Growth and Governance Nexus in Selected Asian Countries

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Abstract

The aim of this study is to evaluate the primary association among economic growth and governance indicators from 2002 to 2011 in selected 27 Asian countries. World Wide Governance Indicators (2012) are used in the study. Growth and governance are interrelated to demonstrate the economic position of economies. Governance is a strapping source to enhance economic growth especially in developing economies. The governance pattern looks for to increase the efficiency of economies. Principal Component Analysis (PCA) is used to develop governance index. Pooled OLS, 2SLS, 3SLS and GMM techniques are used in the study. The results of techniques show that variable LGV has no significant role in per capita GDP.

Keywords: 2SLS, 3SLS, Governance, GMM, Principal Component Analysis
Jel Code: C33, C82, G3

1. **Introduction**

Mainly economists are of the same opinion that governance is one of the significant factors determining the growth scenario of economies. But governance has not attained prominent place for a long time in the history of economics. Even in models, governance is not significantly elaborated. Though governance is existed in explanatory studies of growth, it has been neglected in the growth models. The Solow model is based on many assumptions; one of them is to protect property rights. Therefore the major insufficiency of this model from the perspective of governance is that it does not take into account any weakness in the value of governance. Although the neoclassical models of growth are still used in economics but these models yet do not give a fundamental explanation of governance (Acemoglu *et al*, 2003). Governance is focal point of researchers to gain certain targets of growth. As per capita growth remains the main source of both developing and developed countries to assess their performance. In order to attain higher level of growth, developing countries follow the policies of developed countries but sustained growth remains a difficult target for them and significant achievements in this regard are not achieved. But unfortunately governance is kept at rear path in the process of finding reasons of slow increase in GDP of a country.

Now, governance becomes core central point of economists, policy makers and world organizations' representatives. The World Bank and International Monetary Fund (IMF) representatives now focus on governance conditions of developing countries. Generally, governance is considered as government or procedure of governing (Merriam-Webster Online, http://www.merriam-webster.com/.). However, Good governance has gained the position of mantra for patron organization and agencies and contributor economies (Nanda, 2006). There is a ground-breaking use of governance indicators from the last two decades. These indicators are used to assess the performance of both developed and developing economies. As the use of these indicators increased, the number of indicators is also increasing. A huge work on governance indicators is done in a number of institutions as World Bank and Development Assistance Committee (DAC). So, the first generation governance indicators are developed by World Bank and a number of economists as Hall and Jones (1999), Rodrik (1997) and Kaufmann *et al* (1999). The first generation governance indicators show the importance of governance indicators. These indicators draw our attention to the right issue of governance problems in both developed and developing countries. However, the creation of first generation governance indicators has difficulty to adjust with practical problems and don't give any superior grip on reform goals. The second generation indicators have certain procedure and try to cover the shortcomings of first generation governance indicators. Second generation indicators are characterized as transparent, accurate and specific (Knack *et al*, 2003).

Governance is a broad and extensive perception. Governance has several proportions, like economic governance, international governance, corporate governance, regional governance, national governance and local governance (Dixit 2009). Economic governance is an important source to enhance the level of growth. Governance is an essential source to fulfill the prerequisite of human and economic growth. Human needs are unlimited and diversify and require some vital standard to accomplish. In the same way growth process is complicated and governance has significant role in acquiring the sustained growth level. Governance includes two unusual essentials, the features of governing the state that are of inherent importance to the population, as respect for human rights. The instrumental aspects of governance, distribute according to the need of the population. Governance influences all feature of growth dynamics in diverse methods, using such different areas as investment, schooling, health, and innovation. Property rights, agreement enforcement and markets as labour, finance and property are publicly built and politically regulated (White, 2005). The need of governance, in this modern era, is increased as the whole world becomes a global village. It is a tool which assists any government to perform different tasks and run the state efficiently. It enables the government to exercise and implement the laws of the state and work significantly for the welfare of people. Governance structure has robust role in organizing institutions of a country. Kaufmann *et al* (2008) elaborated that Governance consists of the traditions and institutions. The authority in a state is exercised with the help of governance. Governance is a procedure through which governments are selected, checked and substituted. Many other aspects like the capability of the government to effectively originate and implement sound policies; and the esteem of citizens and the state for the institutions that administer economic and social interactions between people. So structure of governance has significant role in implementing the economic and political role in a country. Policies are developed according to governance of institutions.

The most common world governance indicators (WGI) are developed by Kaufmann *et al* (1997) of World Bank. The WGI are developed through the aggregation of opinions of governance from 31 diverse data sources given by 25 various associations and organizations. These indicators calculate six proportions of governance: Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of

Law and Control of Corruption. Governance now becomes part and parcel in every aspect of life. Governance is required both at macro and micro level activities. It helps to raise the efficiency of institutions at both levels. Governance, together with its social, political and economic magnitude, function at all level of human projects. It is also present at the family unit level, rural community, municipality and specified area or region (UNDP, 2000).

