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## Abstract<sup>\*</sup>

The understanding of the economic effect of formal institutional rules has progressed substantially in recent decades. These formal analyses have tended to take for granted that institutional arenas such as Congress are the places where decision-making takes place. That is a good approximation in some cases (such as many developed countries today) but not in others. If countries differ in how *institutionalized* their policymaking is, it is possible that the impact of formal political rules on policy outcomes might depend on that. This paper explores that hypothesis and finds that some important claims regarding the impact of constitutions on policy outcomes do not hold for countries in which institutionalization is low. The findings suggest the need to develop a broader class of policymaking models in which the degree to which decision-making follows “the rules” is also endogenized.

**JEL Codes:** D78, D72, D73, H60, H62, H20

**Keywords:** Political Economy, Institutionalization, Political institutions, Government expenditure, Composition of government expenditures

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## 1. Introduction

That constitutions affect public policy outcomes has been long an undisputed fact. For example, the underlying framework of Buchanan and Tullock's *The Calculus of Consent* (1962) relies on the understanding that different decision rules lead to different policy outcomes. The field of political economy has evolved rapidly since that seminal work. More recently, mainstream economists have embraced the notion that institutions matter and have embarked on the quest for identifying the specific impacts of institutions on policy outcomes. Voigt (2011) is an excellent survey of this literature.

This work has deepened our understanding of how political institutions shape economic policies. For example, political economists have built on the foundations laid by political scientists on the impact of formal rules on the workings of political institutions to study the impact of various legislative and electoral institutions on a number of relevant policy outcomes, such as the size of the government and the composition of government expenditures. The theory and evidence suggest, for example, that proportional representation systems tend to favor larger governments compared to majoritarian systems. Particularly influential in this literature, because it brought to the attention of mainstream economists issues long studied in the public choice tradition, has been the work of Persson and Tabellini (2000, 2003).

In almost all of this literature, the relevant political action takes place within relatively formalized institutional arenas (the voting booth, the building of Congress, etc.) and the incentives of the participants are bound by formal institutional rules (electoral rules, committee rules, etc.). That is certainly a very good approximation for policymaking in various countries at some moments in time (for instance, many developed countries in the last several decades), but it is a much rougher approximation of present-day policymaking in other countries or even in most countries at other points in history. For example, in some countries, power in the streets, the threat of violence or economic disruption, control of the press, or the access to bribing the President (or the Prime Minister) may be as valuable as the power in Congress and other formal institutions of government. Consequently, the structure that determines who controls the street, who controls the press, or who can access back rooms may be as much a determinant of policy outcomes as electoral and legislative rules. If countries vary in the degree to which the formal institutions of government such as Congress, political parties, and the judiciary are the central

conduits of political pressuring and bargaining, we might expect the relative impact of the rules regulating behavior in such official channels (“constitutions”) to vary as well.

In this paper we take a step in the direction of exploring the conditional effects of constitutional rules on policy outcomes. We do that by focusing on some of the main results in Persson and Tabellini (2003). Since their work has had such a broad influence on the discipline, it constitutes a natural first ground for testing whether policies are always or not fully determined by the institutional rules usually written in a country’s constitution.<sup>1</sup> We reproduce their estimations of the effects of the form of government and of electoral rules on the overall size of government and on the composition of expenditure, but we do so by taking into consideration the degree of institutionalization of political institutions across countries. We define institutionalization as the degree to which formal political arenas such as the legislature or the political party system are indeed the loci of political power, and we use some empirical proxies for the institutionalization of the policymaking process by considering jointly the degree of institutionalization of congresses, parties, judiciaries, and bureaucracies. In our main exercise, we cluster countries into two groups according to the institutionalization of their political institutions, and perform the analysis within each group. While the results of Persson and Tabellini are confirmed (and even strengthened) within the sample of high-institutionalization countries, almost none of the results obtain for the low-institutionalization sample.<sup>2</sup>

Even though our indicators of institutionalization could still be improved upon, we take the results in this paper as suggestive that additional work in the area is warranted. Our logic and tentative findings suggest that for a fuller understanding of the effects of constitutional rules on policy, it is necessary to develop a broader class of models that also endogeneize the degree to

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<sup>1</sup> As pointed out by various authors (see, for instance, Blume et al., 2009), Persson and Tabellini fall somewhat short in paying tribute to several intellectual predecessors in Public Choice and Constitutional Political Economy. Nonetheless, their broad cross-country analysis has achieved so much saliency that it is a natural focus for scholars (such as Blume et al., 2009, and ourselves here) trying to make general points about this literature. As Jonathan Rodden indicates, Persson and Tabellini (2003) is a “path-breaking book” (Rodden, 2009: 342) and “represents one of the most important contributions to comparative politics in recent decades” (Rodden, 2009: 344). According to Keefer (2004: 258) “The analysis in Persson et al. (2000) is the most rigorous linking characteristics of presidential and parliamentary systems to policy outcomes.” In a slightly more critical vein, Acemoglu (2005) states “if the results indeed correspond to the causal effects of the form of government and electoral rules on policies and economic outcomes as PT claim, we have learned more with this book than from the entire comparative politics literature of the past fifty years.” As we discuss later, the adequacy of the methods used by the two authors has been questioned, in particular due to the endogeneity of constitutions (Acemoglu, 2005; Rodden, 2009; Rockey, 2012). Nonetheless, their basic analysis constitutes a natural point of departure for an exercise like the one we propose here.

<sup>2</sup> We attempt to reproduce the exercise using partitions according to alternative criteria, and the results are more mixed, suggesting that the split of countries on the basis of our proxies for institutionalization is capturing something relevant.

which formal institutional arenas are indeed the key loci of political decision-making. Moving in that direction will allow a more integrated study of policymaking across countries of different degrees of institutionalization, as well as a better understanding of the role and effects of political institutions. As a byproduct, it may also permit a better understanding of why the robustness of some of the results in this area of research has been affected by sample selection (Blume et al., 2009; Rockey, 2012).

## **2. The Institutionalization of Policymaking**

Institutions are social order structures and mechanisms that regulate the behavior of individuals. The term “institution” is commonly applied to important habits and customs within a society, as well as to the particular forms in which government and bureaucracy are organized (Rhodes, Binder and Rockman, 2006). In particular, the concept of “political institutions” refers to both the combination of constitutional and electoral game rules that define what diverse political actors can and cannot do, and to certain formal governmental or quasi-governmental organizations, such as the legislature, the judiciary, public administration, political parties, etc.

Institutionalization is a characteristic of those systems of interaction that are associated with greater recognition and formalization of certain ways of making decisions and enforcing them. The notion of institutionalization within the context of political institutions has been underlined by outstanding authors in the tradition of democratization studies, such as Samuel Huntington in his famous *Political Order in Changing Societies* (Huntington, 1968). Beyond this very general discussion, the subject of institutionalizing political institutions has also been tackled in political science regarding certain arenas or specific sub-systems, such as the institutionalization of political parties, of legislatures, and of judiciaries.

An institutionalized system of political parties implies stability in inter-party competition, the existence of parties with more or less stable roots in society, the acceptance of parties and elections as legitimate institutions that determine who will govern, and party organizations with reasonably stable rules and structures that wield influence on the direction of party policy and determine the party leadership (Mainwaring and Scully, 1995; Jones, 2010).<sup>3</sup> The

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<sup>3</sup> The literature has also developed a series of measures of political party institutionalization, which include notions of in-party investment (questions such as: “Does the party organization have structure and resources?”), as well as notions regarding the beliefs held about the institution by both those within the organization as well as by wider social actors (questions such as: “Do people have confidence in political parties?”).

institutionalization of legislatures has been the subject of attention in a specialized literature since the pioneering work of Nelson Polsby (1968) regarding the institutionalization of the United States Chamber of Representatives.<sup>4</sup> There is also a burgeoning literature on judicial institutionalization, which defines institutionalization as a regularized system of decision making, including the capabilities of judicial offices as well as norms such as judicial independence (McGuire, 2004).

By heavily synthesizing a wide range of writings on institutionalization from Huntington until the present day, and translating some of the fundamental ideas to the language of game theory, we can argue that institutionalization is something that happens over time as a consequence of the *investments* made by diverse political actors, and that it is associated with particular configurations of *beliefs*.<sup>5</sup> An important group of actors (politicians, lobbyists) invest heavily in the US Congress precisely because they believe it is the key arena of United States policymaking, which is in turn confirmed in equilibrium owing precisely to those investments and their consequences.

