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## Correlates and determinants of direct democracy

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# Correlates and Determinants of Direct Democracy<sup>1</sup>

Lorenz Blume<sup>†</sup>, Bernd Hayo<sup>‡</sup> and Stefan Voigt<sup>\*</sup>

## *Abstract:*

This paper studies correlates and determinants of direct democracy institutions (DDIs), such as referendums and initiatives, based on the premise that constitutions themselves are endogenous. Our sample covers as many as 132 countries from 1950 to 2006. We find that the likelihood that a country includes DDIs in its constitution increases over time, particularly during the 1990s and 2000s. In our econometric analysis, we employ a two-tier approach, the first tier analyzing the time-invariant factors associated with the existence of DDIs, the second tier focusing on changes in time-variant factors. We discover that (i) new constitutions make the introduction of DDIs more likely; (ii) the degree of democratization is positively related to constitutions containing DDIs; (iii) an increase in the number of riots and assassinations raises the likelihood of constitutionally anchoring DDIs; (iv) if political leaders achieved power or were removed from office through irregular means, the introduction of DDIs is more likely; if they leave office due to health reasons, DDIs are less likely to be included in the constitution; and (v) religious fractionalization is negatively associated with the possibility of referendums.

*Key Words:* Direct Democracy, Referendums, Initiatives, Endogenous Constitutions.

*JEL classification:* D72, H11, P51.

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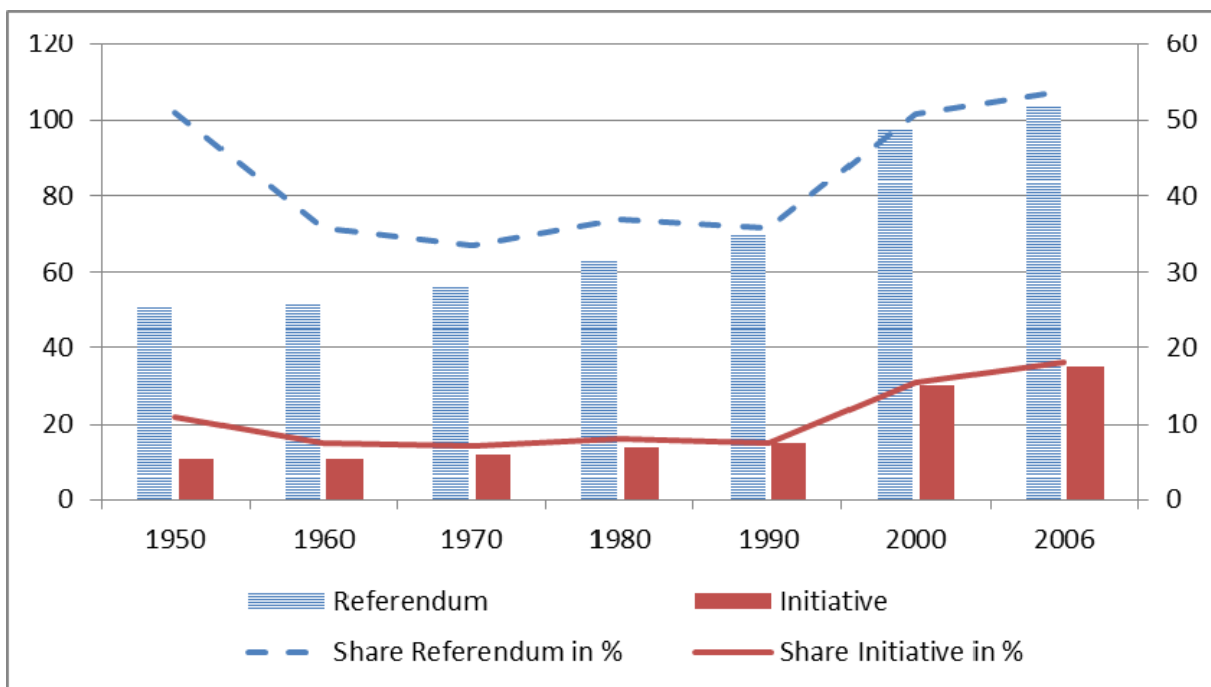
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## Correlates and Determinants of Direct Democracy

### 1 Introduction

Direct democracy (DD) allows citizens to directly influence political decisions via institutions such as referendums and initiatives. In the case of referendums, agenda-setting power remains with government; initiatives enable citizens to become agenda setters, even against the wishes of the government. Over the last half-century, an increasing number of countries passed or amended constitutions making direct democracy possible. Figure 1 shows that the two direct democracy instruments (DDIs) have become increasingly widespread across countries. From 1950 to 2006, the number of constitutions allowing referendums or initiatives increased more than twofold and threefold, respectively. In 2006, more than 100 countries constitutionally anchored the possibility of a referendum, whereas only 35 countries allowed initiatives. However, when controlling for the number of sovereign countries in the respective decades, we see a somewhat different picture. The founding of new countries in the 1960s led to a decline in the share of countries offering the possibility of referendums and/or initiatives. The share of countries allowing referendums and initiatives decreased from over 50% and 11% in the 1950s to 36% and 8% in the 1960s, respectively. These large shares from the 1950s were reached, and eventually surpassed, only in the 2000s.

Figure 1: Number and share of countries with constitutions that include the possibility of referendums or initiatives (1950–2006)



Source: Computations based on our own dataset.

Both within-country as well as cross-country evidence shows that DD can have substantial effects on fiscal variables, such as government spending and deficits, governance variables, such as corruption, and economic variables, such as total factor productivity. Blume et al. (2009), e.g., find that the existence of obligatory referendums is connected with significantly lower government spending whereas the sheer possibility of initiatives is connected with significantly higher government spending among a cross-section of 88 countries. They further find significant positive correlations between DDIs and government efficiency and significant negatives ones between DDIs and perceived corruption levels. Matsusaka's (2005) dictum that "direct democracy works" is borne out by both within country as well as cross-country studies.

In this paper, we are interested in identifying the determinants that lead legislators to adopt constitutionally anchored elements of direct democracy. We are not the first to address this question but the literature has, to date, not proven very useful in answering it. For example, when attempting to explain why some countries adopt the possibility to use the referendum and others do not, Bogdanor (1994, 87) approvingly quoted Arend Lijphart who admitted "defeat in the search for general propositions and theories." According to these scholars, institutional change appears to follow its own logic in each country and is influenced by idiosyncratic events not conducive to general theorizing. Ten years later, Matsusaka (2005, 197) came to a very similar conclusion: "we do not yet understand why certain states adopted the process and others did not."

Assuming that politicians are self-interested and that direct democracy instruments are one way of enabling citizens to better control their politicians makes it hard to understand why politicians would ever introduce DDIs. However, the introduction of DDIs can also be interpreted as a specific kind of franchise extension. Usually, the extension of the franchise is analyzed with regard to granting additional (socioeconomic) groups the right to vote. The introduction of DDIs is an extension of the franchise in the sense that it allows citizens not only to vote on representatives and thereby on predefined bundles of political issues but also on single issues. Here, we are interested in the conditions under which the political elite is willing to extend the franchise in this sense.

Our search for correlates and determinants of DDI introduction is part of a broader research agenda aimed at identifying important factors influencing constitutional change. Surprisingly, this issue has received little attention to date. Hayo and Voigt (2013) contains a survey of the few papers that explicitly deal with the question and empirically studies determinants of

constitutional change in the form of government. In our analysis, we use a worldwide panel dataset containing information on both the introduction and the removal of referendums and initiatives. Our sample contains as many as 132 countries from 1950 to 2006. In our empirical analysis, we take a two-tier approach to identify the factors that make the introduction of DDIs more likely. In the first tier, we focus on a number of “slow-moving” country characteristics as explanatory variables. In the second tier, we rely on lagged changes in the potential determinants of direct democracy to explain current changes in the implementation of DDIs.

We find that the inclusion of DDIs is significantly more likely in the 1990s and 2000s. Countries in Eastern Europe and the Soviet Union introduced the possibility of referendums after the fall of the Iron Curtain. If countries in Sub-Saharan Africa, the Middle East, and Southeast Asia introduce direct democracy institutions, they rely overwhelmingly on referendums - and not on initiatives. We find that new constitutions make the implementation of DDIs more likely. The degree of democratization is positively related to constitutions containing DDIs. Religious fractionalization is negatively associated with the constitutionally anchored possibility of referendums. While a stable political environment with little party competition and political conflict in general favors the implementation of DDIs, a sudden change in the direction of more instability, e.g. following a political crisis, can have the same effect. When we study the change in the number of riots and assassinations, we find such events to increase the likelihood of constitutionally anchoring DDIs. DDIs seem to arise in environments where either no stable and enduring political groups are competing for political influence or where political participation is becoming more restrictive for the population as a whole. Political leaders appear to play a role, too. If they achieved power or were removed from office through irregular means or killed one year after loss of office, subsequent constitutional reforms involving DDIs are more likely. If leaders leave office due to health reasons, DDIs are less likely to be included in the constitution in the aftermath. Finally, changes in socioeconomic variables do not seem to be related to changes in DDIs. However, the opportunity of holding referendums is more often found when the share of urban population is large.

The rest of the paper is organized as follows. In Section 2, we discuss several theoretical conjectures that could have an impact on the introduction of DDIs. Section 3 describes the world-wide spread of DDIs over the last 60 years. Sections 4 and 5 contain the empirical results of our first- and second-tier approaches, respectively. Thus, in Section 4, we present

the results relying on time-invariant factors, whereas Section 5 contains the estimates relying on changes in variables. Section 6 concludes.

