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Endogenous Constitutions: Politics and Politicians Matter, Economic Outcome Don't

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Abstract:

We study changes in the form of government as an example of endogenously determined constitutions. For a sample of 202 countries over the period 1950–2006, we find that most changes are relatively small and roughly equally likely to be either in the direction of more parliamentarian or more presidential systems. Based on a fixed effects ordered logit panel data model estimated over the period 1951–2000 for 146 countries, we find that such changes in the constitution can be explained by characteristics of the political system, internal and external political conflicts, and political leaders, whereas economic and socio-demographic variables do not matter.

Key Terms: Constitutional change, form of government, endogenous constitutions, separation of powers, relevance of leaders.

JEL classification: H11, K10, P48.

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> *... and were one to choose a period of time, when the people's consent was the least regarded in public transactions, it would be precisely on the establishment of a new government. In a settled constitution, their inclinations are often consulted; but during the fury of revolutions, conquests, and public convulsions, military force or political craft usually decides the controversy. (David Hume, 1777/1987, 474)*

1. Introduction

Almost half a century ago, Buchanan and Tullock (1962) laid the foundation for the economic analysis of constitutions. Attaining consent to constitutional rules was costly, which was sufficient justification for arguing in favor of an economic theory of constitutions (ibid, 7). For Buchanan and Tullock, the core of constitutional economics is thus the process by which societies generate their most basic layer of rules. Given this early focus of the research program, it is astonishing how little we still know about the determinants of constitutional rules. During the last decade, some progress toward understanding the (economic) effects of constitutional rules has been made. However, to date, very few economists have tried to endogenize constitutions and thus this paper is a substantial contribution to this field. We are not embarked on establishing a "grand theory" here, but are instead concerned with the determinants of one single constitutional institution, namely, the form of government. There are a number of reasons for this rather cautious approach. First, the economic effects of the form of government appear to be quite important. Persson and Tabellini (2003) claim, e.g., that government spending is about 6% of GDP lower in presidential than in parliamentary systems and that the size of the welfare state is 2 to 3% lower in presidential systems. Second, in contrast to other constitutional institutions, coding problems regarding the form of government appear to be manageable.

This paper makes several novel contributions. With regard to the dependent variable, instead of using a somewhat arbitrary classification that consists of only two polar cases of form of government, parliamentarian and presidential, we use an indicator measuring changes in degree of form of government. This allows answering the question of whether constitutions are changed in small, moderate, or large steps. In addition, by looking at the marginal effects, we can find out whether explanatory variables are more helpful in predicting small or large changes in form of government. Finally, we differentiate between the two possible directions of constitutional change—toward a more parliamentary or toward a more presidential system of government.

The paper introduces a number of potentially important explanatory variables that have hitherto been completely neglected in the literature. First, it takes into account the process by which constitutions are generated. Second, it considers conditions and outcomes of external war. Third, it studies the impact of individual leaders' characteristics relating to their time in office.

In the framework of a fixed effects ordered logit panel data model, we find that changes in form of government can be explained by characteristics of the political system, internal and external political conflicts, and political leaders, whereas economic and socio-demographic variables do not matter. Specifically, we discover that those countries in which constitutional change is initiated by referenda tend to move toward more presidential systems and those in which constitutional assemblies or conventions are employed tend to select more parliamentarian forms of government. Higher degrees of democratization in the previous period increase the probability of a change toward presidential regimes. Conversely, the aftermath of revolutions is characterized by a higher probability of changing the form of government in the direction of a more parliamentary regime. The loss of dependent territory as an outcome of an external war increases the likelihood of changing the form of government toward parliamentarism. Heads of government who die in office, retire from office due to health reasons, or are exiled within one year after leaving office increase the probability of a move toward more presidential systems. Finally, if a constitution was revised during the 1990s, it is very likely to incorporate more characteristics of a parliamentary system.

The rest of the paper is structured as follows. Section 2 provides a brief overview of the literature on endogenous constitutions and Section 3 develops our theoretical conjectures. Section 4 presents the data and discusses the descriptive statistics. Section 5 contains the estimation approach and a discussion of the results. Section 6 concludes.

2.   A Brief Survey on Endogenous Constitutions

This section reviews some of the literature on endogenous constitutions. Given the scarcity of research on this topic, we begin with the broad and rather encompassing approaches and then briefly look at the literature that focuses on the endogenization of specific constitutional traits, such as federalism, direct democracy, or the form of government.

Charles Beard (1913/1986) explains important aspects of the U.S. Constitution by drawing on the interests of those present at the Philadelphia Convention. Whereas Buchanan and Tullock (1962) discuss decision-making rules that rational individuals could agree on under various circumstances, Beard is interested in explaining what really happened, i.e., in positive analysis.

His general conjecture is in line with modern public choice analyses: all actors, representatives to constitutional assemblies included, are interested in maximizing their individual utility. Drawing on the foundation laid by Beard and relying on econometric techniques, McGuire and Ohsfeldt (1989, 175) explain the voting behavior of the delegates to the Philadelphia Convention and find the following: "The statistical results show that merchants, western landowners, financiers, and large public-securities holders, *ceteris paribus*, supported the new constitution, whereas debtors and slave owners, *ceteris paribus*, opposed the Constitution."

Voigt (1999, chapter 6) discusses the determinants of constitutional change and proposes to think of it as the outcome of a bargaining game in which a variable number of interest groups participate. Only the most powerful groups in society bargain over a constitutional contract, which is interpreted as a real contract—as opposed to the fictional social contract—between an identifiable number of parties. Such a contract is more similar to a private law contract than to a social contract. The bargaining power of a group is determined by its ability and willingness to inflict costs on others; the costs are a reduction of national income and economic rents. The relative bargaining power of the various groups can change over time, for example, due to technological innovation, which means that the number and identity of the parties that bargain over a constitutional contract can change over time, too. Such a situation implies that those groups whose relative bargaining power has increased will demand constitutional renegotiation.

Ticchi and Vindigni (2010) seek to identify the factors determining the choice between "majoritarian" and "consensual" constitutions (the dichotomy was introduced by Lijphart 1999). "Majoritarian" constitutions are characterized not only by plurality rule, but by a number of other characteristics, including that the government is dominated by the executive and that governments are usually one-party governments. "Consensual" constitutions are characterized not only by having proportional representation, but also by more of a balance between the legislative and executive powers and this form of government is usually a coalition, i.e., a several-party government. Ticchi and Vindigni hypothesize that the factor driving the choice between majoritarian and consensual systems is 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.

