Better quality of education in Asia: Taking panel data of state legitimacy, democracy and public services

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Abstract

The key purpose of this study is to analyse the impact of legitimacy, public services, and democracy on the quality of education in the selected Asian economies like India, Pakistan, Malaysia, Indonesia, Afghanistan, China, Nepal, Bangladesh, Turkey, and Saudi Arabia. The data was collected from various sources like world bank, word economic forum, as well as transparency international. The analysis was performed by using EViews and various statistical tests were also applied in order to analyse the trends in data and the relationship between the study variables as well. The results of ARLD test showed that all three dependent variables were significantly associated with the quality of education. Literacy rate was correlated with the rise in quality of education in the long run, as well as the short run. Population growth also showed a rise in quality of education in the long run but not in the short run. Only state democracy showed positive association in the long run but showed no association in the short run. Various limitations in the form of study variables, data analysis, and methods were associated with the current study. Future studies are highly recommended to address these gaps for better implications.

Keywords: Asia; Democracy; Public Services; Quality of Education; State Legitimacy
1. Introduction

Quality education plays a fundamental role in tapping the full potential of human resource of the country that has valuable technical skills (Agha & ElDaou, 2018; Dibra & Strica, 2019). The rising importance of education quality in Asia has turned the debate from the access to education to provision of quality education. The challenges in the education system of Asia are emanated from the low quality of education which is equivalent to no education at all. There is little argument on the fact that poor standards of education are tantamount to merely fulfilling the formality of provision of basic education to the child. Quality education employs human capital with technical skills which has a significant impact on the sustainable development and economic growth of the country (Yunani et al., 2020). High-end human capital has higher return than low-end human capital (Faggian, Modrego, & McCann, 2019; Fitzsimons, 2017; Pelinescu, 2015). Different theoretical and empirical studies have explored the channels through which government positively affects the quality of education. They include technical training of teachers, R&D, and financial assistance (Hopkins, 2015; Howard, 2018; Qayyum, Zipf, Gungor, & Dillon, 2019; Mola & Kelkay, 2020).

![Figure 1: Democracy and Education](image)

Literature on educational quality presents various theoretical and empirical studies which discussed different quality assessment theoretical model to improve the education quality. Noaman, Ragab, Madbouly, Khedra, and Fayoumi (2017) also developed the theoretical model for assessing the education quality of university which includes e-learning as an important quality indicator for education. Moreover, different model that can improve the quality of education, such as provision of technical training to teachers, provision of basic infrastructure, adoption of e-learning have been tested (Arkorful & Abaidoo, 2015; Azeiteiro, Bacelar-Nicolau, Caetano, & Caeiro, 2015; King & Boyatt, 2015; Brichier-colombi, 2020; Grajetzki, 2020). The adoption of e-learning in education is meant to support teachers’ and students’ access to learning materials. However, procrastination in adopting the latest learning techniques is mainly spurt from the lack of legitimacy, control, and regulations in education system (Baharuddin & Dalle, 2019; Aragones-jerico & Vila-lopez, 2020; Carolina-paludo et al., 2020). For this purpose, we have explored the literature on the impact of government quality variables such as democracy, state legitimacy and public service on the education quality.

1.1 Educational quality and State legitimacy
State legitimacy assures the strict compliance of rules and regulation in the State (Yusif, 2020). It refers to good governance, compliance of rules and regulation, and practice of democratic rights. The prevalence of state legitimacy assures the strict compliance of rules and regulation and laws and order. State legitimacy assures that all policy decisions are executed under the light of law and regulations (Tran, 2018; Silva & Alves, 2019). Same is perceived for the education system in state legitimacy that the policy decision for education will be in the best interest of the education quality of the state. Furthermore, the State legitimacy will assure the credibility and accountability of the government. Government in state legitimacy is accountable for every decision taken in different sphere including education (Tomczyk, Łukasz, Martins, Eliseo, Silveira, Amato & Stošić, 2020). Mbiti (2016) mentioned in his study that in spite of increasing enrolment rate, the quality standards of education in developing countries cannot be uplifted due to lack of accountability in education. Moreover, the state legitimacy will also indirectly facilitate the diffusion of quality education to masses through the channel of democracy. State legitimacy has both direct and indirect impact on the education policy of the State because the correlation between the State legitimacy and democratic practice in the country is also supported by the various studies in the literature (Van Beek, 2018; Yang & Zhao, 2015). State legitimacy by provision of democratic rights will contribute to designing the policy for education which in the best interest of the students. Hence, in the light of above discussion we can generate the following hypothesis:

**H1:** There exists a significant impact of state legitimacy on quality of education in Asia.

1.2 **Educational quality and Democracy**

Rule of democracy is an indicator of good governance in the country, which also promotes the quality of education. The democratic rule of government is the government of majority which takes the policy initiative for the betterment of society. Biesta (2015) also illustrates in his book that education quality is widespread in the age of democracy and politics. In his study, he focused on democracy, ethics, and politics as a factors of education quality of the country. Democracy, by promoting the democratic and political rights of the people, attempts to provide quality education that is needed for strengthening the rule of democracy. Higgins and Coffield (2016)in their book paid tribute to Dewey's contribution in building the relationship between democracy and education. Fortunato and Panizza (2015) empirically explored the interaction between the democracy and quality of education by employing cross-sectional panel data. The index of democracy has been taken from the freedom house which has positive correlation with quality of education. The empirical findings of the study also confirmed the positive linkages between democracy and education quality in the country. However, there are few studies which do not support the significant role of democracy in promoting the quality education. Dahlum and Knutsen (2017) investigated the link between democracy and education by conducting empirical research. The study employed the panel dataset of 128 countries from 1965 to 2016 to test the hypothesis: Democracy provides education access to relatively more students than autocracies. In addition, the study also explored the positive relationship between democracy, better learning and technical skills of students. The empirical findings of the study inferred that democracy did not have a significant association with the provision of quality education. Hence, the study concluded that democracy did not significantly offer better education than autocracy. According to Belcastro (2015) the democratic legislation in USA has jeopardized the education quality by slandering the voice of teachers and truncating the curriculum to commensurate with corporate measurement. There are mixed views from researchers with regards to association of democracy and education quality. Hence, on the basis of the above literature we can construct the following hypothesis:

**H2:** A significant impact of democracy on quality of education in Asia exists.
1.3 Education Quality and Public Services

The public services refer to the provision of basic services to the people living in a particular jurisdiction, by the government. Public service is the nonexclusive public goods which is provided to all member of society regardless of caste, ethics, income, and mental and physical abilities. Public services also aim to serve the education system of the state by spending on education. Diffusion of public services in education raises the quality of education by providing equal opportunity to all strata of population without any discrimination. Public services are also proxyed by the public spending on education which is relatively higher in OCED and European countries than Asian economies. Kundu (2017) conducted an empirical research to find the long-term relationship between effectiveness of public services in education and quality education in India. For this purpose, the study employed the time series data and cointegration model (Johansen cointegration test) to explore the long run relationship between public services and education quality. The empirical findings of the study also support the presence of cointegration relationship between public services and education quality. Therefore, in the light of aforementioned studies in literature we can build our hypothesis as follow:

H3: There is a significant impact of public service in education on quality of education.

In the literature, hardly any study has been found which has explained the quality of education by controlling the impact state legitimacy, democracy, and public services.