## **2 Theoretical Considerations and Empirical Hypotheses**

In this section we introduce several theoretical conjectures as to the factors that could make the introduction of constitutionally entrenched DDIs more—or less—likely. Given the apparent difficulties in producing general theories, as noted in the introduction, our approach is more modest: we propose a number of separate conjectures to be used as building blocks for a more general theory. We define direct democracy as the right of citizens to directly decide on substantive political issues by popular vote and focus on referendums and initiatives as the means for achieving this. There are two basic types of referendum: optional and obligatory. Obligatory referendums are those that need to be had; in other words, government does not enjoy agenda-setting power. Under optional referendums, in turn, agenda-setting power remains with the government; initiatives allow the citizens to become agenda setters, that is, the citizens propose a piece of legislation that will be voted on if they are able to secure a certain quorum of votes in favor of the initiative. Since agenda-setting power can be crucially important, we explicitly distinguish between (optional) referendums and initiatives when deriving our hypotheses.

The main advantage of DDIs is that they allow voters to control their politicians on single policy issues, in other words, they mitigate the principal-agent problem between citizens and politicians (see, e.g., Matsusaka 2005). Moreover, DDIs can help break up welfare-reducing package deals, as citizens can unpack these deals and correct politicians' choices. From a public choice perspective, it is exactly these advantages that make it so difficult to understand why utility-maximizing politicians would ever consider introducing DDIs.

One way of interpreting DD is to view it as a specific form of delegation. Fiorina (1982) points out that delegation can be beneficial for politicians if it enables them to shift responsibility and avoid being blamed for unpopular outcomes. However, this explanation for the introduction of DDIs has at least two serious drawbacks. First, given that policy issues for which politicians would prefer not to take responsibility are endemic, it is difficult to see how this argument can explain variation in the degree of DDI between states without referring to differences between national political processes. Second, this argument is confined to referendums, as politicians remain agenda setters. In any case, the hypothesis does not directly lend itself to empirical testing.

Delegation has also been interpreted as a device that insures against later policy reversals.<sup>2</sup> If a political party fears losing an upcoming election, it might prefer to insure its preferred policy against later reversal by delegating the competence over that policy to an independent agency. This argument can be applied to DDIs if the likely winner of an election favors certain policies that are different from those favored by the current government and the majority of citizens. Further, there are many situations in which both a government and its population could be better off if the government were able to make credible commitments instead of simple promises. The extension of the franchise to the whole population is sometimes interpreted as one way the elite can transform promises regarding future policies into credible commitments (Acemoglu and Robinson 2000). Arguably, the introduction of DDIs implies an even more credible commitment in that it implies that politicians will never stray too far from the preferences of the median voter—at least with regard to those issues subject to an initiative. Again, it is not obvious how one can test these conjectures.

In this paper, we are only interested in the introduction of constitutionally safeguarded possibilities for the use of DDIs. Introduction of DDIs can be part of an entirely new constitution or can be brought about as a constitutional amendment to an already established constitution. At the constitution-making stage, the entire structure of the constitution is at stake, at least in principle. Once the relevant interest groups have agreed on a constitutional deal, any kind of constitutional change is likely to be opposed by at least one relevant interest group, hence our first hypothesis that we expect the constitutionalization of DDIs to be more likely in a new constitution rather than in a constitution that is amended later on.

Most of our hypotheses reflect a variety of factors relevant to a country's political system. We present them beginning with the most exogenous variables (such as the geographical location of a country), followed by factors with potential for determining important aspects of the political system (such as a country's degree of fractionalization), and then discuss factors related to the political system itself (e.g., the form of government). Of course, these distinctions are not always watertight. From there, we move on to current politics and a number of political leader characteristics. Our set of hypotheses is completed by analyzing the potential impact of economic variables.

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<sup>2</sup> This insurance function is put forward by Ramseyer (1994) and Ginsburg (2003) to explain the competences delegated to the judiciary.



### ***Exogenous Factors***

*Geographic Location.* A country's geographic location would seem an unlikely determinant of whether the country adopts DDIs. However, there could be similarities between countries that are located in the same region that are difficult to describe with other variables. Hence, we include regional dummies as a control and descriptive device that helps us understand the spread of DDIs across different parts of the world.

*Population.* All else equal, the larger the population of a country, the more heterogeneous we expect citizen preferences to be. *A priori*, it is unclear whether this implies a higher or lower probability of adopting DDIs. Scholars stressing the information-revealing function of DDI expect population heterogeneity to result in higher levels of DDIs (Matsusaka 2005). However, from the perspective that DDIs enhance deliberation (for a survey of many arguments relevant to this view, see Blume and Voigt 2014), large populations might be detrimental to efficient and useful discussions among the population. Robbed of their potential for deliberation, DDIs make little sense. Neither of these considerations, however, in any way addresses the problem of why politicians would even consider introducing DDIs. Nevertheless, we propose to control for population size in our empirical model.

### ***Factors Influencing a Country's Political System***

We begin this section with two different aspects of heterogeneity, namely fractionalization and urbanization.

*Fractionalization.* Easterly and Levine (1997) show that the quality of public good provision in Africa is heavily dependent on the degree to which societies are fractionalized in terms of ethnicity, language, and religion. Lijphardt (1984) proposes to distinguish between consensual and majoritarian democracies. Under consensual democracy, many groups participate in—and consent to—the policy-making process, whereas under majoritarian democracy, a bare majority has the authority to implement policies.<sup>3</sup> Majoritarian decision-making in highly fractionalized societies might make various groups feel threatened or dominated. Introducing DDIs in such an environment could lead to additional instability, loss of legitimacy for the

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<sup>3</sup> At first glance, DDIs do not seem compatible with consensual democracies, as they are a nearly pure majoritarian way of decision-making. However, consensual democracies are also associated with higher levels of societal discourse. Previous research (e.g., Blume and Voigt 2014) shows that the presence of DDIs is correlated with greater general interest in politics and hence that DDIs are conducive to societal discourse. Interpreted like this, consensual democracies seem quite compatible with DDIs.

current regime, and so on.<sup>4</sup> Hence, we expect countries with a high degree of fractionalization to display a lower probability of introducing DDIs. In our analysis, we consider proxies for ethnic, religious, and linguistic fractionalization.

*Urbanization.* Matsusaka and McCarty (2001) stress the information-revealing quality of DDIs and argue that these would be particularly helpful in highly urbanized societies and in societies having experienced significant change in their composition, e.g. due to immigration. Both characteristics are likely to be positively correlated with each other which is why we rely only on the degree of urbanization. Another argument points out that so-called postmodern milieus, which are characterized by strong preferences for deliberation (see, e.g., Blume and Sack 2008), are more commonly urban.

*Political System.* It is often argued that the presidential form of government implies a higher degree of separation of powers compared to the parliamentary form of government (e.g., Persson *et al.* 1997). A stronger separation of powers would enable politicians to make promises with greater credibility. DDIs themselves might also enable politicians to enhance their credibility and thus might function as a substitute for the additional degree of credibility associated with the presidential form of government. According to this view, DDIs complement the parliamentary form of government.

However, the idea that presidential systems imply a greater separation of powers has been challenged on empirical grounds: in many presidential systems in Latin America and Africa, the president commands much more power than most prime ministers in the world (Hayo and Voigt 2010; Robinson and Torvik 2013). Moreover, presidents often claim that they are the only ones who represent the people as a whole,<sup>5</sup> which could make them more likely to violate constitutional constraints. Additionally, political parties tend to be weaker in presidential than in parliamentary systems (Blume *et al.* 2009), and presidents tend not to take formal constitutional constraints too seriously: that is, weak parties will find it difficult to mount serious opposition to a misbehaving president. DDIs can be interpreted as an additional

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<sup>4</sup> This would seem to be the case in particular for optional referendums as they are only likely to be called by those groups who expect to secure the majority, i.e. dominate over others.

<sup>5</sup> For example, in 1964, President De Gaulle declared “that the indivisible authority of the State is entrusted completely to the president by the people who elected him, that there existed no other authority, either ministerial, civil, military or judiciary which has not been conferred and was not being maintained by him, and finally that it was his duty to adapt the supreme domain, which is his alone, to fit in with those, the control of which he delegates to others” (quoted in Duverger 1980).

constraint on presidents. However, since presidents are not likely to prefer such constraints, we hypothesize that DDIs are less often introduced in presidential systems.

*Political Participation.* In a study analyzing the spread of direct democracy in the United States, Smith and Fridkin (2008) hypothesize that three aspects of the political system could be highly relevant, namely (1) the degree of legislative competition, (2) the organizational strength of the political parties, and (3) the strength of minority or third parties, which would have good reasons for making the established institutions of representative democracy weaker. We test these conjectures in our cross-country setting by relying on three variables.

Our proxy for legislative competition is the indicator “democratic competition/participation,” which is the product of the votes cast for all parties except the largest one—this is the proxy for the competition aspect—multiplied by the percentage of the population that actually voted—this is the proxy for the participation aspect.

Participation rules are an important aspect of political systems and paint a general picture of how the interests of specific groups are transmitted to political decision-makers. It is not only Western-type democracies that have binding rules in this regard, they also occur, albeit in different form, in one-party states. Marshall and Jaggers (2002) distinguish five different forms of political participation: (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). DDIs may arise when there are no stable and enduring political groups competing for political influence, as they would allow for settling issues that cannot be agreed upon otherwise. The reverse hypothesis can be derived by arguing that the ruling elite in restrictive participation countries may institute only *de jure* political participation, with no intention of actually allowing it in practice.

Moreover, a political conflict index indicates the frequency with which political conflicts (such as anti-government demonstrations and general strikes, as well as assassinations) have taken place. Our conjecture is that in the case of frequent conflicts, governments try to enhance their legitimacy by introducing DDIs. Finally, we also check whether higher levels of democracy as measured by Marshall and Jaggers (2012) are associated with more encompassing DDIs in the constitution on the presumption that a “more complete”

representative democracy could induce people to create an even broader democracy that includes also direct democracy elements.<sup>6</sup> Given their nature as democratic instruments, we expect DDIs to be more prominent in highly democratic political systems.