Empirical insight into the conditions under which a federal, rather than a unitary, state structure is chosen is completely absent. The same holds true with respect to the emergence of di-

rect democratic institutions.[1] Lijphart (1984, 206) even admitted "defeat in the search for general propositions and theories" regarding the presence or absence of a referendum right.

Aghion *et al*. (2004) ask how much "unchecked power" a society should optimally delegate to its leaders, go on to ask under what conditions societies can be expected to choose that optimal degree of delegation, and, finally, turn to some cross-country analysis. They equate "insulation" with unchecked power. For example, autocrats are more insulated than democratically elected governments. Within democracy, presidential systems are more insulated than parliamentary ones. What is the central driving force behind this variation in insulation? Aghion *et al.* (2004) find that insulation is positively and significantly correlated with both ethnic and linguistic fractionalization, meaning that highly fragmented societies are less democratic. However, if these fragmented societies are democratic, they can be expected to be presidential rather than parliamentary.

In other research (Hayo and Voigt 2010), we investigate two issues: (1) When is a switch in form of government likely to occur? and (2) Given that a switch has occurred, why did it occur? Our dataset covers the period from 1950 to 2003 and identifies 123 switches in form of government. Our main results, for a sample of 169 countries, show that a switch is more likely to occur if the amended constitution is parliamentary rather than presidential, 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 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 to switch their form of government. 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

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[1]   See also Matsusaka (2005, 197), who writes: "A difficulty in developing instruments is that we do not yet understand why certain states adopted the process and others did not."

students and literates in a country rises, it becomes less likely that the society will initiate con-
stitutional reform.

We build on and extend this approach here by estimating a fixed effects ordered logit panel
data model that takes into account differences in the degree of change in the form of govern-
ment. In addition to standard political, socio-demographic, and economic factors, this paper
introduces (i) indicators of the process by which constitutions are generated, (ii) the influence
of state of war and its outcome, and (iii) characteristics of the relevant individual leaders as
explanatory variables.

3.   <u>Theory</u>

In this section, we develop a number of conjectures pertinent to the likelihood of implement-
ing or adjusting a particular form of government. Economists frequently argue that the presi-
dential form of government implies a higher degree of separation of powers than the parlia-
mentary one. In parliamentary systems, the (head of the) executive depends for survival on re-
taining the confidence of the majority of the legislature. In presidential systems, the president
can survive in office even without the confidence of the legislature. Hence, presidential sys-
tems have an additional veto player or a higher degree of separation of powers, as Persson *et
al*. (1997) argue.

This view is criticized on both theoretical and empirical grounds. Theoretically, it can be ar-
gued that checks and balances are more relevant under parliamentary rather than presidential
systems, as in the former, the legislature can check the behavior of the executive much more
directly than under the latter. If the legislature is dissatisfied with the way the executive is car-
rying out its legislation, it can threaten to remove the executive from of office.

Robinson and Torvik (2008) point out that Persson *et al*. (1997) were inspired by the U.S.
system and that presidential systems in both Latin America and Africa are different from the
U.S. system. Presidents in other countries often enjoy powers vastly exceeding those of the
U.S. president. Lutz (2006, chapter 4) argues that the distinction between parliamentary and
presidential systems is a poor proxy for the degree of separation of powers. He proposes an
indicator that explicitly takes into account a number of additional aspects, such as federalism
and bicameralism. Fish (2006) constructs an index of legislative powers and finds that more
legislative power is highly correlated with higher levels of democracy. Thus, if a society is in-

terested in a high level of democracy, a parliamentary system might be most appropriate to achieve that goal.[2]

By definition, presidents are more insulated from parliament than are prime ministers. The tenure of presidents is thus more certain than that of prime ministers. Given that secure tenure is an important argument in the utility function of potential heads of governments, their expected utility is arguably higher in a presidential system than in a parliamentary one.

Economists have long neglected the potential relevance of individuals; their emphasis on the relevance of institutions is accompanied by a relative neglect of the importance of individuals.[3] *Ex ante*, the characteristics of leaders are expected to be of particular relevance in times of crisis. We conjecture that leaders who achieve power through irregular means are more likely to cause changes toward a more presidential system than are leaders who acquire power through regular means. A similar argument applies to the way leaders lose power. Finally, the age at which one becomes a leader might have an impact: the younger a leader, the higher the value of secure tenure. *Ceteris paribus*, we expect younger leaders to be more in favor of presidential systems than older ones.

Presidents and prime ministers seldom write constitutions all by themselves. Instead, four principal actors play a role in constitutional choice as well as in constitutional change: (1) the executive, (2) the legislature, (3) a constitutional assembly, and (4) the public at large in the case that it has the right to vote on a constitutional draft via a ratification referendum. Assuming utility maximizing individuals, we conjecture that constitutional change instituted by the legislature will involve giving more power to the legislature and that change brought about by the executive will allocate more power to the executive. In other words, change that occurs due to legislative action will lead to more parliamentary systems, whereas change instituted by the executive will tend toward a more presidential system.

Predicting the effects of constitutional assemblies as well as referenda is less straightforward. To predict the choice of constitutional assemblies, more information regarding the preferences

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[2]   In our dataset, the Parliamentary Powers Index is indeed positively correlated with the parliamentary form of government (r = 0.56) and negatively with the presidential form of government (r = -0.54).

[3]   However, economists have started to investigate the role of leaders in different contexts. For example, Jones and Olken (2005) show that the unexpected death of a leader can have substantial repercussions on the country's growth. Dollar *et al*. (2001) find that a larger share of female parliamentarians is significantly correlated with lower levels of corruption. Göhlmann and Vaubel (2007) analyze the impact of the professional background of central bankers on inflation. Dreher *et al*. (2008) provide evidence suggesting that politicians' professional background has an impact on the likelihood of implementing market-liberalizing reforms.

of their members is necessary. Predicting the effects of referenda is even more difficult. Referenda are usually yes or no decisions. Given that constitution drafters are interested in securing a majority in favor of their draft, they certainly have an incentive to take citizen preferences into account. Yet, constitutions consist of many dimensions and it is not clear *a priori* that form of government is crucial. Hence, it could be possible to secure the support of a majority of voters even thought they might prefer a different form of government. In sum, it does not seem possible to make clear-cut predictions as to how constitutional assemblies or constitutional referenda will affect form of government.

