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INSTITUTIONAL QUALITY AND ECONOMIC GROWTH: A PANEL DATA ANALYSIS IN ASIAN DEVELOPING COUNTRIES

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ABSTRACT

Growth and development require a framework of institutions that reduces transaction costs and, thereby, their effectiveness, and this will reduce the poverty problem in developing countries. The paper investigated the relationship between institutional quality and economic growth in 18 Asian developing countries from 2012 to 2020 using a fixed effect model. The results revealed that regulations positively and significantly impact economic development. In contrast, the size of government, legal systems and property rights, foreign trade internation, and sound money were statistically insignificant. To achieve the Sustainable Development Goals, the framework provided by the General Assembly of the United Nations also prioritized the countries' institutional quality.

Keywords: *Economic Growth, Institutional Quality, Fixed Effect Model, Developing Countries.*

JEL Codes: *E02, 047, C13.*

1. INTRODUCTION

Growth and development require a framework of institutions that allows transactions to smoothen and by which investors know that their decisions and their contracts will be protected by law and enforced, thereby leading the economies toward growth and maturity (Thirlwall & Lopez, 2017). Dani Rodrik, Daron Acemoglu, Simon Johnson, and James Robinson were the contributors to the primacy of institutions, and the role of institutions in economic development was first brought into the limelight by Douglass North. And who defined institutions as the formal and informal rules governing the behavior of human beings (North, 1990). There is a crucial role of the institution for the growth and development of society and the nation.

Furthermore, Lin and Nugent (1995) broadly define institutions in terms of the extent of protection of property rights, the degree to which laws and regulations are fairly enforced, the ability of

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government to protect against economic, and social shocks, and the extent of political corruption. There is no single set of institutions that will suit all countries, but there is a significant consensus that at least five main types of market-supporting institutions are necessary (Rodrik, 2000: Rodrik & Subramanian, 2008). They are property rights, legally binding contracts, regulatory, macroeconomic stability, social insurance, and conflict management.

Institutions are dependent on social, political, and economic growth. Neoclassicals assumed that the growth would occur where benefits were available. One of the hindering factors of growth and development is violence, which is found in developing countries as people want to acquire wealth and prosperity. Institutions contribute to resolving the social and economic disputes (Shah, Zubair & Hussain, 2020).

The formation, functioning and development of institutions vary drastically among countries and those variations make differences in the economic performance of the countries, particularly developing countries. The cause of poverty in Third World countries is the lack of institutions. (Yildirim & Gokalp, 2016). Recent evidence suggests that the more influential the institutions are, the more poverty is reduced, and there is a greater tendency to achieve development goals crucial to low-incomed middle-income countries (Asadullah & Savoia, 2018). In 2015, the General Assembly of the United Nations (UN) provided a framework with the center of Agenda 2030 as the 17 Sustainable Development Goals (SDGs). To achieve the SDGs, the UN also gave a higher priority to improve the institutional quality of the countries (Barbier & Burgess, 2021). With such background, the study aims is to reveal the relationship between institutional structure and macroeconomic performance for developing countries of Asia.

The rest of the paper is organized as follows: in section 2, theoretical and empirical studies on the relationship between institutional quality and economic growth are reviewed. Section 3 describes the research methodology that is used to investigate the impact of institutional quality on economic growth. In section 4, the results and discussions of the study are presented. Finally, conclusions and further research are presented in section 6.

2. LITERATURE REVIEW

2.1. Capital Formation, Labor Participation, and Economic Growth Nexus

Adam Smith (1776) posited that splitting work into smaller tasks was the key to a nation's prosperity, while Marx (1889) argued that capital accumulation was the primary catalyst for growth in a capitalist economy. Schumpeter (1942) believed that innovation was the main force behind economic growth, while Harrod (1939) and Domar (1946) believed that it was due to saving and investment. The models of economic growth, as proposed by Solow (1956) and Swan (1956), held that physical capital and technology were the primary drivers of economic development. Empirical studies have been conducted over the last thirty years to investigate the impact of institutions on economic growth. Early

studies (e.g. Acemoglu et al., 2001, 2002; Hall & Jones, 1999; Knack & Keefer, 1995) used cross-country data and OLS (Ordinary Least Squares)/IV estimation methods in a global sample. Recent studies such as Afonso and Jalles, (2016), Lee and Kim (2009), Nawaz (2015), and Valeriani and Peluso (2011) have utilized reduced sample multiple institutional variables and panel data analysis. The findings of these studies are inconclusive, and the debate continues regarding which institutional arrangements have the most significant impact on growth, and whether the effect differs among sub-samples of countries.