### *Political Leaders*

The literature on constitutional political economy rarely analyzes the personal traits of political leaders as factors potentially affecting relevant outcomes.<sup>7</sup> In contrast, in law-related literature, judges' individual traits have been the subject of intense analysis for some time. Segal and Spaeth (2002) is one of the most important contributions to this line of research. Focusing on the endogeneity of constitutions, Hayo and Voigt (2013) include leader characteristics in their analysis and find that these are associated with changes in the form of government.

We conjecture that the way political leaders enter and leave office could have an effect on the likelihood of adopting DDIs. We believe two conflicting arguments to be relevant here: the political continuity hypothesis and the political shock hypothesis. The continuity hypothesis argues that continuous political leadership, allowing long-term-oriented policies, facilitates constitutional change. Hence, an unexpected shock, such as a leader's unexpected death or serious illness, may disrupt the process of constitutional change. In contrast, the shock hypothesis argues that a strong political shock may be exactly what is needed to bring about changes in the constitution. The conjecture connected with the political shock hypothesis is that the likelihood of constitutional change increases when leaders achieve power by irregular

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<sup>6</sup> Marshall and Jaggers (2012) compute the Polity Score by subtracting their score for Autocracy from their score for Democracy. None of the components in either original score deals with direct democratic institutions. There is, hence, no logically necessary correlation between Polity and direct democracy. We decided to include these variables in the group of time-invariant ones, as their values appear to be fairly stable over our sample period.

<sup>7</sup> 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. Besley and Reynal-Querol (2011) show that education reduces the likelihood that politicians will use power opportunistically, whereas Besley et al. (2011) show that education influences both economic growth and the probability of military conflict. Göhlmann and Vaubel (2007) analyze the impact of central bankers' professional background on inflation. Dreher et al. (2009) provide evidence suggesting that politicians' professional background has an impact on the likelihood of market-liberalizing reforms. Hayo and Neumeier (2012, 2014) study debt, as well as the composition of public expenditure, in the German *Laender* (states) using the socioeconomic status of prime ministers as their main variable of interest.

means. Alternatively, shocks affecting a dominant political leader, such as death or illness, might open up new opportunities for changing the constitution.

### ***Economic Effects***

It could be argued that DDIs are a superior good only likely to be introduced once a country has reached a high level of per capita income. Another hypothesis relying on the economic situation of a country focuses on changes in economic outcomes. If income falls or inflation rises, government might seek to enhance its legitimacy, possibly through the introduction of DDIs.

### ***Time***

Constitutional change frequently occurs in waves, for example, following independence in Latin America in the 19<sup>th</sup> century as well as in Africa around 1960, or after the fall of the Iron Curtain in Central and Eastern Europe post-1990.<sup>8</sup> Thus, we control for the time dependency of specific constitutional traits using decade dummies.

## **3 On the Spread of Direct Democratic Institutions**

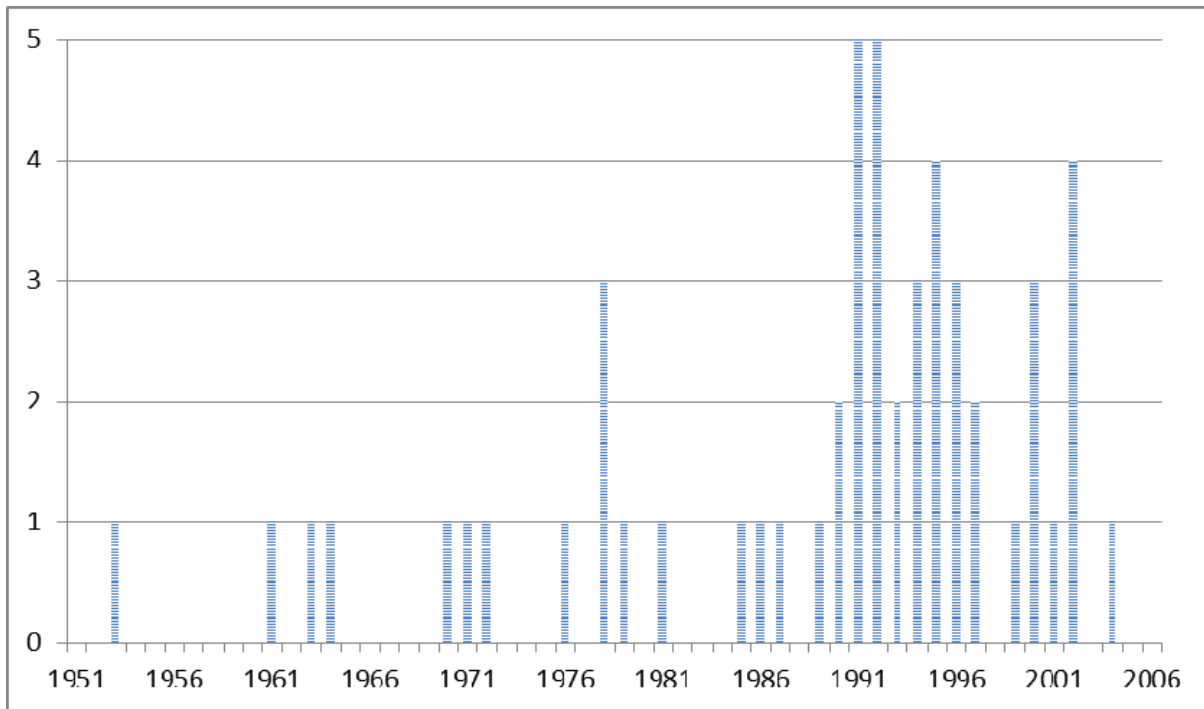
Our sample covers as many as 132 countries from 1950 to 2006, making it larger than other databases utilized in the extant literature. It builds on and extends the data collection by Elkins et al. (2009) and Blume et al. (2009). Appendix 1 contains a list of countries and the dates they first introduced DDIs. We commence our investigation by describing the spread of DDIs over that time period, explicitly distinguishing between referendums and initiatives. In 1950, 51 countries allowed for the possibility of a referendum in their constitutions. Within just 50 years, that number approximately doubled. Figure 2 shows, on a yearly basis, the number of countries the constitutions of which included the possibility of a referendum.

We find that constitutional change involving referendums occurs throughout our sample period. Before the 1990s, we observe 16 cases. A wave of countries included referendums in the early 1990s. This trend continued, albeit slightly less pronounced, through the 2000s. All in all, 53 countries have amended their constitution to include the possibility of a referendum.

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<sup>8</sup> Huntington (1991) writes about the “third wave” of democratization. As a follow-up of democratization processes, constitutions are usually rewritten, which leads to similar waves. Elster (1995, 368) explicitly mentions this phenomenon.

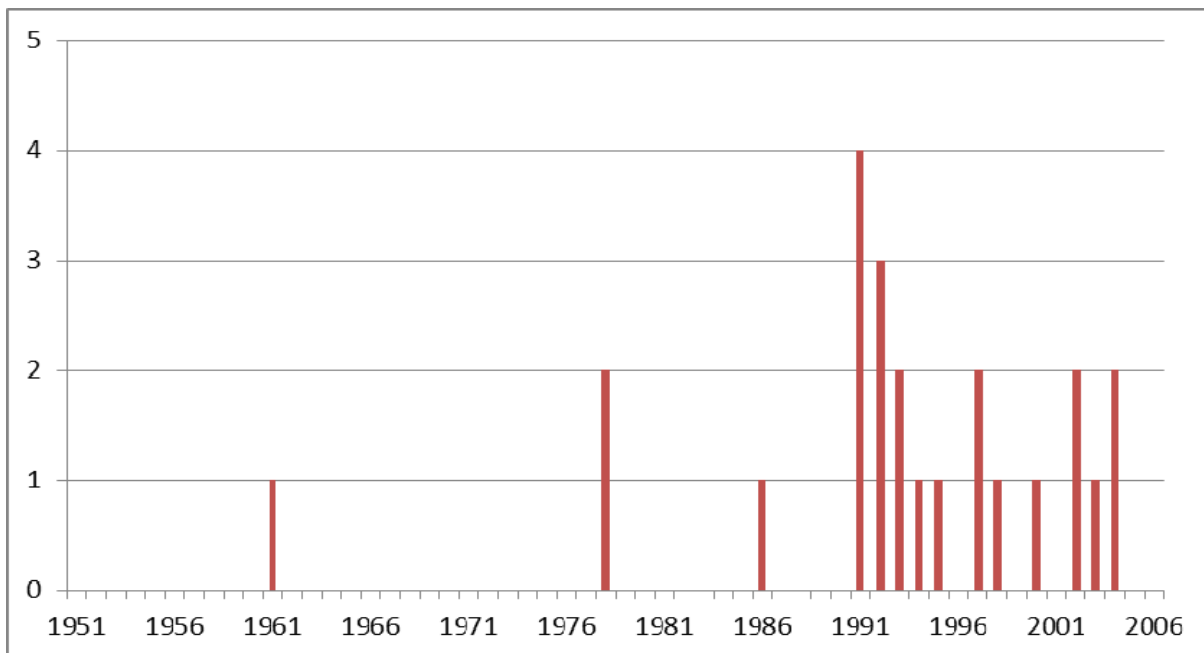
Figure 2: Number of countries introducing the possibility of a referendum in their constitution (1950–2006)



Source: Own computations.

When focusing on the introduction of initiatives in the constitution (see Figure 3), we discover a similar pattern, although at a much lower level.

