Pakistan Journal of Applied Economics, Vol. 30 No. 1, (43-72), Summer 2020

# POLITICAL INSTITUTIONS AND ECONOMIC GROWTH: A Case Study of Selected South Asian Nations

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## Abstract

This study contributes to the empirical literature on regional economic performance by analyzing the role of political institutions in explaining economic growth of selected South Asian economies. The empirical analysis is based on panel co-integration techniques and the model used is an extended version of Solow-type model including an additional variable of human capital. The empirical findings broadly suggest that political institutions have a critical role in explaining the economic performance of the region as they significantly impede regional growth at lower levels. Nevertheless, political institutions significantly promote regional growth at higher levels. Thus, it is the high quality of political institutions which can ensure long-run regional performance. This finding remains robust to different specifications and additional controls.


*Keywords:* Economic Performance, Political Institutions, South Asia.
*JEL Classification:* C23, E02, J24, O40.

## I. Introduction

Social scientists are always busy in finding potential correlates and determinants of the prosperity of the nations. There is extensive research on this simple question of why some nations are more prosperous than others. Initial research on economic growth [see, for example, Solow (1956), Harris-Todaro (1970), Romer (1986), Lucas (1988), Barro (1991), Mankiw, et al. (1992) and Easterly and Easterly (2001)] is focused on factors like physical capital and human capital to explain widespread differences across nations. Recently, factors like corruption [Mauro (2004)] political instability [Alesina, et al. (1996)] rent-seeking [Murphy, et al. (1993)] weak institutional setup [North (1990) and Esfahani, et al. (2003)] have been extensively discussed as potential reasons behind the low economic performance of developing nations. The above-discussed factors are closely linked with the institutional structure of the countries. Robinson and Acemoglu (2012), in their book, 'Why Nations Fail', highlighted the importance of institutions in explaining the growth trajectory of the na-

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tions. The authors took an example of two cities Nogales, Sonora and Nogales, Arizona to explain their hypothesis that institutional structure matters the most in explaining relative income differences among countries.

Moreover, Acemoglu (2005) and Robinson and Acemoglu (2012) highlighted the importance of political institutions alongside economic institutions for the economic prosperity of nations. They argue that institutions can broadly be categorized into two groups; extractive institutions and inclusive institutions. In the context of political institutions, extractive institutions can be conceived as institutions in which few people rule the whole country and try to maximize the self-interest of a small subset of the country while inclusive political institutions mean people from all course of life are participatory part of the whole political system. Furthermore, extractive political institutions along with inclusive economic institutions also impede economic growth while inclusive political institutions, along with extractive economic institutions, are not up to the mark for the economic growth of nations.

This study empirically investigates the basic question of whether political institutions (i.e., democracy) are inclusive (contribute to economic growth) or extractive (impede economic growth) in the case of South Asia. The region is a very interesting case study regarding institutional structure which is yet to be explored, but our focus is on the role of political institutions in explaining the economic growth of the South Asian region. South Asian region has rich socio-political, cultural, religious and economic dynamics. The region has the largest democratic and politically stable nation of the world i.e., India. In contrast, the region also has a country where the political environment remains uncertain, extractive and military plays its pivotal role in policy making i.e., Pakistan. These interesting characteristics of this region make it an interesting case study on the number of areas, but the current study focuses on one dimension that is the role of political institutions in explaining economic growth.

South Asian region has some unique features in contrast to other regions of the World. The region has robust economic growth over the past three decades. Gross Domestic Product (GDP) has seen a significant increase of almost 5.9 per cent per annum from 1980 to 2010 [Human Development in South Asia (2015)]. However, this increase in economic activity has not been translated into the lives of people. One of the explanations of this dichotomy may be extractive nature of political as well as economic institutions of South Asia. If this is the case, then the sustainability of the growth trajectory of the region is also questionable. This study will provide an answer to the question related to the nature of institutions within the South Asian region.

To conduct meaningful analysis, we have been confronted by the problem of selecting a suitable econometric methodology. Since our sample is not very large and we have more time series (years) than cross-sections (countries), time series related problems might dominate. Therefore, we focused on time-series related issues and contributed to the existing literature on political institutions by exploiting more sophisticated econometric technique to answer our research question.

The rest of the paper is planned as follows. Section II highlights the existing literature on the nexus between political institutions and economic growth. Section III develops an empirical growth model and Section IV presents econometric methodology which is used in the study. Section V explains the data exploited in the study and provide descriptive statistics. Further, the results and discussion is given in Section VI. At the end, Section VII concludes the paper with policy implications and limitations of the study.

## II. Literature Review

There are a number of widely believed conjectures, hypothesis, and myths about how political institutions of a country affect macroeconomic outcomes such as economic growth, inequality, and poverty. Some earlier studies have shown a consensus among political economists on favourable macroeconomic performance as a result of democratic regimes [Przeworski and Limongi (1995), Helliwell (1994), Nelson and Singh (1998) Heo and Tan (2001), Tang and Yung (2005) and Polterovich and Popov (2007)]. It is generally believed that democracy positively affects mediating variables such as private investments, investments on human capital, the security of property rights and these variables, in turn, affect the overall economic growth of the country [Perroti (1996), Barro (1996), Tavares and Wacziarg (2001)].

Contrary to democratic rulers, dictators or non-democratic state officials are deemed to be predators in nature. They are labelled as rent-seekers those who use state apparatus to extract revenues. Investors have fewer incentives to invest during non-democratic regimes [Olson (1993)]. Additionally, non-democratic regimes create special interest groups to legitimize their power [Fattons (1992)]. These arrangements are inconsistent with the long-term economic goals of a country, ultimately the country suffers. Technically, non-democratic regimes produce low growth and high inflation due to mediating effects of low investment, low foreign direct investment, loose monetary policy, huge fiscal deficits, trade deficits, and the lack of institutional setup.

In contrast, the democratic rule reduces the predatory powers of state officials and the system works with inconsistency on long-run economic goals of the country. Secondly, democracy is a legitimate form of government which reduces social and political unrest in the country and makes it easier for officials to implement painful policies. Thus, macroeconomic policies under democratic regimes are more effective [Maravall (1994), Feng (1997), Wittman (1989)]. Thirdly, democratic regimes ensure economic freedom and the literature concludes that economic freedom is also conductive to economic wellbeing [Whiteley (2000)].

In modern political economy research, these arguments have been challenged by the development of more strong and sound theoretical frameworks but the questions have been raised whether democracies or non-democracies secure property

rights. Researchers have developed their framework by utilizing micro-foundations (utility-maximizing frameworks). It is argued that since every individual wants to maximize his self-interest, so the politicians, as economic agents, try to maximize their interest by indulging in political corruption, rent-seeking activities, and so forth. Similarly, democracy is the typical case of the principal-agent problem where agents (politicians) maximize their interests by halting principals' (general public) welfare. One more fundamental problem with democracy is that politicians act like dictators until the new elections have arrived and do not work for the welfare of the masses. It can be argued that if there are two policy alternatives faced by a political government out of which one benefits one percent elite. At sometime, other is beneficial for eighty per cent poor people; the political government will unarguably favour the policy which benefits one per cent, elite class because it serves their vested interests. This is another fundamental flaw and misery associated with a democratic system which further breeds' inequality and then undermines economic growth. Since dictators do not have such aims like gaining votes and so forth, they do not act like competing politicians. Therefore, they may be more capable of undertaking bold policies which look harmful for short-run but are beneficial for the economy in the long-run [O'Donnell (1978) and Skidmore (1977)]. In a nutshell, the benevolent dictator may be even better than fair democracies.

