




THE IMPACT OF SECTORS PERFORMANCE AND QUALITY OF INSTITUTIONS ON ECONOMIC VOLATILITY: IN CASE OF ASIA



 Hira Mujahid¹⁺
Shaista Alam²

¹Assistant Professor at Institute of Business Management, Karachi., Pakistan.
Email: hirathesis@gmail.com

²Associate Professor/Senior Research Economist at Applied Economics Research Centre, University of Karachi, Pakistan.



(+ Corresponding author)

ABSTRACT

Article History

Received: 6 October 2020

Revised: 9 November 2020

Accepted: 1 December 2020

Published: 30 December 2020

Keywords

Agriculture

Industry

Service

Quality of institutions

Economic volatility

Trade openness.

JEL Classification:

E02; E31; O13; O43; P23.

Asian countries contribute sixty percent of total world economic activity and also perform significant role in supporting the interconnected global economy. Therefore, growth of sectors in Asian economies such as agriculture, industry and services accounts major contribution in the global sectors growth. This study is one of very few studies which have investigated the relationship of agriculture, industry and services, institutional quality on economic volatility. The aim of this paper is to find the relationship between sectoral growth, economic growth and economic volatility for panel of Asian Economies This study contributes in the existing literature the association of quality of institutions with economic growth and the link of quality of institutions with economic volatility. For this purpose, study compiles a panel of 47 Asian economies with the time span of 1996-2016 and applied Fixed and Random effect model on selected countries. The paper's primary contribution is finding that that the growth of agricultural and industrial sector's increase the economic volatility and significant effect. However, the growth in agriculture and service sector have significant effect on the growth of Asian economy. The paper documents that the economic volatility depends on sectoral growth, institutions performance, trade openness and financial development. The agriculture and service sector growth of the Asian economies significant reduced economic volatility. To improve the growth of sectors; Skill formation in sectors, technological support, financing through advance methods are required.

Contribution/ Originality: The paper's primary contribution is finding that that the growth of agricultural and industrial sector's increase the economic volatility and significant effect. However, the growth in agriculture and service sector have significant effect on the growth of Asian economy. The paper documents that the economic volatility depends on sectoral growth, institutions performance, trade openness and financial development.

1. INTRODUCTION

Asian countries contribute 60% of total world economic activity and also perform significant role in supporting the interconnected global economy. The economic volatility is widely required for sustainable economic growth which is widely required after great depression. Asian economies have been facing economic fluctuation due to many reasons. However, sub region of Asian economy faced slow growth mainly after financial crisis. The growth in South Asia is 6.9 percent which is the highest expansion among all sub regions of Asian economies [Figure 1](#).

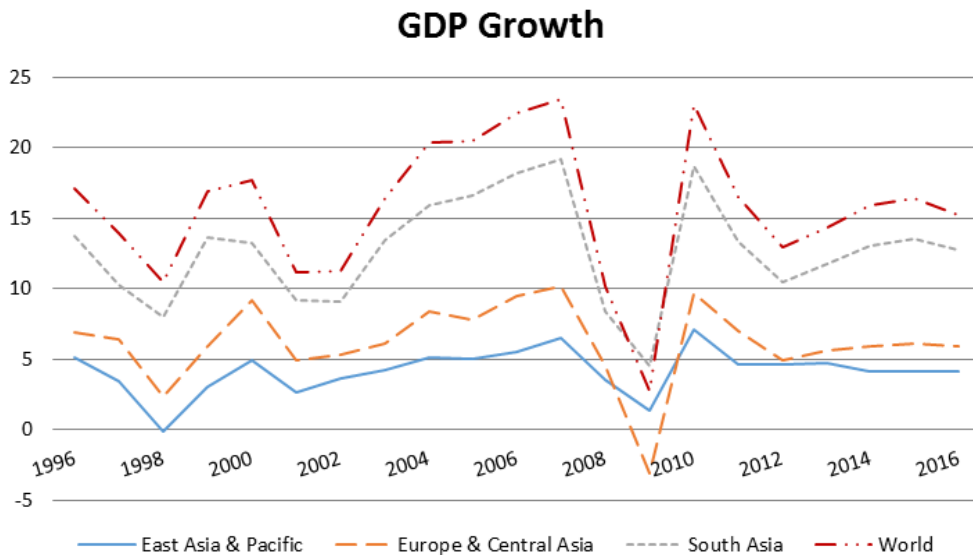


Figure-1. Economic Growth of Asian Economies By sub-regions.

