Corruption, Violence, and the Rule of Law Affecting Regulatory Control: Forecast Evaluation

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Political challenges, unfairness, and dishonesty are the governing issues that need substantial reforms to improve the high regulatory quality standards. The study's objective is to examine the impact of corruption, violence, and the rule of law on Pakistan's regulatory control. The study used four forecasting techniques, i.e., Root Mean Square Error (RSER), Mean Absolute Error (MAE), Mean Absolute Percentage Error (MAPE), and Theil inequality coefficient, on the available data series from 1996–2019. The study first obtained the forecast factors of the stated variables by using the Vector Autoregressive (VAR) technique and then used these variables in the least-squares regression technique to obtain the forecast parameter estimates. The simulation results show that corruption, violence, and the rule of law would likely negatively affect the country's regulatory control. The ex-ante analysis shows that the corruption level increases sharply reaches its highest point, and becomes constant. The rule of law initially decreases and then begins to rise steeply. Regulatory control initially decreases and is likely to increase at a decreasing rate. Finally, political stability is likely to decrease over the time horizon. Innovation accounting matrix estimates show that corruption would likely change the country's regulatory control, followed by the rule of law and violence in the next ten years. The study is the first to explore the dynamics of governance indicators in an inter-temporal setting. The study concludes that the country should devise broad-based governance reform policies to eliminate the high incidence of corruption, violence, and injustice and move forward towards implementing regulatory control for sustained growth.

***Key words*:** Corruption; Violence; Rule of law; Regulatory control; Forecast evaluation; Pakistan.

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1. Introduction

World Bank group proposed six different governance indicators that could be widely used to assess the country's overall economic conditions regarding their level of corruption, violence, the rule of law, regulatory control, voice and accountability, and government effectiveness. The governance indicators fall in the range of –2,5 to +2,5. The negative values show that the countries poorly performed in their stated governance indicators, while positive values moving towards the threshold point show a progressive move towards the judicious distribution of resources. Like many developing countries, Pakistan's economy is no exception and remains negative in all of the stated governance indicators. Among the six indicators, Paki-

stan's economy weakly performed in the political stability and violence/terrorism indicators. As a result, it reached the bottom of the threshold value of –2,246, which nearly reached the –2,5 global index value. The high corruption level is the second most severe factor that shows a value of –0,847 in 2019. On the other hand, regulatory control comparatively performed well among the stated indicators and approached the zero value, likely to attain a positive index value in the subsequent years. Table 1 shows the estimates of the governance indicators of the Pakistan economy for ready reference.

Table 1.

Pakistan's governance indicators estimates (1996–2019)

Year	Control of Corruption	Government Effectiveness	Political Stability and Absence of Violence/ Terrorism	Regulatory Quality	Rule of Law	Voice and Accountability
1996	–1,220	–0,624	–1,124	–0,510	–0,625	–0,597
2000	–0,841	–0,597	–1,103	–0,760	–0,929	–1,220
2005	–1,053	–0,453	–1,754	–0,640	–0,890	–0,976
2010	–1,087	–0,766	–2,676	–0,597	–0,739	–0,799
2015	–0,811	–0,668	–2,483	–0,627	–0,767	–0,722
2019	–0,847	–0,677	–2,246	–0,644	–0,668	–0,843

Source: World Governance Indicators [WGI, 2020].

The earlier studies primarily worked on the stated topic and found some critical factors causing unsatisfactory performance of controlling corruption indicators in developed and developing countries, including Pakistan. For instance, Qureshi et al. (2021) examined the dynamic interactions among inbound FDI, corruption, and economic growth of 54 heterogeneous panels of countries using data from 1996–2018. The results show that control of corruption positively affects inbound FDI that attracts foreign investors to invest in a safe and healthy competitive project, leading to increased economic growth. The feedback relationship between corruption and economic growth was verified in a panel of developing countries, whereas corruption negatively causes economic growth of the developed countries. The study concludes that developing countries should improve institutional quality to reduce corruption, which helps secure more inbound FDI to support their economic functions. Nadeem et al. (2021) found that Pakistan's economic growth was severely affected by rising corruption, greater political instability, and meager educational reforms. The greater need for good governance reforms is highly desirable to control corruption and violence, which may be reduced by increasing educational expenditures in a country. Farooq et al. (2020) concluded that higher corruption estimates slow down the country's economic growth and substantially decrease financial development. Pakistan's economy required massive intervention in its economic policies to improve institutional quality and decrease corruption levels, which helps to improve financial development in a country. Mouna et al. (2020) collected data from 149 countries between 2012 and 2016 to examine the role of corruption on economic growth and innovation. The results show

that corruption impedes countries' economic growth with low levels of innovation. The innovation capabilities support the country's transparency in governance indicators to move forward in broad-based growth. Song et al. (2021) used a large panel of countries and a sophisticated period to evaluate corruption's direction and magnitude towards financial development. The results show that, on the one hand, a country's economic growth positively affects financial development. On the other hand, corruption impedes the channel of financial development through which money supply increases in economies. The governance indicators need to be improved through financial soundness and economically viable projects worldwide. The literature is widely available across different economic settings that confirmed the detrimental effects of growing corruption on economic growth worldwide, for instance: [Khan et al., 2020; Saha, Sen, 2020; Zouaoui et al., 2022; Zaman, 2015; Kiani et al., 2015; Choudhary et al., 2018; Thach, Ngoc, 2021; Haseeb, Azam, 2021].