This study aims to probe the various channels which intervene in ameliorating the poor education quality of the country such as state legitimacy, democracy, and public services. Along with the traditional factors of quality education, state legitimacy and regulations in education also contribute to checking the quality control of education. Moreover, the state legitimacy may have a two-way causality with quality education because the latter also strengthens the state legitimacy and compliance of regulation. Fayolle, Verzat, and Wapshott (2016) explained in their manuscript that education research by entrepreneurs strive for legitimacy and regulations to overcome the complexities in the field (Anser, Zhang, & Kanwal, 2018; Gong & Yi, 2018; Olasupo & Idemudia, 2017; Tight, 2019). Moreover, democracy may also have the considerable impact on the provision of quality education to the masses because it is the government of majority with least exploitation. Ideologically, democracy connotes the provision of equitable basic opportunities to people without discriminating on the basis of wealth position, language, and caste. Another channel through which government may also raise the quality of education is the provision of public services in education system (Bassok, Fitzpatrick, Greenberg, & Loeb, 2016; Hampton, 1993; Odhiambo, 2011; Abadia Alvarado & De la Rica, 2020; Bibi, 2020; ). Governments through optimal provision of public services and public spending in education system, may raise the standards of education in the state (Haddad, Freguglia, & Gomes, 2017; Gultom et al., 2020; Abdi Zarrin et al., 2020; Abulela & Davenport, 2020; Adewumi, 2020; Antoni, Saayman & Vosloo, 2020).

Without improving the quality of education, optimal level of technical skills and human capital is hard to attain. Consequently, it will obstruct the sustainable development of the State (Pelinescu, 2015; Tyndorfjr & Glass, 2017; Altouny, 2020; Dialisa & Govender, 2020; Antoni et al., 2020; Berejena et al., 2020). Moreover, no study has employed the multivariate regression model to explain quality education in Asia (Patrinos, 1990; Pfeffer, 2015; Zeichner & Conklin, 2017). Our study aims to fill the gap in the literature of quality education by explaining it empirically with state legitimacy, democracy, and public services. Novelty of this study is that it has employed panel data technique to control the time wise and cross section wise variation in data. Moreover, the study adds to the empirical literature of quality education by explaining it with government quality variables. Based on the above discussion, following objectives are under consideration:
To analyse and examine the impact of State legitimacy on quality education in Asia.
To analyse and examine the role of Democracy in education quality of Asia
To analyse and examine the effect of Public service on quality education in Asia

2. Materials and methods

2.1 Data collection

This study investigates the relationship between better quality of education with three different factors like state legitimacy, democracy, and public services. Data was collected regarding these factors in the span of 28 years before 2019. Ten countries included in the study are Pakistan, India, Malaysia, Indonesia, China, Afghanistan, Nepal, Bangladesh, Turkey, and Saudi Arabia. The data regarding the dependent variables were collected from various sources like world bank, transparency international and world economic forums as well. The collection of the data was accompanied with the units of the variables of the factors.

2.2 Modelling

After the collection of the data, analysis was performed. The data comprised of one independent variable and two control and dependent variables. There was one dependent variable that is quality of education and other three dependent variables were state Legitimacy, democracy, and public services. Additionally, to compare the results of our study a set of controls were also included. These control variables included literacy rate and per capita income. The measurement units were also included in the study based on their own factors. The unit for measuring the quality of the education is the student and teachers’ satisfaction about the education standard and availability (Isik & Jallad, 2019). State legitimacy includes the percentage of application of the policies and rules of the government. Democracy is measured by the percentage of the freedom of expression in the educational sector and the right to choose the relevant course in the country. Public services include the number of services like availability of the library, managing the funding for the research purposes and ensuring the health of the population (Tasar, 2019). The population count is done in numbers. The measurements of control variables were also included in the study. The control variable is literacy rate, and it is measured by the number of the people who can ‘read and write’ their names in the country. Other control variable includes the population growth of the country, which is measured by the increase in the population each year.

\[ QE_{it} = \beta + \beta_1 SL_{it} + \beta_2 SD_{it} + \beta_3 PS_{it} + \beta_4 LR_{it} + \beta_5 PG_{it} + \epsilon_{it} \]

In the above given equation, QE represents the term quality of education, SL represents state legitimacy, SD represents state democracy, PS represents public service, PG represents population growth, LR represents literacy rate and \( \epsilon_{it} \) represents error terms. The model after log form can be presented in the below equation.

\[ \ln QE_{it} = \beta + \beta_1 \ln SL_{it} + \beta_2 \ln SD_{it} + \beta_3 \ln PS_{it} + \beta_4 \ln LR_{it} + \beta_5 \ln PG_{it} + \epsilon_{it} \]

