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Abstract

A country's form of government has important economic and political consequences, but the determinants that lead countries to choose either parliamentary or presidential systems are largely unexplored. This paper studies this choice by analyzing the factors that make countries switch from parliamentary to presidential systems (or vice versa). The analysis proceeds in two steps. First, we identify the survival probability of the existing form of government (drawing on a proportional hazard model). In our model, which is based on 169 countries, we find that geographical factors and former colonial status are important determinants of survival probability. Also, presidential systems are, ceteris paribus, more likely to survive than parliamentary ones. Second, given that a change has taken place, we identify the underlying reasons based on panel data logit models. We find that domestic political factors are more important than economic ones. The most important factors relate to intermediate internal armed conflict, sectarian political participation, degree of democratization, and party competition, as well as the extent to which knowledge resources are distributed among the members of society.

JEL-Code: H11, K10, P48.

Keywords: constitutional change, institutional dynamics, form of government, endogenous constitutions, separation of powers.

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Determinants of Constitutional Change: Why Do Countries Change Their Form of Government?

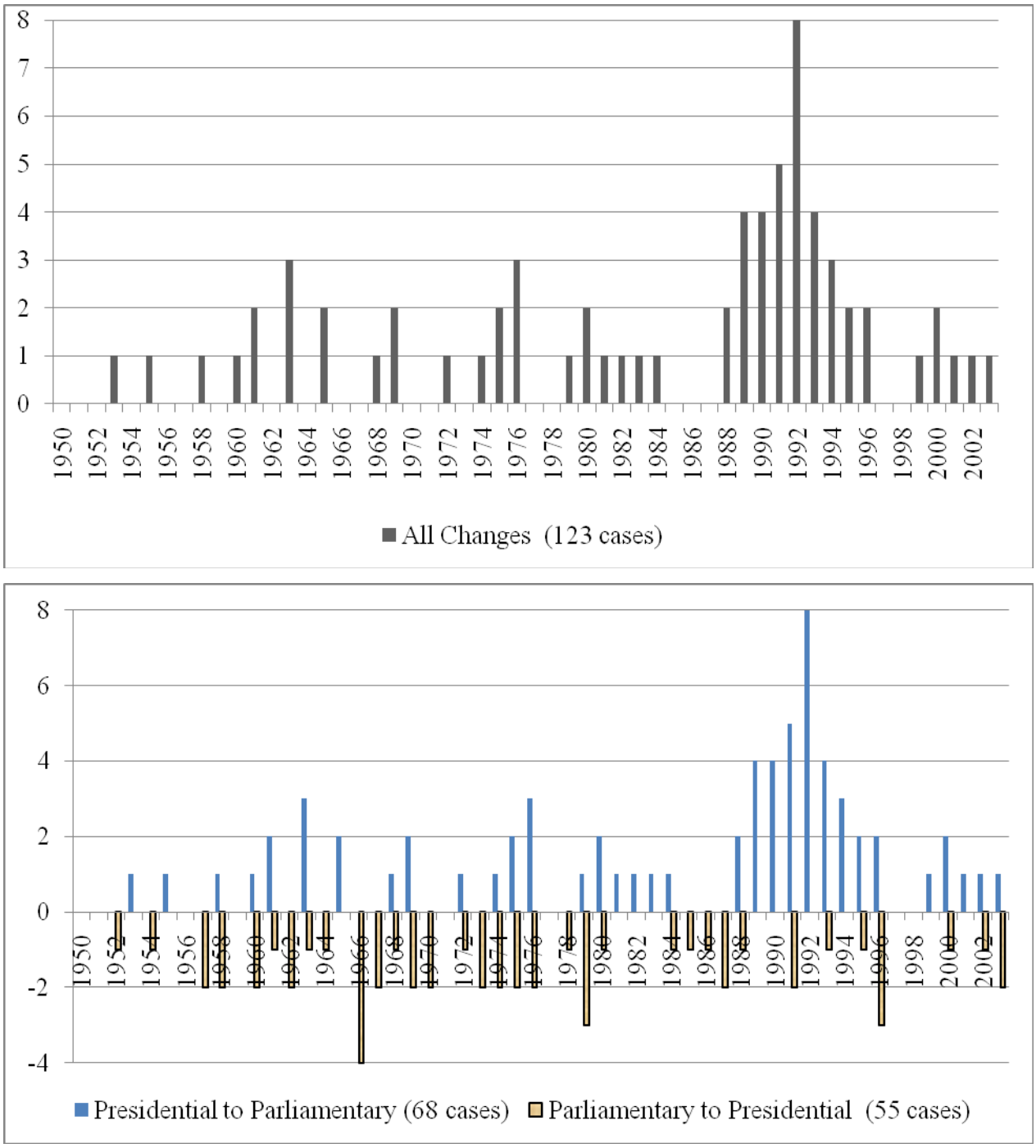
1 Introduction

Recently, research into the economic effects of constitutions has increased notably, with form of government being particularly thoroughly analyzed. A number of authors attribute wide-ranging effects to form of government. Persson and Tabellini (2003), for example, derive the following results (see also Blume et al. 2009): (1) government spending is some 6% of GDP lower in presidential compared with parliamentary systems; (2) the size of the welfare state is about 2–3% lower in presidential systems; (3) presidential systems seem to have lower levels of corruption; and (4) presidential systems appear to be a hindrance to increased productivity, but this result is not highly significant.

If constitutions have such far-reaching effects, it is important to better understand how they evolve over time and what factors influence these changes. Although this process is one of the core issues in constitutional economics, few papers have actually studied constitutional change. This paper undertakes to identify the determinants of change in the form of government. We choose form of government as our *explanandum* because, in terms of economic effects, the distinction between parliamentary and presidential systems is one of the most analyzed and—apparently—one of the most significant in constitutional political economy.

It is often assumed that constitutions in general and form of government in particular are changed only very infrequently. Not true. Elkins et al. (2009) show that the expected survival length of constitutions is only some 17 years. In fact, changes in form of government are fairly frequent, as Figure 1 shows. For our sample period, which runs from 1950 to 2003, we observe 123 such changes.

Figure 1: Changes in form of government from 1950–2003



The upper panel of Figure 1 suggests that changes in form of government take place throughout the sample period. The highest peak is seen during the early 1990s and the lowest peak in the mid 1970s. In the lower panel, the changes are differentiated with regard to direction of change. There are 68 changes from presidential to parliamentary forms of government and 55 changes in the opposite direction. The peak in constitutional activity identified in the early 1990s is mainly due to countries switching from presidential to parliamentary forms of government.

To emphasize the dynamics of institutional choice, we do not analyze first-time constitutional choices, but instead focus on changes in form of government that occur later in a country's history. Robinson and Torvik (2008) note that most African countries established a parliamentary form of government in their early post-colonial period but that many of them have now switched to the presidential form of government. We therefore ask: Given that a country "originally" chose a parliamentary system, under what conditions is it likely that form still prevails today? In addition, which factors will affect the probability of switching to a presidential form of government?

We study two questions empirically, namely: (1) When is a switch likely to occur? and, given that a switch has occurred, (2) Why did it occur? The first question is answered by analyzing time-invariant factors in the framework of a proportional hazard model; the second question is investigated by considering time-variant factors in the context of panel data logit models.

Our main results, for a sample of 169 countries, show that a switch is more likely to occur if the "initial constitution" is parliamentary rather than presidential, if the country was never a British or French colony, and if the country is located in either the Middle East, North Africa, Sub-Saharan Africa, East Asia, Southeast Asia, or South Asia. In a much smaller sample, we test the influence of additional variables and find that those countries that have reformed their constitution once are less likely to alter it again. Countries characterized by a high degree of ethnic and religious fractionalization are more likely, and countries with a high degree of ethnic polarization are less likely to change their form of government; countries are considered as highly fractionalized if many diverse groups are present, whereas they are considered as highly polarized if two different groups of similar size exist. Countries with a high proportion of Muslims are more likely to amend their constitutions. Former colonial powers are less likely to change their constitutions. Finally, we find evidence that resource endowment appears to be a relevant factor; countries characterized by a high share of primary exports in GNP are less likely to adjust the form of government.

The main factors influencing the likelihood of a change in form of government are political. Systems of sectarian political participation, where incompatible interests lead to intense factionalism and government favoritism, show a greater probability of constitutional reform. Internal government crises and limited armed conflict make changes more likely. A high degree of democratization in societies will foster change, whereas strong democratic competition and participation tends to prevent alterations in the form of government. If the relative number of students and literates in a country rises, it becomes less likely that the society will initiate constitutional reform.

The rest of the paper is structured as follows. Section 2 discusses two competing viewpoints regarding the form of government and provides an overview of the very scant literature on endogenous constitutional choice. Section 3 develops a number of hypotheses as to the factors that deter-

mine a switch from parliamentary to presidential systems, or vice versa. Section 4 sets out our empirical approach and a description of the data. Section 5 addresses the question of when the form of government is likely to change and Section 6 the question of which factors help explain the occurrence of constitutional reform. Section 7 concludes.

2 Form of Government—Competing Views

We now provide a survey of the relevant literature. If we confined ourselves to studies analyzing the determinants of change in form of government, the section would be extremely short, possibly nonexistent, as we could find virtually nothing on the topic. There is a little work on the endogenization of constitutional choice in general. However, in this section we also discuss two competing viewpoints as to the relevance of different forms of government (parliamentarian and presidential). As these viewpoints are radically different regarding possible determinants of constitutional change, we begin by presenting both, illustrating each with examples from Africa. The first view is closely connected to the work of Persson et al. (1997), whereas the second one has been argued by Lijphart (1992).

Most of the relevant political economy analyses are based on the premise that the choice of form of government invariably means more or less separation of powers: in parliamentary systems, the (head of the) executive depends for survival on retaining the confidence of the majority of the legislature. In presidential systems, the president can survive in office even without the confidence of the legislature. Presidential systems thus have an additional veto player or a higher degree of separation of powers, which has far-reaching effects, as Persson et al. (1997) argue in their seminal paper.

Robinson and Torvik (2008) point out that Persson et al. (1997) were greatly influenced by the system in place in the United States but that presidential systems in Latin American and Africa are different from the U.S. experience in a number of ways. For example, presidents in other countries often have more formal powers (e.g., budget initiative). Additionally, they often even enjoy legislative powers such as the power to decree new legislation without approval from other legislative bodies. Regarding the African experience with presidential systems, Prempeh (2008, 110) cites the "imperial presidency" and gives numerous examples of the wide-ranging power of African presidents ("government by press release," i.e., without having consulted parliament; presidents often control slush funds that are not subject to legislative oversight; legislation often gives explicit leeway to the president ["as he thinks fit," "as he may prescribe"]; in some countries, the president even chooses the speaker of parliament and has vast appointment powers as to nearly all nonlegislative constitutional and statutory offices).

How do presidents obtain legislative approval of their policies? One way is to offer lucrative jobs and/or buy the support of legislators. Prempeh (2008, 116) gives an example from Zambia in which President Chiluba appointed nearly half the total number of legislators to ministerial positions within his administration. Further, presidents' parties sometimes actually have the power to expel legislators from parliament if they oppose the president. This occurred, for example, in Zambia in 2001 when the ruling party expelled 22 of its legislators for their opposition to President Chiluba's attempt to secure a third term of office. Sometimes, the constitution even explicitly allows for expulsion of parliamentarians who have voted as they saw fit. Article 77(l) of the Sierra Leone Constitution, for example, states that a "legislator must vacate his seat 'if by his conduct in Parliament by sitting and voting with members of a different party, the Speaker is satisfied after consultation with the Leader of that Member's party that the Member is no longer a member of the political party under whose symbol he was elected to Parliament'" (Prempeh, 2008, 118). Prempeh (ibid., 117) argues that the lack of internal democracy in Africa's parties facilitates presidential dominance: "In the case of majority parties, this hierarchical and oligarchic control is usually exercised for the president's benefit, if not at his behest." Courts are said to follow a "jurisprudence of executive supremacy" (ibid., 118).

In summary, it appears questionable whether presidential systems should be systematically categorized as entailing a higher degree of separation of powers than parliamentary ones. Thus, in a country in which a limited number of elite groups decide upon the constitution, those who see themselves as future presidents (and their followers) might well lobby in favor of a presidential form of government. In other words, if the presidential form of government entails more concentrated power, then potential holders of that power might favor establishing such a form of government.