Source: World Bank database.

Southeast Asia economic performance has been controlled after financial crisis because the large economies including Indonesia and Philippines increased investment. On the other hand, growth of Vietnam is sustained and the economic growth of Malaysia is reduced with low oil prices. *Asian Development Outlook (2016)* documented that average potential growth of 22 Asian countries was 98 percent of GDP in 2014 has been drop down to 2 percentage points from peak of 8.4 percent in 2007. This reduction of potential growth contributes 40 percent of actual growth from the time of financial crisis. While comparing the average potential growth in pre- financial crisis (2000-2007) with post- financial crisis (2008-2014) of 14 economies are weakened whereas People's Republic of China and Republic of Korea down by 1.1 and 2.1 percent respectively.

However, the potential growth was sustained or improved by some Asian countries. When compared the pre and post financial crisis average potential growth of countries like Indonesia picked up by 0.9 percentage points, Pakistan by 0.9 percentage points, and Uzbekistan by 2.2 percentage points. Whereas India, Fiji and Bangladesh sustained potential growth before and after the financial crisis. Consequently, the potential growth is contingent on stable macro economy. But due to the volatile gap between actual and potential growth, rise in inflation and unemployment, have significantly negative effect on potential growth. Moreover, it has been estimated that reducing this volatility by 1.0 percentage point pay 0.2 percentage points to potential growth. Due to critical demographic or convergence with advanced countries many economies in region confronted absent of structural reform. Furthermore, potential growth is only achievable by the successful implementation of good policies and due to institutional quality that characterize the specific economy. Further, Asian countries are faced broad array of institutional quality challenges that need to be overcome.

The sectoral growth of Asian economy (agriculture, industry and services) accounts major contribution in global sectoral growth *Figure 2-4*. Since the global financial crisis there is visible slowdown of Asian economies sectoral growth momentum. However, in latest years, the growth deceleration has spread to Asian economies, causing as whole international economy to slow down. The relationship among sectoral growth such that agriculture, industry, and services, economic volatility and quality of institution is under consideration to best of my knowledge. Therefore, this paper finds the impact of sectoral performance and quality of institution on economic volatility and economic growth separately.

Agriculture Growth

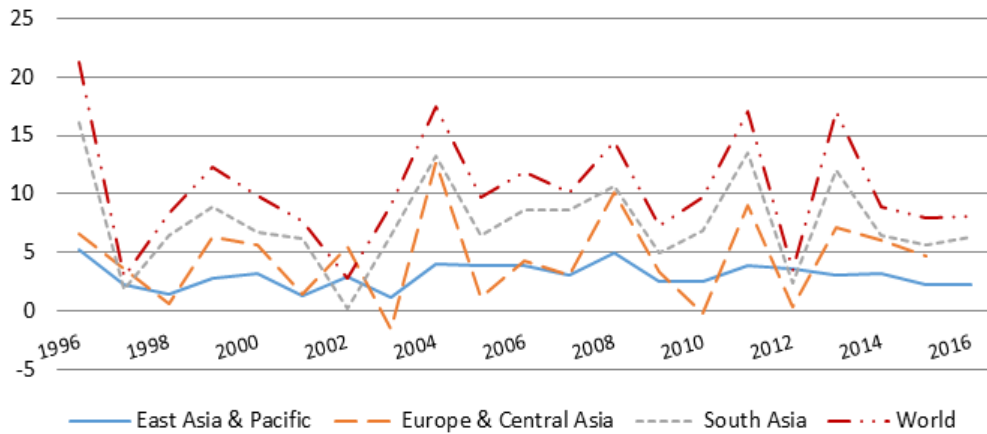


Figure-2. Agricultural Growth of Asian Economies by sub-regions.

