



Institutional Quality, Tertiary Education and Corruption; A Panel Study of Selected Lower Middle-Income Economies

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ABSTRACT

The study investigated the relationship between institutional quality, education, and corruption. By using the data of selected Asian low-middle-income countries from 2000 to 2021. Pedroni co-integration test to check the long-run relationship, FMOLS has been employed by the study. The study investigated the negative influence of institutional quality and the positive impact of education in institutions on corruption. It has been suggested that the policymakers should adopt such a policy that will reduce the corruption in the education system as corruption from the education system has been removed it will lead to a decrease the corruption from institutions.

Keywords: institutional quality, education, corruption, low middle income countries

1. Introduction

Corruption is harmful not because of the exchange of money and benefits or the motivations of the participants, but because it privatizes specific areas of public life by generating various arguments and difficulties.

The misuse of authority for one's own benefit is referred to as corruption. Inequality, poverty, social division, and environmental disaster are all exacerbated by corruption, which also erodes trust, threatens democracy, stifles economic growth, and does all of these things. Only when we comprehend how corruption functions and the systems that enable it can we expose it and hold corrupt individuals accountable (transparency international, 2023). This definition includes both active and passive corruption, such as official people who have a public function or provide a public service, people in charge of company management and administration, and people who initiate corrupt behavior. Many people have a misunderstanding about corruption. Some provide a sense so near to the phrase myth, bribe, and others every activity in life associated with corruption. Both perspectives are incorrect.

Corruption can affect any sector, including business, government, the courts, the media, and civil society, as well as individuals in politics, public service, and the private sector. This includes everything from infrastructure and sports to health and education. Two opposing perspectives on corruption "Grease the Wheel Hypothesis" and "Sand Wheel Hypothesis" are two examples. According to Leff (1964), "if the government has made a mistake, the course made possible by corruption may well be the better one" (Dreher and Gassebner, 2013; Keita and Laurila, 2016).

The general premise is that corruption allows advantageous deals that would not have occurred otherwise. It enhances efficiency by allowing individuals in the private sector to rectify many types of pre-existing government failures. According to Huntington (1968), "the only thing worse than a society with a strict, over-centralized, dishonest bureaucracy in terms of economic growth is a society with a rigid, over-centralized, honest bureaucracy" (Dreher and Gassebner, 2013). Corruption, according to the 'sand the wheels' concept, can be detrimental to economic activity (Mauro 1995; Rose-Ackerman 1999). In countries with weak institutions, private sector banks may not play a significant role in institutional development or may be pushed out by the government sector. Starting with the slow functioning of bureaucracy, the beneficial influence of corruption on slowness is based on the notion that a public employer can speed up a "exogenously" slow process. To gain the opportunity to demand a bribe, corrupt civil servants may cause delays that would not otherwise occur (Myrdal, 1968).

Corruption's overall impact on the quality of civil servants is questionable. Kurer (1993) contended that corrupt officers have an incentive to create additional economic distortions in order to sustain their illegal income. A civil servant, for instance, may be motivated to limit the availability of a public service simply so that he or she can decide who receives that service in exchange for a bribe. Similar to this, a civil servant has an incentive to restrict the access of new workers, especially those who are qualified, to important positions in order to protect the rent from corruption. While individual bribers may benefit from a perk, corruption gains nothing at the aggregate level.

Education, in theory, has an ambiguous effect on corruption participation. Education has been shown to reduce crime, incarceration, social cohesiveness, and civic responsibility (Heyneman, 2002/2003; Heyneman, 2008; Oreopoulos and Salvanes, 2009; Kaffenberger, 2012). All of these studies show that higher education levels should result in lower levels of corruption participation.

Rogers (2008) demonstrated an empirically more interesting set of theoretically intuitive causes/channels. He has proved that corruption, black market premiums, and the degree of brain drain are potential causes of education becoming unproductive and failing to produce the desired positive effect of human capital on growth in developing countries. He stated that human capital is important in the sample of low-corruption countries but has no influence on growth in the sample of high-corruption countries. We offer one possible explanation for the relationship between human capital and growth by explicitly incorporating corruption into a model of education, corruption, and economic growth.