This conceptualization of investments and beliefs as the basis of institutionalization is formalized in Scartascini and Tommasi (2012) in a specific legislative bargaining context with a prior stage in which political actors invest in the ability to exercise power in Congress or in alternative (less institutionalized) political arenas. Political actors can decide to pursue their objectives by investing in formal institutional arenas such as Congress, or in less institutionalized alternatives; the accumulation of those decisions over time determines institutionalization. Other than voting, forming political parties, bargaining in the legislature, and the like, there are a number of *alternative political technologies* (such as bribes, or threats of violence and of disruption of economic activity) that individuals or groups could utilize in order to influence collective decisions. For example, in some countries in Latin America it has become common to attempt to affect policies by the threat of violence, for instance by staging road blockades that disrupt lives and economic activity; some governments regularly cave in to these protests by

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<sup>4</sup> Polsby developed a series of indicators of institutionalization and argued that, according to these indicators, the United States Congress became increasingly institutionalized over the years from its beginnings in 1789 up to the time of Polsby's study. Palanza, Scartascini and Tommasi (2012) attempt to build cross-national comparisons of the causes and consequences of congressional institutionalization.

<sup>5</sup> Institutions reflect past investments, summarize information, beliefs and expectations, and incorporate self-reinforcement effects. This notion is anchored in the view of "institutions as equilibria" by authors such as Aoki (2001) and Greif (2006).



providing particularistic benefits to those who stage them.<sup>6</sup> In other cases, constitutionally powerful institutions such as Congress are commonly bypassed by executives who rule surrounded by informal circuits of power, as was the case in Mexico during the 70 years of PRI domination (Lehoucq et al., 2008).

Whether actors choose to focus their political energies on institutional arenas such as Congress, the party system, or the judiciary—or in alternatives such as the streets or the back rooms of the presidential palace—depends on their expectations on which course of action is most profitable. Actors' choices of investing in playing in formal institutions or through alternative means in turn have implications for the characteristics of policymaking in the country, so that these expectations tend to be fulfilled in equilibrium, leading some countries to more-institutionalized and other countries to less-institutionalized policymaking. Given strategic complementarities in the use of various arenas, the model in Scartascini and Tommasi (2012) delivers multiple equilibria, including equilibria with high and with low levels of “institutionalization.” Under certain conditions, only formal institutions matter. In such cases, we would expect that the predictions of theoretical models that take for granted that all the relevant action is within formal institutions should work well. In other cases, formal institutions tend to be circumvented and actors' use of alternative political technologies will be higher. In such scenarios, the predictions of models that assume away such alternative behavior away might not be too adequate.

Below, we explore the extent to which the purported effect of (explicit, written, constitutional) political rules on policy outcomes depends on the degree of institutionalization.

### **3. Institutionalization Indicators and Constructing the Clusters**

In order to evaluate the degree of institutionalization of policymaking in diverse political systems, we have collected data on four relevant institutional arenas: the legislature, the political party system, the judiciary, and the public administration. These institutions might, in turn, be complements or substitutes as the arenas of political construction. For instance, as the United States is a country of relatively high institutionalization, it is often thought that U.S. policymaking is concentrated in Congress more than in political parties, while in some European

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<sup>6</sup> Also, people in the street may well affect policymaking directly. For example, in Nicaragua, government sympathizers blocked Congress to preventing opposition legislators from repealing an Executive decree. [http://www.eluniversal.com/2010/04/20/int\\_ava\\_diputados-opositores\\_20A3772411.shtml](http://www.eluniversal.com/2010/04/20/int_ava_diputados-opositores_20A3772411.shtml)

countries it might be the other way around. Given this potential multiarena nature of institutionalization, we will characterize it in a multivariate manner.<sup>7</sup>

The indicator of **congress institutionalization** combines information taken from the *Global Competitiveness Report* (GCR) about legislature effectiveness with a measure from the *World Values Survey* (WVS) regarding the confidence people have in their parliament.<sup>8</sup> The index of **party system institutionalization** is made up of five variables that measure the stability and capacity of political parties to aggregate preferences (from the *Bertelsmann Transformation Index*, BTI), public confidence in the parties (WVS and *Barómetros*), voter volatility, party longevity and election impartiality (from the *Database of Political Institutions*, DPI). **Judicial independence** is proxied by measuring interference with the judiciary by government or other actors, using variables from three sources (GCR, BTI and the Fraser Index). The fourth indicator measures **bureaucratic capacity** and is constructed using data from the *Columbia State Capacity Survey* and the *International Country Risk Guide*.

Using these four indicators, we proceeded to cluster the countries according to their degree of institutionalization. Using a multivariate procedure, instead of relying on an aggregate indicator or focusing in one of them individually, allows us to exploit the multi-arena nature of institutionalized policymaking processes. Consequently, we build the clusters according to the four variables described above by using k-means and the L1-norm,<sup>9</sup> and the index of Calinsky and Harabasz in order to determine the optimal number of clusters, which in this case is two.<sup>10</sup>

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<sup>7</sup> The indicators we have been able to draw from widely available international sources are rough, but serve the purposes of this initial empirical cut. In some cases these international indicators only capture subjective impressions of actors about these institutions. Such impressions are relevant from the perspective of capturing “beliefs,” but it would be desirable to complement them in future work with more objective indicators of the strength and cumulative investments in each of those institutions. The indicators used here have been assembled within the context of a wider investigation, in which in-depth indicators were constructed for the case of 17 Latin American countries on the basis of expert surveys and comparative studies of public policymaking (IDB, 2005; Stein et al., 2008; and Scartascini, Stein and Tommasi, 2009). The indicators used here, compiled from international databases, show high levels of correlation with the other in-depth indicators constructed for the Latin American cases. Palanza, Scartascini, and Tommasi (2012) provide a comparison of the shallow international indicators with the more detailed indicators for 18 Latin American countries for the concept of congress institutionalization.

<sup>8</sup> Details on the indexes and variables are provided in the Appendix 1.

<sup>9</sup> k-means is the better known and more widespread clustering procedure that yields a partition of the space (Wong, 1980). Furthermore, it generates uniformly consistent estimations of the underlying density. Because k-means is a distance-dependent procedure, we need to define a distance norm (Caruso, Sosa Escudero and Svarc, 2009.) According to the characteristics of our data, we decide to use the L1-norm where the distance between two observations  $y_i$  and  $y_j$  is given by  $d_{ij} = \sum_{l=1}^p |y_{il} - y_{jl}|$ .

<sup>10</sup> This technique uses the output of any clustering algorithm (for example, k-means) and it compares the change in within-cluster dispersion with the between-cluster dispersion. The way to determine the optimal number of groups is calculating the index for each partition and selecting the partition with the greatest value of the index. According to

Table A1 in the Appendix shows the composition of the two resulting groups. Group 1 contains the highly-institutionalized countries according to our indicators, and Group 2, those countries considered to be of low institutionalization.

In the following section we use these clusters (as well as a more continuous indicator of institutionalization) to explore whether the effect of constitutional rules is conditional on institutionalization; hence, to explore whether the results coming from the literature are invariant to the degree of institutionalization.

#### **4. The Conditional Effects of Constitutions on Policy**

Political arenas such as party systems or legislatures are the spaces where the rules studied in the formal literature are operational. We suspect that the theories and models that study the impact of formal political rules on economic policy outcomes might have less predictive power in cases of lower institutionalization. For example, an important literature centered on the U.S. case has exalted the importance of legislative committees in American policymaking. Hence, some of the implications of political rules are supposed to operate through their impact on the structure and incentives of such policy committees. But committees and other congressional institutions have a much smaller role in some other countries. For instance, in Argentina a former president and leader of the governing party at the time had no qualms about declaring he was not concerned about the opposition gaining control of the legislative committees in Congress because his party still “controlled the streets.”<sup>11</sup> A statement like this could be hardly imagined by American politics scholars. Such statement was not only a reflection of a low degree of institutionalization (or how little certain formal institutions matter), but also an explicit act of further de-institutionalization.

In more specific terms of the Persson and Tabellini framework, the selection of presidential or parliamentary systems matters for fiscal outcomes because it affects party discipline, the degree of collusion between the executive and the legislature, and the incentives

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Savova, Therneau and Chute (2006) the index of Calinsky and Harabasz outperforms the other methods that have been suggested in the literature. In our application, the same result obtains if we use the gap statistic developed by Tibshirani, Walther and Hastie (2001).

<sup>11</sup> “If they want to take us out from every one of the (congressional) Committees, let them do it; we have the streets of the people” –our translation. Original in Spanish available at <http://m.lanacion.com.ar/1204204-kirchner-si-nos-quieren-echar-de-todas-las-comisiones-que-lo-hagan-tenemos-las-calles-del-pueblo>

for fiscal discipline.<sup>12</sup> The electoral system affects the electoral connection between the legislators and the voters in terms of how much and what type of expenditures to provide to their constituents.<sup>13</sup> When negotiations take place in non-institutionalized settings, some of these mechanisms break down. For example, if decision making takes place outside Congress, the electoral connection breaks down—people participate directly without having to go through their representatives—and this might also affect the incentives for party discipline and for collusion across branches.