Lijphart (1992) makes a distinction between consensual and majoritarian systems. Consensual systems are based on the norm that it is desirable to include most of society's members in the most important decisions concerning the provision of public goods. Majoritarian systems, on the other hand, are characterized by the possibility of a simple majority making decisions against the interests of a sizable minority of citizens. At the margin, majority systems can be thought of as zero-sum games. Lijphart interprets form of government as one important dimension in consensual versus majoritarian systems, grouping parliamentary systems in the former category and presidential ones in the latter.

Aghion et al. (2004) deal explicitly with the choice between presidential or parliamentary forms of government treating it both normatively as well as positively. Although not framed in terms of the consensual-majoritarian distinction introduced by Lijphart (1992), their approach seems compatible with it. Aghion et al. ask how much "unchecked power" a society should optimally delegate to its

leaders, then proceed to ask under what conditions countries can be expected to choose that optimal degree of delegation, and, finally, turn to some cross-country analysis. They equate "insulation" with unchecked power. As between autocracy and democracy, autocrats are more insulated than democratically elected governments. Within democracy, presidential systems have a higher degree of insulation than parliamentary ones. What is the central driving force behind the variation in insulation as defined here? Aghion et al. (ibid.) find that insulation is positively and significantly correlated with both ethnic and linguistic fractionalization, meaning that highly fragmented countries are less democratic. However, if they are democratic, these fragmented countries can be expected to have a presidential rather than a parliamentary form of government.

Buchanan and Tullock (1962, Ch. 5) discuss the basic decision-making rules rational individuals would agree to under various degrees of preference heterogeneity. Their approach asks what rules rational individuals would agree on if constitutional rules were chosen on the basis of unanimous agreement. It can thus be read as a conceptual benchmark against which real constitutional choices can be compared. They (ibid.) introduce the notion of external costs to the economic analysis of constitutions. These are costs "that the individual expects to endure as a result of the actions of others over which he has no direct control" (ibid., 45). Buchanan and Tullock argue that rational individuals will take external costs into consideration when choosing constitutional rules. The more heterogenous the preferences across society, the higher the expected external costs that can be inflicted upon any individual. Assuming that they are uncertain about their position in society, rational individuals would strive to establish consensual constitutions because expected external costs are lower with this type of constitution than under majoritarian ones. Hence, the more heterogenous a society is in terms of preferences, the more adequate is the parliamentary form of government. If a heterogenous society did not "originally" choose a parliamentary system, we expect to observe a switch.[1]

A specific aspect of preferences is the propensity to accept hierarchies. According to Aghion et al. (2004), presidential systems possess more unchecked power than do parliamentary ones. Thus, we conjecture that a high propensity to accept hierarchies fits relatively better to presidential systems, a low propensity to parliamentary ones. Robinson and Torvik (2008) explicitly endogenize presidentialism. Based on a model with two groups (each consisting of citizens, politicians, and political leaders), they show that presidentialism is more attractive when the two groups' preferences with regard to public goods are more polarized, when ideological differences are more extreme, and when the government budget is small, which Robinson and Torvik equate with poor countries.

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1 Note that this conjecture is in direct opposition to the one developed by Aghion et al. (2004). Competing conjectures make the necessity of empirical tests even more obvious.

Finally, Ticchi and Vindigni (2010) deal with the endogenization of major constitutional rules, reflecting Lijphart's approach by distinguishing between majoritarian and consensual systems. They hypothesize that this choice is driven by the *ex ante* degree of income inequality: if it is relatively high, a majoritarian constitution is more likely, if it is relatively low, a consensual constitution is more likely. For our purposes, this means that the probability of a switch is high when either the "original" constitution, for whatever reason, made the "wrong" choice as to form of government or if the distribution of resources in the society has changed over time. Using different frameworks to think about forms of government results, unsurprisingly, in different ways of explaining their choice and change over time. Thinking about form of government in terms of separation of powers suggests that societies that want to protect themselves from the perils of government prefer a presidential form of government, whereas societies that believe in the welfare-enhancing power of the state prefer parliamentary systems. Thinking about it in terms of consensual versus majoritarian terms implies that those societies that are willing to allocate vast powers to a single person—and accept that a sizeable segment of society will be dominated by another segment that is not much larger than the dominated one—prefer presidential systems, whereas societies that care about deliberation and consensus would opt in favor of parliamentary systems. On the basis of the two competing views just discussed, in the next section of the paper we derive some conjectures regarding the determinants for the choice and changes in the form of government .

3 Explaining Change in the Form of Government—An Exploratory Exposition

Our brief survey of the literature shows that theoretical arguments purporting to explain switches in form of government are, to say the least, underdeveloped. In this section, we therefore explore a rather large number of potential drivers of such a switch.

Explaining switches in form of government implies identifying reasons why the former status quo was changed. Our assumption is that change will take place only if the extant form of government does not adequately match the circumstances of its society. An "adequate" form of government is, thus, equivalent to a stable equilibrium. Note that this does not imply any normative evaluation regarding its welfare properties: an "adequate" form of government is simply one that does not induce further change. Indeed, in the matter of economic development, there very well might be "bad" as well as "good" equilibria. Framed like this, we are interested in identifying those variables that affect the adequacy of the form of government given the characteristics of a country.

The economic approach analyzes utility-maximizing choices under the assumption of given preferences. Hence, changes in behavior are attributed to changes in the relevant restrictions. Here, our

interest is in collective choices and the analysis is complicated by the fact that we need some way of aggregating individual preferences into collective choices. Outcomes regarding constitutional choices, therefore, are a result of an interplay between three groups of factors: preferences, procedures used to aggregate them, and relevant restrictions.

We first assume preferences and procedures to be given. We further propose to separate internal (domestic) and external (foreign) restrictions. For instance, in many countries, important foreign restrictions find their origin in former colonial powers, which exerted a strong influence on the choice of form government in their former colonies. If the colonial power's influence was not conducive to achieving an adequate fit of form of government in the sense just described, we would expect to observe more frequent change in former colonies than in noncolonies. Since the influence exerted by various former colonial powers might well be different, we need to also differentiate the various colonial powers (e.g., English or French).[2]

In a second step, preferences are explicitly taken into account. In economics, individual preferences are assumed to be stable. So how can they contribute to constitutional change? Our conjecture is that the aggregation of individual preferences into interest groups is crucial. Some latent groups never manage to become organized. Among those who become organized, some become more powerful over time, whereas others lose influence.

Institutions have distributive consequences. We propose to think of an initiator's demand for constitutional change as an indirect demand for distributional gain.[3] Chances of successfully implementing constitutional change are determined by the demander's bargaining power vis-à-vis the rest of society. The bargaining power of a group is determined by its ability and willingness to inflict costs on others and thereby reduce total social surplus. The more such power an individual or a group of individuals has, the more influence the individual or group is likely to have on the contents of the constitution. Or, put differently, if the number and composition of groups that have managed to solve the problem of collective action (Olson 1965), changes and/or their relative bargaining power increases, constitutional change becomes a possibility. In the framework developed

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2 We treat the following countries as colonial powers: Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, the United Kingdom, and the United States.

3 A priori, distributional gains can also be achieved via simple legislation. In the case of rational actors, the decision of whether distributional gains will be demanded via legislation or via constitutional change is determined by the respective expected net utilities over time: For example, potentially higher costs of initiating constitutional change might be more than offset by the relatively longer expected duration of constitutional rules compared to simple laws.

above, an inadequate choice of form of government is one that does not properly reflect the relative power of those organizations desiring a more self favoring distribution of cooperation rents.[4]

To determine the adequacy of the form of government, the original choice is obviously crucial. We therefore propose to divide our exploratory analysis of potential factors determining the change in form of government into three phases. First, we briefly deal with the adequacy of the original choice. We then analyze the potential relevance of time-invariant factors. In the third phase, we develop a number of hypotheses based on time-variant factors.

The "Original" Choice

Change in form of government means deviation from some former "original" choice. Over the last half-century, many countries became independent for the first time and have thus made their original choice. In determining the factors causing change, the original choice is thus crucial. Lijphart (1992) classifies parliamentary systems as consensual, that is, they are based on the norm that most members of a society should consent to the most important decisions regarding the provision of public goods. However, if this norm is not shared by the elites, a parliamentary form of government might be an inadequate choice. Given that the elites are fairly homogenous, that they strive to establish a head of government with broad discretionary power, that they expect to remain in control regarding the appointment of the head of government in the foreseeable future, then we expect them to be in favor of a presidential system. If – in this situation – the "original choice" is parliamentary, e.g. due to the influence of former colonial powers, an early switch is likely to occur. If, further, large segments of society have not managed to solve the problem of collective action and have themselves not (yet) organized in groups, there is no reliable means of guaranteeing that most people will have the opportunity or even the desire to participate in major decisions and so a parliamentary form of government might, again, be inadequate. If, on the other hand, there is a very small number of well-organized groups (in the extreme case, only one), then the presidential form of government might be an adequate fit.[5]

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4 The last couple of decades have witnessed a still unresolved debate regarding the causes of economic development. Lipset (1959) argues that economic development needs to precede the emergence of (democratic) political institutions. Acemoglu et al. (2007) purport to show that this is not true. Acemoglu and his various co-authors (e.g., Acemoglu and Robinson 2006) emphasize the distinction between political institutions, political power, and economic institutions. This strikes us as not very convincing since any kind of institution is political in the sense that it is the result of some sort of collective decision making. North et al. (2009) point out that the social sciences have not come to grips with the interactions of economic and political development.

5 A recent paper by Guerriero (2009) analyzes the adequate choice of the general system of legislation and adjudication, i.e., the choice between statute law and common law, the first being more centralized than the letter. Guerriero is only interested in those countries in which a legal system has been transplanted. He finds that a

Conjectures Based on Time-Invariant Factors

Our exploratory analysis of factors potentially causing constitutional change first deals with time-invariant restrictions and then moves toward preferences. Procedures are mentioned only in closing. In the absence of a theory as to the relative importance of the various factors, we present them in the order of exogeneity, i.e., we begin with geographical factors and then move on to institutional ones. We discuss the following time-invariant factors drawing on geographical aspects: (1) latitude, (2) access to the sea and (3) natural resource endowment. We then turn to historical factors, namely (4) state antiquity, (5) colonial heritage and (6) legal origins. Finally, preferences are taken into account by discussing (7) ethnolinguistic fractionialization and (8) the propensity to accept hierarchies.

Geographical Factors

Latitude and continent can be interpreted as proxies for underlying causes rather than as causes in and of themselves and thus may serve as control variables for other explanatory variables. However, geographic location contains information on the climate, soil, probability of natural disasters, adequacy of crops, disease environment, and so forth. It is argued (Acemoglu and Robinson, 2001; Acemoglu at al. 2001) that the disease environment is an excellent predictor of institutional quality in general. Acemoglu et al. (2001) can also be interpreted as implying that favorable disease environments are not only conducive to longer time horizons but also to more consensual decision making. If this is indeed the case, countries characterized by favorable disease environments are more likely to opt for parliamentary systems.[6]

Access to the sea is another important aspect of geography. It is claimed (e.g., Gallup et al. 1999) that such access can have important consequences for a country's development. Whereas the export and import of goods primarily affects a country's economic development, the import and exchange of ideas might affect its institutional development.

Another important facet of geography is a country's natural resource endowment. The so-called resource curse has been identified as an important factor preventing development (e.g., Mehlum et al.

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switch is more likely the higher the heterogeneity between transplanter and transplanted, and the weaker the institutions in the transplanted country. Drawing a not unreasonable analogy between his work and ours, in our case the transplanters are the former colonies and presidential systems are the equivalent of more centralized government.

6 We do not include settler mortality in the models presented below, as the drop in sample size would be prohibitively high. However, preliminary analysis suggests that this specific variable contains little predictive power for our question of interest.

