

Causal link between governance and economic growth: empirical evidence from the SAARC countries

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Abstract:

Good governance is influential in boosting a country's GDP growth and economic development. This paper investigates the causal link between the governance indicators and GDP growth of SAARC countries, employing panel data from 1996-2020. The empirical results obtained from panel ARDL/PMG techniques indicate that corruption negatively and significantly impacts GDP growth (later on GDPg) with long-term effects. The influence of political stability on economic growth is positive and significant. However, the impact of political stability and control of corruption on GDP growth is unimportant in the short run, meaning that these factors do not immediately impact economic growth. The influence of labour participation, capital, human capital, FDI, and inflation on GDP growth is noteworthy in the long term. Still, these variables have an unimportant impact on GDP growth in the short run. The results of the pairwise Granger causality test indicate the presence of no causality between political stability and GDP growth, as well as corruption and GDP growth. Based on the empirical results, the study recommends a dire need for good governance in the SAARC countries, where political stability should be strengthened, and corruption has to be minimised to enhance GDP growth.

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1. Introduction

Scholars agree that GDP growth is vital in developing a country's economy. There are two methods for measuring economic growth: the addition to the real GDP of a country over a specific period and the addition to real GDP per capita over a specific period. In the second method, the real GDP of a country is divided by the population size of a country. The real GDP per capita is also called per capita output or per capita income. If the percentage change is needed as compared to the previous value, the result is then multiplied by 100 (McConnell et al., 2012). Good governance is considered an influential tool in boosting GDP growth and development. Governance is a wide concept that has no precise and satisfactory definition. Different researchers, scholars, and policymakers have defined it. There is no agreement on the definition of governance. According to Jabeen (2007), traditionally, the term government is considered similar to governance. However, government consists of persons who manage the whole administration of a country, while governance consists of those practices or methods that govern a society. In the view of the Worldwide Governance Indicators (WGI) (2024), governance is the authority used in managing the resources of a country for development. According to UNDP (1997), it is the use of power to deal with the affairs of a country in all aspects. According to Kaufmann et al. (2010), governance comprises the institutions and traditions by which power in a country is used. This contains the procedure of governments' selection, observation, and change; the ability of the government to efficiently make and execute effective policies; and the respect of people and the government for the institutions that administer social and economic contacts among them.

Economic growth is the key instrument that influences poverty and the standard of life in emerging economies. A rapid GDP growth guarantees higher employment in the economy. Unfortunately, the developing world faces many obstacles to increasing and maintaining GDP growth. GDP growth is a major macroeconomic problem that adversely affects other macroeconomic variables in emerging economies. The GDP growth in these economies is very uneven and has more fluctuations, which causes many macroeconomic problems and creates uncertainty in policy implementation. Many studies have discussed the factors, namely investment, public spending, FDI, foreign remittances, trade openness, population growth, inflation, and governance, which affect GDP growth. Out of these factors, governance is the new factor that can affect GDP growth. Many research works have been undertaken to investigate the influence of governance on GDP growth. However, there is still a dearth of empirical work on the subject, especially in SAARC countries. The findings of these studies demonstrate positive, negative, or no association between governance and GDP growth, which is ambiguous and controversial. Further, it is debatable how each governance indicator influences economic growth, as there is no agreement on the subject in the literature and prior studies that provide room for further research. The study will enhance the existing governance-growth literature. SAARC countries and other regions can use the study results to review their government practices and make proper amendments to accelerate GDP growth. The study will be helpful to the researchers and policymakers in the sense that it uses an empirical model to

observe the influence of governance on GDP growth. Therefore, this study was conducted to investigate the causal link between governance and economic growth in the case of SAARC countries.

Recently, the macroeconomic performance of South Asian economies has improved to a greater extent but political instability, poor institution quality, and other predicaments are the main reasons that prevent these countries from further development (Awan et al., 2018). The above facts make South Asia an extremely suitable setting to observe the impact of governance on GDP growth. The current study is unlike other studies in three ways: (1) the other studies conducted from the perspective of governance growth connection mostly used conventional methods of ordinary least square, fixed effects, random effects, etc, while this empirical study uses a more advanced method of ARDL/PMG estimator which has been rarely used by other studies (2) it is the latest study conducted for SAARC countries in the context of governance-growth nexus (3) it uses a long period from 1996-2020, which has not been used in other studies conducted for SAARC countries on governance-growth nexus (Awan et al., 2018; Bhattacharjee & Haldar, 2015; Sarwar et al., 2013). The rest of the paper reviews past studies, methodology, results, discussion, conclusion, and recommendations.