Political conflicts are crucial events in the life course of a nation, not least due to the uncertainty of their outcome. Constitutions are frequently chosen or changed after major events such as defeat by a foreign army, a civil war, a military coup, a successful revolution, and the like. We propose to distinguish between domestic conflict and external war. External war is an extraordinary event for the countries involved. We conjecture that war diverts attention from constitutional matters to concerns for survival of the state, implying that during times of war constitutional change is less likely. This situation could change once the war is over. For example, if territorial gains are a proxy for a war won, and territorial losses a proxy for a lost war, then territorial gains will be associated with good constitutional institutions, whereas territorial loss could be interpreted as evidence that reform is necessary. We thus conjecture that territorial gains will not lead to constitutional amendments, but that territorial losses will. The expected direction of change depends on the *status quo ante*: if it was a strong president who is perceived as responsible for the loss, we would expect a change toward a more parliamentary system.

Domestic conflict comes in many guises, covering the gamut from anti-government demonstrations to civil war. To predict the consequences of domestic conflict on form of government, we must not only take the specific kind of conflict into account, but also the context in which it occurs. A civil war, for example, indicates that there are strong divisions within society. We conjecture that the form of government chosen after a civil war depends on its outcome. If a single group emerges as the clear winner, we would expect it to prefer a presidential system. If, however, the outcome is a bargain between various groups, we would expect the development of a parliamentary system. Further, if an overwhelming majority of the population is horrified by an assassination attempt or a series of riots, the end result could be a strengthening of the executive power, that is, a move toward a more presidential system. In contrast, if revolutions are mass events, reduction in executive power seems likely, in other

words: we conjecture that revolutions will be followed by movement toward a more parliamentary system.

Another of our conjectures is that the economic situation of a country could have an impact on form of government. Robinson and Torvik (2008) argue that presidential systems are more likely the lower the overall government expenditure as share of GDP, which they use as a proxy for low development. Ticchi and Vindigni (2010) conjecture that higher degrees of inequality are likely to lead to more presidential systems. We set out to test these hypotheses empirically.

Finally, constitutional choice does not occur in a vacuum. We therefore use the constitutional history of a state as a control variable. Specifically, we study how the age of a constitution and whether it is a new constitution influences the likelihood of changes in form of government, while controlling for first constitutions of new countries.

4.   The Data and Descriptive Statistics

4.1.   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 to the 1950s, the period during which many African states became 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. The indicator that suits these criteria best 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." Possible forms of government are described by situations, where (i) the office of premier does not exist or if it does, (ii) it does not have any parliamentary responsibility, (iii) the premier is, at least to some extent, constitutionally responsible to the legislature, or (iv) the premier is constitutionally and effectively dependent upon a legislative majority for continuance in office.[4]

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[4]   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.

Based on this characterization of form of government, we construct an indicator that measures changes in this variable. A maximum change occurs when a country moves from (i) to (iv) or vice versa. Medium and small changes are movements from, say, (i) to (iii) or (i) to (ii), respectively.

We create an ordinal variable with seven categories, where the categories are ordered such that higher values indicate movement toward a parliamentarian system. Hence, this new variable can take on values between –3, i.e., strong change toward a presidential system, and 3, i.e., strong change toward a parliamentarian system, with larger values indicating more radical changes. Thus, negative values indicate a move toward more presidential regimes; positive values a move toward more parliamentary ones. Years without a change in form of government are coded 0.

Between 1950 and 2006, our examination shows that in 101 countries, which is exactly half our sample of 202 countries, the form of government was adjusted. In this group of 101 countries, a total of 269 adjustments occurred, meaning that in some countries, multiple changes occurred. There is considerable variation over time in constitutional change regarding form of government (see Figure 1). We observe less than 30 changes in the 1950s and 2000s, more than 40 in the 1960s and 1980s, and 60 or more in the 1970s and 1990s.[5]

Figure 1: Change in form of government (1950–2006, 269 changes in 101 countries)
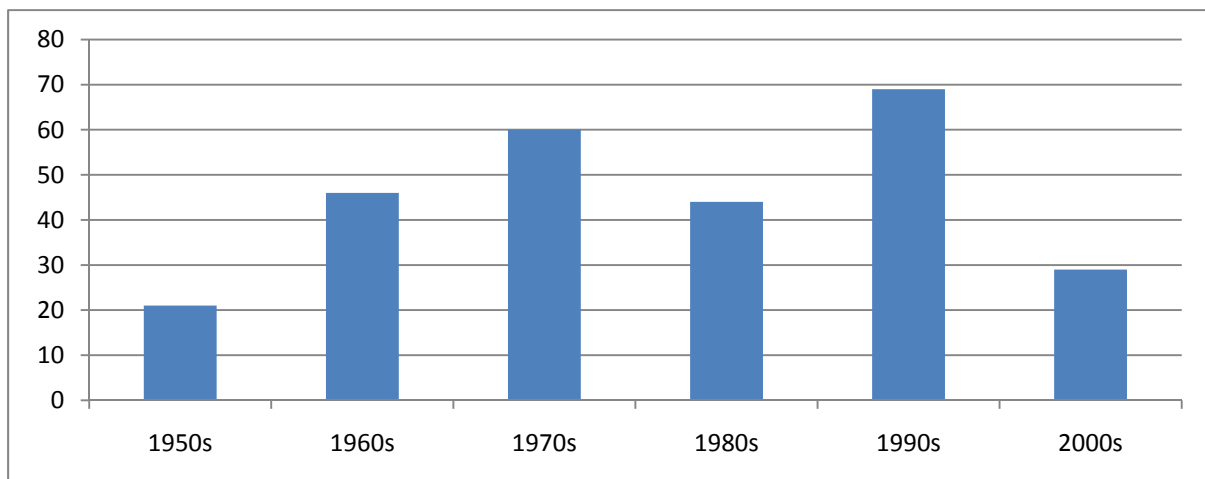
Sometimes, only small changes occur in the degree of responsibility to parliament, e.g., from a situation where initially the premier is somewhat constitutionally responsible to the legisla-

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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.

[5] Note that our sample ends in 2006 and, therefore, the period 2000 is shorter than the other periods under consideration.

ture to a situation where the premier is fully dependent upon a legislative majority for continuance in office. At other times, the adjustments result in a clear change in form of government, e.g., from a situation where there was no office of premier to a situation where the premier is constitutionally and effectively dependent on a legislative majority for continuance in office. In addition to variations in the size of changes, the direction of change also varies. Changes in one direction will bring the country toward a presidential system, changes in the other direction toward a parliamentary system.

Figure 2 shows 116 adjustments in form of government toward a more presidential system, broken up into different sizes—small, medium, and large. We find an inverse relationship between the frequency of occurrence and the size of the change: 77 (66%) adjustments are small, 24 (21%) medium, and 15 (13%) large. Thus, the typical adjustment in form of government takes place in small steps. Moreover, we can see that these small adjustments dominate constitutional reforms in all decades of our sample, except for the 2000s. Medium and large adjustments are especially prevalent in the 1960s, signaling this as a decade during which more profound changes in form of government occurred.

