

# Economic Growth and Different Measures of Institutions: Some Theoretical and Empirical Aspects

Anmol Waraich\*

September 2023

## Abstract

This paper attempts to conduct a theoretical and empirical analysis of the relationship between formal institutional measures and economic growth, utilizing the World Governance Indicators sourced from the World Development Indicators database. It draws upon cross-sectional data from 189 countries. Informed by the historical literature emphasizing the significance of institutions and empirical studies linking institutions to economic growth, this paper reinforces recent findings in this field. The study incorporates trade as a percentage of Gross Domestic Product and regional classification of countries as control variables. Additionally, it employs bivariate regression analysis of governance measures with the natural logarithm of GDP per capita to demonstrate the primacy of institutions over other economic indicators, such as trade, in determining a country's economic growth. Building upon the theoretical framework provided by Acemoglu, Johnson, and Robinson (2001) and Rodrik, Subramaniam, and Trebbi (2004), the paper also aims to explore the nature of governance indicators, their impact on GDP per Capita, and their limitations in certain cases

Keywords: Institutions, Economic Growth, Governance, Rule of Law, Property Rights  
JEL classification: O10, O43, P14, P48

## 1 Introduction

When one conducts a preliminary examination of Somalia and Luxembourg and endeavors to forecast their respective per capita incomes, the task may initially appear straightforward as one would generally have a preconceived notion about the levels of prosperity

---

\*The author is an Indian Economic Service Officer (Probationer) of the 2023 batch. The author acknowledges the immense contribution of the Course Director and supervisor of this study, Prof. Vikram Dayal, for guiding her throughout this academic pursuit. Prof. Dayal not only provided relevant academic suggestions but also inspired her to learn new quantitative tools, which immensely aided her research. The author is also thankful to the faculty at the Institute of Economic Growth, Delhi, for fostering a spirit of inquiry and for their excellent teaching of the tools and techniques required for quantitative studies in Economics. Special thanks go to Prof. Saudamini Das, Dr. Oindrila De, Ms Sonali Chadha, and Dr. Girish Bahal for their engaging and insightful lectures. The author also extends her gratitude to the non-teaching staff at IEG and the mess and cleaning staff at the IEG hostel for consistently addressing her needs, creating a comfortable environment for classes and research. Finally, the author expresses gratitude to her batchmates from the IES 2023 cohort for their unwavering support throughout the training period.

in the two countries. However, upon closer scrutiny, the glaring disparity between these two nations becomes unmistakably apparent. Somalia, with a per capita income of USD 562 per annum, stands in stark contrast to Luxembourg, which boasts an income level of USD 142,490(World Bank, 2022). This juxtaposition serves as a poignant reminder of the profound economic disparities that pervade the global landscape.

According to traditional economic theory, the concept of "convergence" posits that over time, less economically developed nations should experience a narrowing of the income gap vis-à-vis their more affluent counterparts. Paradoxically, this idealized notion has failed to materialize in practice, as evident in the divergent global growth trajectories. While conventional economic models attribute the lag in economic growth of certain nations to a deficiency in physical, natural, and human capital, they often overlook a critical variable—namely, the nature of institutions within a particular country or region. This elusive yet influential factor eludes quantification in standard growth models and remains conspicuously absent from growth residual analyses. In contemporary economic thought on development, the significant role of institutions has assumed importance among scholars and policymakers. Institutions encompass formal and informal rules that govern everyday life of individuals. They constitute formal rules, legal frameworks, cultural and societal norms. Their effect on economic growth is pronounced and plural and often requires for some objective measure.

This paper is attempt to examine the intricate relationship between institutions and economic growth, with a focus on World Governance Indicators developed by Kaufman et al. (2003). The six World Governance Indicators are 1) Voice and Accountability 2) Political Stability and Absence of Violence/Terrorism 3) Regulatory Quality 4) Government Effectiveness 5) Rule of Law and 6) Control of Corruption. This study to comprehend the interplay between governance and economic growth is far from novel. The paper pays attention to these governance indicators as measures of institutions and provides interpretations and connections amongst these indicators. It looks at conceptual basis of these indicators and furthers looks at the importance of different approaches used to gauge the effect of institutions on economic growth.

While Douglas North(1990) has followed a historical approach in highlighting the importance of institutions, other scholars like Acemoglu et al.(2001,2008) have used more rigorous econometric approach as well as used historical approach as a complement. This issue of different approaches in studying institutions has been explained by North(1999) by comparing ergodic and non-ergodic systems.In a non-ergodic system or process, the future outcomes of the system cannot be accurately predicted or understood by simply analyzing historical data or past events. This stands in contrast to "ergodic" systems, where outcomes can be predicted by examining the statistical properties of historical data. The paper begins by assessing the links with conceptualizations of institutions and their link with empirical analysis- both econometric and historical.

The paper is organized into seven sections. Following this introduction in the first part, the second part of the paper discusses important background studies and the theoretical foundations they provide for analyzing institutions and their measures. It also examines significant econometric studies along with their results and addresses the limitations of these studies as raised by other scholars. The third part of the paper presents data sources, descriptive statistics, and the main variable used to assess institutional quality across 189 countries. This section also explores the theoretical and empirical aspects of the World Governance Indicators and their significance. Moving on to the fourth part, it covers the regression analysis and highlights the key results obtained, with a specific focus on each

governance indicator. The fifth part offers concluding remarks, summarizing the study's key findings and their relevance in economic analysis. Lastly, the sixth and seventh parts include relevant figures and tables to support the discussion.

## 2 Background Studies and Theoretical Framework

Throughout the history of economic thought, the central questions have revolved around economic growth and development. However, beyond the conventional economic analysis, certain factors come into play, which though not directly quantifiable, play a crucial role in creating a conducive environment for economic processes. This environment is intricately intertwined with the dynamic relationship between the state and the market. Theoretical frameworks acknowledge that it is impossible to disentangle the state and the market, with both being integral to the functioning of an economy. Even classical political economy proponents such as Smith, Ricardo, and Mill recognized the importance of effective property rights, the rule of law, and contract enforcement for the smooth operation of a market-based economy. The concept of the state finds its roots in the Social Contract theory, where a society willingly delegates some of its rights to a structured governing body. In return, this body commits to safeguarding the citizens from external threats and ensuring the normal functioning of everyday activities. While economics eventually evolved as a distinct discipline, its connection with institutions remained undeniable. Thorstein Veblen reintroduced the notion of institutions in economic theory by introducing the concept of "Veblen goods" to emphasize the conspicuous nature of consumption. Veblen underscored that such behavior is heavily influenced by prevailing social norms and institutions. Moreover, he remarked that economic and social institutions are not static entities but evolve over time in response to ever changing circumstances and technological advancements. Veblen's ideas laid the groundwork for institutional economics, emphasizing the critical role of institutions, cultural norms, and customs in determining economic outcomes. Informed by Darwinian evolutionary thinking, Veblen's work continues to inform discussions on how institutions shape economic behavior and society. The significance of institutions gained further momentum through the works of scholars like Coase (1937,1998), Buchanan and Tullock (1966), Krueger(1974) and Ostrom(1990).