Research conducted by Aiyar and Ebeke (2016) examines the effect of labor force on workforce productivity by analyzing OECD data for 28 European countries from 1950 to 2014. The findings reveal that an increase in the proportion of employees aged 55-64 years leads to a significant decrease in total productivity. On the other hand, the old-age dependency ratio and the young-age dependency ratio have no significant effect. Doyle and Martinez-Zarzoso (2011) estimated the relationship between labor productivity and trade for a panel of countries from 1980 to 2000, and studies by Benhabib and Spiegel (2002) demonstrate that TFP growth is positively impacted by human capital.

2.2. Institutional Quality and Economic Growth Nexus

Chong and Calderon (2000) presented cross-country evidence on the association between the quality of institutions and income inequality from 1982 to 1995 for 105 countries and from 1972 to 1995 for 55 countries using two sets of institutional quality measures. They included corruption, bureaucratic delays, risk of expropriation, and rule of law in the institutional qualities and found that institutional qualities had a positive and significant impact on income inequality in developing countries. The three facts recorded extensively are 1) better institutions, 2) more trade, more growth, and 3) better institutions, more trade. The changes in trade and institutional quality had a significant effect on growth but a relatively larger role in trade than the role of institutions in the short run (Dollar & Kraay, 2003).

Josheski, Fotov and Koteski (2011) revisited the models of institutions and economic growth using cross-country data from 212 groups of countries from various geographic regions. The rule of law was used as a proxy variable for institutions, freedom house rating and war casualties were used, and the results were statistically significant and had positive relations with growth, but the trade was insignificant in influencing growth. Ahmed et al. (2022) explored institutional quality and financial development as major pillars of sustainable economic growth in South Asian countries from 2000 to 2018. Asante, Takyi, and Mensah (2023) used GMM to investigate the effect of financial development on economic growth in Sub-Saharan Africa from 2000 to 2019. They found that financial development had a positive and significant effect on economic growth. Additionally, financial development had a

positive effect on economic growth magnificently when rule of law, political stability, and regulations were maintained.

Yildirim and Gokalp (2016) examined the relationship between institutions and macroeconomic performances in 38 countries from 2000 to 2011. They took 23 institutional indicators which were extracted from the world bank, International Monetary Fund, Freedom House, Frasier Institute, and Gallup International. Their results found that the limitation of foreign investment on institutions had a beneficial impact on economic development. Developed countries had been affected by civil liberties, government spending, and collective bargaining, which are the indicators of institutional structure.

Drury, Krieckhaus and Lusztig (2006) used panel data from 1982 to 1997 for over 100 countries and examined the relationship between corruption and democracies and non-democracies. Corruption had little effect on economic development in a democratic context, whereas corruption had a major impact on economic development in a non-democratic context (Gani & Prasad 2006). Butkiewicz and Yanikkaya (2006) discovered that the rule of law promotes economic growth for developing countries but not democracy. They found that both the rule of law and democracy as institutions fostered economic growth when they used an identical sample. Kandil (2009) revealed that institutional quality increased real GDP. However, private credit and private investment had a negative impact on economic growth in MENA.

Nguyen, Su, and Nguyen (2018) investigated the role of institutional quality on economic growth in 29 emerging countries from 2002 to 2015. They found a positive relationship between institutional quality and economic growth. Nonetheless, they discovered a negative impact of trade openness and FDI on economic growth, suggesting that the competition brought by trade openness might impede the spillover effect of FDI. Similarly, Nawaz, Iqbal, and Khan (2014) also found institutions have a crucial role in determining long-run economic growth, which was investigated by developing a theoretical model and quantifying the impact of institutions on economic growth in Asian countries from 1996 to 2012 using both static and dynamic panel system, GMM technique with fixed effect model. However, the impact of institutional quality on economic growth varied across different Asian countries. Such evidence implies that different countries require different sets of institutions to promote long-term economic growth.

According to literature reviews, most of the empirical studies mentioned above strongly indicated a positive and significant relationship between capital formation, labor participation, institutional quality, and economic growth. From the prior knowledge, we found limited literature on the influence of institutional quality coupled with labor force and capital formation on economic growth, particularly in Asian developing countries. Therefore, this research fills this gap by examining the impact of institutional quality on economic growth in 18 developing countries using panel data from the year 2013

to 2020. In addition, this research adds to the literature on the association between institutional quality and the economic growth of developing countries.

3. METHODS AND DATA

3.1. Theoretical Framework

Adam Smith, the father of economics, pointed out the importance of labor, capital and land in his famous book, the Wealth of Nations, for economic growth (Smith, 1776). The growth model such as classical growth theory, Keynesian growth theory, neoclassical growth theory and endogenous growth theory are the major ones which are widely used to account the economic growth by academicians, statisticians, and economists.

