Public Governance, Administration and Finances Law Review Vol. 10. No. 2. (2025) • 69–90.

DOI: 10.53116/pgaflr.8335

Government Effectiveness: A Global Comparative Analysis Using World Bank Governance Indicators

Eltayeib Hussein Mahmoud Sharaf Addin*

* Associate Professor, Department of Law, College of Business Administration, Northern Border University, Arar, Kingdom of Saudi Arabia, e-mail: E.SharafAddin@nbu.edu.sa

Submitted: 5 July 2025 | Accepted: 22 November 2025 | Published online: 17 December 2025

Abstract: This study analyses the effectiveness of government, which is crucial for a stable society, and it examines whether government effectiveness (GE) varies significantly across global regions and income groups. Using the World Bank's Worldwide Governance Indicators (WGI) data over 2023, the study compares differences in GE scores among seven geographic regions and three income groups based on the ANOVA approach and Tukey's HSD post-hoc tests. Due to its comprehensive and up-to-date comparison, the study offers new insights into institutional performance. Results indicated that the quality of GE differs significantly by region and income level. High GE scores consistently belong to high-income countries, whereas low-income countries, particularly those in Sub-Saharan Africa and South Asia, tend to be less effective in this regard. Regional differences also exist, with Europe, Central Asia and North America being more effective than other regions. These results suggested the need for policy enhancement and institutional development in the countries of the underperforming regions. Improving governance is crucial for promoting inclusive growth, enhancing service delivery and achieving certain Sustainable Development Goals.

Keywords: government effectiveness, income groups, World Bank, regional disparities

1. Introduction

Governance is a concept prominently being employed in both public and private sectors. The English expression itself originates from the Latin *gubernare,* which, in turn, is either a cognate with or is derived from the ancient Greek word *kubernaein,* meaning to 'steer' or 'act as a helmsman'.[1] From early on, the term 'governance' was used to refer to the system of guiding and managing a system, prominently a government or some form

[1] See https://logeion.uchicago.edu/κυβερνάω

Corresponding author: Eltayeib Hussein Mahmoud Sharaf Addin

of human association. Generally, and in a public setting, governance involves the exercise of invested powers by a country's government to ensure the well-being of its citizens (Lynn et al., 2000; Rahaman, 2024). However, it can be applied both in theoretical outlooks and ideological positions (Hufty, 2011).

The World Bank defines governance as "conditions in a country as a whole" (World Bank, 1994, p. xiv). Accordingly, governance has three aspects: "(i) the form of political regime; (ii) the process by which authority is exercised in the management of a country's economic and social resources for development; and (iii) the capacity of governments to design, formulate, and implement policies and discharge functions" (World Bank, 1994, p. xiv). Similarly, Fukuyama (2013) defines governance as a government's capacity to enact and enforce laws and provide services, irrespective of its democratic status (Fukuyama, 2013). In comparison, Fasenfest (2010) states that governance is the management or leadership of the government through a series of decisions and processes intended to reflect societal expectations.

However, what is of particular significance with a view to commensurability is that the World Bank has adopted the Worldwide Governance Indicators (WGI), which aims to create a quantitative assessment of governance performance in support of establishing policy reforms and monitoring systems. These indicators encompass six governance dimensions across more than 200 countries from 1996 to 2023, including Government Effectiveness (GE), Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Regulatory Quality, Rule of Law and Control of Corruption (World Bank, 2024).

The WGI framework, developed by Kaufmann et al. (2010), remains the most widely used dataset for assessing institutional quality across countries. However, recent critiques have noted potential limitations in its aggregation methods and perception-based nature, which introduce uncertainty in cross-country comparisons (Langbein & Knack, 2010; Thomas, 2010). The WGI itself reports standard errors and confidence intervals to reflect this uncertainty, underscoring that differences in GE scores should be interpreted probabilistically rather than as exact point estimates.

With these limitations in mind, this study examines the variation in GE across world regions and income level groups to explain the methods and variables underlying institutional variances. As such, it labours to define patterns and examine the correlation between GE and essential socio-economic development indicators, and it analyses significant factors that lead to disparities among nations based on financial classifications. But it also monitors changes in GE over time, hence giving a complete picture of how administrative capacity evolves in different situations.

By GE, a measure of how well people perceive the quality and reliability of state institutions, which includes the quality of the civil service, the quality and availability of public services, the separation of administrative institutions from politics, the quality of policy formulation and implementation, and the overall trust in government promises to deliver policies are being understood. In short, GE refers to how well a government fulfils its duties and promotes the public good, which includes upholding law and order, collecting taxes, allocating funds to meet particular needs, building infrastructure and safeguarding human rights (Sori et al., 2024).

The study of measuring GE is vital for several reasons. First, GE directly relates to the population's well-being, as indicated by the quality of public services indicator (Garcia-Sanchez et al., 2013). Second, economic growth arises from GE and transparency in a globally integrated economic system through the political decision-making process and institutions (Nzama et al., 2023; Şaşmaz & Sağdıç, 2020). Third, GE, which pertains to the quality of policymaking and implementation, is associated with greater support for democracy (Magalhães, 2014). Fourth, GE ensures the rule of law through various mechanisms for life arrangements, including justice, equality before the law, non-discrimination, protection of human rights and freedoms, integrity, transparency, law enforcement, enactment and dispute settlement. Conversely, the rule of law also contributes to fulfilling the requirements for GE. Fifth, effective governments are the focal point for resource distribution, coordination and leadership during crises (Oluwaseyi et al., 2025). And sixth, an effective government can prevent violence against its population, uphold the integrity and efficiency of its bureaucracy, and facilitate the construction and maintenance of infrastructure that supports service delivery and the exchange of goods (Sacks & Levi, 2010).

This study contributes to the literature of GE by providing a fresher and multidimensional understanding of cross-country differences. Whereas previous studies like Garcia-Sanchez et al. (2013), Duho et al. (2020) and Halásková et al. (2023) gave valuable insights into the quality of the determinants of governance but chiefly utilised aged datasets or considered small regional samples, this study applies the most recent 2023 WGI data to trace the post-pandemic trajectory of institutional performance for seven world regions and three income groups. Using a stringent ANOVA–Tukey technique for analysis, the study evaluates whether the differences in governance are statistically significant and how they correspond to the level of economic development. Beyond delineating these differences, it provides policy-oriented interpretations by connecting the empirics to administrative capacity, transparency and institutional resilience-based reforms. Thus, the present inquiry not only refreshes but also expands the empirical comprehension of global governance effectiveness.

2. Methods

2.1. Data

This research uses the WGI data, focusing on GE in 2023. It measures citizens' perceptions along a range of governance dimensions, including the efficiency of public and civil services, the autonomy of administrative bodies from the political sphere, the quality of policy design and execution, and the believability of the government's policy commitments. GE scores range from approximately –2.5 to +2.5 and are standardised on a higher value, indicating greater institutional performance and capacity for governance.