The formalization of institutional economics and new institutional economics took shape with the contributions of North (1990) and Williamson (2000). North's influential works in the realm of institutional economics depends heavily on historical processes as has been evidenced by his two books- "The Rise of the Western World – A New Economic History" (1973) and "Structure and Change in Economic History" (1981). One of the key takeaways from North's historical research is the emphasis on the importance of efficient property rights systems for sustained economic growth. North argues that for economic growth to occur, individuals need a system of property rights that allows them to channel their efforts into activities with private returns closely aligned with the social rate of return. One of the main line of argument in his work has been that property rights can create a further set of efficient institutions which work as incentives, align social and private interests, reduce transaction costs, foster investment and innovation and over all transform the institutional landscapes.

In summarising the work of North for relevance in law and development, Faundez(2016) talks about credible commitment that refers to a situation where the state

can make a credible promise to respect and protect property rights. When property rights are secure, individuals and businesses have confidence that their assets will not be arbitrarily confiscated or violated. North often uses the Glorious Revolution in England (1688) as an example of how credible commitment can be established. The Glorious Revolution resulted in limitations on royal prerogatives and an independent judiciary, reaffirming and strengthening property rights. This, in turn, contributed to England's economic development and growth. Further, he highlights in his study that some criticisms of North's theory include its reliance on neoclassical economics, its exclusive focus on Western economies as an end model, and its limited consideration of the role of organizations in the process of change. Critics argue that his approach oversimplifies complex social processes and neglects the role of social conflict, local culture, norms and social structure.

By the 1990s, it had become commonplace to incorporate institutional analysis into economic growth models. Early studies, such as those by Knack and Keefer (1995), utilized country risk indices to examine the impact of institutions. Similarly, Mauro (1995) looked at the negative effect of corruption on economic growth. Seminal research by Acemoglu, Robinson, and Johnson (2001) explored the connection between the mortality rates of European settlers and the evolution of institutions in former colonies. Further developments in this field were spearheaded by scholars like Rodrik, Subramaniam and Trebbi (2003), who confirmed the primacy of institutions over trade and geography in influencing economic growth which has also been used by this paper for defining empirical specification of relating GDP Per Capita and WGIs.

Concurrently, the variables of interest for this paper—the measures of institutions and governance were standardized, notably by Kaufman, Kraay and Mastruzzi (2011) at the World Bank, which set the benchmark for assessing governance and institutional quality. However, as we delve deeper into this analysis, a fundamental question arises: What exactly are institutions, and why do they hold such significance? and also which institutions really matter? Part of the answer lies in the fact that institutions are integral to the very fabric of society, shaping economic and social interactions in profound ways.

In the series of empirical studies undertaken in the 1990s after institutional analysis became more pronounced, in a chronological order Knack and Keefer (1995) explore the important role of property rights and institutional quality in shaping economic trajectory of nations. Their analysis reveals that secure property rights assessed by indicators like contract enforcement and protection against risk of expropriation exert a substantial influence on both investment levels and economic growth. The property right indicators are more robust in explanation of growth than previous proxies like political liberties and historical instability markers. The study enhances our understanding of convergence as a concept by explaining that countries with more efficient property rights systems converge more rapidly towards higher income thresholds shedding light on the importance of institutions in the process. However, the authors admit that measuring institutional quality has been hampered by lack of data and objective measures.

In a similar analysis, Hall and Jones (1995) also investigate the substantial differences in output per worker among countries by emphasising on the inadequacy of physical capital and educational attainment as the only explanatory factors by highlighting the crucial role of Solow residual. They argue that differences in capital accumulation, productivity, and more fundamentally social infrastructure drive these differences. Social infrastructure mainly includes institutions and public policy that influence economic conditions. Protecting productive forces from extractive institutions, insecurity of property rights,

corruption, rent seeking and excessive government interference is essential for social infrastructure to deliver. The paper focuses on levels, rather than growth rates and hence focuses more on the long-term economic performance for welfare. They account for potential feedback effects between output and social infrastructure and address these through instrumental variables.

In their seminal work, Acemoglu et al. (2001) offer an important contribution in our understanding of how colonial history has shaped institutional landscapes and subsequent economic outcomes in different countries. Their empirical study uses rigorous methodology to explore causal relations between colonial history, colonial settlers' mortality, institution and per capita income of the countries. Their analysis employs settlers' mortality rates among colonial groups as an instrumental variable to discern the impact of institutions on economic growth. Their findings establish a strong correlation between historical mortality rates, early institutions measures and also contemporary institutions. The authors compare resource exploiting extractive institutions in regions like Africa and efficient and inclusive institutions in countries like Australia and New Zealand. The reason for this different evolution of institutions lies in the fact that European settlement was determined by the mortality rates they faced in different regions. While hostile weather in Africa led them to only exploit the countries, whereas in regions like Australia, they actively migrated even though the island was initially set up for convicts. These historical disparities had a long-lasting effect on the economic pathways and institutional frameworks of different region which perpetuate till date. Acemoglu's work highlights the dynamic nature of institutions and their historical path dependence, with significant policy implications for enhancing institutional quality as exemplified by historical cases like Japan's Meiji Restoration and South Korea's transformative journey in the 1960s. The study remains a seminal reference for any research relating to institutions and economic growth.

On the same lines, Rodrik et al. (2004) present exploration of determinants of economic development by examining the influence of institutions, geography, and trade on income levels across countries. The findings highlight the importance of institutions like robust property rights and the rule of law in shaping economic outcomes. The positive impact of these institutions is significant and consistent across various specifications. In contrast, the paper also reveals that the effects of geography and trade on income are comparatively weaker and at times also counter intuitive. Geography as measured by distance from the equator has only modest effects on income, that too its mediation through its influence on institutions. Trade is positively related with institutional quality but at the same time it often enters the income equation with a negative sign highlighting its indirect impact on economic growth. The authors make an all-out case for primacy of institutions over trade and geography as compared to the conventional economic theory. It underscores the need for institutional reforms as a mean to foster economic growth and development.

Using instrumental variables, however has been questioned by several other scholars. Deaton(2010) questions instrumental variables used by a number of authors including Acemoglu et al.(2001) or AJR in their Colonial origins paper. He highlights that the primary concern with instrumental variables is the validity of the instruments themselves. In IV analysis, researchers use these instruments as proxies for the variable of interest (endogenous variable). However, if the instruments are not truly exogenous and are correlated with unobservable factors affecting the endogenous variable, the IV estimates can be biased. Deaton has expressed skepticism about finding truly valid instruments in

many real-world applications.

Similarly, Kopsidis and Bromley challenge Acemoglu et al. (2008) or ACJR for their methodology on several fronts. First, they question the simplistic one-way causality that is assigned to institutional changes, emphasizing the need to consider a more comprehensive array of economic, demographic, social, and political factors. Second, it challenges ACJR's assumption of a uniform impact of French reforms across Germany, arguing that regional differentiation played a crucial role in shaping economic development. Third, the paper criticizes ACJR's omission of coal resources as a significant factor, highlighting the importance of coal in regional economic disparities. Finally, it questions ACJR's econometric analysis, particularly their exclusion of coal-producing regions and their method of dropping variables, advocating for a more nuanced and robust analytical approach that accounts for regional variations and influential factors explicitly. This critique underscores the complexity of the relationship between institutions and economic development, suggesting a need for a more multifaceted perspective in institutional analysis.