The classical growth theory considered the role of land, labor and capital inputs and it can be presented as:

$$Y = f(L, K, La) \quad (1)$$

Where, Y is output, L is labor inputs, K is capital inputs and La is land inputs.

Harrod (1939) and Domar (1946) developed a growth model based on Keynesian approach which deals with the output growth determined by the aggregate savings and capital-output ratios. The Harrod-Domar growth model is presented as:

$$\Delta Y/Y = s/k \quad (2)$$

Where, $\Delta Y/Y$ is rate of output growth, s is ratio of national savings (S/Y, S is national savings and Y is national income), k is national capital-output ratio (that is K/Y, K is total capital stock). The model says that the growth in output is directly proportional to the national savings ratio and inversely proportional to capital-output ratio.

Solow (1956) and Swan (1956) criticized Harrod-Domar growth model on the assumption of constant capital-output ratio, and they put forward their neoclassical growth model employing interaction of capital, labor, and technology. Solow (1956) argued that when saving rate rises in a country, growth will rise above its long-run rate momentarily to its new equilibrium though in long-run equilibrium growth is neither depend on saving rates nor on population growth, indeed, it is due to technological progress. The functional model of neoclassical growth model is presented as follows:

$$Y = f(A, K, L) \quad (3)$$

Where, Y is gross domestic product, K is capital stock, L is labor stock and A is a constant reflection base level of technology. It is assumed that the capital-output ratio is achieved at diminishing marginal productivity. Moreover, this model focusses on the role of advancement of technology which drives economic growth in an economy.

Barro (1997), Lucas (1988), and Romer (1986) developed a new growth theory, endogenous growth model which emphasized the role of technological progress coupled with human and physical capital stock. The endogenous growth model can be presented as:

$$Y = AK \quad (4)$$

This study started with the aggregate production function which describes the output production from physical and human capital, labor, and technology, to develop a relation of institutional quality in growth model. The aggregate production function is presented as.

$$Y_t = A_t k_t^{\alpha} H_t^{\beta} L_t^{1-\alpha-\beta} \quad (5)$$

Where, Y is output, A represents state of technology, k is physical capital, H is human capital and L is Labor. The human capital is the knowledge, skills, experiences, and abilities of people who are involved in the production of output whereas labor is the number of people who can work.

The equation of production function can be written in per capita form, which is presented as:

$$\frac{Y_t}{L_t} = \frac{K_t^{\alpha}}{L_t} \frac{H_t^{\beta}}{L_t} \frac{A_t L_t^{1-\alpha-\beta}}{L_t} \quad (6)$$

$$y_t = A_t k_t^{\alpha} h_t^{\beta} \quad (7)$$

The traditional growth models assumed a set of good institutions and considered null influence of institutional quality as a factor of economic growth. Indeed, institutions have major role in the growth process, thus the economists try to include the institutional quality in growth models which is presented as:

$$A_t = A_0 k_t^{\delta_1(In-In^*)} h_t^{\delta_2(In-In^*)} \quad (8)$$

Where A_0 is the basic level of technology, In* is the best quality institution, which is assumed in the traditional growth model, and In is the country's current level of institutional quality. (In -In*) measures the degree to which the country's institutional quality falls short of the best conditions. The production function is featured with constant return, $\alpha + \beta \leq 1$.

Substation the equation (8) and rewriting the equation we get:

$$y_t = A_0 k_t^{\alpha+\delta_1(\mathrm{In}-\mathrm{In}^*)} h_t^{\beta+\delta_2(\mathrm{In}-\mathrm{In}^*)} \quad (9)$$

Taking logarithm on both sides for the seek of studying the dynamic of output per capital, we get:

$$\log y_t = \log A_0 + [\alpha + \delta_1(\mathrm{In} - \mathrm{In}^*)]\log k_t + [\beta + \delta_2(\mathrm{In} - \mathrm{In}^*)]\log h_t \quad (10)$$

Taking derivatives with respect to 't', we get:

$$\frac{d\log y_t}{dt} = \frac{d\log A_0}{dt} + [\alpha + \delta_1(\mathrm{In} - \mathrm{In}^*)]\frac{d\log k_t}{dt} + [\beta + \delta_2(\mathrm{In} - \mathrm{In}^*)]\frac{d\log h_t}{dt} \quad (11)$$