The sample comprises a total of 213 countries from the World Bank's WGI dataset, version July 2023 update. Regional and income groupings are those of the World Bank Atlas's regional grouping. Breakdown of the countries across the regions is as follows: Europe and Central Asia (55), East Asia and Pacific (37), Latin America and the Caribbean

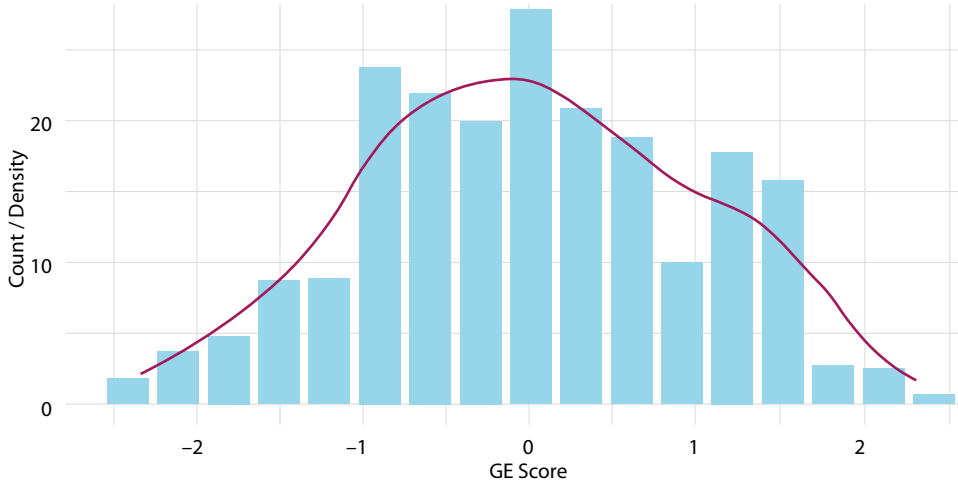

Figure 1

Distribution of government effectiveness (GE) scores across 213 countries (2023)

Note: Histogram showing the distribution of GE index values across all countries in the 2023 Worldwide Governance Indicators (WGI) dataset. The x axis represents the GE score, and the y axis shows the number of countries. The overlaid black line represents a kernel density estimate (Gaussian kernel, bandwidth = 0.30) to illustrate the smoothed distribution.

Source: World Bank, 2024

(41), Middle East and North Africa (19), South Asia (9), Sub-Saharan Africa (49) and North America (4: the United States, Canada, Bermuda and Greenland). Income-grouping categories are as follows: High-income (40), Middle-income (148) and Low-income (26).

The 2023 WGI dataset includes all the nations in full; thus, no nation's observation was left out due to missing government effectiveness (GE) scores.

The dataset encompasses 213 countries, each classified by region (based on the World Bank's seven-region classification) and income level (simplified into three tiers: Low, Medium and High), adapted from the World Bank's income groups.

Figure 1 displays the distribution of GE scores across countries in 2023 using a histogram overlaid with a smoothed density curve. The distribution is approximately bell-shaped, but slightly left-skewed, indicating that while a significant number of countries cluster around the global average (GE ≈ 0), there is a heavier tail of countries with negative effectiveness scores. This suggests that a considerable portion of countries face governance challenges, including low-quality public services, weak policy implementation, or limited bureaucratic capacity. Meanwhile, a smaller but distinct group of countries achieves high GE scores (above 1), reflecting strong institutions and well-functioning public administrations. The figure highlights the global divergence in governance quality, with a clear gap between low- and high-performing nations.

Table 1
Descriptive statistics of data based on regions

Region	Count	Mean	Median	SD	Min.	Max.
Classification by regions						
North America	4	1.263	1.367	0.366	0.764	1.555
Europe and Central Asia	55	0.619	0.713	0.87	−1.206	2.135
East Asia and Pacific	37	0.307	0.232	0.96	−1.753	2.317
Latin America and Caribbean	40	−0.026	−0.006	0.773	−2.225	1.626
Middle East and North Africa	19	−0.303	−0.24	1.13	−2.275	1.604
South Asia	9	−0.389	−0.252	0.766	−1.987	0.566
Sub-Saharan Africa	49	−0.787	−0.848	0.708	−2.328	0.71
Classification by income level						
High	40	1.185	1.202	0.577	0.008	2.317
Medium	147	−0.112	−0.097	0.795	−1.788	2.023
Low	26	−1.192	−1.147	0.691	−2.328	0.388

Note: SD: Standard deviation

Source: World Bank, 2024

To provide a clearer picture of the set of countries considered in this study, I have calculated the summary statistics for the different groups of countries based on the region and income level criteria. The results are provided in Table 1.

The results of descriptive statistics reveal significant heterogeneity in governance effectiveness across both regions and income levels. Notably, North America has the highest average GE score (mean = 1.263), with low dispersion, indicating consistently high institutional capability across the countries in this region. Europe and Central Asia also demonstrate strong governance outcomes (mean = 0.619) but exhibit greater heterogeneity (SD = 0.87), reflecting diversity among some countries. Conversely, Sub-Saharan Africa (−0.787) and South Asia (−0.389) record the lowest regional average scores, signalling weaknesses in systemic public sector quality and policy implementation. The Middle East and North Africa also show a negative regional average GE score (−0.303) and the highest standard deviation (1.13), indicating significant regional variations.

Latin America, the Caribbean, East Asia and the Pacific exhibit intermediate performance, with values close to zero but large variation. The wide gap between the minimum and maximum values across most regions underscores the divergent governance realities within regions, which are influenced by factors such as political stability, administrative professionalism and policy credibility.

The lower part of Table 1 shows apparent disparities in GE across income levels. High-income countries have the highest average GE score (Mean = 1.185), indicating strong institutional quality and governance, with relatively low variability (SD = 0.577). Medium-income countries exhibit a slightly negative average score (Mean = −0.112), indicating moderate governance performance with considerable variation (SD = 0.795). Low-income countries perform the weakest (Mean = −1.192), suggesting significant

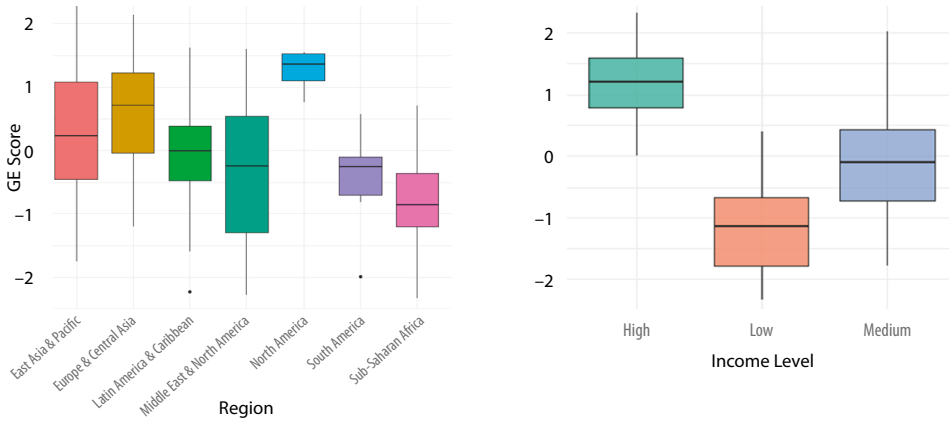

Figure 2

Government effectiveness by region (2023)

Note: This is a box plot comparing GE scores across seven regions. The central line within each box indicates the median, while the box edges represent the interquartile range (IQR). Sample sizes vary by region (ranging from 4 to 55 countries). The figure highlights substantial dispersion across regions, with higher medians observed in Europe, Central Asia and North America.