In order to ascertain whether the policy effects of constitutions are conditional on whether country policymaking is institutionalized or not, in this section we replicate the empirical exercises in PT2003 on the overall size of government and expenditure composition using the same data from the 85 democracies and the same estimation procedures that are used in their book.<sup>14</sup> According to that theoretical framework and empirical analysis, it is expected that presidential countries and countries with majoritarian electoral systems would tend to present governments of smaller size and programs that are narrower in scope (e.g., smaller social security systems).

The PT2003 basic model is the following:<sup>15</sup>

$$Y_i = PRES_i + MAJ_i + X_i + \mu_i$$

where  $PRES_i$  is a dummy variable that is equal to 1 when the form of government of country  $i$  is presidentialist and 0 otherwise,  $MAJ_i$  is a dummy variable that is equal to 1 when the electoral

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<sup>12</sup> “Our results suggest that the two political regimes are associated with very different policy outcomes. Separation of powers in the presidential-congressional regime produces a smaller government... Intuitively, separation of powers enables the voters to discipline the politicians, and this reduces waste and moderates the tax burden... Legislative cohesion in the parliamentary regime, on the other hand, leads to a larger government...Intuitively, there is now further scope for collusion among politicians...” Persson and Tabellini (2000: 252)

<sup>13</sup> “...going from single to multiple districts –from what we labeled proportional to majoritarian elections- induces politicians to target equilibrium redistribution toward a more narrow group of voters. As a result, public-good provision, or more generally, provision of nontargeted policies, is always more generous under proportional elections.” Persson and Tabellini (2000: 239)

<sup>14</sup> We have chosen these two areas because they are the ones for which the theoretical predictions are relatively consistent and they are mostly confirmed by their empirical analysis (see Table 9.1 in PT2003). We have also performed the same analysis presented in this paper using the other fiscal dependent variables in PT2003. Such analysis, omitted here for brevity, can be seen in an earlier working paper. As in PT, results for rent extraction are ambiguous because of the correlation between district size and electoral formula. The district size and ballot structure commonly found in majoritarian systems tend to pull in opposite directions. We have also performed the same exercise using budget deficits as dependent variable. It turns out that our replication of the PT exercise for the full sample in that case does not deliver the exact same results they report.

<sup>15</sup> Several chapters in PT are devoted to explaining their estimation procedures and assumptions. Here we present only a brief account. For detailed explanations see Persson and Tabellini (2003), Blume et al. (2009), and Rockey (2012).

rule of country  $i$  for the lower or only house is majoritarian and 0 otherwise,  $X_i$  is a set of controls for each country (definitions in the Appendix).  $Y_i$ , the dependent variable, changes according to the exercise. In the first set of exercises we replicate,  $Y_i$  is a measure of central government expenditure as a percentage of GDP of country  $i$ , as reported in the GFS Yearbook ( $CGEXP_i$  in PT2003). In the second set of exercises,  $Y_i$  is the consolidated central government expenditures on social services and welfare as a percentage of GDP, as reported in the GFS Yearbook ( $SSW_i$  in PT2003).

We control for the degree of institutionalization in two different ways. First, we split the sample into two groups according to whether they can be classified as having either low or high institutionalization, based on the clustering described in the previous section, and we run the regressions separately. We also run the regressions with the whole sample but adding interaction terms for the index of institutionalization with the variables of interest. We do this in two different ways: using a dichotomous version that takes value one for countries of high institutionalization (Group 1 in Table A1 in the Appendix), and using a continuous index constructed by averaging the four measures of institutionalization mentioned above.<sup>16</sup>

Table 1 presents the outcomes of the empirical exercises. The first column in each block shows the results from replicating the exercises of PT2003. In the first block we present the baseline results; in the second block, the results when additional control variables are included; in the third block, we restrict the analysis to those countries with stronger and longer lasting democracies. The second and third columns in each block reproduce the same regressions for each group in our partition. Group 1 includes the countries with high levels of institutionalization and Group 2 the countries with lower levels.<sup>17</sup> The interpretation of the results in Table 1 is straightforward. The results found by PT are almost identical to those for the group of high institutionalization, and in some cases the results are even stronger for this group. The same models do not provide the same results for the group of low institutionalization; in this group the coefficients are not significant (and in a few cases the signs are different too). These results are illustrated in Figure 1, where we present the added variable plots for presidentialism for the first three columns in the table. The effect of presidentialism on the size of the government is negative and significant for the whole sample (panel a); this effect is even stronger (both

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<sup>16</sup> Summary statistics are provided in Table A2 in the Appendix 2.

<sup>17</sup> The different political institutions are still reasonably well represented in the subsamples. For example, in Group 2, 18 out of 41 countries (44 percent) are majoritarian and 24 out of 41 (58 percent) are presidential.

economically and statistically) for Group 1 (panel b), but it is not significant for countries in Group 2 (panel c).

**Table 1. Economic Outcomes and Constitutions: Sample Partitions**

	Baseline			Added control variables			Sample of Democratic Countries		
<b>Dependent variable:</b> <b>central gov. expenditure</b>	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries
<b>sample</b>	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2
pres	-6.077*** (1.969)	-8.634*** (1.488)	-2.315 (3.728)	-5.291*** (1.922)	-9.245*** (2.119)	-6.800 (5.451)	-8.294*** (2.725)	-8.853*** (2.789)	-21.279 (18.327)
maj	-3.292* (1.728)	-5.229** (2.079)	1.249 (3.097)	-5.736*** (1.945)	-5.974** (2.798)	-5.712 (3.739)	-5.593** (2.679)	-6.381** (2.877)	8.428 (17.937)
Continents and Colonies	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	80	42	38	80	42	38	62	40	22
R-squared	0.633	0.787	0.631	0.705	0.830	0.734	0.704	0.816	0.862
<b>Dependent variable:</b> <b>welfare expenditure</b>	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries
<b>sample</b>	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2
pres	-0.178 (1.105)	-1.054 (2.374)	0.229 (1.112)	-1.894 (1.269)	-2.116 (2.584)	-4.374 (2.890)	-4.201** (1.875)	-6.616** (2.893)	-5.970 (2.732)
maj	-1.536 (1.016)	-1.112 (1.767)	-0.936 (1.581)	-2.013 (1.247)	-0.736 (2.452)	-2.743 (2.463)	-2.687 (1.870)	0.846 (2.434)	6.035 (5.293)
Continent and Colonies	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	69	39	30	69	39	30	56	37	19
R-squared	0.794	0.696	0.854	0.811	0.767	0.897	0.804	0.780	0.995

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All regressions include standard controls: LYP, GASTIL, AGE TRADE, PROP65, PROP1564, FEDERAL, OECD

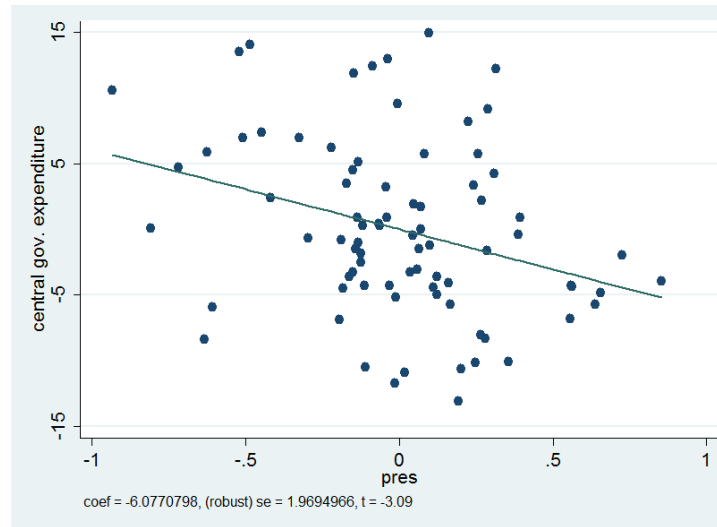
Continents and Colonies includes the following variables: COL\_UKA, COL\_ESPA, COL\_OTHA, AFRICA, LAAM, ASIAE

Sample of democratic countries: sample restricted to those countries with a Gastil index > 3.5