Furthermore, the growth rate of output per capita is presented as:

$$\frac{\Delta y_t}{y_t} = \frac{\Delta A_0}{A_0} + [\alpha + \delta_1(\mathrm{In} - \mathrm{In}^*)]\frac{\Delta k_t}{k_t} + [\beta + \delta_2(\mathrm{In} - \mathrm{In}^*)]\frac{\Delta h_t}{h_t} \quad (12)$$

Rearranging the equation,

$$\frac{\Delta y_t}{y_t} = \frac{\Delta A_0}{A_0} + [(\alpha - \delta_1 In^*) + \delta_1 \mathrm{In}]\frac{\Delta k_t}{k_t} + [(\beta - \delta_2 In^*) + \delta_2 \mathrm{In}]\frac{\Delta h_t}{h_t} \quad (13)$$

Let's assume $\phi_1 = (\alpha - \delta_1 In^*)$ and $\phi_2 = (\beta - \delta_2 In^*)$ and $\alpha_0 = \Delta A_0$, and adding an error term ε_t, we final get the equation of growth rate of output per capita:

$$\frac{\Delta y_t}{y_t} = \alpha_0 + \phi_1 \frac{\Delta k_t}{k_t} + \delta_1 In \frac{\Delta k_t}{k_t} + \phi_2 \frac{\Delta h_t}{h_t} + \delta_2 In \frac{\Delta h_t}{h_t} + \varepsilon_t \quad (14)$$

Equation (14) presents the final equation that can be used as a theoretical model to investigate the relationship between institutional quality and macroeconomic performance. The coefficient ϕ_1 and ϕ_2 measure the returns to physical and human capital stocks in a country and the δ_1 and δ_1 measure the returns to these capital stocks and human stocks as the country's institutional quality which improves to the ideal level for economy based of market foundations.

3.2. Econometric Model Specification

With the aim of investigating the relationship between the institutional quality and the macroeconomic performance of cross-sectional countries during a period, this study developed an econometric model as:

$$\mathrm{LNGDP}_{it} = \beta_0 + \beta_1 \mathrm{LNGCF}_{it} + \beta_2 \mathrm{LNPOP}_{it} + \beta_3 \mathrm{G\_SG}_{it} + \beta_4 \mathrm{G\_LSPR}_{it} + \beta_5 \mathrm{G\_FTI}_{it} + \beta_6 \mathrm{G\_SM}_{it} + \beta_7 \mathrm{G\_R}_{it} + \mu_{it} \quad (15)$$

Where, $LNGDP_{it}$ is natural logarithm of Gross Domestic Product (GDP) 'i' countries at 't' time, $LNGCF_{it}$ is natural logarithm of Gross Capital Formation of 'i' countries at 't' time, $LNPOP_{it}$ is natural logarithm of Total Population of 'i' countries at 't' time, a proxy for labor inputs, G_SG_{it} is size of the government of 'i' countries at 't' time, G_LSPR_{it} is Legal Systems and Property Rights 'i' countries at 't' time, G_FTI_{it} is Freedom to Trade Internationally, G_SM_{it} is Sound Money of 'i' countries at 't' time, G_R_{it} is Regulations 'i' countries at 't' time, the $\beta_{0,}$ β_1, β_2, β_3, β_4, β_5, β_6, β_7 and μ_{it} are coefficients and error terms.

3.3. Date Source

This study investigated the relationship between institutional quality and macroeconomic performance in 18 Asian developing countries (Armenia, Bangladesh, Cambodia, China, India, Indonesia, Iran, Kazakhstan, Lebanon, Malaysia, Nepal, Pakistan, Philippines, Tajikistan, Thailand, Timor-Leste, Turkey, and Vietnam) for the period 2012 to 2020 follows from the descriptive statistics, inferential statistics, and regression results in balanced panel. The data of GDP, GCF and POP were gathered from World Bank Indicators (The World Bank, 2023). The data of SG, LRPR, FTI, SM and R were collected from Economic Freedom of the World prepared by (Fraser Institute, 2022). The data were collected and tabulated in Microsoft excel and analyzed from STATA13.

The data of institutional quality were compiled by Fraser Institute from the International Country Risk Guide, International Management Development Center, and World Competitiveness Yearbook. These indexes are mostly prepared to inform international investors based on expert feedback. Though the indexes are criticized (Mansfield, 2014), this study considered since there are no other sources of data. Yildirim and Gokyalp (2015) had considered these data source and the results of their study were accepted; therefore, this study also considered these data sources. The explanation of the data is presented in Table 1.