Source: World Bank, 2024

governance challenges, although variability is slightly lower than that of medium-income countries. These results highlight a strong positive association between income level and GE.

Figure 2 illustrates the distribution of GE scores in 2023 across regions (left panel) and income levels (right panel). The left panel reveals marked disparities across the seven regions. North America, Europe and Central Asia exhibit the highest median GE scores, indicating strong governance institutions and effective public sector performance. By contrast, Sub-Saharan Africa and South Asia display the lowest median scores, with wide interquartile ranges indicating variability in institutional quality within these regions.

The right panel shows that GE scores are positively associated with income level. High-income countries consistently report the highest GE scores, with the majority scoring above 1.0, reflecting efficient bureaucracies and credible policy environments. In contrast, low-income countries tend to cluster around negative values, underscoring the persistent institutional weaknesses. Middle-income countries occupy an intermediate position, characterised by a wider dispersion, indicating uneven governance capabilities within this group. Overall, the figure supports the notion that institutional effectiveness strongly correlates with economic development and regional context. These results support those previously documented by Kaufmann et al. (2010), who emphasise that governance quality and economic growth are closely linked. Also, these findings align with Halásková et al. (2023), who provide recent evidence of this positive correlation in European countries.

2.2. Methodology

This study employs a quantitative research design, utilising statistical processes to test group means comparisons and variation, and determine whether the GE score differs significantly across different regions and income groups. The primary objective is to determine, by using a cross-sectional approach based on 2023 data, whether the GE index differs in the predefined world regions and income groups. Thus, the purpose is descriptive rather than causal.

The primary statistical technique employed is the Analysis of Variance (ANOVA), which is suitable for comparing the means of a continuous variable (GE) across more than two independent groups. In this case, ANOVA is employed to test for differences among seven geographic areas and three income groups (high, medium and low). ANOVA is the appropriate analysis given the number of groups and the objective of identifying overall differences in governance performance. The ANOVA test considers the following hypotheses:

> **H0 (Null Hypothesis):** The mean GE scores are the same across all regions (or income groups).
> **H1 (Alternative Hypothesis):** A noteworthy difference exists between the mean GE scores of at least two groups (regions or income groups).

A significant ANOVA (P-value < 0.05) indicates the rejection of the null hypothesis, suggesting that not all group means are identical and that the differences in GE between the analysed categories are statistically significant.

Following a significant ANOVA result, the study employs *post-hoc* tests, specifically Tukey's Honest Significant Difference (HSD) test, to determine which groups differ. Tukey's HSD is one of the most widely used methods for pairwise comparisons with family-wise error rate control. It identifies which pairs of regions or income groups exhibit statistically significant differences in their GE scores, providing a clearer understanding of where the differences lie. The *post-hoc* results complement the ANOVA results by explicitly stating the sources of variation in GE.

The ANOVA technique was used because it offers a precise and reliable means of determining if government effectiveness differs across more than one group at a time. This study helps compare mean scores across seven regions and three income categories. Simple correlations or regressions that handle only pairs are distinct from ANOVA, which handles more than one category at a single instance and determines whether differences are significant. *Post-hoc* tests, such as Tukey's HSD, help further identify precisely which groups are different from each other. Generally, ANOVA provides a straightforward and helpful way of ascertaining how government effectiveness differs among regions and income levels (Field, 2013; Montgomery et al., 2022; Hair et al., 2020).

3. Results and discussion

3.1. ANOVA test results

Table 2 reports the results of the ANOVA tests used to assess whether GE scores differ significantly across regions and income groups.

Table 2
ANOVA test results

	SS (Sum of Squares)	DF	MSS (Mean Square)	η^2	F-statistic	P-value
ANOVA across regions						
Between groups (region)	64.42	6	10.737	0.30	14.8	0.00
Within groups (residual)	150.21	207	0.726			
ANOVA across income						
Between groups (income)	94.53	2	47.26	0.44	83.03	0.00
Within groups (residual)	120.1	211	0.57			

Note: The table presents the results of the ANOVA tests for the regional and income disparities in GE scores. The "SS" is the sum of squares, indicating the total variability attributable to each factor (region or income) and the residual error. "DF" refers to the degrees of freedom for every source of variation, and "MSS" provides the average variability by splitting the sum of squares by its degrees of freedom. "F-statistic" is the test statistic for determining whether the group means are significantly different from one another, and "P-value" is the statistical significance level. A P-value less than 0.05 shows that the observed differences are statistically significant. For both tests, P-values are 0.00, meaning GE scores vary significantly across regions and income groups at the 1% significance level.

Source: Author's calculation

Starting with the ANOVA by region, the test is statistically significant, with an F-statistic equal to 14.8 and a P-value of 0.00. This enables us to confidently reject the null hypothesis that GE scores are equal across all seven regions. The geographic variation in the mean GE scores does not result from random fluctuation; some regions are better or worse governed than others. The between-group variability (Sum of Squares [SS] = 64.42) is quite large relative to within-group (residual) variability (Sum of Squares = 150.21), again suggesting that geographic disparities in governance are real. Similarly, ANOVA by income level gives an even stronger result. The F-statistic is 83.03 with a P-value of 0.00, indicating a highly significant difference in GE scores between the three income groups. Here, the variation between income groups (Sum of Squares = 94.53) is much larger than the residual or unexplained variation (Residual Sum of Squares = 120.1), suggesting that income group strongly predicts GE. This is to be expected, as wealthier countries have more resources, infrastructure and institutions to help bring about GE.

These results highlight that geographical location and income level significantly explain the variation in GE scores. They pave the way for further analysis, using *post-hoc* tests to identify which geographical locations and income levels differ significantly.

