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POLITICAL INSTITUTIONS BEHIND GOOD GOVERNANCE

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Abstract

The present work looks at the role of political institutions — political regimes and electoral rules — in determining the performance of the government to define and implement sound policies for the economy. The results of the empirical investigation on a panel of 80 democracies over the period 1996-2011, show an important impact of the political regime on the performance of the government — the presidential regimes reduces the quality of the government —, while electoral rules do not matter. However, the analysis shows that the interaction between political regimes and electoral rules plays a crucial role for the quality of the government. In particular, a presidential regime improves the government performance when associated with a majoritarian rule, while worsens it when combined with a proportional rule.

JEL Class.: D72, H11
Keywords: electoral rule; political system; government effectiveness; regulatory quality

Political institutions behind good governance*

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1 Introduction

The capacity to the government to implement programs and policies is crucial for the economic development of countries and the well-being of citizens; it is the government that issues regulations for the market to work in an efficient way, and provides most of the public goods and infrastructures. Too much discretion, however, can lead to rent-seeking behaviour on the part of government officials. When devising the institutional setting within which the executive operates two distinct and sometimes conflicting needs emerge: on the one hand, the need to restrain the executive in order to avoid "abuses" and rent-seeking behaviour; on the other hand, political institutions should guarantee the discretion and freedom to implement policies and economic programs. The difference in the performance of the executive among democratic countries, can be attributed to a different mix between delegation of powers and accountability.

The trade-off between restrain and delegation of powers is well understood in Aghion et al. (2004) who considers the share of votes that can block the action of the government as a measure of discretion. The authors maintain that the "optimal" level of restrain depends on several characteristics of the system, such as the degree of polarisation in society, the aggregate benefit of the policy, the individual degree of risk aversion, the availability and efficiency of fiscal transfers, the degree of protection of property rights. Also the political science literature is well aware of the problem, and the analysis of political institutions (presidential vs parliamentary regimes) is conducted on the basis of the political features that affect the trade-off between implementation and restrain of government actions (Samuels and Shugart, 2003). For instance, Mainwaring and Shugart (1997) consider the different features of the political system and their impact on the well-functioning of the presidential system, showing that the presidential system works better when presidents have weak legislative powers, the assembly is not highly fragmented, and elected politicians follow party discipline.

In the present work, we focus on two institutional features that affect the mix between delegation of powers and accountability: the electoral rule and the political regime (parliamentary vs. presidential). The former affects the way in which the assembly is formed — party fragmentation, selection of candidates, etc. —, while the latter affects the in-

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centives of the executive and its relationship with the assembly (Mainwaring, 1993). We maintain that it is from the interaction of the political regime with the electoral rule that the actual powers and restrains of the government emerge. The interaction is crucial for the performance of the government. For instance, one of the main criticisms of the presidential regime is the risk of immobilism due to a president not supported by the assembly; this risk is lower in a parliamentary regime where a vote of no confidence would quickly remove the executive. Immobilism, however, is not only induced by the political regime, it mainly depends on the composition of the assembly. A majoritarian rule tends to generate a two-party system that makes it easier for the president to achieve stable and large majorities. By contrast, the combination of presidential regime and proportional electoral rule makes it more difficult to build stable coalitions, thus hindering the implementation of government policies and jeopardising the performance of the government (Mainwaring, 1993).

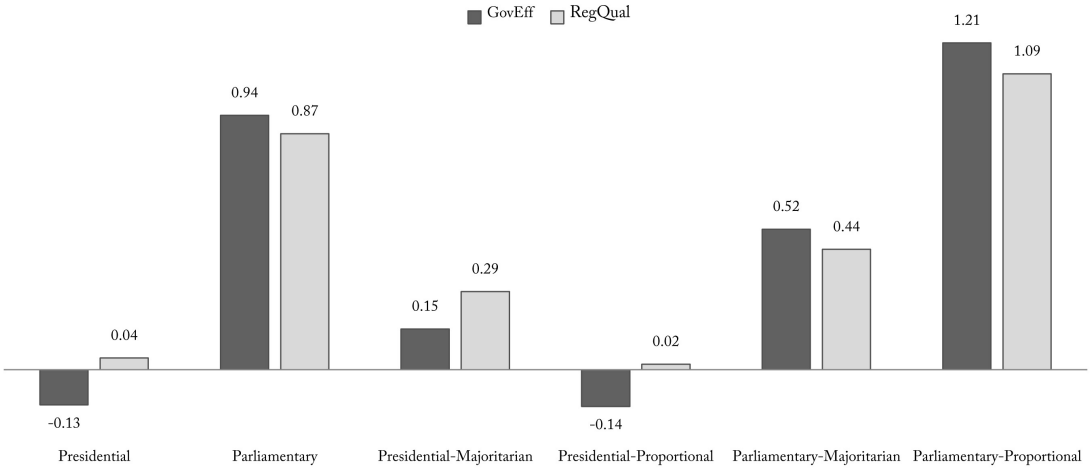
The aim is to empirically investigate the combined effect of the political institutions on the government ability to formulate and implement sound policies efficiently, shedding light on the most appropriate electoral rule to associate with a political regime. Figure 1 offers some preliminary indications in this regards. The figure compares governments ability to devise and implement sound policies for economic development across democratic countries, making use of two perception-based indicators developed by the Wold Bank within the World Governance Indicator project (Kaufmann et al., 2010). The first indicator, government effectiveness, captures the perception about the quality of public services and polices and the credibility of the government's commitment to such policies. The second indicator, regulatory quality, captures the perception of the government to provide policies that foster private sector development. Together they provide an indication of the quality of the government both in terms of its ability to devise good policies and to implement them. The average performance of the countries in our sample shows a positive correlation between quality and the combination of a parliamentary regime with a proportional electoral rule,[1] as well as a positive correlation between quality and the combination of a presidential regime with a majoritarian electoral rule.

Empirical analysis is based on a panel of 80 democracies over the period 1996-2011. The results of the estimation of the dynamic specification of the econometric model, show that electoral rules do not affect the quality of the government, while the political regime has a statistically significant impact on quality, that is, the governments in presidential regimes display lower performance than governments in parliamentary regime. But, most importantly, we find robust evidence that the role of electoral rules is crucial for the performance of political regimes. Indeed, the estimation results show that the performance of the government improves when the presidential regime is associated with a majoritarian electoral rule, whereas worsens it when combined with a proportional rule.

Similar to our work Panizza (2001), using a cross-section, finds a negative correlation between government effectiveness and the presidential regime, and no significant impact

[1] As conjectured by Lijphart, "the combination of parliamentarism with proportional representation should be an especially attractive one to newly democratic and democratizing countries" (Lijphart, 1991, p. 72).