However, better educated people are more likely to interact with public officers, increasing the opportunity for bribery. They are also more likely to have higher-paying jobs, which raises the value of bribery's ability to deliver reduced wait times for public services. Furthermore, many educational systems in poor nations are corrupt. Schoolchildren who must bribe to get good grades, bribe to progress to the next school level, and bribe to go into college may learn that corruption is the only way to advance in their culture. More time spent in such a schooling system may raise a person's tendency to bribe later in life (Kaffenberger, 2012).

Purpose of the study is to explore the influence of education and institutional quality on corruption in case of selected Lower middle-income economies. To our knowledge no such study has been done on this topic for these selected counties of study. This study explored the relationship among education, institutional quality and corruption.

2. LITERATURE REVIEW

Authors	Empirical Approach	Dependent Variables	Independent Variables	Sample Period	Findings
Ubi and Udah (2014)	Johansen co-integration & ECM	GDP	Corruption, Contract intensive money, capital stock and labour	1970-2012	Results show that corruption and institutional quality have a significant impact on economic performance of the country.
Asongu and Nwachukwu (2015)	Generalized Methods of Methods (GMM)	Corruption	Primary school enrolment, secondary school enrolment, Tertiary School Enrolment, <i>GDP growth, trade openness</i> and <i>inflation</i> .	1996-2010	There is evidence of an incremental effect in the transition from secondary to tertiary education and lifelong learning defined as knowledge acquired during primary, secondary and tertiary education negatively affects corruption.
Ojeka et al., (2019)	GMM	Firm performance	Corruption and institutional quality, CPI, FDI.	2012-2017	Corruption and institutional quality is negatively related to the market value and accounting value performance.
Erdoğdu et al., (2020)	Pooled OLS and Random effect model	GDP	Gross capital formation, population growth rate, total trade, govt. consumption expenditures, corruption index and school enrolment.	1999-2012	Findings show that the economic growth has been positively influenced by investment, population growth, openness of trade, and school enrolment.
Zakaria Fodol (2021)	OLS	Performance	Corruption, tax rate, average security cost	Nigerian enterprises Panel data for the years 2007, 2009, 2014.	The study found that bribe payments or gifts to get a water connection has positive impacts on enterprises' performance and significant.

Fomba et al., (2021)	OLS, Two stage least square	Education quality	GDP, public spending on education, income inequality, literacy rate, urbanization	2000-2017	Results show that institutional quality has a positive effect on student achievement and school completion, and a negative effect on educational failure.
Ozegbe et al. (2022)	ARDL	GDP	Corruption, institutional quality, gross fixed capital formation, govt. expenditures, human capital, working population growth rate and trade openness.	1970-2020	The study revealed that corruption-institutional quality interaction exerts negative and significant impact on economic performance.
Dang et al., (2022)	Fixed effect model & GLS	Shadow economy	Corruption, democracy, economic freedom, tax revenue, FDI, population growth and inflation.	2005-2017	According to the findings, corruption and institutional quality have both positive and negative effects on the shadow economy. Corruption and economic freedom interact negatively with the shadow economy.
Daria Pripitneva (2022)	ARDL ECM	Education expenditure	CPI, GDP, Urban population and school enrolment	2012-2020	The result of empirical analyses showed that corruption has no negative effect on education both in long and short-run term
Taylor et al., (2022)	System Dynamics model	Corruption	Bureaucratic quality, democratic accountability, secondary school enrolment, population, external competitiveness, government expenditure, lag of corruption	1996-2020	The model shows that appropriate allocation of resources could have the most significant impact on reversing the trend in the shortest amount of time.

3. DATA AND METHODOLOGY

The panel research data is collected from 2000 to 2021 and includes data from selected low-middle-income economies sourced from Transparency International, Global Consumption and Income Project, and World Governance Indicators.

