The Institutions-Growth Nexus: Stages of Development

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ABSTRACT

The objective of this study is to analyze the impact of institutions on the economic growth and examine whether the ultimate impact differs at various stages of development among 24 Asian countries over the period 1996-2008 using a dynamic panel data analysis model based on the SYS-GMM estimation procedure. The overall analysis of this study shows that institutions indeed are important in determining the long-run economic growth. However, the impact of the institutions on economic growth varies across the regions and depends upon the existence level of development. This study concludes that the institutions are more effective in developed region as compared to developing region. More specially, control over corruption, rule of law and regulatory quality are highly effective in promoting long rum economic growth in East Asia than South Asia. Different countries require different set of institutions to promote long run economic growth

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[1] This paper is heavily drawn from my PhD Dissertation entitled "Institutions, Fiscal Policy and Economic Growth" submitted for review

INTRODUCTION

After the path breaking studies by North (1981), Jones (1981) and Olson (1981) that inspired the researchers and policy makers, a large amount of literature empirically investigates the impact of institutions on economic growth and development. For example, earlier empirical studies, by Knack and Keefer (1995) employing data for 97 countries over the period 1974-1989, Mauro (1995) using cross-section data for 67 countries and Barro (1996) using data over the period 1960-1990, reveal that institutions are important for investment and long run economic growth and development. Hall and Jones (1999), based on a cross section study of 127 countries, demonstrate that differences in the institutions across the globe cause huge differences in capital accumulation, education attainment, and productivity growth hence accounted for income differences. More recently, Rodrik et al. (2004) find that rule of law, a as proxy for institutions, has a positive impact on economic growth. Acemoglue et al. (2006) conclude that private property right institutions are the main determinants of long run economic growth, investment and financial development.

These studies conclude that institutions are the fundamental cause of the long run economic growth and development across the countries. The existing empirical literature, however, is only evident that institutions positively affect the economic growth and development. But, the role of institutions is not univocal for economic growth as it is described through various factors like the perception of the individual about the institutions themselves and the social norms and community rules of a particular group of individuals. Some time similar institutions produced extremely different outcomes across different groups, regions and societies. This is evident in LAC countries where similar laws and solutions were adopted, obtaining different economic growth and development (Lin and Nugent, 1995). In this context, Alonso and

Garcimsrtin (2010) signify the role of stages of development in determining the growth effects of institutions.

The existing literature that empirically investigates the growth effects of institutions mainly ignores the potential influence of various stages of development in this regard[2]. The overall objective of this study is, therefore, to analyze the impact of institutions on economic growth at the different stages of the economic development. More specifically, this study examines the relationship between the institutions and the economic growth for 24 Asian countries over the period 1996-2008. Secondly, this study investigates whether the ultimate impact differs at various stages of economic development. To overcome the problem of endogeniety and non-observable country specific effects, this study employs a dynamic panel data analysis model based on the "System Generalized Method of Moments" (SYS-GMM) estimation technique. Moreover, this study uses only Asian countries with almost homogenous characteristics.

The reminder of the paper is structured as follow: Section 2 explains the theoretical framework capturing the relationship between the institutions and the economic growth. Data and estimation methodology are elaborated in section 3. Empirical results are presented in section 4 while section 5 concludes the entire discussion.

[2] More recently Valerianiand and Peluso (2011) investigate the growth effects of institutions at various stages of development. However, this study neither accounted for the possibility of endogeniety problem nor for the possibility of heterogeneity problem due to combining many different countries those are highlighted in various studies in this field.

MODELLING INSTITUIONS-GROWTH NEXUS

Economic theory postulates that per capita level of output is determined by the amount of physical and human capital and level of technology in a country. In this process, the economic growth is linked with the ability of the nation to enhance its physical and human capital along with the development in the level of technology. Acemoglu and Robinson (2010), however, state that:

> *"The differences in human capital, physical capital, and technology are only **proximate causes** in the sense that they pose the next question of why some countries have less human capital, physical capital, and technology and make worse use of their factors and opportunities. To develop more satisfactory answer to question of why some countries are much richer than others and why some countries grow much faster than others, we need to look for potential **fundamental causes**, which may be underlying these proximate differences across countries"*

