

Democracy and Economic Development: Disentangling the Effect of Elections and Rule of Law

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Abstract: *The article provides evidence on how the political settlements—rule of law and elections—would affect the economic development and enhances the economic growth. It empirically investigates whether democracy affects the economic convergence of countries through the quality of institutions: (i) electoral component of democracy, and (ii) rule of law parameters. Investigations differentiate between Islamic and non-Islamic countries. We find that the elections parameter has a first-order effect on economic development; such a relationship is not confirmed for Islamic countries. Rule of law also influences this relationship, but brings less efficient impact to the economic development. Our results are obtained using a sample of 167 countries over the 2010–2012 period.*

Keywords: *democracy, economic growth, election, instrumental variable approach, rule of law*

1. Introduction

The paradigm of institutions and their effect on development has recently caught more attention of development economists, and became a subject of active academic and policy. In their seminal work, North and Thomas (1973) found that institutions are one of the primary determinants of economic development and growth besides other factors such as physical and human capital, technological progress, etc. Previous studies have also shown that institutions are one of the main elements causing income differences among countries (see, e.g., Acemoglu *et al.*, 2001; Rodrik, *et al.*, 2004; Acemoglu & Johnson, 2005; among others). In such setup, Rigobon and Rodrik (2005) found that the rule of law has a substantial impact on economic performance, which thereby has a considerable contribution to economic development, more specifically income. Yet, despite the increasing calls for renewed focus on economic development, evidence on whether democratization prospects affect income inequality and economic growth appears to be without a clear cut-consensus. In this paper, we seek to focus and explain the main aspects that have not been previously uncovered, (i) the impact of election and rule of law on the development of countries, and (ii) the effect of heterogeneity between the Islamic world and the rest of the countries specifically European countries. Our understanding of how democracy affects economic development, by disentangling the effect of elections and rule of law, tend to be limited; our paper thus attempts to fill this gap of literature.

An extensive theoretical and empirical literature has been pursued to review democratization prospects and economic performance separately and also to discuss particularly the effect of democracy on economic development and income. Hence, Barro (2003) and Gerring (2005) found that democracy has no effect on economic development; whereas, Papaioannou and Siourounis (2008) found that democracy is more likely to emerge and consolidate in developed countries. In addition, Acemoglu and Robinson (2015) clearly indicate that democracy and future gross domestic product (GDP) per capita are economically and statistically associated, rejecting the previous argument of Barro (2003) and Gerring (2005), and stating that a country in transition from non-democracy to democracy achieves only about 20% higher GDP per capita in the next following 25 years. However, although a broad range of papers have studied different aspects of democracy, there is no clear-cut consensus on the effect democracy has on economic development. Researchers continue even to look into the appropriate ways to approach and measure or proxy democracy. A new understanding has emerged where the concept of democracy is *solely* determined by ‘electoral democracy’ and this has given rise to a number of

democracy indexes being published; the most important of which is the data used and published by Przeworski and Limongi (1993). Zakaria (1997) highly objects this interpretation in his research advocating of the so-called the ‘illiberal democracy’. He argues that even if a government is elected, it routinely violates their citizens’ basic rights without any effective increase in income or GDP per capita. In a similar vein, Rodrik (2014; Rodrik *et al.*, 2004) argues that a *true* democracy requires two sets of institutions (i) institutions of representation, such as political parties, parliaments, and electoral systems, are needed to elicit popular preferences and turn them into policy action, and (ii) institutions of restraint, such as an independent judiciary and media, to uphold fundamental rights like freedom of speech and prevent governments from abusing their power. He argues that representation without restraint—election without the rule of law—is a recipe for the tyranny of the majority.

In order to prevent the conceptual mistakes stemming from democracy indexes, we try to reveal the effects of economic development by looking at the two main aspects of *real* democracy: (i) *rule of law*, the constraint on executive power, and (ii) *election*, defined as competitiveness of executive recruitment, the extent to which executives are chosen through competitive election. Hence, throughout this article, we look at which of these two aspects are more consistent in contributing to the economic development. We go beyond the literature addressing the nexus between democracy and economic development by considering the effects of these relationships by further differentiating the subsamples of underdeveloped Islamic countries and the non-Islamic countries (mostly the 28 European countries), this allow us to overcome the problem that arises from using democracy index.

The inherent unstable nature of democracy suggests that the perception of economic development may possibly change depending on the opportunities and constraints that societies and economies may face in different environments and political regimes. Typically, in the emerging empirical literature on political economics and development, researcher far reached the fact that Islamic countries are underdeveloped compared to non-Islamic countries. The power of the Middle Eastern rulers was reduced gradually when compared with their counterparts in Western Europe, more particularly (see, e.g., Kuran, 2004; among others). This fact can be explained by two main reasons. First, the development of democratic rights in Europe lasted for centuries. Second, rule of law was strengthened after huge conflicts between the ruled and the rulers. For instance, citizens of France, England, and other European countries fought for their democratic rights. The struggle was particularly about the judicial independence and the right to sue royal family in independent courts. Also, limiting the government by checks

and balances system was another area of institutions (see, e.g., Kuran, 2004; among others). In contrast, Islamic countries failed to keep up with Western European countries' (democratic) progression. Therefore, we will investigate how relevant both rule of law and election are for Islamic world economic development compared to the European countries in the recent context. This leads us to adopt a different view on the development role that democracy could play in such different regimes.

Our empirical setup was based on a worldwide view. Hence, to identify the importance of legal development on economic growth, we use country-level data and Polity IV's (Polity IV Project) constraint on executive power as a variable to capture the degree of limitation on statesman and elites who are politically powerful. In this perspective, we used all the major countries available in the Polity IV dataset published by the Center of Systemic Peace over the year 2010. Using these measures, we run an ordinary least square regression to show the relationship between economic development with both election and rule of law. We also account for possible endogeneity issue, by pursuing a two-stage least square approach, where we have to isolate potentially exogenous and distinct sources of variation in rule of law and election. Fortunately, literature offers plausible instruments for rule of law, we follow Acemoglu *et al.* (2001; 2002), and adopt the population density in the year 1500 as an instrumental variable of rule of law, and the lagged form of the election measurement to instrument the election variable. Our results are empirically consistent and provide strong evidence that election is a key element of growth.

The paper is organized as follows. Section 2 covers existing institutions and development studies in the literature. Section 3 demonstrates the data collected from Political Regime Characteristics and Transitions databases. Then, we discuss empirical strategies and instrumental variables in Section 4, while estimation results and robustness checks are displayed in Section 5. Section 6 concludes and reveals policy implications and the important directions for future research.

2. Literature review

2.1 Growth and development

The most significant problems of political economics are mainly related to the causes of inter- country differences in economic development and growth. What makes some countries richer than the others? Why do some countries grow economically while others make no headway? According to the traditional neoclassical models of growth, which follow Solow (1956), the differences in per capita income are explained in terms of different factor accumulation manners. With regard to these neoclassical models, inter-country differences in factor accumulation are attributed either to differences in preferences, saving rates or some other extrinsic parameters such as the growth of total factor of productivity. The various institutions, such as agents, possess well-defined rights of property in these models. For example, they exchange goods and services. However, revenue and growth differences are not based upon the variation in institutions.