2. Literature review

Mo (2001) examined the connection between corruption and GDP growth for 54 nations for the span of 1970 to 1985. He used OLS and 2SLS to find the link between corruption and GDP growth. The result indicates that CC has an adverse impact on GDP. Using time series data, Haq and Zia (2009) investigated the link between governance and growth in Pakistan, including poverty, income inequality, and growth from 1996-2005. OLS was carried out to investigate the desired relationship. The findings obtained from the study reveal that governance indicators and pro-poor growth are strongly connected in Pakistan. Zouhaier (2012) explored the influence of institutional aspects on GDPg for eleven MENA nations from 2000-2009, employing a dynamic panel data model. The main findings obtained from the study indicate that political institutions positively affect investment and GDP growth, while Corruption negatively affects investment and GDP growth. Political rights affect investment positively, while political instability negatively affects investment. Aisen and Veiga (2013) explored the effects of political instability (later on PIS) on GDP. They employed SGMM and used panel data for 169 nations from 1960 to 2004. Their findings reveal that a higher level of political instability mitigates GDP. Nazir and Anwar (2013) studied the association of governance with GDP growth in Pakistan and utilized a time series of data covering the span from 1984 to 2010. Johansen co-integration and ADF tests were performed to examine the desired association. The outcomes obtained reveal that the governance variables affect Pakistan's GDP growth, which is positive and significant.

Hall and Ahmad (2014) explored the connection between institutions and GDP growth in 69 underdeveloped nations using panel data from 1985-2008. System GMM was employed as an

estimation technique. They found that institutions positively affect GDP growth, but bureaucracy seems to have no strong effect on economic growth. Sweidan (2016) analyzed the association of political instability with GDPg in Jordan from 1967-2009 and employed time series data for analysis. ARDL model and Kalman Filter (ML) method were used as estimation techniques. The findings depict that political instability reveals a negative and noteworthy effect on GDP. They conclude that political instability negatively affects government expenditures. Azimi and Shafiq (2020) explored the association between GDP growth and Afghanistan's governance indicators for 2003-2018. Modified Walt test and Vector Autoregressive (VAR) techniques were employed for estimation. The study's results indicate one-sided causality running from the rule of law and government effectiveness to GDP growth. The results also confirm one-sided causality running from GDP growth to Governance. Pasha (2020) examined the connection between PIS and GDPg in Guyana from 1961 to 2018. He used the GARCH (1,1) model as an estimation technique. He found that GDP growth is affected positively by changes in the head of state, whereas the influence of strikes has been negating as well as significant on GDP growth. The other proxies, such as riots, political assassinations, terrorism, and insurrection of political instability, have insignificant effects on GDP growth. Islam and McGillivray (2020) utilized data for 45 (forty-five) nations from 2000 to 2012 to study the consequences of wealth disparity on GDP and used GMM for estimation. They found that wealth disparity is adversely related to cross-country GDPg. Improved governance lessens the impact of wealth disparity on GDPg.

Khyareh and Amini (2021) analysed the influence of all governance variables and entrepreneurship on GDP growth for sixty-four nations and used panel data from 2010-2018. They used 3SLS for estimation. The outcomes indicate that the entrepreneurship and governance variables significantly affect GDP growth; however, the impact relies on the development phase of the economy. Emara and El Said's (2021) empirical study examines the link between financial inclusion, governance, and GDP in the MENA area. A GMM approach is used on data for 44 (forty-four) emerging markets (EMs) from 1990-2018, with several financial inclusion metrics spanning household and corporate access to credit. They found that financial inclusion positively influenced GDP in the chosen nations. Financial inclusion has an optimistic and considerable influence on GDP but requires solid governance. The findings also show that the influence on enterprises' access to funding is only substantial in the occurrence of strong institutions.

Mahran (2023) studied the influence of governance on GDP growth for 116 nations worldwide, employing spatial regression models. The outcomes demonstrate that governance bears a positive influence on GDP growth. Simionescu (2023) offers fresh insights into the renewable energy-GDPg nexus by examining the function of governance. Their investigation, which focused on eleven countries in the EU from 2002 to 2021, yielded little conclusions to guide future energy strategies. The beneficial impact of renewable energy use (REC) on GDP becomes more important when the research is undertaken between 2010 and 2021 when nuclear energy usage has a low and adverse influence on GDP. Corruption control and the rule of law

are critical to promoting REC, while an effectual political framework may make nuclear energy more successful GDPg.