Acemoglu and Robinson (2010) argue that "institutions are the fundamental causes of the long run economic growth and the development across the countries". North (1990) defines institutions as "the rule of the game in a society or, more formally the humanly devised constraints that shape human interaction". This implies that institutions shape the incentive structure in the society that may increase or hamper the economic activities. Poor institutions may slow down the economic activities by providing room to economic agents to remain busy in redistributive politics with lower economic returns rather than growth promoting economic activities (Murphy et al. 1991). On the other hand, good institutions may promote such incentive

structure that leads to higher economic growth via reducing uncertainty and promoting efficiency (North, 1991). Overall productivity of factors of production in a country is driven by the quality of its institutions (Hall and Jones, 1999). Efficient, well developed and uncorrupt institutions guarantees that labor can only be used for productive objectives and not wasted in rent seeking activities, thus leads to higher economic growth (North, 1990). Institutions enhance the ability of a country in adopting new technologies invented elsewhere. This adoption may play an important role in upgrading the overall development of the country in the globe (Bernard and Jones, 1996).

This discussion highlights the significant role of the institution in determining the long run economic growth and the development across the economies and regions. The relationship between institution and economic growth can be derived using standard growth regression model (Barro, 1991; Mankiw et al., 1992). The extended version of basic growth equation incorporating the role of institution is as follow:

$$dlogY = \alpha_0 + \alpha_1 INS + X\beta + \varepsilon \dots\dots (1)$$

Where $dlogY$ represents growth rate of real GDP, Y is real output, INS represents institutions, X is a set of explanatory variables, β is slope coefficients attached with explanatory variables and ε is the error term. The choice of explanatory variables mainly based on the existing studies. In this paper, we use variables related to initial conditions, human capital, physical capital and macroeconomic stability.

Initial conditions are important to test the convergence hypothesis. According to neo-classical school of thought, per capita growth rate of the countries inversely related to the initial income implying that poor countries tend to grow faster as compared to rich ones hence there is convergence across the countries. Similarly neoclassical model uses investment and population

growth as explanatory variables (Barro, 1990). Increase in investment and decrease in population growth may lead to higher economic growth. Macroeconomic stability generally measures through inflation, government size and trade openness[3]. This formulation combines various growth theories developed by various economists like Solow (1956), Romer (1986) and Lucas (1988) with North (1981). Based on this formulation, the final regression model for cross section analysis is as follow:

$$dlogY = \Delta y_i = \alpha_0 + \alpha_1 INS_i + \gamma_1 InGDP_i + \gamma_2 Inv_i + \gamma_3 Inf_i + \varepsilon_i \dots\dots (2)$$

Where α_1 with positive sign is the coefficient attached with institutions INS_i for country i. $InGDP_i$ is the initial level of income for country i and $\gamma_1$the coefficient attached with initial income and the expected sign of γ_1 is negative which shows the convergence. Inv_i represents the investment as percent of GDP for country i and $\gamma_2 > 0$ is slope coefficient where as Inf_i represent level of inflation for country i and $\gamma_3 < 0$ is coefficient measuring impact of Inf_i on economic growth. For panel data analysis, we use following regression model:

$$\Delta y_{i,t} = \alpha_0 + \alpha_1 INS_{i,t} + \beta_1 InGDP_{i,t} + \beta_2 Inv_{i,t} + \beta_3 Pop_{i,t} + \beta_4 Open_{i,t} + \beta_5 Gov_{i,t} + \varepsilon_{i,t} \dots (3)$$

Where α_1 with positive sign is the coefficient attached with institutions $INS_{i,t}$ for country i and time t. $InGDP_{i,t}$ is the initial level of income for country i and time t with $\beta_1 > 0$. $Inv_{i,t}$ represents the investment as percent of GDP for country i and time t with $\beta_2 > 0$. $Pop_{i,t}$ represents population growth for country i and time t with $\beta_3 < 0$. $Open_{i,t}$ represents openness for country i and time t with $\beta_4 > 0$. $Gov_{i,t}$ represents government expenditure as percent of GDP for country i and time t with $\beta_5 < 0$.

[3] The choice of control variables mainly comes from the Levine and Renelt (1992) and Mankiw et al. (1992)

ESTIAMTION METHDOLOGY AND DATA

Estimation Methodology

The choice of appropriate estimation technique is important for obtaining robust estimates. The existing literature mainly uses cross section approach to estimate the impact of institutions on economic growth. However, this formulation ignores the country specific aspects of the data that may be linked with explanatory variables, causing an omitted variables bias. The main assumption in cross section approach is the strict exogeneity of explanatory variables that may be violated in many cases. Although this problem can be tackled using instrumental variables technique. But it is vary difficult to find valid instrument. The problem of omitted variables can also be tackled employing a panel approach. The time invariant or constant heterogeneity across the countries of a panel can be removed using the panel estimation technique based on the fixed effect approach. However, the effects that change with time of the economy and endogeniety may not be tackled using this estimation procedure.