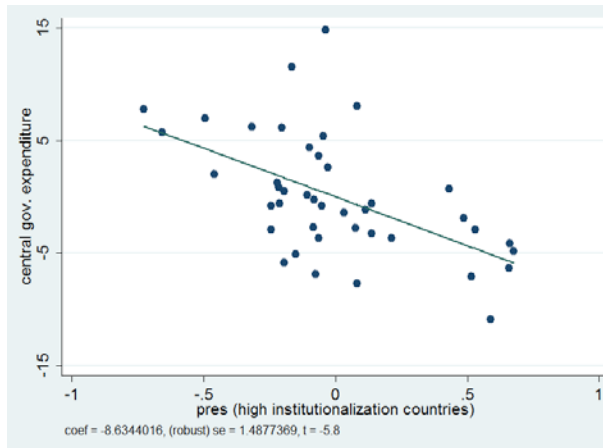
Source: own estimates based on data set from Persson and Tabellini (2003) and Berkman et al (2008)

## Figure 1. Presidential Systems and the Size of the Government

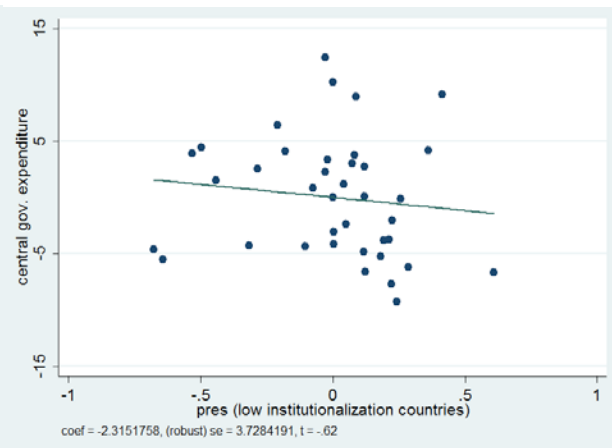
Panel a. Whole sample (Persson and Tabellini results –Table 1, Column 1)



Panel b. High Institut. countries (Column 2)



Panel c. Low Institut. countries (Column 3)



A concern with this exercise might be that the smaller sample sizes could be explaining a lower degree of significance in the partitions. Even though this effect should be parallel for both groups and it would not help to explain the change in signs that sometimes takes place for Group 2, we have also estimated the models for the size of the government by including interaction terms for the degree of institutionalization and the variables of interest (PRES and MAJ). For this purpose, we have created two variables of institutionalization: a dichotomous variable that takes value 1 for the countries in the high institutionalization group and a continuous variable with

potential range 0 (low institutionalization) to 4 (high institutionalization) that is constructed using the simple average of the four indicators of institutionalization described above (each index has the same range). The hypothesis to test here is once more whether the effect of political institutions is conditional on the degree of institutionalization. Our expectation is that PRES and MAJ would be significant only for the subset of countries of high institutionalization. Results are presented in Table 2.

**Table 2. Size of Government and Constitutions: Interaction Effects**

	<i>Dichotomous Inst. Variable</i>		<i>Continuous Inst. Variable</i>	
	Baseline	Added Controls	Baseline	Added Controls
<b>Dependent variable: central government expenditure</b>	(1)	(2)	(3)	(4)
pres	-5.666* (2.968)	-5.722** (2.543)	-9.094 (8.094)	-9.661 (6.940)
maj	-0.484 (2.779)	-3.352 (3.102)	5.935 (7.701)	0.404 (7.704)
Inst.	3.383 (3.256)	-0.280 (3.253)	2.299 (3.286)	-2.043 (2.886)
<i>pres x Inst.</i>	-0.210 (3.804)	0.702 (3.478)	1.983 (3.595)	2.889 (3.348)
<i>maj x Inst.</i>	-5.472 (3.810)	-4.160 (3.895)	-4.550 (3.335)	-3.303 (3.323)
Continents and Colonies	No	Yes	No	Yes
Observations	No	Yes	No	Yes
R-squared	80	80	72	72
	0.647	0.716	0.665	0.745

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All regressions include standard controls: LYP, GASTIL, AGE TRADE, PROP65, PROP1564, FEDERAL, OECD

Continents and Colonies includes the following variables: COL\_UKA, COL\_ESPA, COL\_OTHA, AFRICA, LAAM, ASIAE

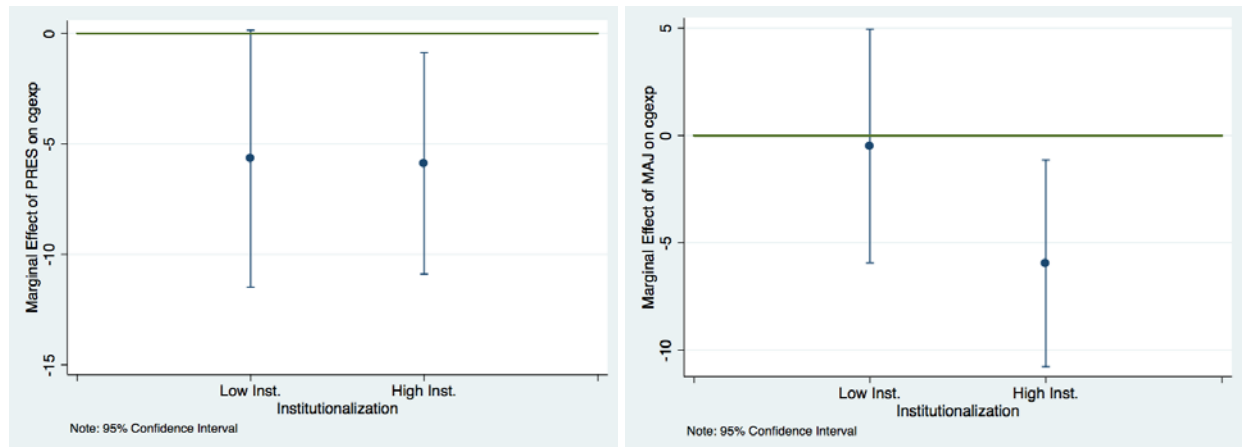
Source: own estimates based on data set from Persson and Tabellini (2003)

To interpret these results it is necessary to look at the marginal effects, as the significance of the individual coefficients say little about the conditional hypotheses we are testing. Figure 2 summarizes the relevant results for column 1 above (where we include the dichotomous version of the institutionalization index). The results are a mirror image to the ones presented in Table 1. Basically, the political variables have a significant (and negative) effect for the countries with



higher levels of institutionalization but not for the countries with lower levels (coefficients are only negative and statistically significant for the group on the right side of each panel).<sup>18</sup>

**Figure 2. Marginal Effects: Dichotomous Institutionalization Index**

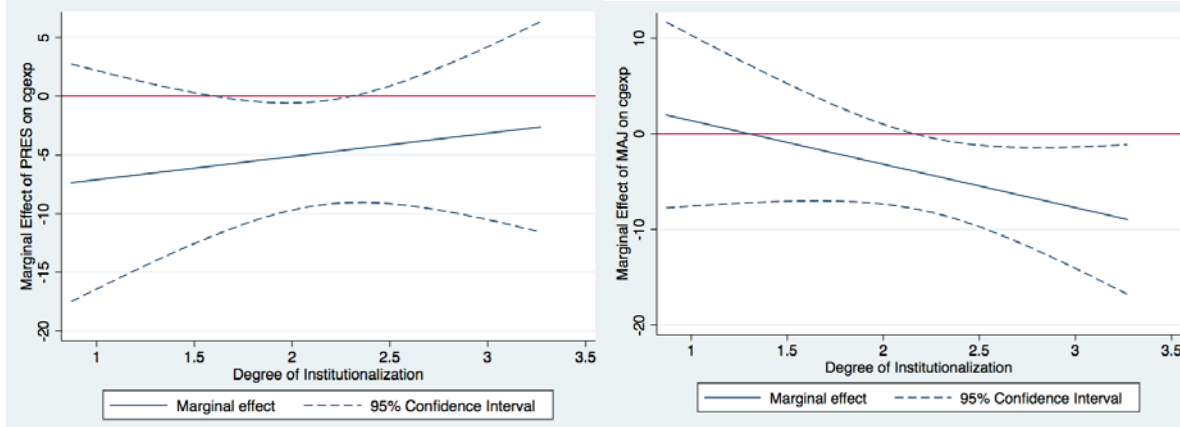


Columns 3 and 4 of Table 2 use a continuous index of institutionalization instead. Figure 3 summarizes the exercises in column 3 by presenting the marginal effects of the political variables on size of the government at different levels of institutionalization. The left-side panel shows that there is basically no statistically significant difference for the impact of presidentialism on government expenditure at different levels of institutionalization (it is only significant in a small mid-section of the distribution). The right-side panel is more in line with our expectations. Majoritarian systems have a negative effect on the size of the government only at high levels of institutionalization.<sup>19</sup>

<sup>18</sup> Results are not as neat for PRES when additional control variables are included (column 2 of Table 2) but they are unchanged for MAJ (an issue we discuss later). As presented in the Appendix 2, results do not change much when we use instead an alternative index of institutionalization that includes only the two components that may be more closely related to PT arguments: congress institutionalization and party institutionalization (Figure A1).