The ANOVA results in Table 2 confirm that GE significantly differs across both regions and income groups, implying that economics and geography play a decisive role in institutional performance. Such evidence conforms to prior findings by Garcia-Sanchez et al. (2013) and Duho et al. (2020), who proved that differences in GE are highly linked to a country's degree of development and administrative capacity. Similarly, Halásková et al. (2023) also demonstrated that wealthier economies in Europe will generally experience stronger GE due to better public-service quality and the professionalism of institutions. However, the current results build upon this evidence, employing the most recent 2023 WGI dataset and evaluating both regional and income group categorisations simultaneously, presenting a more advanced, newer and broader perspective. The high and statistically robust F-values underscore that income level and location remain principal drivers of governance quality globally. This supports the proposition that enhancing administrative capability and policy credibility continues to be critical for reducing institutional disparities between developed and emerging economies.

Table 3 presents the results of the post-hoc pairwise comparison conducted using Tukey's HSD test. The results indicate significant differences in GE between regions and income levels. Sub-Saharan Africa is the only region with significantly lower GE scores compared to East Asia and Pacific, Europe and Central Asia, Latin America and the Caribbean, and North America. South Asia also scores significantly lower than North America, Europe and Central Asia. These trends reflect enduring gaps in GE in lower-performing regions. From an income perspective, the results clearly demonstrate that high-income countries have significantly higher GE scores than medium- and low-income countries, with medium-income countries outperforming those in the low-income category. These comparisons confirm the strong correlation between income level and GE, highlighting where institutional strengthening is most urgently needed across various regions and income groups.

Post-hoc results in Table 3 reveal significant differences in government effectiveness (GE) between income groups and regions, with the lowest mean scores consistently observed across South Asia and Sub-Saharan Africa. The results point to structural and institutional problems that are rooted deep. Fukuyama (2013) suggests that low bureaucratic capacity, politicisation of the civil service, and limitations in state autonomy commonly hinder policy implementation in developing economies. In Sub-Saharan Africa, weak institutions, fiscal capacities and high foreign aid dependence also undermine governance and collectively reduce policy stability and administrative professionalism (Sori et al., 2024). Similarly, Nzama et al. (2023) blame limited trade openness and institutional reforms for low GE in the developing world.

On the contrary, Europe, Central Asia and North America have higher GE levels due to stronger institutional designs, highly developed bureaucracies and transparent policy institutions (Halásková et al., 2023). These categories have merit-based civil services, stable political environments, and fair checks and balances that increase policy accountability and credibility. Divergence among these categories highlights the role of history-based

Table 3
Post-hoc comparisons of the GE Index using Tukey's HSD Test

	Difference	Lower	Upper	P-adjusted
Comparison by regions				
Europe and Central Asia – East Asia and Pacific	0.3118	–0.2275	0.8512	0.6023
Latin America and Caribbean – East Asia and Pacific	–0.3329	–0.9080	0.2423	0.6012
Middle East and North Africa – East Asia and Pacific	–0.6098	–1.3257	0.1060	0.1518
North America – East Asia and Pacific	0.9559	–0.3791	2.2909	0.3379
South Asia – East Asia and Pacific	–0.6968	–1.6395	0.2459	0.2995
Sub-Saharan Africa – East Asia and Pacific	–1.0942	–1.6466	–0.5418	0.0000
Latin America and Caribbean – Europe and Central Asia	–0.6447	–1.1681	–0.1214	0.0057
Middle East and North Africa – Europe and Central Asia	–0.9217	–1.5967	–0.2467	0.0013
North America – Europe and Central Asia	0.6441	–0.6695	1.9576	0.7681
South Asia – Europe and Central Asia	–1.0087	–1.9207	–0.0966	0.0197
Sub-Saharan Africa – Europe and Central Asia	–1.4061	–1.9043	–0.9078	0.0000
Middle East and North Africa – Latin America and Caribbean	–0.2770	–0.9809	0.4270	0.9040
North America – Latin America and Caribbean	1.2888	–0.0399	2.6174	0.0638
South Asia – Latin America and Caribbean	–0.3640	–1.2976	0.5697	0.9079
Sub-Saharan Africa – Latin America and Caribbean	–0.7613	–1.2982	–0.2245	0.0007
North America – Middle East and North Africa	1.5658	0.1704	2.9611	0.0169
South Asia – Middle East and North Africa	–0.0870	–1.1134	0.9394	1.0000
Sub-Saharan Africa – the Middle East and North Africa	–0.4844	–1.1698	0.2011	0.3543
South Asia – North America	–1.6527	–3.1769	–0.1285	0.0240
Sub-Saharan Africa – North America	–2.0501	–3.3691	–0.7311	0.0001
Sub-Saharan Africa – South Asia	–0.3974	–1.3172	0.5225	0.8576
Comparison by income level				
Low–High	–2.3764	–2.8250	–1.9278	0.0000
Medium–High	–1.2846	–1.6020	–0.9673	0.0000
Medium–Low	1.0918	0.7131	1.4704	0.0000

Note: Table 4 indicates that GE differs significantly across several regions and income levels. Sub-Saharan Africa and South Asia generally have lower GE scores than regions like Europe, Central Asia and North America. In terms of income, high-income countries perform significantly better than both medium- and low-income countries, confirming a strong link between income level and GE.

Source: Author's calculation

path dependencies, education quality and administrative culture in governance outcomes. Experiences of high-performing sub-regions also inform us that institutionalising professional civil services, politically neutralising the state, and building human capital are central to strengthening GE in emerging economies. The consequences, hence, are that increasing effectiveness in governance requires economic capital and institutional changes that build state capacity and accountability.

3.2. Assumptions and diagnostics for ANOVA

To confirm ANOVA results, the underlying assumption of normality is examined using the Shapiro–Wilk tests, and homogeneity of variances is checked using the Levene and Brown–Forsythe tests. The results of these tests are reported in Table 4.

Table 4
Normality and variance homogeneity tests

Shapiro residuals test				
	Statistic	**P-value**		
Region	0.9940	0.5446		
Income_Level	0.9943	0.6005		
Levene test				
	Statistic	**P-value**	**DF**	**DF-residual**
Region	2.5590	0.0206	6	207
Income_Level	2.9324	0.0554	2	211
Brown–Forsythe test				
	Statistic	**DF1**	**DF2**	**P-value**
Region	15.8940	6	108.4434	0.0000
Income_Level	106.2577	2.0000	86.1767	0.0000

Source: Author's calculation

The Shapiro–Wilk tests for model residuals confirmed that normality was not violated for either the regional or income-level models ($p = 0.54$ and 0.60, respectively). However, the Levene and Brown–Forsythe tests indicated partial heterogeneity of variances, particularly across regions ($p = 0.021$ and $p < 0.001$).