In order to tackle the above mention problems, Caselli et al. (1996) and, later on, Bond et al. (2001) apply the "Generalized Method of Moments (GMM)". This method corrects the unobserved heterogeneity of the country, excluded variables bias, the existence of measurement errors, and the possibility of potential endogeniety problem. Arellano and Bover (1995) constructed the "System GMM" approach, reduces the problem arises due to small sample i.e. small sample bias that persist in the first difference model of the GMM employ by Caselli et al. (1996). Later on, same procedure was used by Blundell and Bond (1998) to tackle the same problems.

Taking this in account, to estimate the impact of the institutions on the economic growth, this study employs a dynamic panel data analysis model based on the "System Generalized Method of Moments" (SYS-GMM) estimation technique. This methodology takes into accounts possibility of: i) "the time dimensions of the data, ii) non-observable country specific effects, iii) inclusion of lagged dependent variable among the explanatory variables and iv) the problem of enodogeniety among all explanatory variables".

Data and Descriptive Statistics

In this paper, the empirical estimation is based on the panel data set for 24 Asian countries over the period 1996-2008. The choice of 24 countries in Asian region is mainly because of the availability of data on all variables (See Appendix Table A for detail list of countries). We include 8 countries from South Asia region, 6 countries from East Asia region and 10 countries from South East Asia region.

The data on economic variables are taken from the World Bank's "World Development Indicators (WDI)" and the "Penn World Table version 7.0 – PWT" published by Heston et al. (2010). Data on institutional variables are gathered from the World Bank's "Worldwide Governance Indicators (WGI)". This database provides six different measures that capture the various dimensions of institutions including: i) "Voice and Accountability", ii) "Political instability and Violence", iii) "Government Effectiveness", iv) "Rule of Law", v) "Regulatory Quality" and iv) "Control of corruption"[4]. The overall institutional quality index is developed by using principle component method.

[4] For detailed definition and construction of these variables see World Bank website: www.info.worldbank.org/governance/wgi/index.asp

The descriptive statistics shows that the average per capita GDP in the Asia is 10678 US $. The average GDP per capita growth rate is 3.80 while population growth rate is 1.64 in the region. Investment as percent of GDP ranges from 9.81 percent to 68.3 percent. The average values of institutional measures are ranging from -0.50 of Voice and Accountability to -0.04 of Rule of Law (Table 1).

TABLE 1
Summary Statistics

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
Real GDP per Capita (R_GDP_PC)	312	10678	14485	370	53102
GDP per Capita Growth Rate (R_GDP_PC_G)	312	3.80	4.28	-14.29	24.43
Population Growth Rate (Pop_G)	312	1.64	0.83	-1.48	5.32
Government as % of GDP (Gov_GDP)	312	11.04	6.37	2.10	42.72
Investment as % of GDP (I_GDP)	312	27.91	10.47	9.81	68.31
Openness (Opn)	312	108.59	88.08	19.49	443.18
Control of Corruption (C_C)	312	-0.22	0.96	-1.92	2.39
Rule and Law (R_L)	312	-0.04	0.96	-2.32	2.37
Regulatory Quality (R_Q)	312	-0.29	1.07	-2.73	1.37
Government Effectiveness (G_E)	312	-0.11	1.01	-2.38	2.23
Political Stability (P_S)	312	-0.13	0.83	-1.97	1.76
Voice and Accountability (V_A)	312	-0.50	0.77	-2.30	1.05
Overall Institutional Index (INS)	312	0.00	2.16	-4.97	4.67

EMPIRICAL ANALYSIS

The results of empirical analysis are presented in table 2-5. To uncover the nature of relationship between institutional variables and economic growth, first we carry cross sectional analysis and results are presented in table 2. The baseline model which only includes control variables other than institutions shows that all the explanatory variables have expected signs (see column 1 table 2). The initial level of GDP per capita of the economies has a negative coefficient

which shows consistent results with the conditional income convergence hypothesis among the countries. Investment has a positive and statistically significant coefficient, indicating that the greater investment promote economic growth. Inflation has positive but insignificant impact on economic growth (Table 2).