<sup>19</sup> Results are equivalent for the regressions in column 4 of Table 2, where additional controls are included.

**Figure 3. Marginal Effects: Continuous Institutionalization Index**



The fact that in this case the results are not as clear as before (we do not find differences for PRES) could imply that the continuous measure does not proxy as well the stark differences that may exist between being in institutionalized and non-institutionalized equilibria (see Scartascini and Tommasi, 2012). It may also imply that the existence of non-institutionalized equilibria has a greater role for electoral institutions than it does for the form of government. In terms of PT framework, the fact that presidentialism presents lower government expenditures is explained by the role of separation of powers, which restricts the ability of the president to appropriate the rents associated with the allocation of expenditures. It may well be the case that this political dynamic does not change much under non-institutionalized equilibria (it only affects which other actors appropriate those rents).<sup>20</sup> However, in those same cases, the incentive mechanism of the electoral system may be wiped out, which explains the non-significant results for countries at the lower end of the distribution for MAJ.

Additionally, we have replicated some of the robustness exercises performed by PT. First, we have checked the results using revenues instead of expenditures as a dependent variable. Again, when results are significant for the institutional variables in the whole sample they are significant only for the sample of high institutionalization countries (regression results are available in Table A3 in the Appendix). Second, we have followed PT in relaxing the conditional independence assumption because of a potential selection bias problem. The results of the

<sup>20</sup> Ardanaz and Scartascini (2013) discuss other institutional dynamics that may affect separation of powers more directly.

Heckman and IV estimates, also in the Appendix (Tables A4 and A5), show similar patterns to those described above. Any coefficient found by PT to be significant for the whole sample can never be replicated in the group of low institutionalization.

In the last several years some concerns have arisen regarding the validity of PT results, particularly about how good the choice of instruments is for avoiding biases that might arise if conditional independence and unit homogeneity do not hold (Rodden, 2009; Acemoglu, 2005).<sup>21</sup> While the concerns may be valid and the future of the field requires more work endogenizing the election of constitutional rules in order to understand causation, the fact that we find different results for countries with different levels of institutionalization (as we have shown) is interesting in itself even with regards to these criticisms. First, even if there were an endogeneity problem that we are not controlling for appropriately (countries chose the institutions that best match their spending preferences), the differences we find across samples are still suggestive that the degree of institutionalization is important for policymaking and should be accounted for. Second, the fact that we find the results to hold for some but not all the countries may help to explain in part why results are not necessarily robust across samples.<sup>22</sup>

## **5. Is It Institutionalization or Is It Something Else?**

Looking at our results so far, it is natural to wonder whether they are actually driven by institutionalization, or by something else that happens to correlate with our measure of institutionalization. To explore that, we have attempted to check whether these systematic differences in results across groups could be replicated by using criteria other than our institutionalization metrics to split the samples (placebo test). As a guide for selecting other criteria, we have followed the work of authors who have already shown some skepticism about the robustness of the results across groups of countries. For instance, Milesi-Ferretti, Perotti and Rostagno (2002), in exploring the effects of electoral rules on spending, found differences across samples of OECD and LAC countries. North (2009), in a relatively different context, does also present some qualms about looking at all the countries in the world with the same lenses. Following such intuitions, countries were separated according to their membership to the OECD

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<sup>21</sup> See also Blume et al. (2009) and Rockey (2012) for further discussion.

<sup>22</sup> Out of the 31 countries added by Blume et al (2009) to PT's sample, we have data on institutionalization for 13 of them. This group of countries has an average level of institutionalization that is lower and statistically significantly different than the countries in the PT sample.

(members in Group 1 and non-members in Group 2) and to GDPpc (the richer countries in Group 1 and the poorer ones in Group 2). Additionally, following Besley and Persson (2011), countries were also split according to their political stability (the more stable were included in Group 1 and the less stable in Group 2).<sup>23</sup> Table 3 summarizes the results for the multiple regressions ran using the same coding mechanism as PT.<sup>24</sup> A negative (positive) sign indicates that the constitutional rule has a negative (positive) and statistically significant effect across regressions. A 0 indicates an inconclusive empirical result. The first set of results in Table 3 summarizes the regressions presented in Table 1. As developed there in more detail, PT results can only be replicated in the sample of highly institutionalized countries but not in the other one. Results under the alternative partitions are more mixed because some of the results differ between the smaller samples and the results in Persson and Tabellini, and we find no systematic differences across groups.

**Table 3. Summary Results from Splitting the Sample Using Alternative Criteria**

	Summary from Table 1			GDP			Political Stability			OECD		
	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries
	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2
<b>Dependent variable</b>	<b>Central Gov Expenditure</b>			<b>Central Gov Expenditure</b>			<b>Central Gov Expenditure</b>			<b>Central Gov Expenditure</b>		
Presidentialist	-	-	0	-	-	0/-	-	0	0/-	-	0	0/-
Majoritarian	-	-	0	-	0/-	-	-	0	0	-	0	0/-
<b>Dependent variable</b>	<b>Welfare Expenditure</b>			<b>Welfare Expenditure</b>			<b>Welfare Expenditure</b>			<b>Welfare Expenditure</b>		
Presidentialist	-	-	0	-	-	0	-	0	0	-	0	0
Majoritarian	0	0	0	0	0	0	0	+	0	0	0	0

**Note:** Following PT, the coding in the table is as follows. "-" and "+" means that the variable is negative and significant across specifications. "0/+" and "0/-" mean that the variable is only statistically significant in a few of the specifications. "0" means the variable is not significant in any specification.

*Source:* Authors' estimates based on data set from Persson and Tabellini (2003)

These results, in comparison to those using our institutionalization-based partitions, suggest that, in spite of their roughness, the institutionalization variables seem to be capturing something relevant for the effects of constitutional rules on fiscal outcomes.

<sup>23</sup> In both of these last two cases, partitions were determined by cluster analysis.

<sup>24</sup> We present such summary table for brevity. Each cell in the table summarizes the results from running OLS regressions for the baseline, additional controls, and sample restrictions according to the degree of democracy. Complete results are available in the Appendix 2 (Tables A6, A7, and A8).

## 6. Conclusion

The field of political economy has developed rapidly in the last 50 years, and mainstream economists have embraced the notion that institutions matter. The reason is simple: institutions shape the rules of the political game and hence they shape the incentives of politicians and other relevant political actors. Most of the best analysis so far has relied on the role of formal institutions as they affect the incentives of actors playing in formal arenas. However, in many countries policymaking may not be completely bound by formal rules, as part of the action takes place in less formal arenas and in a less formal manner. This may imply that the effects of formal political rules might not be so significant for policy determination in some cases.

Consistent with this intuition, the empirical analysis in this paper suggests that some of the results in the literature do not hold for countries with low levels of institutionalization. That is, they do not hold for those countries in which actors tend to invest little in the formal institutions of democracy, such as political parties, Congress, the judiciary, and the bureaucracy.

These results, even though provisional, suggest various areas in which further research seems warranted. It would be desirable to develop a broader class of theoretical models that, instead of taking as given that all political action takes place in an institutionalized manner according to formal political rules, endogenizes the degree to which formal institutional arenas are indeed the key loci of political influence and policymaking. Introducing the possibility of using both standard formal political technologies as well as alternative political technologies would make the analysis richer and would facilitate the integrated study of policymaking across countries of different degrees of institutionalization.

On the empirical side, the measures of institutionalization we have used in this paper were those that we could construct from readily available data, but there is ample room to improve upon our definitions and to develop richer and more accurate measures.

We also believe that in order to better understand the concept and the process of institutionalization, deeper studies of experiences at the country level should be developed, along the lines of the analytical narratives also suggested by Rodden (2009). The study of specific dynamics of specific institutions in specific countries also seems to be a prerequisite for understanding the mechanisms through which institutions affect the design and implementation of public policies, and hence social welfare.

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## Appendix

### 1. Description of Variables

The variables used in this paper are assembled for all independent countries on an annual basis during the period 1960 to 2000, whenever available.