Figure 1: The average impact of political institutions on government performance



Note: The values of the columns refer to the average over time (1996-2011) and over countries of the indexes of Government Efficiency and Regulatory quality, respectively. Both indicators range between -2.5 and 2.5, with higher values indicating stronger governance performance. The column labelled *presidential-majoritarian* refers to the average of the sub-sample of countries with a presidential regime and a majoritarian electoral rule; the same interpretation is valid for the rest of the columns.

of the electoral rule. Our analysis, while confirming his results using panel data and a dynamic specification, shows that the electoral rules are actually important for the performance of the political regime. The importance of this interaction is found also by Kunicova and Rose-Ackerman (2005) which study the relationship between the political system and the level of corruption, using a cross-section of ninety-four democracies. They show the presidential regime associated with a proportional electoral rule determines high levels of corruption. The latter finding complements our results about the importance of matching the political regime with the electoral rule.

The rest of the paper is organised as follows: in the next section we investigate the possible explanations for the effects produced by political institutions on the governments' ability to initiate and sustain policy reforms; then, in Sections 3 and 4, we describe the dataset and the methodology used to conduct our empirical investigation, respectively; in Section 5 we present the results of our empirical analysis and check for their robustness; finally, concluding remarks are provided in Section 6.

2 The political framework

In this section, we consider the two institutional features that are at the basis of our analysis: the electoral rule and the political regime.

The electoral rule determines the way in which politicians are selected and affects the composition of the assembly. Although the details of the electoral rules differ among countries, it is customary to classify electoral rules into two broad categories: major-

itarian and proportional. Majoritarian rules are characterised by a large number of single-member districts where the candidate with the largest percentage of votes is selected ("the first past the post" rule). A proportional rule is generally characterised by a small number of voting districts (e.g. multi-member districts) or a single nationwide district (as in the Netherlands) where all members of the legislature are elected by a proportional representation rule. In this case, the seats in the assembly are distributed according to the share of votes received by each candidate. Thus the voting district magnitude (i.e., the number of candidates elected in the voting district) under the majoritarian rule is one, while under the proportional rule is larger than one. A different combination of district magnitude produces a mixed electoral rule.

One way in which the electoral rule can affect the performance of the government is through the composition of the assembly. A majoritarian rule tends to produce a less (party) fragmented assembly than a proportional rule. The different degree of party fragmentation affects government stability and its ability to implement policies. The majoritarian electoral rule makes a two-party system more likely to emerge from the electoral competition (Duverger, 1954; Shugart and Carey, 1992). Bipartitism favours stability of government and its decision-making ability. Governments supported by a large and homogeneous majority have high probability to remain in power for the entire duration of electoral mandate, during which are able to implement their programs (Lardeyret, 1991). By contrast, proportional rules produce fragmented assemblies, which leads to executives supported by a wide coalition of parties; this situation is likely to result in frequent elections, and thus short-lived governments (Duverger, 1954; Lardeyret, 1991; Persson et al., 2004). The proportional rule, however, provides better political representation of minorities. Lijphart (1999) argues that a proportional (or consensual) model of democracy, based on proportional representation with multi-member districts, should be preferred to a majoritarian democracy when societies are heterogeneous in terms of ethnolinguistic, ideological, religious, and racial aspects.[2] The proportional rule allows minorities to actively participate in political debates and affect the decision making process, providing an effective representation of their interests. Moreover, the empirical investigation conducted by Lijphart (1999) shows that the consensual democracy is also associated to a better government performance in terms of lower inflation and unemployment rate, better control of violence, and higher quality of the democracy. The trade-off between effectiveness and representation can be summarised as: "proportionalists tend to attach greater importance to the *representativeness* of government, while plurality advocates view the *capacity to govern* as the more vital consideration"(Lijphart, 1991, p.76).

The electoral rule can play a role also in the restrain and discipline of the elected politician. The recent literature on political agency maintains that a majoritarian rule is more likely to reduce rent-seeking behaviour than a proportional rule, because of

[2]Examples of consensual democracy are Belgium and Switzerland, while examples of majoritarian democracies are Australia, Canada, the United Kingdom, and New Zealand. The latter form of government is commonly referred to as the Westminster model, consisting of plurality rules, bipartitism, and one-party governments, among other features.

Table 1: Majoritarian *vs* proportional representation rule

	Majoritarian	Proportional
Government-type	single-party	party coalition
Opposition-type	cohesive	fragmented
Representation	low	high
Government stability	high	low
Rent-seeking attitudes	low	high

stronger party competition in key (marginal) districts (Persson and Tabellini, 1999).

When the electoral rule is taken in isolation, with no consideration for the institutional feature of the political system, it is not possible to determine its ultimate impact on political and economic outcomes. It is important, however, to determine the differentiated impact of each electoral rule on the specific characteristics of the political system. As summarised in Table 1, the majoritarian rule tend to foster government stability because of lower party fragmentation, while producing a strong opposition and low representation of minority groups. The proportional rule is associated with a fragmented assembly, a weak opposition, and high representation of minority groups.

The impact of the electoral rules on the performance of the government depends also on the relationship between the assembly and the executive power. This link is defined by the political regime, presidential or parliamentarian, which shapes the relationship between the executive and the assembly, as well as the normative structure within which the executive operates. In a parliamentary regime, the power of the executive originates from the majority in the legislative assembly, therefore its survival depends on the vote of confidence of the assembly. This makes members of the assembly more disciplined in supporting the executive, but not enough to prevent frequent changes of government. In a presidential system, both the assembly and the president are directly elected, and the assembly cannot influence the composition or the life of the government, likewise the president cannot remove member of the parliament. The presidential regime is characterised by greater separation between the assembly and the executive than a parliamentary regime. Mainwaring and Shugart (1997) points out that the members of congress in a presidential regime can act in the assembly without worrying about the consequences of their choices on the life of the executive. By contrast, in many parliamentary regimes, voting on specific legislative matters is often associated with a vote of confidence for the executive, thus members of the parliament that would oppose the specific legislative act, but want the government to survive, are forced to vote in favour. Furthermore, the independence of assembly and executive may also increase accountability as responsibilities are more clearly associated with the executive or parties in the assembly that sustain the president, than in the parliamentary system. At the same time, independence could generate immobilism, because the loss of confidence of the assembly towards the executive cannot be easily resolved with a change of government.

Mainwaring and Shugart (1997) provides and excellent discussion of the role of political regimes in determining the performance of the government. The authors contrast the presidential and the parliamentary system showing that there are several characteristics of the political system that affect their efficacy. In particular, they maintain that the presidential regime performs better when the president has weak legislative powers, parties are disciplined, and the assembly is not fragmented in many political parties. In an influential article, Linz (1990) considers several potential drawbacks of the presidential system, among which is the claim that the presidential system introduces rigidity in the system, as the president cannot be removed until the end of the mandate. While it is true that the presidential system raises the cost for removing the executive, it is also true that the instability associated with frequent changes of government jeopardise the possibility of the executive to implement policies. There is again a trade-off between restraining an executive that does not implement the desired policies and allowing the executive the time and means to implement such policies. In the same article, Linz maintains that the presidential system introduces a winner-take-all type of politics. This is, however, not only the result of the political regimes (i.e., the direct election of the president), but also the impact to the electoral rule on the assembly. As previously mentioned, the majoritarian electoral rule tends to produce a two-party system where the party which gets more votes wins the representation of the district. Again it appears that it is the interaction between the political regime and the electoral rule that defines the characteristics of political institutions and ultimately the efficacy and efficiency of the governmental action. Mainwaring and Shugart (1997) maintain that legislative independence is particularly problematic when associated with high party fragmentation. An electoral rule that produces less party fragmentation (such as the majoritarian voting rule) may reduce the problem of a deadlock between the president and the parliament. In this way, a presidential system associated with a majoritarian rule can avoid immobilism.