Another debate related to political regimes separates mature democracies from new democracies and develops several arguments [Gasiorowski (2000)]. This debate is above the scope of this study. Some empirical researcher's find a number of methodological problems in previous research; Lipset (1959) explains the possibility of reverse causation among democracy and economic growth and Przeworski and Limongi (1995) explained that previous studies did not encounter the problem of simultaneity bias during estimations. Likewise, Acemoglu, et al. (2008) argued that the empirical results between democracy and economic growth are established due to a third variable which is called omitted variable bias. The study shows that if country fixed effects are included in the regressions to control time-invariant factors (i.e., culture, geography, and religion); the relationship between democracy and economic growth vanishes.

Likewise, there are fewer studies on this topic related to a specific region. An exception in this regard is Sub-Saharan Africa which has been adequately explored with similar empirical results [for example, Kisangani (2006), Bates, et al. (2012), Fosu (2008), Jaunky (2013) and Masaki and Van de Walle (2104)]. Although some researchers [for example, Bertrand (1998) and Heo, et al. (2012)] attempt to study democracy and growth in South Asian region, but these studies do not pay attention to different empirical problems. Our study is unique in the sense that it focuses on issues like stationarity and co-integration, which are important to consider in regional panels with lesser cross-sections. To our knowledge, there is not any study on the South Asian region which provides such kind of detailed analysis.

## III. Methodology and Empirical Growth Model

The study utilized the neoclassical growth model as the baseline model. The model augments human capital into Solow-Swam growth model. It was developed by [Mankiv, et al. (1992)]. According to the model,

$$Y(t) = f\{A(t)L(t), K(t), H(t)\} \tag{1}$$

Equation (1) is an implicit form of the growth equation. We can write the specific form mathematically assuming Cobb-Douglas production function as follows:

$$Y(t) = K(t)^{\alpha} \; H(t)^{\beta} \; (A(t)\, L(t))^{1-\alpha-\beta} \tag{2}$$

where $\alpha$ & $\beta$ are the respective partial elasticities of output with respect to physical capital and human capital. The time-path of right-hand side variables can be written as follows,

$$\dot{k}(t) = s_k(t)y(t) - (n(t) + g + d)\, k(t) \tag{3}$$

Equation (2) can be substituted into Equation (3), we get a steady-state level of physical capital

$$\dot{k}(t) = s_k(t)\, A(t)^{1-\alpha-\beta}\, k(t)^{\alpha}\, h(t)^{\beta} - (n(t) + g + d)k(t) \tag{4}$$

similarly,

$$\dot{h}(t) = s_h(t)y(t) - (n(t) + g + d)\, h(t) \tag{5}$$

Equation (2) can be substituted into Equation (5), we get a steady-state level of human capital

$$\dot{h}(t) = s_h(t)\, A(t)^{1-\alpha-\beta}\, k(t)^{\alpha}\, h(t)^{\beta} - (n(t) + g + d)\, h(t) \tag{6}$$

$$\dot{A}(t) = g(t)A(t) \tag{7}$$

$$\dot{L}(t) = n(t)L(t) \tag{8}$$

where $y = Y/L$ and $k = K/L$ are output and physical capital in intensive terms, $h = H/L$ stands for average human capital, $s_k$ and $s_h$ for the investment rate in physical and human capital, *n* is the growth rate of labour, *g* is the rate of technological change and d is the common (time-invariant) depreciation rate. Under the assumption that $\alpha + \beta < 1$ (i.e., diminishing returns to both physical and human capital).

On the basis of theoretical relationship described in the above flow chart, economic output function described in [Mankiv, et al. (1992)] can be extended to four variables, as follows,

$$Y(t) = f\{A(t)L(t), K(t), H(t), Polity(t)\} \quad (9)$$

where,

A(t)L(t) = Effective labour

K(t) = Physical Capital

H(t) = Human Capital

Polity(t) = Political Institutions (Democracy)

From the theoretical model described above, we can develop our econometric model following Gounder (2002), which is given below:

$$\dot{Y}_{it} = \alpha_0 + \alpha_1(I/Y)_{it} + \alpha_2 \dot{L}_{it} + \alpha_3 H_{it} + \alpha_4 Demo_{it} + \alpha_5 (Demo^2_{it}) + \mu_{it} \quad (10)$$

where, $\dot{Y}_{it}$ is the annual growth rate in GDP per capita of ith nation at time period t, $(I/Y)_{it}$ refers to investments to output ratio measured by gross capital formation, $\dot{L}_{it}$ is the growth rate of population, $H_{it}$ refers to the stock of human capital of ith nation at time period *t*, $Demo_{it}$ is related to democratic institutions measured by Polity IV index, $Demo^2_{it}$ is introduced to capture non-linearity between democracy and economic growth, $\mu_{it}$ is an error term.

For robustness of results, this study includes other variables like fiscal policy, monetary policy, trade policy and foreign direct investment into the baseline model.

$$\dot{Y}_{it} = \alpha_0 + \alpha_1 (I/Y)_{it} + \alpha_2 \dot{L}_{it} + \alpha_3 H_{it} + \alpha_4 Demo_{it} + \alpha_5 (Demo^2_{it}) + \alpha_6 Control.Variables + \mu_{it} \quad (11)$$

## IV. Econometric Methodology

The econometric methodology used in this study is explained and justified in this section; our study is based on panel data with a greater number of years (T=20) than the number of cross-sections (N=5). Asteriou (2015) explains the emergence of stationarity and co-integration issues in macro panels with large T and N.[1] Following the recent literature on macro panel data studies [for example, Basu, et al. (2003), Christopoulos, et al. (2004), Asteriou and Price (2005), Herzer and Vollmer (2012)], this study also addresses the crucial problems of stationarity and co-integration.

[1] Asteriou (2015, p. 366) provides comprehensive debate regarding unit root in macro panels with both large N and T as compared to micro panels with large N, but small T.

In the co-integration analysis, variables must have the same order of integration. Order of the integration of each variable is determined by applying panel unit root tests. After identifying the order of integration, the co-integration approach is used. The detailed procedure is explained in the following sub-sections.

### *1. Panel Unit Root Test*

The first step in the co-integration approach is to check stationary by applying different panel unit root tests. For the co-integration test, all variables must be of the same order of integration. We used three of the panel unit root tests i.e., Levin, Lin and Chu (LL), ADF-Fisher Chi-square, and PP-Fisher Chi-square. Most of the panel data studies in previous literature have exploited these three techniques to check the non-stationarity of variables.

### *2. The Pedroni Co-integration Tests*

To determine whether a co-integrating relationship exits, the recently developed methodology proposed by Pedroni (1999) is employed. Contrary to Kao test for co-integration, Pedroni test incorporates heterogeneity. Pedroni's (1999) test allows multiple (k= 1, 2, 3, . . . .K) regressors for co-integration vector to vary across different cross-sectional units of panel. The error terms across the cross-sections are allowed to have heterogeneity. The proposed panel regression equation is as follows:

$$Y_{it} = \beta_i + \delta_i + \sum_{k=1}^{k} \gamma_{ki} X_{mi,t-L} + \mu_{it} \tag{12}$$

In order to check Pedroni co-integration, Equation 10 is estimated by OLS and estimated residuals ($\hat{u}_{it}$) then be used to estimate the following equations:

$$\hat{u}_{it} = \rho_i \hat{u}_{it} + \vartheta_{it} \tag{13}$$

Here $\rho_i$ is AR parameter while $\vartheta_{it}$ is the error terms. The null hypothesis of both equations is that there is no co-integration while the alternative hypothesis is that co-integration exists. The null hypothesis is given by,

$$H_{0A} : \rho_i = 1, \text{where } i = 1,2,3\ldots\ldots N \tag{14}$$

Pedroni has developed seven co-integration statistics for testing the null hypothesis. It employs four-panel statistics (i.e., Panel v-Statistic, Panel rho-Statistic, Panel PP-Statistic, and Panel ADF-Statistic) and three group panel statistics (Group rho-Statistic, Group PP-Statistic, and Group ADF-Statistic) to test the null hypothesis of no co-integration against the alternative hypothesis of co-integration.