Source: World Bank database.

Industry Growth

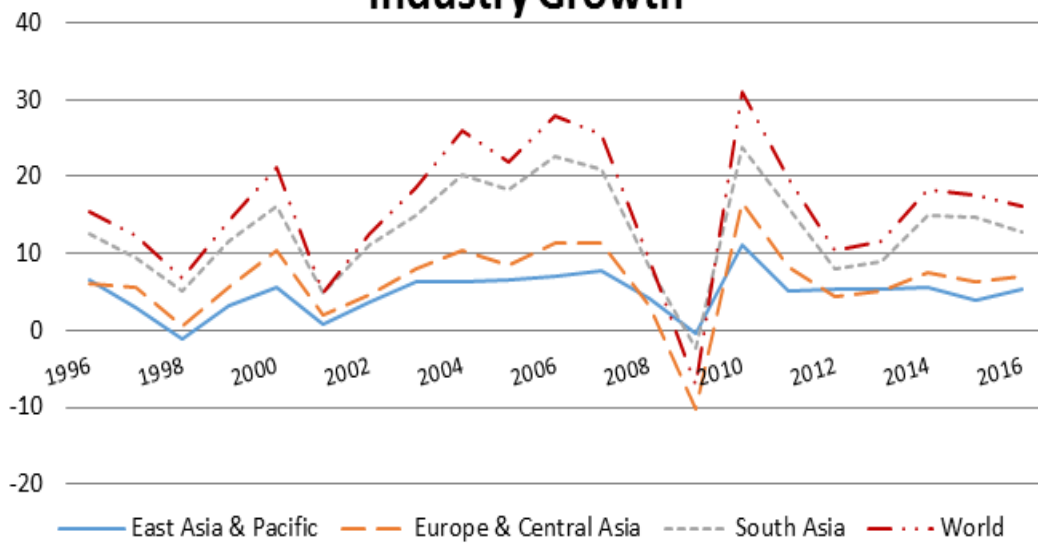


Figure-3. Industrial Growth of Asian Economies by sub-regions.

Source: World Bank database.

Services Growth

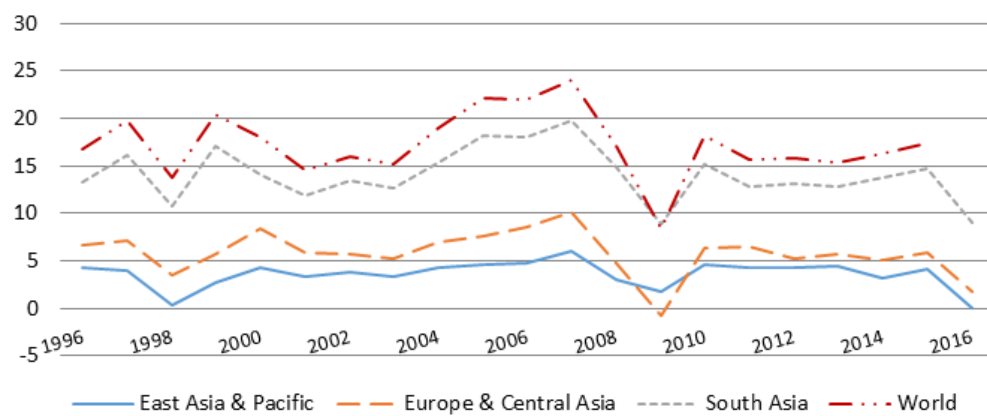


Figure-4. Services Growth of Asian Economies by sub-regions.

Source: World Bank database.