From the analysis of the economic and political science literature it emerges the importance of both electoral rules and political regime for the performance of the government. It is the interaction between these two features that determines the quality of the government. In particular, we can formulate the following hypothesis to be tested in the empirical part of the paper:

- the presidential system induces a better (worse) government performance when associated with a majoritarian (proportional) rule.

3 Data and variables

The empirical analysis is conducted on a sample of 80 democratic countries over the period 1996-2011. Democratic countries are selected according to the political rights and civil liberties ranking provided by the Freedom in the World. We selected countries with a score between 1 and 5. This selection rule is then restricted by including in the sample only countries that are classified as electoral democracies according to the

Freedom in the World Survey.[3]

The government ability to implement and formulate policies is measured by the indicators related to government effectiveness ($GovEff$) and regulatory quality ($RegQual$), developed by the World Bank (Kaufmann et al., 2010).[4] As explicitly indicated in Kaufmann et al. (2010), the two indicators cover the aspect of governance related to "the capacity of the government to effectively format and implement sound policies". In detail, $GovEff$ reflects citizens' perception over the quality of public services, bureaucracy and the degree of civil service independence from political pressure. The indicator $RegQual$ reflects citizens' perception over the quality of rules and regulation implemented to foster the economic performance of the private sector. The quality of policy implementation is better captured by $GovEff$, while the quality of policy formulation is better represented by $RegQual$, as maintained by Panizza (2001). The two indexes range between -2.5 to 2.5, with the highest value indicating a strong governance performance. The World Governance Indicator project gathers information and data from a wide variety of sources, including surveys of firms and households and subjective assessments of the business community, public sector and non-governmental organisation.

The political institution indicators are based on the Database of Political Institutions 2012 (DPI hereafter) released by The World Bank (Beck et al., 2001). The nature of the political regime is captured by the dummy variable $PRES$ which assumes value one if the form of government is presidential and zero if it is parliamentarian. Countries are coded as presidential if the president is elected either directly by citizens or by an electoral college, and there is no prime minister. Countries with both a president and a prime minister are classified as presidential if the president has a veto power to block legislation, and the assembly needs a supermajority to overcome the veto. Furthermore, a political regime is coded as presidential if the president holds both the power to appoint and dismiss the prime minister and/or the other executive members, and the power to dissolve the assembly and call for new elections. According to this typology, our sample consists of 32 countries with a presidential regime and 48 countries with a parliamentary regime.

Electoral rules are classified as proportional, majoritarian or mixed. The latter case emerges when features of the majority and proportional rules are combined to elect government representatives. The analysis is conducted with two dummy variables. The first dummy, PR, assumes value one if candidates are elected on a proportional basis and zero otherwise; the second dummy variable, MAJ, assumes value one if candidates are elected using the majoritarian rule and zero otherwise. Along with these two dummy variables we use the mean district magnitude (MDM), which captures the whole spectrum of electoral rules in a continuous way. The MDM indicator consists in the weighed average of the number of representatives elected in each electoral district. It assumes value between 1 and infinity. A value of 1 corresponds to "pure" majoritarian elect-

[3]See Freedom House (2009), *Electoral Democracies: Freedom in the World 1989-90 to 2009*. For details on data and methodology see `http://www.freedomhouse.org/report-types/freedom-world` and `http://www.freedomhouse.org/report/freedom-world-2012/methodology`.

[4]Missing data for 1997, 1999 and 2001 are replaced with data computed as inter-temporal average of the year immediately before and after.

oral rule, while larger values of MDM denote increasing proportional electoral rules. In our sample three countries have an average district magnitude lower than 1, namely Australia, Botswana and Namibia. According to the DPI methodology, when the information on the number of representatives per district is not available, it is replaced by the number of parliamentary seats dived by the number of districts. Therefore, if there are more districts than seats it must be that less than 1 person is elected on average in all electoral districts.

In order to test our main hypothesis, the indicator of the political regime (MAJ) is interacted with the two dummies representing the two electoral rules considered, and with the district magnitude indicators. Accordingly, *MAJPRES* assumes value 1 for countries with a presidential regime associated to a majoritarian electoral rule; *PRPRES* assumes value 1 for countries with a presidential regime associated to a proportional electoral rule; and *MDMPRES* represents the interaction of presidential countries with the mean district magnitude indicator.

The empirical analysis is complemented with the inclusion of other variables that could affect the performance of the government. An important institutional feature is the degree of decentralisation of the public administration.[5] The expected impact of decentralisation on government performance is not well defined. On the one side it should be positive as local politicians can provide policies that are closer to citizens' needs, and are in general more accountable than "distant" central government politicians. On the other side, policy spillovers require more co-ordination at the local level, overlapping of competences may hinder the performance of the government, and local politicians can be an easier target for special interest groups (Treisman, 2002). In order to account for this phenomenon an indicator of regional autonomy, provided in the DPI database, is included in the empirical specification. Another important determinant of quality, linked to the decentralisation, is the risk that local politicians may pursue goals that are in contrast with the central government (i.e., vertical competition), and this may reduce the overall performance of the government. Enikopolov and Zhuravskaya (2007) show that the presence of "strong" national parties reduces this risk. Therefore, we include in our estimation strategy the average of the age of the two largest government parties and the main opposition party as a proxy for party strength, we label this variable *Party age*. We control also for the maturity of a democracy using the variable *Tensys*, obtained from the DPI database. This variable accounts for the consolidation of the democratic institution, controlling for the fact that mature democracies are characterised by institution more likely to be stable, and more experienced policy makers than newly formed democracies. We label this variable *Demo*.

As seen in the previous section, an important dimension for the performance of political institution is the degree of homogeneity of society and the need to cater to minorities. The basic ideas is that less heterogenous societies will suffer less from this problem. We include in the analysis the degree of population homogeneity by considering the percentage of the largest religious and ethnic group in the population, using data

[5]See Kyriacou and Roca-Sagalés (2011), Bartolini and Santolini (2013).

released by the CIA World Fact Book.[6]

Other control variables are the logarithm of the population size, *Pop*, and the growth of population living in urban areas, *Urban*. Both indicators should have a negative impact on government performance because the larger the population the higher the probability of having ethno-linguistic, religious and income differences, while the process of urbanisation introduces growing challenges in terms of metropolitan governance (Bartolini, 2014).

The economy does have an impact on the quality of the government, thus we introduce the logarithm of the per-capita Gross Domestic Product (GDP) evaluated at constant 2000 US Dollars, and the degree of trade openness (*Openness*) measured as the sum of exports and imports of goods and services as a share of GDP. Both GDP and trade openness should impact positively the perceived performance of the government (de Mello and Barenstein, 2001). An additional control for impact of the economic situation of a country, we consider the consumer price index (CPI). The motivation is that government may be pushed by concerns of rising prices to adopt swift measure to contrast the rising inflation and thus recover efficiency in the economic system with an overall improvement of the quality of governance.