### *3. Long-run and Short-run Analysis*

In this section, we have discussed the long-run relationship of economic growth with our focused variables democracy and economic growth. We have applied OLS for long-run estimates of our parameters and error correction mechanism (ECM) for short-run dynamics of the model.

*a) For Co-integration Results*

We have examined the long-run estimates of our parameters by applying OLS to the following growth models:

$$\dot{Y}_{it} = \alpha_0 + \alpha_1 (I/Y)_{it} + \alpha_2 \dot{L}_{it} + \alpha_3 H_{it} + \alpha_4 Demo_{it} + \alpha_5 (Demo^2_{it}) + \mu_{it} \quad (15)$$

This will give us the following estimated equation. In which $\alpha_0$ is intercept while $\alpha_1$, $\alpha_2$, $\alpha_3$, $\alpha_4$ are slope coefficients.

$$\dot{Y}_{it} = \hat{\alpha}_0 + \hat{\alpha}_1 (I/Y)_{it} + \hat{\alpha}_2 \dot{L}_{it} + \hat{\alpha}_3 H_{it} + \hat{\alpha}_4 Demo_{it} + \hat{\alpha}_5 (Demo^2_{it}) \quad (16)$$

*b) ECM for Short-run Dynamics*

After discovering the long-run relationship among variables, the next step is to investigate the marginal impact of democracy on economic growth. For this purpose, ECM is applied and the Equations 10 can be written in the following form:

$$\Delta\dot{Y}_{it} = \alpha_0 + \alpha_1 \Delta(I/Y)_{it} + \alpha_2 \Delta \dot{L}_{it} + \alpha_3 \Delta H_{it} + \alpha_4 \Delta Demo_{it} + \theta\hat{u}_{it-1} + e_{it} \quad (17)$$

ECM mechanism is essential because we have both long-run as well as short-run information in this way. In our models the coefficients ($\alpha_1$, $\alpha_2$, $\alpha_3$, $\alpha_4$) are impact multipliers that measure the immediate impact of a change in the independent variable on a change in the dependent variable. On the other hand, $\theta$ shows adjustment effect, which means how much disequilibrium, is being corrected after one period. The problem of suspected spurious regression has been handled since all variables are stationary in the equation. Figure 1 displays the procedure which we have followed in the estimation of our results.

## V. The Data

We discuss one of the most important aspects of paper which is data collection and the statistical characteristic which is presented in this section. The present study is based on annual data of five selected SAARC countries (i.e., Pakistan, Sri Lanka, Nepal, Bangladesh and India) over the period of 1995 to 2014.

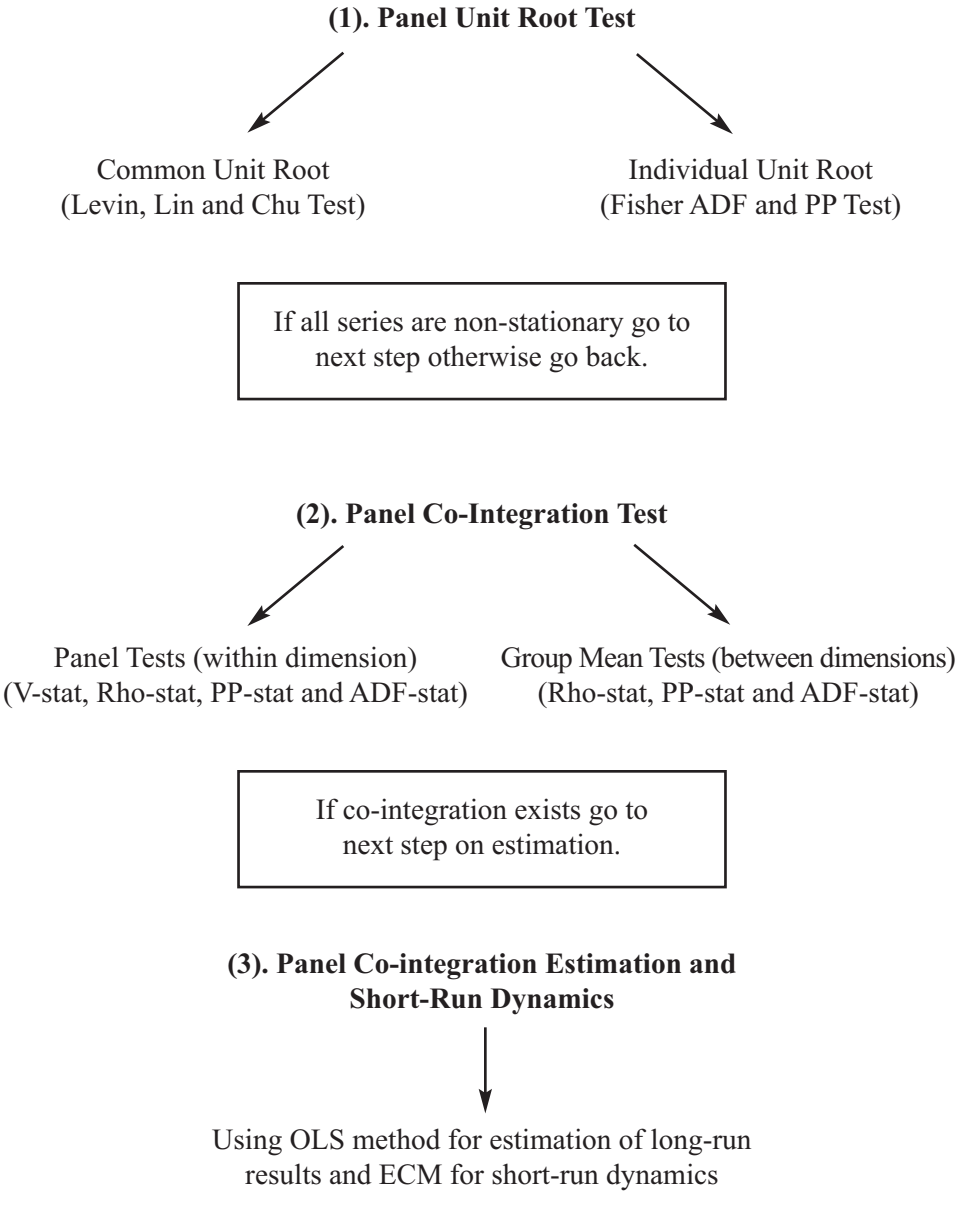



**FIGURE 1**

Summary of Estimation Technique

**TABLE 1**

Source of the Data

| Variables | Denoted by | Measured in | Source |
|---|---|---|---|
| GDP per capita growth rate (constant 2005 US$) | $\dot{Y}$ | Annual growth rate (in percentage) | World Development Indicators (2015) |
| Gross Capital Formation | (I/Y) | Percentage of total GDP | World Development Indicators (2015) |
| Population growth | $\dot{L}$ | Annual growth rate (in percentage) | World Development Indicators (2015) |
| Human Capital | $\dot{H}$ | Index based on years of schooling (Barro/Lee, 2012) and returns to education (Psacharopoulos,1994) | Penn World Tables 9.0 (2016) |
| Democracy | DEMO | The index ranges from -10 to +10 | Polity IV, INSCR Database (2015) |
| General Government final consumption expenditure (% of GDP) | G | Percentage of total GDP | World Development Indicators (2015) |
| Military Expenditures | mexp | Percentage of total GDP | World Development Indicators (2015) |
| Consumer price index (inflation) | cpi | Annual growth rate price level | World Development Indicators (2015) |
| Trade Openness | TO | The volume of trade as a ratio of total GDP | World Development Indicators (2015) |
| Foreign Direct Investment | fdi | Percentage of total GDP | World Development Indicators (2015) |

*Source:* Authors' estimation.