Figure 2: Magnitude of changes in form of government toward a presidential system (1950–2006, 116 changes)
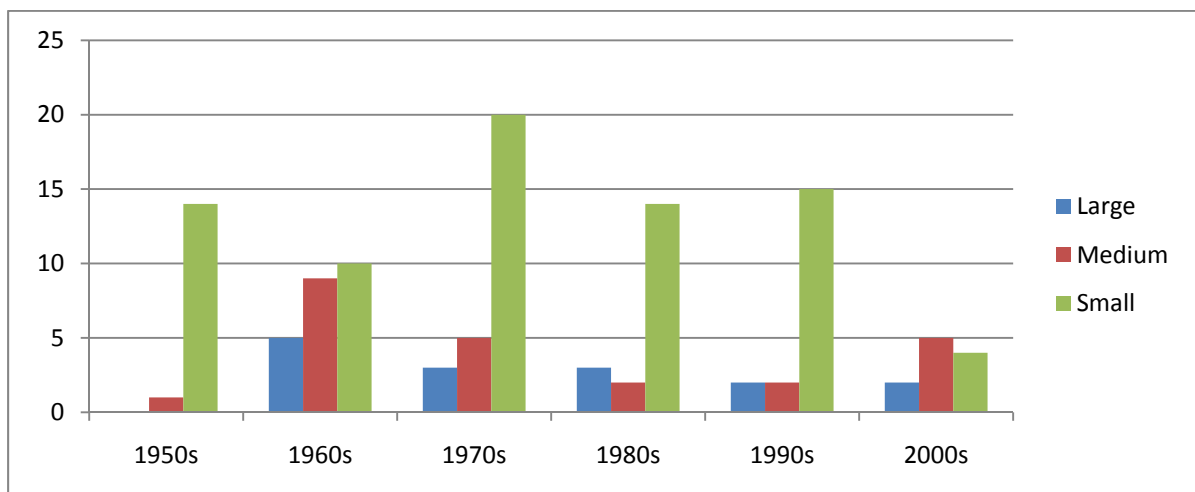
Figure 3 focuses on constitutional reform toward a more parliamentary system. This direction of change is more frequent (153 changes in our sample) than moves toward a presidential system. Also noteworthy is the evidence that changes toward a parliamentary system take place in even smaller steps than changes toward a presidential system. The number of small, medium, and large adjustments is 123 (80%), 23 (15%), and 7 (5%), respectively.

Figure 3: Magnitude of changes in form of government toward a parliamentary system (1950–2006, 153 changes)
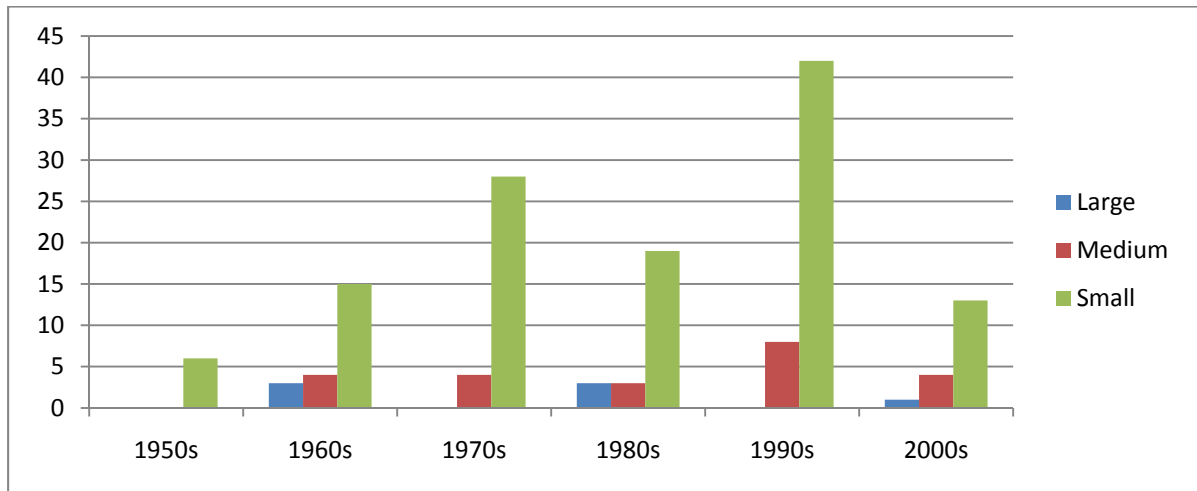
The frequency of reform in the direction of a parliamentary system varies considerably over time. There is a great deal of activity in the 1970s and, especially, the 1990s, whereas there are relatively fewer changes in other periods.

4.2.   Independent Variables

We organize the explanatory variables into four different categories: political system indicators, political conflict indicators, political leader indicators, and socio-economic indicators. In addition, we control for time using a deterministic trend and decade dummies.

Political system indicators

In this category, we consider the year in which a country implemented the current constitution, a dummy variable for the actual event of introducing a new constitution, and another dummy indicating whether this is the first constitution of a state.

Countries differ with regard to the actors initiating constitutional change. We employ dummy variables indicating executive, legislative, referendum and constitutional assembly or convention as initiators of constitutional change. The last category is aggregated, as there are very few instances of constitutional conventions.[6]

The level of democracy actually implemented in a country could have an effect on the kind of constitutional change experienced. Given that democracy is a prime example of an "essentially contested concept" (Gallie 1956), we consider two indicators. Marshall and Jaggers's (2002) widely used Polity IV measure and Vanhanen's (1997) concept of democratic competition and participation. Vanhanen operationalizes competition by the percentage of votes that are

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[6]   We thank Tom Ginsburg for making the data used in Ginsburg *et al.* (2009) available to us.

not cast for the largest party, whereas he measures participation by the percentage of the population that actually voted in the last election.

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" (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 decision makers.

Political conflict indicators

As discussed in the theoretical section of this paper, we distinguish between domestic conflicts and external wars. Regarding domestic conflicts, we employ eight empirical indicators of political unrest (see Banks 2004): (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. In addition, we include an indicator for 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).

A country's constitutional development can also be affected by involvement in external war. To capture the involvement in wars, we rely on the Correlates of War dataset provided by Saarkees (2000). We construct impulse dummy variables indicating the start and end of external military disputes as well as a step dummy variable indicating that a country is in the state of war in a particular year. Regarding the outcome of wars, we compute dummy variables capturing whether the respective country won or lost the war. Finally, we create impulse dummy variables showing whether the outcome of the war involved the gain or loss of territory (homeland or dependent).