Chinoda and Kapingura (2024) investigated the impact of institutions and governance on the GDP nexus in Sub Saharan-Africa (SSA) between 2014 and 2020. They use the GMM approach for estimation. They found that institutional quality and governance have a beneficial impact on GDP. Al-Saadi and Khudari (2024) sought to understand the dynamic link between excellent governance and GDP in Oman. They employ OLS and the ARDL for estimation. They find a bi-directional causal link between the GGI and GDP. Onafowora and Owoye (2024) use data from diverse Caribbean nations to examine six dimensions: government quality, trade openness, inflation, investment, and human capital. They take a holistic approach, ensuring a detailed grasp of the region's economic situation during these challenging times. Their findings show a strong unfavorable relationship between several aspects of governance and the current pandemic issue. Governance indices as well as government performance, appear as positive drivers of economic growth. Beyene (2024) examines how governance quality influences economic growth in 22 SSA countries. They used the GMM to examine the data from 2002-2020. Their overall findings suggested that the composite governance index had an optimistic, noteworthy influence on the nation's economic growth.

3. Theoretical framework

The factors that affect economic growth have been studied in growth theories ranging from classical to new growth theories which consist of varying natures of factors that can affect GDP growth. The determinants of GDP growth are different for different models. There is no agreement regarding the determinants of GDP growth, but different factors can affect GDP growth. The factors that affect economic growth may be different for advanced and emergency economies (Al-Adlani, 2019). Their study focuses only on the Solow growth model, Mankiw et al. (1992) framework, and analyses the factors that affect economic growth. Solow growth model was presented by Solow (1956). According to this model, labour force, capital accumulation, and technological progress are the main factors that affect GDP growth. In Solow's model, labour and capital exhibit “diminishing returns” while advancement in technology is exogenously determined (Al-Adlani, 2019). The principal supposition is that an economy's growth rate decreases due to diminishing returns to investment. At the same time, it advances from below to its steady-state level of capital per worker. This suggests that, away from a steady state, with other things remaining the same, the growth in advanced nations will be slower than in the backward nations, where capital per worker is in progress. While the rate of savings and growth of the population bear level effects. The country is richer in a steady state when the rate of saving is higher, or the growth rate of the population is lower. The rate of advancement in technology settles the steady state level of growth (Kong, 2007).

The conventional Solow growth model stated above was augmented by Mankiw et al. (1992) and introduced a new variable which is called human capital in the model as follows:

$$Y = K^\alpha HK^\beta (AL)^{1-\alpha-\beta} \tag{1}$$

Where α and β are numbers greater than zero and $\alpha+\beta$ is less than one. The Y shows output, which relates to the quantity of physical capital (K), labour (L), and human capital (HK). The A shows technology that grows at a rate g and which is determined exogenously (Ahmad & Nayan, 2020).

The institutional works using the Solow/MRW framework usually include an institution term (which is generally denoted by I) in the following manner:

$$Y = IK^\alpha H^\beta (AL)^{1-\alpha-\beta} \tag{2}$$

Where the study demonstrates the effect of institutions on output (Ahmad & Nayan, 2020). Several institutional studies use this framework, such as Hall and Ahmad (2014), and Lee and Kim (2009).

4. Empirical methodology and data sources

The study uses panel data from SAARC countries from 1996-2020. Data on GDP Growth (Y) (annual %age), labour force participation (L) (annual %), K, HK, net inflows (% of GDP) as a proxy for FDI, and consumer prices (annual %) as a proxy for inflation rate were taken from World Development Indicators (WDI) (2024). In contrast, data on corruption (CC) and political stability (PS) were taken from Worldwide Governance Indicators ((WGI) (2024). The range of governance indicators is from -2.50 to 2.50. These values show weak and strong governance performance, respectively. The values are ranked in the order of 1 for -2.50 and 100 for 2.50.

4.1. Description of variables

Table 1: Description of variables

Description	Measurement	Marks
GDP growth (annual %)	Percentage	Y
Corruption	Ranges from -2.5 (weak) to 2.5 (strong)	CC
Political Stability	-do-	PS
Labour force participation, total	(% of total population ages ≥ 15)	L
Gross fixed capital formation (% of GDP)	Percentage	K
School enrolment, secondary (% gross)	Percentage	HK
Foreign direct investment, net inflows (% of GDP)	Percentage	FDI
Inflation, consumer prices (annual %)	Percentage	INF

4.1.2. Model specification

To analyse the impact of governance on GDP growth, the following model is used for this research:

$$Y = f(CC, PS, L, K, HK, FDI, INF)$$

The above model is written in the following general growth equation:

$$Y_{it} = \beta_0 + \beta_1 CC_{it} + \beta_2 PS_{it} + \beta_3 L_{it} + \beta_4 K_{it} + \beta_5 HK_{it} + \beta_6 FDI_{it} + \beta_7 INF_{it} + \mu_{it} \quad (3)$$

In the above equation, β s are the coefficients, i denotes country, t denotes time period, and μ is the error term. β_i is a constant parameter different for each country but fixed over time for the same country.