For this purpose, the study employs panel of 47 Asian economies used with the time span of 1996-2016 by utilizing Pooled OLS, Fixed and Random effects techniques. This paper contributes in many ways. Firstly, it builds the relationship of the most important sectors of economy and quality of institutions with the economic growth and volatility of Asian countries. Other than this the paper finds the link between all the indicators of quality of institutions on growth of Asian economy and its volatility separately. Thirdly, the paper has taken average of all quality of institutions indicators to know the joint effect of institutional quality. The fourth contribution is; paper uses multiple techniques which helps in comparing results from different methods. Lastly, the sample size of this paper is to the best of my knowledge is under consideration for the given relationships.

Remainder of the paper is organized as follows: section 2 reviews the previous studies of relevant topic, section 3 presents theoretical foundation of the paper, section 4 demonstrates data sources and econometric methodology, section 5 discusses empirical results and finally concludes in section 6.

2. LITERATURE REVIEW

The main feature of Asian economies is their exposure to domestic and outer economic shocks. This section provides a review of current literature on economic volatility and its factors. The crucial determinants of economic volatility have been identified by Fiaschi and Lavezzi (2003). They recommended a model to describe the volatility in economic growth over change in structure and the size of economy. For this purpose, they had applied nonparametric techniques and found that volatility in economic growth is negatively related to dimension of the economy measured by total GDP. In addition, the growth volatility is negatively linked with the share of agriculture.

Although argued that industrial sector is the engine of growth, He further described three laws: First, he described that through the spillover effect industrial sector growth affect the other sector's growth. Second, he supported the Verdoorn's Law which states that there is significant link between the labor productivity growth and output growth in industrial sector. Last, he reported that growth of productivity is directly associated with employment in industrial sector.

As far as service sector is concerned, Baumol (1967) and Wilber (2002) documented that the growth of service sector compared to the rest of the economy direct to declining output growth in long run. However, during twentieth century the Baumol model explained the growth of service sector of advanced countries (Cristina, 1997). In addition, the association of service sector and economic growth investigated by Wilber (2002). He used panel data of 25 countries with the time period of 1960 to 1994. He reported that causality from services sector to economic growth exists and the relative total growth of service sector reduced economic growth. Despite, sub service sectors like producer services, consumer service, and government services have independent effect. He stated that not all services sector decreases the economic growth as there is positive relationship between f producer service and economic growth whereas negative relationship between government & consumer-services and economic growth.

Moreover, sustainable long run economic growth also depends on the quality of institutions. As described that the institutions considered as the rules of game in any society. In addition, the long run economic expansion should be formed by focusing on property rights of individuals and the crucial element for quality of institutions is the effective public service (Easterly, 2013). When the legal and political rights are provided poor public service it reflects unproductive (Easterly, 2013). The quality of institutions consists of six dimensions namely; voice and accountability, Political Stability and absence of violence, Government effectiveness, Regulatory quality, Rule of law and Control of corruption (Bruinshoofd, 2016). To best of knowledge there are only few studies which build the relationship of quality of institution and economic growth and volatility of Asian economy. This study removing this gap by incorporating agriculture, industry, and service sector together and all indicators of quality of intuitions in one model.

3. THEORITICAL FOUNDATION

It has been widely proven that diversified economies have more potential to smooth shocks. There are two main approaches for diversification: First, shock can be diversified when it strokes few sector of economy through the remaining sectors. As Mobarak (2005) estimated panel data for 139 countries with a time span of 1960-1990 and found that those economies are capable to adjust internal shocks which have high skilled sectors like the service sector. Furthermore, he reported that there is a possibility for internal diversification through large population due to the resource base is given to be broader. Secondly, the diversification of shocks can be possible externally if a country has affiliation of economic or trade union (Klomp & de Haan, 2008). For instance, due to the adverse shocks in home country, labor could migrate to neighbor country.

In addition, Economic stability based on the sectoral composition of output and quality of institutions. Whereas trade openness of the country also contributes to improve the economic stability. Sectors growth is one of the economic concerns which produced many advanced institutional measures. However, new institutional activities have been developed with definite theoretical grounds (DiMaggio & Powell, 1983).