Table 1. Description of the Variables

Variables	Explanation	Source of Data
LNGDP	Natural logarithm of Gross Domestic Product at constant price 2015 international U.S. dollars	WDI, 2023
LNGCF	Natural logarithm of Gross Capital Formation at constant price 2015 U.S. dollars	WDI, 2023
LNPOP	Natural logarithm of Total Population	WDI, 2023
G_SG	Annual percentage change in Size of the Government consisting of government consumption, transfers, subsidies, government investment and so on scaling from 0 to 10, measured in percentage	Fraser Institute, 2022
G_LSPR	Annual percentage change in Legal System and Property Rights consisting judicial independence, protection of property rights, and soon which is a scale from 0 to 10, measured in percentage	Fraser Institute, 2022
G_FTI	Annual change in Freedom to Trade Internationally consisting of tariffs, regulatory trade barriers, and so on which is a scale from 0 to 10, measured in percentage	Fraser Institute, 2022
G_SM	Annual percentage change in Sound Money consisting of money growth, inflation and so on scaling from 0 to 10, measured in percentage	Fraser Institute, 2022
G_R	Annual percentage change in Regulation consisting of credit market regulations, labor market regulations business regulations and so on scaling from 0 to 10, measured in percentage	Fraser Institute, 2022

Note: Author's own calculation.

4. METHODOLOGY

The findings of the data analysis from annual data of 18 Asian developing countries (Armenia, Bangladesh, Cambodia, China, India, Indonesia, Iran, Kazakhstan, Lebanon, Malaysia, Nepal, Pakistan, Philippines, Tajikistan, Thailand, Timor-Leste, Turkey, and Vietnam) annual data for the period 2012 to 2020 follows from the descriptive statistics, inferential statistics, and regression results in balanced panel.

4.1. Descriptive Statistics

The summary of descriptive statistics is presented in Table 1 to examine the trend over 9-year annual data set. The mean proportion of LNGDP was 25.79 with maximum and minimum value as 30.313 and 21.088 with standard deviation of 2.12, left skewness and it is mildly peaked (2.77) from 162 observations. The mean of LNGCF was 24.54 and 24.84 where the maximum and minimum were 29.47 and 19.70 with the standard deviation of 2.19, left skewed (-0.03) and it is mildly peaked (2.75). The mean of LNPOP was 17.72 where maximum and minimum values were 21.07 and 13.9 with the standard deviation of 1.86 left skewed (-0.08) and it is heavily peaked (7.88). The mean G_SG was 0.12 where the maximum and minimum values were 17.50 and-9.57 with the standard deviation of 3.39, right skewed (1.18) and it was heavily peaked (25.95). The mean of G_LSPR was 0.104 where the maximum and minimum values were 25.17 and -40.41 with the standard deviation of 5.42 left skewed (-1.64) and it was heavily peaked (2.25).

Table 2. Summary of Descriptive Statistics

Variables	Mean	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Obs
LNGDP	25.795	30.313	21.088	2.124	-0.260	2.767	162
LNGCF	24.534	29.474	19.704	2.192	-0.034	2.748	162
LNPOP	17.719	21.068	13.945	1.863	-0.077	2.533	162
G_SG	0.123	17.505	-9.570	3.393	1.181	7.877	162
G_LSPR	0.104	25.172	-40.405	5.423	-1.640	25.945	162
G_SM	0.582	45.887	-47.852	7.747	0.271	22.967	162
G_FTI	-0.330	59.039	-50.354	10.686	0.157	16.457	162
G_R	-0.107	20.133	-23.674	5.273	-0.484	9.820	162

Note: Author's own calculation.

The mean of G_SM was 0.58 where the maximum and minimum values were 45.89 and -47.85 with the standard deviation of 7.75, right skewed (0.27) and it is heavily peaked (22.97). The mean of G_FTI was -0.33 where the maximum and minimum values were 59.04 and -50.35 with the standard deviation of 10.69, right skewed (0.16) and it is heavily peaked (16.46). The mean of G_R was -0.107 where the maximum and minimum values were 20.13 and -23.67 with the standard deviation of 5.27 left-skewed (-0.48) and it is highly peaked (9.82).

4.2. Panel Unit Root Tests

This study followed the panel unit root test for determining the stationarity of the variables of the model and the result is presented in Table 3. The null hypothesis is that the variables have a unit root.