Moreover, the following literature shows the directions of variables that influenced the regulatory quality. For instance, Han et al. (2014) conducted a cross-country analysis to find that higher quality of governance positively impacts economic performance that, helpful to lowering the corruption level across countries. Cooray and Dzhumashev (2018) studied a large panel of heterogeneous countries and found that corruption has a detrimental effect on labor market outcomes. However, when it moderates with the regulatory quality, it gets a positive labor force participation rate and an increasing employment rate. Hence, regulatory quality helps to reduce corruption levels. Chambers and Munemo (2019) analyzed the role of institutional regulatory quality on new business creation. They found that countries where the regulatory quality is too weak, creating barriers for entering new businesses. However, the sound and influential institutional quality are helpful to improve entrepreneurship opportunities and reduce barriers to entrants' new firms in the market. Karimi and Daiari (2018) collected data from ten selected ASEAN countries from 1996 to 2014 and examined the role of institutional quality on economic performance. The results confirmed the feedback relationships between the governance indoors, leading to positive economic outcomes across countries. Bah et al. (2022) collected data from 45 Sub-Saharan African countries to analyze the possible relationships between institutional regulatory quality and trade factors and found some positive linkages. Governance indicators across countries can efficiently control the exports promotion. Lv et al. (2021) found that new business entrants' success in the competitive market required the following factors that help establish entrepreneurial success: improved institutional quality, freedom of voice and transparency, political stability, regulatory quality, and the rule of law. These factors need to be improved to allow new businesses to flourish and sustain economic outcomes. Based on the stated current reviews, the study suggested the following tentative statement, i.e.,

H1: Corruption negatively affects the regulatory quality of a country. The rule of law is another governance indicator used in this study to examine its impact on its regulatory quality. The current literature mainly documents its role in economic development, which is an important dimension related to its regulatory index. For instance, Huong et al. (2020) collected data from 18 transition economies from 2002 through 2015 to examine the effect of the rule of law in the shadow economy. They found that the increasing size of the shadow economy led to a decrease in the rule of law. On the other hand, growth indicators negatively affect the shadow economy across countries. Making the right policy to reduce the size of the shadow economy could improve governance indicators across countries. Hence, Nedi et al. (2020) concluded that

governance indicators are not strong enough to positively impact Western Balkan countries' economic growth; hence, improving the rule of law is pivotal to sustained growth. Agostino et al. (2020) argued that improvement in the governance indicators is helpful to move forward towards the human capital formation and infrastructure development that are considered the potential drivers of entrepreneurship to develop high-tech industries. Sugianto et al. (2020) stressed the need to create a judicial body to ensure the rule of law and justice to discourage private bargaining. Hussain et al. (2021) concluded that the rule of law is essential to improve microfinance performance because it helps to reduce managerial inefficiency and improve freedom indicators accordingly. Further, several other studies included the rule of law with different economic factors, including environmental sustainability [Muhammad, Long, 2021], public governance expenditures and corruption [Guerrero & Castaeda, 2021], policy planning tools [Azam et al., 2021], financial inclusion [Emara, El-Said, 2021], and national security [Athens, 2021]. These studies confirmed the viability of the rule of law to control socio-economic and environmental suffering worldwide. Based on the current literature, the study proposed the following statement, i.e.,

H2: Injustice is negatively affected the regulatory control. Finally, the study evaluated the impact of political instability and violence on Pakistan's regulatory quality. The earlier literature mainly examined the relationship between the stated governance indicator and the country's economic growth, whereas the other forefront of assessing regulatory quality is still unexplored. For instance, Rwigema (2020) argued that political stability is highly needed to maintain the pace of economic prosperity, which is often suppressed due to a lack of political wisdom across African countries. Gakpa (2020) found that political instability affects the country's economic development. Further, it negatively affects inbound FDI, causing the African economy to move downward. Haroon and Jehan (2022) examined the various forms of violence, such as civil war and violence, ethnic war and violence, and interstate war and violence, combining them to form a violence indicator and assessing its impact on the macroeconomic conditions of a large panel of countries. The results confirmed that violence negatively affects macroeconomic stability across countries, which needs to be mitigated through sound economic policies. Shittu et al. (2020) concluded that political governance is limited to spreading its positive impact on economic growth. It helps attract inbound FDI, which leads the economy more towards sustained financial projects in West Africa. Maku et al. (2020) found that a lack of political freedom and growing violence/terrorism negatively affected African development projects. The greater need to build solid institutions and create political stability will likely bring harmony and support economic prosperity. More studies on the stated discussion with different economic indicators confirm the importance of political stability and creating a violence-free economy, which helps sustain long-term growth worldwide. For instance, financial inclusion [Alhassan et al., 2021], peacebuilding [Vines, 2021], economic crisis [Maris et al., 2021], security concerns [Wise et al., 2021], and environmental degradation [Yasin et al., 2021]. Based on the stated studies, the following tentative statement needs to be tested in a given context, i.e.,