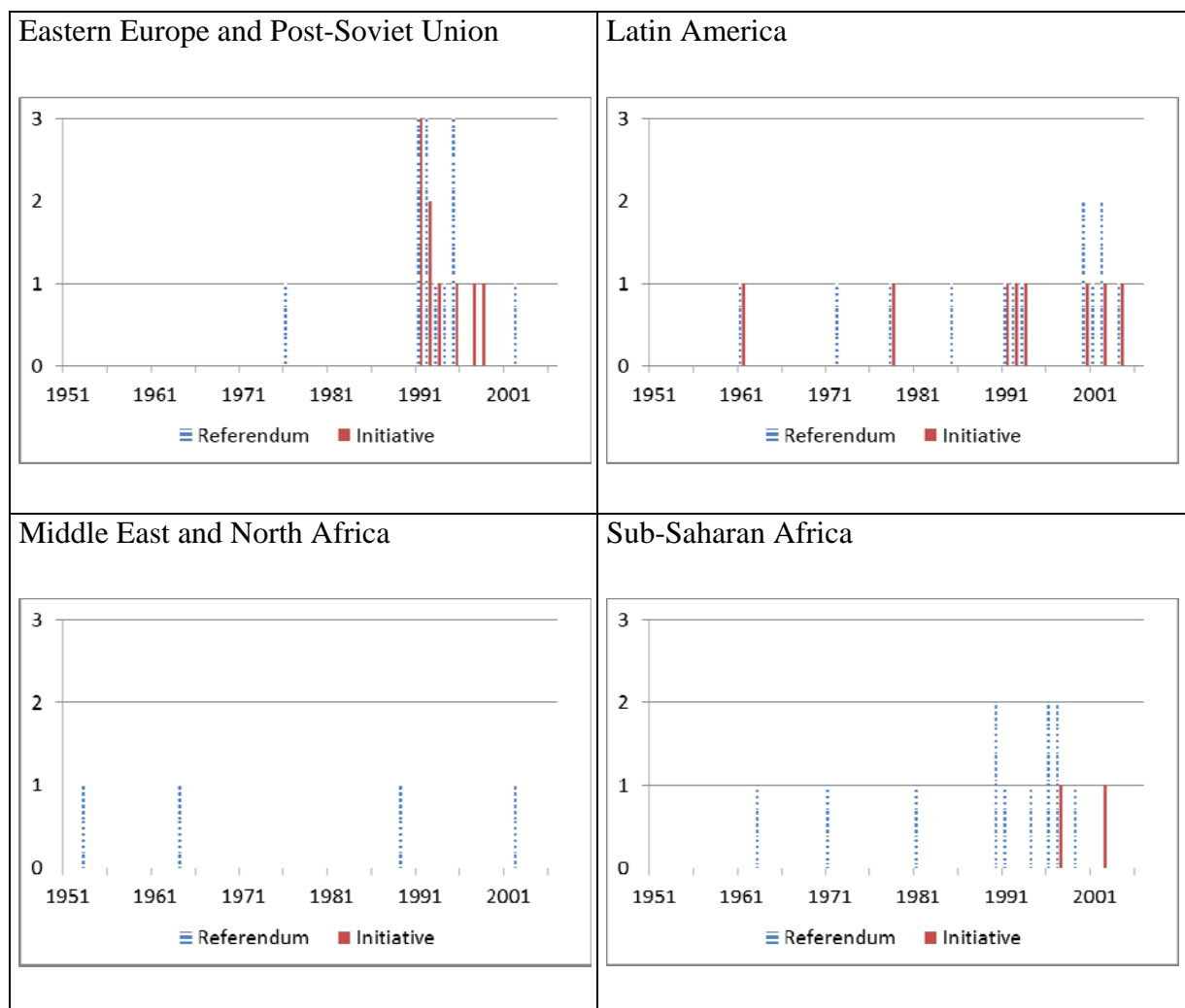
Figure 3: Number of countries introducing the possibility of an initiative in their constitution (1950–2006)



Source: Own computations.

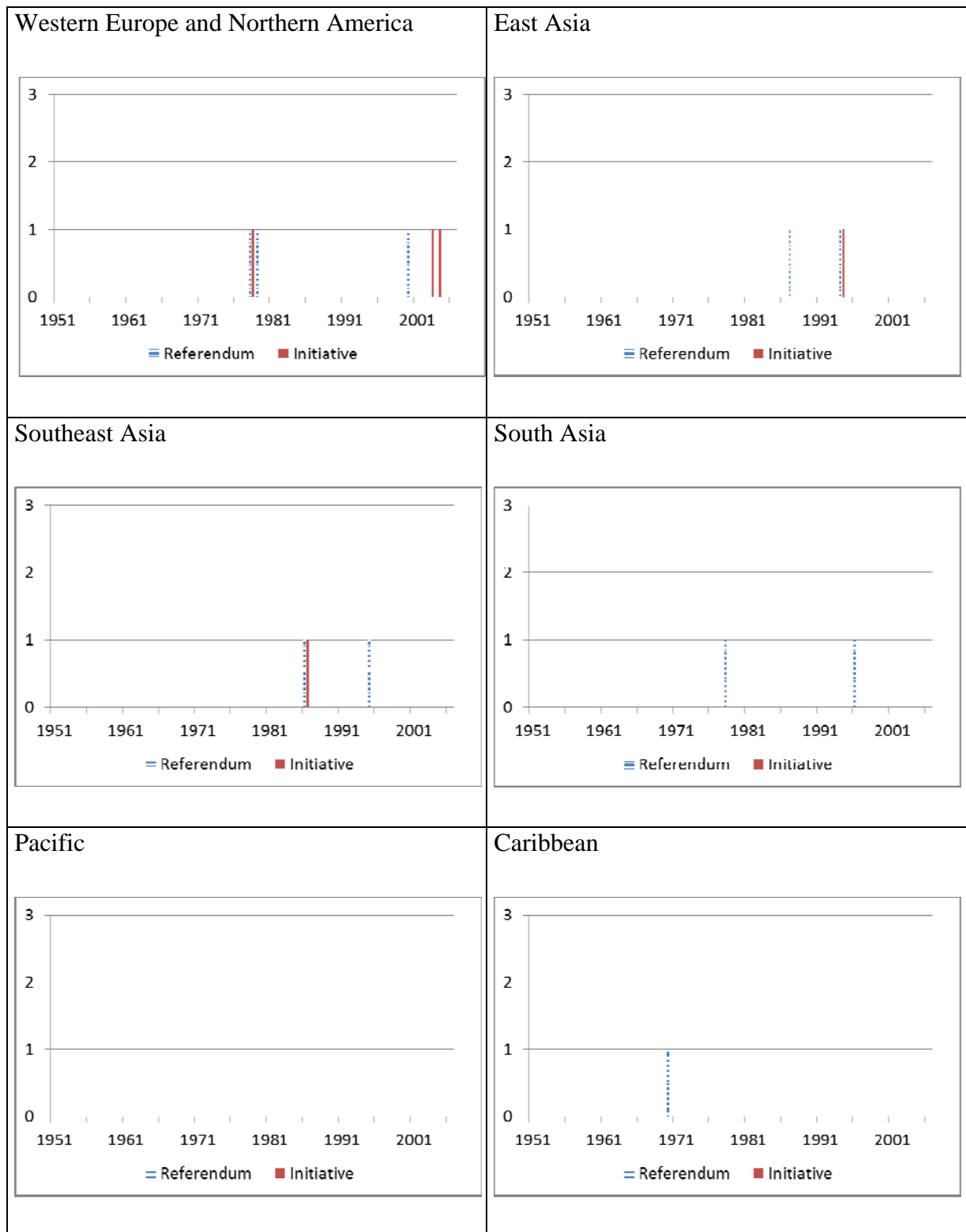
In 1950, only 11 countries had the possibility of public initiative included in their constitution. By the end of our period of investigation, this number had increased to 24, which is less than half the number of countries with referendums, but the growth rate of initiatives is almost double that of referendums. However, before the 1990s, only four countries had introduced initiatives in their constitutions. Thus, as a worldwide phenomenon, anchoring initiatives in the constitution is a recent development. Breaking down these numbers by geographical and cultural regions, we find notable differences. As Figure 4 shows, many countries in Eastern Europe and the post-Soviet Union region introduced a referendum after the fall of the Iron Curtain.<sup>9</sup>

Figure 4: Number of countries introducing referendum and/or initiative in their constitution across regions (1950–2006)



<sup>9</sup> This observation contravenes Bogdanor (1994, 88), who argues that referendums will not be prominent in societies that have just emerged from dictatorship because of a fear of their misuse in these societies.

Figure 4 continued



Source: Own computations.