2.3 Analysis of the data

Various tests have been applied in order to analyse the study data for which details are given below:

2.3.1 Panel unit root test
A panel unit root analysis was the first tool used for this study to evaluate and investigate the collected data. This experiment was designed to determine the order of integration and to see if data is stationary (null hypothesis). Levin–Lin–Chu (2002), Im–Pesaran–Shin (2003), and Fisher-type (Choi., 2001) are commonly used for the analysis. Conventional test lacks the ability to resolve the power and the size of the collected data. These issues are addressed by the panel unit root test. The standard distribution graphs provided by both tests are the same. In this study LLC test of the panel unit root is applied as it gives homogeneous autoregressive process, whereas heterogeneous autoregressive process is done in the IPS test. In LLC root test basically two hypotheses are made called null and alternate hypothesis. The null hypothesis is that the data included in the study is non-stationary. This non-stationary data is due to the presence of the unit root. The alternate hypothesis on the other hand concludes that data is stationary. And the unit root is present in the data.

Another test applied with the LLC is the ADF known as Augmented Dickey Fuller Test. It is also used to check if the data is stationary or not. The null hypothesis in ADF is that unit root is present in our data. Whereas alternate hypothesis signifies that our time series is stationary. The null hypothesis is that our independent variable has no cointegrated relationship with the dependent variables. Two other approaches with the dependent variables.

Whereas alternate hypothesis signifies that our independent variable has a cointegrated relationship. In this test null and alternate hypothesis are made. Call hypothesis is that our independent variable has no cointegrated relationship with the dependent variables. Two other approaches used in this test are referenced from Kao and Pedroni (1954). The dimensions are checked through these approaches and conclusion regarding null and alternate hypothesis are made according to the result of these approaches.

### 2.3.2 Cointegration test

The next test the author uses in this analysis is the Panel cointegration test. The fundamental purpose of using this particular test is to confirm the occurrence of any co-integrated and long-term equilibrium relationships between variables. In this test null and alternate hypothesis are also made. The null hypothesis in panel cointegration test is that our independent variable has no cointegrated relationship with the dependent variables. Whereas the alternate hypothesis is that our independent variable has cointegrated relationship with the dependent variables. Two other approaches used in this test are ARDL type (Choi 2001) and Fisher type. The dimensions are checked through these approaches and conclusion regarding null and alternate hypothesis are made according to the result of these approaches.

### 2.3.3 ARDL Test

Unit test identifies the order of the series and cointegration of the series is determined by the panel ARDL test (Pesaran, Shin, & Smith, 2001). The conventional cointegration tests are not flexible like ARDL tests. Pesaran et al. (2001) stated that the advantage of the panel ARDL test over the conventional test is that the panel ARDL test can work for small data size. By keeping the lag length optimal, the relationship of the log-run is calculated in this test. Two types of tests are used in this test; Wald test and F test, which is used to analyse the relationship of the variables.

\[
\Delta \ln QE_t = \beta_0 + \sum_{l=0}^{p} \beta_l \Delta \ln QE_{t-l} + \sum_{l=0}^{q} \beta_k \Delta \ln SL_{t-q} + \sum_{l=0}^{r} \beta_t \Delta \ln SD_{t-r} + \sum_{l=0}^{s} \beta_l \Delta \ln PS_{t-s} \\
+ \sum_{l=0}^{u} \beta_l \Delta \ln LR_{t-u} + \sum_{l=0}^{v} \beta_t \Delta \ln PG_{t-v} + \pi_Q \ln QE_{T-1} + \pi_S \ln SL_{T-1} + \pi_L \ln LR_{T-1} + \pi_P \ln PG_{T-1} + \nu_t
\]
In this equation the $v_t$ accounts for the error term and $\Delta$ represents the short. Wald test is always used for analysis when short run is more than 1. The short run difference of variables is zero in the short run. When (Pesaran et al., 2001) is used then the F-statistics value will compare the $I(0)$ and $I(1)$.