H3: Political instability and growing violence negatively affect regulatory quality. The earlier literature found some crucial factors that affect regulatory quality. For instance, information and communication technologies are the keys to improving institutional quality, leading to increased environmental quality [Shobande, Ogbeifun, 2022]. Further, an increase in educational levels tends to influence the environmental regulatory quality, which helps move towards sustainable development [Mahalik et al., 2021]. Hence, the shadow economy can in-

crease without regulatory quality; hence, its need to be strengthened through governance reforms [Canh et al., 2021]. Anti-corruption and transparency are the primary determinants of regulatory quality, which increases investors' confidence and improves enterprise information disclosures [Wei, He, 2022]. Bilateral FDI and institutional regulatory quality have a strong and positive relationship, leading to a move forward towards cleaner technologies [Tripathy et al., 2022]. Green energy projects are associated with institutional quality; hence, regulatory quality should be strengthened to avoid adverse climatic shocks [Islam et al., 2022]. Political freedom is another important factor that mediates the relationship between government effectiveness and entrepreneurial capabilities, which need to moderate informal institutions [Miao et al., 2022]. Improvements in regulatory control and innovation capabilities help increase the green payoffs of the enterprise [Wang et al., 2022].

The contribution of the study is multifold. First, the earlier studies mainly analyzed the role of governance indicators on growth indicators, while no direct study has examined their impact on the country's regulatory quality. Hence, the present study filled this gap and determined the relationship between governance indicators and regulatory control in Pakistan for making pro-growth policies. Second, the study calculated forecasting estimates of governance indicators to observe the future trend of the variables and their effect on the country's regulatory quality. This is the first study examining the relationships between the governance indicators based on ex-ante analysis. Finally, the study used an innovation accounting matrix to observe the inter-temporal relationships between the governance indicators and observed the greater variance shocks between the variables for the next ten years. Based on the study's contribution, the study tests the few critical research questions necessary for the country's economic development, i.e., to what extent is regulatory control affected by an increasing corruption level in a country? First, the stated question needs to seek policy reforms to minimize corruption levels and improve regulatory control. The second question is: does the rule of law improve regulatory control? The question argued that the government could provide easy access to law and justice through fair judicial trials against criminals. Thus, it would help to improve the regulatory control of the country. Finally, does the absence of political stability and increasing violence and terrorism undermine the country's regulatory control mechanism? The question evaluated the impact of political instability, leading to increased violence and terrorism, on regulatory control to assess the country's economic policies towards a suitable governance mechanism.

The following research objectives have been devised in order to answer the above-stated research questions, i.e.,

1. To examine the impact of the absence of political stability and increasing violence and terrorism on the country's regulatory quality.
2. Examine the impact of the rule of law on the regulatory control framework.
3. To assess the corruption level and its impact on the country's regulatory quality.

These objectives provide the fundamentals of the governance reforms for the country to devise sound and pragmatic policies to improve the quality of regulation.

Data Source and Methodological Framework

The study looked at the following four governance indicators to see how they interacted and came to some important conclusions, such as that they were all critical.

i) **Control of Corruption:** From 1996 to 2019, the data is available in the WGI (2020) database. The study used the latest available dataset for the Pakistan economy. The overall data range for the estimates falls –2,5 to +2,5. Pakistan's economy has all negative values, as the minimum value is –1,220 and the maximum value is –0,762. The study said the stated indicator as "corruption" (denoted by COR) based on the estimates. The indicator value indicated that the Pakistani economy had made slow progress towards controlling the corruption level. Hence, its index value is far from the positive value. A more transparent system should be introduced to control corruption accordingly.

ii) **The Rule of Law:** The WGI (2020) provided the rule of law data. The index value has remained in the range –2,5 and +2,5. Pakistan's economy has a pessimistic estimate of the stated governance indicator. Hence, the study pronounced this variable as "njustice" (denoted by INJUST). The data has the lowest value of –0,968 and a maximum value of –0,625. The country needs to make more concentrated efforts to keep the rule of law, leading to better estimates.

iii) **Political Stability and Absence of Violence/Terrorism:** The WGI (2020) database was used to obtain the data for the stated governance indicator. The country faces severe political conflict, and the greater number of violence and terrorism incidents poses many socio-economic challenges. The index value shows that the country's performance is significantly weaker in obtaining this indicator. The maximum value was 1,103, and the minimum value was approaching –2,4. Based on the index estimates, the study called this variable "political instability", which the PINS stand for.

iv) **Regulatory Quality:** The study used regulatory quality (denoted by REGQ) as a response variable. The index value falls –2,5 to +2,5. The country's data remains between –0,905 (minimum) and –0,482 (maximum). Low regulatory quality is associated with higher corruption, greater injustice, and political instability. The data for the variable is taken from the WGI (2020) database for estimation.

The WGI (2020) shows different indicators that are used to construct the regulatory quality index in the Worldwide Governance Indicators, which includes:

a) unethical commercial practices;
b) price controls;
c) tariff discrimination;
d) draconian measures;
e) discriminatory taxes;
f) the government imposes a cost;
g) non-tariff barriers are common;
h) investment freedom;
i) financial self-sufficiency;
j) contribution to managed pricing;
k) financial information;
l) regulatory burden;
m) inconsistency in taxation.