Table 1. List of Selected Low Middle-Income Countries

Armenia	India	Mongolia	Tajikistan
Bangladesh	Indonesia	Pakistan	
Bhutan	Kyrgyz Republic	Philippines	
Cambodia	Lao PDR	Sri Lanka	

Following the analytic plan, the results section includes a summary of the data and analyses that were gathered. Including any unexpected findings, all results must be described.

3.1 Description of Variables

Table 2 summarises the data sources, and description of variables used in this study.

Table 2. Description of Variables

Variables	Description	Source
IQ	Institutional Quality	World Governace indicators
CORR	Corruption perception index	Transparency international
CPI	Consumer Price Index	WDI
ETE	Tertiary education	World bank
IQ*ETE	Interaction term	

IQ is the mean of six governance indicators that has been used as the proxy of institutional quality, CORR (corruption perception index) is used to measure corruption. CORR is measured on a zero-to-ten scale, with one representing the highly corrupt and ten the lowest, study first rescaled it. ETE is the enrolment in tertiary education and IQ*ETE is the interaction term used for higher education in institutions.

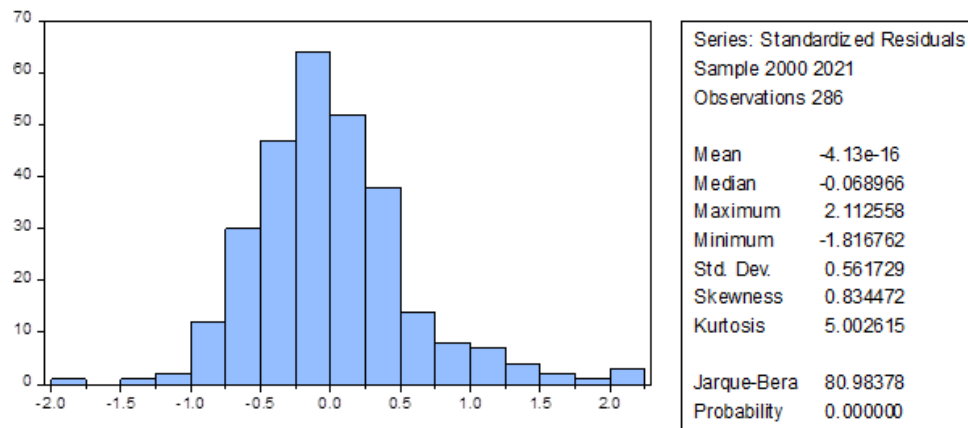
3.2 Descriptive statistics

Result of descriptive statistics are showing in the Table 3. Descriptive statistics showing the mean, median, maximum and minimum values of the variables.

Table 3. Descriptive Statistics

	CORR	IQ2	CPI	IQ2*LETE
Mean	3.084266	-6.71E-16	105.7121	-0.056769
Median	2.900000	0.309943	102.5000	2.024533
Maximum	6.800000	4.708933	219.0000	18.94335
Minimum	0.400000	-3.514276	28.30000	-18.00196
Observations	286	286	286	286

3.3 Normality test



Source; Author's own calculation

3.4 Research Model

$$CORR_{it} = \alpha_0 + \alpha_1 IQ_{it} + \alpha_2 IQ*LETE_{it} + \alpha_3 CPI_{it} + \varepsilon_{it}$$

CORR (corruption perception index) the dependent variable of model used as the corruption, α_0 intercept, IQ (institutional quality), IQ*LETE (Interaction term for Education in institution).

3.5 METHODS

3.5.1 Cross-sectional dependence test

According to Gengenbach et al. (2009), CSD is a specific issue that generally concerns the assessment of the long-run connection of the panel data set. The CSD problem arises when the one cross-section is influenced by those of other cross-sections. In this case, traditional approaches to CSD analysis are unreliable (Breusch and Pagan, 1980; Pesaran, 2015).

3.5.2 Hausman test

The Hausman test gives results for endogeneity in the panel model. The use of panel data has significant advantages over merely cross-sectional, but the specification of the model to be used is critical for generating consistent findings (Sheytanova, 2015).