As far as quality of institutions is concerned, it incorporates law, individual rights, government regulations, corruption and political stability. Bruinshoofd (2016) exhibited that it opens the potential of economic growth and does not innately undergo from diminishing return. He also determined that since 21st century economies with high quality of institutions have been fortunate in take up frontier technology and productivity. Rodrik (1999) described that the main reason of negative effect of economic volatility are weak institutions and social conflicts. He further highlighted the means in which social conflicts integrated with outer shocks and the local institutions with conflict management. Those economies which confronted with sharpest decline in growth after 1975 were divided societies and have weak institutions measured by rule of law and democratic rights. He suggested that economic volatility can be dampen through strong institutions on the hand weak institutions increases the adverse consequences of economic volatility.

4. DATA AND METHODOLOGY AND MODEL

The paper finds the impact of sectoral growth, quality of institutions on economic volatility in case of Asian countries. In this regard, the paper used data from World Bank Group data from 1996-2016. Agriculture (Agri), Industry (Ind) and Service (Ser) sectors annual growth rate are taken to find the association. The data for quality of institutions is collected from World Governance Indicators. Moreover, the average of all six indicators of quality of institutions [Voice and Accountability (VA), Political Stability and absence of violence (PS), Government Effectiveness (GE), Regulatory quality (RQ), Rule of law (RL) and Control of corruption(CC)] are considered to know the joint effect which has been represented as AVG in Equation 1. In Equation 2 the economic volatility is depends on the control of corruption (CC), government effectiveness (GE), Political stability (PS), Regulatory quality (RQ), Rule of law (RL) and Voice and Accountability (VA). However, the other control variables are financial development (Broad money percentage of GDP) is represented by FD, Trade openness (TO), Inflation (Consumer price index) is represented by INF, and Employment is represented by EM in Equation 3. In Equation 4 the economic volatility explains by the Agriculture (Agri), Industry (Ind) and Service (Ser) sectors annual growth rate, Average of the quality of institution indicators (AVG), inflation (INF), Trade (TO), financial development (FD) and Employment rate (EM)

$$EG = \alpha_0 + \alpha_1 CC + \alpha_2 GE + \alpha_3 PS + \alpha_4 RQ + \alpha_5 RL + \alpha_6 VA + \mu_{1t} \quad (1)$$

$$EV = \beta_0 + \beta_1 CC + \beta_2 GE + \beta_3 PS + \beta_4 RQ + \beta_5 RL + \beta_6 VA + \mu_{1t} \quad (2)$$

$$EG = \gamma_0 + \gamma_1 AGRI + \gamma_2 IND + \gamma_3 SRV + \gamma_4 AVG + \gamma_5 INF + \gamma_6 TO + \gamma_7 FD + \gamma_8 EM + \mu \quad (3)$$

$$EV = \delta_0 + \delta_1 AGRI + \delta_2 IND + \delta_3 SRV + \delta_4 AVG + \delta_5 INF + \delta_6 TO + \delta_7 FD + \delta_8 EM + \mu \quad (4)$$

Where EV stands for economic volatility. To calculate the volatility of economic growth the standard deviation has been applied on the time series of economic growth.

5. EMPIRICAL ANALYSIS

In this section, the paper presents the estimation results of econometric models. The estimation results of the effect of six indexes of quality of institution on economic growth of Asian countries is reported in Table 1. Table 1 presents results from pooled OLS, Fixed and random effect techniques. Results explicitly shows that all indicator of institutional quality are significantly affect economic growth except voice and accountability from all employed techniques, whereas rule of law is showing significant effect from random effect and fixed effect.