Furthermore, the growth theories primarily emerged following the insights of Romer (1986) and Lucas (1988), their perceptions state that the exogeneity arises from human and physical capital accumulation and argue that democracy is not a sufficient aspect of development and might lead to steady-state growth. On the other hand, they were following closely the neoclassical tradition and documented that the growth rate differs by preferences and endowments. Those theories which emerged later were internalizing steady state growth and technical progress, while the income differences were getting significant (see, e.g., Romer, 1990; among others). For example, according to the model of Romer (1990), if a country dedicates more resources to innovation than another does, it may be more prosperous. However, this is mainly determined by the technology properties employed to create ideas and by preferences.

This theoretical tradition, which is still very useful, has been helpful in understanding the mechanics of economic growth. However, it perhaps does not provide a fundamental explanation for economic growth for a long time. North and Thomas (1973) state that the factors such as innovation, economies of scale, and education are not causes of growth—they are growth. Innovation and factor accumulation are just proximate causes of growth. Hence, North and Thomas (1973) suggest that the differences in institutions explain fundamentally comparative growth.

What does ‘institutions’ strictly mean? According to North’s (1990) definition, institutions are the rules of the game in a society or, more formally, the humanly

devised constraints that shape human interaction. Besides, he emphasizes the key implications of institutions and structures in human exchange incentives in politics, society, or economics.

In his book titled *Structure and Change in Economic History*, North (1981) makes a distinction between a ‘contract theory’ and a ‘predatory theory’ of the state. The ‘contract theory’ asserts that the legislative framework allowing for private contracts to facilitate economic transactions is ensured by the state and its institutions. The latter theory affirms that the state is a means to transfer resources between groups. In his aforementioned book, North also builds up an idea that combines the aforesaid theories (i.e., growth theories). He suggests that it is the characteristics of a good institution to promote private contracts and in the meantime to check against expropriation by government or other groups holding the political power. The agreement between the political scientists and the economists regarding the appropriateness of the construct of North is ever-increasing. The institutions (namely the economic, political, legal and social organization of a society) primarily determine the political performance. On the other hand, the specific functions of the contracting institutions which support private contracts, and the property rights institutions which preclude government and elite expropriation have not been contemplated to be determined in the modern literature (as in North, 1981; among others). In place of well-grounded theoretical assertions, which emphasize each institution group, North has emphasized the importance of a group of institutions involving both those protecting the private property and those supporting private contracts. For instance, in the contract theory literature, such as in Bolton and Dewatripont (2005), the importance of the role of institutions supporting private contracts is pointed out by associating the types of contracts that can be prepared and put into force with the efficiency of organizations and societies. Other authors, on the contrary, underscore the importance of property rights institutions particularly by emphasizing their protection role against expropriation by government.

2.2 Impact of institutions

In the organization of the economic and political life, the differences across countries are enormous. There is a huge amount of literature dealing with the tremendous cross-country differences in economic institutions and how strongly these institutions and economic performance are correlated. For example, Knack and Keefer (1995) have reviewed property enforcement precautions of international organizations. Djankov *et al.* (2002) have dealt with the measures of barriers to entry. In a large number of studies, the variation in educational

institutions and the differences in human capital that correspond to those differences are discussed. In all of these studies, it is concluded that there are great differences in the precautions of economic institutions and also that there is a marked correlation between the precautions and economic performance indicators. According to a study by Djankov *et al.* (2002), in the United States, it the total cost necessary for opening a medium sized firm in 2001 was less than 0.02% of GDP per capita while in the Dominican Republic it was 4.95%, in Nigeria 2.7%, in Kenya 1.16%, and in Ecuador 0.91%. These barriers to entry for entrepreneurs are closely associated with various economic consequences such as the development level and the economic growth rate. On the other hand, such an association does not imply that the worse institutions of poor countries are the cause of their being poor. More likely, the reason of the poor economic performance of the Dominican Republic, Nigeria, Kenya and Ecuador might be the differences in the economic, geographic, social, and cultural foundations compared to the United States, which may be the reason of the institutional differences. As a result, it cannot be verified by evidence based on correlation if institutions are the predictive factors of the economic performance.

Furthermore, European colonisation and domination of the major parts of the globe since the late fifteenth century is likely to serve as a research laboratory regarding these matters. Acemoglu *et al.* (2001) found that the imposition of different institutions and bodies, together with European dominance, exert social power. Acemoglu *et al.* (2002) argue that macroeconomic decisions are proximate causes of growth whereas the institutions which make those macroeconomic decisions, are the remote cause of growth. This discussion can be accompanied by the approach of Sachs (2003), who stated that the fundamental cause of development can be attributable to the geographical conditions and natural resources of the countries. We may think that only the geographical conditions and natural resources influences development by institutions in the long term and by the adopted macro policies afterwards (e.g., Rodrik *et al.*, 2004). Although macro policies, institutions and geography are important for development, they take effect at different time intervals. Similarly, as we discuss the causes of good institutions, we can say that some causes correspond to closer dates while others to farther dates. That is, when we ask the question of what are the good institutions, we come across another problem such that, as the conditions determining good institutions get thinner, we see the underlying causes of each reason. Thus, the best approach rests on whether we cease these causes at a certain point or consider the temporal effects of these causes. For this reason, as Acemoglu *et al.* (2001) stated, today the importance of political accountability and the ability of the general public to participate in government decisions are

as important as the mortality of settlers in creating good institutions. However, due to the time difference and causality, it is realized by the effect of the earlier institutions on the subsequent institutions.

2.3 Growth and democracy

The large amount of research has been dedicated to discuss the effect of democracy on economic development. Barro (2003) and Gerring (2005) claim that democracy has no effect on economic development. In contrast, Papaioannou and Siourounis (2008) show that the democracy plays a positive effect of economic development and use the statement “democracy is more likely to emerge and consolidate in developed countries” in their concluding remarks. In addition to this, Acemoglu & Robinson (2015) more clearly indicates that democracy and future GDP per capita are economically and statistically associated, rejecting the Barro’s (2003) argument stating that a country in transition from non-democracy to democracy achieves about 20% higher GDP per capita in the next 25 years; this counter-argument was also recognized later by Gerring (2005).

Economists and political scientists who reveal these results have been arguing mostly in the last 20 years that democracy and its different measurements are the main issues. A new understanding has emerged where the concept of democracy is solely determined by ‘electoral democracy’ and this has given rise to a number of democracy indexes being published. The most important of these is the data used/published by Przeworski and Limongi (1993). Zakaria (1997) argues that even if a government is elected, it still could regularly violate their citizens’ basic rights. Rodrik (2014) considers that the real democracy is a twofold set of institution’ aspects. First, democracy requires institutional limitation, such as an independent judiciary and media, to uphold fundamental rights like freedom of speech and prevent governments from abusing their power. Second, it requires adequate representation in institutions. For example, parties and parliaments are needed to elicit popular preferences. Hence, in order to prevent the conceptual mistakes stemming from democracy indexes, we will try to reveal the effects of economic development by looking at the two main determinants of a ‘real democracy’—(i) rule of law (i.e., constraint on executive power), and (ii) election (i.e., defined as competitiveness of executive recruitment, the extent to which executives are chosen through competitive election).

