy implications.

2. LITERATURE REVIEW

Institutional quality has caught substantial interest in empirical studies on economic growth. One of the pioneering contributions in this area is Knack and Keefer [7], who confirmed its positive effect on economic growth, measuring it as the average of five indicators from the International Country Risk Guide (ICRG). This finding was further supported by Sala-i-Martin [8], who emphasized that political rights and civil liberties are important determinants of economic growth. Dawson [9], along with Hall and Jones [10], also demonstrated that institutional quality positively affects economic growth through total factor productivity (TFP) and investment. Henisz [11], using GDP growth as an indicator, found that executive turnover exerts a negative effect on economic growth, while the index measuring political constraints has a significant impact on growth. Acemoglu et al. [12] concluded that institutions are a key factor explaining income differences across countries in the modern context. Vijayaraghavan and Ward [13] similarly reported that the security of property rights and size of government considerably affect economic growth. Rodrik et al. [14] further emphasized that institutional quality has a greater influence on economic growth than other explanatory factors. Using panel data, Lee and Kim [15] showed that institutions positively affect economic growth, with the effect being more pronounced in high-income countries than in low-income ones. In Sub-Saharan Africa, Osman et al. [28] found that improvements in institutional quality can help these countries achieve better economic performance. In addition, several studies that construct composite institutional indices using principal component analysis (PCA) also recognized the significant role of institutions in promoting economic growth, such as those of Jellema and Roland [16] and Siddiqui and Ahmed [29]. From a different perspective, Ugur [17] synthesized evidence from 29 empirical studies and concluded that the dominant effect of corruption on economic growth is negative, despite differences in sample selection, time periods, and estimation methods. This conclusion is

consistent with the findings of Saleh et al. [18], who reviewed 41 empirical studies. Cieřlik and Goczek [19] further confirmed that corruption can hinder investment and suppress economic growth in a sample of 142 countries. Meanwhile, Asamoah et al. [30] revealed that institutional quality positively affects economic growth. Studies examining the long-run effects of corruption on economic growth continue to acknowledge the predominantly negative impacts (e.g., [20], [21], [22]), while Goel and Nelson [31] emphasized that the effectiveness of corruption control depends on the size and structure of government. More recently, Hussen [32] reported a positive impact of institutional quality on economic growth in 31 Sub-Saharan African (SSA) countries. Similarly, Correa and Esquivias [33] provided evidence of a positive effect of institutional quality on economic growth in Sub-Saharan Africa (SSA) and Middle East (ME) economies.

It can be observed that the majority of empirical studies generally confirm the importance of institutional quality in promoting economic growth. However, some studies suggest that institutional quality may impede growth or produce mixed effects, depending on the specific institutional components being measured and the research context. For example, Sarwar et al. [6] classified institutions into several categories, including formal, informal, financial, and legal institutions. Their results show that most institutional variables exert positive and significant effects on economic growth, with the exception of financial institutions, which have a negative impact. Becherair [23] employed indicators including governance, security of property rights, political freedom, and government consumption, concluding that property rights protection positively affects growth, while government consumption exerts a negative effect. These two institutional factors are identified as the most influential determinants of economic growth. Using a sample of African countries, Akinlo [24] affirmed that institutional quality has a statistically significant negative impact on economic growth. Similar results were reported for West Africa by Ogbuabor et al. [25]. Furthermore, Banerjee et al. [26] argued that corruption control may adversely affect economic growth by limiting government resource allocation, thereby preventing growth; this effect is particularly pronounced in countries with weak institutional quality.