3.5.3 Panel Co-integration test

Pedroni (1996) and Westerlund (1996) co-integration tests are used to investigate co-integration (2007). These co-integration tests should reveal whether or not a long-term link exists. Pedroni (1996) proposes seven distinct panel co-integration tests for determining the absence of co-integration. The study utilized both common AR coef. (With dimension) and common AR coef. (Between dimensions).

3.5.4 Fully Modified Ordinary Least Squares

The FMOLS approach, proposed by Phillips and Moon (1999) and Kao and Chiang (2000), are applied in the co-integrating equation estimations. These methods attempt to estimate long-run relationship between variables. OLS estimation in cointegration panel series data is inconsistent (Dreger & Reimers, 2005). While FMOLS resolves the endogeneity issue and gets rid of the small sample bias.

4. RESULTS AND DISCUSSION

4.1 Cross Sectional Dependence Test

CSD test confirms the cross-sectional dependence among variables as the table 4 is showing the significant results.

Table 4. CSD Test

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	224.0826	78	0.0000
Pesaran scaled LM	11.69597		0.0000

Source; Author's own calculation

4.2 Hausman Test

Table 5 is showing the results for Hausman which confirms the endogeneity in the data.

Table 5. Results of Hausman

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	26.878347	3	0.0000

Source; Author's own calculation

4.3 Panel Co-integration test

According to the results of the Padroni co-integration test, there is a long-run relationship among the variables.

Table 6. Results of Co-integration test

Alternative hypothesis: common AR coefs. (Within-dimension)				
			Weighted	
	Statistic	Prob.	Statistic	Prob.
Panel v-Statistic	1.150439	0.1250	-0.028113	0.5112
Panel rho-Statistic	-0.253416	0.4000	-0.356336	0.3608
Panel PP-Statistic	-2.782713	0.0027	-2.863279	0.0021
Panel ADF-Statistic	-2.338168	0.0097	-2.105243	0.0176

Alternative hypothesis: individual AR coefs. (Between-dimension)		
	Statistic	Prob.
Group rho-Statistic	1.282448	0.9002
Group PP-Statistic	-2.846731	0.0022
Group ADF-Statistic	-2.168954	0.0150

Source; Author's own calculation

4.4 Fully Modified Ordinary Least Squares

Table 8 illustrating the results of fully modified ordinary least square. Table shows in FMOLS results; the institutional quality has the significant negative impact on corruption. As institutional quality improve it will lead to decrease the corruption by 53 percent. The interaction term used as education in institutes has the significant positive impact on corruption. If education in institutions increase, it will lead to an increase in the corruption. Significant positive impact of inflation on corruption is investigated by the study.

Table 7. Results of FMOLS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IQ2	-0.537707	0.267394	-2.010916	0.0454
IQ2*LETE	0.155778	0.046691	3.336385	0.0010
CPI	0.007119	0.000858	8.299157	0.0000

Source; Author's own calculation

5. CONCLUSION AND POLICY RECOMENDATION

To investigate the impact of institutional quality, and education on corruption was the purpose of this study. Data from 2000-2021 has been employed by the study for lower middle-income countries. Study used the Gini index to measure the income inequality, average of six governance indicators from WGI has been used as the proxy of institutional quality, CPI from transparency international was the indication of corruption and civil liberty and economic freedom indexes are collected from freedom house.

Study checked for the cross-sectional dependence and moved to second generation unit root. After checking for the con-integration study employed the FMOL and DOLS techniques which indicates that as institutional quality improves it will lead to increase the corruption, and education also has the positive impact on corruption as the education increase the corruption will also increase.

Study suggested that to reduce the corruption in these countries the policymakers should have to adopt such policies from which corruption in education decrease as the corruption in educational institutes decrease it will improve the educational institutions. The school going children who learnt the corruption from the system when join the institution start doing corruption as they learnt and other educated left behind also seek to do corruption (for jobs, etc.) in better way as they are well familiar and know better ways to do corruption. Study also suggested that there is the need of further research to explore the influence of education and institutional quality on corruption.

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