Table 3. Panel Unit Root Tests

Variables	Assumes common unit root process	Assumes individual unit root process			Remarks
	Levin, Lin & Chu t*	Im, Pesaran and Shin W-stat	ADF-Fisher Chi-Square	PP-Fisher Chi-square	
LNGDP	-2.7154*** (0.0033)	-1.7625** (0.0390)	61.7339*** (0.0048)	15.7227 (0.9987)	I (0)
LNGCF	-5.9124*** (0.0000)	-1.0100 (0.1563)	81.5746*** (0.0000)	49.1924* (0.0703)	I (0)
LNPOP	-4.4049*** (0.0000)	2.5943 (0.9953)	81.7033*** (0.0000)	69.0455*** (0.0008)	I (0)
G_SG	-3.5177*** (0.0000)	-1.4212* (0.0776)	99.6902*** (0.0000)	92.4924*** (0.0000)	I (0)
G_LSPR	-6.2961 (0.0000)	-2.2343** (0.0127)	104.5437 (0.0000)	72.5766*** (0.0003)	I (0)
G_SM	-7.9219*** (0.0000)	-2.3485*** (0.0094)	100.8596*** (0.0000)	207.5846*** (0.0000)	I (0)
G_FTI	3.0667 (0.9990)	1.2302 (0.8907)	68.9136*** (0.0000)	267.0912*** (0.0000)	I (0)
G_R	-15.5282*** (0.0000)	-8.9018*** (0.0000)	134.7544*** (0.0000)	201.9095*** (0.0000)	I (0)

Note: Author's own calculation. *, **, *** significant at 10%, 5% and 1% respectively at lag length based on SIC.

From table 3, all the variables, LNGDP, LNGCF, LNPOP, G_SG, G_LSPR, G_SM, G_FTI and G_R are stationary at level. This result suggests that this study need not go for dynamic panel data model.

4.3. Correlation Analysis

The degree and direction of relationship between the independent variables and dependent variable were studied with the help of correlation matrix as in Table 4. This correlation matrix provides information about the pairwise correlations between different variables. The values range from -1 to 1, where:1 indicates a perfect positive correlation, 0 indicates no correlation, and -1 indicates a perfect negative correlation.

Table 4. Correlation Matrix

	LNGDP	LNGCF	LNPOP	G_SG	G_LSPR	G_SM	G_FTI	G_R
LNGDP	1							
LNGCF	0.99079	1						
LNPOP	0.91476	0.91287	1					
G_SG	-0.0102	-0.0067	-0.0128	1				
G_LSPR	-0.0292	-0.0285	-0.039	0.17217	1			
G_SM	0.11439	0.11761	0.14857	-0.1708	0.08218	1		
G_FTI	0.01981	0.02757	0.03466	-0.1202	0.10372	0.17269	1	
G_R	-0.0047	-0.0063	0.01291	-0.0797	0.25672	0.06212	0.04853	1

Note: Author's own calculation.

From table 4, it was found that there is a very strong positive correlation (0.99) between LNGDP and LNGCF which suggests that there is high degree of association between these two variables. There is also a strong positive relationship between LNGDP and LNPOP which refers there is high degree of association between these two variables. There is poor positive relationship between G_SM and G_FTI with LNGDP whereas there is poor negative relationship between G_SG, G_LSPR and G_R with LNGDP. It is furthermore found that LNPOP and LNGCF have strong positive relationship which might invite multicollinearity problem in the data set. Therefore, the diagnostic test was essential to be carried out in the study.

4.4. Diagnostic Tests

For the reliability of the data set, several diagnostic tests such as normality, heteroscedasticity and serial correlation were employed. For testing the data are normal distribution, Jarque-Bera normality test was employed, for heteroscedasticity, imtest was employed and for serial correlation, variance inflation factor was employed.

4.5. Normality Test

The null hypothesis (Ho) for the Jarque-Bera test is that the residuals of the regression model are normally distributed. The JB residual value is 0.4672 with p-value 0.7916. The p-value is greater than a significance level (0.05). Therefore, the residuals appear to be normally distributed.

4.6. Multicollinearity Test

The multicollinearity in the data were measured by Variance Inflation Factor (VIF) on how much the variance of an estimated regression coefficient increases if the predictors are correlated. The result of VIF is shown in Table 5.

Table 5. VIF

Variable	VIF	1/VIF
LNGCF	6.09	0.164
LNPOP	6.03	0.165
G_LSPR	1.15	0.872
G_SG	1.10	0.909
G_SM	1.09	0.915
G_R	1.09	0.915
G_FTI	1.05	0.949
Mean VIF	2.52	

Note: Author's own calculation.

From Table 5 it was found that LNGCF and LNPOP both have relatively high VIF values (above 5), suggesting a high level of multicollinearity between these variables and possibly indicating that they share similar information. All other variables G_SG, G_LSPR, G_SM, G_FTI and G_R have relatively low VIF values (below 2), indicating a lower degree of multicollinearity. The overall mean VIF of 2.52. If the value of VIF is greater than 10, one can say there is a high level of multicollinearity. Since the VIF values are less than 10 for the variables, this study assures there is no evidence of multicollinearity problem.