3. Results

To analyse any data of mixed integration, the ARDL test can be used. However, it cannot be applied unless the data is not in $I(2)$ series. To analyse this integration panel unit root test, ADF and LLC test are applied using intercept. After these tests are applied, then the analysis with trend and incept are conducted. This trend is with level and difference.

3.1 ADF and LLC unit roots

The study findings as provided under Table 1 reflects the fact that all the variables except population growth and quality of education have unit root and the data is non-stationary. But after applying the log the data became stationary as shown by the first differentiation series in both ADF and LLC test.

<table>
<thead>
<tr>
<th>Constructs</th>
<th>ADF Test</th>
<th>LLC Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>SL</td>
<td>1.104</td>
<td>-2.329*</td>
</tr>
<tr>
<td>SD</td>
<td>0.261</td>
<td>-3.494</td>
</tr>
<tr>
<td>PS</td>
<td>0.954</td>
<td>-6.334</td>
</tr>
<tr>
<td>PG</td>
<td>4.361*</td>
<td>-4.300*</td>
</tr>
<tr>
<td>LR</td>
<td>2.397</td>
<td>-8.209</td>
</tr>
<tr>
<td>QE</td>
<td>6.287*</td>
<td>-8.298**</td>
</tr>
</tbody>
</table>

3.2 Cointegration test

The findings for the cointegration test are provided under Table 2. According to the results shown in the tables, the F-statistics 24.1 have exceeded the upper bound CV. This value rejects the null hypothesis of cointegration. Whereas the LBCV at 1 percent is 2.83 and UBCV at 1 percent is 5.77 and 4.20 at 10 percent.

<table>
<thead>
<tr>
<th>O.P.L. length (A.I.C)</th>
<th>F-Stat. (Bound Test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2,0,1,0,1,0)</td>
<td>24.0921***</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>V.C</th>
<th>1%</th>
<th>5%</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>L.B.C.V.</td>
<td>2.83</td>
<td>2.14</td>
<td>1.97</td>
</tr>
<tr>
<td>U.B.C.V.</td>
<td>5.77</td>
<td>5.01</td>
<td>4.20</td>
</tr>
</tbody>
</table>

3.3 Panel ARDL Estimation

The results of ARDL test and its long and short run relationship are shown in table 3.1 and 3.2. the relationship of the quality of education in the long run results showed a positive and significant
association. Our results showed that state legitimacy caused the rise in quality of education by 21%, state democracy rose the quality of education by 19.3%, and public services raised the quality of education by 18.3%. Population growth and literacy rate gave rise to quality of education in the long run by 28%. This shows the positive impact of the long run of our variables on the quality of education. In short run relationship, only state legitimacy (SL), public services (PS) and literacy rate (LR) showed the positive association with our independent variable that is quality of education. The presence of state legitimacy in short run raise the quality of education by 39.92%, public services give rise to the quality of education by 24.98% and literacy rate give rise to the quality of education by 29.44%. Our controls including the population growth have 28.4% and literacy rate have 28.7% impact on the rise of quality of education in the long run. Whereas population growth in short run have no impact on quality of education. Literacy rate raised the quality of the education by 18.7%.

### Table 3.1 ARDL Estimation in long run

<table>
<thead>
<tr>
<th>Findings in L.R</th>
<th></th>
<th></th>
<th>Summary &amp; Diagnostic Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>QE</td>
<td>2.732***</td>
<td>t-value</td>
<td>R²</td>
</tr>
<tr>
<td>QE (-1)</td>
<td>1.478</td>
<td>-</td>
<td>Adj. R²</td>
</tr>
<tr>
<td>QE (-2)</td>
<td>1.298***</td>
<td>-</td>
<td>D.W.</td>
</tr>
<tr>
<td>SL</td>
<td>0.210</td>
<td>3.283***</td>
<td>X²SC</td>
</tr>
<tr>
<td>SD</td>
<td>0.193</td>
<td>2.023**</td>
<td>X²W</td>
</tr>
<tr>
<td>PS</td>
<td>0.183</td>
<td>2.474**</td>
<td>X²AR</td>
</tr>
<tr>
<td>PG</td>
<td>0.284</td>
<td>4.246**</td>
<td></td>
</tr>
<tr>
<td>LR</td>
<td>0.287</td>
<td>3.387**</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>0.875</td>
<td>4.482***</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** L.R= long run