Political leader indicators

Based on the conjectures developed in the theoretical section of this paper, we expect the political strength or personal background of leaders to be of particular interest. Unfortunately, we are not aware of any dataset containing such information. However, Goemans *et al.* (2009)

recently published the so-called Archigos dataset, which does contain certain information on leaders. We include the following leader-related variables in our analysis: age at taking office, a dummy variable indicating gender, a variable indicating years in office, a dummy variable capturing a change in leadership, and dummy variables indicating whether the leader took office through regular means, irregular means, or was installed by another state. We also have information on how leaders exit office. Dummy variables capture whether they lost office through regular means, whether they died of natural causes while in power, had to retire early due to ill health, or committed suicide. Dummy variables also describe irregular losses in power, deposition by an external power, or leaders still in office during our sample period. Finally, we include information about what happened to leaders one year after exiting office. Dummy variables capture whether they were exiled, imprisoned, or killed.

Socio-economic indicators

In Section 3, we argued that the distribution of resources could affect constitutional change. Vanhanen (1997) presents a number of proxy variables for the distribution of resources across a society. We use "share of family farms," which counts the area of such farms as a percentage of total farmland. The variable "knowledge distribution" is the arithmetic mean of the percentage of students among the entire population and the percentage of a country's population that is literate. Finally, the variable "urban population" measures the percentage share of urban dwellers to total population.

Large and small societies may differ in their propensity to change the distribution of income, wealth and economic opportunities and demographic change may affect majorities in a country. To control for these factors, we include the log of absolute population size and the population growth rates in our analysis.

Persson and Tabellini (2003) report that countries with different forms of government demonstrate significant differences in macroeconomic variables. To discover whether changes in constitutions are a reaction to economic performance, we include: (1) the level of real gross domestic product per capita and its growth rate; (2) log of inflation, which signals a failure of macroeconomic policy; (3) the degree of openness; and (4) the government share of GDP.

5.   Estimation Approach

The likelihood of newly adopting a specific form of government or adjusting an existing form of government is estimated in a fixed effects ordered logit panel data model. Due to missing observations and variable lags, in the multivariate analysis, the sample is reduced to 146

countries for the period 1951−2000. We estimate the determinants of change in form of government with a general-to-specific approach (Hendry 1993), i.e., we start with a general model encompassing many potentially relevant determinants and eliminate insignificant variables in a consistent testing-down process. To decrease the likelihood of making Type II testing errors, the zero restriction on the general model is tested at a 10% nominal level of significance. We apply heteroscedasticity-robust standard errors based on White (1980). Although the accuracy of this estimator can be quite low in small samples, we believe that our sample size of more than 2,400 observations is sufficiently large to exploit its desirable asymptotic properties. To reduce endogeneity problems, all variables except time variables, constitution-related indicators, initiators of constitutional change, external war, and political leader indicators are lagged by one year.

The joint significance tests of the general model in Table 1 show that the explanatory variables are highly significant as a group. Significant effects include: referendum as the *modus operandi* for changing the constitution and lagged democratization are associated with changes toward a more presidential form of government, whereas lagged multiple identities, dependent territory lost, a leader who died of natural causes while in power, a leader who retired due to ill health, and lagged population growth are all associated with changes toward a more parliamentary form of government.

However, concerns about collinearity and estimation efficiency suggest simplifying the model. Applying a data-admissible testing-down restriction yields the reduced model in the right part of Table 1.

Table 1: Explaining changes in form of government (ordered logit model)

	General model		Reduced model	
Variables	Coefficients	Standard errors	Coefficients	Standard errors
A) Political system indicators				
Constitution-related indicators:				
Year of new constitution	0.005	0.010		
New constitution	0.104	1.352		
First constitution	1.712	1.242		

Initiators of constitutional change:				
Executive		Reference		
Legislative	-1.765	1.450		
Referendum	-4.262**	1.425	-2.199*	1.076
Constitutional assembly/convention	1.789	1.279	2.939**	0.995
Degree of democracy:				
Democratization	-0.364**	0.101	-0.360**	0.078
Democratic competition and partici-pation	-0.054	0.036		
Types of political participation:				
Unregulated		Reference		
Restricted	-0.678	0.972		
Multiple identities	2.726**	0.980	2.603*	1.106
Sectarian	1.544*	0.760	1.547*	0.659
Regulated	3.418**	1.060	2.848*	1.329
B) Political conflict indicators				
Political unrest:				
Assassinations	-0.041	0.108		
General strikes	0.031	0.282		
Guerrilla warfare	-0.040	0.141		
Government crises	0.106	0.237		
Purges	0.141	0.199		
Riots	-0.083	0.075		
Revolutions	0.381	0.276	0.559**	0.196
Anti-government demonstrations	0.137	0.087		
Armed internal conflict	0.419	0.602		

External war:				
Start of militarized interstate dispute	-0.172	0.627		
Currently involved in militarized interstate dispute	0.360	0.862		
End of militarized interstate dispute	-0.055	0.502		
Winner militarized interstate dispute	-0.606	0.738		
Loser militarized interstate dispute	1.471	1.873		
Homeland territory won	-0.418	0.729		
Homeland territory lost	0.034	0.771		
Dependent territory won	0.972	0.619		
Dependent territory lost	2.372**	0.705	2.570**	0.782

C) Political leader indicators

Leader characteristics:				
Age at taking office	-0.013	0.022		
Female	-0.970	1.473		
Years as leader	0.004	0.028		
Year with change in leader	1.192	0.839		
Leader entering office:				
Leader reached power through regular means		Reference		
Leader reached power through irregular means	-0.109	0.543		
Leader directly installed by another state	-0.289	0.828		
Leader's loss of power:				
Leader lost power through regular means		Reference		
Leader died of natural causes while in power	-1.410*	0.556	-1.244*	0.487
Leader retired due to ill health	-1.601*	0.735	-1.278**	0.475
Leader committed suicide	1.412	1.353		

Leader lost power through:				
Irregular means	0.826	0.954		
Deposed by another state	0.406	0.740		
Still in power	0.041	0.684		
Within one year after leaving office:				
No noteworthy event		Reference		
Exile	-1.580	0.808	-1.217*	0.556
Imprisonment	-0.202	1.035		
Death	1.108	1.031		
D) Socio-economic indicators				
Distribution of resources:				
Share of family farms	0.005	0.019		
Knowledge distribution	-0.030	0.034		
Share of urban population	0.027	0.023		
Demographic variables:				
Population size	-1.153	1.251		
Population growth	0.060*	0.029		
Economic variables:				
Real GDP per capita	-0.513	0.655		
Real GDP growth rate	-0.013	0.018		
Inflation rate	-0.227	0.123		
Openness	0.006	0.006		
Government share in GDP	0.027	0.029		
E) Time trends				
Year	-0.129	0.071		
Period 1960s	1.347	0.928		
Period 1970s	3.531*	1.476		
Period 1980s	4.638*	2.042		
Period 1990s	7.405**	2.802	1.043*	0.433
Period 2000s	6.294*	3.064		
F) Country dummies	Included		Included	