Some of the control variables may be affected by a problem of endogeneity. In particular, although the quality of the institutions may depend on the economic development of a country, it is also possible that better political institutions lead to growth in GDP, as pointed out by the extensive literature on the economics of institutions. The same is true for trade openness. A reverse causality problem can also concern political party strength and democratic consolidation, as pointed out in Enikopolov and Zhuravskaya (2007). Therefore, we instrument these variables using their temporally lagged values. The descriptive statistics of the dependent and the control variables are illustrated in Table 2, while a detailed description of each variable is presented in the Appendix.

4 The dynamic panel data model

In this section we illustrate the empirical model and methodology used to estimate the effects produced by electoral rules and political regimes on the performance of the government. The analysis is conducted separately for the two indicators of government performance. We exploit the panel dimension of our sample estimating the autoregressive fixed-effects model illustrated in equation (1), where the dependent variable $Q_{i,t}$ corresponds to the two indicators of government performance, $GovEff$ and $RegQual$, for country i in period t. The autoregressive model includes the first-order lagged value of the dependent variable $Q_{i,t-1}$ among the regressors and a $1 \times k$ vector of explanatory variables $x'_{it} = (x^1_{it}, ..., x^k_{it})$. The dynamic specification seems to be more appropriate because the government performance exhibits a great deal of persistence. The variables MAJ and $PRES$ correspond to the majoritarian rule and presidential system, respectively. Fixed effects f_i are included to control for the omission of unobserved

[6]Data on ethnic group homogeneity are missing for 12 countries, namely, Benin, Denmark, France, Italy, Madagascar, Malawi, Malta, Mozambique, Papua New Guinea, Portugal, Spain, and Sweden.

Table 2: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
GovEff	1280	0.49	0.94	-1.21	2.34
RegQual	1280	0.52	0.82	-1.59	2.08
PR	1280	0.47	0.50	0	1
MAJ	1280	0.24	0.43	0	1
MDM	1271	14.65	37.27	0.72	450
PRPRES	1278	0.19	0.39	0	1
MAJPRES	1278	0.07	0.26	0	1
MDMPRES	1269	0.60	1.09	-0.33	6.11
PRES	1278	0.39	0.49	0	1
Party age	1269	39.98	33.97	1	191
Pop	1280	3.640E+07	1.290E+08	1.007E+05	1.200E+09
Urban Pop growth	1280	1.47	1.45	-8.42	5.14
Religion homog.	1186	71.23	22.67	13.8	99.8
Ethnic homog.	1015	76.98	17.99	28	99.4
GDP pc	1262	10325.97	11880.05	142.39	56285.30
Openness	1260	86.48	42.28	14.93	333.53
CPI	1242	96.14	27.79	3.34	210.91
Autonomy	1280	0.19	0.39	0	1
Demo	1277	28.03	25.16	1	81
Low income	1280	0.26	0.44	0	1

characteristics of countries, while time effects τ_t capture undefined shocks common to countries. Finally, a constant term, a, is included in the model along with an error term ϵ which is normally distributed with zero mean and constant variance.

$$Q_{it} = a + \rho Q_{it-1} + \alpha MAJ_{it} + \delta PRES_{it} + \beta x'_{it} + f_i + \tau_t + \epsilon_{it} \quad (1)$$
$$(i = 1 \dots N;\ t = 1 \dots T)$$

Since our main interest is the effects produced by the interaction between the electoral rule and the political regime, we include the interaction term $MAJPRES$ among the regressors of the dynamic panel model (equation 2).

$$Q_{it} = a + \rho Q_{it-1} + \alpha MAJ_{it} + \phi MAJPRES_{it} + \delta PRES_{it} + \beta x'_{it} + f_i + \tau_t + \epsilon_{it} \quad (2)$$
$$(i = 1 \dots N;\ t = 1 \dots T)$$

The econometric model is based on the majoritarian dummy which indicated the impact with respect to the other electoral rules (i.e., mixed and proportional). As a robustness check we also conduct the analysis substituting the majoritarian dummy with the proportional rule dummy *PR* and the district magnitude variable *MDM*.

Both empirical specifications are estimated using the System Generalised Method of Moments (Sys-GMM) estimator (Arellano and Bover, 1995; Blundell and Bond, 1998) since it performs well for large N and small T. Moreover, it accounts for problems of

endogenous variables that can be present in our panel. The Sys-GMM estimator is based on a system of equations in levels and in differences, with instruments in first differences for equations in levels, and instruments in levels for equations in first differences.[7] The Sys-GMM estimator is an extended version of the first-differenced (Diff-) GMM estimator proposed by Arellano and Bond (1991). However, it is more efficient and has smaller bias in finite sample than the first differencing GMM estimator[8] In spite of these advantages, Bun and Windmeijer (2010) have found that the equation in levels may suffer from a weak instrument problem when the variance ratio is large and series are persistent, revealing the existence of a potential weak instrument problem also for the Sys-GMM estimator.

Besides this problem, the estimator may suffer from proliferation of instruments (Roodman, 2009) which may arise when the p-values of the Hansen test and the Difference-in-Hansen test are closed to 1 (Roodman, 2009). The Hansen test checks the validity of the full set of instrumental variables, while the Difference-in-Hansen test checks the validity of the sub-set of instruments used in the level equations. Although both tests are consistent in the presence of heteroscedasticity and autocorrelation in the error terms, they are weaker when many instrumental variables are used in a panel regressions. In this circumstance, although the validity of the instruments is confirmed, "the potential for false-positive results is serious" (Roodman, 2009, p.156). In order to solve this problem "results should be aggressively tested for sensitivity to reductions in the number of instruments"(Roodman, 2009, p.156). The number of instrumental variables can be significantly reduced by collapsing instruments and limiting lag length. However, it is difficult to select the optimal number of instruments. A thumb rule generally adopted in empirical works is $Z \leq N$, that is, the number of instruments Z needs to be less than or equal to the number of cross sections N (Roodman, 2009). Moreover, Bun and Windmeijer (2010) have found that the equation in levels may suffer from a weak instrument problem when the variance ratio is large and series are persistent, revealing the existence of a potential weak instrument problem also for the Sys-GMM estimator.

Finally, the consistency of the Sys-GMM estimator depends on the second-order serial correlation in the first-differenced residuals. In other words, it is consistent when the second-order autocorrelation is not detected in the first-differenced residuals. This condition can be tested using the statistics $m2$, developed by Arellano and Bond (1991).[9]

5 Results

The results of the estimation of the econometric models, illustrated in Tables 3-6, show that the dynamic specification is more appropriate than the static one, since the coeffi-

[7] The lagged values of both the predetermined and strictly exogenous variables can be additional instruments.