<table>
<thead>
<tr>
<th>Findings in S.R</th>
<th></th>
<th></th>
<th>Summary &amp; Diagnostic Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>SL</td>
<td>0.227</td>
<td>3.992***</td>
<td>R²</td>
</tr>
<tr>
<td>SD</td>
<td>0.103</td>
<td>1.754</td>
<td>Adj. R²</td>
</tr>
<tr>
<td>PS</td>
<td>0.223</td>
<td>2.498**</td>
<td>X²SC</td>
</tr>
<tr>
<td>PG</td>
<td>0.014</td>
<td>1.037</td>
<td>X²W</td>
</tr>
<tr>
<td>LR</td>
<td>0.187</td>
<td>2.944**</td>
<td>X²AR</td>
</tr>
</tbody>
</table>

**Note:** S.R= short run.

4. **Findings and Discussion**

4.1 Discussion

Our study proves this hypothesis that the presence of state legitimacy has a positive impact on the quality of the education. The results are in accordance with the assertions of Katz, 2008; Van Zanten & Maxwell, 2015; Yang & Zhao, 2015, that the implementation of state legitimacy will have a positive impact on the quality of the education. Our second hypothesis was state democracy has a significant impact on the quality of education. The results are in accordance with that of Biesta, 2015; Fortunato & Panizza, 2015; Reid & Filby, 2018, who suggested that state democracy has a positive influence with the quality of education. Our study shows that state democracy has a positive impact on the quality of education in the long run but not in the short run. Our third hypothesis was that the public services have significant impact on the quality of education. Our study showed that in both long and short run, public service has positive
impact on the quality of the education. Aaberge, Langørgen, & Lindgren, 2017; Agostino & Arnaboldi, 2017, also suggest better public services mean better quality education in any region.

State legitimacy increases quality of education as in the absence of it, higher educational institutions will make more profit and have low quality of education. If the state legitimacy prevails in a country, the government will be able to regulate these institutions and can bring better policies to the country (Cilek, 2019; Kelkay, Sahile, Mola & Yeshiwas, 2020). Democracy gives right to the students to study whatever they want, to get enrolled in whatever field they desire and can have their own point of view. Democracy empowers students and thus this will contribute to the quality of education. In any country the public services offered to the public increases the standard of life. In the same way, if scholarships and funds are given to the students and electricity is provided to the educational institution then the quality of the education can be improved.

5. Conclusion

In this study, we have examined the role of state legitimacy, democracy along with the growth of the population in order to analyse the trend in quality of education while collecting the data from Asian countries. Various tools and techniques are applied while examining the data through ADF, LLC, along with the ARDL and cointegration tests. The findings of the study indicate the fact that there is a positive influence of all the explanatory variables on the quality of education in the selected countries. Furthermore, the findings reveal that the variables like literacy rate and population growth are playing their role as control variables.

5.1 Limitation and implication

Various limitations are also associated with this study, for example, this study has only analysed the role of three variables like state legitimacy, public service, and democracy for the quality of education in the Asian economies only. Whereas the role of other macroeconomic dynamics is totally missed under the present study. Meanwhile, this study does not present the implication of some advanced models like GMM or fixed and random effects and therefore recommend it for upcoming studies. Meanwhile, this study is associated with the implication for the Asian economies where a big gap exists in the exploration of quality education, as compared to other developed and developing economies in terms of key indicators of quality education. Future studies are highly recommended to address these limitations for a bigger implication as well. Besides, in terms of its implications, this study has provided some good guidelines to various policy makers and government officials who can significantly use study findings.

References