2.4 Institutions and evidences from European countries versus Islamic countries

Historically, up to the fifteenth century, the Middle East and North Africa (MENA) region had a good standard of living, developed technology, agricultural productivity, literacy, and high level of institutional creativity; therefore, it was considered as a developed part of the world. China might be in a better condition. However, as Europe had developed its production activities, exchanged products and increased resources by time, the MENA region could not cope with that pace. Institutional endowment in the MENA region did not stop; but specific areas such as economic modernization, and the specific way of structural transformation as it occurred in the West was not experienced in MENA. The credit practices of eighteenth-century Cairo were quite similar with those in the fifteenth century. The enterprise used by investors and traders were very similar to those forms in the fifteenth century. In the nineteenth century, the MENA region was considered as underdeveloped when compared with the developments in Western Europe; and by the twenty-first century, the region fell behind the Far East.

In several of his articles, Kuran (2004) argues about the reasons for these and he relates the backwardness with four different aspects in the nineteenth-century Western countries and Islam countries. The first of those is the inadequate stock management and a financial system without an efficient banking system. The second one is the *Waqf* system, which is an inalienable charitable endowment under Islamic law that typically involves donating a building, plot of land or other assets. Third, at the dawn of the modern global economy there was less material security in the MENA region than in the West. Finally, as the MENA region fell into a state of underdevelopment, West European industrialists, merchants, and financiers came to play a growing role in its economy. Besides, Kuran (2004) has mainly focused on the institutional problems behind these aspects. Therefore, as we are interested in measuring the effects on economic development, the article considers the most important ones: (i) rule of law, and (ii) election as an essential constituent of democratic state. Kuran (2004) states that these two aspects of democracy are the most important reasons of the results and problems stated above.

Our main challenge here, then, is to identify the mechanisms that contribute to this divergence in development and growth, particularly between the West and the East, taking into consideration the institutional structure difference. As a prelude to identifying institutional differences on development, we shall draw attention to the two aforementioned institutional aspects from international evidence.

3. Data and variables

In terms of the dataset, we conduct the analysis on the exhaustive sample of reported countries in the Polity IV (Political Regime Characteristics and Transitions) database, over the 2010–2012 period. The Polity IV's Center for Systemic Peace dataset covers all major independent states in the global system over the period of investigations. We consider states with a total population of 500,000 or more. The study employs data from 167 countries, among which 28 are European countries, and compares 124 non-Islamic countries and 42 Islamic countries. The panel dataset is unbalanced due to some missing observations. For these countries, we collected structural cross-sectional data. Besides, we obtained country-level macroeconomic data from the Thomson Reuters Advanced Analytics and other economic and political information from the OECD Metadata stats and from the World Bank database. Information on the sample composition by country can be found in the Polity IV report published in the Center of Systemic Peace website.

The constraint on executive power variable from the obtained dataset was retrieved in order to measure the rule of law and competitiveness of executive recruitment, so as to fully understand the effects of election. Hence, the constraint on executive power is designed to capture institutionalized constraints on the decision-making powers of chief executives as in the previous studies (see, e.g., Glaser *et al.*, 2004; among others). Therefore, according to this, good political institutions should contain the following characteristics: (i) the holder of executive power is accountable to political representatives or to citizens, (ii) the government is controlled and limited by checks and balances, and (iii) the rule of law. However, Acemoglu & Johnson (2005) state that the variable includes a limitation of expropriation by other elites, such as legislature.

Moreover, constraint on executive power index varies from 1 (which refers to unlimited authority) to 7 (which refers to accountable executive constrained by checks and balances). This suggests that the higher the index value, the better are the institutions. One of the key advantages of using this variable is to capture the political procedures that constrain the political executive. Thus, a close relation between property rights and politics could be drawn. However, the criticism is that this variable hardly observes and captures the constraints on the behaviour of non-political elites and other branches of government. Therefore, solely addressing might be considered a significant issue; though it is likely to violate constraints in a way that to keep powers in the hands of elites (Acemoglu & Robinson, 2015).

Another important challenge is to capture the existence and efficiency of election. To do so, a competitiveness of executive recruitment variable has been employed, which takes values from 1 to 3, where 1 is the lowest and 3 is the highest grade in terms of performance measurement. As first conceptualized by Gurr (1974), they state that executive recruitment involves the ways in which social super-ordinates come to occupy their positions of political authority; that is, how institutionalized, competitive and open are the mechanisms for selecting a political leader. According to modern democratic theory, the systems where citizens have the opportunity to elect their political representatives by regularly scheduled, competitive, and open election is called democratic. If the power transfer is coded as unregulated '1' in regulation on executive recruitment; or if there is a transition from unregulated, then the code is '0'. For more information on the construction of these measures see Appendix (A1 and Table A2).

This article includes a set of control variables—collected from the Thomson Reuters Advanced Analytics and from the World Bank database—that may have an additional impact on development/GDP growth beyond the key explanatory variables. We primarily controlled the gross capital formation (or gross domestic investment), which is comprised of outlays on addition to fixed assets of economy and net changes in inventory levels. Second, we considered the general government final consumption expenditure; it covers all the expenditures of the government to buy goods and services. Third, we included the employment population ratio that accounts for the employed population of a country and its contribution to GDP. Within this variable, people aged 15 or over are considered as the working-age population. The fourth control variable is stocks traded which represents the value of shares traded over a specific year. Stock prices affect consumer confidence and therefore contribute to GDP. Lastly, we included the log form of the annual inflation, indicating the rate of price change in the economy over a year. The summary statistics of all variables in the model are outlined in Table 1.

Table 1 provides descriptive statistics for the country-level variables we used to conduct our study and run regressions. Overall, across the sample period and all countries, we observed in Panel A of Table 1 that the average log GDP per capital equals to 24.06 (USD per capita, in constant 2005 basis), the competitiveness of executive is strongly high and equals to 2.07, whereas the executive constraint is relatively lower and equals to 4.97. Regarding the remaining statistics and variables, most of them show the same results obtained in previous studies in the same field. Panels B and C provide the same descriptive statistics for the subsamples of Islamic and non-Islamic countries. We report the pairwise correlation coefficients among the main explanatory variables in Panel D of Table 4.

Table 1. Summary statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Panel A: Entire sample of countries					
Log GDP	453	24.069	2.158	19.758	30.201
Competitiveness of executive	453	2.076	1.095	0	3
Executive constraints	453	4.974	2.058	1	7
Population density	453	1.000	1.678	-3.837	5.648
Inflation	453	8.850	8.610	-1.797	29.327
Government expenditure	453	15.424	6.121	2.743	36.694
Stocks trade	453	33.862	57.115	0	335.964
Gross capital	453	23.122	7.697	1.524	58.951
Panel B: Islamic countries					
Competitiveness of executive	117	1.233	0.959	0	3
Executive constraints	117	3.234	1.769	1	7
Panel C: Non-Islamic countries					
Competitiveness of executive	336	2.366	0.986	0	3
Executive constraints	336	5.580	1.789	1	7
Panel D: Correlation matrix					
	Competitiveness of executive		Executive constraints		Log GDP
Competitiveness of executive	1				
Executive constraints	0.847		1		
Log GDP	0.344		0.277		1

Panel A of this Table summarizes all of the variables in the model used to analyse the relationship between institutions effects (Competitiveness of executive and Executive constraints) on economics development (GDP per capita (in constant 2005 USD)). For data sources and definitions of the variables, see above Section 3. Panel B and Panel C present the same statistics for the Islamic and non-Islamic countries subsamples. Panel D presents the pairwise correlation matrix for the main macroeconomics characteristics.