### *1. Construction of Democracy Variable*

Although Table 1 provides the sources of the data and details on these variables are constructed, a comprehensive explanation of proxy for democracy is needed. Initially, researchers used a dichotomous variable to delineate democratic regime from the non-democratic regime but in the last decade, the studies utilized the indices such as Freedom House and Polity IV, which serve as a proxy for democracy.

These proxies are superior to a previously used dichotomous variable because a substantive amount of information has been lost when a dichotomous variable has been used instead of an index [Nelson and Singh (1998)]. In this study, we used the Polity IV index, which provides extensive information on political regimes of the countries from 1800 to date. The dataset has been constructed by coding each country on a ten-point democracy scale.[2] Each country has been assigned a score between -10 to 10. In this study, we prefer Polity IV over Freedom House index because the former is conceptually very precise and broader than the latter. Freedom House index just captures the civil and political liberties enjoyed by the inhabitants of the nation. Yet, the proxy used to quantify democracy (i.e., Polity IV index) is arguably based on the weak definition of democracy. It does not take into account the internal institutional structure of the countries and classifies the nations just on the basis of the corporal features such as a continual change in government through elections. Nonetheless, there is no better proxy available whose ratings also reflect the institutional dimensions of the nations.

### *2. Correlation Matrix*

Correlation is the statistical measure of the linear relationship between two variables. Table 2 shows the correlations of all our variables. This information is necessary to address the issue of multi-collinearity.

**TABLE 2**

Correlation Matrix

| | $\dot{Y}$ | (I/Y) | $\dot{L}$ | H | Demo |
|---|---|---|---|---|---|
| $\dot{Y}$ | 1 | -- | -- | -- | -- |
| (I/Y) | 0.4760 | 1 | -- | -- | -- |
| $\dot{L}$ | -0.0745 | -0.4982 | 1 | -- | -- |
| H | 0.1357 | 0.1205 | -0.6065 | 1 | -- |
| Demo | 0.1968 | 0.3791 | -0.0552 | 0.0645 | 1 |

*Source:* Authors' estimation.

The descriptive statistics in Table 3 include averages, the standard deviation, minimum and maximum values of all variables. The study has six main variables and each variable has 100 observations except human capital which has 90 observations.

[2] We provide figure 2 in appendix which discusses different dimensions and their weight age in Polity IV index. Further details on Polity IV index can be found on, http://www.systemicpeace.org/inscrdata.html.

The mean value of economic growth (growth rate of GDP per capita) is 3.68 and the standard deviation is 2.19. The minimum value of economic growth (growth rate of GDP per capita) is -1.45 that relates to Pakistan in 1997 and the maximum value 9.17 belongs to Sri Lanka in 2012.

The standard deviation of gross capital formation (per cent of GDP) is 6.13 and its mean value is 25.43. The minimum (13.99) and maximum (38.93) values are associated to Pakistan in 2014 and India in 2011, respectively. The average value of population growth rate is 1.55, while S.D is 0.59. Minimum value -1.61is associated to Sri Lanka in 2001 while maximum value 2.52 is associated to Nepal in 1995.

The average value of the human capital index is 2.03 while S.D is 0.55. The minimum value of Human capital index is 1.42, which belongs to Nepal in 1995 and the maximum value is 3.20, which is associated with Sri Lanka in 2010. In the case of democracy, the average value of the index is 4.59 and has a very high standard deviation of 4.50. This minimum value of the index is -6 attributed to Pakistan while India enjoys the highest value of index throughout the sample.

**TABLE 3**

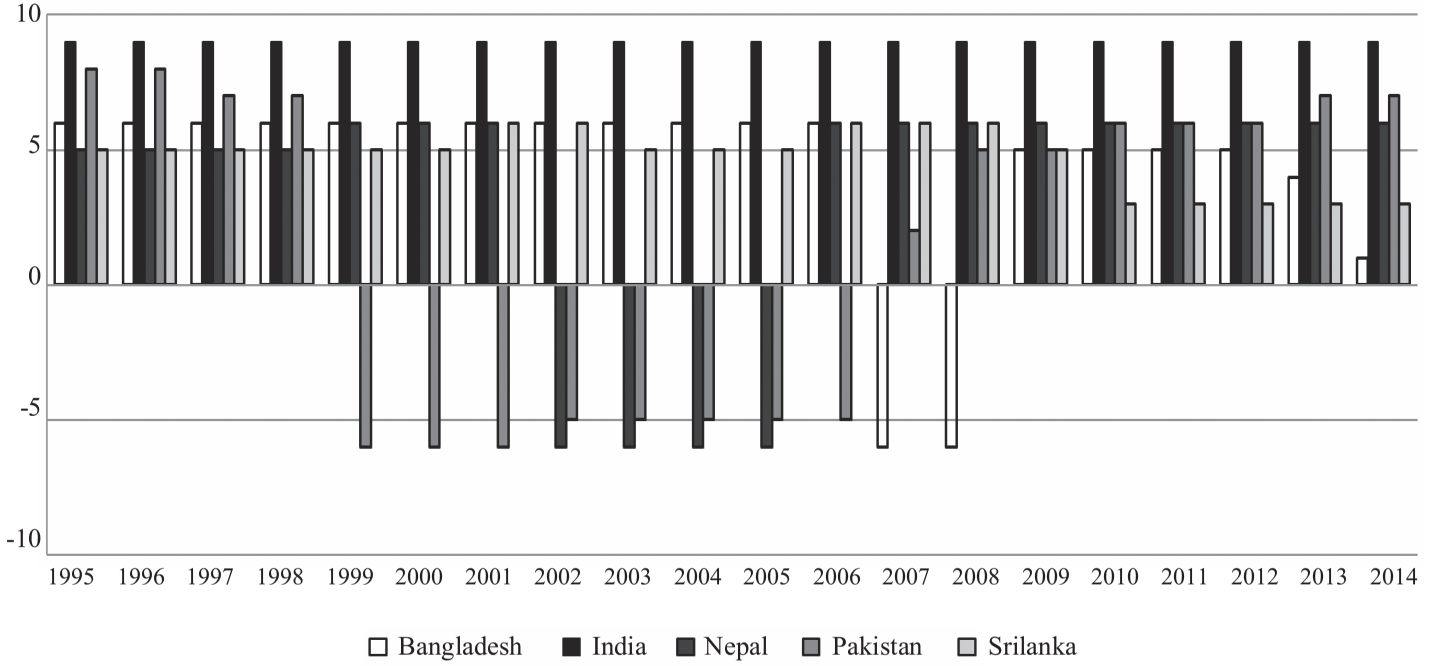
Descriptive Statistics of the Variables used in Analysis

| Variables | Obs. | Mean | S.D | Minimum | Maximum |
|---|---|---|---|---|---|
| Ẏ | 100 | 3.68 | 2.19 | -1.46 | 9.17 |
| (I/Y) | 100 | 25.43 | 6.13 | 13.99 | 38.94 |
| L̇ | 100 | 1.55 | 0.59 | -1.61 | 2.52 |
| H | 90 | 2.03 | 0.55 | 1.42 | 3.2 |
| Demo | 100 | 4.59 | 4.50 | -6 | 9 |

*Source:* Authors' estimation.