In developing region of Asia, the importance of governance is obvious. Without governance, institutions do not perform effectively. The poor governance is predicted to diminish the effectiveness of the investment channel while increasing the effectiveness of the factor-productivity channel in the link between fiscal policy and growth. Governance in these countries is often poor (Abed and Gupta, 2002).
 The organization of the study is as follows. Section II contains literature review; methodology is elaborated in section III, section IV presents empirical results and conclusion and policy implications are given in section V.

2. Literature Review

There is extensive literature on economic growth and governance; however on this nexus literature is not so significantly available. The notion of governance has mounted from darkness to buzzword status in immediately three decades. Economic Literature expresses merely five mentions of the word governance in the 1970s; by the end of 2008, it is mentioned 33,177 times. The much more specific phrase economic governance has appeared 192 times (Dixit, 2009).

Governance has significant importance in the process of growth and this is not totally out of sight by economists, (Floc'hlay and Plottu, 1998, Lion, Martini, and Volpi, 2004; Stame, 2004). It is found in the literature that there is a positive relationship among the growth and governance, favouring the hypothesis, that a development in market-enhancing governance will encourage growth and faster convergence among advanced countries (Khan, 2007, Hall and Jones, 1999, Kauffman et al. 1999, Knack and Keefer, 1995 and Barro, 1996).

In the same way growth enhancing governance has also robust role in improving the growth level among nations. Property right is one of the major tools in growth enhancing governance. Khan (2006b) elaborated that advanced countries merely attained noteworthy stability in their property rights at a comparatively late stage of their development when a large amount of assets had gained high intensity of productivity.

North (1990) elaborated that institutions are the fundamental determinant of the long-term high performance of an economy, after that the significance of the quality of governance in economic growth, particularly over the long term.

Mehanna *et al* (2010) examined the sustainability of the fundamental association among civic and public governance and the level of economic growth for a sample of 23 economies in the Middle East countries and North African countries (MENA). The study covers the period from 1996 to 2005. The study elaborates the prominent features and the most important challenges at present faced by the MENA Region. The major problems are oil, population growth, especially the working age, enrollment rate at the level of secondary education, dependence on fixed investment and the existence of religious fractionalization. This study highlights the importance of an economy's maturity and the surrounded institutional learning-by-doing occurrence. GMM econometric technique is used in the study. The results of econometric technique authenticate the hypothesis and explain that the affect of the level of economic growth on governance is poor and weaker than the affect of governance on economic growth. Along with the six indicators of governance, voice and accountability, government effectiveness and control of corruption show affect on economic growth. At the same time, the signs of the forecasters of economic growth, admissions in secondary level education, population growth, especially the age of working class and gross fixed capital creation or formation are reliable with earlier literature results; the strength of their statistical importance appears confusing adding up further movement to the basis of governance. Effective governance is a simple reflection and indication of a learning-by-doing procedure and is endogenous to better maturity and development of economies. These results propose that economies in the MENA area ought to prefer governance reforms whereas busy in growth encouraging policies for economic growth in MENA economies.

Kaufmann and Krray (2003) applied the Instrumental Variable (IV) technique for the rule of law index of governance indicators developed by them and the real per capita income for 153 countries. It is found that there is a strong fundamental flow from enhanced governance to higher per capita income as well as a fragile and even pessimistic causal flow from the real per capita income to governance. In other words, their empirical finding suggests the causality from good governance to growth is much powerful than the contradictory causality.

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Levy and Fukuyama (2010) elaborated that a major challenge for development approach is to go beyond recommended most favorable economic policies, and as a substitute taking a wide view of the connections among economic, political and social limitations and dynamics to recognize entry points able of breaking a low-growth blockage, and initiating a good spiral of collective change. There are four prominent sequences; First, state capability building offers a stage to speed up growth through improved public sector performance. Second, transformational governance is considered as its entrance point to redesign country's political institutions. Third, for just enough governance, the preliminary focus is on growth itself, with the preparation of addressing accurate capability and institutional constraints as and when they develop into compulsory not seeking to foresee and address in advance all likely institutional constraints. Fourth, bottom-up development connects civil society as a doorway point for in search of stronger state capability, lesser corruption, improved public services, enhancement in political institutions more largely and a succeeding unlocking of restrictions on growth.