4. Empirical methodology

4.1 Empirical specification: ordinary least square (OLS)

We considered an ordinary least square (OLS) regression with robust standard-errors to estimate the baseline model with all dependent variables. We primarily ran a simple OLS regression to show that GDP per capita is correlated with both rule of law and election. Formally, the specification of the model and the economic relationship of interest is represented by the following reduced form model:

$$Y_{i,t} = \beta_0 + \beta_1 \text{Rule of law}_{i,t} + \beta_2 \text{Election}_{i,t} + \Delta X_{i,t-1} + \mu_i \quad \{1\}$$

where, $Y_{i,t}$ is log form of GDP per capita (in USD, in constant 2005 basis); β 's are the coefficients of our main regressors of investigations; $X_{i,t}$ represents the vector of control variables; Δ is a vector of coefficients that capture the effect of control variables on GDP per capita; and u_i is an error term clustered at the individual country level. The main dependant variables of interest are (i) rule of law, which is represented by the constraint of executive power measure, and (ii) election, which is represented by the competitiveness of executive recruitment measure. The control variables consist of inflation (GDP deflator), government consumption, gross capital formation, stocks traded and employment to population ratio.

Furthermore, the relationship between GDP per capita and the aspects of democracy may depend on the political regimes and political cultures. Thus, regressions analyses differentiate three sets of regressions. We defined three groups: namely, all countries (167 countries, the entire sample), non-Islamic countries (125 countries, with predominance of the European countries) and Islamic countries (42 countries), respectively. To distinguish between Islamic and non-Islamic countries, a dummy variable is utilized in order to address the second research question which aims to understand the effect of heterogeneity between the Islamic world and the rest of the countries.

Additionally, we also investigated whether or not there is a correlation between the rule of law measurement and election. After this investigation, we found that those variables are highly correlated as can be seen in the results reported in Panel D of Table 1. Given this, we ran two separate regressions each including just one of the key explanatory variables, as shown in equations 1a and 1b. Thus, GDP per capita is formulated either under the baseline Eq. 1 or under the new specification, Eq. 1a and Eq. 1b, as follows:

$$Y_{i,t} = \beta_0 + \beta_1 \text{Rule of law}_{i,t} + \Delta X_{i,t-1} + \mu_i \quad \{1a\}$$

$$Y_{i,t} = \beta_0 + \beta_1 \text{Election}_{i,t} + \Delta X_{i-1} + \mu_i \quad \{1b\}$$

Finally, a diagnostic test (Breusch-Pagan and Cook-Weisberg tests) was deployed to examine heteroscedasticity. Consequently, the heteroscedasticity test was observed, and it therefore showed robust standard errors of the OLS and the 2SLS estimations. Hence, the error term has a constant variance. Under the null hypothesis, the test statistic follows a chi-squared distribution with 1 degree of freedom. The null hypothesis is rejected under the 10% for all regressions.

4.2 Econometrics issues and two-stage least square (2SLS) model

There are two distinct limitations to estimate the above OLS models. Initially, both rule of law and election measures may have a reverse effect with GDP per capita, or be correlated with an unobservable factor such as religion, geography, or other variables that make the key explanatory variables endogenous. That is, our empirical setup may suffer from reverse causality. Accordingly, this implies that OLS regressions will give results that do not correspond to the causal effect of rule of law and election on economic outcomes, hence leading to an upward or downward bias (Acemoglu & Johnson, 2005). Additionally, both variables are measured with error, so there may be a downward attenuation bias. Importantly, rule of law and election are correlated, the effect of the type of institution that is measured with greater error will load onto the other variable. We hence adopt an instrumental variable approach.

To account for the above problem, we slightly modify Eq. 1a and Eq. 1b, and estimate two-stage least squares (IV-2SLS) instrumental variables method with fixed effects specification.

In the first stage, we instrument and estimate rule of law and election measures (*Rule of law_t* and *Election_t*). It is important that these instruments are correlated with the endogenous regressors, but orthogonal to any other omitted characteristics. A relevant instrumental variable would correct for reverse causality and omitted variable biases.

The consistency of the 2SLS instrumental variables estimation depends on the relevance and the exogeneity of instruments. Thus, we used population density in the year 1500, similarly to Acemoglu & Johnson (2005), as an instrument variable for rule-of-law measure. We did not use mortality rate as the second instrument variable as in Acemoglu & Johnson (2005), as it severely limits the sample size.

Having not been able to find a suitable second instrument variable for rule of law and election measures, we kept using the one-year lagged form of rule of law and election to instrument rule-of-law and election variables, respectively. The relevance of the instrument set is assessed through the Kleibergen–Paap (KP) rank-LM (from the first stage) test for under-identification and the KP Wald rank F-statistic (Partial F-stat from the first stage) to test for weak identification (Kleibergen & Paap, 2006; Cragg & Donald, 1993). Subsequently in the second stage, economic performance regressions incorporate the predicted values of rule of law and election from the first stage with the rest of the explanatory variables. The specification of the first stage is represented by the following reduced form models:

$$Rule\ of\ law_{i,t} = \delta_1 P_i + \gamma_2 Election_{i,t-1} + \Delta X_{i,t-1} + \mu_i \quad \{2a\}$$

$$Election_{i,t} = \delta_1 P_i + Rule\ of\ law_{i,t-1} + \beta_2 \times + \Delta X_{i,t} + \mu_i \quad \{2b\}$$

Where, P is log form of the indigenous population density in the year 1500. This variable was used to instrument rule of law and election. Election and Rule of law are lag form of election and rule of law, and are used to instrument for rule of law and election, respectively. As we consider a simultaneous equations model (IV-2SLS); therefore, the second stages are specified by including the prediction forms *Rule of law_t* and *Election_t* in the Eq. 2a and Eq. 2b. The key exclusion restriction is that in the population, where is the $Cov(\varepsilon, P) = Cov(\varepsilon, C) = 0$, where ε is error term in the second-stage equations (Acemoglu & Johnson, 2005).

4.3 Population density in 1500 and lagged form of election measurement

The first instrument variable for rule of law and election is population density in the year 1500, which has been used by Acemoglu *et al.* (2002; 2008). One of the most significant determinants of the strategy in European colonization was the indigenous population density and the mortality rate. Europeans invaded some parts of the world and forced the local population to work for them. Europeans settled in a region and did not develop extractive institutions if the local population of the specific region was relatively low. Acemoglu *et al.* (2002) revealed that there was an observable negative correlation between population density and GDP per capita income in the region under the control of the European countries due to inferior property rights institutions within these former colonies with high population densities in the sixteenth century. Hence, the density of indigenous population is an appealing instrument.

Furthermore, the second instrument variable is either the lagged form of election or rule-of-law variables. In general, as commonly used in the literature, lagged value of an endogenous regressor is still an ideal instrument to use. Although the lagged form of an endogenous variable matches the important conditions of being a successful instrumental variable, it has high correlation with the endogenous variable. However, the most crucial criticism is that the error term could be highly correlated with the instrumental variables. It could be reason that the instrument is difficult to satisfy the exclusive condition which is that instrumental variable is not correlated with error term in Eq. 1. In other words, if there is serial correlation in the error term, the lag variable is highly likely to be correlated with the error term.