(1)	No. of observations	2429	2429
(2)	No. of countries	146	146
(3)	Log likelihood	-335.2	-357.9
(4)	Pseudo-R^2	0.28	0.23
(5)	Tests of joint significance:		
	All excl. country dummies	$Chi^2(61) = 116^{**}$	$Chi^2(12) = 78^{**}$
	All excl. country and time variables	$Chi^2(55) = 114^{**}$	$Chi^2(11) = 76^{**}$
	Time variables	$Chi^2(6) = 13.7^{*}$	$Chi^2(1) = 5.8^{*}$
(6)	Testing-down restriction		$Chi^2(49) = 62$

Notes: All variables, except time trends and political leader indicators, enter the model lagged by one year. Real GDP per capita, population size, and inflation rate are in logarithms. Estimation by fixed effects ordered logit panel data models. Standard errors are robust to heteroscedasticity. * (**) indicates significance at a 5% (1%) level.

As a group, the explanatory variables in the reduced model are significant at any reasonable level of significance. Individually, the remaining variables are significant at a level of 5% or less. The change in parameter estimates indicates the gain in efficiency, whereas the change in the standard errors of individual variables shows that relevant collinearity exists in the general model.

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.[7] Table 2 summarizes the marginal effects based on the estimated coefficients of the ordered logit model. The signs of these effects are no surprise. Invariably, coefficient estimates with a negative (positive) sign have a negative effect on the probability that a change toward a more parliamentary (presidential) system occurs.

Computing statistical tests for the estimated elasticities helps evaluate the model's abilities. We find that not all the marginal effects are significant at a 5% level, which leads us to several conclusions. First, the model is quite successful in explaining change but cannot explain lack of change. Second, the model is not able to predict very large moves toward a more parliamentarian system, as in this case none of the marginal effects are close to significance. Third, the model is particularly successful in explaining small changes, irrespective of their direction.

Before analyzing the results in more detail, it is worthwhile pointing out that changes in form of government are primarily influenced by institutional setting, political processes, internal and external political conflicts, and specific characteristics of political leaders. In contrast, so-

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

cio-demographic or economic variables do not help predict constitutional change. Thus, the choice of form of government appears to be driven by political rather than by economic factors. Given the significant differences in terms of economic outcomes of these forms of government as reported by Persson and Tabellini (2003), this is a surprising result. It suggests that decision makers and/or the general population are not aware of these important differences in outcomes or do not value the economic consequences particularly highly.[8] Nor do we find any evidence supporting Ticchi and Vindigni's (2010) hypothesis that constitutional change is driven by social inequality.

Regarding the importance of the explanatory variables to the probability of constitutional change, we find that although most of the marginal effects are relatively small they are still meaningful. To engage in a parsimonious discussion, we focus on the effects of explanatory variables on a small change toward more parliamentarian or presidential forms of government.

Political system indicators

Our results indicate that in countries where constitutional change is primarily driven by a constitutional assembly or convention, there is a 3.5 percentage point increase in probability that a more parliamentarian system will be adopted. In contrast, the likelihood of moving toward a presidential system falls by 2 percentage points. Countries in which constitutional change is based on referenda show a tendency to move toward presidential systems. The likelihood of a change toward a presidential system increases by almost 1.5 percentage points, whereas it decreases by about 2.5 percentage points in the case of a small movement in the direction of a parliamentarian system. Note, however, that these marginal effects are not precisely estimated. A 1% increase in the degree of democratization raises by 2 percentage points the likelihood of a switch in form of government toward a more presidential system in the following year. Thus, political processes influencing the *de facto* degree of democratization will also affect *de jure* institutions, with a lag. In contrast, the probability of a change toward a parliamentary system drops by only 0.4 percentage points after a 1% increase in the degree of democratization.

Different types of political participation in the previous period have a significant impact on the direction of constitutional change. Compared to "unregulated" and "restricted" types of political participation, "multiple identities," "sectarian," and "regulated" societies show a higher propensity to adopt more parliamentary systems. The likelihood of such a constitutional adjustment increases by more than 3 percentage points in the case of "regulated" and "mul-

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[8]   It could be argued that bad economic outcomes cause domestic political conflicts, which then lead to constitutional change. This might, indeed, be the case but our results show that bad economic policies as such are not sufficient to induce constitutional change.

tiple identities" and by almost 2 percentage points in the case of "sectarian" societies. The corresponding drop in the probability of moving in the direction of more presidentialism is smaller, with almost 2 percentage points for the categories "multiple identities" and "regulated" and 1 percentage point for "sectarian."

Political conflict indicators

Political conflicts have an influence on the probability of constitutional change. A 1% hike in the number of revolutions last year increases the likelihood of a modification in the form of government by almost 1 percentage point. At the same time, the likelihood of adopting a more presidential system drops by about 0.5 percentage points. External war affects constitutional amendments, too. If the outcome of a war is the loss of a dependent territory rather than of a home territory, the probability of moving in the direction of a parliamentarian form of government rises by more than 3 percentage points, whereas the fall in probability of moving toward more presidentialism is only about 1.5 percentage points.

Political leader indicators

Our results show that individual leaders can have an impact on institutional change. Interestingly, it is the loss of power that appears to be of particular relevance here. If a leader died of natural causes while in power, retired due to ill health, or was exiled within one year after leaving office, countries are more likely to adopt more presidential systems, with an increase in probability of almost 1 percentage point. The corresponding drop in the likelihood of moving toward parliamentarian systems is about 1.5 percentage points.

Time trends

We find that there was an especially strong change in the direction of more parliamentarianism in the 1990s. During this period, the probability of moving a small step in the direction of a parliamentary system and away from a presidential system increased by 1 percentage point.

Some results are not in line with our theoretical priors. Following Aghion *et al*. (2004), we expected presidential systems to be less democratic than parliamentary ones. Our results show, however, that higher levels of actual democracy result in future changes toward more presidential systems. The quantitative importance of this effect is modest, however.