Latin America exhibits a more even pattern, with a small peak in the 1990s and particularly in the 2000s. There are only four cases in the Middle East and Northern Africa (MENA) region, scattered throughout the decades. In Sub-Saharan Africa, we again discover a peak in the 1990s. There is little change in Western Europe and Northern America and only six cases

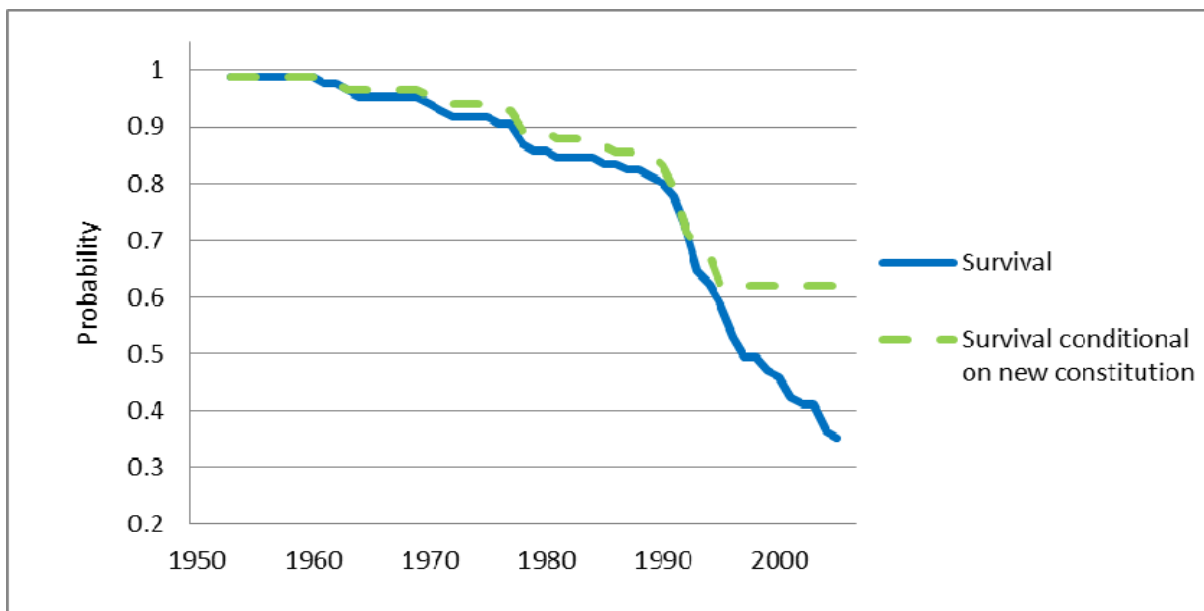


throughout the whole of Asia, most of which occurred in the 1980s and 1990s. No country adopted the possibility of a referendum in its constitution in the Pacific region and only one country in the Caribbean did so.

Analyzing the pattern of adoption of constitutionally guaranteed public initiatives (see Figure 4), we find again a surge in Eastern Europe and in the post-Soviet Union countries in the 1990s. We also discover a similar development in Latin America, which, however, shows two earlier cases and three cases in the 2000s. In Western Europe and North America, there are three cases, throughout Asia as well as in Sub-Saharan Africa there are two, and in MENA, the Caribbean, and Pacific region no change is found.

Next, we investigate when constitutions are likely to be amended. We estimate the probability that a country that did not have referendums or initiatives in 1950 will introduce these elements during the sample period. Distinguishing between the introduction of referendums and initiatives, Figure 5 shows the survival rates of constitutions that do not include the possibility of a referendum using the Kaplan-Meier nonparametric method.

Figure 5: Estimated survival probabilities for (i) constitutions not containing the possibility of a referendum and (ii) conditional on the implementation of a new constitution



Source: Own computations.

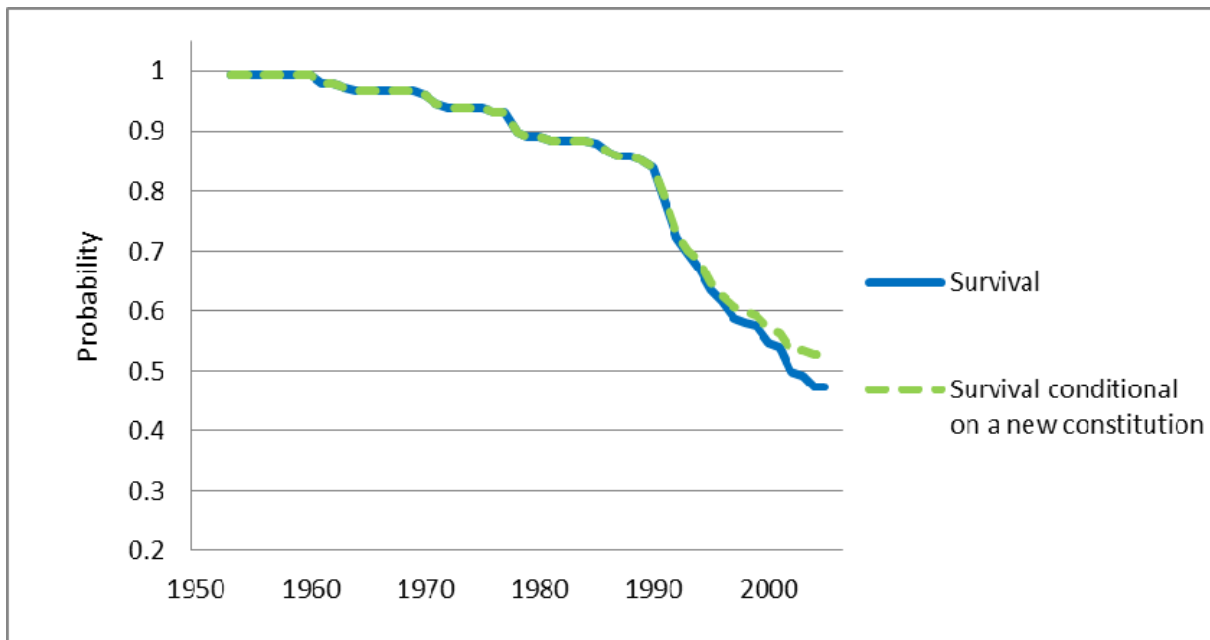
The survival probability falls in a fairly linear fashion until the late 1980s, when it begins to decrease at a much steeper rate until the end of the sample period. Before the end of the 1980s, the likelihood that a constitution is not changed is still about 80%. In the later time period, the likelihood that a constitution does not incorporate a referendum drops to around

35%.<sup>10</sup> Compared to other important aspects of the political system as laid out in the constitution, this survival rate is low. For instance, over the same period, a specific form of government, namely, either presidential or parliamentary, has a survival probability of 56% (Hayo and Voigt 2010).

Given the specific breakpoint (i.e., end of the 1980s), it seems likely that the increased tendency to include the possibility of a referendum in a constitution is linked to the fall of the Iron Curtain, an event that led to the adoption of new constitutions, particularly in a number of Eastern European and post-Soviet Union countries. To investigate this conjecture, we condition the survival probability on the introduction of a new constitution. As the dashed line in Figure 5 shows, the conditional likelihood of not changing the constitution is now more than 60%. This suggests that the dynamics of including referendums in constitutions is largely driven by new constitutions coming into force, particularly in the aftermath of the political transition of the former Soviet bloc.

Figure 6 shows the corresponding estimates for the survival of constitutions that do not contain the possibility of public initiatives.

Figure 6: Estimated survival probabilities for constitutions not containing initiative and conditional on the implementation of a new constitution



Source: Own computations.

<sup>10</sup> The upper and lower 95% confidence bands at the end of the sample period are at 45% and 25% survival probability, respectively.

We find that up to the end of the 1980s, the likelihood of including initiatives in the constitution is only 15%, which is even lower than in the case of referendums. Again, we find that this propensity increases during the 1990s and, consequently, the likelihood of no change falls below 50% at the end of the sample period. When conditioning on the introduction of a new constitution, the dashed line in Figure 6 is very close to the original survival function before 2000, which suggests that initiatives, in contrast to referendums, are not driven by countries adopting new constitutions. When conditioning on new constitutions, the likelihood of no change remains above 50% during the 2000s.

#### 4 Slow-Moving Correlates with DDIs<sup>11</sup>

We now move to describing those slow-moving factors that are correlated with the introduction of referendums or initiatives, both decade-wise as well as for the entire period. Appendix 2 contains a detailed description of the variables used in the regression analyses. Table 1 highlights those coefficients that are significant at the 10% level in probit regressions, where the dependent variables are dummies capturing the constitutionally entrenched possibility of referendums or initiatives (see Appendix 1). To economize on space, we report only the results of a testing-down process (omitted results available on request). All groups of excluded variables are insignificant when tested against the respective general model. Significant coefficients are interpreted as indicating a significantly higher (lower) probability of introducing DDIs to the constitution.<sup>12</sup>

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<sup>11</sup> Roland (2004) proposes to distinguish between slow-moving and fast-moving institutions to better understand possible frictions in transition processes, such as the ones that occurred in Central and Eastern Europe post 1990. We thus borrow this term from him.

<sup>12</sup> Note that Table 1 contains estimation results for all countries for which data were available in the period under consideration. This implies that the number of countries is not constant across time. It is therefore interesting to investigate whether estimation results depend on variations in the number of countries. We find that for the 1980s, the 1990s, and the 2000s, significance levels remain unchanged if the regressions are run on the basis of those 87 countries that are included in the 1970s sample. However, the large increase in the number of countries between the 1960s and the 1970s is connected with notable sample effects. If the regression for the 1960s is run with imputed values for 19 missing countries (simply taking their values from the 1970s), the influence of the level of democracy as well as that of the regional dummy for Eastern Europe on referendums is not robust. In the case of initiatives, linguistic fractionalization, party competition, Eastern Europe, and Sub-Saharan Africa are no longer significant.