4.1.3. Estimation approaches

This study combines econometric techniques, i.e., cross-section dependence (CD) tests, first generation and second-generation panel unit root tests, panel ARDL/PMG, and Granger causality test.

4.1.4. Cross-section dependence (CD) tests

I employ commonly used CD tests which are prerequisites before conducting the empirical examination of the panel data set. These tests comprise Breusch-Pagan LM, Pesaran scaled LM, Bias-corrected scaled LM, and Pesaran CD.

$$CD = \sqrt{\frac{2F}{N(N-1)}} \sum_{l=1}^{N-1} \sum_{j=i+1}^N \frac{(F-d)\hat{\rho}_{ij}^2 - E(F-d)\hat{\rho}_{ij}^2}{var[(F-d)\hat{\rho}_{ij}^2]} \quad (1)$$

4.1.5. Panel unit root tests

Before empirical examination of the data set, the stationarity of the data must be tested. Therefore, I use first-generation tests, LLC, ADF, and IPS tests, along with the second-generation Pesaran CIPS tests.

$$t_{IPS} = \frac{\sqrt{N} \left[\bar{t} - \frac{1}{N} \sum_{i=1}^N E[t_{iT} | \rho_i = 0] \right]}{\sqrt{\frac{1}{N} \sum_{i=1}^N Var[t_{iT} | \rho_i = 0]}} \quad (2)$$

4.1.6. Pooled mean group (PMG) estimation

Based on the integration of the data set, I am supposed to employ ARDL/PMG to find out the impacts of governance indicators (PS and CC) along with other variables i-e L, K, HK, FDI, and INF on GDP growth. The ARDL/PMG method is used when there is stationarity in all the

variables at level, or the first difference, or a mixture of both. The ARDL/PMG procedure gives consistent coefficients even with possible endogeneity, as it includes independent variables and response variable lags (Pesaran et al., 1999). The panel ARDL (p, q, q, ..., q) suggested by Pesaran et al. (1999) is employed in this study and can be written as under:

$$Y_{it} = \sum_{j=1}^p \lambda_{ij} Y_{i,t-j} + \sum_{j=0}^q \delta_{ij} X_{i,t-j} + \mu_i + \epsilon_{it} \quad (4)$$

In equation (3.4), the subscript i represents country (group). In this case $i = 1, 2, \dots, N$, where $N = 4$. The subscript t shows the period. In this case $t = 1, 2, \dots, T$, where $T = 25$. Y_{it} is the response variable which represents the gross domestic product, X_{it} ($k \times 1$) represents a vector of regressors, λ_{ij} denotes the coefficients of the lagged dependent variables, μ_i indicates the fixed effects, ϵ_{it} is the error term, and δ_{ij} represents ($k \times 1$) coefficient vectors showing the coefficients of the lagged independent variables.

The reparametrized form of equation (3.4) can be written as follows which can achieve the objectives of this study:

$$\Delta Y_{it} = \phi_i Y_{i,t-1} + \beta_i X_{it} + \sum_{j=1}^{p-1} \lambda_{ij} \Delta Y_{i,t-j} + \sum_{j=0}^{q-1} \delta_{ij} \Delta X_{i,t-j} + \mu_i + \epsilon_{it} \quad (5)$$

Where

$$\phi_i = -(1 - \sum_{j=1}^p \lambda_{ij}), \quad \beta_i = \sum_{j=0}^q \delta_{ij}, \quad \lambda_{ij} = -\sum_{m=j+1}^p \lambda_{im}, \quad j = 1, 2, \dots, p-1 \quad (6)$$

and $\delta_{ij} = -\sum_{m=j+1}^q \delta_{im}, \quad j = 1, 2, \dots, q-1$. equation 2, ϕ_i indicates the co-efficient of the speed of adjustment towards the long-term equilibrium.