Kaufman et al. (2011) summarise methodological issues in World Governance Indicators since their inception in mid-1990s and their regular publication since 2002. Their study focuses on representative and non-representative indicators reflecting varying country coverage and governance distribution characteristics. For representative indicators, a likelihood-based approach is employed assuming joint normality of observed data. This facilitates the estimation of maximum-likelihood estimate for key parameters, including the mean and the relationship between observed data and the latent governance variable, and the sigma squared variance-covariance matrix. The estimation process accounts for missing observations in the data sources. For non-representative indicators, a distinct approach is applied—the latent governance variable remains unobservable, preliminary estimates are derived based on representative indicators. This paper introduces a corrective mechanism for OLS estimates, addressing biases in parameter estimation due to the non-representative nature of indicators. Further, the paper discusses re-scaling issues aimed at standardising units and addressing the coverage of the countries over time. It ensures meaningful cross-country and temporal contrast of governance indicators facilitating their use in policy making. The WGIs have also been questioned by several scholars, most notably by Thomas (2010). Her criticism revolves around the validity of WGIs as measures of governance. It contends that the WGI's constructs, such as "government effectiveness" and "regulatory quality," lack clear and theoretically grounded definitions, raising doubts about their meaningfulness. Her paper also questions the methodology's model specification, including the arbitrary determination of the number of clusters and the assignment of indicators to these clusters, which may lead to errors. Furthermore, concerns are raised about the assumption of independence among variables and the potential for correlated errors, impacting the reliability of the estimates. In essence, the paper argues that these issues cast doubt on the credibility of the WGI as measures of governance, impacting their usefulness in academic research and policy making. This study also comes across the limitations of WGIs, due to their construct validity and subsequently models them as per the need of the paper.

To conclude, institutions—both informal and formal—have a dynamic evolution as different societies and economic systems move. The focus of this analysis is limited to formal institutions or the institutions that govern the societies. The WGIs, despite their limitations, serve as a good proxy for doing a cross-country institutional analysis. The next section lists the data and methodology of the paper.

### 3 Data and Methodology

#### Data Description:

The data set used in this study comprises cross-sectional data for 189 countries for the year 2018. The justification for taking the year 2018 is because it was the last normal year before an exogenous shock like COVID-19 pandemic which plummeted the income levels across the globe. So to avoid potentially biased results, 2018's data was used. The dependent variable under investigation is Log GDP per Capita, chosen for its ability to ensure a balanced distribution and mitigate the influence of extreme values. The primary independent variables of interest are the six World Governance Indicators (WGIs) developed by Kaufman et al.: Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Regulatory Quality, Government Effectiveness, Rule of Law, and Control of Corruption. These WGIs function as proxies for the quality of governance institutions.

In addition to the WGIs, the control variable "trade" is incorporated into the analysis. This variable measures trade as a percentage of GDP, providing crucial insights into a country's economic openness and engagement with international markets.

To account for regional variations, the data set is categorized into seven distinct regions as per World Bank's analytical classification: East Asia and Pacific, Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa, North America, South Asia, and Sub-Saharan Africa. This regional classification serves to control for unobserved regional effects, enhance model precision, and address potential endogeneity concerns.

#### Methodological Approach:

The paper starts with a comprehensive correlation analysis to explore the initial relationships between Log GDP per Capita and the six WGIs. This initial examination offers valuable insights into the data's distribution and reveals areas warranting further investigation.

A correlation matrix is then constructed to quantitatively assess the strength and direction of correlations among the six WGIs and Log GDP per Capita. This matrix aids in identifying potential multicollinearity issues among the independent variables, ensuring the robustness of the subsequent regression analysis.

Visual representations in the form of scatter plots are generated to illustrate the associations between each WGI, and economic growth measured by log of per capita income. These scatter plots provide a visual overview of the data and potential patterns.

Finally, the research conducts a series of regression analyses, employing Log GDP per Capita as the dependent variable and the six WGIs, "trade," and regional dummies as independent variables. This comprehensive regression analysis enables a nuanced examination of how governance quality and trade influence economic growth across different regions.

Much of the theoretical underpinnings of these models have been derived from the framework developed by Rodrik et al (2004). The focus of this paper is not just limited to prove a one way causal relationship between institutional quality measured by governance indicators but also to study the potential feedback causal effects that can be framed within the "deep determinants" of income framework of Rodrik et al. Rodrik links income with institutions, trade and geography with a two way causal relationship amongst all the variables in a following manner:

The authors discuss two distinct forms of causality between GDP, institutions, trade,

Figure 1: The “deep” determinants of income

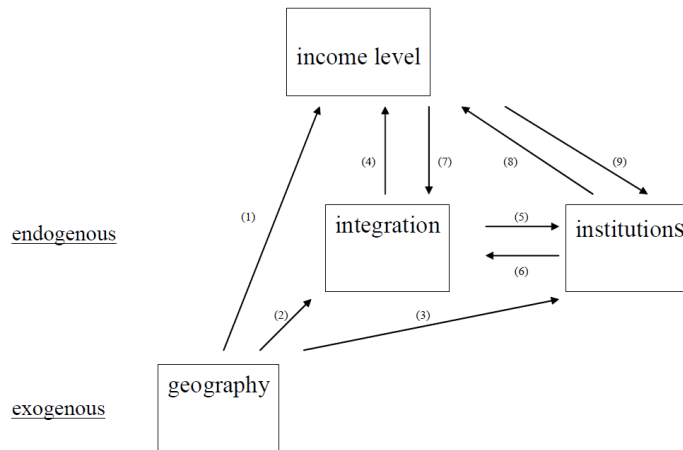


Figure 1: Deep Determinants of Income, Source: Rodrik, Subramaniam and Trebbie (2004)

and geography, which are represented by the complex web of arrows in their analysis in Figure 1:

1. Direct and Reverse Causality:

**Direct Causality:** The paper addresses the question of how GDP per capita is influenced by institutions, integration (trade), and geography. The direct causal relationships between these variables are examined. For instance, institutions are considered a direct cause of GDP per capita, as stronger institutions are associated with higher economic development. Similarly, integration (trade) is assessed for its direct impact on GDP per capita, though the findings suggest that this direct effect is often weak or even negative.

**Reverse Causality:** Reverse causality refers to the idea that GDP per capita may also influence institutions, integration, and geography. An increase in economic development can lead to changes in these factors. For instance, higher GDP per capita may lead to improved institutional quality or increased trade integration. Therefore, the paper acknowledges the potential for reverse causality in these relationships.

These two forms of causality, both direct and reverse, complicate the analysis of the relationships among GDP, institutions, trade, and geography. To address these complexities, the authors employ instrumental variables to disentangle the causal pathways and provide more robust estimates of the effects of these deep determinants on economic development. The results highlight the critical role of institutions as the primary driver of GDP per capita, even when considering potential reverse causality and indirect effect. However this use of instrumental variable has been cautioned by Deaton(2010) in Acemoglu et al. (2000) case by highlighting the crucial distinction between a variable being external (outside the system) and being exogenous. While an external variable is necessarily exogenous, the reverse is not always true. This further complicates the analysis of institutions. So, to avoid complications owing to the difficulty in identifying suitable IVs for each WGI, only associations among the variables have been studied.