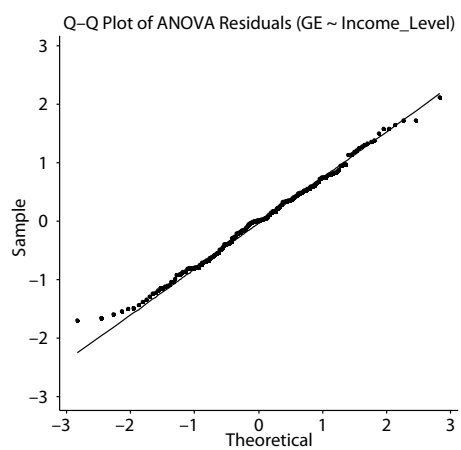

Figure 3
Q–Q plot of ANOVA residuals for GE by income level
Source: Author's calculation

Table 5
Welch ANOVA test results

	Statistic	DF1	DF2	η^2	P-value
Region	21.6486	6	31.9156	0.3	0.0000
Income_Level	119.1729	2	60.8391		0.0000

Source: Author's calculation

Table 6
Games–Howell analysis

Group 1	Group 2	Estimate	Conf. low	Conf. high	P-adjusted
Region					
East Asia and Pacific	Europe and Central Asia	0.3118	−0.2849	0.9086	0.6920
East Asia and Pacific	Latin America and Caribbean	−0.3329	−0.9364	0.2707	0.6350
East Asia and Pacific	Middle East and North Africa	−0.6098	−1.5649	0.3452	0.4290
East Asia and Pacific	North America	0.9559	0.0540	1.8578	0.0370**
East Asia and Pacific	South Asia	−0.6968	−1.7134	0.3198	0.2960
East Asia and Pacific	Sub-Saharan Africa	−1.0942	−1.6652	−0.5232	0.0000***
Europe and Central Asia	Latin America and Caribbean	−0.6447	−1.1524	−0.1370	0.0040***
Europe and Central Asia	Middle East and North Africa	−0.9217	−1.8304	−0.0129	0.0450**
Europe and Central Asia	North America	0.6441	−0.2654	1.5535	0.1830
Europe and Central Asia	South Asia	−1.0087	−1.9969	−0.0204	0.0440**
Europe and Central Asia	Sub-Saharan Africa	−1.4061	−1.8723	−0.9398	0.0000***
Latin America and Caribbean	Middle East and North Africa	−0.2770	−1.1893	0.6353	0.9570
Latin America and Caribbean	North America	1.2888	0.3809	2.1966	0.0100***
Latin America and Caribbean	South Asia	−0.3640	−1.3542	0.6263	0.8450
Latin America and Caribbean	Sub-Saharan Africa	−0.7613	−1.2375	−0.2852	0.0001***
Middle East and North Africa	North America	1.5658	0.5043	2.6272	0.0020***
Middle East and North Africa	South Asia	−0.0870	−1.2626	1.0886	1.0000
Middle East and North Africa	Sub-Saharan Africa	−0.4844	−1.3793	0.4106	0.5980
North America	South Asia	−1.6527	−2.7737	−0.5318	0.0040***
North America	Sub-Saharan Africa	−2.0501	−2.9781	−1.1221	0.0010***
South Asia	Sub-Saharan Africa	−0.3974	−1.3794	0.5847	0.7680
Income					
High	Low	−2.3764	−2.7718	−1.9810	0.0000***
High	Medium	−1.2846	−1.5534	−1.0158	0.0000***
Low	Medium	1.0918	0.7240	1.4595	0.0000***

Note: ** and *** indicates statistical significance at the 5% and 1% levels, respectively.
Source: Author's calculation

Figure 3 presents a Q–Q (quantile–quantile) plot assessing the normality of residuals from the ANOVA model testing differences in GE across income levels. The x axis

represents theoretical quantiles from a standard normal distribution, while the y axis shows the standardised residuals from the model.

Given these unequal group sizes, such as only four observations for North America, Welch's ANOVA was applied as a robustness check (Table 5). The Welch tests yielded the same overall significance patterns as the classical ANOVA ($F = 21.65$ for regions and 119.17 for income groups, $p < 0.001$), confirming the stability of the findings.

Because homogeneity was not fully satisfied, *post-hoc* comparisons were performed using the Games–Howell procedure, which does not assume equal variances. Table 6 presents mean differences with 95% confidence intervals and adjusted P-values controlling the family-wise error rate. Effect sizes were calculated using η^2 to indicate the magnitude of differences ($\eta^2 = 0.41$ for regions and 0.49 for income levels), representing significant effects according to Cohen's (1988) benchmarks. Together, these diagnostics and robust procedures ensure that the reported significance levels are reliable and not driven by heteroskedasticity or multiple-testing bias.

3.3. Panel analysis between 1996 and 2023

To complement the cross-sectional results, a graphical panel-based analysis is conducted in this section to monitor the evolution of GE by geographic area and income group from 1996 to 2023. Figures 4 and 5 plot the time trends in the mean GE scores to visualise whether institutional performance has converged or diverged between groups over nearly three decades.

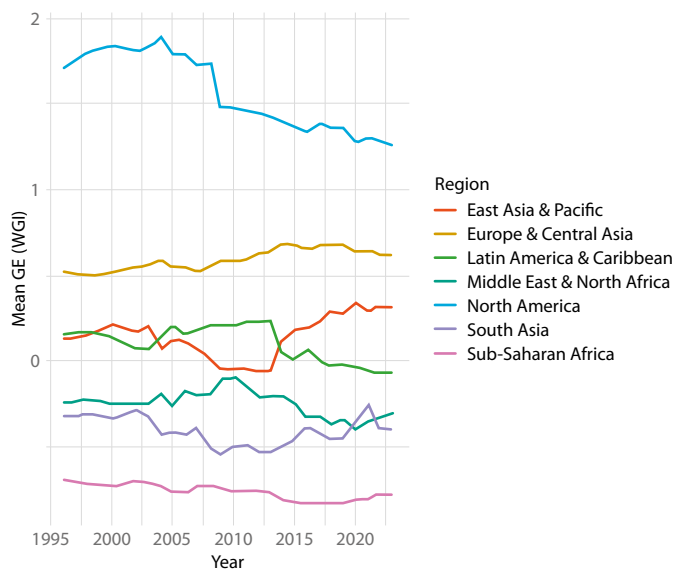

Figure 4

Trend of government effectiveness by region (1996–2023)

Source: World Bank, 2024

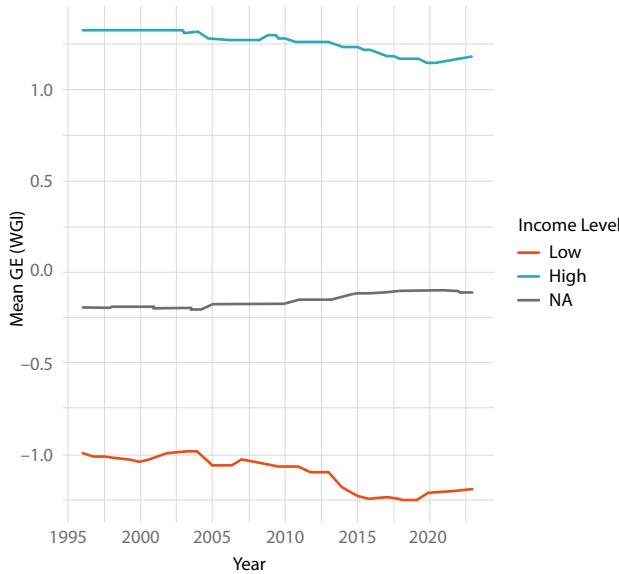

Figure 5
Trend of government effectiveness by income level (1996–2023)
Source: World Bank, 2024

Regional trends reveal a persistent divergence in institutional performance globally. Throughout the entire span, North America boasts the highest GE scores, substantially more than 1.5, reflecting long-standing institutional stability and superior administrative capacity. On the other hand, Europe and Central Asia follow with consistently high but somewhat lower scores, reflecting robust governance structures in most European countries and gradual improvement among transition economies.