- AFRICA: regional dummy variable, equal to 1 if a country is in Africa, 0 otherwise.
- AGE: age of democracy, defined as:  $AGE = (2000 - DEM\_AGE)/200$  and varying between 0 and 1, with US being the oldest democracy (value of 1). Source: see DEM\_AGE.
- ASIAE: regional dummy variable, equal to 1 if a country is in East Asia, 0 otherwise.
- Bureaucratic Capacity: The index was calculated based on the average of the following components: (i) *merit bur*: Columbia University State Capacity Survey (CUD, 1990-2002). Measures the degree to which effective guarantees of professionalism in the civil service are in place and the degree to which civil servants are effectively protected from arbitrariness, politicization, and rent-seeking. (ii) *fca bur*: Columbia University State Capacity Survey (CUD, 1990-2002). Measures the degree to which the bureaucracy has salary compensation systems and systems for evaluating the performance of public officials. (iii) *effic bur*: Columbia University State Capacity Survey (CUD, 1990-2002) Measures the degree to which the bureaucracy is efficient in assigning human capital, given a fiscal policy constraint. (iv) *icrg bur*: International Country Risk Guide rating (1984-2001). High points are given to countries where the bureaucracy has the strength and expertise to govern without drastic changes in policy or interruptions in government services. In these low-risk countries, the bureaucracy tends to be somewhat autonomous from political pressure and to have an established mechanism for recruitment and training. Countries that lack the cushioning effect of a strong bureaucracy receive low points because a change in

government tends to be traumatic in terms of policy formulation and day-to-day administrative functions. (See Berkman et al., 2008 for details.)

- CGEXP: central government expenditures as a percentage of GDP, constructed using the item Government Finance - Expenditures in the IFS, divided by GDP at current prices and multiplied by 100. Source: IMF – IFS CD-Rom and IMF - IFS Yearbook.
- CGREV: central government revenues as a percentage of GDP, constructed using the item Government Finance - Revenues in the IFS, divided by GDP at current prices and multiplied by 100. Source: IMF - IFS CD-Rom and IMF - IFS Yearbook.
- COL\_ESP: dummy variable, equal to 1 if the country is a former colony of Spain or Portugal, 0 otherwise. Source: Wacziarg (1996).
- COL\_ESPA: Spanish colonial origin, discounted by the years since independence ( $T\_INDEP$ ), and defined as  $COL\_ESPA = COL\_ES * (250 - T\_INDEP)/250$ . Source: Wacziarg (1996).
- COL\_OTH: dummy variable, equal to 1 if the country is a former colony of a country other than Spain, or Portugal, or the UK, 0 otherwise. Source: Wacziarg (1996).
- COL\_OTH\_A: defined as  $COL\_OTH * (250 - T\_INDEP)/250$ . See also COL\_ESPA. Source: Wacziarg (1996).
- COL\_UK: dummy variable, equal to 1 if the country is a former UK colony, 0 otherwise. Source: Wacziarg (1996).
- COL\_UK\_A: defined as  $COL\_UK * (250 - T\_INDEP)/250$ . See also COL\_ESPA. Source: Wacziarg (1996).
- CON2150: dummy variable for the period in which the current constitutional features originated, equal to 1 if either  $Y\_EARELE$  or  $YEAREG$  falls in the period between 1921 and 1950, 0 otherwise. Source: see  $YEARREG$  and  $YEARELE$ .
- CON5180: dummy variable for the period in which the current constitutional features originated, equal to 1 if either  $YEARELE$  or  $YEAREG$  falls in the

period between 1951 and 1980, 0 otherwise. Source: see YEARREG and YEARELE.

- CON81: dummy variable for the period in which the current constitutional features originated, equal to 1 if either YEARELE or YEAREG falls in the period after 1981, 0 otherwise. Source: see YEARREG and YEARELE.
- Congress Institutionalization: The index was calculated based on the average of the following components: (i) *legis eff* from GCR (2003-2005). It measures the effectiveness of lawmaking bodies (1= very ineffective to 7 = very effective). (ii) *confidence in parliament* from the World Values Survey. It measures how much confidence people have in Parliament? (See Berkman et al 2009)
- EURFRAC: the fraction of the population speaking one of the major languages of Western Europe: English, French, German, Portuguese, or Spanish. Source: Hall and Jones (1999).
- FEDERAL: dummy variable, equal to 1 if the country has a federal political structure, 0 otherwise. Source: Adserà, Boix and Payne (2003).
- GASTIL: average of indexes for civil liberties and political rights, where each index is measured on a one-to-seven scale with one representing the highest degree of freedom and seven the lowest. Countries whose combined averages for political rights and civil liberties fall between 1.0 and 2.5 are designated "free", between 3.0 and 5.5 "partly free" and between 5.5 and 7.0 "not free". Source: Freedom House, Annual Survey of Freedom Country Ratings.
- INST (dichotomous variable). It takes a value of one for those countries in the group of high institutionalization.
- INST (continuous variable). It is the average of the following variables: congress institutionalization; political parties institutionalization; judicial institutionalization, and bureaucratic capacity.
- Judicial Independence: The index was calculated based on the average of the following components: (i) *gcr judicial* from GCR. It measures whether the judiciary in the country is independent and not subject to interference by the government and/or parties to disputes; (ii) *bti jud* from BTI (2006). It

measures if an independent judiciary exist; (iii) *fraser jud* from the Fraser Index. It is a measure of the independence of the judiciary. (See Berkman et al., 2008.)

- LAAM: regional dummy variable, equal to 1 if a country is in Latin America, Central America or the Caribbean, 0 otherwise.
- LAT01: rescaled variable for latitude, defined as the absolute value of LATITUDE divided by 90 and taking values between 0 and 1. Source: Hall and Jones (1999).
- LYP: natural log of per capita real GDP (RGDPH). RGDPH is defined as real GDP per capita in constant dollars (chain index) expressed in international prices, base year 1985. Data through 1992 are taken from the Penn World Table 5.6 (variable named RGDPCH), while data on the period 1993-98 are computed from data from the World Development Indicators. These later observations are computed on the basis of the latest observation available from the Penn World Tables and the growth rates of GDP per capita in the subsequent years computed from the series of GDP at market prices (in constant 1995 U.S. dollars) and population, from the World Development Indicators. Sources: Penn World Tables - mark 5.6 (PWT), available at <http://datacentre2.chass.utoronto.ca/pwt/docs/topic.html>. The World Bank's World Development Indicators; [www.worldbank.org](http://www.worldbank.org).
- MAJ: dummy variable for electoral systems equal to 1 if all of the lower house is elected under plurality rule, 0 otherwise. Only legislative elections (lower house) are considered (see the text in PT Chapter 4 for further clarification). Sources: Cox (1997), International Institute for Democracy and Electoral Assistance (1997), Quain (1999), Kurian (1998), and national sources.
- OECD: dummy variable, equal to 1 for all countries that were members of OECD before 1993, 0 otherwise, except for Turkey coded as 0 even though an OECD-member before the 1990s.
- Party System Institutionalization: The index was calculated based on the average of the following components: (i) *bti parties* from BTI (2006). It

measures to what extent is there a stable, moderate and socially rooted party system to articulate and aggregate societal interests; (ii) *confidence in parties* from the World Values Survey. It measures the degree of confidence in the Political Parties; (iii) *vote volatility* from Mainwaring and Zoco (2007), Kuenzi and Lambright (2001), and Jones (2010). Volatility is calculated by subtracting the percentage of the vote/seats won by every party in an election from that won in the previous election, taking the absolute value of this result, summing the results for all parties, and then dividing this total by two; (iv) *partyage* from the Database of Political Institutions, (1980/90-2004). It measures the average of the ages of the 1st government party (1GOVAGE), 2nd government party (2GOV-AGE), and 1st opposition party (1OPPAGE), or the subset of these for which age of party is known; (v) *fair elections* from Profils Institutionnels (2006). It measures to what extent are political leaders determined by general, free and fair elections. (See Berkman et al., 2008.)

- PRES: dummy variable for forms of government, equal to 1 in presidential regimes, 0 otherwise. Only regimes where the confidence of the assembly is not necessary for the executive (even if an elected president is not chief executive, or if there is no elected president) are included among presidential regimes. Most semi-presidential and premier-presidential systems are classified as parliamentary (see the text in Chapter 4 for further discussion and clarification). Source: Shugart and Carey (1992) and national sources.
- PROP1564: percentage of the population between 15 and 64 years old in the total population. Source: World Development Indicators CD-Rom 1999.
- PROP65: percentage of the population over the age of 65 in the total population. Source: World Development Indicators CD-Rom 1999.
- SSW: consolidated central government expenditures on social services and welfare as a percentage of GDP, as reported in the GFS Yearbook, divided by GDP and multiplied by 100. Source: IMF - GFS Yearbook 2000 and IMF - IFS CD-Rom.

- **TRADE:** sum of exports and imports of goods and services measured as a share of GDP. Source: The World Bank's World Development Indicators, CD-Rom 2000.