Moreover, several research fail to find a significant effect of institutional quality on economic growth. Ogbuabor et al. [25] reported no significant effect of institutions on economic growth in Nigeria. Similarly, Chomen [27] revealed that institutional quality has an insignificant impact on economic growth in a sample of 43 Sub-Saharan African countries, where institutional quality is constructed from three components: executive constraint, rule of law, and corruption control. Overall, the impact of institutional quality on economic growth has been extensively investigated in the existing literature. The majority of empirical studies support the view that high institutional quality can foster economic growth by increasing investment efficiency, total factor productivity, and the stability and transparency of the environment for production activities. Nevertheless, no clear consensus has yet been reached. The disparity in empirical

results can be attributed to several factors, including: (i) differences in the measurement of institutional quality, ranging from single indicators to composite ones constructed using principal component analysis (PCA); (ii) variations in sample size and characteristics, such as the number of countries, levels of economic development, and regional diversity; (iii) the selected study period, which reflects different economic and political contexts; (iv) the estimation methods employed; and (v) the type of data used, including cross-sectional, time-series, or panel data. These considerations highlight the need for further in-depth empirical research employing appropriate institutional measures, estimation techniques, and research contexts to more comprehensively clarify the role of institutional quality in explaining cross-country differences in economic growth.

3. METHODOLOGY

The current literature indicates that institutional quality can exert a significant influence on economic growth. Based on this foundation, the research model is specified as follows:

$$Y_{it} = \beta_0 + \beta_1 IQ_{it} + \beta_2 FDI_{it} + \beta_3 INF_{it} + \beta_4 PG_{it} + \varepsilon_{it} \quad (1)$$

Where (Y) denotes economic growth, measured by the logarithm of GDP per capita. This measure is consistent with the approach commonly adopted in the literature, including that by Hussien [32]. Institutional quality (IQ) is constructed using principal component analysis (PCA) based on six component indicators: control of corruption (CC), government effectiveness (GE), political stability and absence of violence/terrorism (PS), regulatory quality (RQ), rule of law (RL), and voice and accountability (VA). The PCA method has been widely employed in previous studies, such as Jellema and Roland [16], Siddiqui and Ahmed [29], and Correa and Esquivias [33]. Notably, Correa and Esquivias [33] utilized institutional indicators that are similar to those adopted in the present study. The construction of IQ using the PCA approach is described in detail in Table 1.

Table 1. Description of the Measurement of Institutional Quality (IQ)

Indicator	Weight (%)
CC	19.68%
GE	20.83%
PS	7.30%
RQ	18.13%
RL	22.63%
VA	11.43%
Total	100%

In addition to measuring institutional quality using the PCA approach, the authors also construct an alternative measure by taking the average of the six component indicators, denoted as IQ'. This measurement follows what was proposed by Knack and Keefer [7]. IQ is then replaced by IQ' to test the robustness of the estimation results.

Furthermore, based on prior studies, such as Hussen [32] and Correa and Esquivias [33], several control variables are incorporated into the model, including foreign direct investment (FDI), inflation (INF), and population growth (PG).

Regarding the data, the sample used in this study consists of 34 developing countries in Asia over the period 2002-2023. Data on institutional quality are obtained from the Worldwide Governance Indicators (WGI), while the remaining variables are sourced from the World Development Indicators (WDI).

In terms of estimation methodology, the authors employ a Bayesian approach to estimate the panel data model. This approach enables the estimation of the degree to which institutional quality affects economic growth and draws conclusions about the probability that this influence will occur [34].

4. EMPIRICAL ANALYSIS

The sample data are collected from 34 developing countries in Asia. Descriptive statistics for this sample are presented in Table 2.

Table 2. Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
Y	7.7226	0.9686	4.9877	9.5088
IQ	-0.6208	0.5501	-1.94	0.59
FDI	3.8560	5.7445	-37.17	55.07
INF	8.1076	15.6723	-6.81	221.34
PG	1.4693	1.3041	-6.65	9.99

Table 2 shows that the average value of Y is 7.7226, corresponding to GDP per capita of USD 3,408.18. Its minimum value is 4.9877 (USD 146.60), observed in Myanmar in 2002, while the maximum value is 9.5088 (USD 13,478.46), recorded in Kazakhstan in 2013. Regarding IQ, the mean value is -0.6208. The lowest value (-1.94) is observed in the Syrian Arab Republic in 2020, whereas the highest value (0.59) is recorded in Bhutan in 2023.