The economic growth is directly associated with the indicators of quality of institutions, therefore study is intends to estimate each indicator effect separately. The quality of institutions indicator Control of corruption (CC) is significantly and positively affected economic growth, it measures the degree of the public power used for private gain. Aidt, Dutta, and Sena (2008); Blackburn, Bose, and Haque (2006) supported this outcome in their studies as corruption has negative impact on the economic growth and ultimately control of corruption has positive effect on economic growth. Government Effectiveness has positive effect on economic growth which is supported (Kitenge & Bedane, 2017). Government effectiveness measures the quality of public and civil service. Whereas, results proposed that economic growth is also dependent on political stability without this development could not be take place. In addition, Regulatory quality has positive impact on economic growth for Asian countries. Moreover, the regulatory quality explains the government ability to construct and implement policies and maintain regulations which permit and encourage private sector progress too. In addition, the Hausman test suggested that fixed effect results are more appropriate for the above analysis.

Table 2 reported the results of economic volatility model, which is quantifying the effect of quality of institutions on economic volatility. The results proposed that control of corruption, political stability, regulatory quality, rule of law and voice accountability decreases the economic growth volatility. Evrensel (2010) also supports the results of present study and estimate that control of corruption of 121 countries has reduced growth volatility. Same as Campos and Karanasos (2008) showed that the political instability has indirect effect on growth volatility, the paper reported same results.

Table-1. Impact of Institutional quality on Economic Growth for Asian Countries.

Variables	Pooled	Fixed	Random
CC	2.468* (3.73)	2.148* (2.75)	2.736* (3.48)
GE	2.937* (3.32)	4.143* (4.79)	3.887* (4.13)
PS	6.632* (2.99)	1.051*** (2.38)	8.579* (2.61)
RQ	1.414*** (2.51)	3.526* (3.91)	2.645* (3.14)
RL	1.748 (1.51)	1.638* (1.82)	2.152*** (2.50)
VA	2.643 (0.84)	3.060 (0.45)	5.032 (1.04)
cons	3.075 (1.11)	-2.633 (0.54)	4.709 (0.98)
Number of obs.	987	987	987
R-squared	0.05	0.813	0.853
Hausman Test Prob>chi2			0.0004

Note: *, ** and *** represents 1%, 5 % and 10 % level of significance, and figures presented in parenthesis represents t or z-statistics.

The impact of agriculture, industry and services sectors growth on economic growth is reported in Table 3. Results proposed that only service sector boost the economic growth significantly. The service sector is becoming a more meaningful reason of growth for Asian economies. Park and Kwaho (2012) reported that service sector endowed economic growth to Asian countries in past. Moreover, the paper reported that the industrial sector role

has been weakening over time in developing countries which supported (Fagerberg & Verspagen, 2002). However, inflation, trade openness, financial development, employment and quality of institutions cause economic expansion in Asian economies.

The results of sectoral growth and quality of institutions on economic volatility have been presented in Table 4 where agricultural sector growth has negatively affect economic volatility and this result suggests that agriculture growth is necessary to decline economic volatility and to improve economic stability. The industrial sector growth has positive impact on economic volatility and suggests that industrial sector growth is the reason to increase economic volatility. Whereas growth of services sector has also reduced economic volatility of Asian economies. In addition, trade openness financial development, employment rate and quality of institutions have significant effect on economic volatility.

Table-2. Impact of Institutional quality on economic volatility for Asian Countries.

Variables	Pooled	Fixed	Random
CC	-0.2475** (2.27)	-0.1936*** (1.75)	-0.2355*** (2.21)
GE	0.4018* (3.35)	-0.00023 (0.00)	-0.0109 (0.10)
PS	-0.01(0.24)	-0.123*** (2.27)	-0.122** (2.37)
RQ	0.0093 (0.11)	-0.3786* (3.57)	-0.3428* (3.38)
RL	-0.3960* (2.99)	-0.2766*** (2.13)	-0.2167 (1.74)***
VA	-0.0709 (1.20)	-0.6886* (-7.43)	-0.6138* (7.32)
cons	1.2519* (24.01)	0.9740 (14.37)	1.0029 (8.02)
Number of obs	925	925	925
R-squared	0.87	0.60	0.18
Hausman Test Prob>chi2			0.0321

Note:*, ** and *** represents 1%, 5 % and 10 % level of significance, and figures presented in parenthesis represents t or z-statistics.