Akram *et al* (2011) elaborated that the prevalent poverty is caused by two major reasons. These are poor governance and income inequality in Pakistan. This study tries to find out the long and short run affects of poor governance and inequality on income division and poverty. The time period of the study is 1984-2008. Autoregressive Distributive Lag (ARDL) technique is applied to find out the short and long run relationship. It is found that there is cointegration among poverty, poor governance and income inequality. There is significant relation between poor governance and poverty in the long run but no sign is found in the short run. Governance must be improved to minimize the poverty.

3. Data and Methodology

3.1 Data
The study is planned to find out the empirical relationship among growth and governance indicators. There is a panel of 26 Asian countries and the time period is 2002 to 2011. Data is taken from World Wide Governance Indicators, developed by World Bank. The data about PGDP, loginf, logk, logexp, and logimp is taken from World Development Indicators 2012.

3.2 Methodology
World Wide Governance Indicators (2012) developed 6 Governance Indicators, Voice and Accountability, Political Stability and Absence of Violence, Government effectiveness, Regulatory quality, Rule of Law and Control of Corruption.

The major aim of this study is to observe the role of governance in per capita GDP. For this purpose an index is generated through Principal Component Analysis (PCA).

3.2.1 Principal Component Analysis (PCA)
The main purpose of PCA is to decrease the dimensionality of a data set. Preisendorfer and Mobley (1988) elaborated that Beltrami (1873) autonomously developed the singular value decomposition (SVD) in such a way that formed present PCA. Though, it is usually customary that the initial descriptions of present PCA are given by Pearson (1901) and Hotelling (1933). PCA is linear combination or grouping of the random variables X1, X2…..Xn and rely on the covariance matrix.

PCA is a statistical procedure which is utilized to observe relationships between various quantitative variables. Simply, in the language of mathematics, if, when there are "n" correlated variables, this technique develops uncorrelated elements. Every factor is a linear weighted mixture of the "n" variables. As, a set of variables X_1……..X_n

$$PC_1 = a_{11}X_1 + a_{22}X_2 ……….a_{1n}X_n \qquad (3.1)$$

$$PC_m = a_{m1}X_1 + a_{m2}X_2 ……….a_{mn}X_n \qquad (3.2)$$

Where, mn presents the weight for the mth principal component and the *n*th variable. Indeed such weights are the eigenvectors. The eigenvalue of the related eigenvector is the variance for every principal component. The first principal component, elaborates the largest feasible variation in the data. In the same way, all following principal

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components (PC$_2$ to PC$_n$) are uncorrelated with the preceding principal components however elaborates slighter proportions of the deviation of the original variables (Johnson and Wichtern, 2007, P. 431).

3.2.2 Pooled OLS
The pooled OLS is a first simple way to estimate panel data models. It presents a convenient way to introduce the logic of panel estimators because it is simple and serves as a starting point. This is a simple case of applying the pool data by ignoring the structure of the data. Time and space elements are ignored. Such models have many restrictions. There is no serial correlation and heteroskadicity in the data. The error term is identically and independently distributed (iid).

3.2.3 Two Stage Least Square (2SLS)
Much of theory was built on sets or systems of relationships. If the interest was only in a particular part of the system or in the system as a whole, the interaction of the variables in the model would have important implications for both interpretation and estimation of the model's parameters. The implications of simultaneity for econometric estimation were recognized long before the method was developed (Working 1926 and Haavelmo 1943).

Endogeneity is a source of irregularity of the least square. It needs instrumental variable technique as 2SLS. As a number of the right-hand-side variables are endogenous, so 2SLS generality of straightforward panel-data estimators is required, for exogenous variables (Baltagi 1981). It ought to be noted that while both Hausman and Taylor estimator and IV estimator apply the technique of instrumental variables. Both methods have different fundamental assumptions. The IV estimator presupposes that a subset of the illustrative variables in the model is correlated with the error term. However, the Hausman and Taylor estimator supposes that a few explanatory variables are interrelated with the individual-level random effects u_i, but that no one of the explanatory variables are associated with the error term. In brief, these techniques are planned to deal with diverse assumptions. Actually, Hausman and Taylor utilize internal altered endogenous and exogenous variables as instruments.

3.2.4 Three Stage Least Square (3SLS)
Three-stage least squares (3SLS) is applied to estimate the equation. Lin (2011) elaborated that this technique is more consistent and proficient than using OLS or 2SLS. Reliability is enhanced over OLS and 2SLS approaches as of the simultaneous nature of the evaluation. By taking into consideration the prospective endogeneity issue which might be presented in the regression analysis, there are two evaluation techniques which are common and suitable in these conditions. First approach is the Arellano-Bond (1991) and the second approach is Three Stage Least Squares (3SLS) (Wooldridge, 2002).