TABLE 1
Cross-section estimation OLS (1996-2008)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Mode 8
Initial R_GDP_PC	-0.224*	-0.207*	-0.245	-0.215	-0.247*	-0.221	-0.242	-0.221
	(0.113)	(0.117)	(0.164)	(0.140)	(0.137)	(0.156)	(0.144)	(0.148)
Inf	0.00503	0.00189	0.00447	0.00438	0.00718	0.00489	0.00588	0.00485
	(0.0258)	(0.0264)	(0.0266)	(0.0271)	(0.0272)	(0.0268)	(0.0267)	(0.0269)
I_GDP	1.384**	1.281**	1.328**	1.392**	1.400**	1.389**	1.351**	1.387**
	(0.504)	(0.528)	(0.599)	(0.523)	(0.519)	(0.550)	(0.540)	(0.525)
V_A		-0.134						
		(0.181)						
P_S			0.0363**					
			(0.198)					
G_E				-0.0210				
				(0.192)				
R_Q					0.0557			
					(0.178)			
R_L						0.00712*		
						(0.250)		
C_C							0.0407**	
							(0.192)	
INS								0.00320**
								(0.0890)
Constant	-1.456	-1.318	-1.089	-1.551	-1.330	-1.498	-1.197	-1.492
	(1.977)	(2.008)	(2.851)	(2.204)	(2.062)	(2.499)	(2.366)	(2.264)
Observations	24	24	24	24	24	24	24	24
R-squared	0.403	0.420	0.405	0.404	0.407	0.403	0.405	0.404

Note: Robust standard errors are presented in the parentheses. * p<0.1, **p<0.05, *** p<0.01

From column 2 to 8, we test the hypothesis whether institutions play significant role in promoting economic growth across the countries. We find a positive and statistically significant relationship between various indicators of institutions and per capita GDP growth rate implying

that institutions are important in promoting the long run economic growth in the Asian economies. More specifically we find that the 'political stability', the 'rule of law' and the 'control over corruption' are the significant growth determinants. The composite indicator of institutional quality has positive and significant impact on economic growth, indicating that better the quality of institution across the countries, higher the GDP per capita (Table 2).

Panel estimation is carried out using system-GMM estimations. The results of system-GMM using a sample using entire sample of 24 Asian countries is presented in Table 3. The outcomes of the estimation of the baseline model are given in column 1. All the explanatory variables have expected sign in baseline model. Initial GDP per capita has negative sign which confirms convergence hypothesis. Trade openness has a positive and statistically significant impact on the economic growth. Investment (percent of GDP) has a positive coefficient, but is not statistically significant. Population growth shoes a negative association with economic growth. The estimated coefficient of population growth is statistically significant at 5 percent level. Finally, government size (government expenditure as percent of GDP) has a negative impact on economic growth

Looking at the panel estimates in Table 3, we find a positive and statistically significant impact of overall institutions on economic growth. 'Control of corruption' and 'rule of law' both have statistically significant and positive effect on the economic growth in the full sample estimation. The estimated coefficient for 'control of corruption' is 0.42 (significant at 5 percent) and for the 'rule of law' is 0.821(significant at 1 percent). 'Regulatory quality', 'government effectiveness', 'political stability' and 'voice and accountability' all have expected positive sign, but are statistically insignificant in full sample.

TABLE 3
Panel estimation for full sample SYS-GMM (1996-2008)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Mode 8
R_GDP_PC (-1)	0.121	0.124	0.120	0.124	0.126	0.122	0.121	0.124
	(0.0780)	(0.0887)	(0.0757)	(0.0811)	(0.0911)	(0.0904)	(0.0767)	(0.0850)
Initial R_GDP_PC	-0.000422	-0.000425	-0.000442**	-0.000439*	-0.000440**	-0.000424*	-0.000422	-0.000432*
	(0.000277)	(0.000262)	(0.000223)	(0.000253)	(0.000222)	(0.000249)	(0.000279)	(0.000229)
G_GDP	-0.117	-0.103	-0.111	-0.123	-0.0998	-0.117	-0.115	-0.109
	(0.251)	(0.303)	(0.258)	(0.247)	(0.285)	(0.268)	(0.255)	(0.273)
I_GDP	0.198*	0.199*	0.201*	0.199*	0.193*	0.197*	0.193*	0.199*
	(0.113)	(0.109)	(0.107)	(0.109)	(0.117)	(0.108)	(0.104)	(0.107)
Opn	0.0686***	0.0661***	0.0644***	0.0672***	0.0641***	0.0692***	0.0694***	0.0661***
	(0.0151)	(0.0240)	(0.0235)	(0.0165)	(0.0231)	(0.0280)	(0.0170)	(0.0256)
Pop_G	-1.653**	-1.673**	-1.695**	-1.681**	-1.673**	-1.628**	-1.630**	-1.665**
	(0.831)	(0.789)	(0.772)	(0.756)	(0.809)	(0.779)	(0.745)	(0.756)
C_C		0.420**						
		(3.058)						
R_L			0.821*					
			(2.875)					
R_Q				0.486				
				(1.232)				
G_E					0.889			
					(3.257)			
P_S						0.0265		
						(3.572)		
V_A							0.209	
							(2.298)	
INS								0.223**
								(1.477)
Constant	-1.293	-1.060	-0.667	-0.740	-0.558	-1.363	-1.411	-1.014
	(3.973)	(2.962)	(2.694)	(3.312)	(2.531)	(2.648)	(3.337)	(2.769)
Total Observations	288	288	288	288	288	288	288	288
Total Countries	24	24	24	24	24	24	24	24