The changes occurring subsequent to war involvement are largely in line with our theoretical conjectures: winning does not lead to change, losing does. But it is surprising that the effect is achieved via dependent territory lost, whereas lost homeland territory does not significantly affect the likelihood of change. Hayo and Voigt (2010) find that former colonial powers are less likely to change their form of government. Since the majority of relevant cases involves colonial powers, combining this result with the present finding suggests that although former

colonial powers did not completely change their form of government from presidential to parliamentarian, they adjusted their constitutions in that direction after losing colonies.

It is somewhat surprising that the way leaders take office does not have any important effect, whereas the way they leave office does. Dying in office or retiring due to ill health increases the likelihood of change toward a more presidential system. It could be that the population bemoans the loss of its leader who quit office for reasons beyond its control. To institutionalize similar persons in the future, the people might be willing to establish a more presidential form of government. A head of government who was forced into exile also increases the likelihood of the country moving toward a presidential form of government. Perhaps an exiled leader has left a particularly strong mark on the country, albeit not necessarily a positive one, so that people feel a certain void in the political system after the leader's departure that they hope to fill by appointing a new leader with greater authority, which can be more easily accomplished within the framework of a presidential system.

Perhaps the biggest surprise, however, is that none of the socio-demographic or economic indicators have any impact on changes in form of government. Theories conjecturing that economic inequality would be an important determinant of change are not supported by our empirical analysis. Although we do not have direct indicators for *ex ante* income inequality, none of the variables that we would expect to be at least somewhat correlated with income inequality (inequality in the distribution of resources, demographic change indicators, macroeconomic variables) show significant influence on constitutional change. A similar conclusion holds for bad macroeconomic outcomes.

Table 2: Marginal effects of reduced model from Table 1

	Change toward presidential system			↔	Change toward parliamentary system		
A) Political system indicators							
Initiators of constitutional change:							
Referendum	0.007	0.006	0.014	0.009	-0.026	-0.009	-0.001
Constitutional assembly/convention	-0.009*	-0.008	-0.019*	-0.012	0.035**	0.011*	0.001
Degree of democracy:							
Democratization	0.001*	0.001*	0.002**	0.001	-0.004**	-0.001**	-0.0001
Types of political participation:							
Multiple identities	-0.008	-0.007	-0.017	-0.010	0.031*	0.010*	0.001
Sectarian	-0.005	-0.004	-0.010*	-0.006	0.018*	0.006	0.001
Regulated	-0.009	-0.008	-0.018	-0.011	0.034*	0.011	0.001
B) Political conflict indicators							
Political unrest:							
Revolutions	-0.002	-0.001	-0.004*	-0.002	0.007**	0.002*	0.0002
External war:							
Dependent territory lost	-0.008*	-0.007*	-0.016**	-0.010	0.031**	0.010*	0.001
C) Political leader indicators							
Leader's loss of power:							
Leader died of natural causes while in power	0.004	0.003	0.008*	0.005	-0.015*	-0.005*	-0.001
Leader retired due to ill health	0.004*	0.003	0.008*	0.005	-0.015**	-0.005*	-0.001
Within one year after leaving office:							
Exile	0.004	0.003	0.008*	0.005	-0.014*	-0.005	-0.0005
E) Time trends							
Period 1990s	-0.003*	-0.003	-0.007*	-0.004	0.012*	0.004	0.0004

Notes: * (**) indicates significance on a 5% (1%) level. Reported figures are averages of marginal effects estimated for all existing values of the explanatory variables.

6.   Conclusions and Outlook

Studying the period from 1950 to 2006 in a sample of as many as 202 countries, we analyze changes in the constitution affecting a country's form of government. In 50% of these countries, we observe changes in the constitution. These changes are either amendments of existing constitutions or the introduction of a new constitution. In addition, within the group of countries that modified their form of government, a total of 269 changes was recorded, which implies that at least in some countries multiple changes occurred.

We structure these constitutional changes along two dimensions: direction and degree. Regarding the direction of change, we take into account movements from the *status quo* toward more parliamentarism or presidentialism. We show that over 43% of the countries move toward a more presidential system, whereas 57% become more parliamentarian. Regarding the degree of change, we show that in almost 75% of the cases, adjustment takes place in small steps, that is, there is not a complete change from, say, a parliamentarian system to a presidential system. Analyzing changes in the form of government in the framework of a panel data ordered logit model estimated for 146 countries during the period 1951–2000, we find that these changes are primarily influenced by the identity of the actor with the power to institute change, by the degree of democratization, by revolutions and lost wars, and by specific characteristics of political leaders. In contrast, socio-demographic and economic variables do not help predict constitutional change. Thus, the choice of form of government appears to be driven by political rather than economic factors. These empirical results cast serious doubt on the less-than-a-handful of papers that attempt to identify the determinants of form of government based on theoretical models.

In this paper, we analyze changes in form of government in isolation. In reality, however, changes in form of government often occur simultaneously with other changes, such as the introduction of direct democratic institutions, a more federal structure, the modification of electoral systems, and the like. Such changes can constrain or reinforce the power of presidents. Future studies should take possible interdependencies into account.

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In the literature on the economic effects of constitutions, electoral systems play an important role. It is found (e.g., Persson and Tabellini 2003; Blume *et al*. 2009) that not only the voting rule (majoritarian vs. proportional), but also the share of individually elected candidates and the size of electoral districts have important and very robust economic effects. It would thus be of great interest to better understand the factors determining both original choice and subsequent changes in electoral systems.

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Appendix 1: <u>Countries in Sample</u>

List of 202 countries included in descriptive analysis

Afghanistan, Albania, Algeria, Andorra, Angola, Antigua and Barbuda, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Brunei, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Cape Verde, Central African Republic, Chad, Chile, China, Colombia, Comoros, Congo, Congo, Democratic Republic, Costa Rica, Cote d'Ivoire, Croatia, Cuba, Cyprus, Czech Republic, Czechoslovakia, Denmark, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Ethiopia (-1992), Ethiopia (1993-), Fiji, Finland, France, Gabon, Gambia, Georgia, Germany, Germany, East, Germany, West, Ghana, Greece, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Korea, North, Korea, South, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, Liberia, Libya, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Marshall Islands, Mauritania, Mauritius, Mexico, Micronesia, Moldova, Monaco, Mongolia, Morocco, Mozambique, Myanmar, Namibia, Nauru, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan (-1971), Pakistan (1972-), Palau, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russia, Rwanda, Samoa, San Marino, Sao Tome and Principe, Saudi Arabia, Senegal, Seychelles, Sierra Leone, Singapore, Slovakia, Slovenia, Solomon Islands, Somalia, South Africa, Spain, Sri Lanka, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Sudan, Suriname, Swaziland, Sweden, Switzerland, Syria, Taiwan, Tajikistan, Tanzania, Thailand, Timor-Leste, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Tuvalu, USSR, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Vietnam, North, Vietnam, South, Yemen, Yemen, North, Yemen, South, Yugoslavia, Zambia, Zimbabwe