2006, Andersen and Aslaksen 2008). Autocrats can cling to power by bribing any malcontents with, or the proceeds from selling, resources. In resource-rich countries, control of the state is very attractive and fierce competition for same is to be expected. If each competing group is (over-)confident that its representative could be president, they might agree on the presidential form of government. Alternatively, one can imagine a resource-rich country with a small and homogenous elite that manages to maintain a cartel. Survival rates of parliamentary constitutions are expected to be low in resource-rich countries.[7]

Historical Factors

Time-invariant institutional restrictions are the consequence of former choices made so long ago that they can be considered exogenous for the period analyzed. Bockstette et al. (2002) show that state antiquity is significantly correlated with political stability and institutional quality, among other variables. We conjecture that state antiquity also determines the survival probability of the form of government. Bockstette et al. argue that long-established states are likely to have better public administration. We extend and generalize this idea, arguing that long-established statehood is likely to be connected with a number of firmly established institutions and organizations. The more numerous these are, the more costly and, consequently, less likely constitutional change. In the spirit of Olson (1982), one could argue that a fairly long period of state stability will enable a large number of latent interest groups to become organized and start making demands to be heard in collective decision-making. This would imply that older states are more liable to have a parliamentary form of government—and be able to sustain it over time.[8]

As discussed above, it is easy to imagine an inadequate choice as to form of government being made if a foreign actor had an important influence on that choice. States that were never colonies face fewer external restrictions, can make a more adequate constitutional choice, and thus are less likely to switch their form of government than are former colonies. The various colonial powers' different approaches to the independence process leads directly to our second—and more spe-

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7 Implicitly, this argument assumes that the value of the resources is well known at the time of constitution making, which may not be the case. Suppose a constitution is established long before valuable resources are discovered and the society manages to actually implement its consensual constitution over decades. Under such a scenario, it is thus not the existence of valuable resources as such that could influence constitutional choice but the exact timing of their discovery.

8 Bockstette et al. (2002) also mention that nationhood would foster linguistic unity, which might, in turn, lead to a sense of common identity. In our sample, we find that older nations have less linguistic fractionalization, which would support that hypothesis (correlation coefficient = -0.27). Of course, this correlation does not say anything about the causality relationship.

cific—hypothesis regarding former colonial powers: the survival of the original constitution is a function of the identity of the former colonizers.

Different colonizers arrived with different concepts about and styles of legislation and adjudication. On the most general level, these different families have been grouped into common law and civil law. Among civil law regimes are the French, Scandinavian, German, and certain socialist systems (see, e.g., Zweigert and Kötz 1998). *Ex ante* it is unclear whether there is any relationship between adequacy of chosen form of government and the country's historic legal family. Countries belonging to the same legal family have different forms of government and have been able to sustain them. For example, both the United States and the United Kingdom belong to the common law family, but the former has the paradigmatic presidential system, whereas the latter has the classic parliamentary system. Although there is a high correlation between former colonizers and legal families, the correlation is not perfect. This situation allows us to discover whether the former or the latter (i.e., colonizer or legal family) is more relevant in explaining the likelihood of constitutional change.

Preferences

Picking up the external cost considerations introduced in Section 2 above, we hypothesize that the more heterogeneous a society is in terms of preferences, the more adequate is the parliamentary form of government. If a heterogeneous society did not "originally" choose a parliamentary system, we expect to observe such a switch. Further, we conjecture that a high propensity to accept hierarchies fits better to presidential systems and we expect a low probability of switching to parliamentary ones in such countries.

The last two conjectures focused on individual preferences, implicitly assuming that citizen preferences are relevant in constitutional choice. Whether this is actually the case, however, depends on the procedures employed to choose a constitution. There is a very small body of literature analyzing the first-time choice of constitutions, in which such procedures as focused on as explanatory variables (Carey 2009; Voigt 2003; Widner 2007). Arguably, such an approach has not been particularly successful and therefore we do not put much emphasis on procedures in this paper.

Conjectures Based on Time-Variant Factors

In the introductory paragraphs of this section, one mechanism resulting in constitutional change was already briefly mentioned—changes in the bargaining power of groups could induce demand for such change. Here, a number of hypotheses are developed on the basis of that conjecture. Note

that the "adequacy" of constitutional choices acquires a slightly different meaning in the context of time-variant factors: when the number of strong collective actors grows over time, this could imply that a presidential system that used to be adequate is no longer so. We discuss four domestic, and one foreign, factors, namely: (1) the distribution of resources, (2) the capacity to act collectively, (3) the level of democracy, (4) economic performance, and (5) contagion.

One important determinant of economic power is the distribution of resources, which, in turn, should be decisive for the constitutional provisions chosen. A high concentration of economic power implies that a small elite is very influential in the constitutional development of a country. In line with Ticchi and Vindigni (2010), we hypothesize that the likelihood of switching to the presidential form of government increases with the concentration of economic power.

Collective action is always necessary for constitutional change to occur, but many latent interest groups never manage to overcome the problem of collective action and thus never become actual interest groups (Olson 1965). But those groups that do manage to overcome the problem will demand participation in important collective choices. A hypothesis along the lines of Lijphart (1992) would thus predict that the higher the number of organized interest groups, the more likely a society is to choose the parliamentary form of government.

This paper analyzes switches in the form of government independently of whether the country is run democratically or by autocrats. Yet, we conjecture that the degree of actually implemented democracy can be an important determinant of this kind of constitutional change. On the one hand, the public discussion of the pros and cons of constitutional change is less costly in firmly established democracies. Democracies offer more structured means to change the constitution, which could make its actual occurrence more likely. On the other hand, this argument could also be turned around: democracies offer structured ways to exchange government, so demands for more basic constitutional changes are less likely to arise in the first place.

Economic performance will affect the relative power of interest groups. In general, poor economic development will decrease government popularity and thus is expected to increase the likelihood of observing a higher demand for constitutional change.

The four time-variant factors just discussed focus on domestic influence. Implicitly, we have assumed that countries change their constitutions "in splendid isolation" (except for the degree of economic openness), but it is plausible that the likelihood of choosing a certain institutional arrangement might be influenced by how many other states have already chosen that specific institution. The closer these states are along various dimensions (e.g., geographically, ethnically, linguistically, etc), the higher might be the likelihood that one will do as one's neighbors have done (for

diffusion models in general, see Elkins and Simmons 2005). With regard to Africa, Nwabueze (1975, 68) observes: "At pan-African gatherings, leaders from Commonwealth African countries whose position was only that of Head of Government, must have experienced a certain sense of disappointment at being denied the honour and dignity accorded to their counterparts who were Heads of State in their own countries." Hence, we would expect a switch toward presidentialism to be more likely, the greater the number of a country's neighbors that are already presidential.

We have now presented a number of time-invariant and time-varying factors that are conjectured to have an impact on the choice of form of government as well as on its stability over time. In the next section, we describe our estimation approach and present our data in more detail.

4 Empirical Approach and Data

Empirical Approach

Our empirical analysis considers the period 1950–2003, which means that we concentrate on modern history. The choice of this time period is partly dictated by data availability and partly because many countries only came into being after World War II. First, we study *when* constitutions are likely to be amended. Employing a large sample of countries (169 countries), we estimate survival rates of forms of government using the Kaplan-Meier nonparametric method and then investigate the influence of time-invariant factors on these survival rates with the help of Cox proportional hazard models. To investigate the impact of more of the factors discussed above, we repeat the analysis with a much smaller sample (87 countries).

In the second part of the analysis, we study factors that may help explain *why* a switch from one form of government to another occurs. This issue is investigated in the framework of fixed-effects panel data logit models using a change in the form of government as the dependent variable. The unbalanced sample comprises 153 countries.

For both these empirical analyses, the modeling approach is general to specific (see Hendry 1993), i.e., we start with a general model and eliminate insignificant variables in a consistent testing-down process to improve estimation efficiency.

Dependent Variable

We need a reliable indicator to determine both the survival probability of a given form of government and the factors causing its change. To make global inferences, this indicator ought to be available for as many countries as possible. The indicator should be available as a time series that goes back at least until the 1950s, the period when many African states began to become independent. The defining characteristic of parliamentary systems is that the head of government depends

for survival in office on the continued confidence of a parliamentary majority. Our variable should thus be defined on the basis of this criterion. The indicator that best suits these criteria is provided by Banks (2004) and "refers to the degree to which a premier must depend on the support of a majority in the lower house of a legislature in order to remain in office." We define a presidential system as one where either the office of premier does not exist or if it does, it does not have any parliamentary responsibility. Parliamentary systems are defined as having a premier who is, at least to some extent, constitutionally responsible to the legislature.[9]

Independent Variables

Many indicators for the potentially relevant explanatory variables developed in the previous section are straightforward and these will not be described here. Table A3 in the Appendix provides summary information about the contents and sources of the variables, and Tables A1 and A2 set forth descriptive statistics. Here, we discuss, in the same order as the hypotheses in Section 3, only those variables that warrant a little more detail.

Geographic location was the first potential time-invariant variable. Often, this variable is proxied for by using very coarse continent dummies. We prefer to classify our countries into one of 10 different regions, which is a more fine-grained approach and can distinguish, for example, between Latin American and Caribbean countries. In addition, we control for a country's distance from the equator.

It was conjectured that the age of statehood could have an impact on the likelihood of a switch in form of government. The age of statehood is proxied by the variable "statehist 5" constructed by Bockstette et al. (2002). They divide the period from 1 to 1950 CE into 39 half-centuries and ask for each of the resulting slices whether there was a government above the tribal level, whether that government was locally based or foreign, and how much of the current country's territory was ruled by that government. The variable used here is based on a discount rate of 5% on each additional half-century.

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9 Drawing on Alvarez et al. (1996), Golder (2005) has a variable "institution" that partially corresponds with form of government. However, he combines another aspect with it, namely, whether a country was democratic or a dictatorship in a given year. In other words, the *de jure* constitutional form is combined with the *de facto* degree of democracy. The Banks variable also takes the effective situation into account but has the advantage of presenting values even for those years in which the country was not democratic. We code 0 and 1 in the original index as presidential and 2 and 3 as parliamentary. A move from, say, 1 to 2 or, put into words, from a system without responsibility of the premier toward the parliament towards a system where there is at least some responsibility, would count as a move from a presidential to a parliamentary system. The Database of Political Institutions (Beck et al. 2000) contains a variable "system" that distinguishes between presidential and parliamentary systems. Unfortunately, its time series begins only in 1975.

The heterogeneity of preferences can be proxied for by a number of variables. Over the last decade, ethnolinguistic fractionalization has been used frequently. Usually, three dimensions of fractionalization are distinguished—ethnic, religious, and linguistic. Alesina et al. (2003) put forward three fractionalization indices, which distinguish carefully between ethnic, linguistic, and religious fractionalization. Esteban and Rey (1994) argue that the concept of fractionalization might not adequately capture important cleavages. The authors speculate that this problem is most likely to be present if the society under study is divided into two groups of similar size, a situation they refer to as polarization. We include this alternative proxy for the heterogeneity of preferences.

The propensity to accept hierarchies is an individual trait and it is not easy to attribute such traits to entire countries. Yet, different religions have been evaluated as having different attitudes toward hierarchical structures. In his treatise on Italian regions, Putnam (1993) argues that the Catholic Church has a vertical organization structure. La Porta et al. (1997) generalize this result and classify Islam and the various Orthodox churches as having hierarchical structures.[10] We thus propose to use the most prevalent religion in a country as a proxy for the propensity to accept hierarchies.

The first of our time-variant factors is the distribution of resources. Vanhanen (1997) presents a number of proxy variables for the distribution of resources across a society. We draw on three of them here. “Share of family farms” counts the area of such farms as a percentage of total farmland. Even though such an indicator may not be particularly relevant for industrial countries, it is a useful one for the distribution of resources in many less developed countries, which make up the largest part of our sample. The variable “knowledge distribution” reflects the extent to which knowledge resources are distributed among the members of society. It is the arithmetic mean of the percentage of students among the entire population and the percentage of a country’s population that is literate. The variable “urban population” gives the percentage share of urban dwellers to total population.