5. Results and discussion

5.1. Descriptive statistics

Table 2 demonstrates descriptive statistics for the variables of the study. Descriptive statistics summarizes the data in a meaningful and understandable way. The average value of 5.0822 for GDP growth indicates that these countries progressed at a satisfactory rate at the given period, but the value of the standard deviation of 2.5762 for GDP growth indicates that the individual values are scattered widely about the mean, which means that there is more variation in the data set. There is also a big difference between the highest value of 9.1445 and the smallest value of -7.9646. The value of skewness for GDP growth is -1.7967, which shows negative skewness, and more values lie on the left side of the curve, which makes the left tail longer than the right tail. Negative skewness further shows that the data is more towards the upper side of the distribution and away from the mean. The value of kurtosis for GDP growth is 9.2344, which shows that the curve is leptokurtic. Leptokurtic distribution shows the existence

of large outliers in the data. The average value for control of corruption is 38.0200 which is very low indicating a high degree of corruption in these countries. It has a huge value of 7.6303 of standard deviation which shows that the individual values are more away from the mean value. There is also a big difference between the maximum and minimum values. There is negative skewness in the variable control of corruption, which indicates that more values lie on the upper or high side and above the average value of the distribution.

The value of kurtosis shows that the curve is Platykurtic which means that there are small outliers in the distribution. The mean value for political stability is 25.3000, which is very low indicating that these countries faced extreme political instability in the study period. A huge value of 12.4766 of standard deviation for political stability demonstrates a huge variation in the data. Moreover, the curve for political stability is negatively skewed and platykurtic. Similarly, the average value for the labour force is 1.6880, which shows that the labour force is increasing rapidly in these countries. The value of the standard deviation is 1.8306, which indicates that the individual values are not very far from the mean value. Further, the curve for the labour force is negatively skewed and leptokurtic. The average value for capital is 26.0068, which indicates a low rate of capital formation. The standard deviation of 6.9483 shows more variation in the data. The curve for capital is positively skewed, indicating that the right tail is longer than the left tail, which means that the data is more bent toward the lower side to the mean value and below the mean. The value for kurtosis confirms that the curve is platykurtic, indicating small outliers. Moreover, the descriptive statistics for the variables, human capital, foreign direct investment, and inflation, can be explained similarly.

Table 2: Descriptive statistics

Variables	Y _{it}	CC _{it}	PS _{it}	L _{it}	K _{it}	HK _{it}	FDI _{it}	INF _{it}
Mean	5.0822	38.0200	25.3000	1.6880	26.0068	60.3546	1.1807	7.2111
Median	5.2673	38.5000	27.0000	1.7834	26.4316	53.2002	1.0549	6.4981
Max	9.1445	51.0000	53.0000	7.9380	41.9308	100.000	3.6683	22.564
Min	-7.9646	21.0000	1.0000	-5.1627	14.1206	22.5114	0.0291	2.0071
Std. dev	2.5762	7.6303	12.4766	1.8306	6.9483	24.1972	0.7146	3.7379
Skewness	-1.7967	-0.2679	-0.26795	-0.4869	0.1464	0.2532	1.3551	1.4040
Kurtosis	9.2344	1.9154	2.8766	6.1646	2.4194	1.8190	5.1997	5.8694

5.2. Correlation matrix

Table 3 exhibits the correlation matrix for all the variables. It indicates the association between the variables. A positive sign indicates a positive correlation, whereas a negative sign shows a negative correlation. The value of the correlation coefficient signifies how strongly the variables are correlated. Human capital and control of corruption have the highest degree of correlation, while political stability and GDP growth have the lowest correlation. Capital is the most effective variable in terms of its association with GDP growth. Labor is the next most effective variable in terms of its association with GDP growth.

Table 3: Correlation matrix

Variables	Y _{it}	CC _{it}	PS _{it}	L _{it}	K _{it}	HK _{it}	FDI _{it}	INF _{it}
Y _{it}	1							
CC _{it}	0.0515	1						
PS _{it}	0.0081	0.3207	1					
L _{it}	0.1791	-0.4391	-0.2937	1				
K _{it}	0.4011	0.4998	0.5076	-0.4417	1			
HK _{it}	0.0472	0.6719	0.4935	-0.5717	0.5618	1		
FDI _{it}	0.0326	0.3178	-0.1296	-0.2512	0.3186	0.1725	1	
INF _{it}	-0.1059	0.0668	-0.3879	0.0353	-0.0668	0.0414	0.3389	1

5.3. Cross-section dependence (CD) tests results

Table 4 reports the results of -cross-sectional dependency tests. Four tests are used to verify the cross-section dependency in the data set. The H₀ of “no CD” for all the tests and variables is rejected at 1% except for the variable control of corruption. Therefore, there exists CD in the data of this study.