5. Empirical results

5.1 Baseline results: ordinary least square (OLS)

Table 2 reports the regressions documenting the relationship between the measures of contracting institutions and property rights institutions on log GDP per capita. Panel A shows the results of the ordinary least square (OLS) regressions without control variables as specified by Equations 1a and 1b. Different columns represent the two above regressions using the entire sample and subsamples of Islamic and non-Islamic countries. Overall, it can be observed that both of the key variables are statistically significant for the overall sample and the non-Islamic countries subsample. However, this is not the case for the Islamic countries subsample. Subsequently, the results are economically important and the relative magnitudes of the estimated coefficients provide interesting insights. Thus, the full sample regression quantitatively finds that an increase in the score of rule of law (executive constraint) by 1 increases GDP per capita by 29%, and an increase in the score on the election (competitiveness of executive) by 1 increases GDP per capita by 67% for all countries. Besides, there is a significant positive coefficient on election and rule of law in the OLS estimation of non-Islamic countries. Interestingly, the magnitude of the effects of rule of law and election in non-Islamic countries is greater than effect of those in Islamic countries.

The inclusion of control variables is reported in Panel B of Table 1 and shows the changes in the coefficients of the two key explanatory variables of interest. Results display that the coefficients of all countries and non-Islamic countries decreased. For estimation using the entire sample of investigation, there was only a slight change in the coefficients of the key variables. However, such

changes are more drastic while considering Islamic or non-Islamic countries separately. The conclusions are similar, and therefore robust to these alternative specifications.

Table 2. Baseline regression. Institutions and economic development, using an ordinary least squares estimator

	All Countries		Islamic Countries		Non-Islamic Countries	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Competitiveness of executive	0.671*** (0.138)		0.244 (0.312)		0.954*** 0.174	
Executive constraints		0.298*** (0.077)		0.0351 (0.176)		0.466*** (0.101)
Controls	No	No	No	No	No	No
Observations	396	396	59	59	337	337
R2	0.116	0.081	0.019	0.001	0.167	0.131
Panel B						
Competitiveness of executive	0.598** (0.234)		0.496** (0.207)		0.729* (0.413)	
Executive constraints		0.246** (0.101)		0.332*** (0.096)		0.243 (0.161)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	396	396	59	59	337	337
R2	0.349	0.34	0.508	0.546	0.467	0.454

This table displays the cross-sectional OLS regressions results for the estimation Equations 1, 1a and 1b, for the 2010–2012 period. (Panel A and Panel B represent OLS regression without control variable and with control variables, respectively). The estimation is carried out for three different samples: the full sample, non-Islamic and Islamic sample. The Dependent variable is log GDP per capita (constant 2005 USD). The key variables of interest are Rule of Law (Constraint on executive power), measured as a range from 1 to 7 and Election (Competitiveness of Executive Recruitment) in 2005, measured as a rank from 1 to 3. Control variables include: inflation, government expenditure, employment, stocks trade, gross capital and inflation. Standard errors are in parentheses.

*Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.*

Panel A of Table 2 shows the strong effects of election and rule of law institutions on GDP per capita, in the univariate OLS regressions for the entire sample and the non-Islamic countries subsample. On the other hand, Panel B shows the strong

effects of rule of law and election institutions on the GDP per capita in Islamic countries subsample, whereas for non-Islamic countries subsample only election has a strong positive and statistically significant effect on the development, despite substantial effects of competitiveness of executive and executive constraints on GDP per capita for the full sample of countries and period.

Table 3. *The joint stance of institution's aspects on economic development, using an ordinary least squares estimator*

	All Countries	Islamic Countries	Non-Islamic Countries
	(1)	(2)	(3)
Panel A			
Competitiveness of executive	0.705** 0.289	0.46 0.487	0.802** 0.334
Executive constraints	-0.0215 0.157	-0.154 0.268	0.102 0.192
Controls	No	No	No
Observations	396	59	337
R2	0.116	0.03	0.169
Panel B			
Competitiveness of executive	0.507 0.451	-0.0286 0.527	0.717 0.609
Executive constraints	0.046 0.195	0.347 0.318	0.007 0.241
Controls	Yes	Yes	Yes
Observations	396	59	337
R2	0.349	0.546	0.467

This table displays the cross-sectional OLS regressions results for the estimation Equations 1, 1a and 1b, for the 2010–2012 period. (Panel A and Panel B represent OLS regression without control variable and with control variables respectively). The estimation is carried out for three different samples: the full sample, non-Islamic and Islamic sample. The Dependent variable is log GDP per capita (constant 2005 USD). The key variables of interest are Rule of Law (Constraint on executive power), measured as a range from 1 to 7 and Election (Competitiveness of Executive Recruitment), measured as a rank from 1 to 3. Control variables include: government expenditure, employment, stocks trade, gross capital and inflation. Standard errors are in parentheses.

Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

In Table 3, we provide the results regarding the joint effect of both rule of law and election on economic development. Hence, using the entire sample, results show that the coefficient of rule of law enters non-significant, whereas the coefficient of election enters positive and statistically significantly. Comparing this result with the result in Table 1, the statically significant effect of rule of law on economic development becomes non-existent (or strongly lessened). This non-significant relationship could be explained by the fact that correlation between rule of law and election is significantly high (0.85). Regarding the subsamples analysis, we find that the election coefficient of non-Islamic countries is strongly positive and statistically significant, whereas such a relationship is either non-existent for non-Islamic countries subsample.

In addition to this, we investigated how these results change when the two main regressors will be subject to another empirical specification. We consider and report the results of the IV-2SLS regressions in the following section.

5.2 Main results and discussions

In this subsection, we provide the results of the IV-2SLS regressions for the full sample period. Table 4 reports the coefficient estimates for the estimations. Panel A indicates the regression specified in Eq. 1a, 1b, 2a and 2b without control variables. The first two columns indicate the results using the full combined sample of Islamic and non-Islamic countries. From this, we found that the coefficient on competitiveness of executive power is statistically different from zero at the 1% level. In a separate regression, in column 2, we show that executive constraints are not significant. Looking into Islamic countries subsample, we found that both of the two key variables are non-significant in the determination of the log GDP per capita. In contrast, looking at non-Islamic countries subsample, we found that both the key variables are statistically significant. Noticeably, Panels A and B clearly indicate that the mean of variables in non-Islamic countries is relatively lower than the mean of those in Islamic countries. Therefore, we might conclude that election and rule of law have a considerable effect on economic development in non-Islamic countries. Moreover, on the one hand, for election, the first-stage F-statistic is bigger than 10, these estimates do not suffer from a weak instrument problem. Similarly, for rule of law, the underidentification test is assessed by F-test for the excluded instruments (the null hypothesis of weak instruments is rejected if F-statistic less than 10 or greater than the Stock-Yogo's critical value (Stock & Yogo, 2005)). F-statistic of the first stage is less than 10; thus confirming the validity of the instruments.