3.2.5 Generalized Method of Moment (GMM)
As OLS is not an efficient estimator, this drawback in efficiency of independent variables urges to present another estimation technique, known as generalized method of moment (GMM). It looks like a thrilling instrument as it presents the solutions to the problem of simultaneity, reverse causality and omitted variables (Kpodar, 2007). GMM approach gives more significant standard errors and advances the precision of the parameter estimation (Arellano and Bover, 1995).

3.3 Model
In order to estimate the relationship, the following model will be used. Overall impact of governance indicators are evaluated by regressing indicators on per capita GDP.

Model of the study

$$LPGDP_{it} = \beta_1 + \beta_2 LGV_{it} + \beta_3 LINF_{it} + \beta_4 LFDI_{it} + \beta_5 LPOPM_{it} + \beta_6 LDCP_{it} + u_{it}$$

Eq(1)

Where L is log, PGDP is per capita gross domestic product, GV is governance index, INF is inflation, FDI is foreign direct investment and POPM is population and DCP is domestic credit to private sector. Where i is an index representing the countries of Asian countries; t index shows time; B is coefficients of all explanatory variables and μ error term, are country- specific and time-specific parameters respectively. This index is published by World Bank. The index values are ranges from -2.5 to 2.5, higher values show good governance.

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4. Empirical Results

For the analysis of growth governance nexus, Pooled OLS, 3SLS and System and Difference GMM techniques are used. The results are given in the following table.

Table 1 Dependent variable is Per capita GDP

Variables	OLS	2SLS	3SLS	GMM
LGV	0.3566 (0.000)*	-0.0031 (0.858)	-0.0066 (0.693)	-0.0001 (0.909)
LINF	-0.5131 (0.000)*	-1.1006 (0.000)*	-1.0169 (0.000)*	-1.1638 (0.000)*
LFDI	-0.0997 (0.237)	-	-	-
LPOPM	-0.3803 (0.000)*	-	-	-
LDCP	1.9520 (0.000)*	-	-	-
CONS	2.0112 (0.046)**	9.2394 (0.000)*	9.1090 (0.000)*	9.4138 (0.000)*
Ramsey (0.0015)	Hetro (0.1715)	Anderson (0.000)	Sargan (0.1310)	
Endog (0.000)	Auto (0.000)	Cragg Donald 33.897	Hansen. J (0.2850)	

Note: The values are coefficient and in parenthesis are P values. *, ** and *** show the significance level at 1, 5 and 10 percent respectively

The results elaborate that governance indicators have no robust role in the increasing per capita GDP. In pooled OLS, LGV, LINF, LPOPM and LDCP are significant variables. However, the OLS result is no consistent. In 2SLS, 3SLS and GMM, LGV index is insignificant which elaborates that governance has no role in Per capita GDP. In order to evaluate the model significance, Ramsey test is held which show that there is no omitted variable bias in the model.

For weak identification of instruments, Cragg-Donald (1993) F. value, is performed. The issue of Weak identification takes place as the excluded instruments are weakly and inadequately connected with endogenous regressors. For this purpose, Stock and Yogo (2005) have piled up critical values for the Cragg-Donald F test statistic. The value of F statistic is 33.89 put forward that the model is not weakly identified. For over-identification, Hansen.J and Sargan statistic is performed. This test elaborates that the instruments used in the study are suitable instruments, and not related with the error term. The P-value of Hnsen J. and Sargan test is 0.1310 and 0.2850 respectively which show that the given model is not over-identified. The redundant choice permits a test of whether a subset of expelled or excluded instruments is redundant. The expelled instruments are redundant as the effectiveness of the assessment is not enhanced by utilizing them. The given value of this study fulfills this condition. For endogeniety, Wu Hausman test is performed, the result elaborate that endogeniety exists. For autocorrelation and heteroskadsity tests are also done which show that there is no issue of autocorrelation and heteroskadasity.

5. Conclusion

Per Capita GDP is a major source to measure the standard of living of people. This paper has investigated the relationship between Per Capita GDP and governance indicators for the period of 2002-2011. Pooled OLS result shows that all the variables are significant except FDI. In 2SLS, 3SLS and GMM the governance index is insignificant. It explains that governance has no role in per capita GDP. The diagnostic tests (Auto, Hetro, Sargan, Anderson, Redundant, Weak identification and endogeneity) show that all the conditions are fulfilled. There is need to pick up the pace of economic growth with good governance so that the per capita GDP increased.

The per capita income is increased if the governments of selected Asian countries work more efficiently and improve their governance. Without improving governance, the efforts to reduce corruption will not be flourishing. As Huther

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and Shah (2000) elaborated that different approach to aware the people about corruption will not have significant effect where governance is at poor level.

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