Table 4: CD tests results

Tests/Variables	Breusch-Pagan LM	Pesaran scaled LM	Bias-corrected scaled LM	Pesaran CD
Y _{it}	31.61692* (0.0000)	7.394967* (0.0000)	7.311633* (0.0000)	5.388985* (0.0000)
CC _{it}	5.742319 (0.4527)	-0.074386 (0.9407)	-0.157719 (0.8747)	0.193427 (0.8466)
PS _{it}	25.85330* (0.0002)	5.731154* (0.0000)	5.647821* (0.0000)	1.148158 (0.2509)
L _{it}	33.52222* (0.0000)	7.944981* (0.0000)	7.861648* (0.0000)	5.613563* (0.0000)
K _{it}	26.32787* (0.0002)	5.868151* (0.0000)	5.784817* (0.0000)	0.586964 (0.5572)
HK _{it}	117.3066* (0.0000)	32.13145* (0.0000)	32.04812* (0.0000)	10.80604* (0.0000)
FDI _{it}	15.93070 (0.0141)	2.866746* (0.0041)	2.783412* (0.0054)	3.084001* (0.0020)
INF _{it}	21.03807* (0.0018)	4.341117* (0.0000)	4.257784* (0.0000)	4.043179* (0.0001)

Note: the p-value is inside the () parenthesis, * represents the significance level at 1%.

5.4. Panel Unit Root Test (PURT) results

Table 5 depicts the PURT results of LLC, IPS, and ADF tests are 1st generation unit root tests, While the Pesaran CIPS test is a 2nd -generation test. The results obtained from these tests point out that the variables namely, CC, FDI, and INF confirm stationarity at the level I(0), whereas Y, L, K, and HK confirm stationarity at 1st difference I(1). The mixed order of integration permits us to use the Panel ARDL/PMG approach to estimate the long-period equilibrium among the variables.

Table 5: Panel unit root test results (first and second generation)

Variables	At level				1 st difference				Decision
	LLC	IPS	ADF	CIPS	LLC	IPS	ADF	CIPS	
Yit	1.60 (0.95)	-1.35 (0.09)	12.70 (0.17)	-3.60*	-5.29* (0.00)	-6.17* (0.00)	48.34* (0.00)	-5.91	I(1)
CCit	-3.15* (0.00)	-3.27* (0.00)	26.23* (0.00)	-2.37**	-5.08 (0.00)	6.05 (0.00)	47.90 (0.00)	-4.71	I(0)
PSit	-0.52 (0.30)	-0.09 (0.46)	6.91 (0.55)	-2.53**	-7.70* (0.00)	-6.60* (0.00)	52.40* (0.00)	-4.12	I(1)
Lit	3.72 (0.99)	0.42 (0.66)	5.86 (0.66)	-3.14*	-4.80* (0.00)	-10.08* (0.00)	80.74* (0.00)	-4.07	I(1)
Kit	-0.35 (0.36)	-0.29 (0.39)	7.50 (0.48)	-2.31	-6.30* (0.00)	-6.45* (0.00)	50.61* (0.00)	-3.74*	I(1)
HKit	0.48 (0.69)	2.77 (0.99)	1.50 (0.99)	-1.60	-5.47* (0.00)	-4.64* (0.00)	36.30* (0.00)	-2.61*	I(1)
FDIit	-1.98** (0.02)	-2.95* (0.00)	23.98* (0.00)	-2.53**	-2.77 (0.00)	-4.03 (0.00)	35.83 (0.00)	-4.38	I(0)
INFit	-3.32* (0.00)	-3.42* (0.00)	25.70* (0.00)	-1.75	-10.09 (0.00)	-9.23 (0.00)	74.39 (0.00)	-3.79*	I(0)

Note: Null hypothesis: Unit root, inside the () parentheses, is p-value, 1% and 5% level of significance are denoted by * and ** respectively. -2.59 and -2.34 are the critical values for CIPS at 1% and 5%.