### *3. Brief Overview of Democratic and Growth Trends*

The existing democratic and growth trends for our selected South Asian countries over the period (1995-2014) is discussed in this section. Moreover, it also compares the trends among various countries to quest for the suggestive evidence vis-à-vis the relationship between democratic institutions and economic growth. Figure 2 shows the value of the Polity IV index for South Asian countries. The Polity IV index ranges from -10 to +10 where positive value means simply democratic country while negative values indicate autocratic countries. The variation between positive and negative values is based on the quality of democracy and autocracy.



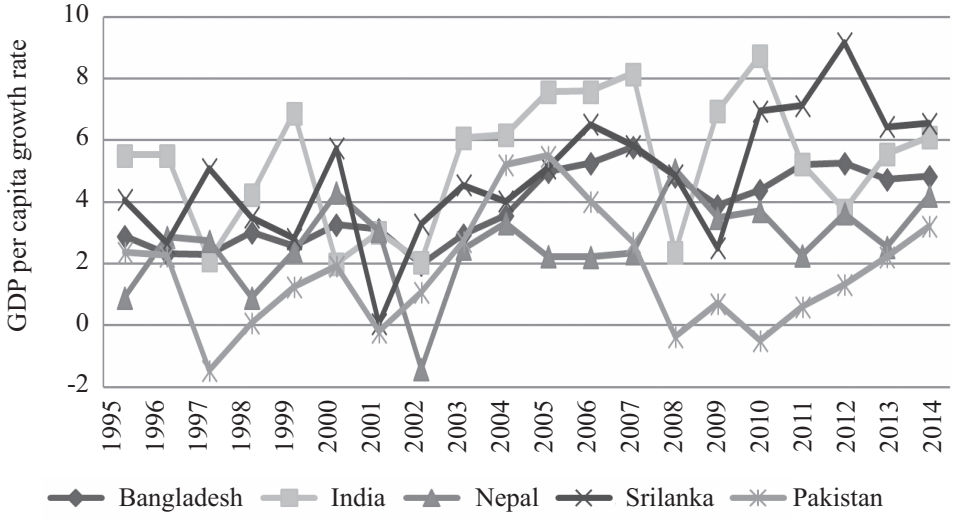

*Source*: Authors' estimation. Data for democracy is an index named Polity IV maintained by INSCR Database.

**FIGURE 2**

Democratic Trends in selected South Asian Countries

The Polity IV index remains positive for India and Sri Lanka throughout the sample which means both of these countries remained democratic in this era. Some variation can be seen in the case of Sri Lanka, but in the case of India, the value of polity index is persistently high. In the case of Pakistan, the index remains negative from 1999 till 2006 because of the military coup of General Pervez Musharraf. Similarly, the index is negative for Bangladesh from 2002 till 2005, and for Nepal in the year 2007 and 2008. It is worth mentioning that only India has a persistent high value of the index for a given time period. All other countries either suffered in terms of persistence (value changed between positive and negative) or in terms of quality (index value did not remain the same).

Similarly, Figure 3 shows the trends of growth for each nation over the period of 1995-2014. It indicates that India and Sri Lanka, the two nations with ever positive democracy ratings, also surpass the other nations in the economic growth of the given period of time. Correspondingly, Pakistan with the worst democracy ratings also has the lowest average growth in GDP per capita for the given period of time. The similar is also true for Nepal as shown in the figures. Nepal has negative ratings on the Polity IV index from 1999 till 2006. Subsequently, the decline in growth of GDP per capita can also be examined for Nepal in a similar period. Quite surprisingly, Pakistan and Nepal are the only nations to witness a year of negative GDP per capita growth during the given period.




*Source*: Authors' estimation.

**FIGURE 3**

Growth in GDP per capita for selected South Asian Countries

Bangladesh enjoys a fairly high quality of democratic institutions compared to Pakistan as suggested by the Polity IV ratings. As a consequence, as suggested by Figure 3, Bangladesh also has higher GDP growth for almost every year in the analysis. Finally, the comparison between India and Pakistan demonstrates that both countries are on the divergent path in both democracy ratings as well as economic growth. India, with the highest possible democracy rating, also surpasses the other nations in GDP per capita growth. In sum, this section provides the suggestive evidence that there is an association between democracy ratings and GDP per capita growth. Following sections shed light on this suggestive evidence through more sophisticated empirical analysis.

## VI. Empirical Findings

Empirical analysis covers five SAARC countries (i.e., Bangladesh, India, Nepal, Pakistan and Sri Lanka) over the period of 1995 to 2014. The estimation strategy used in the study is standard for this kind of analysis; for example, Bates, et al. (2012) used similar empirical strategy to explore the impact of democracy on economic growth, and Siddique and Majeed (2015) also used a similar strategy to explore the impact of energy consumption on economic growth for South Asian region. The empirical strategy can be summarized[3] as follows:[4] The order of integration has been checked by employing different panel co-integration tests. After confirming that all variables are integrated of the same order, co-integration has been tested using Pedroni (1999) co-integration test to examine whether a long-run relationship exists or not. After confirming co-integration, the long-run parameters have been estimated using OLS and short-run parameters are estimated using ECM. Finally, as a robustness check, several policy variables have been included in the baseline model.

### *1. Panel Unit Roots*

Three-panel unit root tests have been applied and results are concluded on the basis of dominant results of the tests. The null hypothesis in the case of unit root tests is that there is unit root while the alternative hypothesis is that there is no unit root. If P-value < 0.10, we reject the null hypothesis of unit root presence but if P-value > 0.10 then we fail to reject the null hypothesis which indicates the presence of unit root in the series. Results of Panel Unit Tests reported in Table 4, 5 and 6 shows that all variables have unit root on the level but no unit root on the first difference. So technically, all variables are integrated of order one, i.e., I (1).

[3] The detailed empirical strategy has been discussed in section III.

[4] See also Figure 1 which explains the steps of our empirical study.

**TABLE 4**

Results of Panel Unit Root Test

| Method | $\dot{Y}$ | | $\Delta\dot{Y}$ | | (I/Y) | | $\Delta$(I/Y) | |
|---|---|---|---|---|---|---|---|---|
| | Statistic | Prob.* | Statistic | Prob.* | Statistic | Prob.* | Statistic | Prob.* |
| Null: unit root (suppose the unit root process is common) | | | | | | | | |
| Levin, Lin and Chu | -0.31170 | 0.3776 | -10.3530 | 0.0000 | -3.52903 | 0.9998 | -7.73936 | 0.0000 |
| Null: unit root (suppose unit root process for the individual) | | | | | | | | |
| ADF - Fisher Chi-square | 8.26749 | 0.6027 | 99.8666 | 0.0000 | 4.05853 | 0.9447 | 76.5598 | 0.0000 |
| PP - Fisher Chi-square | 11.3137 | 0.3336 | 85.2819 | 0.0000 | 3.91246 | 0.9512 | 76.7625 | 0.0000 |

*Source*: Authors' estimation.

**TABLE 5**

Results of Panel Unit Root Test

| Method | $\dot{L}$ | | $\Delta\dot{L}$ | | H | | $\Delta$H | |
|---|---|---|---|---|---|---|---|---|
| | Statistic | Prob.* | Statistic | Prob.* | Statistic | Prob.* | Statistic | Prob.* |
| Null: unit root (suppose the unit root process is common) | | | | | | | | |
| Levin, Lin and Chu | 0.20975 | 0.5831 | -1.9020 | 0.0286 | -1.6228 | 0.0523 | -4.04053 | 0.0000 |
| Null: unit root (suppose unit root process for the individual) | | | | | | | | |
| ADF - Fisher Chi-square | 18.3745 | 0.0490 | 31.6708 | 0.0005 | 12.4386 | 0.2568 | 64.8753 | 0.0000 |
| PP - Fisher Chi-square | 11.3240 | 0.3328 | 34.0087 | 0.0002 | 9.57269 | 0.4787 | 72.9799 | 0.0000 |

*Source*: Authors' estimation.