Table 4. The relationship between institution's aspects and economic development, from a two-stage least squares estimator

	All Countries		Islamic Countries		Non-Islamic Countries	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Competitiveness of executive	0.748*** (0.148)		0.361 (0.315)		1.054*** (0.194)	
Executive constraints		3.704 (4.216)		0.312 (0.469)		2.685* (1.588)
Controls	No	No	No	No	No	No
Observations	396	396	59	59	337	337
R2	0.116	0.864	0.036	0.083	0.166	0.960
Panel B						
Competitiveness of executive	0.639** (0.232)		0.496** (0.207)		0.804** (0.408)	
Executive constraints		-1,342 (2.100)		0.658 (0.566)		-11.96 (92.22)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	396	396	59	59	337	337
R2	0.348	0.819	0.508	0.397	0.467	0.782

This table displays the cross-sectional 2SLS regression results for the estimation Equations 2a and 2b over the 2010–2012 period. (Panel A and Panel B represent 2SLS regression without control variable and with control variables respectively). The estimation is carried out for three different samples: the full sample, non-Islamic and Islamic sample. The Dependent variable is log GDP per capita (constant 2005 USD) in 2005. The key variables of interest are Rule of Law (Constraint on executive power) in 2005, measured as a range from 1 to 7 and Election (Competitiveness of Executive Recruitment) in 2005, measured as a rank from 1 to 3. Control variables include: government expenditure, employment, stocks trade, gross capital and inflation. The excluded instrument is constructed according to Equations 2a and 2b. For data sources and definitions of the variables, see above Section 3. F is the F statistics for weak identification. Standard errors are in parentheses.

Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Table 5. *The joint stance of institution's aspects on economic development, from a two-stage least squares estimator*

	All Countries	Islamic Countries	Non-Islamic Countries
	(1)	(2)	(3)
Panel A			
Competitiveness of executive	-4.226 (2.698)	-0.617 (0.789)	-3.927 (3.287)
Executive constraints	3.187* (1.661)	0.766 (0.560)	3.400 (2.111)
Controls	No	No	No
F	73.53	54.03	33.19
Observations	396	59	337
R ²	0.539	0.249	0.037
Panel B			
Competitiveness of executive	28.90 (129.2)	-1.434 (2.278)	8.057 (15.23)
Executive constraints	-14.23 (64.91)	1.276 (1.504)	-3.974 (8.141)
Controls	Yes	Yes	Yes
F	79.08	80.4	70.43
Observations	396	59	337
R ²	0.995	0.271	0.985

This table displays the cross-sectional 2SLS regression results for the estimation Equations 2a and 2b over the 2010–2012 period. (Panel A and Panel B represent 2SLS regression without control variable and with control variables respectively). The estimation is carried out for three different samples: the full sample, non-Islamic and Islamic sample. The Dependent variable is log GDP per capita (constant 2005 USD) in 2000. The key variables of interest are Rule of Law (Constraint on executive power) in 2005, measured as a range from 1 to 7 and Election (Competitiveness of Executive Recruitment) in 2000, measured as a rank from 1 to 3. Control variables include: government expenditure, employment, stocks trade, gross capital and inflation. The excluded instrument is constructed according to Equations 2a and 2b. F is the F statistics for weak identification. Standard errors are in parentheses.

Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Tables 4 and 5 display IV-2SLS estimations regarding the economic development for the entire sample of countries and across the Islamic a non-Islamic countries subsamples. The crucial result from Table 4 is that rule of law has a positive effect on GDP per capita. Hence, the economic relevance of the coefficient estimate indicates that an increase of rule of law by would increase GDP per capita by 36%. Specifically, Panel A of Table 4 shows a strong positive and statistically significant effect of election institution on GDP per capita, only for the entire investigation and for the non-Islamic countries. Panel B of Table 4 also displays a strong positive and statistically significant effect of election institution on GDP per capita, this is only effective for the Islamic countries subsample, whereas for the entire sample of countries and the non-Islamic countries subsample, such a relationship is either non-existent or strongly lessened. With respect to the results of Table 5, on the whole, we find that the differences between Islamic and non-Islamic countries subsamples are not any more significant.

The empirical investigation reveals an interesting pattern: rule of law and election have significant effect on the long-run growth income levels. On the other hand, election, which determines the politicians' selection via competitive election, has a significant effect on economic development. Moreover, the effect of election on the non-Islamic countries (mainly European countries) is significantly higher than the effect for the Islamic countries. Although the economic explanation of these results is not the subject of this article and with the current level of knowledge, conclusions for our results are consistent and still in line with the literature discussed above. We have clearly revealed that election plays a more crucial role in economic development than rule of law does; but this and the weakness of institutions is one of the key obstacles for economic development in Islamic countries compared to the non-Islamic/European countries.

Furthermore, investigating the processes and the channels through which election matters in economic outcomes and enhancing development could be a subject of future researches.

5.3 Further investigations and robustness checks

To check the robustness of our results, we collected new data from the year 2000 to 2002 and ran our estimation by using the same regression models as specified in Equations 1, 1a and 1b, 2a and 2b. Results are presented in the Appendix, in Tables A3–A6. The results in Panel A and B of Table 2 along with Table 5 indicate a strong relation between institutions and GDP per capita in all countries and non-Islamic countries over 2000 to 2002, but in the Islamic

countries results are not same between these years. The (10% level) significant results Panel B in 2005 (Islamic countries) becomes insignificant in 2000.

Once we regress the key variables together, election measurement and rule of law measurement, significance level neither goes down nor disappears in our two samples, which were collected from 2000 to 2002. Although the coefficient of election measurement has a relatively large effect on GDP per capita, this is not the case for the sample collected in 2000. In addition, in both periods, Islamic countries have been effected by the key variables which represent rule of law and election.

In Appendix Table A5, Panel A and B show similar results with results presented in Table 4; hence, the GDP per capita is effected quantitatively more by election measurement. Interestingly, in the contrast of the results of Panel B in Table 4 that indicates no significance effect for the subsample of Islamic countries subsample, Panel B of Table A5 shows a relatively significant effect at the 10% level. Overall, the oil price was more than doubled from 2000 to 2005, which had a large impact on the development of petrol producing countries. These countries are mostly Islamic countries. Importantly, this particular pattern is robust and attempts to develop a potential explanation. Additionally, over the 2000–2002 period institutions' quality might have had more effect on development progress. Moreover, it was obvious that political conjecture had changed in the Middle East where mostly Islamic countries were located. This result might imply that election has played more important role on economics development in both samples.

Overall, the results from the robustness checks and the main results mostly verify each other, and thus the conclusion remains unchanged. The R^2 coefficients are relatively higher for all regressions.

6. Conclusion

One of the most prominent issues within social sciences is the large differences of growth and development among countries. Why are some countries more prosperous than others? Why do some countries develop economically as others remain still? There are many reasons given as answers to these questions, and one of them is the impact of institutions. In this paper, we addressed these questions using two important aspects of institutions: election and rule of law, which are considered the elements of a 'true democracy'.

Specifically, based on our investigation of 165 countries over the 2010–2012 period, we found that the impact of election on economic development is relatively higher than impact of rule of law. Our findings highlighted that rule of law does not have any effect in countries where no elections are held. Thus, elections are the pre-condition for economic development. In the presence of election, we can only speak about the quality of rule of law and its effect on the economic development. The quality of rule of law became more meaningful only in the presence of elections. On the other hand, we found that there is no country with powerful rule of law without an election system.