South Asia and Sub-Saharan Africa are once more on the lower end of the distribution, with GE values consistently negative, indicating poor policy implementation, service delivery and public administration.

The East Asia and Pacific region are in the middle with stable performance. At the same time, Latin America and the Caribbean and Middle East and North Africa exhibit higher volatility, which means political change, reform, or instability at times.

Generally, no convergence is seen: the distance between high-performing and low-performing countries is vast, which suggests that institutional improvement has been uneven all over the world.

The trends based on income further highlight the structural relationship between economic development and governance capacity. The high-income nations consistently show the highest GE values, well over 1.0 throughout the entire period, with barely a wiggle, pointing to the stability of the leading institutions. On the other hand, low-income countries possess negative GE values (of around −1.0), and their trend shows scant long-term advancement, suggesting that efforts at capacity building and governance reform have not yet yielded lasting gains. The middle-income category stands at an intermediate level,

but the moderately increasing trend indicates step-by-step institutional strengthening in developing economies.

These trends support the two-way ANOVA results, which indicated that income level accounts for a greater proportion of the variance in GE than regional classification.

Overall, the panel analysis reinforces that economic development continues to be the primary driver of institutional performance, with regional context contributing secondary but enduring differentiation. Even after global governance efforts, institutional divergence between wealthy and low-income countries has remained astonishingly consistent over the past three decades.

3.4. Two-way ANOVA results

To further the analysis and ascertain how the GE is distributionally related to geographic area and income level, I have conducted a Two-way Analysis of Variance (ANOVA). This process extends the earlier one-way comparisons by examining the mean differences within GE through region and income level, and the interaction effect between the two variables.

Two-way ANOVA is particularly appropriate here because the data spans more than one categorical grouping, allowing for the investigation of main effects (accounting separately for each variable) and potential interaction effects, i.e. whether the impact of income level on GE differs by region.

Table 7
Two-way ANOVA results

Term	SS	DF	Statistic	P-value
Region	125	6	77.7	0.000
Income level	230	1	856	0.000
Residuals	433	1615		

Source: Author's calculation

The model was estimated based on cross-country panel data from 1996 to 2023, consistent with the World Bank's Worldwide Governance Indicators framework. Normality and equal variances assumption were tested before estimation, and the Welch and Games–Howell corrections were applied where necessary. Output from the two-way ANOVA is presented in Table 7.

The analysis reveals highly significant main effects of region and income level on the effectiveness of government ($p < 0.001$). Almost exclusively, the income level effect ($F = 856.0$) is significantly more substantial compared to the regional effect ($F = 77.7$), which suggests that cross-country differences in the state of economic development explain individually more of the global heterogeneity in institutional quality than do geographic conditions alone.

This is consistent with prior studies (Kaufmann et al., 2010; Rodrik, 2019), which highlight the fact that more advanced economies usually have more effective bureaucracies, superior regulations and more effective mechanisms to implement policies.

Even if inter-regional differentials also enter the picture, they are considerably lesser, hence institutional differentials between income groups but within regions are nearer.

For instance, East Asian and European upper-middle-income countries manage to achieve the same governance performance but with different political and historical trajectories. On the other hand, low-income and lower-middle-income countries, substantially within Sub-Saharan Africa and South Asia, have persistently lower GE scores, indicating continued difficulties with administrative capabilities, control over corruption and service delivery.

Overall, the two-way ANOVA results confirm the previous finding that economic capacity and regional context together determine institutional performance, but also indicate the size of the income effect to reveal that economic growth continues to be the overarching cause of government effectiveness globally. These comparisons showcase the relevance of specific policy interventions, such as the professionalisation of the civil service and transparency reforms, virtually exclusively in the developing regions where institutional capacity deficits are significant.

3.5. Discussion

This article provides an in-depth overview of GE by world region and income group, based on the latest 2023 scores from the World Bank's Worldwide Governance Indicators. The results reveal significant regional and economic disparities in institutional quality, with important implications for both domestic policy and international development strategy. This result is consistent with Garcia-Sanchez et al. (2013), who noted that some studies have suggested that the factors explaining the GE, which exhibit differences across various countries, include geographic location, legal origin, level of economic development and government features. Conversely, Garcia-Sanchez et al. (2013) argued that the organisational environment, closely linked to economic growth, or the populace's demands, are the primary factors influencing governance. The comparison confirms that Europe, Central Asia and North America have the highest GE. The countries of these areas tend to combine professional civil service, sound public administration and realistic policy frameworks. North America, in particular, recorded the highest mean value and low dispersion of values, reporting high and comparatively homogeneous institutional quality for the region. These results align with traditional arguments that strong institutions are both a cause and a consequence of long-term economic success.

Sub-Saharan Africa and South Asia exhibit much lower average effectiveness scores. Countries in these regions encounter severe challenges, including administrative inefficiency, a weaker rule of law, lower state capacity and greater political instability. This result aligns with Sori et al. (2024), who noted that economic growth in Sub-Saharan Africa is favourably and dramatically impacted by government effectiveness. Similarly,

Isser et al. (2024) indicated that Sub-Saharan Africa has experienced a series of governance reform failures and policy reversals, with numerous nations continuing to endure the repercussions of inadequate governance (Isser et al., 2024).

The significant disparity between the governance performance of these two regions and higher-performing areas highlights a persistent development gap that institutional reforms alone have not closed. Additionally, the varied scores within regions such as East Asia and the Pacific, and Latin America and the Caribbean, suggest that the average quality of governance is lower and highly unequal, leading to internal imbalances that can exacerbate social and economic disparities within these regions. This result, concerning the Pacific scores, aligns with the observations of Howes (2019), that among the 76 World Bank evaluations conducted in 2018, 27 (approximately one-third) were classified as fragile, as their governance scores were below 3.2, indicating inadequate governance (Howes, 2019).