Table 1 presents descriptive statistics for the data set comprising 189 countries. Key

economic and governance variables are examined. Gross Domestic Product per Capita (gdppc) serves as a fundamental indicator of economic well-being, with a substantial mean of 21,970.08 and a notable standard deviation of 22,936.98, highlighting significant income disparities. The logarithm of GDP per capita (log\_gdppc) provides a log-linear perspective on income, with a mean of 9.42 and a standard deviation of 1.17. Voice and Accountability (vae), assessing citizen participation, exhibits a mean of -0.04 and a standard deviation of 0.95, reflecting diverse political landscapes. Political Stability and Absence of Violence/Terrorism (pve) measures stability, with a mean of -0.07 and a standard deviation of 0.93. Regulatory Quality (rqe), Government Effectiveness (gee), Rule of Law (rle), and Control of Corruption (cce) shed light on governance effectiveness, displaying varying values. Finally, Trade as a Percentage of GDP (trade) underscores economic openness, with a mean of 91.80 and a standard deviation of 56.56, ranging from a minimum of 21.87 to a maximum of 376.89.

## 4 Results and Discussion

Owing to the difficulty of quantifying instruments as pointed out by Deaton(2010) and Kopsidis and Bromley(2014) and also the debate around the construct validity of WGIs (Thomas, 2010), a correlation scatter plot matrix in Figure 1 is constructed to illustrate the interrelationships between economic development, as measured by logGDPPC, and various dimensions of governance. Several notable patterns emerge:

**Positive Correlations:** There are positive correlations between logGDPPC and all governance indicators, indicating that higher income per capita tends to align with stronger governance. Specifically, logGDPPC shows a robust positive correlation with Regulatory Quality (rqe), Government Effectiveness (gee), and Control of Corruption (cce). These findings suggest that countries with better regulatory frameworks, effective governance, and lower corruption levels tend to have higher income levels.

**Multi-Dimensional Governance:** The positive correlations among different governance indicators highlight the multifaceted nature of governance. For instance, improvements in Regulatory Quality (rqe) often coincide with improvements in Government Effectiveness (gee) and Control of Corruption (cce). This interconnectedness underscores the importance of addressing multiple governance dimensions for achieving economic growth.

The focus of this study is to highlight the associations amongst these indicators. Since this paper focuses only on formal institutions, there is a probable chance of modest to high correlations amongst the WGIs. Since, "the rules of the game" in the formal realm are set up by the state, there is clear indication of one branch affecting the other or rather having a strong positive association. Rule of Law is a joint responsibility of the the three branches of the government-rules are made by the legislature, enforced by the executive and upheld by the judiciary. The larger subset of Rule of Law, that is the protection of private property is further a basis of ensuring right socio-economic order in a market society. Similarly is the case for other indicators. Hence, on theoretical basis, these six indicators are embedded within each other leading to Thomas(2010) questioning their construct validity.

To avoid the confounding factors that can cause biased results due to high levels of associations between the construct of these WGIs, a simple bi-variate regression model relating the impact on Log of GDP Per Capita of each World Governance Indicator, six separate regressions are run for each indicator to understand the respective associations.

Although, those associations can already be gauged from the correlation matrix, the individual effect of each indicators can be better known from the bi variates along with the scatter plot matrix for each indicator for all countries. The model is specified as:

$$\log GDP_{PC_i} = \beta_0 + \beta_1 \cdot WGI_i + \epsilon_i$$

Table 3 displays the results of the bivariate regression analysis, examining the relationship between Gross Domestic Product per Capita (gdppc) and each of the six World Governance Indicators (WGIs) individually. The regressions were conducted using a simple linear model where each WGI was treated as an independent variable, and gdppc as the dependent variable. The results indicate statistically significant relationships between gdppc and the WGIs. Among these, Regulatory Quality (rqe), Government Effectiveness (gee), and Rule of Law (rle) show positive coefficients, suggesting that higher values of these indicators are associated with higher gdppc. Similarly Control of Corruption (cce) displays a positive coefficient, implying that lower corruption levels are linked to higher gdppc. Voice and Accountability (vae) and Political Stability and Absence of Violence/Terrorism (pve) also demonstrate statistically significant relationships, although their coefficients are relatively smaller.

The second form of model takes trade and regional dummies into account similar to what Acemoglu et al.(2001) and Rodrik et al.(2003) have done. This multivariate regression takes the form of:

$$\log GDP_{PC_i} = \beta_0 + \beta_1 \cdot WGI_i + \beta_2 \cdot Trade_i + \beta_3 \cdot \text{factor}(\text{region}) + \epsilon_i$$

Table 4 presents the results of multivariate regression models examining the relationship between the six Worldwide Governance Indicators (WGIs), trade as a percentage of GDP (trade), regional variations, and log-transformed Gross Domestic Product per Capita (logGDPPC). These models offer valuable insights into the collective influence of governance dimensions, trade openness, and regional factors on economic growth.

The analysis reveals several significant findings. All WGIs show statistically significant coefficients even after controlling for trade and regions. However, it's important to note that the trade variable (trade) exhibits a small and statistically insignificant coefficient. This indicates that trade integration has a minimal impact on economic growth when considered alongside governance indicators and regional factors. The results are consistent with Rodrik et al's framework in which geography influences both trade and institutions. This study did not aim to isolate the effect of institutions on growth given feedback from growth to institutions, as represented by arrows in both directions in the framework provided by Rodrik et al.(2004)

Additionally, in consonance with earlier results of Rodrik et al.(2003), regional variations also influence economic growth outcomes and show a mixed result. For example, except for South Asia, other regions are statistically significant with positive coefficients in determining the economic growth compared to the reference category, which is East Asia and Pacific. In contrast, the Sub-Saharan Africa region shows a negative and statistically significant coefficient, suggesting lower economic growth relative to the reference region. Nevertheless, after controlling for region, institutions still hold significant importance. While Rodrik et al.(2003) use only Rule of Law as an institutional indicator, this paper has done the same exercise for all six WGIs and for a more recent period.

The scatter plots for each WGI have been shown in the Figures section, revealing several interesting patterns in this cross-country comparison. Observations for each indicator are as follows:

***Voice and Accountability:*** Figure 3 displays the Gulf Council Countries, many of which are Sunni Arab Monarchies. While these nations exhibit high levels of income per capita, they score poorly on the voice and accountability indicator, marking them as outliers. This observation suggests the influence of cultural and religious factors on governance. Additionally, small island countries like Tuvalu, Kiribati, and Micronesia exhibit higher voice and accountability scores but lower income levels, hinting at resource scarcity.

***Political Stability and Absence of Violence:*** Figure 4 illustrates that oil-rich Gulf countries, despite their poor performance in voice and accountability, tend to be politically stable. The graph shows less dispersion, with most countries scoring better in political stability than in voice and accountability. Notable outliers in this context are Libya and Iraq, which score low in stability but perform better economically, emphasizing that resource abundance, such as oil, does not guarantee institutional stability. South Asian countries like Pakistan and Afghanistan also exhibit poor political stability, as do several Sub-Saharan African nations.