Table 1: Characteristics of countries that implemented elements of direct democracy in their constitutions over five decades

Country Characteristics	1960s <sup>1</sup>		1970s <sup>1</sup>		1980s <sup>1</sup>		1990s <sup>1</sup>		2000s <sup>1</sup>		All Decades <sup>2</sup>	
	Ref	Ini	Ref	Ini	Ref	Ini	Ref	Ini	Ref	Ini	Ref	Ini <sup>3</sup>
Population (in 1,000s)				(-) ***					(-) ***	(-) **		
Urban Population (% living in urban regions)					(+) **						(+) ***	
Real GDP per Capita (international dollar)	(+) **	(+) **		(+) *				(-) *				
Ethnic Fractionalization (0–1, 1=high)								(+) **				
Religious Fractionalization (0–1, 1=high)	(-) ***		(-) *		(-) ***		(-) ***		(-) **		(-) ***	
Linguistic Fractionalization (0–1, 1=high)		(-) **	(-) *									
Degree of Democratization (-10–10, 10=high)	(-) *	(-) *						(+) *			(+) *	
Democracy/Participation (0–100, 100=high)	(+) **					(+) *	(+) **	(+) ***	(+) **	(+) *	(+) **	
Party Competition (0–100, 100=high)		(+) *	(-) *					(-) *	(-) *		(-) **	
Political Conflict Index (0–100, 100=high )		(-) *			(-) *		(-) **			(+) **	(-) ***	
Eastern Europe/Soviet Union (0/1, 1=part of that region)	(-) ***	(-) ***				(+) *			(+) ***		(+) ***	
South Asia (0/1, 1=part of that region)	(-) ***		(-) ***	(-) ***		(-) ***				(-) ***		n.a.
East Asia (0/1, 1=part of that region)	(+) ***			(-) ***	(+) *	(-) ***	(+) *	(-) ***	(+) ***	(-) ***		n.a.
Southeast Asia (0/1, 1=part of that region)	(+) *	(-) *		(-) ***		(-) ***						n.a.
North Africa/Middle East (0/1, 1=part of that region)		(-) ***		(-) ***		(-) ***		(-) ***		(-) ***		n.a.
Sub-Saharan Africa (0/1, 1=part of that region)	(+) ***	(-) ***	(+) **							(-) ***	(+) ***	n.a.
Latin America (0/1, 1=part of that region)					(-) **	(+) *					(-) **	n.a.
Number of countries with data available	66	66	87	87	97	97	100	100	109	109	121	121
Pseudo-R <sup>2</sup>	0.45	0.49	0.28	0.29	0.22	0.27	0.20	0.39	0.32	0.31		

(1) The columns show the signs (+,-) of the significant coefficients resulting from probit regressions with 0,1 dummy variables representing the existence of referendum rights (ref) or initiative rights (ini) in the countries' constitutions as dependent variables. (2) The last two columns of the table show the signs (+,-) of the significant coefficients of a seemingly unrelated probit regression analysis over all five decades (number of observations=437) with the same dependent variables. (3) The inclusion of regional dummies leads to a near singular matrix. \*\*\*, \*\*, and \* indicate that the estimated parameter is significantly different from zero at the 1%, 5%, or 10% level, respectively.

We do not have a clear theoretical prior regarding the effect of population size on the likelihood of including DDIs in the constitution. We find some evidence that more populous countries are less likely to introduce DDIs—particularly initiatives—in the 1970s and 2000s, but this association is not stable over time. We expect a positive coefficient between the degree of urbanization and DDIs, but find a significant coefficient for referendums only in the 1980s. However, the regression over the entire period identifies urban population as highly correlated with the possibility of referendums.

Testing the conjecture that DDIs might be a superior good, our results show that per capita income is positively correlated with the existence of DDIs both in the 1960s and the 1970s, but negatively in the 1990s. Over the entire period, the association is not significant. Our theoretical hypothesis is that DDIs are less likely to be found in fractionalized societies. Our empirical findings are more nuanced: only religious fractionalization is significantly associated with referendums in every decade as well as over the full time period. Assuming that politicians in highly fractionalized societies are afraid of the potentially divisive effects of DDIs, then our results indicate that the divisive potential of religious fractionalization is much more severe than that of linguistic and ethnic fractionalization.

Over the entire sample period, we find four political indicators to be significantly associated with the possibility of referendums. Interestingly, two of them (level of democracy and index of democratization) have a positive sign, whereas the other two (party competition and the political conflict index) have a negative one. Thus, DDIs tend to be found in highly democratic systems that are characterized by political stability and little competition.

The results for the regional dummies reinforce the insights from the time-series graphs above. Countries in Eastern Europe and the Soviet Union removed DDIs in the 1960s, partially reversed that decision in the 1980s, and markedly introduced the possibility of referendums in the 2000s. In other regions, we find a specific model of DDIs that relies exclusively on referendums. We call this the *plebiscitarian model* of direct democracy. It likely exists in Sub-Saharan Africa, the Middle East, and Southeast Asia. Finally, neither type of DDIs is found in Latin America.

## 5 Dynamic Change in DDIs

An important characteristic of constitutions is that they evolve relatively slowly, which implies that relevant empirical indicators are highly persistent. Persistence in the dependent variable makes it difficult to identify the impact of exogenous variables econometrically. To

facilitate identification, we employ a model specification of the variables in first differences. Thus, wherever it makes sense, we explain changes in DDIs by changes in the explanatory variables.

This approach has several advantages. First, we no longer have to cope with strong persistence in the dependent variable as well as in many explanatory variables. Second, we avoid potential problems with the conventional difference-in-difference method, namely, underestimated standard errors (Bertrand et al. 2004), as first-order differencing eliminates the first-order autocorrelation typically found in institutional variables. Third, we likely solve all potential issues related to nonstationarity of some variables, which tend to be ignored in many panel-data applications. A potential disadvantage is that all time-invariant explanatory variables are removed from the model. However, this is not overly important in practice, as in a regression in the level of variables we would have to include country dummies anyway and, in any case, we study time-invariant variables above.

To account for time lags of constitutional reform and further reduce the likelihood of an endogeneity bias, we lag most of the explanatory variables by one period. Thus, we study whether a change in a variable last year causes a change in the degree of direct democracy this year and interpret the outcome as quasi-causal. Finally, we apply Hendry's (1993) general-to-specific-modeling approach, which ensures that the reduced model is an efficiently estimated, but still congruent, representation of the data.

We construct the dependent variable by adding up the indicators of constitutional change with respect to referendum and initiative. The resulting variable, which measures the inclusion of elements of direct democracy, takes the value 1 if the constitution is amended to include either initiative or referendum and the value 2 if a change in both occurs. Given the non-metric scale of the dependent variable, we use ordered probit estimation.<sup>13</sup> The two main advantages of constructing the dependent variable in this way are that it provides a more comprehensive measure of direct democracy and includes a greater number of cases, which increases estimation precision. As shown in the descriptive section, constitutional change involving DDIs moves initiatives and referendums in the same direction and thus combining this information in one variable appears legitimate.

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<sup>13</sup> Note that all estimation results carry over to the application of ordered logit models.

The left part of Table 2 contains the results of ordered probit estimates employing time-varying explanatory variables, i.e., indicators for the political system, political conflicts, political leaders, and society and economy, as well as for time itself. As discussed in the theoretical section, we have testable hypotheses for some of these variables; others are included as controls.

Table 2: Explaining the introduction of elements of direct democracy (ordered logit model)

Variables	General Model		Reduced Model	
	Coefficients	Standard Errors	Coefficients	Standard Errors
<b>A) Political system indicators</b>				
Constitution-related indicators				
Year of new constitution	0.003	0.004		
New constitution	1.612***	0.213	1.569***	0.200
Degree of democracy (changes)				
Degree of democratization	-0.023	0.035		
Uncertainty about degree of democratization	0.0003	0.0003		
Democratic competition and participation	-0.007	0.011		
Types of political participation (changes)				
Unregulated	2.922***	0.486	3.055***	0.391
Restricted	1.017***	0.262	1.201***	0.260
Multiple identities	-0.116	0.275		
Sectarian	0.469***	0.182	0.434***	0.149
Regulated	-0.025	0.410		
Regime change				
Change in the form of government	-6.310***	1.557	-4.660***	0.434
<b>B) Political conflict indicators</b>				
Political unrest (changes)				
Assassinations	0.089**	0.045	0.087*	0.047
General strikes	-0.061	0.084		
Guerrilla warfare	-0.127	0.079		

Table 2 continued

Government crises	-0.104	0.092		
Purges	-0.100	0.130		
Riots	0.069***	0.021	0.066***	0.020
Revolutions	-0.045	0.071		
Anti-government demonstrations	0.008	0.023		
External war				
Involved in militarized interstate dispute	0.066	0.174		
<b>C) Political leader indicators</b>				
Leader's characteristics				
Age when becoming leader	0.009	0.008		
Female	0.153	0.370		
Years as leader	0.007	0.013		
Leader entering office				
Leader achieved power through regular means			Reference	
Leader achieved power through irregular means	0.460**	0.175	0.360**	0.182
Leader's loss of power				
Leader lost power through regular means			Reference	
Leader died of natural causes while in power	0.147	0.271		
Leader retired due to ill health	-0.820**	0.340	-0.971**	0.392
Leader lost power through				
Irregular means	0.981*	0.571	0.931*	0.521
Still in power	-0.294	0.275		
Within one year after leaving office				
No noteworthy event			Reference	
Exile	-0.098	0.321		
Imprisonment	-0.154	0.461		
Death	0.918*	0.480	1.038**	0.488



Table 2 continued

<b>D) Socioeconomic indicators</b>				
Demographic variables (rate of change)				
Population	-0.059	0.056		
Economic variables (rates of change)				
Real GDP per capita	-1.309	0.990		
Prices	0.001	0.002		
Openness	0.001	0.006		
Government share in GDP	0.834	0.664		
<b>E) Time periods</b>				
Year	0.013	0.031		
Period 1960s	4.645***	0.835	3.991***	0.406
Period 1970s	4.197***	0.993	3.716***	0.329
Period 1980s	4.409***	1.160	4.046***	0.297
Period 1990s	4.748***	1.415	4.467***	0.297
Period 2000s	5.043***	1.627	4.771***	0.344
Cut value 1	38.27		6.91	
Cut value 2	38.89		7.51	
(1) No. of observations	2521		2521	
(2) Log pseudo-likelihood	-120.90		-125.32	
(3) Pseudo-R <sup>2</sup>	0.29		0.27	
(4) Information criteria				
Akaike	330		287	
Baysian	586		392	
(5) Tests of joint significance				
All	Chi <sup>2</sup> (42) = 835***		Chi <sup>2</sup> (16) = 897***	
Without time variables	Chi <sup>2</sup> (36) = 491***		Chi <sup>2</sup> (11) = 462***	
Time variables	Chi <sup>2</sup> (6) = 60***		Chi <sup>2</sup> (5) = 258***	
(6) Testing-down restriction			Chi <sup>2</sup> (25) = 33.0	

*Notes:* All variables, except time periods and constitution-related indicators, enter the model lagged by one year. Standard errors are robust to heteroscedasticity. \*, \*\*, and \*\*\* indicate significance at a 10%, 5%, and 1% level, respectively.