## 2. *Institutionalization: Characterization of the Groups*

Table A1 presents the two groups that resulted from using a multivariate clustering procedure as described in the main text.

**Table A1. Institutionalization Groups according to Cluster Analysis**

Group 1		Group 2	
High Institutionalization		Low Institutionalization	
Australia	Italy	Argentina	Malaysia
Germany	Japan	Bahamas	Mauritius
Austria	Luxembourg	Bangladesh	Namibia
Belgium	Malta	Barbados	Nepal
Botswana	Mexico	Belarus	Nicaragua
Brazil	Norway	Belize	Pakistan
Bulgaria	New Zealand	Bolivia	Papua N. Guinea
Canada	Netherlands	Colombia	Paraguay
Chile	Poland	Dominican R.	Peru
Cyprus	Portugal	Ecuador	Filipinas
Costa Rica	U. Kingdom	El Salvador	Russia
Denmark	Czech Rep.	Fiji	Senegal
Slovakia	South Korea	Gambia	Sri Lanka
Spain	Romania	Ghana	St Vincent
United States	Singapore	Guatemala	T. & Tobago
Estonia	South Africa	Honduras	Uganda
Finland	Sweden	India	Ukraine
France	Switzerland	Jamaica	Venezuela
Greece	Thailand	Latvia	Zambia
Hungary	Taiwan	Malawi	Zimbabwe
Ireland	Turkey		
Iceland	Uruguay		
Israel			

### 3. Summary Statistics for Selected Variables

**Table A2. Summary Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
Central gov. expenditure	82	28.82	10.49	9.74	51.18
Central gov. revenues	78	26.49	10.12	8.92	50.85
Welfare expenditure	71	8.15	6.67	0.13	22.38
Institutionalization Index	124	1.78	0.62	0.33	3.30
Party Institutionalization	124	1.51	0.52	0.00	2.72
Congress Institutionalization	123	1.60	0.69	0.00	3.79
Judicial Independence	124	2.08	0.92	0.44	3.89
Bureaucracy Index	124	1.92	0.99	0.31	3.97
pres	85	0.39	0.49	0.00	1.00
maj	85	0.39	0.49	0.00	1.00

### 4. Robustness Exercises (1): Alternative Independent Variable

Table A3 shows the results when CGEXP is replaced by revenue levels. As shown in the table, in every case, if the coefficient is significant in the replication of PT exercises, it is only significant for Group 1 countries.

**Table A3. Revenue (as Proxy for Size of Government) Regressions**

Dependent variable: central gov. revenues	Baseline			Added Control Variables			Sample of Democratic Countries <sup>^</sup>		
	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries
	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2
pres	-4.520** (2.078)	-7.643*** (2.423)	-1.457 (3.492)	-5.166** (2.435)	-10.317*** (3.148)	-8.703 (6.269)	-8.210*** (2.797)	-12.625*** (3.242)	22.052 (21.971)
maj	-1.389 (1.570)	-1.616 (2.533)	1.345 (2.588)	-3.026 (1.848)	-1.175 (2.779)	-5.697 (4.175)	-3.850 (2.664)	-2.360 (2.798)	38.507 (18.384)
Continents and Colonies	No	NO	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	76	41	35	76	41	35	59	39	20
R-squared	0.614	0.672	0.580	0.673	0.742	0.720	0.652	0.776	0.925

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All regressions include standard controls: LYP, GASTIL, AGE TRADE, PROP65, PROP1564, FEDERAL, OECD

Continents and Colonies includes the following variables: COL\_UKA, COL\_ESPA, COL\_OTHA, AFRICA, LAAM, ASIAE

<sup>^</sup> Regression not included in Persson and Tabellini (2003)

Source: own estimates based on data set from Persson and Tabellini (2003) and Berkman et al (2008)



## 5. *Robustness Exercises (2): Relaxing the Conditional Independence Assumption*

In order to test the robustness of the results, Persson and Tabellini relax the conditional independence assumption because of a potential problem of selection bias. They do so using instrumental variables in order to isolate some truly exogenous variation in constitutional rules, and also by adjusting the estimates of the constitutional effect for self-selection (i.e., for any remaining correlation between selection and performance—Heckman procedure). We reproduce their exercise here, for the full sample and for each group according to the institutionalization clusters.

The second step in the IV and Heckman are the same equations as in OLS. The first stage is estimated through a probit regression for the two binary constitutional variables (PRES and MAJ). In the IV case, six instruments are used as independent variables in the probit stage.<sup>25</sup> The first three are the indicator variables for the historical periods in which the current electoral rules and political regimes were adopted (1921-50, 1951-80, post 1981), and three other measures of geography or cultural heritage considered exogenous in PT2003 (page 130). In addition, to ameliorate the problem of weak instruments, the first-stage regression is restrained to these six instruments plus the age of the democracy, thus omitting all other controls in the matrix  $X$ . In the Heckman case, the first stage is estimated using a “constitution selection equation” specified as follows. One set of variables measures the date of origin of the current constitution. A second set of variables measures cultural influence. Since many countries in Latin America tend to be presidential systems with proportional legislative elections, a dummy variable for Latin America is also included. Finally, given the importance of British heritage to explain the electoral rule, and since the share of the population speaking English is not highly correlated with colonial origin, a variable for UK colonial origin is also included. These variables have considerable explanatory power for both form of government and the electoral rule. Results for the Heckman and IV estimations show similar patterns (Tables A4 and A5). Any coefficient found by PT to be significant for the whole sample can only be replicated in the group of high institutionalization. Results tend to disappear for the second group.

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<sup>25</sup> First stage estimation results in the subsamples are statistically equivalent to those with the PT sample. Regression tables available upon request.

**Table A4. Size of the Government and Constitutions (Heckman and IV estimates)**

Dependent variable	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2
	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp
pres	-10.499*** (3.981)	3.952 (7.648)	-6.775 (6.951)	-5.424** (2.187)	-8.709*** (2.188)	-11.943 (13.689)	-8.653** (3.614)	-6.021 (4.439)	2.814 (6.314)	-4.499 (4.056)	-0.932 (5.031)	5.970 (6.561)
maj	-5.688*** (1.858)	-5.754* (3.319)	-7.715 (5.840)	-4.411 (3.003)	-3.521 (3.118)	-16.470 (17.607)	-3.901 (3.448)	-3.308 (4.225)	7.592 (6.932)	-5.123 (3.761)	-3.839 (4.284)	-1.360 (8.282)
Conts & Cols	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	COL_UKA, LAAM	COL_UKA, LAAM	COL_UKA, LAAM
Endogenous selection	PRES	PRES	PRES	MAJ	MAJ	MAJ	PRES	PRES	PRES	PRES	PRES	PRES
Estimation	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS
Observations	75	39	36	75	39	36	75	39	36	75	39	36
Adj. R-squared							0.586	0.633	0.525	0.602	0.672	0.567

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Always included in second-stage specification (cols 1-4): AGE, LYP, TRADE, PROP1564, PROP65, GASTIL, FEDERAL, OECD

First-stage specification of Heckman (cols 1-2) includes: CON2150, CON5180, CON81, AGE, ENGRAC, EURFRAC, LAT01, LAAM. (CON2150 dropped from column 2 to avoid perfect predictions)

First-stage specification of 2SLS (cols 3-4) includes: CON2150, CON5180, CON81, AGE, ENGRAC, EURFRAC, LAT01

Source: own estimates based on data set from Persson and Tabellini (2003)

**Table A5. Expenditure Composition and Constitutions (Heckman and IV estimates)**

Dependent variable	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2
	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW	SSW
pres	-1.994 (2.058)	-2.744 (3.493)	-2.989 (2.766)	-1.620 (1.372)	-1.336 (2.025)	-2.717 (2.264)	0.296 (1.791)	4.429 (3.021)	1.965 (2.198)	-0.388 (2.069)	3.963 (3.729)	1.631 (2.150)
maj	-1.765 (1.133)	1.768 (2.785)	-1.418 (2.312)	-3.214** (1.636)	0.259 (2.605)	-1.152 (1.713)	-3.633** (1.663)	-2.846 (2.159)	1.818 (2.572)	-4.130** (1.880)	-1.300 (2.933)	2.820 (2.670)
Conts & Cols	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	COL_UKA, LAAM	COL_UKA, LAAM	COL_UKA, LAAM
Endogenous selection	PRES	PRES	PRES	MAJ	MAJ	MAJ	PRES	PRES	PRES	PRES	PRES	PRES
Estimation	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS
Observations	64	36	28	64	36	28	64	36	28	64	36	28
Adj. R-squared							0.782	0.668	0.779	0.777	0.649	0.792

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Always included in second-stage specification (cols 1-4): AGE, LYP, TRADE, PROP1564, PROP65, GASTIL, FEDERAL, OECD

First-stage specification of Heckman (cols 1-2) includes: CON2150, CON5180, CON81, AGE, ENGRAC, EURFRAC, LAT01, LAAM. (CON2150 dropped from probit for MAJ to avoid perfect predictions).