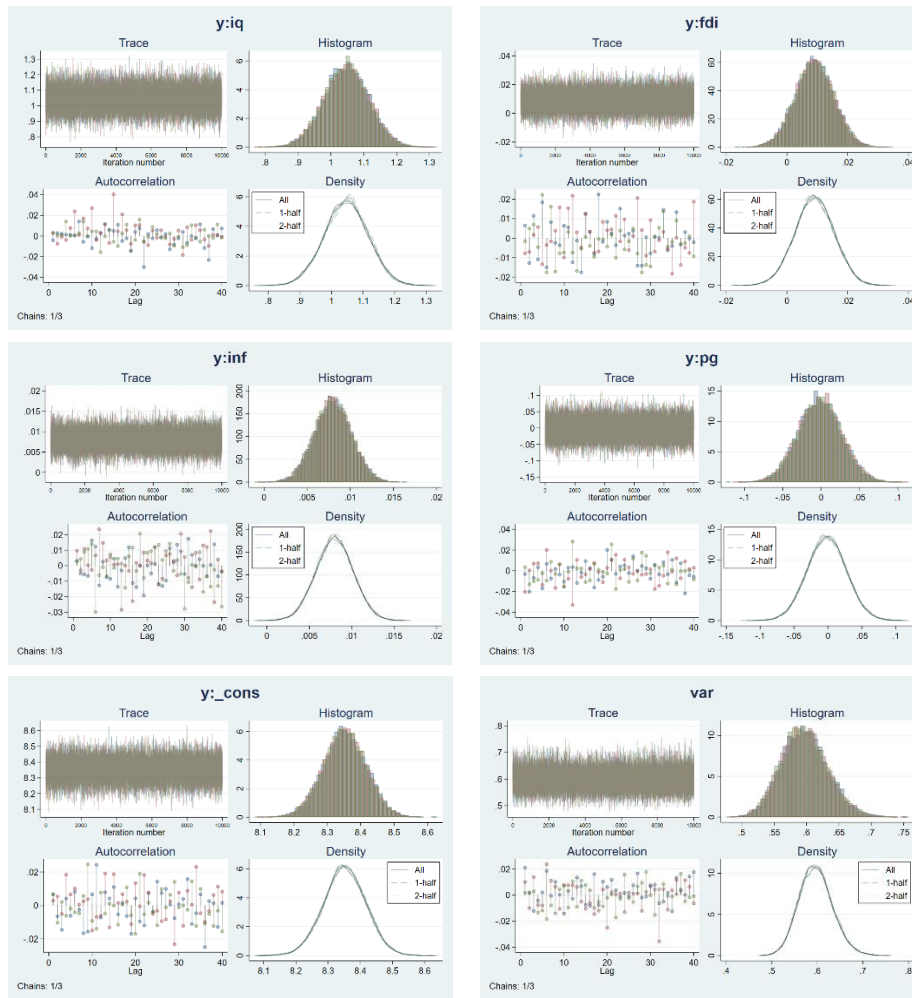


Figure 1. Convergence Diagnostics

Figure 1 indicates that the variables included are suitable for estimation, as the convergence conditions are fully satisfied. Specifically, the histogram and density plots closely resemble a standard distribution, the trace plots exhibit good mixing and stability, and the autocorrelation plots indicate relatively low serial correlation.

Table 3. Correlation matrix

Variable	Y	IQ	FDI	INF	PG
Y	1.0000				
IQ	0.5454	1.0000			
FDI	0.0857	0.0760	1.0000		
INF	0.0229	-0.1914	0.0042	1.0000	
PG	-0.1192	-0.1683	0.0511	-0.1093	1.0000

Table 3 demonstrates the relationships among the variables. Accordingly, population growth (PG) is negatively correlated with economic growth (Y), while the remaining variables exhibit positive correlations with Y.