***Regulatory Quality:*** Figure 5 shows a more concentrated trend in regulatory quality, with some small countries boasting high trade-to-GDP ratios, such as Singapore, Hong Kong, Luxembourg, and Macao, demonstrating better regulatory environments. Outliers such as Libya, Turkmenistan, and Equatorial Guinea score low on this indicator but not as low in income. Sub-Saharan Africa generally follows previous trends.

***Government Effectiveness:*** Western liberal democracies and Scandinavian countries are concentrated in the top right quadrant, indicating both high income levels and strong government effectiveness (Figure 6). Most countries cluster around the mid-value of zero, with a few outliers like Libya, as observed in earlier indicators.

***Rule of Law:*** The Rule of Law indicator assesses how the separate branches of the state uphold legal principles. In Figure 7, most countries follow the previous trend and are close to the trend line. However, for comparison, Russia and Mali score similarly on this indicator, yet their income disparities are pronounced, indicating the presence of other influential factors, such as resources and power status.

***Control of Corruption:*** Figure 8 shows a wider spread than other indicators, with more countries positioned to the left of the middle value, indicating room for improvement. Small countries like Bhutan and Barbados serve as outliers in this indicator. Mauro(1995) has significantly linked the negative relationship between growth and corruption. So, there is a case for countries to improve upon this governance measure.s

In summary, these results underscore the intricate interplay among governance dimensions, regional factors, resource endowments, and economic growth. While specific governance aspects can stimulate economic development, their impact varies across regions. This emphasizes the necessity of tailored policy interventions that consider regional contexts to foster overall economic prosperity.

## 5 Conclusion

To conclude, the paper begins by tracing the historical importance of institutions, particularly highlighting the necessity of the state, the rule of law, and the protection of private property as essential elements for any functioning market society. It proceeds to examine the evolution of economic thought in institutional economics and utilizes the World Governance Indicators to analyze a cross-section of nearly 200 countries.

The paper aims not only to investigate a linear one-way relationship between institutions and economic growth but also to explore the circular causation framework originally developed by Rodrik et al. (2004). However, during such an analysis, the construct validity of the individual indicators becomes a challenge, as indicated by the positive associations among all the indicators and their predictable connection with GDP Per Capita. Additionally, it's challenging to identify a suitable instrumental variable for institutions. Through the use of simple bivariate regressions and scatter plots, a cross-country visualization provides valuable insights into the nuances of all six indicators and their relative importance. Furthermore, after controlling for trade and regions, the association between institutions and GDP Per Capita remains robust and statistically significant. From a policy perspective, there is a compelling case for countries worldwide to enhance their formal institutions to improve economic well-being and welfare. However, a one-size-fits-all approach should be avoided, as evidenced by the failures of the "Washington Consensus" in several impoverished nations. An approach that includes local adaptation, considering local values, norms, and culture while incorporating international blueprints, is better suited to enhance the formal "rules of the game." Rodrik (1999) emphasizes the importance of participatory democracy for the better functioning of economic institutions, as it promotes accountability, certainty, and efficiency. Faundez (2016), on the other hand, warns against the transplantation of tailor-made institutions that are not in harmony with local norms and culture. In summary, despite the limitations in objectively analyzing institutions due to their subjective nature and available numerical constructs, it remains a defining reality since the inception of modern nation-states that the rule of law, protection of private property, the reduction of rent-seeking, and the establishment of participatory dialogues between citizens and the state create enduring and resilient polities. These stable states provide certainty to economic actors, ultimately increasing the welfare of society and individuals.

## References

- Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The colonial origins of comparative development: An empirical investigation. *American Economic Review*, 91(5), 1369-1401.
- Acemoglu, D., Cantoni, D., Johnson, S., Robinson, J. A. (2008). From ancien regime to capitalism: the French Revolution as a natural experiment. In *Natural Experiments*, 221-256.
- Buchanan, J. M., & Tullock, G. (1965). *The Calculus of Consent: Logical Foundations of Constitutional Democracy (Vol. 100)*. University of Michigan Press.
- Coase, R. H. (1952). The Nature of the Firm. *Economica*, 4(16), 386-405.
- Coase, R.H. (1998). The new institutional economics. *The American Economic Review*, 88(2), 72-74.
- Deaton, A. (2010). Instruments, Randomization and Learning about Development. *Journal of Economic Literature*, 48(June 2010), 424-455.
- Faundez, J. (2016). Douglass North's theory of institutions: lessons for law and development. *Hague Journal on the Rule of Law*, 8, 373-419.
- Hall, R. E., & Jones, C. I. (1999). Why do some countries produce so much more output per worker than others?. *The Quarterly Journal of Economics*, 114(1), 83-116.
- Kaufmann, D., Kraay, A., & Mastruzzi, M. (2011). The worldwide governance indicators:

- Methodology and analytical issues. *Hague Journal on the Rule of Law*, 3(2), 220-246.
- Knack, S., & Keefer, P. (1995). Institutions and economic performance: cross-country tests using alternative institutional measures. *Economics & Politics*, 7(3), 207-227.
- Kopsidis, M., Bromley, D. W. (2014). The French Revolution and German Industrialization: The New Institutional Economics Revisited. *Journal of Institutional Economics*, 10(1), 27-48.
- Krueger, A. O. (1974). The political economy of the rent-seeking society. *The American Economic Review*, 64(3), 291-303.
- Mauro, P. (1995). Corruption and growth. *The Quarterly Journal of Economics*, 110(3), 681-712.
- North, D. C. (1990). Institutions and economic growth: An historical introduction. *World Development*, 17(9), 1319-1332.
- North, D. C. (1999). Dealing with a non-ergodic world: Institutional economics, property rights, and the global environment. *Duke Environmental Law and Policy*.
- Rodrik, D. (2000). Institutions for high-quality growth: what they are and how to acquire them. *Studies in Comparative International Development*, 35, 3-31.
- Rodrik, D., Subramanian, A., & Trebbi, F. (2004). Institutions rule: the primacy of institutions over geography and integration in economic development. *Journal of Economic Growth*, 9, 131-165.
- Thomas, M. A. (2010). What do the worldwide governance indicators measure?. *The European Journal of Development Research*, 22, 31-54.
- Veblen, T. (1898). Why is economics not an evolutionary science?. *The Quarterly Journal of Economics*, 12(4), 373-397.
- Williamson, O. E. (2000). The new institutional economics: taking stock, looking ahead. *Journal of Economic Literature*, 38(3), 595-613.