The second time-variant factor is the degree to which individuals have formed organizations and are thus able to act collectively. One way to proxy for this would be to count all nongovernmental organizations (NGOs) active in a country but such an indicator is not available. What is available is an indicator counting the number of trade associations, listed in the *World Guide to Trade Associations* (Coates et al. 2007), which covers up to 140 countries over the period from 1973 to 2002. A second indicator counts the number of international NGOs (INGOs) present in a given country (Paxton 2002). Both indicators are far from ideal as they rely on a subsample of all NGOs but are the best we could find.[11] The correlation coefficient between the two variables is positive and reasonably high (0.58), which suggests that they are measuring the same latent variable. Since Coates

10 We follow their classification here although it is debatable whether Islam should be classified as hierarchic.

11 In addition, an ideal measure would take not only the number of groups into consideration but also their size.

et al.'s (2007) indicator is available only from the mid 1970s onward, we use the number of INGOs in our analysis to preserve a longer time series.

The third time-variant factor conjectured to have an impact on constitutional change is the level of democracy actually implemented in a country. There has been intense debate on how best to measure democracy, it being a prime example of an "essentially contested concept" (Gallie 1956). Alvarez et al. (1996) make the point that continuous measures make little sense in this regard; in other words, a country is either democratic or it is not. We are not convinced. Given the contestability and multidimensionality of concepts of democracy, continuous measures seem preferable, even if they are imperfect. Among the indicators based on the notion that there are gradations of democracy, the one by Marshall and Jaggers (2002)—the Polity IV measure—is the most widely used. Although this measure has been severely criticized on various grounds (see, e.g., the critique by Treier and Jackman (2008)), we employ it because it is available for a very long time period. However, Marshall and Jaggers (2002) also present a variable that indicates the degree to which there are binding rules that regulate participation in the political process. Binding rules exist not only in Western-type democracies, but also in one-party states; they merely regulate participation in different ways, namely: (1) "unregulated," (2) "multiple identities" (there are a few stable and enduring groups but few common interests), (3) "sectarian" (indicating intense factionalism and government favoritism), (4) "restricted" (significant groups, issues, and/or types of conventional participation are regularly excluded from the political process), and (5) "regulated" (where stable and enduring groups compete for political influence with little use of coercion). Participation rules are an important aspect of political systems and provide a general picture of how the interests of specific groups in society are transmitted to political decisionmakers.

Two important aspects of democratic countries are the degree of political competition and how many citizens actually participate in elections through voting. We take these into account by drawing on the measure "democratic competition and participation," which is the product of these two components (Vanhanen 1997). Competition is operationalized by the percentage of votes that are not cast for the largest party, whereas participation is measured by the percentage of the population that actually voted in the last election.

In the theoretical section of this paper, we argued that political unrest could be indicative of an increasing likelihood of constitutional change. Banks (2004) presents eight empirical indicators of political unrest: (1) number of assassinations, (2) number of general strikes, (3) guerrilla warfare, (4) government crises ("any rapidly developing situation that threatens to bring the downfall of the present regime—excluding situations of revolt aimed at such overthrow"), (5) purges, (6) riots, (7) revolutions, and (8) anti-government demonstrations. Related to these is an indicator specifically

focusing on internal armed conflict provided by Gleditsch et al. (2002). On a four-point scale, it describes the degree of internal armed conflict from 0 (no internal conflict) to 4 (internal war).

One factor that can ignite social unrest is poor economic performance. Economic performance is represented by (1) the level of real gross domestic product per capita and its growth rate; (2) high inflation, which signals a failure of macroeconomic policy; and (3) the government share of GDP, which is sometimes used as an indicator for the development level of a country. Very low shares would indicate an insufficient provision of basic public goods (e.g., Robinson and Torvik 2008). An unfavorable development in any of these indicators is thus expected to increase the likelihood of observing a demand for constitutional change. Trade openness serves to measure a country's integration into the world economy. A high degree of integration is typically a sign of a mature economy and indicative of a free flow of ideas as well. To a certain extent, trade openness also restrains economic policy and thereby the consequences of a particular choice of form of government. We would therefore expect that openness will be associated with constitutionally more stable regimes.[12]

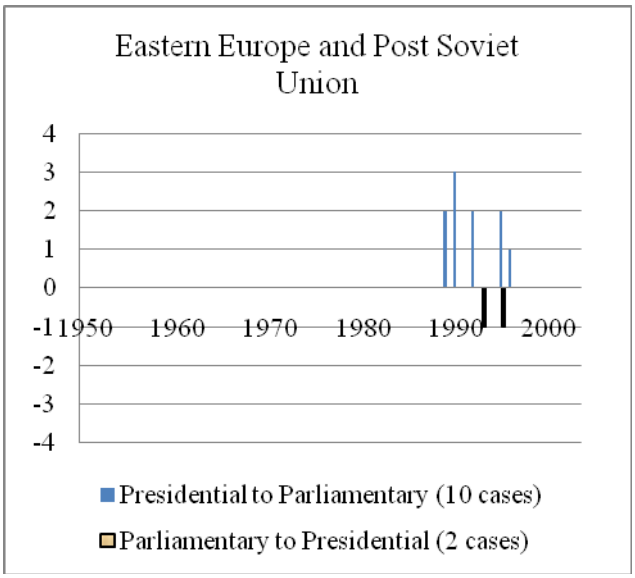
Finally, we take into account the possibility of "constitutional contagion." Similar to contagion processes in medicine, it is possible that countries might modify their constitution after observing constitutional changes in neighboring countries. Here we concentrate on geographic proximity. To ensure that we are measuring some sort of imitation behavior rather than a reflection of fundamental causes, such as the fall of the Iron Curtain, related to specific periods, we also include time dummies.

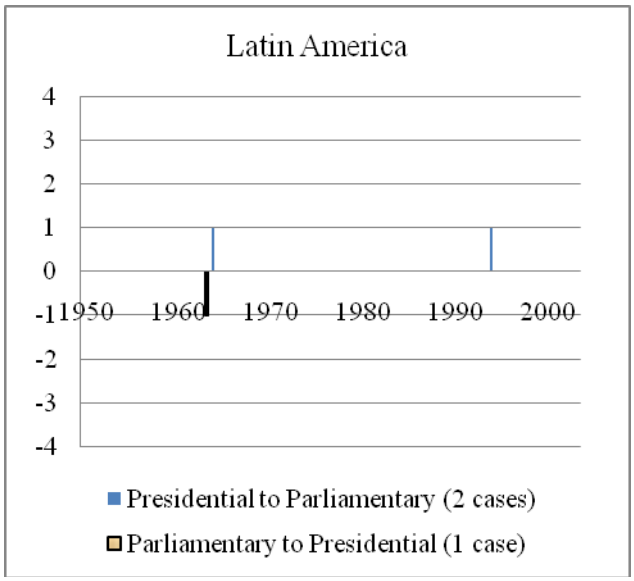
We cannot exclude the possibility that changes in the form of government are driven by factors depending on a country's state of development, which are related to per capita income but also to different institutional structures. North et al. (2009) argue that only two dozen states have managed to establish what they call "open access societies," in which both political office and economic activity are open to entry by newcomers on an impersonal basis. Because open access societies are fundamentally different from "natural state societies," where access to political office is highly restricted, it seems plausible that constitutional change will occur through different mechanisms in these two kinds of societies. For lack of a better proxy, we use OECD membership to distinguish between the two kinds of regimes.

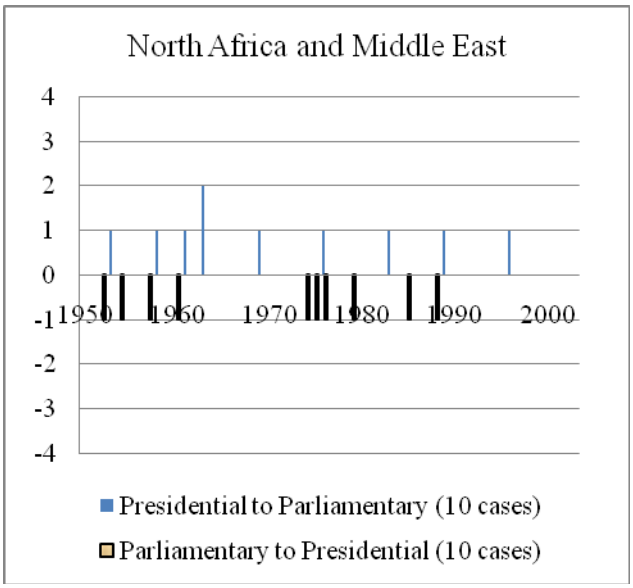
12 On the other hand, sudden increases in openness can make many people worse off, who might reaction to their change of circumstances by protesting against the government. Hence, substantial changes in openness could be correlated with high degrees of political instability and, eventually, the possibility of a change in the form of government.

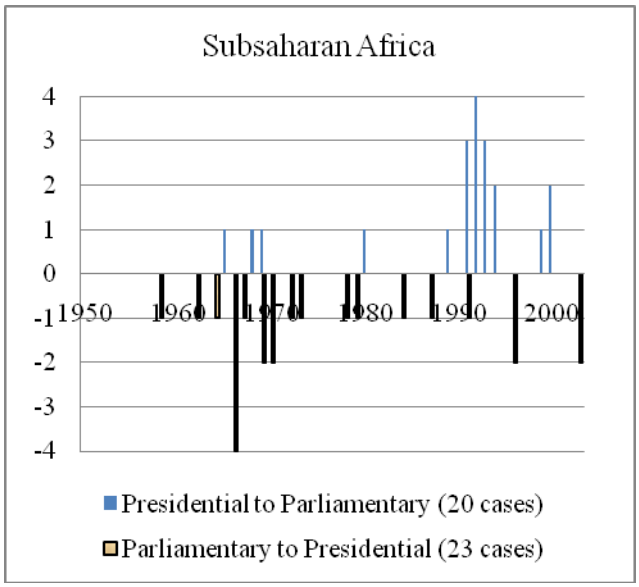
Figure 1 (in the introduction to this paper) shows that changes in form of government are rather common. Figure 2 offers more detail and illustrates in which of our 10 regions such changes took place most often.

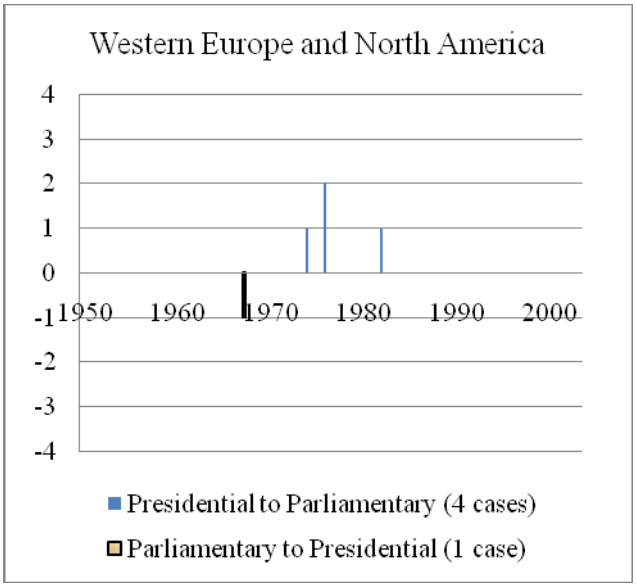
Figure 2: Regional breakdown of changes in form of government from 1950–2003