In line (3) at the bottom of the table, we find that the pseudo- $R^2$  of the general model including all potentially relevant indicators is almost 30%. Moreover, line (5) shows that the variables are jointly significant at any reasonable level of significance. Although this is partially driven by the time indicators, which are significant at a 1% level, the joint test of explanatory variables other than the time variables is at least as significant. Thus, the model systematically explains variation in constitutional dynamics with respect to elements of direct democracy.

However, since individual coefficient tests show a number of insignificant variables, the model is not efficiently estimated. Line (6) in Table 2 reports that 25 variables can be excluded based on a p-value of 0.60 from the joint exclusion test. This reduction in variables is also strongly supported by Akaike and Bayesian information criteria, as can be seen in line (4), and the corresponding drop in pseudo- $R^2$  is modest. The estimates for the reduced model are given on the right-hand side of Table 2. Joint variable tests in line (5) indicate that all groups of variables in the reduced model are highly significant at any reasonable level of significance. In discussing the results, we focus on the reduced model.

To facilitate interpretation, Table 3 provides average marginal effects for the occurrence of constitutional amendments of direct democracy. A comparison of marginal effects shows that the factors explaining the simultaneous inclusion of both referendum and initiative are generally significant, but neither as large nor as precisely estimated as in the case of the other two categories.

Table 3: Average marginal effects of reduced model in Table 2<sup>14</sup>

	No Inclusion of Referendum or Initiative	Including Referendum <i>or</i> Initiative	Including Referendum <i>and</i> Initiative
<b>A) Political system indicators</b>			
New constitution	-0.034***	0.023***	0.011***
Types of political participation			
Unregulated	-0.067***	0.046***	0.021***
Restricted	-0.026***	0.020***	0.008***
Sectarian	-0.010***	0.007***	0.003**

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<sup>14</sup> Alternatively, we regressed initiatives and referendums separately. The results are available upon request.

Table 3 continued

Change in the form of government	0.102***	-0.080***	-0.032***
<b>B) Political conflict indicators</b>			
Assassinations	-0.002*	0.001*	0.001
Riots	-0.002***	0.001**	0.001***
<b>C) Political leader indicators</b>			
Leader entering office			
Leader achieved power through irregular means	-0.008*	0.005*	0.003
Leader's loss of power			
Leader retired due to ill health	0.021**	-0.015**	-0.007*
Leader lost power through			
Irregular means	-0.020*	0.014*	0.007
Within one year after leaving office			
Death	-0.023**	0.016**	0.007*
<b>E) Time periods</b>			
Period 1960s	-0.087***	0.059***	0.028***
Period 1970s	-0.081***	0.055***	0.026***
Period 1980s	-0.088***	0.060***	0.028***
Period 1990s	-0.098***	0.067***	0.031***
Period 2000s	-0.104***	0.071***	0.033***

*Notes:* Reported figures are averages of marginal effects estimated for all existing values of the explanatory variables. \*, \*\*, and \*\*\* indicate significance at a 10%, 5%, and 1% level, respectively.

With respect to *political system indicators*, we find that the likelihood of including elements of direct democracy in the constitution is slightly higher in the case of a new constitution. The probability of no change decreases by more than 3 percentage points (pp), whereas it increases in the case of including referendum or initiative by more than 2 pp and by more than 1 pp in the case of a simultaneous change.

Changes in political participation are a good indicator for the introduction of DDIs. We discover that three types of change increase the likelihood of anchoring DDIs in the constitution. The first of these is a change toward a more restrictive society (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). Second is a change toward a more sectarian society (where 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). The third type is a change toward a more unregulated society (where there are no enduring national political organizations and no effective regime controls on political activity; in such situations political competition is fluid and often characterized by recurring coercion among shifting coalitions of partisan groups). The marginal effects of these variables are not particularly high. The likelihood that no change occurs decreases for more unregulated, restricted, and sectarian societies by about 6 pp, 3 pp, and 1 pp, respectively. On the other end of the spectrum, the probabilities that either referendum or initiative is included are about 5 pp, 2 pp, and 1 pp, respectively, and the probabilities that both elements are included are roughly 2 pp, 1 pp, and 0.5 pp.

These results suggest that constitutionally anchored direct democracy seems to occur in an environment where there are either no stable and enduring political groups competing for political influence or where political participation is becoming more restrictive for the population as a whole. This finding leaves room for two contrasting interpretations, the more benign one being that societies attempt to use elements of direct democracy to break out of such a situation by broadening and structuring political participation. The less benign interpretation is that political leaders of societies characterized by restrictive, exclusive, or unstructured political participation extend the constitution to satisfy popular demand, but solely as a *de jure*, not a *de facto*, change.

One of our hypotheses is that constitutional reform can only occur under a government able to garner sufficient political support (the political continuity hypothesis). A change in the form of government can be interpreted as the opposite of political stability and, in line with our conjecture, decreases the likelihood of implementing individual elements of direct democracy by 7 pp and of implementing both elements by 3 pp. The likelihood of no change increases by 10 pp. Thus, constitutional change in one area of the political system, here the form of government, can hamper institutional change in other areas, here elements of direct democracy.

*Political conflict* appears to affect the likelihood of including elements of direct democracy in the constitution. We find that an increase in the number of riots in the previous period makes constitutional amendment to include elements of direct democracy more likely. The demand for constitutional reform is to some extent driven by mass attitudes. Violent protests in the form of riots may provide a clear political signal that the population demands deep reform, including adjustment of the constitution, which supports our theoretical conjecture. Combining these results with our findings in Table 1 suggests that political instability in general does not seem to foster the introduction of DDIs. However, as seen in the panel-data analysis, an increase in specific forms of social unrest improves the likelihood of including DDIs.

The marginal effects of the conflict variables are quite small, though. The likelihood of no change decreases by 0.2 pp, whereas the likelihood of introducing one or both elements of direct democracy increases by 0.1 pp and 0.1 pp, respectively.<sup>15</sup> The absolute impact is modest, too: an increase of one standard deviation in the number of riots decreases the probability that the constitution will not be amended and increases the probability that either referendum or initiative will be included in the constitution by 0.2 pp. Changes in the number of assassinations, which are less significant, can be interpreted likewise and have similar relative and absolute effects. Arguably, assassinations pressure the government to move toward reform by taking human lives, but do not threaten the collapse of public order and legal political action typical of a civil war.

*Political leader characteristics* do not matter for the inclusion of direct democracy in the constitution. What do appear to be important, however, are the circumstances under which leaders enter and leave office. The inclusion of direct democracy can be affected either by irregular political change or continuous political leadership. Thus, we discover evidence supporting both the political continuity hypothesis as well as the political shock hypothesis. Leaders who achieve power through irregular means are more likely to favor constitutional reforms. A similar effect can be observed for leaders removed from office through irregular means or who were killed relatively quickly after stepping-down from office. Most of these effects are relatively small. The likelihood of no change decreases by about 1 pp and 2 pp in the case of irregularities in the process of entering and leaving office, respectively. The probability of including either referendum or initiative increases correspondingly by 0.5 pp

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<sup>15</sup> The effect on including Referendum and Initiative is not significant in the case of assassinations.

and 1.5 pp, whereas the marginal impact on a simultaneous inclusion is insignificant. If the former leader is killed shortly after leaving office, the probability of amending the constitution to encompass elements of direct democracy increases by 1.5 pp and 1 pp, respectively, whereas the likelihood of no change drops by 2.5 pp.

In terms of continuous political leadership, we find that constitutional inclusion of DDIs is less likely if leaders step down due to health reasons. Such an event appears to interrupt the political process leading to constitutional change and increase the likelihood of no change by 2 pp. The probability that either one or both elements of direct democracy are integrated into the constitution drops by 1.5 pp and 1 pp, respectively.

With respect to the *time perspective* of anchoring direct democracy in the constitution, we find that compared to the 1950s, in each later decade there is a 6 to 7 pp higher probability that either referendum or initiative are included in a constitution. The likelihood that they are both included is about 3 pp higher. The likelihood of no inclusion of a DDI falls by 9 to 10 pp. Note that the marginal effects are significantly greater in 1990 and 2000 compared to the previous decades, which reflects our findings from the descriptive analysis.

Finally, it is noteworthy that none of the economic and demographic variables play a role. This result is consistent with findings by Hayo and Voigt (2013) on factors influencing a change in the form of government.

## 6 Conclusions

Since WWII, an increasing number of constitutions contain DDIs. More than 100 countries allow for the possibility of a referendum; 35 countries offer the possibility of an initiative. From a public choice perspective, it is difficult to understand why politicians favor DDIs at all, as they negatively affect the politician's decision-making power. *Ex ante*, it is unclear who is able to mobilize citizen-voters for what sort of issues under what conditions. Clearly, in such a situation, common theories, such as the median voter model, break down.

However, since there are no compelling alternative theories, we rely on a piecemeal approach based on building from various theoretical conjectures to obtain empirically testable hypotheses. Employing a large panel dataset from 1950–2006 and covering more than 100 countries, we use two specifications to study covariates and determinants of the probability of including DDIs in the constitution. First, we concentrate on time-invariant factors and their explanatory power with respect to existing DDIs. Second, we use a panel-data model in first

differences to study whether a change in a variable last year has a significant impact on the probability of introducing DDIs this year.