# 6 Figures

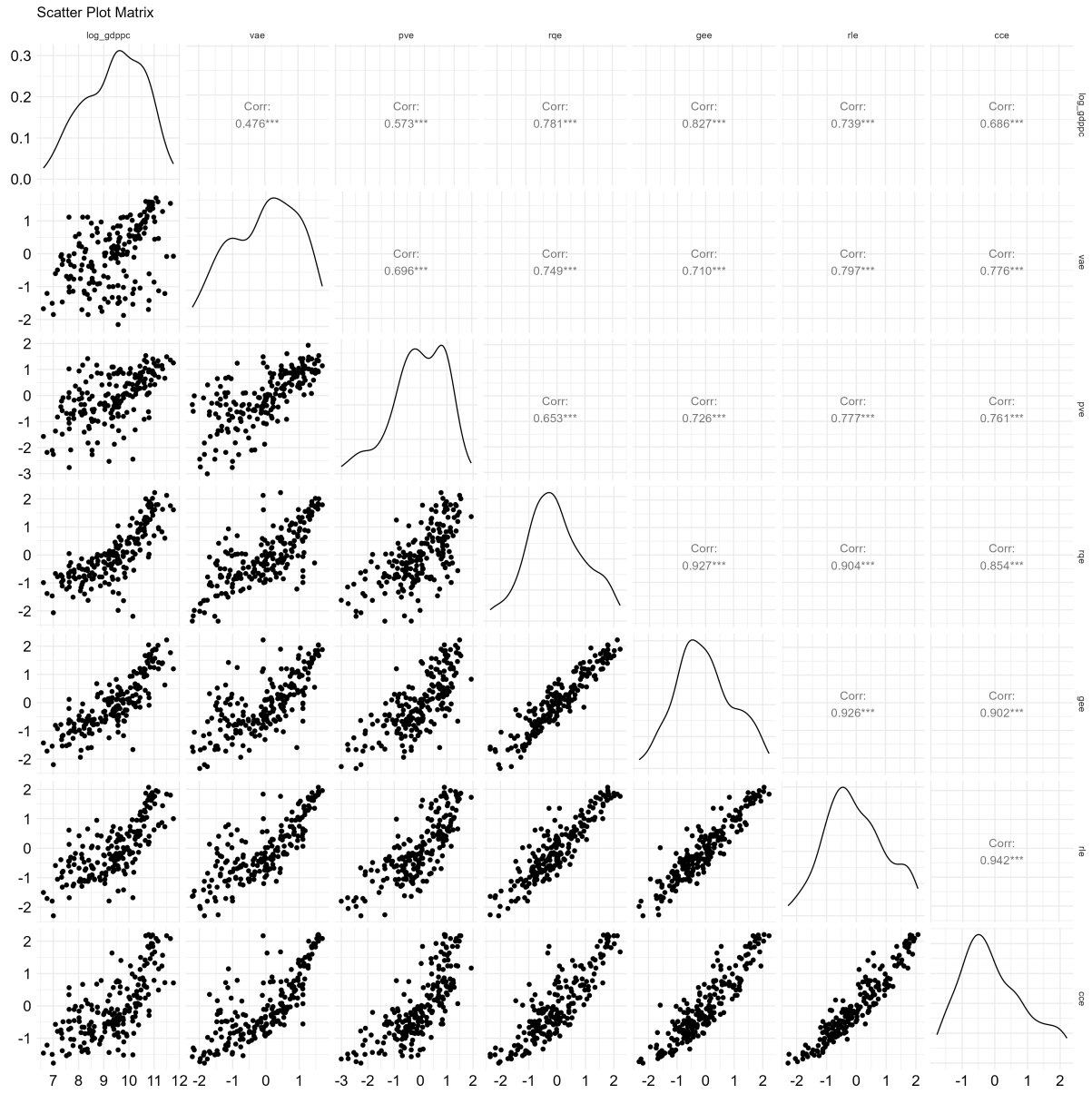


Figure 2: Correlation Scatter Plot Matrix

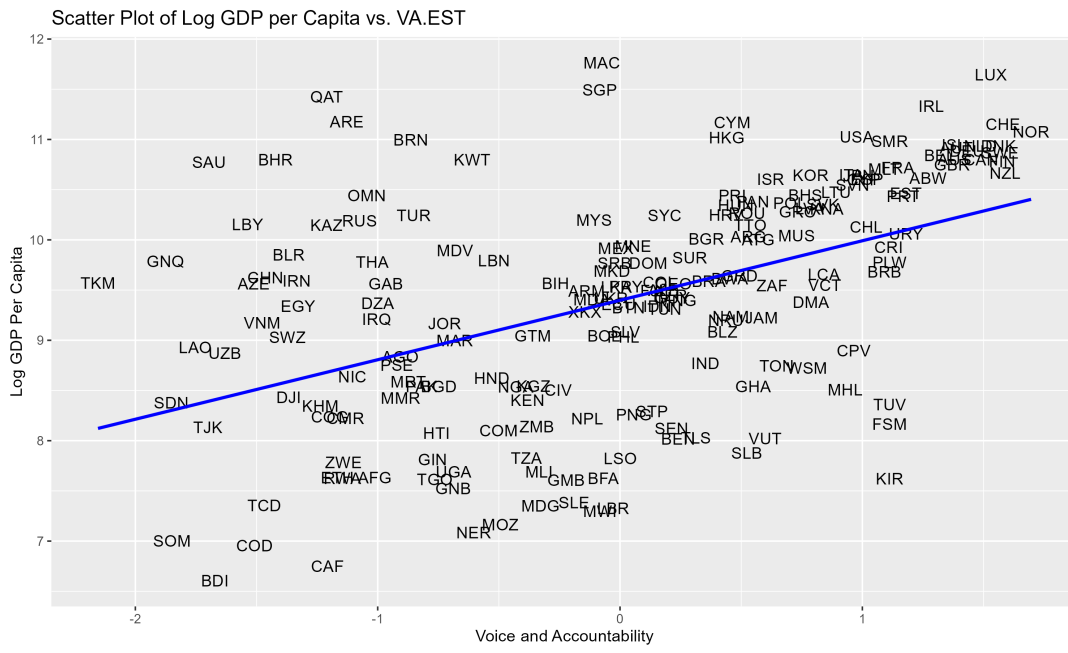


Figure 3: Voice and Accountability

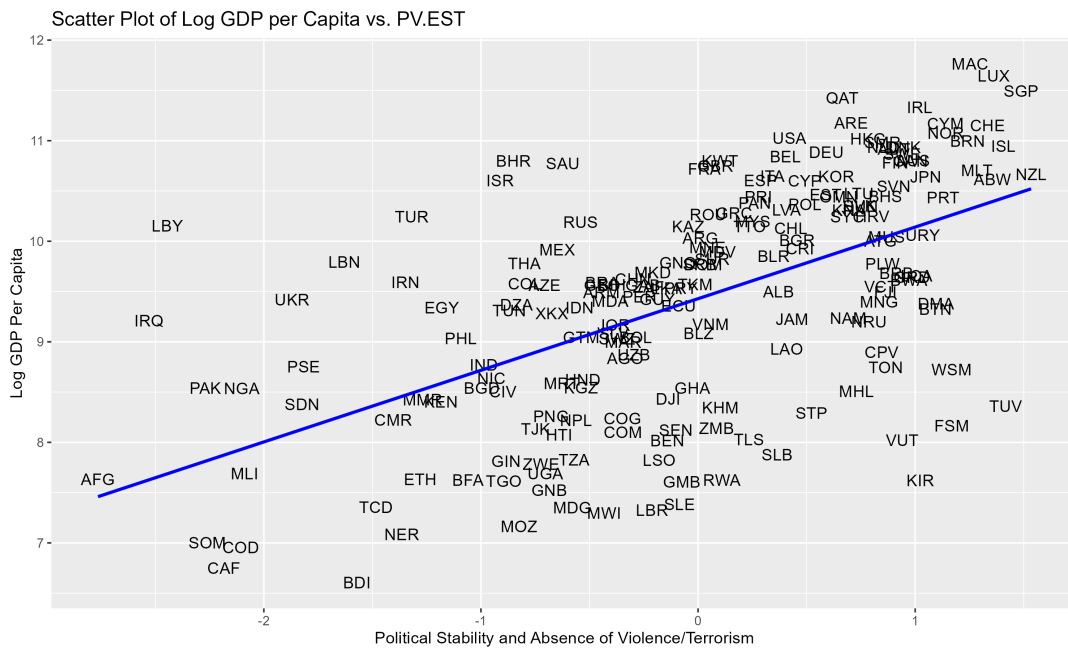


Figure 4: Political Stability and Absence of Violence

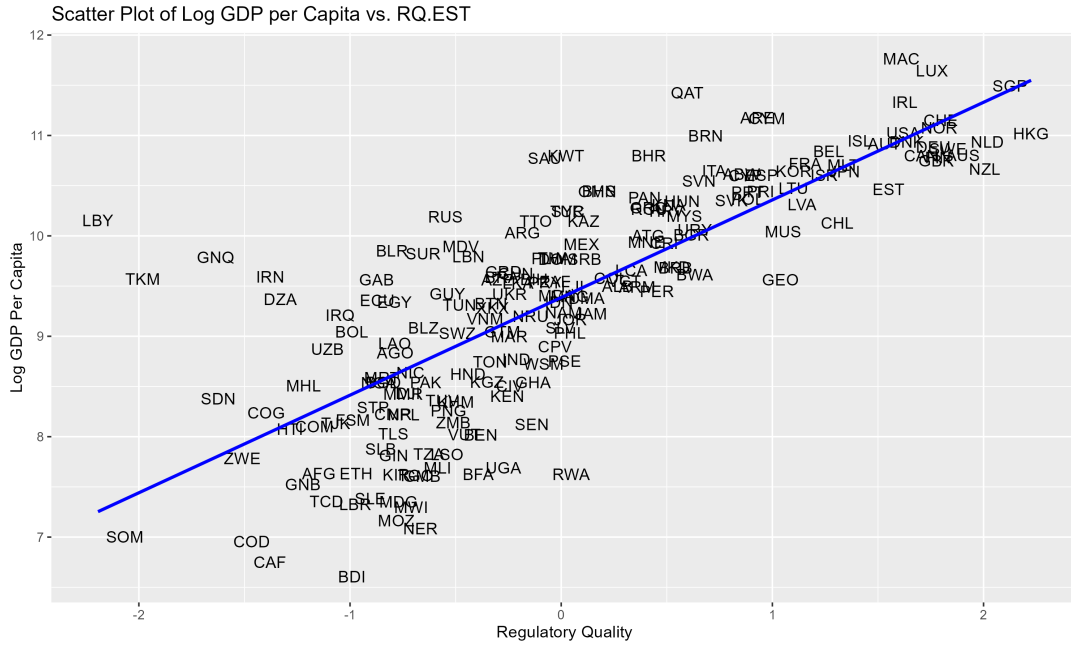


Figure 5: Regulatory Quality

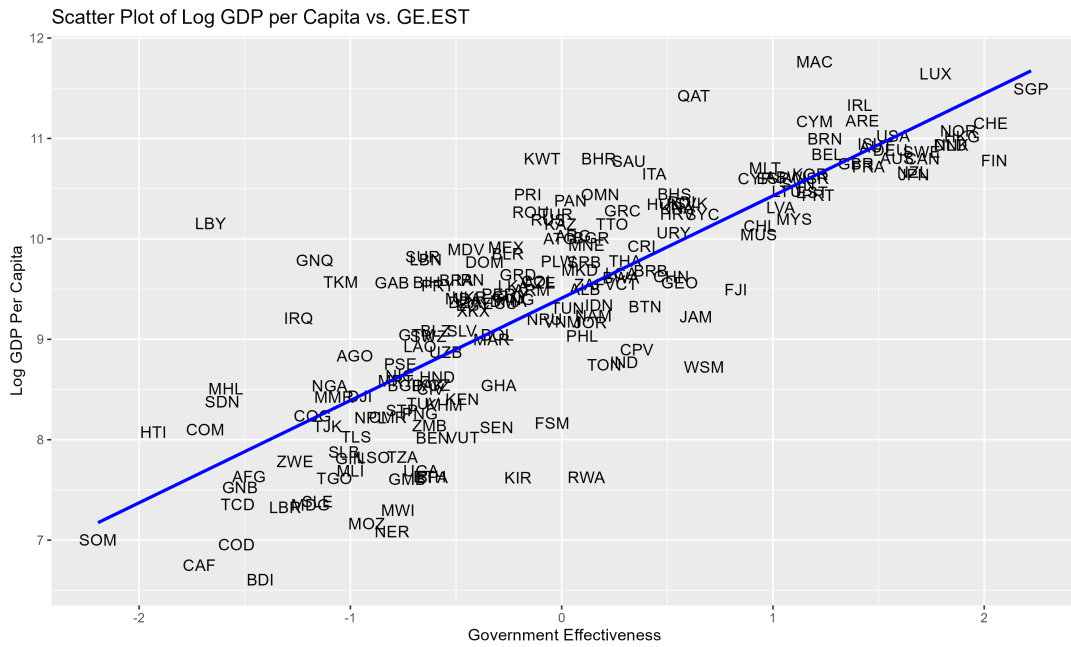


Figure 6: Government Effectiveness

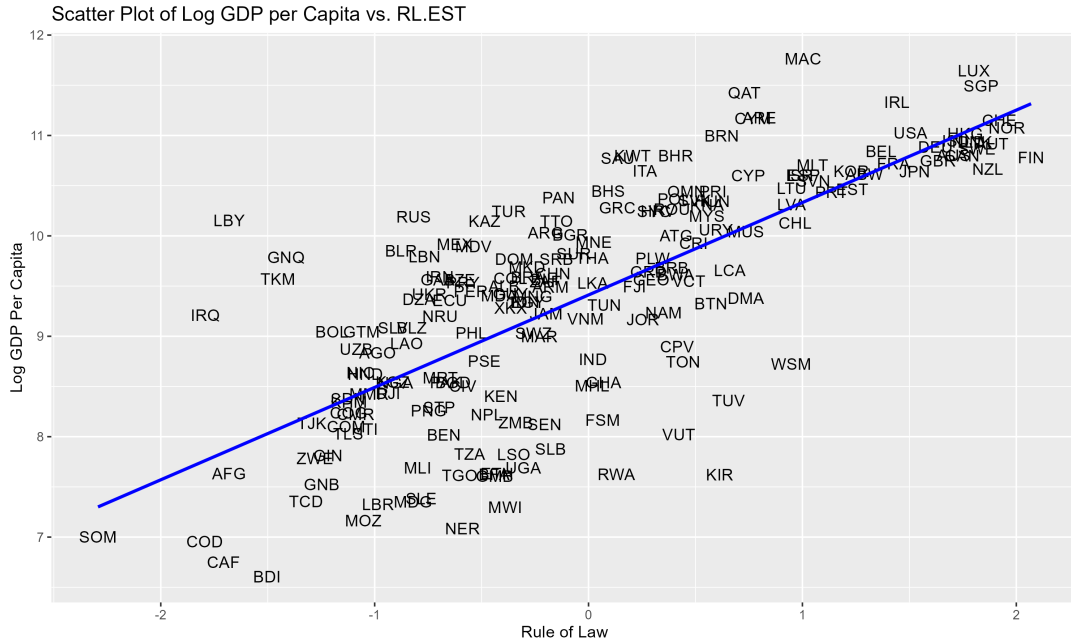


Figure 7: Rule of Law

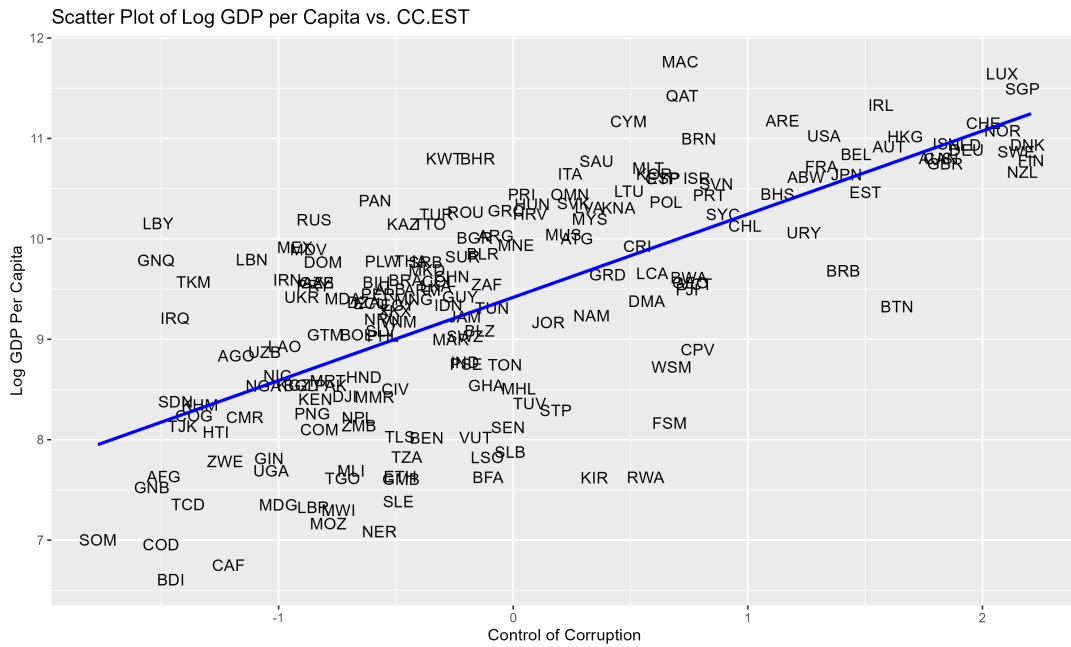


Figure 8: Control of Corruption

## 7 Tables

Table 1: Descriptive Statistics

Variable	Mean	SD	Min	Max
gdppc	21970.08	22936.98	740.45	128437.32
log_gdppc	9.42	1.17	6.61	11.76
vae	-0.04	0.95	-2.15	1.70
pve	-0.07	0.93	-2.53	1.53
rqe	0.04	0.96	-2.19	2.23
gee	0.01	0.96	-2.19	2.22
rle	-0.01	0.95	-2.29	2.07
cce	-0.01	0.98	-1.77	2.21
trade	91.80	56.56	21.87	376.89

Table 2: Correlation Matrix

	log_gdppc	vae	pve	rqe	gee	rle	cce
log_gdppc	1.000	0.471	0.566	0.780	0.824	0.737	0.682
vae	0.471	1.000	0.674	0.715	0.672	0.765	0.752