**TABLE 6**

Results of Panel Unit Root Test

| Method | Demo | | $\Delta$Demo | |
|---|---|---|---|---|
| | Statistic | Prob.* | Statistic | Prob.* |
| Null: unit root (suppose the unit root process is common) | | | | |
| Levin, Lin and Chu | -0.52663 | 0.2992 | -6.41592 | 0.0000 |
| Null: unit root (suppose unit root process for the individual) | | | | |
| ADF - Fisher Chi-square | 9.17187 | 0.3280 | 36.1220 | 0.0000 |
| PP - Fisher Chi-square | 7.23224 | 0.5118 | 44.0673 | 0.0000 |

*Source*: Authors' estimation.
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. The unit root tests performed including intercept for some and none for some depending upon the nature of series. AIC is used for lag selection.

### *2. Panel Co-integration Tests:*

The stationarity of variables at the level as well as at first difference used in the study is discussed in the previous section. Before undertaking for the Panel co-integration test, we checked the cross-sectional dependency of our cross-sections. To test whether the individual time series in our panel are cross-sectionally independent, we used the tests which have been developed by Pesaran (2004).[5] The null hypothesis of the Residual Cross-Section Dependence Test is, 'No cross-section dependence (correlation) in residuals'. The results of several tests used to check cross-sectional dependence are shown in Table 7.

The results show that P-value>0.10 for all three tests reported in Table 7. Therefore, we failed to reject our null hypothesis. Thus we can conclude that there is no cross-sectional dependency in the five cross-sections of our data.

**TABLE 7**

Residual Cross-Section Dependence Test for Democracy-Growth Nexus

| Null Hypothesis: No cross-section dependence (correlation) in residuals | | | |
|---|---|---|---|
| Test | Statistic | d.f. | Prob. |
| Breusch-Pagan LM | 14.18357 | 10 | 0.1648 |
| Pesaran scaled LM | -0.182559 | - | 0.8551 |
| Pesaran CD | 0.436140 | - | 0.6627 |

*Source*: Authors' estimation.

The next step is to find out co-integration between focused variables and for this purpose, Pedroni (1999) co-integration test has been applied which is discussed in detail in section 3. To apply this test, the first step is to estimate Equation (10) using OLS and then estimate the residual model i.e., Equation (13) using OLS. The results of both basic models and residual models are reported in Table 8. It can be seen that all variables are significantly different from zero (except the constant term of the residual model) at different levels of significance.

The null hypothesis (no co-integration) of both residual models i.e., Equation (13) is rejected, which means co-integration exists between variables across the countries for our estimated growth models.

[5] Pesaran (2004) exploited LM statistic proposed by Breusch and Pagan (1980) to develop Pesaran cross-sectional dependence test for panel-data models.

**TABLE 8**

Results of Basic OLS and Residual Model

| Variables | Dependent Variable ($\dot{Y}$) | Dependent Variable ($\hat{u}_{it-1}$) |
|---|---|---|
| Constant | -8.7935 | -0.0081 |
| | (0.0000)* | (0.9615) |
| (I/Y) | 0.2545 | -- |
| | (0.0000)* | |
| $\dot{L}$ | 0.9139 | -- |
| | (0.0218)** | |
| H | 1.9983 | -- |
| | (0.0000)* | |
| Demo | -0.0993 | -- |
| | (0.0196)** | |
| $Demo^2$ | 0.0222 | -- |
| | (0.0702)*** | |
| $\hat{u}_{it-1}$ | -- | 0.2427 |
| | | (0.0466)** |
| Adjusted R-Square | 0.4643 | 0.0446 |
| DW Statistics | 1.4944 | 1.9930 |
| F-Statistics | 16.42 | 4.941 |
| Prob(F-Statistics) | (0.0000) | (0.0289) |

*Source*: Authors' estimation.

*, **, *** represent that parameter is significant at the 1%, 5% and 10% level of significance respectively.

After confirmation of the existence of the co-integration relationship, Pedroni co-integration test is applied. The results of the co-integration test for augmented growth model i.e., Equation (10) are presented in Table 9.

Table 9 shows the result of Pedroni co-integration of within-dimension (panel statistic) and between-dimension (group mean statistics) for our economic growth model which incorporates democracy as an additional variable. The null hypothesis of no co-integration is rejected in both cases of panel statistic and group mean statistic (Statistics marked bold show rejection of the null hypothesis). After confirming co-integration among variables, our next natural step is to find out long-run estimates of our parameters by estimating Equation (10) with the help of the OLS technique. To conduct the results the study followed the procedure highlighted by Siddique and Majeed (2015).

**TABLE 9**

Pedroni Panel Co-integration Results for Growth Model Incorporating Democracy

| Alternative hypothesis: common AR coefficients (within-dimension) | | | | |
|---|---|---|---|---|
| Tests | Statistic | Probability | Weighted Statistic | Probability |
| Panel v-Statistic | -0.772340 | 0.7800 | -1.155947 | 0.8761 |
| Panel rho-Statistic | 0.806025 | 0.7899 | 0.644803 | 0.7405 |
| Panel PP-Statistic | -2.338452 | 0.0097 | -3.871104 | 0.0001 |
| Panel ADF-Statistic | -2.119835 | 0.0170 | -3.663039 | 0.0001 |

| Alternative hypothesis: individual AR coefficients (between-dimension) | | |
|---|---|---|
| Tests | Statistic | Probability |
| Group rho-Statistic | 1.634036 | 0.9489 |
| Group PP-Statistic | -4.921173 | 0.0000 |
| Group ADF-Statistic | -4.804933 | 0.0000 |

Null hypothesis: No Co-integration
Trend assumption: No deterministic trend
Lag selection: Automatic SIC with a maximum lag of 2.

*Source*: Authors' estimation.

### *3. Results of Long-run Estimates of the Parameters*

The results of the estimation of Equation (10) estimated using the OLS technique is discussed in this section. In growth model with democracy i.e., Equation (4) which is simply an extension of Solow-type model as estimated by Gounder (2002), but we also include human capital variable into our growth model proposed by Mankiw, et al. (1992). The focused independent variable is democracy. The results in Table 10 show that democracy has a non-linear impact on economic growth for selected South Asian countries. The level term of democracy in the model is negative which means democracy negatively affects economic growth and a unit transition towards democratic regime-at initial levels-deters economic growth by 0.0993 percentage points. The squared term of democracy is positive which means a higher level of democracy is better for economic growth, these results perfectly calibrate with the history of SAARC countries. Countries which transit towards democratic regimes, like Pakistan, Nepal, Bangladesh and Sri Lanka face difficulty at initial stages which halt economic growth of these countries. This may be due to the principal-agent problem, conflict of interest, and rent-seeking activities of politicians. This result can be attributed to non-visionary politics by politicians of the transitional Asian democracies. The case of mature democracies like India, democratic regimes play a significant role in the enhancement of economic growth.

Additionally, these findings are similar to those of Fosu (2008) who finds the non-linear relationship between democracy (measured by, indexes of electoral competitiveness) and economic performance in Sub-Saharan Africa. The detailed results of the estimation are presented in Table 10. Moreover, control variables included in the study have signs consistent with standard growth theory. Investment (measured by gross capital formation) shows a positive impact on economic growth [Majeed (2017), Majeed and Ayub (2018)]. Similarly, population growth and investments in human capital have a positive and significant impact on economic growth as theorized. Another interesting stylized fact can also be seen in the empirical analysis shown in Table 10 that coefficient of human capital investment (1.9983) is greater than the coefficient of physical investment (0.2545) which means, in the long-run, investment in human capital contributes more to the economic prosperity of South Asian countries. Adjusted R-Square is 0.4643 which indicates that around 46.43 per cent of the variation in economic growth is explained by the independent variables included in the model.