When comparisons are made across income groups, the relationship becomes even clearer: high-income countries occupy the upper end of the distribution of GE, while low-income countries cluster around negative values. The strong bivariate connection between income level and institutional quality suggests that building robust governments is both essential for and a result of economic development. Mahran (2023) stated that governance statistically impacts economic growth (Mahran, 2023). The wide range of scores for middle-income countries reflects various experiences in strengthening institutions. Some economies succeed in modernising public services, while others remain impeded by governance bottlenecks.

These results are consistent with previous studies, such as those of Duho et al. (2020), which found that economic wealth significantly impacts GE. However, Garcia-Sanchez et al. (2013) concluded that the organisational environment, which is linked to educational attainment and economic development, is the primary factor explaining why governments are effective. Political restraints and certain organisational traits, such as gender diversity and government size, may ultimately enhance governance quality, depending on the country's income distribution. Halásková et al. (2023) confirmed that GDP per capita and government spending on public services are the two primary factors determining GE.

Women's representation in parliament, the Corruption Perception Index and the proportion of women in high administrative roles are additional variables that significantly affect government efficacy in transition economies. Ezako (2024) emphasised that strong governance has a positive impact on human development. Similarly, Yang (2010) added that higher levels of human development are positively connected with a more efficient government. The distribution of the average GE scores exhibits a mild left skewness, which corroborates the fact that, although most countries cluster around the world mean, quite a few have below-average governance. This highlights the need for selective reform that is tailored to different situations.

The regional variations in the efficiency of government are seen to appear to be highly correlated with income and education variations. As in previous works (La Porta et al., 1999; Kaufmann et al., 2010), wealthier nations are found to have more effective governance outcomes because higher levels of income allow for the employment of better civil servants, allow for digitalisation of the civil service, and retain merit-based

bureaucracies. In addition, human capital development reinforces administrative potential and policy coherence, thus further reinforcing the income-governance nexus. The two-way ANOVA results confirm that when controlling for income level, the majority of cross-region heterogeneity in GE is decreased, echoing the fact that economic and education advancement are central drivers of institution quality.

The relationship between economic growth and governance is two-way. On the one hand, wealthier economies have more ability to invest in efficient bureaucracies, a better rule of law and ensure firm policy enforcement. On the other hand, good governance yields long-term economic growth because it renders an environment stable and conducive to investment, enhances efficiency and reduces corruption, as Acemoglu and Robinson (2012) highlight. Economic development and institutions evolve together, long-term, mutually reinforcing one another (Acemoglu & Robinson, 2012). Thus, the substantial income–governance correlation found in this study must be interpreted less as an assertion of causality and more as evidence of interdependence, in which economic and institutional progress are intertwined with one another.

3.6. Policy implications by region

Regional and income-group analysis of government effectiveness has many policy implications for institutional strengthening and governance reform.

In case of East Asia and the Pacific, the region has maintained steady performance in GE since the late 1990s, mainly through investments in administrative effectiveness and technological uptake. Successive refinements will entail further intensified digital governance initiatives, enhanced transparency mechanisms, and governance of accelerated economic growth through corresponding strong institutional accountability.

In Europe and Central Asia, high scores on the GE in this dimension reveal well-established administrative environments and effective civil services. However, innovativeness on the public sector side and inter-country policy infrastructure remain outside the sphere of smooth functioning. Policymakers should invest in transparent government reforms and performance-oriented civil services to consolidate gains.

Despite moderate scores on the GE in Latin America and the Caribbean, the countries still suffer from long-standing woes about the bureaucracy's and public institutions' inefficiencies. Shifting civil service professionalism up, reducing political clientelism, and decentralising the provision of services can boost responsiveness and accountability.

In the Middle East and North Africa (MENA), institutional performance is highly variable and usually limited by centralised control and unpredictable policy. A great deal of emphasis is needed to develop the capacity within the public administration system, create policy consistency, and ensure public–private partnership to gain credibility and efficiency.

Despite GE levels being the highest worldwide in North America, recent volatility underscores the significance of continuing public sector innovation and public trust. Spending on adaptive governance, ongoing civil servant development and citizen-focused service models can help retain institutional resilience.

In South Asia, the regional nations have gradually enhanced the standard of GE but still suffer from Structural Capacity Shortfalls. Institutional growth will be maintained through the strengthening of merit-based recruitment procedures, sub-district delivery mechanisms, and e-government infrastructure.

Finally, Sub-Saharan Africa consistently has the lowest GE scores and is also marked by systemic inadequacy in administrative capacity and a lack of resources. High-priority reforms include professionalising the civil service, anti-corruption efforts, and strategic investments to enhance the quality and credibility of the government.

4. Conclusion

The main objective of this study was to determine whether GE varies significantly across world regions and income classes. Using ANOVA and *post-hoc* statistical analysis, we examined the influence of geography and economic classes on the quality of governance, as measured by the GE index.

The data clearly shows that GE is not always present globally. Income countries are always depicted with higher GE scores, showing better institutions, improved public sector governance and more effective policy implementation. Low-income countries, particularly those in Sub-Saharan Africa and South Asia, tend to have lower governance effectiveness scores. Regionally, Europe, Central Asia and North America perform better than the rest of the world, while others, such as Sub-Saharan Africa, consistently lag behind the global average.

The results have important policy implications for policymakers across low- and middle-income countries. Enhancing civil service institutions, ensuring policy coherence and promoting merit-based selection are essential for enhanced administrative performance. Promoting their services' quality and transparency mechanisms may also foster confidence among citizens and efficiency. Selective investment in education, information technology governance, and human capital development may also promote the institutions' resilience and capacity.

These contrasts have far-reaching policy consequences. Increasing the GE needs to be a strategic priority, especially for low-performing nations and areas plagued by inherent institutional deficiencies. Policymakers in low-performing nations must invest in enhancing administrative capacity, transparency and accountability to improve the quality of governance. Targeted international support through aid, capacity-building programs and institutional relations can also help close the governance gap between high- and low-income nations. Lastly, GE is not just about improving bureaucracies; it is a key driver of sustainable development, public confidence, and long-term political and economic stability. Closing the governance gap is crucial for achieving inclusive growth and enabling all countries to address global challenges more effectively.

Even though the research has sound empirical evidence, it has its limitations. First, the analysis depends on the cross-sectional data of a single year (2023), which will affect the investigation of the temporal dynamics or causal relationship. Second, the research must rely on perception measures that are highly popular but prone to subjective biases.

For future studies, this research may be extended by making use of panel data for investigating the temporal dynamics of GE and by using further institutional factors such as corruption control, political stability, or quality of regulation.

Acknowledgement

The author extends his appreciation to the Deanship of Scientific Research at Northern Border University, Arar, KSA, for funding this research work through the project number "NBU-FFR-2025-2512-2". Additionally, the author would like to acknowledge the use of Grammarly and QuillBot to enhance the article's readability, language and sentence structure. These technologies were applied with the author's oversight and control through the author's careful review and editing.