The worldwide regulatory quality index is derived based on these crucial indicators, and the world economies are ranked accordingly. Table 2 shows the descriptive statistics of the governance indicators for ready reference.

Table 2.

Descriptive statistics

Methods	REGQ	COR	INJUST	PINS
Median	–0,635353	–0,901685	–0,791075	–2,252091
Maximum	–0,482340	–0,762178	–0,625290	–1,103032
Minimum	–0,905293	–1,220030	–0,968671	–2,410035
Std. Dev.	0,107157	0,141647	0,097804	0,626922
Skewness	–0,477818	–0,413461	0,222079	0,361953
Kurtosis	2,982535	1,903262	2,095675	1,528192

Note: REGQ shows regulatory quality, COR shows corruption, INJUST shows injustice, and PINS shows political instability.

Table 2 shows that political instability has a greater median value, i.e., –2,252, reaching the top in severe political conflicts and high violence/terrorism in a country. Further, the median value of corruption is –0,901, which is greater than the injustice value (i.e., –0,791) and regulatory quality (–0,635). Comparatively, the regulatory quality has a better estimate, although it remains negative. However, it has greater chances to improve because it allows the economy to be free from corruption, the rule of law, and political stability.

The study proposed several theoretical considerations to better explain the interdependence among the governance indicators for countries like Pakistan, i.e.,

1) **Regulatory Framework:** Strong institutions are regarded as the pillars of the country's economic development. Strengthening regulations **s**upporting business entities is the optimal strategy to move towards globalization. The regulatory framework betters their work under the autonomous model. The complete sovereignty backed up by the government's support controlled the corruption level and violence, leading to political stability and governing the rule of law. The regulatory model helps to improve socio-economic and environmental considerations, thereby leading the economy towards a sustainable development agenda. Figure 1 shows the way that quality regulatory work for the economy goes, i.e.,

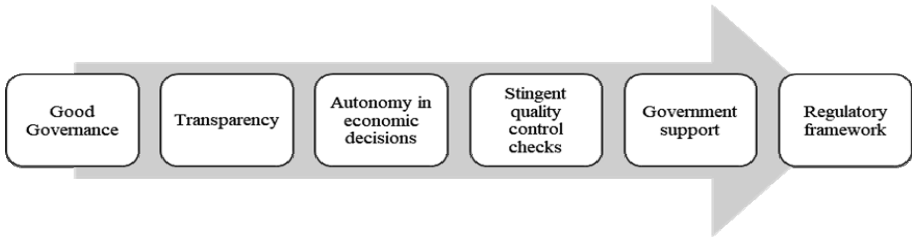


Fig. 1. Regulatory Framework

Source: Authors extraction.

2) **Control of Corruption Framework:** Corruption is considered the root cause of social evils that hurt a country's economic activities and foreign investment. Corruption cannot

work alone. It moves forward with political instability and injustice. Political dishonesty and lawless activities make them grow. The negative consequences, i.e., widespread poverty and inequality, are evident in many parts of the globalized world. The poor income class suffered severely, while the more affluent class enjoyed their surpluses to indulge in economic corruption. Figure 2 shows the channel through which corruption hits the economic development agenda, i.e.,

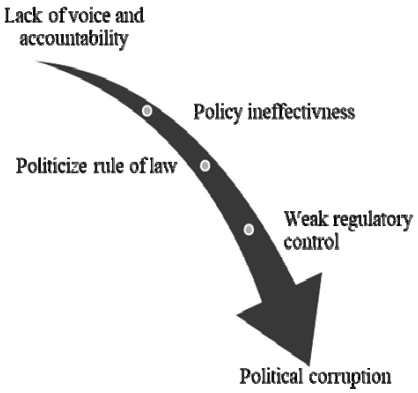


Fig. 2. Corruption Framework

Source: Authors extraction.

3) **Justice Framework:** The abiding rule of law helps restore economic activities and makes them accountable to all citizens, including influencers, facilitators, and executers. Providing equitable and quick justice can be possible by following the code of justice backed by the government and international laws to restrain unlawful practices. The strict regulatory framework and solid institutional policies help improve governance indicators. Figure 3 shows the channel through which equitable justice could be possible, i.e.,

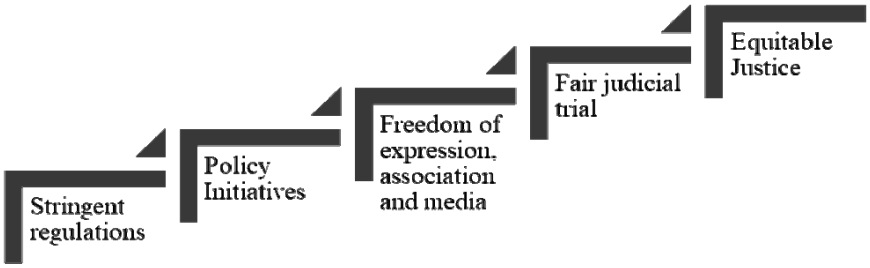


Fig. 3. Justice Framework

Source: Authors extraction.

Stanley (2016) discussed six different types of governmental regulations that are found in many parts of the globalized world, i.e.,

1. **Stifling Regulation:** Laws that make people do things like taxes, credits, and concerns about immigration for employees.