Furthermore, the elements of democracy determined by the Western countries are electing the rulers and the rule of law; these factors are still considered insufficient in most Islamic countries vis-à-vis the European countries. Therefore, the economic growth (*underdevelopment*) is found to be the direct result of the presence (*presence*) of these two factors or their alternatives. Particularly, the presence of competitive election has a first-order effect on economic development of mainly in the non-Islamic countries (including the 28 European countries).

The results of this empirical analysis are important for both researchers and policy makers. Additionally, we view this paper as a first step, and further empirical and theoretical works could be conducted to bridge the gap between this article and the previous literature in the subject. This article presents the empirical study to identify the effect of the institutions on development; and unless considering the robustness of the results, some critique could be pointed out. In our work, the first criticism would be that the dependent variables in our analysis do not sufficiently capture long-term economic development. This criticism could be considered in further studies investigating the development issue and institutions. Future research could address a more overarching indicator for election and rule of law index. Second, future research could focus on finding instrumental variables of better quality to control for reverse causality and finding more relevant control variables. Third, insufficient number of observations in Islamic countries limit the inferences made about underdevelopment of Islamic countries. In addition to this, creating a dummy variable for petrol producing countries as well as searching for other ways help to deeply understand the weakness of development. Policy makers who are willing to learn from institutions are advised to consider that true democracy encourages economic development, and leaders of European and Islamic countries should be aware that democratic norms bring more efficient development.

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Appendix

A1: Data

Competitiveness of Executive Recruitment

Another important challenge is to capture the existence and efficiency of election. To do so, a competitiveness of executive recruitment variable has been employed, which takes values from 1 to 3, where 1 is the lowest and 3 is the highest grade in terms of performance measurement. As first conceptualized by Gurr (1974), “executive recruitment involves the ways in which social superordinate come to occupy their positions of political authority; that is, how institutionalized, competitive and open are the mechanisms for selecting a political leader”. According to modern democratic theory, the systems where citizens have the opportunity to elect their political representatives by regularly scheduled, competitive, and open elections is called democratic. If the power transfer is coded as unregulated (‘1’) in regulation on executive recruitment; or if there is a transition from unregulated, then the code is (‘0’). This concept can be measured by three categories:

- (1) Selection: Chief executives are selected by their hereditary characteristics or by designation and sometimes a combination of both. For example, in monarchies, chief executives are appointed by the king or court. Unopposed election, repetitive replacement of presidents before their term ends, military intervention for the selection of civilian leaders, institutionalized single party, incumbent selection of successors, election boycotts by major opposition parties are some of the problems.
- (2) Dual/Transitional: Two executives (dual system) where one of them is chosen by hereditary succession, and the other via competitive election. This is used for transitional arrangements between selection and competitive election.
- (2) Election: Chief executives are chosen by competitive election, two or more major parties and candidates which match each other may compete (may be chosen by popular election or elected assembly).

Table A2. Variable definitions and sources

Variable Name	Definitions	Source
Gross capital formation	Is comprised of outlays on additions to fixed assets of economy and net changes in inventory levels.	The World Bank (2010)
General government final consumption	Average of the ratio of real government consumption expenditure of government, in billion USD.	The World Bank (2010)
Constraint on executive power	A seven-category scale, from 1 to 7, with a higher score indicating more constraint: 1 indicates unlimited authority; 3, slight to moderate limitations; 5, substantial limitations; 7, executive parity or subordination; 2, 4, and 6, intermediate values.	Polity IV dataset, downloaded from I http://www.systemicpeace.org Director Monty 6. Marshall (2013)
Competitiveness of Executive Recruitment	Measured by leadership selection through popular elections contested by two or more parties or candidates.	Polity IV data set, downloaded from I http://www.systemicpeace.org Director Monty 6. Marshall (2013)
Population density	Log of population density in 1500 (population density is inhabitants per square kilometre).	Acemoglu et al. (2002)
Log GDP per capital	Logarithm of GDP per capita, on PPP basis in 2005	The World Bank (2010)
Inflation rate	Inflation rate is the average annual inflation in the consumer price index, 2005.	The World Bank World Development Indicators (2010)
Employment population ratio	Accounts for the employed population of a country and its contribution to GDP. People in ages 15 or over are considered as the working age population.	The World Bank (2010)
Stocks traded	Market value of all traded stocks as a percentage of GDP, base 2005	Beck et al. (2001)

Table A3. Alternative period: individual effects of institution's aspects on economic development over the 2000–2002 period, using an ordinary least squares estimator

	All Countries		Islamic Countries		Non-Islamic Countries	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Executive constraints	0.371*** (0.0633)		-0.0760 (0.160)		0.515*** (0.0733)	
Competitiveness of executive		0.728*** (0.104)		0.149 (0.267)		0.909*** (0.123)
Constant	6.092*** (0.337)	6.431*** (0.223)	7.609*** (0.592)	7.199*** (0.423)	5.278*** (0.412)	6.002*** (0.284)
Observations	444	444	114	114	330	330
R2	0.211	0.225	0.016	0.027	0.341	0.312
Panel B						
Executive constraints	0.211** (0.0858)		0.260* (0.134)		0.393*** (0.132)	
Competitiveness of executive		0.569*** (0.156)		0.314 (0.290)		0.901*** (0.199)
Inflation	-0.112 (0.152)	-0.0651 (0.148)	-0.166 (0.421)	-0.187 (0.499)	-0.254* (0.151)	-0.175 (0.146)
Government expenditure	0.118*** (0.0282)	0.127*** (0.0263)	0.242*** (0.0238)	0.222*** (0.0342)	0.0704** (0.0317)	0.0971*** (0.0299)
Employment	-0.0193 (0.0142)	-0.0164 (0.0135)	0.0395 (0.0226)	0.0388 (0.0241)	-0.0294* (0.0157)	-0.0224 (0.0141)
Stocks trade	0.00999*** (0.00193)	0.00965*** (0.00187)	0.0191** (0.00799)	0.0209* (0.00967)	0.00858*** (0.00198)	0.00821*** (0.00187)
Gross capital	0.00959 (0.0261)	0.0114 (0.0240)	-0.0130 (0.0477)	-0.0101 (0.0520)	0.0286 (0.0295)	0.0393 (0.0241)
Constant	6.215*** (1.249)	5.616*** (1.162)	2.031 (2.037)	2.741 (2.604)	6.212*** (1.604)	5.069*** (1.579)
Observations	444	444	114	114	330	330
R2	0.510	0.537	0.739	0.675	0.577	0.615

This table displays the cross-sectional OLS regression results for the estimation Equations 1, 1a and 1b, over the 2000–2002 period. (Panel A and Panel B represent OLS regression without control variable and with control variable respectively). The estimation is carried out for three different samples: the full sample, non-Islamic and Islamic sample. The Dependent variable is log GDP per capita (constant 2005 USD). The key variables of interest are Rule of Law (Constraint on executive power), measured as a range from 1 to 7 and Election (Competitiveness of Executive Recruitment), measured as a rank from 1 to 3. Control variables include: government expenditure, employment, stocks trade, gross capital and inflation.

Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Table A4. Iternative period: joint stance of institution's aspects on economic development over the 2000–2002 period, using an ordinary least squares estimator

	All Countries	Islamic Countries	Non-Islamic Countries
	(1)	(2)	(3)
Panel A			
Executive constraints	0.156 (0.131)	-0.347 (0.288)	0.348** (0.134)
Competitiveness of executive	0.470** (0.227)	0.634 (0.491)	0.361 (0.231)
Constant	6.192*** (0.342)	7.695*** (0.597)	5.365*** (0.421)
Observations	444	114	330
R2	0.234	0.056	0.354
Panel B			
Executive constraints	-0.0146 (0.130)	0.482* (0.229)	0.114 (0.175)
Competitiveness of executive	0.595** (0.250)	-0.648 (0.375)	0.742** (0.286)
Inflation	-0.0652 (0.149)	-0.124 (0.405)	-0.183 (0.146)
Government expenditure	0.127*** (0.0273)	0.242*** (0.0205)	0.0913*** (0.0315)
Employment	-0.0163 (0.0136)	0.0476* (0.0227)	-0.0217 (0.0145)
Stocks trade	0.00966*** (0.00189)	0.0187* (0.00835)	0.00810*** (0.00191)
Gross capital	0.0118 (0.0247)	0.00225 (0.0445)	0.0359 (0.0276)
Constant	5.619*** (1.165)	1.378 (1.948)	4.945*** (1.593)
Observations	444	114	330
R2	0.537	0.768	0.619

This table displays the cross-sectional OLS regression results for the estimation Equations 1, 1a and 1b, over the 2010–2012 period. (Panel A and Panel B represent OLS regression without control variable and with control variable respectively). The estimation is carried out for three different samples: the full sample, non-Islamic and Islamic sample. The Dependent variable is log GDP per capita (constant 2005 USD). The key variables of interest are Rule of Law (Constraint on executive power), measured as a range from 1 to 7 and Election (Competitiveness of Executive Recruitment) in 2000, measured as a rank from 1 to 3. Control variables include: government expenditure, employment, stocks trade, gross capital and inflation. Standard errors are in parentheses.

*Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.*

Table A5. Alternative period: individual effects of institution's aspects on economic development over the 2000–2002 period, from a two-stage least squares estimator

	All Countries		Islamic Countries		Non-Islamic Countries	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A						
Executive constraints	1.116 (1.537)		-1.653 (1.479)		1.287* (0.685)	
Competitiveness of executive		0.734*** (0.107)		0.151 (0.293)		0.896*** (0.125)
Constant	2.520 (7.415)	6.436*** (0.232)	12.27*** (4.430)	7.197*** (0.446)	1.060 (3.803)	6.049*** (0.290)
F	10.31	45.38	31.97	14.47	15.98	21.22
Observations	444	444	114	114	330	330
R2	0.122	0.225	0.272	0.107	0.501	0.310
Panel B						
Executive constraints	0.773 (6.222)		-0.563 (3.112)		0.480 (0.994)	
Competitiveness of executive		0.503*** (0.170)		0.215 (0.323)		0.861*** (0.209)
Inflation	0.110 (2.610)	-0.0971 (0.158)	-0.0119 (0.708)	-0.181 (0.501)	-0.266 (0.190)	-0.181 (0.155)
Government expenditure	0.109 (0.0816)	0.125*** (0.0264)	0.104 (0.507)	0.218*** (0.0343)	0.0662 (0.0403)	0.0947*** (0.0301)
Employment	-0.00706 (0.128)	-0.0166 (0.0138)	0.0458 (0.0565)	0.0407 (0.0236)	-0.0255 (0.0452)	-0.0224 (0.0145)
Stocks trade	0.00746 (0.0270)	0.00968*** (0.00191)	0.0297 (0.0353)	0.0212* (0.0102)	0.00783* (0.00451)	0.00836*** (0.00190)
Gross capital	-0.0295 (0.375)	0.00820 (0.0261)	0.00528 (0.123)	-0.00539 (0.0525)	0.0239 (0.0556)	0.0386 (0.0267)
Constant	3.105 (36.05)	5.957*** (1.226)	5.339 (12.59)	2.730 (2.628)	5.700 (7.104)	5.229*** (1.685)
F	93.82	0.02	10.06	77.98	10.98	76.25
Observations	444	444	114	114	330	330
R2	0.143	0.532	0.022	0.673	0.564	0.609

This table displays the cross-sectional 2SLS regression results for the estimation Equations 2a and 2b over the 2000–2002 period. (Panel A and Panel B represent 2SLS regression without control variable and with control variable respectively). The estimation is carried out for three different samples: the full sample, non-Islamic and Islamic sample. The Dependent variable is log GDP per capita (constant 2005 USD). The key variables of interest are Rule of Law (Constraint on executive power), measured as a range from 1 to 7 and Election (Competitiveness of Executive Recruitment), measured as a rank from 1 to 3. Control variables include: government expenditure, employment, stocks trade, gross capital and inflation. The excluded instrument is constructed according to Equations 2a and 2b. F is the F statistics for weak identification. Standard errors are in parentheses.

Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Table A6. *Alternative period: joint effect of institution's aspects on economic development over the 2000–2002 period, from a two-stage least squares estimator*

	All Countries	Islamic Countries	Non-Islamic Countries
	(1)	(2)	(3)
Panel A			
Executive constraints	0.981 (1.062)	-1.367 (0.883)	1.841 (1.348)
Competitiveness of executive	-0.863 (1.708)	1.939* (1.118)	-1.896 (2.016)
Constant	4.871*** (1.806)	9.161*** (1.581)	2.332 (2.930)
F	58.77	0.08	12.13
Observations	444	114	330
R2	0.234	0.056	0.354
Panel B			
Executive constraints	0.512 (1.904)	-1.031 (5.513)	0.426 (1.841)
Competitiveness of executive	-0.383 (3.374)	2.157 (10.07)	0.243 (2.595)
Inflation	-0.105 (0.183)	-0.123 (0.832)	-0.237 (0.262)
Government expenditure	0.110* (0.0588)	0.133 (0.431)	0.0728 (0.0958)
Employment	-0.0187 (0.0174)	0.0108 (0.177)	-0.0219 (0.0174)
Stocks trade	0.00921*** (0.00292)	0.0285 (0.0444)	0.00750** (0.00323)
Gross capital	-0.00921 (0.0724)	-0.0708 (0.306)	0.0257 (0.0890)
Constant	6.004*** (1.472)	7.006 (23.42)	5.013** (2.001)
F	18.08	20.93	67.98
Observations	444	114	330
R2	0.432	0.075	0.582

This table displays the cross-sectional 2SLS regression results for the estimation Equations 2a and 2b over the 2010–2012 period. (Panel A and Panel B represent 2SLS regression without control variable and with control variable respectively). The estimation is carried out for three different samples: the full sample, non-Islamic and Islamic sample. The Dependent variable is log GDP per capita (constant 2005 USD). The key variables of interest are Rule of Law (Constraint on executive power), measured as a range from 1 to 7 and Election (Competitiveness of Executive Recruitment), measured as a rank from 1 to 3. Control variables include: government expenditure, employment, stocks trade, gross capital and inflation. The excluded instrument is constructed according to Equations 2a and 2b. F is the F statistics for weak identification. Standard errors are in parentheses.

*Note: *** significant at less than 1%; ** significant at 5%; * significant at 10%.*