pve	0.566	0.674	1.000	0.634	0.692	0.750	0.737
rqe	0.780	0.715	0.634	1.000	0.928	0.905	0.861
gee	0.824	0.672	0.692	0.928	1.000	0.923	0.898
rle	0.737	0.765	0.750	0.905	0.923	1.000	0.939
cce	0.682	0.752	0.737	0.861	0.898	0.939	1.000

Table 3: Bivariate Regression Results. *Dependent Variable: Log GDP Per Capita*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
(Intercept)	9.40*** (0.07)	9.43*** (0.07)	9.39*** (0.05)	9.41*** (0.05)	9.42*** (0.06)	9.42*** (0.06)
vae	0.59*** (0.08)					
pve		0.72*** (0.08)				
rqe			0.98*** (0.06)			
gee				1.02*** (0.05)		
rle					0.93*** (0.06)	
cce						0.83*** (0.06)
R <sup>2</sup>	0.23	0.33	0.61	0.68	0.55	0.47
Adj. R <sup>2</sup>	0.22	0.32	0.61	0.68	0.54	0.47
Num. obs.	189	190	189	189	189	189

Table 4: Regression Results with Trade and Regional controls. *Dependent Variable: Log GDP Per Capita*

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
(Intercept)	8.980 *** (0.190)	9.001 *** (0.176)	9.159 *** (0.151)	9.013 *** (0.136)	9.023 *** (0.155)	9.050 *** (0.166)
vae	0.371 *** (0.074)					