2. **Regulation of Risks:** This is legislation that directly protects the rights of citizens from shopkeepers and merchants who try to defraud them. It also controls hazards to one's health and safety, like fires and accidents.

3. **Self-Regulation:** The most effective form of regulation is self-regulation. Bypassing legislation in these areas is often achieved by enabling professions and corporations to establish their norms.

4. **Inspection Regulation:** The government attempted to fulfill its responsibilities by establishing inspection services and creating licensing bodies and inspectorates. The coping strategy for the social and economic difficulties caused by industrialism is imperative to manage the resulting social and economic difficulties.

5. **Economic Regulators:** Economic regulators who make predictions regarding the future behavior of major economic entities, scrutinize large economic entities, and make projections about their future behavior are known as antitrust regulators. As a regulator, it is the purpose of the standing committee to ensure that businesses compete efficiently and somewhat with one another in an open and accessible business climate, and

6. **Regulators in the Public Sector:** To improve the quality of the public sector, an increasing number of government regulators are being established. The police and jail services and education and health services are examples of public services that are available.

The World Justice Project's (2017) report shows that Pakistan's regulatory framework is facing numerous problems, which need to be settled through an innovative governance framework, i.e.,

- The report shows that although opinions on government accountability differ from city to city in Pakistan, citizens have a strong sense of lawlessness.
- Respondents think that many government officials do things that are not good for the country.
- Bribery and corruption are ubiquitous in Pakistan. Most people have contributed money to police intervention, and a quarter of people have paid money to get official consent.
- Pakistan has a greater incidence of armed robbery, theft, and killing. Since 2016, the incidence of all three offenses has decreased on average.
- Criminal investigators in Pakistan have many problems, but the incompetence of prosecutors is the biggest one. The problem with criminal courts in Pakistan is that they do not have much money.
- While Pakistanis have the most significant degree of confidence in the courts, they have the lowest trust in the police. Nonetheless, trust in the police has gradually improved.

Based on the stated discussion, the study formulated the following regression equations for estimation, i.e.,

Model-I: Level Regression.

$$REGQ = \alpha_0 + \alpha_1 COR + \alpha_2 INJUST + \alpha_3 PINS + \varepsilon, \quad (1)$$

$$\therefore \frac{\partial(REGQ)}{\partial(COR)} < 0, \frac{\partial(REGQ)}{\partial(INJUST)} < 0, \frac{\partial(REGQ)}{\partial(PINS)} < 0.$$

Model-II: Forecast Regression.

$$REGQ = \alpha_0 + \alpha_1 COR\_F + \alpha_2 INJUST\_F + \alpha_3 PINS\_F + \varepsilon,$$
$$\therefore \frac{\partial(REGQ)}{\partial(COR\_F)} < 0, \frac{\partial(REGQ)}{\partial(INJUST\_F)} < 0, \frac{\partial(REGQ)}{\partial(PINS\_F)} < 0. \quad (2)$$

Model-III: Innovation Accounting Matrix.

$$REGQ_{t+10(S.E)} = \alpha_{0(S.E)} + \alpha_1 COR_{t+10(S.E)} + \alpha_2 INJUST_{t+10(S.E)} + \alpha_3 PINS_{t+10(S.E)} + \varepsilon_{(S.E)},$$
$$\therefore \left[\frac{\partial(REGQ)}{\partial(COR)} < 0\right]_{t+10(S.E)}, \left[\frac{\partial(REGQ)}{\partial(INJUST)} < 0\right]_{t+10(S.E)}, \left[\frac{\partial(REGQ)}{\partial(PINS)} < 0\right]_{t+10(S.E)},$$
$$COR_{t+10(S.E)} = \alpha_{0(S.E)} + \alpha_1 REGQ_{t+10(S.E)} + \alpha_2 INJUST_{t+10(S.E)} + \alpha_3 PINS_{t+10(S.E)} + \varepsilon_{(S.E)},$$
$$\therefore \left[\frac{\partial(COR)}{\partial(REGQ)} < 0\right]_{t+10(S.E)}, \left[\frac{\partial(COR)}{\partial(INJUST)} < 0\right]_{t+10(S.E)}, \left[\frac{\partial(COR)}{\partial(PINS)} < 0\right]_{t+10(S.E)}, \quad (3)$$
$$INJUST_{t+10(S.E)} = \alpha_{0(S.E)} + \alpha_1 COR_{t+10(S.E)} + \alpha_2 REGQ_{t+10(S.E)} + \alpha_3 PINS_{t+10(S.E)} + \varepsilon_{(S.E)},$$
$$\therefore \left[\frac{\partial(INJUST)}{\partial(COR)} < 0\right]_{t+10(S.E)}, \left[\frac{\partial(INJUST)}{\partial(REGQ)} < 0\right]_{t+10(S.E)}, \left[\frac{\partial(INJUST)}{\partial(PINS)} < 0\right]_{t+10(S.E)},$$
$$PINS_{t+10(S.E)} = \alpha_{0(S.E)} + \alpha_1 COR_{t+10(S.E)} + \alpha_2 INJUST_{t+10(S.E)} + \alpha_3 REGQ_{t+10(S.E)} + \varepsilon_{(S.E)},$$
$$\therefore \left[\frac{\partial(PINS)}{\partial(COR)} < 0\right]_{t+10(S.E)}, \left[\frac{\partial(PINS)}{\partial(INJUST)} < 0\right]_{t+10(S.E)}, \left[\frac{\partial(PINS)}{\partial(REGQ)} < 0\right]_{t+10(S.E)}.$$

Where REGQ shows regulatory quality, COR shows corruption, INJUST shows injustice, PINS shows political instability, "_F" shows forecasted series, S.E shows standard error estimates, and ε shows error term.