Table-3. Impact of Sectoral growth on Economic Growth for Asian Countries.

Variables	Pooled	Fixed	Random
AGRI	0.1365 (0.65)	0.2548 (0.92)	0.1013 (0.40)
IND	0.0863 (0.80)	-0.0799 (0.70)	-0.0484 (0.43)
SER	-0.2590 (1.60)	0.3012** (1.85)	0.1734 (1.05)
AVG	-1.259 (6.63)*	-2.1571 (3.77)*	-2.148 (6.21)
INF	-0.0677 (0.83)	-0.1296** (1.79)	-0.1229*** (1.68)
TO	0.3887* (19.15)	0.8094* (32.54)	0.6975* (29.34)
FD	0.0071 (0.21)	-0.4922* (7.60)	-0.2840* (5.37)
EM	0.5689*** (1.71)	-2.1273* (2.94)	-0.6685* (1.20)
CONS	-35.8323* (2.46)	-47.0296* (3.12)	-54.5489* (3.56)
Number of obs	924	924	924
R-squared	0.31	0.42	0.72
Hausman Test Prob>chi2			0.0000

Note:*, ** and *** represents 1%, 5 % and 10 % level of significance, and figures presented in parenthesis represents t or z-statistics.

Table-4. Impact of sectoral growth on economic volatility for Asian Countries.

Variables	Pooled	Fixed	Random
AGRI	-0.0191* (4.28)	-0.0134* (2.96)	-0.0129* (2.94)
IND	0.1916 (0.85)	0.5082* (2.74)	0.5003* (2.73)
SER	0.24748 (0.73)	-0.0795 (2.99)	-0.7379* (2.78)
AVG	-0.4518* (7.22)	-0.2961* (2.56)	-0.3167* (3.24)
INF	-.1421 (0.80)	.7348 (0.60)	.5411 (0.45)
TO	-.1728* (4.05)	-.00546* (13.36)	-.51839* (12.97)
FD	-.0938 (1.31)	.7979* (7.42)	.6819* (6.77)
EM	-.1073 (1.52)	.04717* (3.82)	.3683* (3.27)
CONS	1.664* (5.41)	1.375* (5.55)	1.458* (5.37)
Number of obs	868	868	868
R-squared	0.72	0.42	0.52
Hausman Test Prob>chi2		0.0002	

Note: *, ** and *** represents 1%, 5 % and 10 % level of significance, and figures presented in parenthesis represents t or z-statistics.

6. CONCLUSION

The paper investigates the impact of agriculture, industry and service sector growth on Asian economies' growth and volatility. It also examines the effect of quality of institutions on economic growth and economic volatility.

The analysis of suggest that service sector made the major contribution in economic growth. In other words, service sector growth leads to improvement in economic growth of Asian economies. The Park and Kwaho (2012) supported the present results that service sector has been played vital role in Asian economies productivity and growth. It may suggest that service sector contribute substantially in future economic development. Moreover, by reducing excessive regulation and constraint for service sector trade can also help in growth of service sector which eventually effect the region's growth.

Moreover, quality of institutions has significant and positive impact on economic growth, that is to say that quality of institutions are the best indicators for economic development and for future welfare of the region. The good quality of institutions not only prevents the coming economic crisis but also raise the economies to deal with and pull through from such crisis.

As far as economic volatility concerned, sustainable output growth has been associated with sectoral growth, institutions performance, trade openness and financial development. The agriculture and service sector growth of the Asian economies significant reduced economic volatility. Skill formation in sectors, technological support, financing through advance methods are required to improve the growth of sectors. Moreover, quality of institutions plays imperative role in sustainable growth, in order to stabilize economic performance well- functioning institutions is desired.