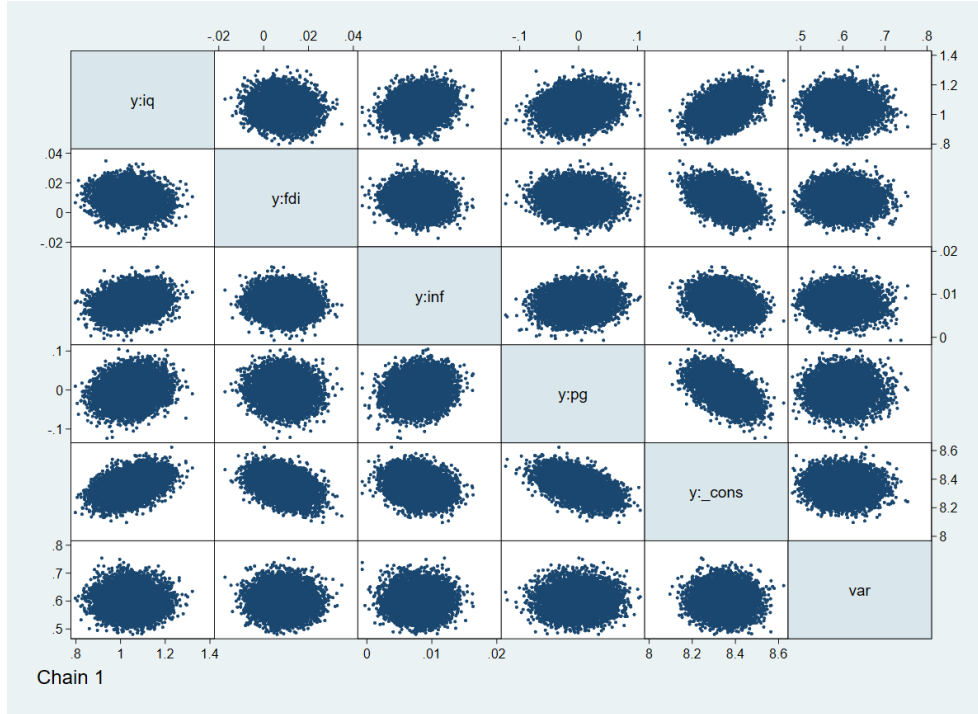


Figure 2. Bayesgraph Matrix

Next, the Bayesian approach is employed to analyze the impact of institutional quality on economic growth in 34 Asian developing countries. The estimation results are reported in Table 4.

Table 4. Model Estimation Results

Y	Mean	Std. Dev.	MCSE	Median	Equal-tailed [95% Cred. Interval]	
IQ	1.0467	0.0692	0.0004	1.0472	0.9107	1.1817
FDI	0.0091	0.0064	0.4×10 ⁻⁴	0.0091	-0.0036	0.0216
INF	0.0080	0.0022	0.1×10 ⁻⁴	0.0080	0.0037	0.0123
PG	-0.0018	0.0286	0.0002	-0.0018	-0.0574	0.0546
_cons	8.3514	0.0650	0.0004	8.3513	8.2222	8.4773
Avg acceptance rate	1					
Avg efficiency: min	0.9776					
Max Gelman-Rubin Rc	1					

Table 4 indicates that the Bayesian estimation results are reliable. The findings show that institutional quality (IQ) has a positive effect on economic growth (Y), which is in line with most previous researchers, such as Asamoah et al. [30], Hussen [32], and Correa and Esquivias [33]. These results suggest that institutional quality plays a significant role in fostering economic growth. The findings accurately reflect the practical contexts observed in the sample countries. Indeed, high institutional quality encourages the private sector to expand investment and pursue technological innovation. This is crucial for nations that struggle to draw in investment capital and advance their technological capabilities, which are common traits of developing economies. Moreover, improvements in institutional quality enhance the efficiency of resource allocation, reduce corruption and economic leakages, thereby improving total factor productivity. In the context of many Asian economies that remain heavily dependent on capital and labor inputs, strengthening institutional quality is essential for facilitating the transition toward a growth model driven by productivity and quality.

With regard to the control variables, economic growth is negatively affected by population growth (PG), while it is positively influenced by foreign direct investment (FDI) and inflation (INF). These findings are consistent with the conclusions reported by Hussen [32] and Correa and Esquivias [33].