5.5. Pooled mean group (ARDL/PMG) results

Table 6 indicates that. In the long run, CC has a negative and noteworthy impact on GDP growth at a 5% level of significance which is according to the theory. The coefficient of the size 0.0423 reveals that economic growth decreases by 0.0423 percent due to one unit increase in corruption, indicating that corruption is a bottleneck to GDP growth. The result is similar to the findings of (Azam, 2022; Boussalham, 2018; Obamuyi & Akinbobola, 2018; Pere, 2015), as opposed to the finding of (Uzelac et al., 2020). PS has an encouraging and noteworthy impact on GDP growth at a 10% level of consequence, meaning that PS enhances GDP growth in the long term. The coefficient 0.0159 for PS depicts that one unit rise in PS boosts GDP growth by 0.0159%. The result is similar to the findings of (Aisen & Veiga, 2013; Awan et al., 2018; Azam, 2022; Sweidan, 2016), while opposed to the finding of (Bhattacharjee & Haldar, 2015; Pere, 2015). The impact of L is optimistic and noteworthy on GDP growth, indicating that GDP growth rises with the rise in L. A 1% rise in L enhances GDP growth by 0.7811%. The result is similar to the finding of (Nazir & Anwar, 2013). The impact of capital on GDP growth is also optimistic and noteworthy at a 1% level of significance which indicates that GDP growth accelerates with the rise in capital. A 1% addition to capital boosts GDP growth by 0.4736%. The result is similar to the findings of (Bhattacharjee & Haldar, 2015; Sarwar et al., 2013).

HK is positively related to GDP growth at a 1% level of significance, which denotes that human capital accelerates GDP growth. The estimated coefficient of size 0.0518 for HK illustrates that a 1% increase in HK brings about 0.0518% addition to GDP growth. The result is similar to the findings of (Ada & Acaroglu, 2014; Bhattacharjee & Haldar, 2015). The impact of FDI on GDP growth is also optimistic and noteworthy at a 1% significance level, meaning FDI benefits GDP growth. The coefficient of 0.5068 for FDI signifies that a 1% increase in FDI accelerates

GDP growth by 0.5068%. The result is similar to the findings of (Driffield & Jones, 2013). The impact of INF on GDP growth is negative and significant at a 1% significance level. The estimated coefficient for INF is -0.0667, which reveals the negative link between INF and GDP growth, indicating that high INF discourages GDP growth. A 1% hike in INF decreases GDP growth by 0.0667%. The result is similar to the outcomes of (Azam, 2022; Nazir & Anwar, 2013), while opposed to the result of Sarwar et al (2013). All variables show a noteworthy impact on the GDP growth of SAARC nations.

In the short run CC and INF have negative but insignificant impacts on GDP growth. The impact of K and HK on GDPg is positive but insignificant at a 10% significance level. The influence of one period lag of PS, L, and FDI is positive but insignificant on GDP growth. In the short run, no variable has a significant impact on GDPg. The value of ECT, which shows an error correction coefficient, is -0.7237, which has a negative significant impact at a 10% significance level. The value of ECT signifies the pace of adjustment towards the long-run equilibrium which is about 72% from 1996 to 2020.

Table 6: ARDL/PMG results

Variable	Coefficient	Std. error	t-statistics	p-value
Long-run Results				
CC _{it}	-0.042303**	0.015556	-2.719478	0.0117
PS _{it}	0.015922***	0.009611	1.656569	0.0901
L _{it}	0.781123*	0.084195	9.277549	0.0000
K _{it}	0.473649*	0.041458	11.42483	0.0000
HK _{it}	0.051802*	0.009299	5.570410	0.0000
FDI _{it}	0.506873*	0.138043	3.671853	0.0011
INF _{it}	-0.066710*	0.015630	-4.268085	0.0002
Short run equation				
ECT	-0.723701***	0.392993	-1.841512	0.0774
Δ (Y _{it-1})	0.179264	0.297141	0.603296	0.5517
Δ (CC _{it})	-0.021783	0.268791	-0.081039	0.9361
Δ (PS _{it-1})	0.180960	0.157942	1.145741	0.2628
Δ (L _{it-1})	0.001671	0.389643	0.004289	0.9966
Δ (K _{it})	0.584713	0.405637	1.441469	0.1619
Δ (HK _{it})	0.059777	0.235277	0.254071	0.8015
Δ (FDI _{it-1})	1.088051	0.493675	2.203983	0.8649
Δ (INF _{it})	-0.021368	0.124299	-0.171907	0.8649
C	-2.472849**	1.056059	-2.341582	0.0275

Note: *, **, and *** denote 1%, 5%, and 10% levels of significance respectively.