Our results can be summarized as follows. In terms of time, the inclusion of DDIs is significantly more likely in the 1990s and 2000s than in other decades. In terms of regions, countries in Eastern Europe and the Soviet Union notably introduced the possibility of referendums after the fall of the Iron Curtain. In Sub-Saharan Africa, the Middle East, and Southeast Asia, we find a specific model of DDIs that relies exclusively on referendums, which we call the plebiscitarian model of direct democracy. New constitutions make the implementation of DDIs more likely.

The level of democracy and the index of democratization are positively associated with constitutions containing DDIs, whereas party competition and the political conflict index are negatively associated. These effects are in accordance with our theoretical conjectures. Thus, DDIs tend to be found in highly democratic systems that are characterized by political stability and little competition. However, when we look at the variables triggering changes in constitutions, we discover that specific forms of social unrest—an increase in the number of riots and assassinations—improve the likelihood of constitutionally anchoring DDIs. Moreover, DDIs appear to occur in environments where there are either no stable and enduring political groups competing for political influence or where political participation is becoming more restrictive for the population as a whole.

Regarding the role of political leaders, we find evidence supporting both the political continuity hypothesis as well as the political shock hypothesis. Constitutional reform is more likely when leaders achieve power through irregular means, in the aftermath of leaders being removed from office through irregular means as well as when former leaders were killed within one year after leaving office. In terms of continuous political leadership, DDIs are less likely included in the constitution if leaders have had to step down due to health reasons.

We do not find changes in socioeconomic variables to be related to changes in DDIs. However, urban population appears to be positively correlated with the opportunity of holding referendums. Our empirical findings suggest that religious fractionalization is significantly associated with the constitutionally anchored possibility of referendums.

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## Appendix 1

List of countries and first year of DDIs (ref=referendum, ini=initiative) implemented in the country's constitution (1950 = 1950 and earlier)

Country	Ref	Ini	Country	Ref	Ini	Country	Ref	Ini
Albania	1976	1998	Gambia	1950	-	New Zealand	1950	1950
Algeria	1950	-	Georgia	1995	-	Nicaragua	2000	2000
Angola	1950	-	Germany	-	-	Niger	1950	-
Argentina	1950	1950	Ghana	1996	-	Nigeria	1963	-
Armenia	1995	-	Greece	1979	-	Norway	-	-
Australia	1950	-	Guatemala	1985	-	Pakistan	1950	-
Austria	1950	2004	Guinea	1950	-	Panama	1972	-
Azerbaijan	1995	1995	Guinea-Bissau	-	-	Paraguay	1992	1992
Bangladesh	1996	-	Guyana	1970	-	Peru	1994	1994
Belarus	1950	1950	Haiti	-	-	Philippines	1986	1986
Belgium	-	-	Honduras	-	-	Poland	1992	1997
Benin	1990	-	Hungary	1950	1950	Portugal	1950	1950
Bolivia	2002	2002	Iceland	1950	-	Romania	1991	1991
Botswana	1950	-	India	-	-	Russian Fed.	1950	-
Brazil	2004	2004	Indonesia	-	-	Rwanda	1991	-
Bulgaria	1950	-	Iran	1989	-	Senegal	1950	-
Burkina Faso	1997	1997	Ireland	1950	-	Sierra Leone	1971	-
Burundi	1981	-	Israel	-	-	Singapore	1995	-
Cambodia	-	-	Italy	1950	1950	Slovakia	1992	1992
Cameroon	1950	-	Jamaica	-	-	Slovenia	1991	1991
Canada	-	-	Japan	1950	-	South Africa	1997	-
Cent. Afr. Rep.	1950	-	Jordan	-	-	Spain	1978	1978
Chad	1950	-	Kazakhstan	1950	-	Sri Lanka	1978	-
Chile	2001	-	Kenya	-	-	Swaziland	1950	-
China	-	-	Korea, South	1987	-	Sweden	1950	-
Colombia	1991	1991	Kyrgyzstan	1993	1993	Switzerland	1950	1950
Congo	1950	-	Latvia	1991	1991	Syria	1953	-
Rep. Congo	1950	-	Lebanon	-	-	Taiwan	1994	1994
Costa Rica	2002	-	Lesotho	-	-	Tajikistan	1994	-
Cote d'Ivoire	1950	-	Lithuania	1992	1992	Tanzania	-	-
Croatia	1950	-	Luxembourg	1950	-	Thailand	1950	-
Cuba	1950	-	Macedonia	1950	1950	Togo	1950	2002
Cyprus	-	-	Madagascar	1950	-	Trinidad&Tob.	-	-
Czech Republic	2002	-	Malawi	1999	-	Tunisia	1950	-
Denmark	1950	-	Malaysia	-	-	Turkey	2002	-
Dominica	-	-	Mali	1950	-	Uganda	1950	1950
Ecuador	1978	1978	Mauritania	1950	-	Ukraine	1950	-
Egypt	1964	-	Mauritius	-	-	United King.	-	-
El Salvador	2000	-	Mexico	-	-	United States	-	-
Estonia	1992	-	Moldova	1950	1950	Uruguay	1950	1950
Ethiopia	1994	-	Morocco	1950	-	Uzbekistan	1950	-
Fiji	-	-	Mozambique	1990	-	Venezuela	1961	1961
Finland	1950	-	Namibia	1950	-	Zambia	1996	-
France	2000	2003	Nepal	-	-	Zimbabwe	-	-
Gabon	1950	-	Netherlands	-	-			

Source: Elkins *et al.* (2009) and Blume *et al.* (2009).

## Appendix 2

### List of variables

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 the form of government: Captures form of government changes either from presidential to parliamentary or vice versa; 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).
Electoral system type: * Variable indicating the type of electoral system used (majoritarian vs. proportional), source: Golder (2005).
Ethnic fractionalization: Reflects probability that two randomly selected people from a given country will not belong to the same ethno-linguistic group; source: Alesina et al. (2003).
Female: Dummy equal to 1 if current leader is female; source: ARCHIGOS.
Fraction of population speaking English: * Values range from 0–1, corresponding to the fraction of the population speaking English as a first language; source: Hall and Jones (2009).
Fraction of population speaking a European language: * Values range from 0–1, corresponding to the fraction of the population speaking one of the major languages of Western Europe as a first language: English, French, German, Portuguese, or Spanish; source: Hall and Jones (2009).
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 <i>et al.</i> (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).
Income inequality: * Measures the Gini Index of income inequality; source: World Income Inequality Database.
Inflation rate: Rate of change of GDP deflator in PPP units; source: Heston <i>et al.</i> (2006), own computations.
Latitude: * The absolute value of the latitude of the capital city, divided by 90 (to take values between 0 and 1); source: La Porta <i>et al.</i> (1999).

Leader died of natural causes while in power: Dummy equal to 1 if a leader died while in office; 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 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 achieved power through regular means: Dummy equal to 1 if a leader took office through regular means; source: ARCHIGOS.
Leader achieved 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.
Linguistic fractionalization: Reflects probability that two randomly selected people from a given country will not belong to the same linguistic group; source: Alesina <i>et al.</i> (2003).
New constitution: Impulse dummy equal to 1 if a new constitution comes into existence in the current year; source: Widner.
Nongovernmental organizations:* The number of international nongovernmental organizations active in a country divided by the country's population; source: Paxton (2002).
Openness: Exports plus imports divided by GDP in %; source: Heston <i>et al.</i> (2006).
Party competition: The competition variable portrays the electoral success of smaller parties, that is, the percentage of votes gained by the smaller parties in parliamentary and/or presidential elections. The variable theoretically ranges from 0 (only one party received 100% of votes) to 100 (each voter cast a vote for a distinct party); source: Vanhanen (2000, 2005).
Political conflict index: Weighted Conflict Index, calculated as [(the number of assassinations*24) + (general strikes*43) + (guerrilla warfare*46) + (government crises*48) + (purges*86) + (riots*102) + (revolutions*148) + (anti-government demonstrations*200)]/9; source: Banks (2004).
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).
Political participation—unregulated: Political participation is fluid; there are no enduring national political organizations and no systematic regime controls on political activity. Political groupings tend to form around particular leaders, regional interests, religious/ethnic/clan groups, but the number and importance of such groups in national political life varies substantially over time; source: Marshall and Jaggers (2002).

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Population:
Population of a country; source: World Bank World Development Indicators and United Nations Development Centre sources prior to 1960.
Purges:
Number of systematic eliminations of political opposition in a specific year; source: Banks (2004, variable S17F5).
Real GDP per capita:
Real gross domestic product per capita; source: Heston <i>et al.</i> (2006).
Real GDP growth rate:
Growth rate of real gross domestic product per capita in U.S. dollars converted using PPP in %; source: Heston <i>et al.</i> (2006), own computations.
Religious fractionalization:
Reflects probability that two randomly selected people from a given country will not belong to the same religious group; source: Alesina <i>et al.</i> (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).
Settler mortality:*
Log of the mortality rate faced by European settlers at the time of colonization; source: Acemoglu <i>et al.</i> (2001).
Uncertainty in the degree of democratization:
The conditional variance of the combined Polity Score estimated in the framework of a GARCH(1,1) model; source: Marshall and Jaggers (2002), own computations.
Urban population:
Urban population as a percentage of total population in 1950; source: Vanhanen (2000, 2005).
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:
Number of years the current leader has been in office; source: ARCHIGOS.
Year of new constitution:
Year when the current constitution was adopted; source: Widner.

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Notes: \* indicates additional control variables in the time-invariant regressions. These are insignificant and not shown in Table 1 so as to economize on space.