References

Acemoglu, D. & Robinson, J. A. (2012). *Why Nations Fail. The Origins of Power, Prosperity, and Poverty*. Crown Publishing. Online: https://tinyurl.com/bdcp9b9s

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Lawrence Erlbaum.

Duho, K. C. T., Amankwa, M. O. & Musah-Surugu, J. I. (2020). Determinants and Convergence of Government Effectiveness in Africa and Asia. *Public Administration and Policy: An Asia-Pacific Journal, 23*(2), 199–215. Online: https://doi.org/10.1108/PAP-12-2019-0039

Ezako, J. T. (2024). The Nexus between Human Development, Official Development Assistance, Carbon Emissions, and Governance in Developing Countries for the Realization of Sustainable Development Goals. *Cogent Economics and Finance, 12*(1), 1–24. Online: https://doi.org/10.1080/23322039.2024.2330452

Fasenfest, D. (2010). Government, Governing, and Governance. *Critical Sociology, 36*(6), 771–774. Online: https://doi.org/10.1177/0896920510378192

Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics* (4th ed.). Sage Publications.

Fukuyama, F. (2013). What Is Governance? *Governance, 26*(3), 347–368. Online: https://doi.org/10.1111/gove.12035

Garcia-Sanchez, I. M., Cuadrado-Ballesteros, B. & Frias-Aceituno, J. (2013). Determinants of Government Effectiveness. *International Journal of Public Administration, 36*(8), 567–577. Online: https://doi.org/10.1080/01900692.2013.772630

Hair, J. F. Jr., Black, W. C., Babin, B. J. & Anderson, R. E. (2020). *Multivariate Data Analysis* (8th ed.). Cengage Learning. Online: https://tinyurl.com/5hawfsu8

Halásková, M., Linhartova, V., Gavurova, B. & Niroda, P. (2023). Indicators of Government Effectiveness in European Countries: Empirical Analysis Using Panel Data. *Transformations in Business and Economics, 22*(1), 280–298. Online: http://www.transformations.knf.vu.lt/58/article/indi

Howes, S. (2019, August 26). *Poor Governance in the Pacific: The Forgotten Issue*. Devpolicy Blog. Online: https://tinyurl.com/3y76bwhy

Hufty, M. (2011). Governance: Exploring Four Approaches and Their Relevance to Research. In U. Wiesmann & H. Hurni (Eds.), *Research for Sustainable Development: Foundations, Experiences, and Perspectives* (pp.165–183). NCCR North-South/Geographica Bernensia.

Isser, D. H., Raballand, G. & Watts, M. J. (2024). *Governance in Sub-Saharan Africa in the 21st Century. Four Trends and an Uncertain Outlook*. The World Bank. Online: https://doi.org/10.1596/1813-9450-10713

Kaufmann, D., Kraay, A. & Mastruzzi, M. (2010). The Worldwide Governance Indicators: Methodology and Analytical Issues. *Policy Research Working Paper*, (5430). Online: https://doi.org/10.1596/1813-9450-5430

Langbein, L. & Knack, S. (2010). The Worldwide Governance Indicators: Six, One, or None? *The Journal of Development Studies, 46*(2), 350–370. Online: https://doi.org/10.1080/00220380902952399

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. & Vishny, R. (1999). The Quality of Government. *The Journal of Law, Economics, and Organization, 15*(1), 222–279. Online: https://doi.org/10.1093/jleo/15.1.222

Lynn, L. E. Jr., Heinrich, C. J. & Hill, C. J. (2000). Studying Governance and Public Management: Challenges and Prospects. *Journal of Public Administration Research and Theory, 10*(2), 233–261. Online: https://doi.org/10.1093/oxfordjournals.jpart.a024269

Magalhães, P. C. (2014). Government Effectiveness and Support for Democracy. *European Journal of Political Research, 53*(1), 77–97. Online: https://doi.org/10.1111/1475-6765.12024

Mahran, H. A. (2023). The Impact of Governance on Economic Growth: A Spatial Econometric Approach. *Review of Economics and Political Science, 8*(1), 37–53. Online: https://doi.org/10.1108/REPS-06-2021-0058

Montgomery, D., Rigdon, S., Pan, R. & Freeman, L. (2022). *Design of Experiments for Reliability Achievement*. Wiley. Online: https://doi.org/10.1002/9781119237754

Nzama, L., Sithole, T. & Kahyaoglu, S. B. (2023). The Impact of Government Effectiveness on Trade and Financial Openness: The Generalized Quantile Panel Regression Approach. *Journal of Risk and Financial Management, 16*(1). Online: https://doi.org/10.3390/jrfm16010014

Oluwaseyi, J., Dattaniranjan, J., Cena, A., Abouzied, E., Ok, E. & William, B. (2025). *Crisis Management in Governance Strategies for Effective Governance during Emergencies, such as Pandemics or Natural Disasters*. Online: https://www.researchgate.net/publication/388633045

Sacks, A. & Levi, M. (2010). Measuring Government Effectiveness and Its Consequences for Social Welfare in Sub-Saharan African Countries. *Social Forces, 88*(5), 2325–2351. Online: https://doi.org/10.1353/sof.2010.0044

Şaşmaz, M. Ü. & Sağdıç, E. N. (2020). The Effect of Government Effectiveness and Rule of Law on Economic Growth: The Case of European Union Transaction Economies. *Dokuz Eylül Üniversitesi İşletme Fakültesi Dergisi, 21*(1), 203–217. Online: https://doi.org/10.24889/ifede.729490

Rahaman, F. (2024). Governance: Meaning, Types and Characteristics. *The Social Science Review. A Multidisciplinary Journal, 2*(6), 84–87. Online: https://doi.org/10.70096/tssr.240206014

Rodrik, D. (2020). Putting Global Governance in Its Place. *The World Bank Research Observer, 35*(1), 1–18. Online: https://doi.org/10.1093/wbro/lkz008

Sori, G. K., Birhan, A. T. & Thomas, N. D. (2024). Effect of Government Effectiveness on Economic Growth: Evidence from Sub-Saharan Africa. *American Journal of Economics and Business Innovation, 3*(3), 76–83. Online: https://doi.org/10.54536/ajebi.v3i3.3250

Thomas, M. A. (2010). What Do the Worldwide Governance Indicators Measure? *The European Journal of Development Research, 22*(1), 31–54. Online: https://doi.org/10.1057/ejdr.2009.32

World Bank (1994). *Development in Practice. Governance. The World Bank's Experience*. The World Bank. Online: https://doi.org/10.1596/0-8213-2804-2

World Bank (2024). *Worldwide Governance Indicators, 2024 Update*. Online: https://www.worldbank.org/en/publication/worldwide-governance-indicators

Yang, K.-H. (2010). Human Development and Government Effectiveness [Master's Thesis, Georgetown University]. Online: https://repository.digital.georgetown.edu/handle/10822/553626

This page intentionally left blank.