Equation (1) shows the level of regression between regulatory quality, corruption, injustice, and political instability. It is likely that the stated factors negatively affect the country's regulatory framework. With the help of level regression, the study moves forward to estimate forecast regressors as stated in equation (2). The forecast estimates suggest that the high level of corruption, injustice, and political instability negatively affect the regulatory framework, making the country less attractive for attracting inbound FDI at the international level. Finally, equation (3) estimates the variables at the inter-temporal level and shows the variance among the variables in the next ten years.

The stated equation qualifies for estimation by the least-squares regression apparatus because the governance indicators mostly fall between the stated threshold points. Hence, there is no possibility of potential outliers affecting the regression estimates. The regression estimates will further be checked through different diagnostics tests to assess stochastic variations that might affect the efficiency of the parameter. The study used an innovation accounting matrix to analyze the variance error shocks of regressors on the response variable for the next ten-year time period.

3. Results and Discussion

Table 3 shows the robust least-squares regression-M estimates for equation (1). The results show that corruption is the only significant variable that negatively affects the country's regulatory quality. The other variables, including injustice and political instability, are insignificant. Hence, these variables are checked in the following regression apparatus using their forecast evaluation. The result implies that a one-unit increase in corruption decreases regulatory quality by –0,273 points. For instance, earlier studies widely support the stated result; for instance, Drebee et al. (2020) argued that corruption is the most potent detrimental factor that decreases the regulatory quality of the country. Lee et al. (2020) concluded that corruption negatively affects the firm's innovation level while improving through the rule of law, political stability, and government effectiveness. Appiah et al. (2020) found that financial development can be promoted through a sound governance system, and the higher level of corruption negatively affects countries' financial development. Del Monte & Pennacchio (2020) confirmed that increasing corruption scale put a burden on public debt, leading to economic growth downward.

Table 3.

Regression estimates for equation (1)

Dependent Variable: REGQ.

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	–0,630674	0,252637	–2,496364	0,0125
COR	–0,273542	0,151305	–1,807887	0,0706
INJUST	0,345565	0,217648	1,587722	0,1123
PINS	–0,007354	0,034238	–0,214782	0,8299
Robust Statistics				
R^2	0,230026	Adjusted R^2		0,114530
Rw^2	0,455306	Adjust Rw^2		0,455306
Rn^2	7,106898	Prob(Rn^2 stat,)		0,068567

Note: REGQ shows regulatory quality, COR shows corruption, INJUST shows injustice, PINS shows political instability, C shows constant.

The study applied Generalized Method of Moments (GMM) endogeneity test and reported the results in Table 4.

Table 4.

Endogeneity test estimates

	Value	df	Probability
Difference in J-stats	1,647701	3	0,6486
J-statistic summary:			
Restricted J-statistic	1,647701		
Unrestricted J-statistic	1,45E-39		

The results show no endogeneity problem exists in the given model as the regressors are exogenous. The null hypothesis of exogenous is accepted against the alternative hypothesis of an endogenous issue in the variables. Hence, the difference in J-statistics confirms that the model is free from any known endogenous issues. Furthermore, the study performed other diagnostic statistics, including a multicollinearity test, and reported Table 5.

Table 5.

Diagnostic test estimates

Variables	Variance Inflation Factor (VIF)	Residuals Test	
COR	1,080	Jarque-Bera Test	0,546 (0,760)
INJUST	1,065	Serial Correlation LM Test	2,814 (0,086)
PINS	1,083	Heteroskedasticity Test	1,008 (0,409)
		Ramsey RESET Test	0,585 (0,565)

Note: Small bracket shows probability value.

The results confirmed that the model is free from any multicollinearity issues as the VIF value is less than the threshold value of 10. Hence, we can safely conclude that the regressors are not correlated. Further, the normality test statistics confirmed that the residual is normally distributed. It is free from autocorrelation and heteroskedasticity problems, as the probability value is greater than the 95% confidence interval. The Ramsey RESET test confirmed that the model is functionally stable over time.

The study goes to the forecast evaluation based on regression equation (1) estimates. Table 6 shows the forecast evaluation using the four forecast techniques, including RMSE, MAE, MAPE, and the Theil coefficient.

Table 6.

Forecast evaluation

Variable	Inc. obs.	RMSE	MAE	MAPE	Theil
REGQ	24	0,297257	0,277729	30,05464	0,188633
COR	24	0,157163	0,116656	14,26682	0,089904
INJUST	24	0,191593	0,173578	26,88237	0,130528
PINS	24	0,406562	0,361639	17,98873	0,095855

Note: REGQ shows regulatory quality, COR shows corruption, INJUST shows injustice, and PINS shows political instability.