[8] A drawback of the Diff-GMM estimator is that it suffers from a problem of weak instruments when the coefficient of the lagged dependent variable is near to unity and/or the variance ratio of the fixed effects to the idiosyncratic errors increases (Blundell and Bond, 1998; Bun and Windmeijer, 2010).

[9] Also the test statistic $m1$ developed by Arellano and Bond (1991) is used to test the absence of the first-order autocorrelation in the first-differenced residuals which implies serially correlated disturbances.

cient of Q_{t-1} is always statistically significant. The set of instrumental variables used is validated by the Hansen J test that accepts the null-hypothesis with few exceptions (see column 2 of Table 5 and column 3 of Table 6). The Difference-in-Hansen test accepts the null of the validity of the subset of instruments. The Sys-GMM estimates are consistent since the *m2* test always accepts the null-hypothesis in the presence of second-order autocorrelation in the first-differenced residuals. According to the F-test reported in each table, all estimated coefficients are jointly statistically significant.

Tables 3 and 4 present the estimation of model (1), without the interaction term. The results show that electoral rules do not significantly affect the performance of the government with respect to the political regime. By contrast, the presidential regime reduces both indicators of the government effectiveness and regulatory quality. This result may be the consequence of immobilism due to the presence of strong checks and balance. If the president does not hold the majority of seats in the assembly, the process requires a direct confrontation with all parties in the assembly in order to gather a consensus around each policy the executive wants to implement. The political stalemate between the assembly and president can defer the initiation of any policy reforms, worsening government performance overall.

The estimation of model (2) with interaction term confirms the importance of considering, at the same time, the political regime and the electoral rule. The analysis establish an important role for the electoral rule as determinant of the impact of the political regime on the quality of the government.

The empirical analysis shows that the adoption of a majoritarian electoral rule in a presidential regime significantly improves government effectiveness. In Table 5 the coefficient of the interaction term *MAJPRES* describes the difference in the effect of adopting a majoritarian rule versus a proportional or mixed rule in a presidential system. The coefficient is positive and statistically significant at 10% level, although only for $GovEff$. This result is corroborated by the negative and significant coefficient associated to the interaction with the proportional electoral rule, $PRPRES$, in column 2 of 5. Similarly, as shown in Table 6, the coefficients of $PRPRES$ and $MDMPRES$ are negative and significant. These results are consistent with the political framework discussed in Section 2. A more fragmented assembly makes it more difficult to form and maintain a stable majority in support of the executive. In this setting a majoritarian rule reduces party fragmentation allowing the president to control and influence the legislation and executive activity through the members of his party for a time sufficient to implement his programme.

Furthermore, the estimated coefficients of the interaction terms are robust because the F-test shows that the coefficients α, ϕ and δ are jointly different form zero.

As regards the control variables, the estimation of model (1) shows that GDP per capita is positively and significantly correlated with $GovEff$. Trade openness has also a positive but modest impact on both indicators of performance. These results confirm the hypothesis that more open and economically developed countries display better government performance. The CPI indicator is positively and significantly correlated with *RegQual* but its impact is very small. As expected, urban population growth reduces

government performance because of increasing complexity. The coefficients associated with the degree of homogeneity of a country have a mild impact on the indicator of government efficiency, while no statistically significant impact on regulatory quality. Also the indicator associated with regional autonomy is rarely significant. The only significant result is the positive impact on regulatory quality, implying that more regional autonomy may improve the quality of policy formulation. This result maybe explained by the higher level of political accountability associated with autonomous regions, where policymakers set regulations in order to create a sound business environment for attracting firms and workers (Weingast, 1995; Qian and Weingast, 1997). Fianlly, the variable associated with democratic tenure does not have a significant impact on the performance of the government.

The significant impact of the control variables remains substantially unchanged with the introduction of the interaction terms, with the exception of the coefficients of *Openness* and *Demo* that are no longer statistically significant, and *Partyage* that is positively and significantly correlated with the regulatory quality.

5.1 Robustness analysis

The lower performance of the presidential regime with respect to the parliamentary regime could be imputed to the composition of the sample. As noted by Panizza (2001), among the most developed countries only the United States is a presidential regime, thus the possibility that this result is driven by the overrepresentation among less developed countries of the presidential regime.

The World Bank classifies countries in four categories according to their income: low, mid-low, upper-middle, and high income. According to this classification our sample consist of 15 presidential countries classified as low and mid-low and 17 presidential countries classified as upper-middle and high income countries. The distribution in our sample suggest that our data do not suffer from a sample bias. In order to better check for this bias, we included in the empirical analysis a dummy variable that assumes value 1 if the country is classified by the World Bank as a low or lower-middle income country, and zero otherwise. The coefficient of the dummy is never statistically significant, reducing the risk that our results are driven by a sample bias.

In order to conduct further robustness checks, we estimate both econometric equations with a sub-sample of countries from which countries with an average GDP per capita below 500 US$ (about the 10^{th} lowest percentile) are excluded.[10]

Estimating model (1) with the subsample of 72 countries[11], shows that the negative effect of the presidential regime on $GovEff$ disappears, whereas the negative impact on *RegQual*, detected in Table 4, remains statistically significant. As regards the electoral

[10]Eight countries are dropped, namely, Bangladesh, Benin, Ghana, Madagascar, Malawi, Mali, Moldova and Mozambique. A part from Bangladesh and Moldova, the other countries have a presidential regime. According to the DPI dataset, Moldova shifted from a presidential system to the assembly-elected form of government in 2001.

[11]In the regressions, we do not control for being a low income countries with the dummy variable because we dropp from the sample a significant part of them.

rule, no statistically significant evidence is found, confirming previous results. Estimates of the model with the interaction term show that the coefficients of $PRPRES$ and $MDMPRES$ remain negatively and significantly correlated with $RegQual$. These results are robust because the F-statistic shows that the coefficients α, ϕ and δ are jointly different from zero, validating the interaction model for these finding.

Analogous results are found when the threshold is raised to the 20^{th} percentile, thus excluding other 6 countries with an average GDP per capita below 1,000 US$.[12] Re-estimating model (1) with a sub-sample of 66 countries, the significant impact of the presidential regime disappears in most of the regressions. The interaction term $PRPRES$ is again negatively and significantly correlated with $RegQual$. However, the F-statistic shows that the interaction model does not hold for these results.[13]

Re-running the panel regressions with a dummy that assumes value 1 if the country is a member of the Organisation for Economic Cooperation and Development (OECD), and zero otherwise, our main results do not change. However, the dummy performs poorly because its coefficient is never significant.

The robustness check based on sub-samples of our dataset tends to reduce the significants of the control variables. This might depend on the reduced efficiency of the Sys-GMM estimator when the number of observations becomes smaller.

Although the removal from the sample of the countries with the lowest levels of the GDP per capita makes the effects produced by the institutional combination less pronounced, the direction of these effects remains the same, confirming our main results.