Table 5. Results of Interval

Interval tests	Mean	Std. Dev.	MCSE
prob: {Y:IQ} > 0	1	0	0
prob: {Y:FDI} > 0	0.9202	0.2710	0.0016
prob: {Y:INF} > 0	0.9998	0.0141	0.0001
prob: {Y:PG} < 0	0.5252	0.4994	0.0029

Table 5 shows the interval estimation results, clarifying the probability of the effects of the explanatory variables on economic growth. Accordingly, the probability of a positive effect of institutional quality on economic growth is 100%. For the control variables, the probabilities that foreign direct investment (FDI) and inflation (INF) exert positive effects on economic growth are relatively high, at 92.02% and 99.98%, respectively. In contrast, the probability that the negative effect of population growth (PG) on economic growth is comparatively lower, at 52.52%.

Table 6. Results of the robustness test

Y	Mean	Std. Dev.	MCSE	Median	Equal-tailed [95% Cred. Interval]	
IQ'	1.0112	0.0723	0.0004	1.0106	0.8702	1.1537
FDI	0.0053	0.0066	0.4×10^{-4}	0.0053	-0.0074	0.0185
INF	0.0075	0.0022	0.1×10^{-4}	0.0075	0.0031	0.0119
PG	-0.0048	0.0294	0.0002	-0.0048	-0.0626	0.0529
_cons	8.3851	0.0682	0.0004	8.3851	8.2491	8.5190
Avg acceptance rate	1					
Avg efficiency: min	0.9654					
Max Gelman-Rubin Rc	1					

To examine the robustness of the estimated results, the authors re-estimate the model by replacing IQ by IQ'. This approach allows institutional quality to be measured in different ways, reinforcing robustness. Interestingly, the results reported in Table 6 are fully consistent with the earlier estimation ones presented in Table 4. Accordingly, institutional quality plays an important role in economic growth, which remains robust across alternative measurements of institutional quality.

5. CONCLUSION

In this study, the authors examine the impact of institutional quality on economic growth in 34 Asian developing countries. Moreover, the study examines this relationship by measuring institutional quality from different perspectives, which represents a notable contribution. Using a Bayesian estimation approach, the results indicate that institutional quality has a positive effect on economic growth, with a 100% probability. Notably, this finding remains consistent across different measurements of institutional quality, confirming the robustness of the results. Overall, institutional quality is essential in promoting economic growth. Regarding the control variables, economic growth is negatively affected by population growth (PG), while it is positively influenced by foreign direct investment (FDI) and inflation (INF).

Based on the findings, the countries are provided with a reliable foundation for formulating appropriate policies aimed at improving institutional quality coupled with economic growth. Specifically, they should prioritize enhancing the effectiveness of public governance, particularly in policy design and implementation, thereby strengthening trust within the private

sector. In addition, reinforcing the rule of law and protecting property rights are key conditions for encouraging long-term investment, fostering innovation, and attracting high-quality capital inflows. Furthermore, improving transparency, accountability, and corruption control can improve the efficiency of resource allocation, reduce economic leakages, and facilitate a shift in the growth model from scale-driven expansion toward a productivity- and quality-based one. Finally, institutional reforms should be implemented synchronously and tailored to each country's development context, thereby establishing a sustainable foundation for long-term economic growth.

In addition to the policy implications related to institutional quality, the findings for the control variables offer numerous important policy insights. Specifically, the negative impact of population growth (PG) on economic growth suggests that greater emphasis should be placed on improving population quality through investments in education, healthcare, and workforce skills, rather than relying solely on the expansion of the labor force. The positive effect of foreign direct investment (FDI) on economic growth implies that developing countries should adopt a more selective approach to attracting FDI, prioritizing projects with high technological content, strong linkages with domestic firms, and clear contributions to productivity enhancement. Furthermore, the positive relationship between inflation (INF) and economic growth indicates that maintaining macroeconomic stability with a moderate level of inflation is necessary to support production and business activities while avoiding excessively high inflation that could harm long-term economic growth.

This study has achieved its objective of examining the impact of institutional quality on economic growth in developing countries in Asia. However, there still exist several limitations. First, data constraints prevent the analysis from being conducted at the individual country level. In addition, the effect of institutional quality on economic growth may be moderated by country-specific characteristics; however, this issue has not been addressed in this study. These limitations suggest several intriguing directions for future research.

Conflicts of Interest: The author declares that there is no conflict of interest regarding the publication of this paper.

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