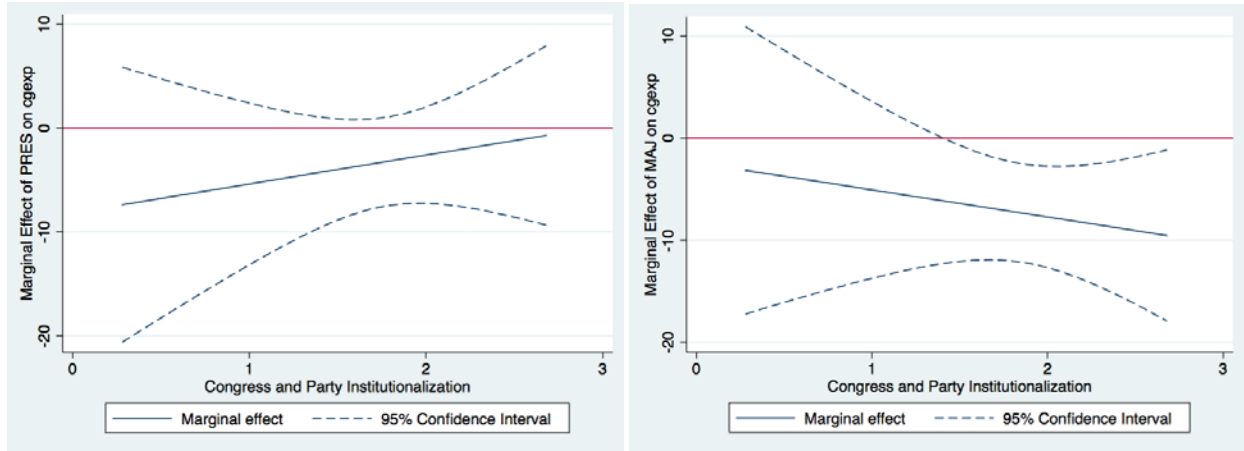
First-stage specification of 2SLS (cols 3-4) includes: CON2150, CON5180, CON81, AGE, ENGRAC, EURFRAC, LAT01

Source: own estimates based on data set from Persson and Tabellini (2003)

**6. Robustness Exercises (3): Alternative Institutionalization Variable**

As an additional robustness exercise we have also run the regression in Table 2 column 4 in the text using alternative institutionalization variables. In Figure A1 below we present the marginal effects when we use a continuous institutionalization variable that includes only congress institutionalization and party institutionalization as components. As can be observed, they are basically equivalent to the results in Figure 3 in the text. The effect of PRES is basically constant across the range of the index but MAJ is significant for the countries of high institutionalization. Results are also basically the same when we use the individual indexes instead.

**Figure A1. Marginal Effects: Continuous (Alternative) Institutionalization Index**



#### **7. Robustness Exercises (4): Alternative Partitions**

As described in the text, we have used other variables to separate the countries into groups to check whether the results we find for the institutionalization variables could be replicated. As summarized in Table 3 in the text, it was not possible. In the following tables we present the regression results.

**Table A6. GDP Partition**

Dependent variable	Baseline			Added control variables			Sample of Democratic Countries			Added control variables			Sample of Democratic Countries		
	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries
	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2
	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	ssw	ssw	ssw	ssw	ssw	ssw
pres	-6.077*** (1.969)	-9.613*** (3.011)	-3.567* (3.055)	-5.291*** (1.922)	-9.432** (3.610)	0.237 (4.135)	-8.294*** (2.725)	-9.800** (3.627)	-10.97* (5.401)	-1.894 (1.269)	-7.078*** (2.348)	-2.284 (3.922)	-4.201** (1.875)	-5.592* (3.162)	-1.239 (7.980)
maj	-3.292* (1.728)	-5.858* (3.081)	-0.523* (3.281)	-5.736*** (1.945)	-2.686* (3.550)	-6.846* (3.380)	-5.593** (2.679)	-2.247 (4.420)	-16.95* (8.370)	-2.013 (1.247)	-0.685 (2.059)	-3.496 (2.249)	-2.687 (1.870)	1.284 (2.511)	-0.0677 (8.247)
Continents and Colonies	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	80	41	39	80	41	39	62	38	24	69	39	30	56	36	20
R-squared	0.633	0.799	0.365	0.705	0.861	0.686	0.704	0.839	0.859	0.811	0.871	0.765	0.804	0.841	0.974

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All regressions include standard controls: LYP, GASTIL, AGE TRADE, PROP65, PROP1564, FEDERAL, OECD

Continents and Colonies includes the following variables: COL\_UKA, COL\_ESPA, COL\_OTHA, AFRICA, LAAM, ASIAE

Source: own estimates based on data set from Persson and Tabellini (2003) and Berkman et al (2008)

**Table A7. Political Stability Partition**

Dependent variable	Baseline			Added control variables			Sample of Democratic Countries			Added control variables			Sample of Democratic Countries		
	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries
	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2
	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	ssw	ssw	ssw	ssw	ssw	ssw
pres	-6.077*** (1.969)	-10.75 (6.741)	-4.565* (2.340)	-5.291*** (1.922)	-17.65 (7.986)	-3.754 (3.008)	-8.294*** (2.725)	-17.65 (7.986)	-4.983 (5.208)	-1.894 (1.269)	-0.483 (1.799)	-0.981 (1.600)	-4.201** (1.875)	-2.541 (2.620)	-2.677 (2.847)
maj	-3.292* (1.728)	-7.354 (7.076)	-1.493 (2.226)	-5.736*** (1.945)	2.831 (9.989)	-3.549 (2.886)	-5.593** (2.679)	2.831 (9.989)	-1.245 (4.270)	-2.013 (1.247)	9.490** (2.426)	0.00218 (1.619)	-2.687 (1.870)	8.569* (3.289)	0.0458 (2.702)
Continents and Colonies	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	80	17	63	80	17	63	62	17	45	69	16	53	56	16	40
R-squared	0.633	0.801	0.587	0.705	0.954	0.686	0.704	0.954	0.701	0.811	0.995	0.800	0.804	0.990	0.830

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All regressions include standard controls: LYP, GASTIL, AGE TRADE, PROP65, PROP1564, FEDERAL, OECD

Continents and Colonies includes the following variables: COL\_UKA, COL\_ESPA, COL\_OTHA, AFRICA, LAAM, ASIAE

Source: own estimates based on data set from Persson and Tabellini (2003) and Berkman et al (2008)

**Table A8. OECD Partition**

Dependent variable	Baseline			Added control variables			Sample of Democratic Countries			Added control variables			Sample of Democratic Countries		
	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries	Persson and Tabellini	High Institut. Countries	Low Institut. Countries
	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2	All countries	Group 1	Group 2
	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	cgexp	ssw	ssw	ssw	ssw	ssw	ssw
pres	-6.077*** (1.969)	-1.111 (6.150)	-5.779** (2.199)	-5.291*** (1.922)	-5.950 (8.191)	-4.202 (2.625)	-8.294*** (2.725)	-5.950 (8.191)	-8.013* (4.279)	-1.894 (1.269)	-0.202 (3.254)	-1.676 (1.332)	-4.201** (1.875)	-0.307 (3.380)	-4.971 (2.961)
maj	-3.292* (1.728)	2.841 (4.618)	-2.692 (2.317)	-5.736*** (1.945)	-0.473 (6.919)	-5.723** (2.437)	-5.593** (2.679)	-0.473 (6.919)	-5.571 (3.996)	-2.013 (1.247)	3.295 (2.870)	-1.772 (1.350)	-2.687 (1.870)	3.325 (2.883)	-3.849 (3.697)
Continents and Colonies	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	80	23	57	80	23	57	62	23	39	69	23	46	56	23	33
R-squared	0.633	0.687	0.494	0.705	0.719	0.654	0.704	0.719	0.692	0.811	0.841	0.797	0.804	0.841	0.847

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All regressions include standard controls: *LYP*, *GASTIL*, *AGE TRADE*, *PROP65*, *PROP1564*, *FEDERAL*, *OECD*

Continents and Colonies includes the following variables: *COL\_UKA*, *COL\_ESPA*, *COL\_OTHA*, *AFRICA*, *LAAM*, *ASIAE*

Source: own estimates based on data set from Persson and Tabellini (2003) and Berkman et al (2008)