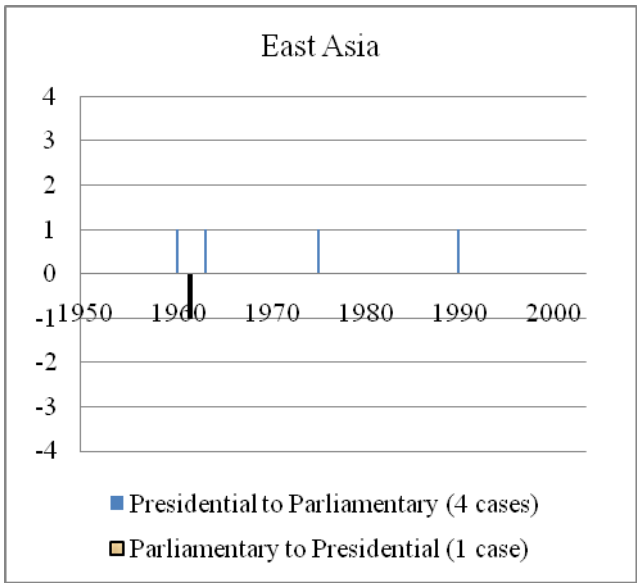


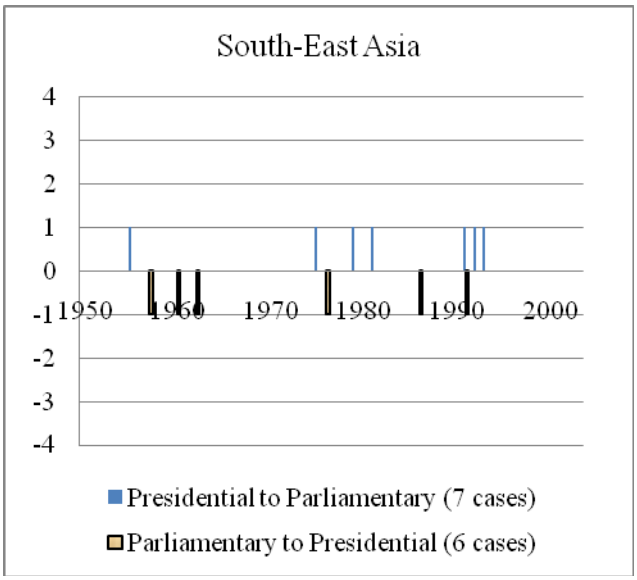


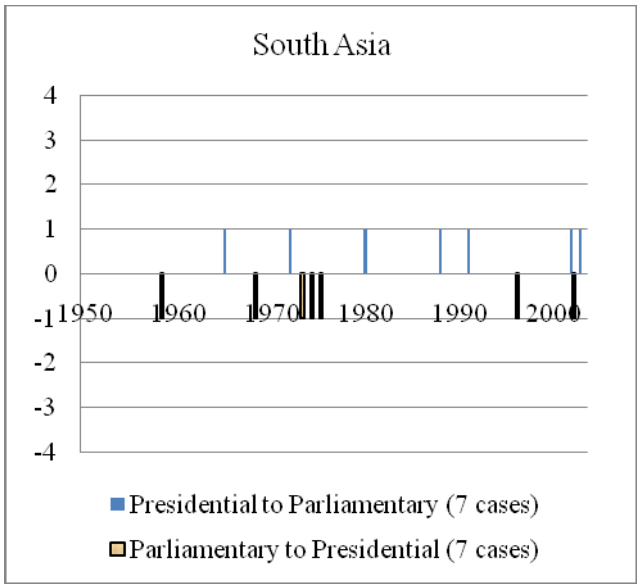





Western Europe and North America
4
3
2
1
0
-1
-2
-3
-4
1950
1960
1970
1980
1990
2000
Presidential to Parliamentary (4 cases)
Parliamentary to Presidential (1 case)


East Asia
4
3
2
1
0
-1
-2
-3
-4
1950
1960
1970
1980
1990
2000
Presidential to Parliamentary (4 cases)
Parliamentary to Presidential (1 case)


South-East Asia
4
3
2
1
0
-1
-2
-3
-4
1950
1960
1970
1980
1990
2000
Presidential to Parliamentary (7 cases)
Parliamentary to Presidential (6 cases)


South Asia
4
3
2
1
0
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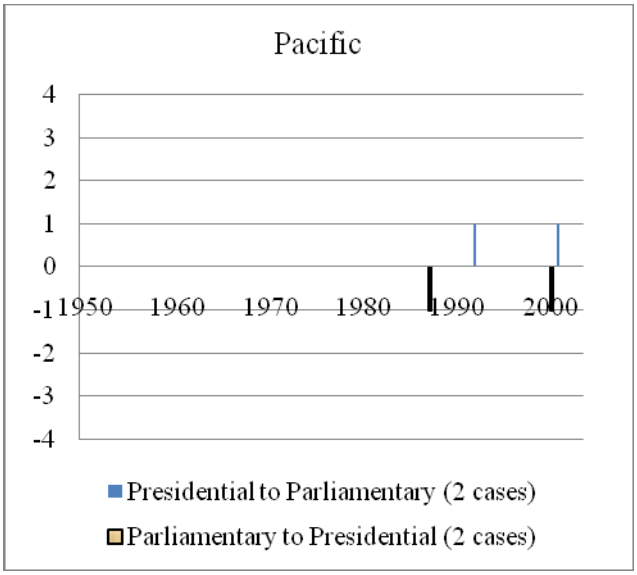
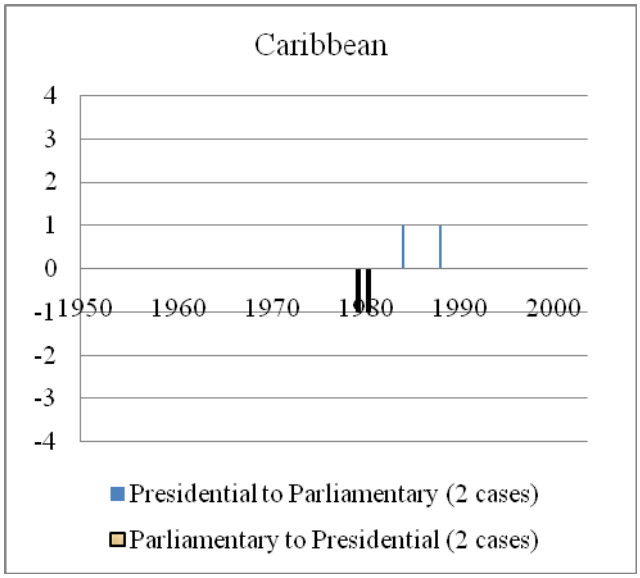
-4
1950
1960
1970
1980
1990
2000
Presidential to Parliamentary (7 cases)
Parliamentary to Presidential (7 cases)


Pacific
4
3
2
1
0
-1
-2
-3
-4
1950
1960
1970
1980
1990
2000
Presidential to Parliamentary (2 cases)
Parliamentary to Presidential (2 cases)

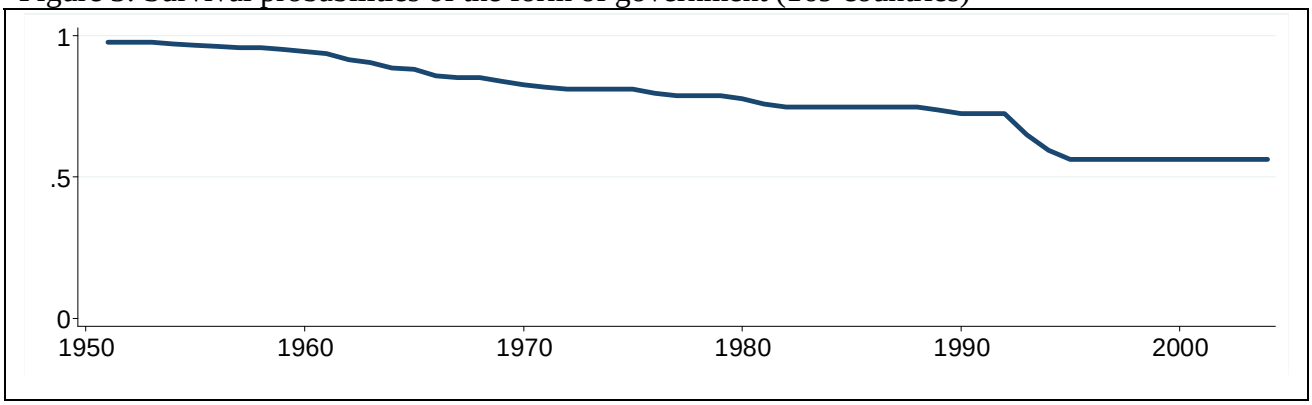

Caribbean
4
3
2
1
0
-1
-2
-3
-4
1950
1960
1970
1980
1990
2000
Presidential to Parliamentary (2 cases)
Parliamentary to Presidential (2 cases)

As Figure 2 reveals, a large number of changes occur in the Middle East, North Africa, Africa more generally. Few switches took place in Latin America, the Caribbean, the Pacific, East Asia, Western Europe, or North America. In Eastern Europe, the end of the Cold War marked a watershed in constitutional activity. Note that the newly drafted constitutions of the recently founded countries in this region are not counted as constitutional changes in our data set.[13] In Africa in the 1960s, many countries adopted presidential forms of government but in the early 1990s at least some of these changes have been reversed. In Southeast Asia and South Asia, the distribution over time is fairly even for changes from presidential to parliamentary and vice versa.

5 When Do Countries Change Their Form of Government?

In this section, we analyze the expected length of time before a switch in form of government is observed, as well as some factors influencing its survival time. Figure 3 shows the nonparametric Kaplan-Meier estimates of the survival probabilities of form of government over time. The survival probability falls in a fairly linear fashion until the 1990s, it accelerates strongly until the mid 1990s, and then stagnates. Until 1960, more than 90% of all countries had not changed their form of government. A decade later, this is the case for 80% and in 1980 for 75%. At the start of the 1990s, this number falls below 70% and in 1995 it reaches 56%. The most dramatic fall in constitutional survival occurs from 1992 to 1994, when the probability of no constitutional change drops by almost 15 percentage points, a development caused by the political changes taking place in Eastern Europe after the fall of the Iron Curtain as well as by events in Africa. Within the sample period of about 50 years, almost 5 out of 10 constitutions were amended to change the form of government.

Figure 3: Survival probabilities of the form of government (169 countries)



13 Since many of these countries were newly created, we would be analyzing their first constitutional choices rather than constitutional change.

In Sections 2 and 3, we discussed a number of factors that may influence the probability of a switch from one form of government to the other. We now analyze some of these factors in the framework of a censored multiple-record-per-subject proportional hazard model. Our choice of covariates in the Cox hazard model was guided by our desire to preserve as many countries in the sample as possible and to avoid any endogeneity with the dependent variable. Note that an upper bound on the number of included variables comes from the inclusion of a great number of dummy variables, which cause problems in the maximization of the likelihood function.

Table 1 provides estimates of hazard ratios for a general model (1), including all available covariates and for a reduced model (2), which is the outcome of a consistent testing-down process that ensures a high degree of estimation efficiency. The estimated models reflect the experiences of 169 countries from 1950 to 2003 and are highly significant.

Table 1: Hazard ratio estimates using proportional hazard model (large sample)

	Model 1		Model 2	
Variables	Hazard ratio	SE	Hazard ratio	SE
Political system variables:				
Initially presidential	0.40*	0.147	0.49*	0.150
Constitution changed before	0.91	0.343		
Legal origin:				
British	Reference category		Reference category	
French	1.96	0.786		
Socialist	0.93	0.744		
German/Scandinavian	0.61	0.637		
Fractionalization:				
Ethnic	2.43	1.416		
Linguistic	0.47	0.222		
Religious	3.00	2.213		
Number of official languages	1.02	0.029		
Shares of religious groups:				
Catholic	Reference category		Reference category	
Muslim	1.01	0.006		
Protestant	1.00	0.013		
Others	1.00	0.008		
Colonial tradition:				

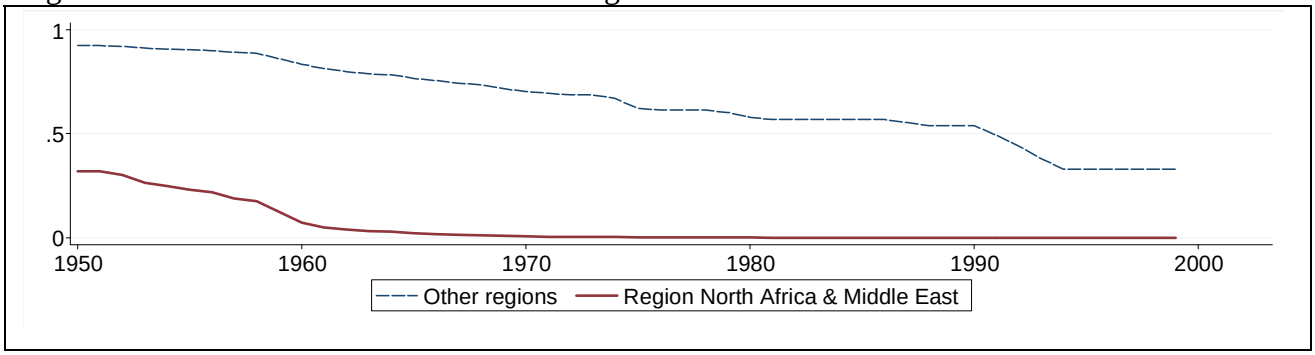
Never a colony	Reference category		Reference category	
Former colonial power	0.95	0.801		
Former British colony	0.31*	0.152	0.53*	0.144
Former French colony	0.21**	0.119	0.47**	0.132
Former other colony	0.37	0.226		
Geography:				
Absolute latitude	1.48	2.485		
Landlocked	1.07	0.282		
Western Europe & North America	Reference category		Reference category	
Eastern Europe & post Soviet Union	0.30	0.378		
Latin America	5.04	6.242		
North Africa & the Middle East	6.14	5.826	13.49**	6.975
Sub-Saharan Africa	4.55	4.869	6.27**	2.097
East Asia	6.09	7.792	7.05**	5.077
Southeast Asia	11.15*	12.51	9.14**	3.996
South Asia	5.23	4.926	8.66**	4.078
The Pacific	1.74	2.737		
The Caribbean	0.73	0.884		
(1) No. of observations	227		227	
(2) No. of countries	169		169	
(3) No. of changes	90		90	
(4) Log pseudo-likelihood	-359.6		-371.5	
(5) Joint test remaining variables	$Chi^2(27) = 134.4$**		$Chi^2(8) = 45.75$**	
(6) Testing-down from general model			$Chi^2(19) = 23.40$	

Notes: Estimation method is partial maximum likelihood. Standard errors correct for country clustering. Efron method is applied in the case of ties. *(**) indicates significance at a 5% (1%) level.