6 Concluding remarks

The ability of the government to devise and implement sound policies depends on the structure of political institutions, such as the electoral rule and the political regime. Our analysis shows the importance of the electoral rules in determining the impact of political regimes on the quality of the government. We maintain that it is misleading to separately evaluate the impact of electoral rules and political regimes, as it is from their interaction that the institutional conditions for the government to operate are shaped. Our empirical investigation shows that on average the presidential system tend to reduce government effectiveness and regulatory quality in democratic countries. However, this form of government performs better when combined with a majoritarian electoral rule rather than a proportional rule.

Our work provide some evidence and guidance on the debate on constitutional reforms, suggesting that given a political system the choice of the electoral rules would make a difference for the ability of the government operate.

[12] We exclude Georgia, India, Mongolia, Papa New Guinea, Sri Lanka and Ukraine from the sample. A presidential regime is adopted by Georgia, Mongolia, Sri Lanka and Ukraine.

[13] The estimation results are available upon request.

Table 3: Estimation results of model (1)

	GovEff					
	(1)	(2)	(3)	(4)	(5)	(6)
MAJ	0.160			0.121		
	(1.38)			(0.88)		
PR		-0.154			-0.027	
		(-1.57)			(-0.24)	
MDM (log)			-0.054			-0.013
			(-1.41)			(-0.34)
PRES	-0.197*	-0.164	-0.216*	-0.036	-0.080	-0.085
	(-1.72)	(-1.63)	(-1.73)	(-0.35)	(-0.76)	(-0.78)
Party age	0.0004	0.0005	0.0002	-0.0001	0.0002	0.0001
	(0.62)	(0.72)	(0.24)	(-0.10)	(0.31)	(0.19)
Pop (log)	-0.004	-0.041	-0.021	0.040	0.026	0.028
	(-0.15)	(-1.05)	(-0.68)	(1.24)	(0.68)	(0.87)
Urban Pop growth	-0.074**	-0.061**	-0.065*	-0.055	-0.039	-0.041
	(-2.38)	(-2.11)	(-1.95)	(-1.41)	(-1.16)	(-1.14)
Religion homog.	0.003	0.003*	0.003*	-0.0004	-0.0005	-0.0005
	(1.59)	(1.67)	(1.77)	(-0.15)	(-0.18)	(-0.18)
Ethnic homog.				-0.007*	-0.006	-0.006*
				(-1.78)	(-1.53)	(-1.69)
GDP pc (log)	0.053	0.055	0.095	0.163	0.176*	0.180*
	(0.67)	(0.72)	(1.24)	(1.57)	(1.79)	(1.69)
Openness	-0.0002	-0.0005	-0.0002	0.002*	0.002	0.002
	(-0.20)	(-0.59)	(-0.23)	(1.82)	(1.43)	(1.65)
CPI	0.001	0.001	0.001	0.002	0.001	0.002
	(1.05)	(1.09)	(0.97)	(1.46)	(1.39)	(1.39)
Autonomy	-0.044	-0.027	-0.058	-0.243	-0.212	-0.226
	(-0.38)	(-0.29)	(-0.53)	(-1.33)	(-1.21)	(-1.21)
Demo	0.004	0.005	0.003	-0.001	-0.002	-0.002
	(1.40)	(1.56)	(1.20)	(-0.32)	(-0.40)	(-0.53)
Low income	0.032	-0.018	-0.005	0.080	0.081	0.081
	(0.28)	(-0.13)	(-0.04)	(0.50)	(0.46)	(0.49)
GovEff_{t-1}	0.721***	0.694***	0.684***	0.732***	0.697***	0.704***
	(9.52)	(9.49)	(8.83)	(6.36)	(5.31)	(5.82)
F-test	0.000	0.000	0.000	0.000	0.000	0.000
m1 test	0.000	0.000	0.000	0.000	0.000	0.000
m2 test	0.165	0.194	0.176	0.186	0.181	0.180
Hansen J test	0.125	0.119	0.127	0.135	0.130	0.130
Diff-in-Hansen test	0.247	0.261	0.340	0.248	0.269	0.249
Instrument No.	78	78	78	65	65	65
Groups No.	80	80	80	67	67	67
Obs. No.	1045	1045	1040	834	834	834

Note: Instruments for the first differences equation: GovEff_{t-2}, GDP pc_{t-2} (collapsed), Demo_{t-2} (collapsed), Demo_{t-3} (collapsed), Party age_{t-2}, Openness_{t-2} (collapsed) in (1)-(6); GDP pc_{t-3} (collapsed), Party age_{t-3} in (1)-(3); Openness_{t-3} (collapsed) in (4)-(6). Instruments for levels equation: $\Delta GovEff_{t-1}$, $\Delta GDPpc_{t-1}$ (collapsed), $\Delta Demo_{t-1}$ (collapsed), $\Delta Partyage_{t-1}$, $\Delta Openness_{t-1}$ (collapsed), constant term in (1)-(6). Standard errors robust to heteroschedasticity. t-statistics in parenthesis. p-value is reported for the tests. Significant at level ***1%, **5%, *10%.

Table 4: Estimation results of model (1)

	RegQual					
	(1)	(2)	(3)	(4)	(5)	(6)
MAJ	-0.189			-0.087		
	(-1.39)			(-0.54)		
PR		-0.075			-0.075	
		(-0.79)			(-0.621)	
MDM (log)			0.012			0.016
			(0.29)			(0.400)
PRES	-0.378**	-0.254**	-0.313**	-0.292**	-0.209*	-0.268**
	(-2.59)	(-2.16)	(-2.41)	(-2.05)	(-1.95)	(-2.29)
Party age	0.001	0.001	0.001	0.002	0.002	0.002
	(1.04)	(1.22)	(1.05)	(1.41)	(1.40)	(1.31)
Pop (log)	0.021	0.014	0.031	0.038	0.029	0.039
	(0.51)	(0.37)	(0.82)	(0.87)	(0.69)	(0.88)
Urban Pop growth	-0.020	-0.071	-0.065	-0.095*	-0.112*	-0.115**
	(-0.45)	(-1.62)	(-1.39)	(-1.73)	(-1.96)	(-2.02)
Religion homog.	0.001	0.002	0.001	0.001	0.001	0.000
	(0.28)	(1.01)	(0.65)	(0.31)	(0.71)	(0.26)
Ethnic homog.				-0.002	-0.001	-0.002
				(-0.44)	(-0.34)	(-0.56)
GDP pc (log)	-0.095	-0.142	-0.126	-0.035	-0.061	-0.061
	(-1.12)	(-1.60)	(-1.38)	(-0.34)	(-0.60)	(-0.57)
Openness	0.002	0.002*	0.002	-0.000	-0.000	-0.000
	(1.57)	(1.71)	(1.30)	(-0.09)	(-0.08)	(-0.26)
CPI	0.002**	0.003**	0.002**	0.002	0.002*	0.002
	(2.32)	(2.61)	(2.30)	(1.60)	(1.78)	(1.48)
Autonomy	0.086	-0.001	0.030	0.330*	0.247	0.290
	(0.86)	(-0.01)	(0.33)	(2.17)	(1.54)	(1.50)
Demo	0.004	0.006*	0.0047	-0.0014	0.001	-0.001
	(1.21)	(1.74)	(1.40)	(-0.34)	(0.13)	(-0.17)
Low income	-0.184	-0.218	-0.181	-0.093	-0.128	-0.109
	(-1.03)	(-1.24)	(-1.02)	(-0.59)	(-0.79)	(-0.68)
RegQual_{t-1}	0.688***	0.750***	0.732***	0.826***	0.851***	0.847***
	(7.89)	(9.53)	(9.61)	(10.26)	(10.07)	(9.41)
F-test	0.000	0.000	0.000	0.000	0.0000	0.000
m1 test	0.000	0.000	0.000	0.0000	0.000	0.000
m2 test	0.848	0.605	0.683	0.404	0.371	0.337
Hansen J test	0.180	0.202	0.173	0.141	0.189	0.172
Diff-in-Hansen test	0.546	0.374	0.299	0.119	0.160	0.131
Instrument No.	77	77	77	61	61	61
Groups No.	80	80	80	67	67	67
Obs. No.	1045	1045	1040	834	834	829