trade	0.004 *** (0.001)	0.002 (0.001)	0.001 (0.001)	0.001 (0.001)	0.002 * (0.001)	0.002 * (0.001)
Europe & Central Asia	0.658 *** (0.186)	0.904 *** (0.172)	0.437 ** (0.147)	0.571 *** (0.131)	0.653 *** (0.149)	0.672 *** (0.160)
Latin America & Caribbean	0.228 (0.216)	0.425 * (0.200)	0.311 (0.168)	0.577 *** (0.153)	0.570 ** (0.175)	0.447 * (0.186)
Middle East & North Africa	0.858 *** (0.242)	1.141 *** (0.231)	0.797 *** (0.181)	0.870 *** (0.164)	0.808 *** (0.188)	0.782 *** (0.201)
North America	1.294 * (0.576)	1.477 *** (0.440)	0.787 * (0.378)	0.684 * (0.341)	0.971 * (0.387)	1.015 * (0.415)
South Asia	-0.139 (0.332)	0.178 (0.312)	0.101 (0.259)	0.144 (0.234)	-0.001 (0.267)	-0.033 (0.286)
Sub-Saharan Africa	-0.887 *** (0.200)	-0.599 ** (0.193)	-0.601 *** (0.157)	-0.312 * (0.147)	-0.543 ** (0.164)	-0.674 *** (0.174)
pve		0.560 *** (0.075)				
rqe			0.741 *** (0.061)			
gee				0.819 *** (0.055)		
rle					0.685 *** (0.060)	
cce						0.586 *** (0.061)
R <sup>2</sup>	0.591	0.652	0.754	0.799	0.737	0.699
Adj. R <sup>2</sup>	0.571	0.635	0.742	0.789	0.725	0.685
Num. obs.	173	174	173	173	173	173