**TABLE 10**

Results of Long-run Relationships for Growth Model using OLS

| Variables | Dependent Variable ($\dot{Y}$) |
|---|---|
| Constant | -8.7935 |
| | (0.0000)* |
| (I/Y) | 0.2545 |
| | (0.0000)* |
| $\dot{L}$ | 0.9139 |
| | (0.0218)** |
| H | 1.9983 |
| | (0.0000)* |
| Demo | -0.0993 |
| | (0.0196)** |
| $Demo^2$ | 0.0222 |
| | (0.0702)*** |
| Adjusted R-Square | 0.4643 |
| DW Statistics | 1.4944 |
| F-Statistics | 16.42 |
| Prob(F-Statistics) | (0.0000)* |

*Source*: Authors' estimation.
*, **, *** represent that parameter is significant at the 1%, 5% and 10% level of significance respectively.
White cross-section standard errors & covariance (d.f. corrected).

### *4. Results of Short-run Dynamics using ECM*

The short-run dynamics of our growth model and also check whether the error-correction mechanism is taking place in both models or not is discussed in this section. The results of the ECM model i.e., Equation (15) are presented in Table 11.

The short-run results of the growth model with democracy i.e., Equation (15) shows that physical capital, population growth play a statistically significant role in explaining economic growth while human capital and democracy have consistent results with long-run results but are statistically insignificant. Statistical insignificance of human capital and democracy in the short-run is not surprising; it is logically evident that investments in human capital-although long-term beneficial-does not reflect immediately in the economic prosperity of the nation. In the same token, a democratic transition is a slow process whose benefits cannot be reaped in the short-run. For the error correction term, it can be seen that the error correction mechanism takes place since the lagged error term ($\hat{u}_{it-1}$) is negative and this process of adjustment is rapid, the estimated coefficient indicates that about 78.26 per cent of this disequilibrium is corrected during one year.

**TABLE 11**

Results of Short-run Dynamics using ECM

| Variables | Dependent Variable ($\dot{Y}$) |
|---|---|
| Constant | -0.2697 |
| | (0.2977) |
| $\Delta(I/Y)$ | 0.4203 |
| | (0.0001)* |
| $\Delta\dot{L}$ | 0.6934 |
| | (0.0276)** |
| $\Delta H$ | 9.8341 |
| | (0.1751) |
| $\Delta$Demo | -0.0486 |
| | (0.3465) |
| $\hat{u}_{it-1}$ | -0.7826 |
| | (0.0000)* |
| Adjusted R-Square | 0.4500 |
| DW Statistics | 1.9554 |
| F-Statistics | 14.75 |
| Prob(F-Statistics) | (0.0000) |

*Source*: Authors' estimation.

## *5. Robustness of Results*

We checked the robustness of our results by adding different control variables in this section the findings are reported in Table 12. Since we have a limited set of information, we added control variables one-by-one into our baseline model to assess the robustness of baseline findings. This approach allows us to do robustness analysis without much loss of a degree of freedom. This approach of robustness has been widely used in the empirical literature. We added fiscal policy variable then subsequently we added inflation, the trade openness and foreign direct investment variables. The results of our models show consistent sign and significant estimates throughout the specifications. Model 04 provided in Table 12 shows the insignificant result of squared term of democracy; otherwise, all our variables are showing the statistically significant impact of our focused variables on economic growth.

Model 01 provided in Table 12 is our baseline model of democracy-growth nexus; the empirical findings suggest that there is a non-linear relationship between democracy and economic growth. In Model 02, we added fiscal policy variable (general government consumptions).We found that the relationship of our baseline model is sustained while in addition, we found that government consumption has a negative impact on economic growth. In Model 03, we added inflation to our baseline model and found that the relationship between democracy and growth is still maintained. Through this model, it is found that inflation has a negative impact on economic growth [Majeed and Malik (2016)]. Moreover, in Model 04, on the inclusion of trade openness variable into the baseline model, signs of democracy and squared democracy are consistent, but the square term of democracy becomes statistically insignificant. The results in Model 04 show that trade openness have a negative impact on economic growth. This result is surprising but Huchet-Bourdon, et al. (2011) find that trade openness retards growth in countries which specializes in a low-quality product. In the light of findings given by Huchet-Bourdon, et al. (2011), the result is entirely justifiable in our case because our selected South Asian countries mostly export intermediate goods. Similarly, Majeed (2016) provides evidence that trade reduces economic growth in the presence of high-income inequalities. Since the region of South Asia exhibits a high incident of poverty and inequality, the negative growth impact of trade is an expected outcome. In Model 05, we have added a foreign direct investment variable into our baseline model. Model 05 predicts that foreign direct investment has a negative impact on economic growth. Although it is ambiguous to explain the reasons for this result as argued by Sachs and Warner (2001), extractive industries are harmful to economic growth. Therefore, if FDI inflows are provided to those industries, it will kind of 'resource curse'.

It can be seen that one-by-one inclusion of statistically significant variables to the baseline model increases the value of Adjusted R-square in comparison to the value of baseline adjusted R-square. The results of the estimated models provided in Table 12 can be summarized by the statement that our results of democracy-growth nexus are robust.

### *6. Granger Causality Tests*

In addition to regression results, this section provides results of Granger causality test. Although these results are not instrumental to tell about endogeneity problem-more

**TABLE 12**

Robustness Check for Democracy-Growth Nexus

| Dependent Variable | Model 01 | Model 02 | Model 03 | Model 04 | Model 05 |
|---|---|---|---|---|---|
| | $(\dot{Y})$ (Baseline model) | $(\dot{Y})$(Inc. FP variables) | $(\dot{Y})$ (Inc. Inflation) | $(\dot{Y})$ (Inc. Trade openness) | $(\dot{Y})$ (Inc. FDI) |
| Constant | -8.7935 | -9.3067 | -8.3774 | -8.4352 | -8.9652 |
| | (0.0000)* | (0.0000)* | (0.0001)* | (0.0000)* | (0.0000)* |
| (I/Y) | 0.2545 | 0.2576 | 0.2496 | 0.28178 | 0.2617 |
| | (0.0000)* | (0.0000)* | (0.0000)* | (0.0000)* | (0.0000)* |
| $\dot{L}$ | 0.9139 | 1.0673 | 0.8765 | 0.7724 | 1.0105 |
| | (0.0218)** | (0.0119)** | (0.0272)** | (0.0203)** | (0.0008)* |
| H | 1.9983 | 2.5635 | 2.0823 | 2.5703 | 1.981 |
| | (0.0000)* | (0.0001)* | (0.0000)* | (0.0000)* | (0.0000)* |
| Demo | -0.0993 | -0.1036 | -0.0869 | -0.094 | -0.0957 |
| | (0.0196)** | (0.0153)** | (0.0379)** | (0.0335)** | (0.0336)** |
| $Demo^2$ | 0.0222 | 0.0308 | 0.0217 | 0.0142 | 0.0198 |
| | (0.0702)*** | (0.0198)** | (0.0795)** | -0.2033 | (0.0925)*** |
| G | -- | -0.133 | -- | -- | -- |
| | | (0.0346)** | | | |
| INF | -- | -- | -0.0564 | -- | -- |
| | | | (0.1599) | | |
| TO | -- | -- | -- | -0.0371 | -- |
| | | | | (0.0190)** | |
| FDI | -- | -- | -- | -- | -0.0223 |
| | | | | | (0.9558) |
| Adjusted -R Square | 0.4643 | 0.5125 | 0.5026 | 0.4934 | 0.4952 |
| DW Statistics | 1.494 | 1.564 | 1.512 | 1.608 | 1.501 |
| F-Statistics | 16.42 | 14.54 | 13.98 | 15.45 | 13.41 |
| Prob(F-Statistics) | (0.0000)* | (0.0000)* | (0.0000)* | (0.0000)* | (0.0000)* |