Note: Robust standard errors are presented in the parentheses. * p<0.1, **p<0.05, *** p<0.01

Over all institutional measure (institutional index) also has a positive and significant impact on the economic growth as measured by per capita GDP growth. The estimated

coefficient for composite measure is 0.223 which is significant at 5 percent (Table 3). These findings suggest that institutions, especially control of corruption and maintenance of rule and law, are important in determining the long run growth prospects of the nations.

To test the hypothesis whether the impact of institution on economic growth varies with the stages of economic development, we re-estimate the panel for South Asia which is relatively poor region and East Asia which is relatively rich region. Results for panel estimates for South Asia and East Asia regions are presented in Table 4 and Table 5.

Results show that institutions are important for growth in South Asia as well as in East Asia. However the estimated impact of institution on economic growth is high in East Asia as compare to South Asia. The estimated coefficient of Control of Corruption is 0.609 (significant at 5 percent) for South Asian economies, while it is 1.689 (significant at 1 percent) for East Asian countries. Similarly the estimated impact of Rule of Law is 0.255 (significant at 10 percent) for South Asia and 2.649 (significant at 5 percent) for East Asia. Institutions for Regulatory Quality are highly significant (at 1 percent) East Asian countries while insignificant for South Asian countries.

Government Effectiveness, Political Stability and Voice and Accountability have expected positive sign, but are statistically insignificant in both samples. However, the magnitudes of coefficient for these three variables are higher in East Asia countries as compare to South Asian economies (see Table 4 & Table 5).

The overall institutional variable has positive and statistically significant impact on both samples. However, the coefficient of composite institutional index for East Asia (1.158, significant at 5 percent; see Table 5) is high as compare to South Asia (0.418, significant at 5

percent; see Table 4). Thus, our findings suggest that role of institution in determining the long run economic growth also depends on the level of development a country has.

TABLE 4
Panel estimation South Asia Sample SYS-GMM (1996-2008)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Mode 8
R_GDP_PC (-1)	-0.182	-0.188	-0.178	-0.215	-0.234	-0.223	-0.186	-0.199
	(0.153)	(0.156)	(0.160)	(0.167)	(0.172)	(0.151)	(0.155)	(0.168)
Initial R_GDP_PC	0.000690	0.000775	0.000603	0.00106	0.000759	0.00101	0.000844	0.000899
	(0.00104)	(0.000900)	(0.00114)	(0.000979)	(0.00099 2)	(0.00088 7)	(0.00133)	(0.00100)
G_GDP	-0.178	-0.177	-0.187	-0.171	-0.132	-0.168	-0.263**	-0.160
	(0.165)	(0.173)	(0.140)	(0.171)	(0.171)	(0.167)	(0.122)	(0.160)
I_GDP	0.0534	0.0459	0.0670	0.0388	0.0413	0.0476	0.0831	0.0417
	(0.0774)	(0.0821)	(0.0733)	(0.0776)	(0.0877)	(0.0763)	(0.0605)	(0.0795)
Opn	0.0678***	0.0664***	0.0679***	0.0735***	0.0675***	0.0662***	0.0786***	0.0668***
	(0.0206)	(0.0206)	(0.0174)	(0.0247)	(0.0257)	(0.0251)	(0.0196)	(0.0214)
Pop_G	1.007	0.898	1.023	1.358	0.436	0.608	1.505	1.060
	(3.093)	(2.942)	(3.139)	(2.756)	(2.770)	(2.593)	(3.487)	(2.956)
C_C		0.609**						
		(1.242)						
R_L			0.255***					
			(1.240)					
R_Q				-0.952				
				(0.884)				
G_E					2.114			
					(1.090)			
P_S						1.971		
						(1.317)		
V_A							1.814	
							(1.932)	
INS								0.418**
								(0.648)
Constant	-2.432	-2.376	-2.494	-4.706	-2.562	-2.755	-3.114	-3.061
	(7.046)	(6.593)	(7.289)	(6.836)	(6.261)	(6.445)	(7.777)	(6.820)
Total Observations	96	96	96	96	96	96	96	96
Number of panel	8	8	8	8	8	8	8	8