List of 146 countries included in multivariate analysis

Afghanistan, Albania, Algeria, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Bangladesh, Belarus, Belgium, Benin, Bhutan, Bolivia, Botswana, Brazil, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Canada, Central African Republic, Chad, Chile, China, Colombia, Comoros, Congo, Congo, Democratic Republic, Costa Rica, Cote d'Ivoire, Croatia, Cuba, Cyprus, Denmark, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Estonia, Fiji, Finland, France, Gabon, Gambia, Georgia, Germany, Ghana, Greece, Guatemala, Guinea, Guinea-Bissau, Haiti, Honduras, Hungary, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Korea, South, Kuwait, Kyrgyzstan, Laos, Latvia, Lesotho, Liberia, Lithuania, Macedonia, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mauritius, Mexico, Moldova, Mongolia, Morocco, Mozambique, Namibia, Nepal, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Oman, Pakistan (1972-), Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Romania, Russia, Rwanda, Saudi Arabia, Senegal, Sierra Leone, Singapore, Slovakia, Slovenia, Somalia, South Africa, Spain, Sri Lanka, Sudan, Swaziland, Sweden, Switzerland, Syria, Taiwan, Tajikistan, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Uganda, Ukraine, United Arab Emirates, United Kingdom, Uruguay, Uzbekistan, Venezuela, Vietnam, Zambia, Zimbabwe.

Appendix 2: <u>List of Variables</u>

Age when taking office:
Actual age of leader in the year when taking office; source: ARCHIGOS.

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 ordered variable, captures form of government changes either from presidential to parliamentary or vice versa; coded into 7 categories (–3, –2-, –1: change toward presidential system, 0: no change, 1, 2, 3: change toward parliamentarian system) and; source: Banks (2004).

Currently involved in militarized interstate dispute:
Dummy equal to 1 if a militarized interstate dispute takes place in the current year; source: Correlates of War project.

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:
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).

Dependent territory lost:
Impulse dummy equal to 1 if a country lost dependent territory to its adversaries after a militarized interstate dispute in the current year; source: Correlates of War project.

Dependent territory won:
Impulse dummy equal to 1 if a country won dependent territory from its adversaries after a militarized interstate dispute in the current year; source: Correlates of War project.

End of militarized interstate dispute:
Impulse dummy equal to 1 if a militarized interstate dispute ends in the current year; source: Correlates of War project.

First constitution:
Impulse dummy equal to 1 if a new constitution is the first constitution of a state; source: Widner.

Female:
Dummy equal to 1 if current leader is female; source: ARCHIGOS.

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 in GDP:
Share of government expenditures in 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).

Homeland territory lost:
Impulse dummy equal to 1 if a country lost homeland territory to its adversaries after a militarized interstate dispute in the current year; source: Correlates of War project.

Homeland territory won:
Impulse dummy equal to 1 if a country won homeland territory from its adversaries after a militarized interstate dispute in the current year; source: Correlates of War project.

Inflation rate:
Rate of change of GDP deflator in PPP units; source: Heston *et al.* (2006), own computations.

Intermediate internal armed conflict:
Intermediate internal armed conflict; source: Gleditsch *et al.* (2002).

Initiators of constitutional change
Dummy variables indicating whether legal initiative for constitutional change comes from executive, legislative, referendum, or constitutional assembly/convention.

Minor internal armed conflict:
Minor internal armed conflict; source: Gleditsch *et al.* (2002).

Internal war:
Internal war; source: Gleditsch *et al.* (2002).

Knowledge distribution:
Combination of 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).

Leader committed suicide:
Dummy equal to 1 if a leader committed suicide while in office; source: ARCHIGOS.

Leader died of natural causes while in power:
Dummy equal to 1 if a leader died while in office; source: ARCHIGOS.

Leader directly installed by another state:
Dummy equal to 1 if a leader took office through direct intervention of another state; source: ARCHIGOS.

Leader lost power through regular means:
Dummy equal to 1 if a leader left office through regular means; source: ARCHIGOS.

Leader lost power by being deposed by another state:
Dummy equal to 1 if a leader left office after direct intervention of another state; source: ARCHIGOS.

Leader lost power via irregular means:
Dummy equal to 1 if a leader left office through irregular means; source: ARCHIGOS.

Leader still in office:
Dummy equal to 1 if a leader is still in office; source: ARCHIGOS.

Leader attained power through regular means:
Dummy equal to 1 if a leader took office through regular means; source: ARCHIGOS.

Leader attained power through irregular means:
Dummy equal to 1 if a leader took office through irregular means; source: ARCHIGOS.

Leader retired due to ill health:
Dummy equal to 1 if a leader retired early from office because of ill health; source: ARCHIGOS.

Loser militarized interstate dispute:
Impulse dummy equal to 1 if a country loses a militarized interstate dispute in the current year; source: Correlates of War project.

New constitution:
Impulse dummy equal to 1 if a new constitution comes into existence in the current year; source: Widner.

Openness:
Exports plus imports divided by GDP in %; source: Heston *et al.* (2006).

Political participation—multiple identities:
Relatively stable and enduring political groups compete for political influence at the national level—parties, regional groups, or ethnic groups—that are not necessarily elected, but that have 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; source: 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).

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 urban population:
Urban population as a percentage of total population; source: Vanhanen (2000, 2005).

Start of militarized interstate dispute:
Impulse dummy equal to 1 if a militarized interstate dispute starts in the current year; source: Correlates of War project.

Winner militarized interstate dispute:
Impulse dummy equal to 1 if a country wins a militarized interstate dispute in the current year; source: Correlates of War project.

Within one year after leaving office—death:
Dummy equal to 1 if within one year after leaving office the former leader is killed; source: ARCHIGOS.

Within one year after leaving office—exile:
Dummy equal to 1 if within one year after leaving office the former leader is exiled; source: ARCHIGOS.
Within one year after leaving office—imprisonment:
Dummy equal to 1 if within one year after leaving office the former leader is imprisoned; source: ARCHIGOS.
Within one year after leaving office—no noteworthy event:
Dummy equal to 1 if within one year after leaving office no negative events happen to the former leader; source: ARCHIGOS.
Year:
Year of observation.
Years as leader:
Variable contains the number of years the current leader has been in office; source: ARCHIGOS.
Year with change in leader:
Impulse dummy equal to 1 if a country undergoes a change in leadership in the current year; source: ARCHIGOS.
Year of new constitution:
Variable taking on the year when the current constitution was adopted; source: Widner.