Most of the variables that remain after the testing-down procedure are related to geography. The relative risk of constitutional change is higher in the case of North Africa, the Middle East, Sub-Saharan Africa, East Asia, Southeast Asia, and South Asia than in other regions. The hazard ratios

range from 6 to 13 but are statistically indistinguishable.[14] Figure 4 graphically illustrates the strong increase in hazard in the case of North Africa and the Middle East.

Figure 4: Survival rates for countries in the region of North Africa and the Middle East



Thus, constitutions in these regions are changed earlier than in other parts of the world. Persson and Tabellini (2003, 102) report that geographic variables are important determinants of the choice of regime type. We find that geographic variables are also those that tend to explain changes thereof.

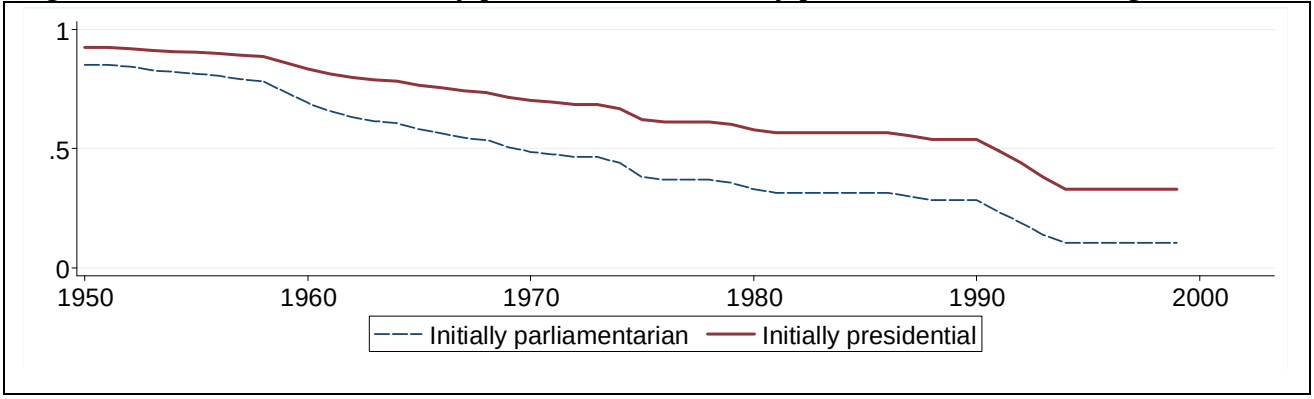
We earlier mentioned that the constitutions implemented in newly independent countries may not be adequate for their specific needs, as they may reflect the interest of the respective colonial powers. Former French and British colonies amend their constitutions less often than do countries without a colonial history, which does not conform to the hypothesis. Note, however, that this finding does not imply that these constitutions are "optimal" in a welfare sense.

Countries with initially presidential systems also change their constitutions less often as countries with initially parliamentarian systems.[15] Figure 5 illustrates the impact of having a presidential system as the initial form of government on the survival probabilities. The graph would be almost identical in the case of either former British or former French colony.

14 The joint restriction that the coefficients, and thereby the hazard ratios, of North Africa & the Middle East, Sub-Saharan Africa, East Asia, Southeast Asia, and South Asia are equal cannot be rejected at any reasonable level of significance ($chi^2(4) = 6.3$).

15 The joint restriction that the coefficients of former British colony, former French colony, and initially presidential are equal cannot be rejected at any reasonable level of significance ($chi^2(2) = 0.18$).

Figure 5: Survival rates for initially presidential and initially parliamentarian forms of government



Presidential systems have a higher chance of survival than parliamentary forms of government for the predicted values of model (2). This finding, that presidential systems are less likely to experience a switch than are parliamentary systems, is an interesting one: political scientists have long been trying to discover why presidential systems are more likely than parliamentarian systems to relapse into autocracy. Our analysis shows that, in another sense, presidential systems are more, rather than less, stable when it comes to the permanence of the form of government itself.

Including more variables that allow for an economic interpretation, rather than just analyzing dummies referring primarily to historical circumstances and geography, could be of interest. As argued above, controlling for polarization in addition to fractionalization (see Esteban and Rey 1994), the resource endowment (Gallup at al. 1999), the age of statehood (Bockstette et al. 2002), and OECD membership as an indicator of "open access societies" might yield additional insights.[16] However, in the present context, doing so should be viewed more as an auxiliary analysis: Not only is it questionable whether some of these indicators are exogenous but we lose half the observations in our sample and the number of countries drops from 169 to 87. Therefore, any change in results is more likely to be due to these variations in the sample than to the inclusion of additional variables. Table 2 contains the reduced model after the testing-down process.[17]

16 We consider 24 OECD member countries that joined before 1974.

17 Omitted information is available upon request.

Table 2: Hazard ratio estimates using proportional hazard model (small sample)

	Model 3				
Variables	Hazard ratio	SE	Variables	Hazard ratio	SE
Political system variables:			Colonial tradition:		
Initially presidential	2.70	1.891	Never a colony	Reference category	
Constitution changed before	0.22**	0.109	Former colonial power	0.30*	0.145
Legal origin:			Former French colony	0.01**	0.006
British	Reference category		Resources		
French	15.31**	8.297	Share of primary exports in GNP	0.01*	0.015
Fractionaliza-tion/polarization:			Geography:		
Ethnic fractionalization	44.89**	33.98	Western Europe & North America	Reference category	
Religious fractionaliza-tion	7.38	10.82	East Asia	29.88**	26.81
Ethnic polarization	0.11**	0.084	The Pacific	18.31**	13.70
Shares of religious groups:					
Catholic	Reference category				
Muslim	1.03**	0.011			
(1) No. of observations	112				
(2) No. of countries	87				
(3) No. of changes	40				
(4) Log pseudo-likelihood	-109.82				
(5) Joint test remaining variables	$Chi^2(12) = 120.1$**				
(6) Testing-down from general model	$Chi^2(18) = 25.04$				

Notes: Estimation method is partial maximum likelihood. Standard errors correct for country clustering. Efron method is applied in the case of ties. *(**) indicates significance at a 5% (1%) level.

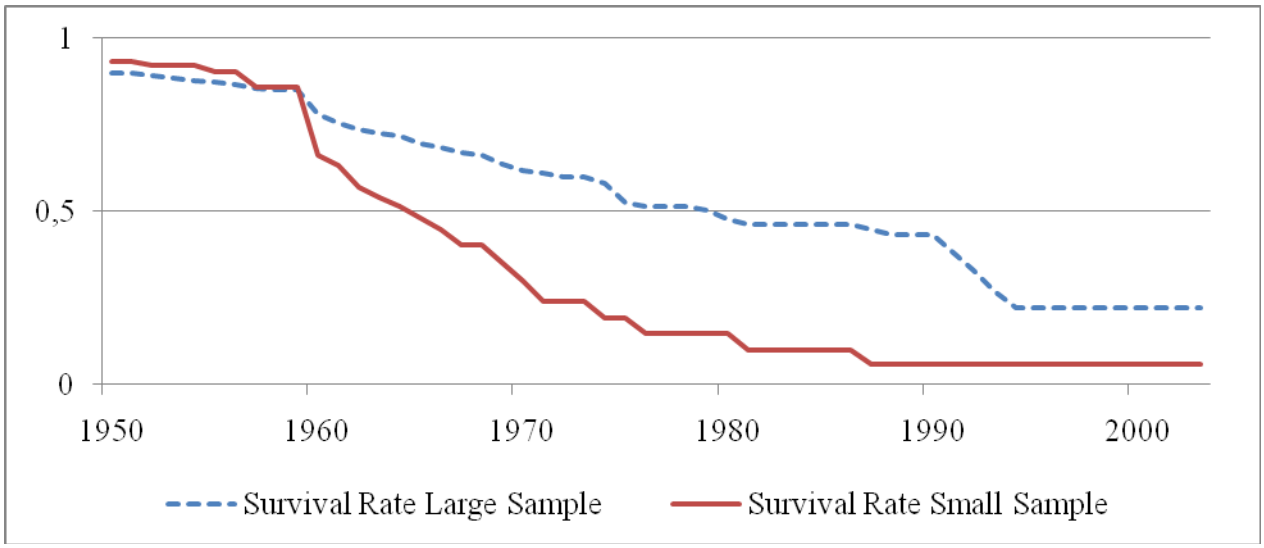
Table 2 reveals several new relationships. First, initially presidential has a positive coefficient now, i.e., a hazard ratio above unity, but the effect is insignificant.[18] Second, there is evidence of an op-

18 Note that two variables, initially presidential and religious fractionalization, are not significant according to the individual coefficient tests. However, these variables cannot be removed in a consistent testing-down process.

timal adjustment as the outcome of change in form of government, as those countries that had reformed their constitution once are less likely to alter it again soon. This effect is quite strong, as the survival rate is almost 40% if the constitution was changed before, whereas it goes down close to zero if it remains unchanged until the 1990s. Third, having a French legal origin increases the relative risk of constitutional change. However, in this smaller sample this is basically a dummy for Afghanistan. Fourth, countries characterized by a high degree of ethnic and religious fractionalization are more likely to change their form of government. At the same time, however, countries with a high degree of ethnic polarization are relatively less likely to undertake constitutional reform. This implies that countries characterized by a large number of ethnic groups show a higher relative risk of switching their form of government than countries with two similar groups. Fifth, countries with a high share of Muslims tend to amend their constitutions relatively often. Sixth, we find that the former colonial powers are less likely to change their constitutions, implying that the constitutions of colonial powers are still adequate in a post-colonial world. Seventh, we discover evidence that countries characterized by a high share of primary exports in GNP have a lower relative risk to undertake a change in form of government; governments might be able to buy off demands for constitutional change with the proceeds from primary exports.

A comparison of the survival rate of constitutions between models 2 and 3, i.e., between estimates based on the large and small samples, is shown in Figure 6.

Figure 6: Comparing survival rates of constitutions based on large and small samples



From Figure 6, it is apparent that there is a notable difference between both functions. The small sample estimate shows a much lower survival rate from the 1960s onward, whereas the transformation phase in the 1990s after the fall of the Iron Curtain is much more pronounced in the function

based on the larger sample. Thus, the choice of the sample has a substantial impact on the estimated duration of form of government.

The next question almost suggests itself: What are the factors that cause changes in the form of government? Our answers to this question are given in Section 6.