The forecast estimates show that RMSE and MAE values fall within the range of 0,50 for all stated governance indicators. *Political instability* is of the utmost value, followed by regula-

tory quality, injustice, and corruption. On the other hand, the MAPE value falls within the range of 50. Regulatory quality has a higher value, followed by injustice, political instability, and corruption. Finally, the Theil coefficient value falls within the range of 0,20. Regulatory quality has a considerable value, followed by injustice, corruption, and political instability. The result concludes that regulatory quality has a higher forecast value following MAPE and Theil coefficient estimates. In contrast, political instability has a higher forecast estimate in RMSE and MAE among the governance indicators. The greater frequency forecast estimates are likely to show a sound linkage between them in an ex-ante analysis. Table 7 shows the forecast regression estimates for equation (2) for ready reference.

Table 7.

Forecast least squares regression estimates for equation (2)

Dependent Variable: REGQ.

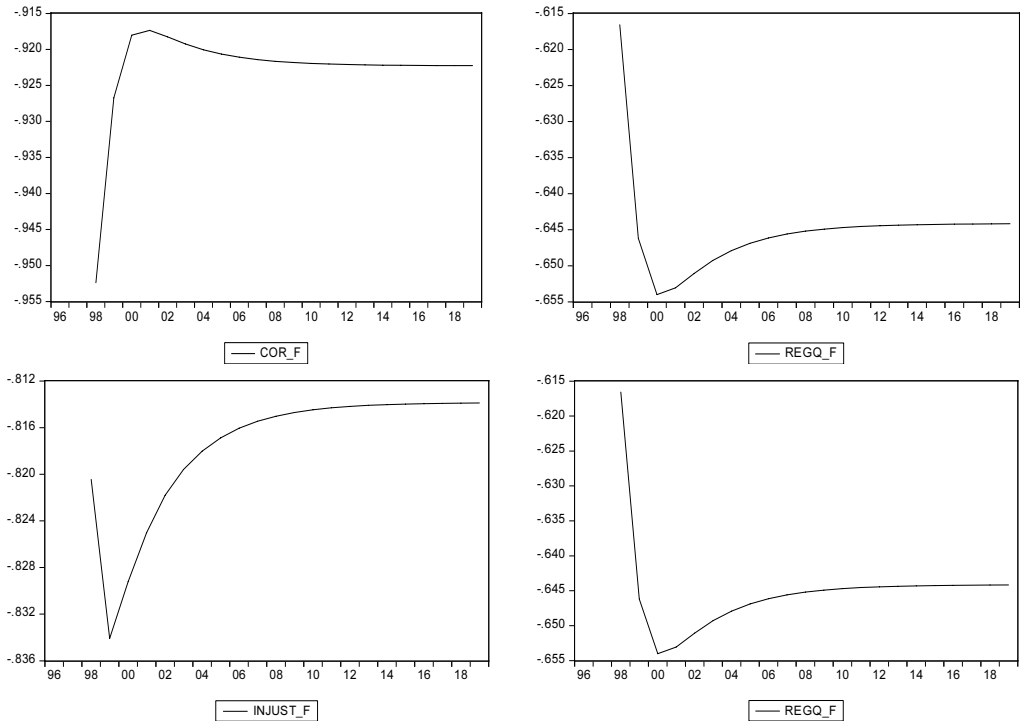
Variables	Coefficient	Std. Error	t-Statistic	Prob.
COR_F	–35,22296	9,895846	–3,559368	0,0022
INJUST_F	–45,50139	16,72327	–2,720842	0,0140
PINS_F	–1,449845	0,504630	–2,873084	0,0101
C	–73,35330	23,53278	–3,117069	0,0060
Statistical Tests				
R^2	0,493676	Mean dependent var		–0,645008
Adjusted R^2	0,409289	S,D, dependent var		0,104818
F-statistic	5,850120	Durbin–Watson stat		1,348710
Prob(F-statistic)	0,005681			

Note: REGQ shows regulatory quality, COR_F shows forecasted corruption series, INJUST_F shows forecasted injustice series, and PINS_F shows forecasted political instability.

The results show that corruption, injustice, and political instability would be the main detrimental factors that likely decrease the country's regulatory quality over time. Growing injustice and not abiding by the rule of law would likely negatively impact regulatory quality, followed by corruption and political instability. For instance, the results are supported by the earlier studies in different economic settings. Youssef & Diab (2021) found that political wisdom and freedom from violence and terrorism help increase happiness in rich countries. In contrast, freedom from corruption positively contributes to increasing happiness in the poor subsample of the countries. Surprisingly, a greater voice and accountability cannot significantly impact the country's happiness index, which must be checked through more confirmatory techniques and samples used in other future studies. Minović et al. (2021) argued that good governance indicators help attract more inbound FDI across countries. Cuadrado-Ballesteros & Bisogno (2021) concluded that countries with a better accounting system yield a higher regulatory quality than other good governance indicators across countries. Güngör et al. (2021) found that regulatory quality and globalization negatively impact ecological footprints, worsening the green sustainable development agenda. According to Ahmed et al. (2021), good governance indicators posi-

tively affect stock market returns, increase market capitalization, and increase stakeholder confidence in investing their capital for positive gain. Asongu & Odhiambo (2021) stressed the need to improve governance indicators that help to initiate green developmental projects across countries. Ngouhouo et al. (2021) concluded that governance indicators help to strengthen more export-oriented activities internationally that yield greater returns to supporting economic activities.