4.7. Heteroskedasticity Test

The heteroskedasticity test is conducted whether there is homoskedasticity in the residuals in model or not by employing white's test. The chi-squared test statistics are 112.36 and the degree of freedom (df) was reported as 35. The probability (prob>chi2) value is 0.0000 (<0.05). This implied that there was evidence of heteroskedasticity in the data. The details are shown in Table 6.

Table 6. Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	P-value
Heteroskedasticity	112.36	35	0.0000
Skewness	39.32	7	0.0000
Kurtosis	0.00	1	0.9864
Total	151.67	43	0.0000

Note: *Author's own calculations.*

From Table 6, it was found that the p-value (0.0000) is lowest, suggesting that there is significant evidence to reject the null hypothesis of homoskedasticity.

4.8. Random Effect Model or Fixed Effect Model

The Hausman test is used to choose the fixed effect model (FEM) or random effect model (REM). The null hypothesis is as the fixed effect model is the best to describe the panel data. Otherwise, REM

is the best. If the p-value is less than 0.05, then FEM is more appropriate and if the p-value is more than 0.05, then REM is more appropriate. The result of the Hausman test is presented as in table 7.

Table 7. Result of Hausman test

	Coefficients			
Variable	(b) Fixed	(B) Random	(b-B) Difference	Sqrt(diag(V_b-V_B)) S.E.
LnGCF	0.273745	0.463677	-0.18993	.
LnPOP	2.216972	0.598061	1.618911	0.17277
G_SG	-0.0014	-0.00026	-0.00114	.
G_LSPR	-0.00064	-0.00054	-9.6E-05	.
G_SM	-0.00124	-0.00242	0.001185	.
G_FTI	-9.1E-05	-0.00036	0.000271	.
G_R	0.00283	0.001807	0.001023	.

Note: Authors' own calculation. b = consistent under H_0 and H_a; obtained from xtreg, B = inconsistent under H_a, efficient under H_0; obtained from xtreg.

From the result of table 7 the appropriate model for this study was Fixed Effect Model (FEM) since the p-value of FEM was 0.0000 (<0.05) with chi2 (7) value as 61.43.

From Breusch an Pagan Lagrangian multiplier test for random effects and pooled OLS, the p-value was 0.0000 (<0.05). Therefore, this study rejects pooled OLS model and confirmed FEM is the best model which describes the relationship between institutional qualities and economic growth in 18 Asian developing countries for selected sample period.

Furthermore, when the model was checked by modified Wald test for groupwise heteroskedasticity in Fixed effect regression model, where the null hypothesis of sigma (i) square as the sigma square for all I, the chi-square (18) value was 2237.53 with the p-value of 0.0000 (<0.05) indicating the presence of heteroskedasticity in the data.

Therefore, the relationship between independent variables and dependent variables was examined using robust FEM which is presented in table 8.

Table 8. Results of Fixed Effect Model

Variable	Fixed Effect Model				Robust Fixed Effect Model			
	Coeff.	Std. Err.	t	P>|t|	Coeff.	Std. Err.	t	P>|t|
LnGCF	0.274	0.034	8.000	0.000	0.206	0.274	0.074	3.690
LnPop	2.217	0.184	12.040	0.000	1.853	2.217	0.573	3.870
G_SG	-0.001	0.002	-0.740	0.459	-0.005	-0.001	0.002	-0.770
G_LSPR	-0.001	0.001	-0.540	0.591	-0.003	-0.001	0.001	-0.800
G_SM	-0.001	0.001	-1.560	0.121	-0.003	-0.001	0.001	-1.640
G_FTI	0.000	0.001	-0.170	0.866	-0.001	0.000	0.001	-0.180
G_R	0.003	0.001	2.420	0.017	0.001	0.003	0.002	1.160
Constant	-20.203	2.914	-6.930	0.000	-25.966	-20.203	8.938	-2.260
Prob>F		0.0000	Sigma_u		2.287			
R-squared within		0.7611	Sigma-e		0.069			
R-squared between		0.8727	Rho		0.999			
R-squared overall		0.8713						

Note: Author's own calculation.

From table 8, the R-squared within was 0.7611 which means the model explained around 76.11 percent between LNGDP and the independent variables. The R-squared between and R-squared overall were 0.8727 and 0.8713 which mean the model explained around 87.27 percent and 87.13 percent in overall between LNGDP and independent variables LNGCF, LNPOP, G_SG, G_LSPR, G_SM, G_FTI and G_R among the Asian developing countries. FEM seemed to have good explanatory power with p-value 0.0000 (<0.05).