5.6. Panel granger causality test results

Table 7 depicts the results of the panel Granger causality test to identify the causality between the study variables. The outcomes in Table 6 demonstrate the presence of one-sided causality running from Y to HK, from Y to FDI, from CC to PS, from CC to L, from PS to INF, from L to Y, from K to CC, from K to PS, from K to HK, from K to FDI, from HK to CC, from HK to

PS, from HK to L, from FDI to CC, from FDI to INF, and from INF to K, while two-sided causality between PS and L, and L and K.

Table 7: Pairwise Granger Causality Test Results

Variables	Y_{it}	CC_{it}	PS_{it}	L_{it}	K_{it}	HK_{it}	FDI_{it}	INF_{it}
Y_{it}	-	1.791 (0.139)	1.444 (0.220)	1.837 (0.165)	2.386 (0.125)	8.274* (0.005)	5.964* (0.004)	0.260 (0.611)
CC_{it}	0.533 (0.661)	-	3.251** (0.026)	8.4528* (0.005)	0.531 (0.590)	1.264 (0.288)	2.412 (0.124)	1.040 (0.358)
PS_{it}	0.966 (0.432)	0.960 (0.387)	-	5.499** (0.021)	1.187 (0.320)	0.624 (0.601)	0.789 (0.504)	3.848** (0.025)
L_{it}	5.536* (0.002)	2.2290 (0.139)	6.044* (0.004)	-	3.674** (0.016)	1.397 (0.253)	1.181 (0.312)	2.312 (0.132)
K_{it}	1.664 (0.155)	2.294*** (0.055)	3.725** (0.014)	10.560* (0.002)	-	7.440** (0.032)	3.172** (0.047)	1.066 (0.379)
HK_{it}	1.173 (0.329)	2.428** (0.044)	11.892* (0.001)	5.987* (0.001)	0.221 (0.802)	-	1.328 (0.270)	0.821 (0.516)
FDI_{it}	0.962 (0.433)	2.897** (0.028)	1.137 (0.346)	1.630 (0.202)	1.648 (0.159)	0.548 (0.461)	-	2.265*** (0.070)
INF_{it}	0.440 (0.509)	0.630 (0.678)	0.956 (0.418)	1.497 (0.202)	2.626** (0.031)	0.772 (0.513)	1.653 (0.198)	-

*, **, and *** show significance levels at 1%, 5%, and 10% respectively, and the () parenthesis indicates the p-value. The selected lags range from 1 to 5.

6. Conclusion and recommendations

The basic purpose of the paper is to empirically explore the causal relationship between governance indicators (corruption and political stability) and GDP growth along with other control variables (labour, capital, human capital, FDI, and inflation rate) of four SAARC countries using panel data from 1996-2020. The data for control of corruption and political stability were obtained from WGI and data for labour, capital, human capital, FDI, and inflation were taken from WDI. The study applied the panel ARDL/PMG estimator to investigate the impact of governance indicators namely corruption and political stability along with additional macroeconomic variables namely labour, capital, human capital, FDI, and inflation on GDP growth. The study also applied a pairwise Granger causality test to explore the causal relationship among the variables of the study. The findings obtained from the panel ARDL/PMG demonstrate that CC bears a negative while PS bears an optimistic impact on the GDP growth of four SAARC countries. The influence of both indicators is statistically significant. The results point out that corruption impedes economic growth, while PS accelerates economic growth in SAARC countries during the study period. The control variables of the study also have both theoretical and empirical importance in shaping GDP growth in SAARC nations as these variables have a significant effect on GDP growth.

The impact of L, K, HK, and FDI on GDP growth is positive, while the impact of INF on GDP growth is negative. In the short run, all the control variables have an insignificant impact on GDP growth. The results of the pairwise Granger causality test reveal the presence of bidirectional causality between PS and L, and L and K, and unidirectional causality running

from GDP growth to HK, from GDP growth to FDI, from CC to PS, from CC to L, from PS to INF, from L to GDP growth, from K to CC, from K to PS, from K to HK, from K to FDI, from HK to CC, from HK to PS, from HK to L, from FDI to CC, FDI to INF, and from INF to K. The outcomes obtained from the study also indicate that good governance bears a positive influence on the macro performance of SAARC countries while weak governance slows down the macro performance of SAARC countries.

About the empirical results of the study, it is recommended that the SAARC countries bolster their institutions and strengthen their governance to ensure speedy economic growth. It is of immense importance for the SAARC nations to root out the main causes of corruption and political instability and to lessen its impact on the development and execution of economic policies. The government should review its current policies and reforms on corruption to cope with the reasons of corruption instead of its effects. Priority should be given to the CC, improvement of the PS, and other governance indicators because they have greater growth-accelerating attributes.

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