Figure 4 shows the forecast trend series of the governance indicators based on the forecast regression estimates.



Note: REGQ_F shows forecasted regulatory quality, COR_F shows forecasted corruption series, INJUST_F shows forecasted injustice series, and PINS_F shows forecasted political instability series.

Fig. 4. Forecast trend series

Source: Author's estimate.

Figure 4 illustrates that the corruption series is likely to exacerbate from 1998 to 2000 while remaining stable afterward to move consistently over time. The forecasted regulatory quality series shows a more significant decline in institutional regulation in 2000, while it still balances regulatory capacity to improve substantially over time. The rule of law decreased sharply in 1999 and then increased over the following years. Finally, political stability went down from 1998 to 2019. The forecast evaluation is further visible in the innovation accounting matrix set under the VAR decomposition and presented in Table 8 for ready reference.

Table 8.

Variance decomposition analysis (VDA) for equation (3)

Period	S.E.	REGQ	COR	INJUST	PINS
2022	0,122465	84,54065	12,38723	1,783389	1,288727
2023	0,127310	79,58843	17,18474	1,871748	1,355085
2024	0,127435	79,49850	17,22570	1,894708	1,381100
2025	0,128049	78,90217	17,53133	2,182244	1,384252
2026	0,128419	78,53499	17,80303	2,275961	1,386015
2027	0,128510	78,42497	17,89666	2,276063	1,402301
2028	0,128599	78,34108	17,90691	2,330195	1,421814
2029	0,128684	78,25361	17,88791	2,420808	1,437672
2030	0,128765	78,16146	17,86671	2,521875	1,449949

Note: REGQ shows regulatory quality, COR shows corruption, INJUST shows injustice, and PINS shows political instability.

The results suggest that the corruption level would likely exert a more significant variance on regulatory quality, with a variance error shock of 12,387% in the coming year of 2022 and 17,866% for the year 2030. The injustice estimates are likely to increase their share of regulatory quality from 1,783% in 2020 to 2,521% in 2030. Finally, political instability likely exerts a variance error shock on regulatory quality of 1,288% in 2022, reaching 1,449% in 2030. These estimates are likely to help propose sound policy implications for the country to improve governance indicators primarily.

4. Conclusions and Policy Implications

Institutional capability and regulatory control are essential in reducing political instability and ensuring the rule of law are free of corruption. Based on the stated theme, the study evaluated the governance indicators in Pakistan using the available data from 1996–to 2019. The study differs from the earlier literature by estimating the forecast analysis of the governance indicators to evaluate the regulatory quality control. The results confirmed that a high level of corruption sabotaged the country's institutional capacity to control the economic system. The forecast valuation of the governance indicators suggests that political instability, unlawful activities, and corruption are likely to negatively impact the country's regulatory control, making the economy unattractive for inbound FDI. The VDA estimates further suggested that corruption would likely cause a significant deterioration in the country's institutional capacity to control economic affairs over the next ten years. A country's progress toward good governance changes may benefit from the following three major policy implications, according to the findings of the research.

- Corruption is one of the social evils that increase dishonesty and inequality. Political corruption is another viable case that favors the richer to get economic gains at the lower-income groups' costs. The transparency index categorized economies from the least corrupt nations to the most corrupt nations, which negatively impacted the economies at the international level. Controlling corruption is the only legitimate solution to avoid social evil and make a country more vibrant and energetic in pursuing sustainable development goals. Corruption can be reduced by establishing a strong legislative framework and establishing an independent accountability bureau to track down and punish corrupt individuals and organizations. There is also a need for high-level awareness campaigns against corrupt individuals and their legitimate use by law-enforcement agencies.
- Political instability and a greater incidence of violence and terrorism are not limited to creating a bad image internationally. At the same time, it decreases international support to reduce the war against terrorism. The following four possible solutions can be legitimate to overcome this uncertainty. First, strike a balance between power and coordination; the better the coordination between policies and power, the more stable the economy will be in the face of any threat of violence or terrorism. Second, build up the international liaison against violence and terrorism and participate in any international forum to speak about the issue and show their efforts to demolish the lousy command and control system. Third, to unite all the stakeholders on a single cause, create harmony, respect the view of the opposition political parties to devise unanimous economic policies, and build up a corps to protect the country through the uneven crisis.
- The provision of equitable justice and the establishment of the rule of law are regarded as the backbone of every country's economy – easy access to justice, which leads to the country's good image in all forums. Injustice and anarchy are dragging the country down, and people feel unsafe and insecure. Foreign investors are reluctant to invest in a country, and inbound FDI would shift to other nonviolent countries. The need for equitable and easy access to justice is the only solution to anarchism. Stringent regulatory policies, autonomous judicial decisions, the self-governing rule of law, and timely decisions of cases are the ultimate solutions to support a country's mission of equitable justice.

The good governance mechanism remains a dream for the globalized world to effectively govern their systems to protect them from social evils, political disputes, foreign invasion, unfair accountability, control of corruption, and inefficient regulatory control. Educating the general public on how to detect dishonest individuals and heinous institutional practices further contributes to the establishment of an autonomous governing body that can punish such fraudulent individuals and institutions as a means of advancing the country toward economic success.

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