Note: Instruments for the first differences equation: RegQual_{t-2}, Demo_{t-2} (collapsed) in (1)-(6); RegQual_{t-3}, GDP pc_{t-3} (collapsed), Demo_{t-3} (collapsed), Party age_{t-2}, Openness_{t-3} (collapsed) in (1)-(3); GDP pc_{t-2} (collapsed), Party age_{t-3}, Openness_{t-2} (collapsed) in (4)-(6). Instruments for levels equation: $\Delta RegQual_{t-1}$, $\Delta Demo_{t-1}$ (collapsed), constant term in (1)-(6); $\Delta Partyage_{t-1}$, $\Delta GDPpc_{t-2}$ (collapsed), $\Delta Openness_{t-2}$ (collapsed) in (1)-(3); $\Delta Partyage_{t-2}$, $\Delta GDPpc_{t-1}$ (collapsed), $\Delta Openness_{t-1}$ (collapsed) in (4)-(6); Standard errors robust to heteroschedasticity. *t*-statistics in parenthesis. *p*-value is reported for the tests. Significant at level ***1%, **5%, *10%.

Table 5: Estimation results of model (2)

	GovEff					
	(1)	(2)	(3)	(4)	(5)	(6)
MAJ	-0.066			-0.094		
	(-0.36)			(-0.47)		
MAJPRES	0.950**			0.768*		
	(2.03)			(1.73)		
PR		-0.009			0.075	
		(-0.07)			(0.51)	
PRPRES		-0.405**			-0.367	
		(-2.36)			(-1.58)	
MDM			-0.041			0.009
			(-0.89)			(0.17)
MDMPRES			-0.034			-0.059
			(-0.42)			(-0.63)
PRES	-0.315*	0.139	-0.158	-0.075	0.231	0.016
	(-1.79)	(0.78)	(-0.85)	(-0.60)	(1.07)	(0.07)
Party age	-0.0002	0.001	0.0001	-0.0001	0.001	0.0001
	(-0.22)	(0.86)	(0.16)	(-0.15)	(0.82)	(0.15)
Pop (log)	-0.032	-0.042	-0.022	0.011	0.009	0.023
	(-0.85)	(-0.86)	(-0.72)	(0.28)	(0.23)	(0.75)
Urban Pop growth	-0.086**	-0.083**	-0.060**	-0.061	-0.055	-0.033
	(-2.11)	(-2.30)	(-1.96)	(-1.23)	(-1.17)	(-0.89)
Religion homog.	0.005*	0.003	0.003*	0.0004	-0.001	-0.001
	(1.87)	(1.13)	(1.69)	(0.14)	(-0.24)	(-0.27)
Ethnic homog.				-0.007*	-0.005	-0.006
				(-1.81)	(-1.24)	(-1.57)
GDP pc (log)	0.133	0.104	0.109	0.228**	0.180*	0.197*
	(1.13)	(1.15)	(1.37)	(2.05)	(1.74)	(1.85)
Openness	-0.001	-0.0005	-0.0003	0.001	0.002	0.001
	(-1.11)	(-0.49)	(-0.35)	(0.98)	(1.35)	(1.29)
CPI	0.001	0.001	0.001	0.002*	0.002	0.002
	(1.00)	(1.10)	(0.93)	(1.70)	(1.61)	(1.36)
Autonomy	-0.033	-0.042	-0.066	-0.210	-0.251	-0.252
	(-0.22)	(-0.36)	(-0.67)	(-0.97)	(-1.32)	(-1.30)
Demo	0.002	0.004	0.003	-0.002	-0.001	-0.002
	(0.51)	(0.87)	(1.06)	(-0.51)	(-0.30)	(-0.56)
Low income	0.018	-0.029	0.013	0.065	0.001	0.092
	(0.13)	(-0.17)	(0.10)	(0.37)	(0.00)	(0.52)
GovEff_{t-1}	0.606***	0.651***	0.678***	0.623***	0.675***	0.687***
	(5.00)	(8.09)	(8.64)	(4.97)	(5.45)	(5.83)
$\alpha = \phi = 0$	0.077	0.043	0.364	0.187	0.267	0.773
$\alpha = \phi = \delta = 0$	0.078	0.048	0.235	0.295	0.410	0.738
F-test	0.000	0.000	0.000	0.000	0.000	0.000
m1 test	0.000	0.000	0.000	0.001	0.000	0.000
m2 test	0.266	0.236	0.183	0.276	0.265	0.192
Hansen J test	0.199	0.088	0.106	0.178	0.180	0.138
Diff-in-Hansen test	0.318	0.145	0.299	0.355	0.306	0.289
Instruments No.	78	78	78	65	65	65
Groups No.	80	80	80	67	67	67
Obs. No.	1045	1045	1040	834	834	829

Note: Instruments for the first differences equation: GovEff_{t-2}, GDP pc_{t-2} (collapsed), Demo_{t-2} (collapsed), Demo_{t-3} (collapsed), Openness_{t-2} (collapsed) in (1)-(6); GDP pc_{t-3} (collapsed), Party age_{t-3} in (1)-(3); Openness_{t-3} (collapsed) in (4)-(6). Instruments for levels equation: $\Delta GovEff_{t-1}$, $\Delta GDPpc_{t-1}$ (collapsed), $\Delta Partyage_{t-1}$, $\Delta Demo_{t-1}$ (collapsed), $\Delta Openness_{t-1}$ (collapsed), constant term in (1)-(6). Standard errors robust to heteroschedasticity. t-statistics in parenthesis. p-value is reported for the tests. Significant at level ***1%, **5%, *10%.