Funding: This study received no specific financial support.

Competing Interests: The authors declare that they have no competing interests.

Acknowledgement: Both authors contributed equally to the conception and design of the study.

REFERENCES

- Aidt, T., Dutta, J., & Sena, V. (2008). Governance regimes, corruption and growth: Theory and evidence. *Journal of Comparative Economics*, 36(2), 195-220.
- Asian Development Outlook. (2016). *Asia's potential growth FLS168438-3*.
- Baumol, W. J. (1967). Macroeconomics of unbalanced growth: The anatomy of Urban crisis. *The American Economic Review*, 57(3), 415-425.
- Blackburn, K., Bose, N., & Haque, M. E. (2006). The incidence and persistence of corruption in economic development. *Journal of Economic Dynamics and Control*, 30(12), 2447-2467. Available at: <https://doi.org/10.1016/j.jedc.2005.07.007>.
- Bruinshoofd, A. (2016). *Institutional quality and economic performance*: Rabobank.
- Campos, N., & Karanasos, M. G. (2008). Growth, volatility and political instability: Non-linear time-series evidence for Argentina, 1896-2000. *Economics Letters*, 100(1), 135-137.
- Cristina, E. (1997). Changes in sectoral composition associated with economic growth. *International Economic Review*, 38(2), 431-452. Available at: <https://doi.org/10.2307/2527382>.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147-160.
- Easterly, W. (2013). *The tyranny of experts: Economists, dictators and the forgotten rights of the poor*. New York: Basic Books.
- Evrensel, A. Y. (2010). Corruption, growth, and growth volatility. *International Review of Economics & Finance, Elsevier*, 19(3), 501-514.
- Fagerberg, J., & Verspagen, B. (2002). Technology-gaps, innovation-diffusion and transformation: An evolutionary interpretation. *Research Policy, Elsevier*, 31(8-9), 1291-1304.
- Fiaschi, D., & Lavezzi, A. M. (2003). *On the determinants of growth volatility: A nonparametric approach*. Pisa, Italy: Dipartimento di Economia e Management (DEM), University of Pisa.
- Kitenge, E., & Bedane, B. (2017). Government effectiveness and economic growth. *Economic Bulletin*, 37(1), 222-227.
- Klomp, J., & de Haan, J. (2008). *Political, institutions and economic volatility*. Paper presented at the CESifo- Delphi Conference organized by CESifo Conference Center, Munich, Germany.
- Mobarak, A. (2005). Democracy, volatility, and economic development. *The Review of Economics and Statistics*, 87(2), 348-361.
- Park, D., & Kwaho, S. (2012). The service sector in Asia: Is it an engine of growth? ADB Economics Working Paper Series WPS125226.
- Rodrik, D. (1999). Where did all the growth go? External shocks, social conflict and growth collapses. *Journal of Economic Growth*, 4(4), 35-412.
- Wilber, S. (2002). *Are services bad for growth? Evidence from a Panel of OECD*. Washington DC: Georgetown University.

Appendix-A-1. List of Countries.

Afghanistan	Malaysia
Armenia	Maldives
Azerbaijan	Mongolia
Bahrain	Myanmar
Bangladesh	Nepal
Bhutan	Oman
Brunei Darussalam	Pakistan
Cambodia	Philippines
China	Qatar
Georgia	Russian Federation
Hong Kong SAR, China	Saudi Arabia
India	Singapore
Indonesia	Sri Lanka
Iran, Islamic Rep.	Syrian Arab Republic
Iraq	Tajikistan
Israel	Thailand
Japan	Turkey
Jordan	Turkmenistan
Kazakhstan	United Arab Emirates
Korea, Rep.	Uzbekistan
Kuwait	Vietnam
Kyrgyz Republic	West Bank and Gaza
Lao PDR	Yemen, Rep.
Lebanon	

Source: World Bank database.

Views and opinions expressed in this article are the views and opinions of the author(s), Asian Journal of Economic Modelling shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.