6 Why Do Countries Change Their Form of Government?

We study the question of why constitutions change in the framework of fixed-effects panel data logit models using a change in the form of government as the dependent variable. The unbalanced sample comprises 153 countries and the estimation period is 1950–2003. To reduce endogeneity problems, all variables except the time trend are lagged by one year. Lagging the variables by two periods yields similar results. Higher lags result in nonconverging estimations. Employing more than one lag creates high collinearity between the lags. We employ a fixed-effects estimator, which is consistent under rather general conditions, as there are doubts that the country-specific effects are orthogonal to the other covariates of the model.[19]

Table 3 shows that even though most of the individual variables in the fixed-effects panel model are insignificant, the joint test of the regressors indicates that the model has significant explanatory power. Applying a zero restriction on 28 variables that cannot be rejected results in the reduced model. The remaining 10 variables are highly significant as a group and individually significant at least at the 5% level.[20] We base our interpretation on the results obtained from the reduced model.

Table 3: Explaining changes in the form of government (fixed-effects panel model)

	General model		Reduced model	
Variables	Coefficients	Standard errors	Coefficients	Standard errors
General political indicators:				
Degree of democratization	0.125	0.112	0.097*	0.041
Number of international NGOs in country	-0.0001	0.001		
Democratic competition and participation	-0.098*	0.049	-0.109**	0.034

19 For the general model (1), a reliable Hausman test cannot be performed for this sample of data as the relevant variance-covariance matrix is not positive-definite. Differencing the data to account for fixed effects substantially decreases the number of groups. However, robustness tests show that coefficients and significance of the reduced model (2) are close to those obtained from a random-effects model relying on 153 countries.

20 The marginal level of significance for intermediate internal armed conflict is 0.54.

Types of political participation:				
Restricted	Reference category		Reference category	
Multiple identities	-1.751	1.417		
Sectarian	1.256	0.977	0.908*	0.458
Regulated	-14.52	2747		
Political unrest				
Assassinations	0.078	0.182		
General strikes	0.122	0.326		
Guerrilla warfare	-0.925	0.610		
Government crises	0.137	0.349	0.475*	0.220
Purges	-0.105	0.417		
Riots	0.033	0.167		
Revolutions	-0.714	0.488		
Anti-government demonstrations	-0.127	0.151		
Armed conflicts:				
No internal armed conflict	Reference category		Reference category	
Minor internal armed conflict	-0.368	1.053		
Intermediate internal armed conflict	0.670	0.938	1.118	0.580
Internal war	0.216	1.490		
Distribution of resources:				
Share of family farms	-0.011	0.036		
Knowledge distribution	-0.003	0.089	-0.095**	0.028
Share of urban population	0.073	0.066		
Economic variables:				
Real GDP	-0.0002	0.0003		
Real GDP growth rate	-0.024	0.029		
Inflation rate	0.007	0.006		
Openness	-0.020	0.018		
Government share in GDP	0.021	0.059		
Regional contagion:				

Eastern Europe & post Soviet Union	21.19	2870		
Latin America	20.71	3503		
North Africa & the Middle East	19.87	2366		
Sub-Saharan Africa	21.57	2232		
East Asia	20.13	4580		
Southeast Asia	22.16	2695		
South Asia	20.10	5556		
The Pacific	20.22	28301		
Time trends:				
Year	-0.082	0.086		
Period 1960s	-0.381	1.391	2.448**	0.939
Period 1970s	0.697	1.835	2.685**	1.024
Period 1980s	-0.078	2.541	2.728*	1.135
Period 1990s	0.953	2.941	3.898**	1.232
Period 2000s	1.036	3.283	3.794**	1.438
(1) No. of observations	1116		1116	
(2) No. of groups	35		35	
(3) Log likelihood	-84.56		-166.2	
(4) Test of joint significance	$Chi^2(39) = 199.8$**		$Chi^2(11) = 36.5$**	
(5) Testing-down restriction			$Chi^2(28) = 12.7$	

Notes: All variables, except time trends and regional contagion indicators, enter the model lagged by one year. Estimation by random-effects panel data logit models. * (**) indicate significance at a 5% (1%) level. To avoid multicollinearity, regional contagion indicators for Western Europe & North America and for the Caribbean were omitted.

Since estimated coefficients from logit models are difficult to interpret, we rely on estimated elasticities or marginal effects computed at the means of the respective variables reported in Table 4.[21] We find that democratization has a significantly positive impact on the likelihood of a change in the form of government. A 1% increase in the degree of democratization raises the likelihood of a switch in the form of government in the following year by 2 percentage points. Thus, political processes influencing the *de facto* degree of democratization will affect *de jure* institutions too.

21 The elasticities were derived under the assumption that the fixed effect is zero.

When countries are characterized by a substantial amount of political competition and participation, it becomes less likely that there will be constitutional change. A 1% increase in this factor lowers the likelihood of a change in the form of government by about 2 percentage points. The degree of party competition when supported by a significant number of active voters can be interpreted as an integral part of a working democracy. Thus, when the political system exhibits these characteristics, it becomes more difficult to create a majority large enough to effect constitutional changes. Looking at the joint effect of the significant democracy-related variables suggests that if a higher degree of democratization is achieved by increasing democratic competition and participation, there will be no net change on the likelihood of a change in the form of government.

Table 4: Marginal effects of reduced model from Table 2

	Marginal effects	Standard errors	Mean of regressor
Degree of democratization	0.02*	0.010	0.56
Democratic competition and participation	-0.02*	0.009	11.8
Sectarian political participation	0.21	0.129	Dummy
Government crises	0.10	0.060	0.19
Intermediate internal armed conflict	0.27	0.141	Dummy
Knowledge distribution	-0.02**	0.007	42.3
Period 1960s	0.54**	0.145	Dummy
Period 1970s	0.58**	0.172	Dummy
Period 1980s	0.59**	0.202	Dummy
Period 1990s	0.75**	0.127	Dummy
Period 2000s	0.66**	0.141	Dummy

Notes: * (**) indicate significance on a 5% (1%) level. Marginal effects were computed at the means of the respective variables. In the case of a dummy variable, the marginal effect reflects the change from 0 to 1.

A move from a restricted system of political participation, the most common form in our sample, where some organized political participation is permitted without intense factionalism, but significant groups, issues, and/or types of conventional participation are regularly excluded from the political process, to a sectarian system increases the probability of a change in the form of government by about 20 percentage points. In a sectarian system, political demands are dominated by incompatible interests and multiple identity groups and fluctuate between factionalism and active favoritism by whichever group controls the government. Our estimates suggest that these political

systems are not perceived as optimal by the societies they govern and foster the likelihood of a constitutional change.

When a government is shaken by (nonviolent) crises, the probability that there will be a change in the form of government in the following year rises strongly. A 1% hike in the number of crises increases the likelihood of a modification in the form of government in the next period by 10 percentage points. Intermediate internal armed conflicts raise the probability of changes in the form of government 27 percentage points. Thus, the combination of government crises and serious armed conflict among different interest groups in a country foreshadow constitutional reforms.

An increase in the distribution of knowledge in a country lowers the likelihood of reform in the system of government by about 2 percentage points. Hence, a decrease in the share of students and literates in the population makes constitutional reform more likely.

Finally, we estimate significant time period dummies. Specifically, in all decades after 1950 the probability of constitutional amendment increased by 55 to 75 percentage points. Among those decades, in the 1990s there was a statistically higher likelihood of changing form of government than in all other periods.[22] Note that we find no evidence of contagion in changes in the form of government. Thus, countries in one region do not change their constitution because other countries in the same region have done so, which suggests that domestic rather than international factors are of chief importance.

To summarize, the most important factors explaining changes in the form of government are political in nature and related to intermediate internal armed conflict, sectarian political participation, degree of democratization, and party competition, as well as distributional aspects relating to knowledge. It is interesting to note that economic factors do not play much of a role: neither differences in the level of income, nor its growth rate, nor other macroeconomic factors, nor economic openness are relevant in predicting changes in the form of government.[23]

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22 The coefficients on the 1990s and 2000s dummies, respectively, are statistically indistinguishable.

23 Note that these political variables themselves are likely subject to economic influences. Preliminary analysis in the framework of logit fixed effects panel data models using the first lags of our economic variables reveals the following influences: (i) degree of democracy depends positively on real GDP per capita, real GDP growth, government share, and openness; (ii) government crises depend negatively on real GDP per capita, real GDP growth, and openness; (iii) sectarian political participation depends negatively on openness; (iv) democratic competition and participation depends positively on real GDP per capita and negatively on real GDP growth and government share; (v) intermediate internal war depends positively on government share and negatively on real GDP per capita. A thorough analysis of these relationships would be interesting but is beyond the scope of the present paper and, therefore, must be left for future research.

7 Conclusions and Outlook

Using data for as many as 169 countries, we analyze two main research questions: (1) When is a constitutional switch from one form of government to another likely to occur, and—given that a switch has indeed been observed—(2) Why did it occur? The first question is answered by analyzing time-invariant factors in the framework of a proportional hazard model; the second question is investigated by considering time-variant factors in the context of a fixed-effects panel data logit model. A switch is more likely to occur earlier if the "initial constitution" is presidential rather than parliamentary, if the country was never a British or French colony, and if the country is located in the Middle East, North Africa, Sub-Saharan Africa, East Asia, Southeast Asia, or South Asia. In a much smaller sample, we find evidence that other factors may also play a role in when a constitution will be changed. If the form of government has already been altered at least once, there is a lower relative risk that it will be changed again. Former colonial powers are also less likely to change their constitutions soon. In ethnically and religiously fractionalized countries, as well as those with a high proportion of Muslims, reforms in the system of government become more likely; in ethnically polarized countries, the likelihood decreases. We find evidence that countries relying to a large degree on primary sector exports change their institutions (here, the form of government) less frequently.

Our investigation into *why* countries' change their constitutions reveals that political factors are much more important than economic factors, which do not play any significant role. Moreover, domestic rather than international influences appear to be the dominant ones. Still, there are worldwide trends; for example, the fall of the Iron Curtain led to many changes in a specific time period.

Constitutional reform becomes more likely under systems of sectarian political participation, where incompatible interests lead to intense factionalism and government favoritism by the group in power. Moreover, government crises and limited armed internal conflict in the preceding year will also increase the likelihood of constitutional change. There are equal-sized effects related to the implementation of democracy in a country: those countries characterized by a higher degree of democratization will be more likely to implement changes, whereas the probability of change will be lower if there is strong democratic competition and participation. Decreases in the distribution of knowledge in a country make it more likely that the society will reform its system of government.

In Persson and Tabellini (2003), the presidential form of government is found to be correlated with a number of desirable fiscal policy traits as well as desirable governance outcomes; however, it is not correlated with better total factor productivity. Persson (2005) finds that parliamentary systems are more likely to choose structural policy reforms that eventually lead to higher growth and income. It is thus unclear from these studies which form of government is "better" and our results are

no help in this matter: apparently, government does not come in a "one size fits all." The most adequate form of government for any particular country might depend on a number of fairly exogenous conditions. If we refuse to look beyond the simple dichotomy between presidential and parliamentary systems, this is a serious blow to those who emphasize that countries have a genuine choice as to form of government. Our results seem to indicate that the choice might be fairly limited. Alternatively, our findings could be interpreted as a reflection of the fact that we do not yet understand completely the factors relevant to choice of a specific form of government.

In Section 2, we briefly summarized two competing conceptions of the presidential form of government. One stresses the higher degree of separation of powers and deduces a number of positive effects therefrom. The other stresses the majoritarian character of presidential systems and conjectures that a number of negative consequences are likely to ensue. Which of these views is "true" is something we cannot definitively answer—most likely, both are correct to some degree. It is our opinion that this debate cannot be settled unless scholars are willing to go beyond looking merely at the simple dichotomy between presidential and parliamentary systems. We suggest that future studies consider finer-grained institutional detail, such as how the president is elected (directly or indirectly), whether he or she is subject to term limits, length of term of office (assuming that long terms are conducive to more authoritarian and less accountable governments), whether there is a vice-president and how that person is elected, how broad the competencies of the president are (e.g., commander-in-chief of the army), and so forth.[24]

We also believe it would be fruitful to analyze the effects of changing the form of government more closely. It could be error, for example, to assume that the "original" choice was not an equilibrium and that the switch created one. Our results from the smaller sample suggest that are very few "serial switchers" and that the probability of changing the form of government again after doing it once is quite low. But if the form of government has important effects on economic variables such as fiscal policy or total factor productivity, then it is reasonable to wonder whether a change in the form of government will actually induce changes in these policy or outcome variables. Moreover, many political scientists assume that the form of government is irrelevant once a country has relapsed into autocracy, but is this true? Finding out would be an interesting task: Does the form of government still cause effects even if a country is not democratic?