Table 6: Estimation results of model (2)

	RegQual					
	(1)	(2)	(3)	(4)	(5)	(6)
MAJ	-0.212*			-0.040		
	(-1.66)			(-0.18)		
MAJPRES	0.001			-0.135		
	(0.00)			(-0.25)		
PR		0.117			0.015	
		(0.93)			(0.11)	
PRPRES		-0.437**			-0.232	
		(-2.27)			(-1.06)	
MDM			0.110*			0.040
			(1.88)			(0.93)
MDMPRES			-0.183*			-0.065
			(-1.80)			(-0.79)
PRES	-0.389***	0.001	-0.061	-0.274	-0.065	-0.171
	(-2.93)	(0.00)	(-0.40)	(-1.57)	(-0.43)	(-1.02)
Party age	0.001	0.001*	0.001	0.002	0.002*	0.002
	(1.04)	(1.67)	(0.63)	(1.39)	(1.66)	(1.32)
Pop (log)	-0.003	-0.009	-0.003	0.046	0.021	0.036
	(-0.10)	(-0.26)	(-0.08)	(0.90)	(0.47)	(0.73)
Urban Pop growth	-0.006	-0.060	-0.028	-0.094*	-0.122**	-0.116**
	(-0.15)	(-1.61)	(-0.71)	(-1.72)	(-2.12)	(-2.06)
Religion homog.	-0.000	-0.001	-0.001	0.001	0.001	0.001
	(-0.11)	(-0.29)	(-0.26)	(0.28)	(0.44)	(0.29)
Ethnic homog.				-0.001	-0.001	-0.002
				(-0.28)	(-0.29)	(-0.55)
GDP pc (log)	-0.087	-0.092	-0.050	-0.033	-0.049	-0.035
	(-1.13)	(-1.03)	(-0.56)	(-0.32)	(-0.48)	(-0.31)
Openness	0.001	0.0004	-0.0001	0.0001	-0.001	-0.001
	(0.97)	(0.41)	(-0.09)	(0.03)	(-0.44)	(-0.43)
CPI	0.002**	0.003***	0.002**	0.002	0.002*	0.002
	(2.54)	(2.64)	(2.06)	(1.51)	(1.90)	(1.48)
Autonomy	0.129	0.008	0.061	0.333**	0.196	0.275
	(1.37)	(0.09)	(0.56)	(2.08)	(1.26)	(1.46)
Demo	0.004	0.004	0.004	-0.001	-0.0004	-0.001
	(1.28)	(1.00)	(1.04)	(-0.34)	(-0.09)	(-0.28)
Low income	-0.146	-0.141	-0.032	-0.081	-0.143	-0.079
	(-0.86)	(-0.81)	(-0.18)	(-0.50)	(-0.86)	(-0.46)
RegQual_{t-1}	0.705***	0.766***	0.681***	0.831***	0.849***	0.824***
	(8.60)	(9.49)	(7.44)	(10.25)	(9.37)	(9.28)
$\alpha = \phi = 0$	0.230	0.057	0.127	0.854	0.535	0.599
$\alpha = \phi = \delta = 0$	0.037	0.010	0.045	0.186	0.221	0.113
F-test	0.000	0.000	0.000	0.000	0.000	0.000
m1 test	0.000	0.000	0.000	0.000	0.000	0.000
`m2` test	0.960	0.858	0.882	0.413	0.362	0.334
Hansen J test	0.154	0.142	0.081	0.127	0.365	0.237
Diff-in-Hansen test	0.771	0.336	0.366	0.114	0.362	0.212
Instruments No.	77	77	77	61	61	61
Groups No.	80	80	80	67	67	67
Obs. No.	1045	1045	1040	834	834	829

Note: Instruments for the first differences equation: RegQual_{t-2}, GDP pc_{t-2} (collapsed), Demo_{t-2} (collapsed), Openness_{t-2} (collapsed) in (1)-(6); Party age_{t-2}, Openness_{t-3} (collapsed) in (1)-(3); Party age_{t-3} in (4)-(6). Instruments for levels equation: $\Delta RegQual_{t-1}$, $\Delta GDPpc_{t-1}$ (collapsed), $\Delta Demo_{t-1}$ (collapsed), $\Delta Openness_{t-1}$ (collapsed), constant term in (1)-(6); $\Delta Partyage_{t-1}$ in (1)-(3); $\Delta Partyage_{t-2}$ in (4)-(6). Standard errors robust to heteroschedasticity. t-statistics in parenthesis. p-value is reported for the tests. Significant at level ***1%, **5%, *10%.

Data source and detailed description of variables

Variable	Data description	Data source
GovEff	Perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.	The Worldwide Governance Indicators (Kaufman et al., 2010), 2012 .
RegQual	Perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	The Worldwide Governance Indicators (Kaufman et al., 2010), 2012.
PR	1= if candidates are elected according on the percent of votes received by their party; 0 = otherwise.	The World Bank Development Research Group, Database of Political Institutions 2012 (DPI2012).
MAJ	1= if legislators are elected using a winner-take-all/first past the post rule; 0= otherwise.	DPI2012.
MDM	Mean district magnitude is the weighted average of the number of representatives elected by each constituency. When this information is not available, in the DPI database, MDM corresponds to the number of seats divided by the number of constituencies. For further details see the DPI codebook.	DPI2012.
PRES	1= Presidential system; 0=otherwise.	DPI2012.
Party age	The average of the ages of the 1st government party, 2nd government party, and 1st opposition party, or the subset of these for which age of party is known.	DPI2012.

Variable	Data description	Data source
Pop	Population, total.	The World Bank World Development Indicators (WDI).
Urban Pop growth	Urban population growth (annual %).	The World Bank WDI.
Religion homog.	Largest religious group (% of the population).	The CIA World Fact Book.
Ethnic homog.	Largest ethnic group (% of the population).	The CIA World Fact Book.
GDP pc	Gross domestic product per capita, computed at constant (2000) US$.	The World Bank WDI.
Openness	Sum of import and export as percentage of gross domestic product.	The World Bank WDI.
CPI	Consumer price index (2005 = 100).	The World Bank WDI.
Autonomy	1= constitutionally autonomous or self-governing region; 0= otherwise.	DPI2012.
Demo	The indicator corresponds to 'Tensys' variable; if the executive index of electoral competitiveness (EIEC) is below 6, the country is deemed autocratic or a country in which democratic institutions are not consolidated and leadership is personality-based. In this case, the system is as old as the executive? years in office. If EIEC is 6 or 7, then Tensys records how long this has been the case.	DPI2012.

Appendix

Countries include in our sample

Albania, Argentina, Australia, Austria, Bangladesh, Barbados, Belgium, Belize, Benin, Boliva, Botswana, Brazil, Bulgaria, Canada, Chile, Colombia, Costa Rica, Croatia, Cyprus, Czech Republic, Denmark, Dominican Republic, Ecuador, El Salvador, Finland, France, Georgia, Germany, Ghana, Greece, Grenada, Guyana, Honduras, Hungary, Iceland, India, Ireland, Israel, Italy, Jamaica, Japan, Latvia, Lithuania, Luxembourg, Macedonia FYR, Madagascar, Malawi, Mali, Malta, Mauritius, Moldova, Mongolia, Mozambique, Namibia, Netherlands, New Zealand, Nicaragua, Norway, Panama, Papua New Guinea, Paraguay, Poland, Portugal, Romania, Samoa, Slovak Republic, Slovenia, South Africa, Spain, Sri Lanka, Suriname, Sweden, Switzerland, Trinidad and Tobago, Turkey, Ukraine, United Kingdom, United States, Uruguay, Venezuela.

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