*Source*: Authors' estimation.
*, **, *** represent that parameter is significant at the 1%, 5% and 10% level of significance respectively.

specifically reverse causality, these are important in many aspects. The results in Table 13 show that both Null Hypothesis has been rejected (i.e., Prob. value for both hypothesis is greater than 10 per cent level of significance) which means democracy causes economic growth, and economic growth also causes democracy. These results confirm theoretical explanations of Lipset (1959) about reverse causality among democracy and economic growth. As discussed above, technically, these results do not directly refer to the problem of endogeneity. Furthermore, the empirical strategy we followed is silence on the remedy of endogeneity but in a broader perspective, it fixes problems related to panels with less cross-sections. In this trade-off, we chose to address latter issues at the cost of the former. However, we also estimate the results by utilizing Panel FMOLS, which accounts for concerns of endogeneity. These results are provided in the Appendix. The results are broadly similar to our baseline results.

**TABLE 13**

Pair wise Granger Causality Tests

| Null Hupothesis | F-Statistics | Prob. |
|---|---|---|
| Democracy does not Granger Cause Income | 0.7922 | 0.4562 |
| Income does not Granger Cause Democracy | 1.6282 | 0.2023 |

*Source*: Authors' estimation.

## VII. Conclusion and Policy Recommendation

This study examines one of the basic yet important issues of whether political institutions (i.e., democracy) have their role in explaining the economic growth of the nations. We empirically analyzed and answered this question for selected South Asian region. Since the whole region shares similar historical and institutional background, therefore results of our regression analysis are more reliable. We used a Solow-type growth model developed by Gounder (2002) with an additional variable for human capital. We exploited relatively newer econometric techniques for estimations of our long-run as well as short-run results.

Our results suggest that political institutions of South Asian region are extractive i.e., democracy contributes negatively to the economic growth of the nation at primary transitional periods, but with the passage of time, democracy encourages economic growth. This non-linear relationship between democracy and economic growth is not surprising. Since when there is the transition towards democracy, lot of peculiarities such as, conflict of interest of politicians, rent-seeking activities and other related irregularities may be examined in the behaviour of politicians who are part of this democratic setting. Gradually, politicians become more visionary, denouncing their

monetary benefits in favour of reputation, satisfaction and pride they get by serving their countrymen. Likewise, people become more politically aware, which subsequently demises the incentives of politicians to extract revenues from society. Our result is robust to different specifications.

### *1. Policy Implications*

Since our results suggest that the nature of political institutions is extractive, most of the time, politicians seek rents from the economy without effectively contributing. Politicians favour policies which they think can provide them monetary benefits. This situation is alarming for the sustainability of economic growth as well as, for inter-regional inequality. The region needs a transparent and unbiased political system. If the region could not be able to build inclusive political institutions instantly, the growth which the region has achieved in the past three decades will be reversed. So, the only way to sustain the growth trajectory is to work on the political participation process and include masses into the political process.

### *2. Limitation of the Study*

Acemoglu, et al. (2008) evoked that there can be omitted variable bias in growth regression as we do not control variables which are country-specific and time-invariant such as history, culture, social capital, and religion etc. In this study, for estimation of our growth model, our whole emphasis was on time series econometric techniques and we have not argued about suspicion of endogeneity problem, which is continuously being referred in previous research on political institutions and economic growth. Similarly, the econometric analyses being used in the study do not add to any substantive explanations as to why countries have divergence among them, and how the trajectory of the countries changes as a result of an institutional change. Therefore, one can fill this gap by emphasizing specifically on endogeneity and by addressing the individual countries to understand how and why the difference prevails among the countries. In addition, indices used to measure the level of democracy are also been subject to criticism from time to time on the foundation of their methodology. One can have a closer look on methodological foundations of these indices and transform them into indices which perfectly explain the ground realities. Furthermore, due to the data limitation, this study is unable to document empirically the channels through which democracy can promote or hinder economic growth. Future researchers can exert efforts to empirically document various channels through which democracy can promote or hinder economic growth. Still, this investigation is subject to data availability, especially in cross-country dimensions.

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## APPENDIX-A

**TABLE A-1**

Results of Panel Fully Modified Least Squares (FMOLS)

| Dependent Variable | Model 01 | Model 02 | Model 03 | Model 04 | Model 05 |
|---|---|---|---|---|---|
| | $(\dot{Y})$ (Baseline model) | $(\dot{Y})$ (Inc. FP variables) | $(\dot{Y})$ (Inc. Inflation) | $(\dot{Y})$ (Inc. Trade openness) | $(\dot{Y})$ (Inc. FDI) |
| (I/Y) | 0.3808 | 0.3695 | 0.3964 | 0.3567 | 0.3241 |
| | (0.0003)* | (0.0006)* | (0.0009)* | (0.0012)** | (0.0044)* |
| $\dot{L}$ | 0.7654 | 0.5881 | 0.7554 | 0.7131 | 0.8802 |
| | (0.0000)* | (0.0000)* | (0.0000)* | (0.0000)* | (0.0000)* |
| H | 2.2313 | 1.4703 | 2.3399 | 2.0124 | 2.1258 |
| | (0.0000)* | (0.0000)* | (0.0000)* | (0.0000)* | (0.0000)* |
| Demo | -0.1511 | -0.1588 | -0.1628 | -0.0708 | -0.1327 |
| | (0.0388)** | (0.0319)** | (0.0486)** | (0.4756) | (0.0949)*** |
| $Demo^2$ | -0.0222 | -0.0114 | -0.0046 | -0.1016 | -0.0308 |
| | (0.7742) | (0.8909) | (0.9704) | (0.2844) | (0.6939) |
| G | -- | 0.1552 | -- | -- | -- |
| | | (0.0005)* | | | |
| INF | -- | -- | 0.0035 | -- | -- |
| | | | (0.9686) | | |
| TO | -- | -- | -- | -0.1276 | -- |
| | | | | (0.1988) | |
| FDI | -- | -- | -- | -- | -0.2609 |
| | | | | | (0.0294)** |
| Adjusted R-Square | 0.4704 | 0.4522 | 0.438 | 0.0463 | 0.4854 |
| Long - run variance | 1.1471 | 1.1215 | 1.0967 | 0.8472 | 1.0404 |

*Source*: Authors' estimation.
*, **, *** represent that parameter is significant at the 1%, 5% and 10% level of significance respectively.
Long-run covariance estimates (Bartlett kernel, Newey-West fixed bandwidth)

**TABLE A-2**

Different Dimensions of Polity IV Index and their Weight Ages

| Authority Coding | Scale Weight |
|---|---|
| Competitiveness of Executive Recruitment (XRCOMP) | |
| (3) Election | +2 |
| (2) Transitional | +1 |
| Competitiveness of Executive Recruitment (XROPEN): Only if XRCOMP is Election (3) or Transitional (2) | |
| (3) Dual/election | +1 |
| (4) Election | +1 |
| Constraints on Chief Executive (XCONS): | |
| (7) Executive Parity or subordination | +4 |
| (6) Intermediate category | +3 |
| (5) Substantial limitations | +2 |
| (4) Intermediate category | +1 |
| Competitiveness of Political Participation(PARCOMP): | |
| (5) Competitive | +3 |
| (4) Transitional | +2 |
| (3) Fractional | +1 |

*Source*: Polity IV Project Dataset Users' Manual.