Among all, LNGCF, LNPOP and G_R are statistically significant and other institutional qualities are statistically insignificant. LNGCF, LNPOP and G_R had a positive relationship with LNGDP in FEM. But in Robust FEM, G_R was statistically insignificant. A unit rise in LNGCF brought 0.27 unit rise in LNGDP. One unit rise in LNPOP brought 2.22 unit rise in LNGDP. From standard FEM, one unit rise is G_R brought 0.002 unit rise in LNGDP.

From the various growth models and numerous empirical studies, it is evident that physical capital formation and human capital formation have positive association with economic growth. This study is consistent with the theories of growth models and those of the previous studies such as (Acemoglu et al., 2001, 2002; Aiyar et al. 2016; Benhabib & Spiegel, 2002; Doyle & Martinez-Zarzoso, 2011; Hall & Jones, 1999; Knack & Keefer, 1995; Lee & Mason, 2016; Tran, Dinh Le & Nguyen, 2021 Yildirim & Gokalp, 2016). Both capital and labor inputs are crucial for the economic growth of society and there is no doubt that both factors are most indispensable factors to increase economic growth.

The result shows that G_R has a positive relationship with economic growth. This result is consistent with the studies of Yildirim and Gokalp (2016), Tran, Dinh Le, and Nguyen (2021), Drury, Krieckhaus and Lusztig (2006) and Yunan (2023). Fraser Institute (2022) assessed regulations in five major areas, which include credit market regulations, labor market regulations, and business regulations, and argued that regulations restrict the freedom of markets either for entry into the markets or engaging in voluntary exchange. It was found that in the Asian developing countries, there is a gradual rise in the ownership of financial institutions, more private sector credits, and improvement in labor market regulations, which brought freedom to participate in economic activities, which ultimately enhanced the national output.

Size of the government, legal systems and property rights, foreign trade international and sound money had insignificant relationships with economic growth in Asian developing countries for the sample period. These results are inconsistent with the existing literature such as Asante, Takyi, and Mensah (2023), Chong and Calderon (2000), Dollar and Kraay (2003), Drury, Krieckhaus and Lusztig (2006), Josheski, Fotov and Koteski (2011) and Yildirim and Gokalp (2016). However, Nguyen, Su, and Nguyen (2018) found that foreign trade has a negative impact on economic growth in emerging countries. The pace of economic activities in Asian developing countries is sluggish in nature. Most of these countries have characteristics of numerous religions, languages, and social norms, which might

hinder their progress economically. There is so much turbulence in these Asian developing countries in terms of political, social, and environmental aspects. These countries face unstable governments that might make insignificant contribution to the growth of the countries.

5. CONCLUSION AND POLICY IMPLICATIONS

Based on the results of the analysis that has been carried out above, it can be concluded that there is no difference of opinion among stakeholders regarding the concept of performance audit. Stakeholders view that the concept of performance audit is important for an organization to achieve organizational excellence. Stakeholders are of the view that performance audits will help the organization achieve organizational targets, make the organization more advanced, improve the management management system, human resources, make work more efficient, and provide recommendations and innovations to auditees on the findings found in the field. In addition, there are differences of opinion regarding the contribution of performance audits to organizational excellence: a) according to the leadership level, performance audits contribute 5–10% to organizational excellence; b) according to the operational level, performance audits contribute 80% to organizational excellence; and c) according to the shareholder level, performance audits contribute 90–95% to organizational excellence. Then the conclusion is obtained from the results of the analysis of stakeholder identification using stakeholder theory, namely that the dominant stakeholder (organization depends on stakeholders) in pursuing organizational excellence is the dominant stakeholder.

Suggestions in this study consist of two parts, namely for the literature and research locations. First of all, for the literature: a) future researchers are expected to be able to conduct similar research using the same theoretical framework on other research sites; b) future researchers are expected to be able to conduct similar research using different theoretical frameworks on other research sites; and c) future researchers are expected to conduct similar research with more complete informants. Second, there are suggestions for research locations: a) standard operating procedures and control systems need to be followed up and developed again so that in carrying out daily operational activities they become more structured and systematic so as to achieve organizational excellence; b) it is expected that research sites will begin to pay attention and increase organizational resources; c) the performance evaluation or appraisal carried out annually is expected to be carried out within a predetermined time so that the performance appraisal process becomes more consistent.

The research that has been carried out still has some limitations that are expected to be improved by future researchers. Some of these limitations are that this study was unable to conduct interviews with all informants and the limitations of interaction with informants due to the COVID-19 pandemic.

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