Note: Robust standard errors are presented in the parentheses. * p<0.1, **p<0.05, *** p<0.01

TABLE 5
Panel estimation East Asia Sample SYS-GMM (1996-2008)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Mode 8
R_GDP_PC(-1)	0.177*	0.183*	0.150	0.0766	0.189*	0.122	0.177*	0.164
	(0.0917)	(0.104)	(0.130)	(0.115)	(0.101)	(0.142)	(0.0912)	(0.125)
Initial R_GDP_PC	-8.73e-05	-8.04e-05	-0.000131	-5.07e-05	-0.000102	1.79e-05	-7.17e-05	-8.98e-05
	(0.000102)	(7.14e-05)	(0.000132)	(8.92e-05)	(0.000133)	(4.74e-05)	(9.25e-05)	(9.57e-05)
G_GDP	-0.318	-0.394	-0.563	-0.345	-0.413	-0.346	-0.149	-0.511
	(0.301)	(0.403)	(0.518)	(0.412)	(0.522)	(0.412)	(0.369)	(0.526)
I_GDP	0.0404	0.0785	0.100	0.0920	0.0625	0.164	0.0102	0.107
	(0.0982)	(0.133)	(0.141)	(0.0852)	(0.148)	(0.127)	(0.101)	(0.153)
Opn	0.00257	-0.0121	-0.0193	-0.0159	-0.00517	-0.0282	0.0121	-0.0202
	(0.0182)	(0.0277)	(0.0232)	(0.0225)	(0.0241)	(0.0318)	(0.0180)	(0.0293)
Pop_G	5.181***	4.934***	4.373***	4.737***	4.838***	3.754**	5.695***	4.313***
	(1.969)	(1.589)	(1.530)	(1.695)	(1.791)	(1.508)	(1.980)	(1.329)
C_C		1.689*						
		(2.877)						
R_L			2.649**					
			(2.785)					
R_Q				4.202*				
				(2.203)				
G_E					0.753			
					(3.032)			
P_S						5.292		
						(3.722)		
V_A							1.331	
							(1.509)	
INS								1.158**
								(1.421)
Constant	2.657	3.852	7.119	1.884	4.326	0.895	-0.461	5.158
	(2.705)	(2.919)	(4.902)	(2.222)	(5.743)	(3.159)	(4.341)	(3.936)
Total Observations	72	72	72	72	72	72	72	72
Number of panel	6	6	6	6	6	6	6	6

Note: Robust standard errors are presented in the parentheses. * p<0.1, **p<0.05, *** p<0.01

CONCLUSION

This study investigates the growth effects of institutions at various stages of development. The outcome of this study, on one hand, supports the main hypothesis that the institutions do impact in a positive way on economic growth. More specifically, control of corruption and maintenance of rule and law are important in determining the long run growth prospects of the nations. On the other hand, findings suggest that the impact of institution on economic growth varies with the stages of economic development. The estimated impact of institution on economic growth is relatively higher in East Asian countries than South Asian countries implying that role of institution in determining the long run economic growth depends on the stages of economic development. Therefore, different countries require different set of institutions to promote long run economic growth.

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APPENDIX

TABLE A
List of Countries

Sr. No	Name	Region	Sr. No	Name	Region
1	Afghanistan	South Asia	13	Malaysia	Southeast Asia
2	Bangladesh	South Asia	14	Maldives	South Asia
3	Bhutan	South Asia	15	Mongolia	East Asia
4	Brunei	Southeast Asia	16	Nepal	South Asia
5	Cambodia	Southeast Asia	17	North Korea	East Asia
6	China	East Asia	18	Pakistan	South Asia
7	Hong Kong	East Asia	19	Papua New Guinea	Southeast Asia
8	India	South Asia	20	Philippines	Southeast Asia
9	Indonesia	Southeast Asia	21	Singapore	Southeast Asia
10	Japan	East Asia	22	Sri Lanka	South Asia
11	Laos	Southeast Asia	23	Thailand	Southeast Asia
12	Macau	East Asia	24	Vietnam	Southeast Asia