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24 Shugart and Carey (1992, Ch. 8) propose two dimensions to ascertain the powers of presidents: (1) their power over legislation and (2) their nonlegislative powers. Regarding (1), they propose considering presidential power to veto and partial veto, the competence to pass legislation via decrees, the exclusive competence to initiate legislative proposals, the power to initiate budget proposals, and the competence to propose referendums. Regarding (2), they mention cabinet formation, dismissal of cabinet members, the "lack of assembly censure," and the power to dissolve parliament.

Our paper takes the first step toward empirically endogenizing specific constitutional institutions, namely, the form of government. The next and very obvious step would be to endogenize other institutions that have also been found to display significant economic effects, such as electoral rules, federalism, and direct democracy. After having identified some determinants of these institutions, the next step might be to analyze their co-evolution, i.e., the interdependence of institutional change. It would be fascinating to analyze the interaction between the change of formal constitutional rules, on the one hand, and the change in informal rules, on the other.

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Appendix

Table A1: Descriptive statistics of data reported in hazard rate analysis

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Absolute latitude	227	0.285	0.183	0	0.72
Constitution changed before	227	0.260	0.440	0	1
East Asia	227	0.031	0.173	0	1
Eastern Europe and post Soviet Union	227	0.137	0.344	0	1
Ethnic fractionalization	227	0.470	0.262	0	0.93
Ethnic polarization	215	0.541	0.242	0.02	0.98
Former colonial power	227	0.04	0.196	0	1
Former British colony	227	0.308	0.463	0	1
Former French colony	227	0.154	0.362	0	1
Former other colony	227	0.171	0.377	0	1
Initially presidential	227	0.564	0.497	0	1
Landlocked	227	0.233	0.424	0	1
Linguistic fractionalization	227	0.419	0.29	0.002	0.92
Latin America	227	0.079	0.271	0	1
Legal origin: French	227	0.427	0.496	0	1
Legal origin: German/Scandinavian	227	0.0573	0.233	0	1
Legal origin: Socialist	227	0.185	0.389	0	1
North Africa & the Middle East	227	0.115	0.319	0	1
Number of official languages	227	2.057	3.668	1	36
Religious fractionalization	227	0.439	0.242	0.003	0.86
Share of Muslims	227	25.836	36.589	0	99.8
Share of other religions	227	34.147	32.301	0.100	100
Share of primary exports in GDP	183	0.154	0.153	0.01	0.89
Share of Protestants	227	12.333	20.187	0	97.8
South Asia	227	0.048	0.215	0	1
Southeast Asia	227	0.07	0.257	0	1
Sub-Saharan Africa	227	0.295	0.457	0	1
The Caribbean	227	0.048	0.215	0	1
The Pacific	227	0.04	0.196	0	1

Table A2: Descriptive statistics of data reported in logit analysis

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Anti-government demonstrations	4760	0.63	2.07	0	60
Assassinations	4760	0.23	1.06	0	25
Change in form of government	4760	0.01	0.12	0	1
Degree of democratization	4760	0.52	7.66	-10	10
Democratic competition and participation	4760	11.53	13.15	0	49
General strikes	4760	0.16	0.59	0	13
Government crises	4760	0.20	0.56	0	7
Government share in GDP	4760	19.64	9.67	2.10	72.54
Guerrilla warfare	4760	0.22	0.71	0	15
Inflation rate	4760	0.90	17.18	-95.27	502.0
Intermediate internal armed conflict	4760	0.05	0.23	0	1
Minor internal minor armed conflict	4760	0.05	0.22	0	1
Internal war	4760	0.04	0.20	0	1
Knowledge distribution	4760	41.90	23.56	0.5	99.5
Number of international NGOs in country	4760	418.8	509.9	1.5	3523
Openness	4760	60.60	41.09	0.85	425.3
Political participation: Regulated	4760	0.25	0.43	0	1
Political participation: Restricted	4760	0.43	0.49	0	1
Political participation: Sectarian	4760	0.14	0.34	0	1
Purges	4760	0.15	0.76	0	34
Real GDP	4760	4,003	5,393	64.39	43130
Real GDP growth rate	4760	4.80	7.91	-167.2	53.63
Revolutions	4760	0.19	0.53	0	9
Riots	4760	0.58	2.14	0	55
Share of family farms	4760	44.82	23.78	0	98
Share of urban population	4760	38.53	23.77	1	100
Year	4760	1,98	12.85	1953	2000

Table A3: List of variables (definitions and sources)

Absolute latitude: Defined as the absolute value of the latitude of the capital city, divided by 90 to take values between 0 and 1; source: CIA (2005).
Anti-government demonstrations: Number of anti-government demonstrations in a specific year; source: Banks (2004, variable S18F1).
Assassinations: Number of assassinations in a specific year; source: Banks (2004, variable S17F1).
Change in form of government: Dependent variable in panel analysis; form of government changes either from presidential to parliamentary or vice versa; source: Banks (2004).
Constitution changed before: Variable indicating that the form of government has already been changed at least once within our sample period.
Degree of democratization: Revised Combined Polity Score with a scale ranging from +10 (strongly democratic) to -10 (strongly autocratic); source: Marshall and Jaggers (2002).
Democratic competition and participation: This index is the percentage of votes not cast for the largest party (competition) times the percentage of the population that actually voted in the election (participation). This product is divided by 100 to form an index that in principle could vary from 0 (no democracy) to 100 (full democracy); source: Vanhanen (2000, 2005).
East Asia: Regional dummy variable equal to 1 if a country is in East Asia (including Japan and Mongolia), 0 otherwise; source: Teorell & Hadenius (2005).
Eastern Europe and post Soviet Union: Regional dummy variable equal to 1 if the country is in Eastern Europe and post Soviet Union (including Central Asia), 0 otherwise; source: Teorell & Hadenius (2005).
Ethnic fractionalization: Reflects the probability that two randomly selected people from a given country will not belong to the same ethno-linguistic group; source: Alesina et al. (2003).
Ethnic polarization: Esteban and Ray (1994).
Former British colony: Dummy variable equal to 1 if the country is a former colony of Britain, 0 otherwise; source: Teorell & Hadenius (2005).
Former French colony: Dummy variable equal to 1 if the country is a former colony of France, 0 otherwise; source: Teorell & Hadenius (2005).
Former other colony: Dummy variable equal to 1 if the country is a former Spanish, Dutch, Italian, U.S., Belgian, Portuguese, British-French, or Australian colony, 0 otherwise; source: Teorell & Hadenius (2005).
General strikes: Number of general strikes in a specific year; source: Banks (2004, variable S17F2).
Government crises: Number of government crises in a specific year; source: Banks (2004, variable S17F4).
Government share of GDP: Share of government expenditures of GDP in %; source: Heston et al. (2006), own computations.
Guerrilla warfare: Number of armed activities aimed at the overthrow of present regime in a specific year; source: Banks (2004, variable S17F3).
Inflation rate: Rate of change of GDP deflator in PPP units; source: Heston et al. (2006), own computations.
Initially presidential: Variable indicating that at the start of our sample data the form of government was presidential.
Intermediate internal armed conflict: Intermediate internal armed conflict; source: Gleditsch et al. (2002).

Minor internal armed conflict: Minor internal armed conflict; source: Gleditsch et al. (2002).
Internal war: Internal war; source: Gleditsch et al. (2002).
Knowledge distribution: An index combining the arithmetic mean of the number of students at universities or other institutions of higher education per 100,000 inhabitants of the country and literates as a percentage of adult population; source: Vanhanen (2000, 2005).
Landlocked: Dummy variable that takes on a value of 1 if a country is enclosed or nearly enclosed by land; source: Wikipedia.
Linguistic fractionalization: Reflects the probability that two randomly selected people from a given country will not belong to the same linguistic group; source: Alesina et al. (2003).
Latin America: Regional dummy variable equal to 1 if the country is in Latin America (including Cuba, Haiti, and the Dominican Republic), 0 otherwise; source: Teorell & Hadenius (2005).
Legal Origin: British: Identifies the legal origin of the company law or commercial code of each country; source: La Porta et al. (1999).
Legal Origin: French: Identifies the legal origin of the company law or commercial code of each country; source: La Porta et al. (1999).
Legal Origin: German/Scandinavian: Identifies the legal origin of the Company Law or Commercial Code of each country; source: La Porta et al. (1999).
North Africa & the Middle East: Regional dummy variable equal to 1 if the country is in the Middle East (including Israel, Turkey, and Cyprus) or North Africa, 0 otherwise; source: Teorell & Hadenius (2005).
Number of international NGOs in country: The number of international NGOs working within a country; source: Paxton (2002).
Number of official languages: The number of officially recognized languages in a country; source: Wikipedia.
Openness: Exports plus imports divided by GDP in %; source: Heston et al. (2006).
Political participation: Multiple identities: There are relatively stable and enduring political groups that compete for political influence at the national level—parties, regional groups, or ethnic groups—that are not necessarily elected, but there are few recognized, overlapping (common) interests; source: Marshall and Jaggers (2002).
Political participation: Regulated: Relatively stable and enduring political groups regularly compete for political influence and positions with little use of coercion. No significant groups, issues, or types of conventional political action are regularly excluded from the political process; Marshall and Jaggers (2002).
Political participation: Restricted: Some organized political participation is permitted without intense factionalism, but significant groups, issues, and/or types of conventional participation are regularly excluded from the political process; source: Marshall and Jaggers (2002).
Political participation: Sectarian: Political demands are characterized by incompatible interests and intransigent posturing among multiple identity groups and oscillate more or less regularly between intense factionalism and government favoritism; source: Marshall and Jaggers (2002).
Purges: Number of systematic eliminations of political opposition in a specific year; source: Banks (2004, variable S17F5).
Real GDP growth rate: Growth rate of real gross domestic product per capita in U.S. dollars converted using PPP in %; source: Heston et al. (2006), own computations.
Real GDP:

Real gross domestic product per capita in U.S. dollars converted using PPP; source: Heston et al. (2006).
Regional contagion: Measures whether a change in the form of government in one country of a region triggers a constitutional reform in another country of the same region. Indicator variables for every region were constructed by allowing for a five-year window after one country changed its constitution.
Religious fractionalization: Reflects the probability that two randomly selected people from a given country will not belong to the same religious group; source: Alesina et al. (2003).
Revolutions: Number of successful or unsuccessful revolutionary actions in a specific year; source: Banks (2004, variable S17F7).
Riots: Number of riots in a specific year; source: Banks (2004, variable S17F6).
Share of family farms: The area of family farms as a percentage of total cultivated area or total area of holdings; source: Vanhanen (2000, 2005).
Share of primary exports in GNP: Share of exports of primary products in GNP in 1970; source: Gallup et al. (1999).
Share of Muslims: Percentage of the population in a country professing to be Muslims in 1980 (younger states are counted based on their average from 1990 to 1995); source: La Porta (1999).
Share of other religions: Percentage of the population in a country professing to be neither Muslim, Protestant, nor Catholic in 1980 (younger states are counted based on their average from 1990 to 1995); source: La Porta (1999).
Share of Protestants: Percentage of the population in a country professing the Protestant religion in 1980 (younger states are counted based on their average from 1990 to 1995); source: La Porta (1999).
Share of urban population: Urban population as a percentage of total population; source: Vanhanen (2000, 2005).
South Asia: Regional dummy variable equal to 1 if a country is in South Asia, 0 otherwise; source: Teorell & Hadenius (2005).
Southeast Asia: Regional dummy variable equal to 1 if the country is in Southeast Asia, 0 otherwise; source: Teorell & Hadenius (2005).
Sub-Saharan Africa: Regional dummy variable equal to 1 if the country is in Sub-Saharan Africa, 0 otherwise; source: Teorell & Hadenius (2005).
The Caribbean Regional dummy variable equal to 1 if the country is in the Caribbean (including Beliz, Guyana, and Suriname), 0 otherwise; source: Teorell & Hadenius (2005).
The Pacific: Regional dummy variable equal to 1 if the country is in the Pacific (excluding Australia and New Zealand), 0 otherwise; source: Teorell & Hadenius (2005).
Year: Year of observation.

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