How Do Political Institutions Work?

Veto Players, Intertemporal Interactions, and Policy Adaptability

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Abstract

This paper presents an approach to study the effects of political institutions on policies, which puts emphasis on the intertemporal nature of policymaking. We argue that viewing political institutions from the perspective of their effects on intertemporal interactions and intertemporal cooperation can lead to predictions different from those emerging from views that do not emphasize such dimensions.

We illustrate this point by contrasting predictions from an intertemporal perspective with predictions from veto player approaches, and we provide evidence supporting our argument. In particular, increasing the number of veto players does not necessarily make a polity less able to change policies.

1. Introduction

> " Institutions may be seen as architecture and as rules that determine opportunities and incentives for behavior, inclusion and exclusion of potential players, and structuring the relative ease or difficulty of inducing change, and the mechanisms through which change may be facilitated or denied."
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> Rhodes, Binder and Rockman (2006, p. xiii).
> Introduction to the *Oxford Handbook of Political Institutions*

For the last several decades there has been a great surge of interest in institutional design in new democracies, as well as in institutional reform more broadly. Improved institutions are supposed to help achieve a number of lofty objectives, which could be summarized in the (now a bit trodden) expression "better governance". This applied concern echoes and is echoed in academia, where the study of institutions is a central concerns in the social sciences. Assessing the effects of political institutions, an intellectual endeavor at the core of political science, is one crucial component of the recent revival of the study of institutions in various disciplines.

As the opening caption above highlights, political institutions determine inclusion and exclusion of players and structure the relative ease or difficulty of policy change. The best known line of work in modern political science relating the rules of inclusion and exclusion of political actors to the relative difficulty of policy change is the veto players' theory of George Tsebelis and others. One of the main implications of that theory is that having more veto players necessarily makes a polity less able to change its policies. We argue in this paper that having more veto players <u>does not necessarily</u> make a polity less able to adjust its policies, once an intertemporal perspective is added to the analysis.

That institutions allocate decision power over time is an important fact that has long been recognized, and that has been a staple in explanations of *institutional origin*. In various lines of work, institutions are either collectively chosen or imposed by the powerful, allocating intertemporal decision making power in order to achieve either efficiency or distributive objectives. See for instance Williamson (1991) and Baker, Gibbons and Murphy (2002) on alternative modes of economic organization, North and Weingast (1989) on Parliament, Weingast and Marshall (1988) on institutions within the U.S. Congress, Acemoglu and Robinson (2006) on the democratic franchise, Boix (1999) on electoral systems, and Buchanan and Tullock (1962) on constitutions. Some

of those lines of work emphasize the role of institutions in facilitating intertemporal transactions and in enforcing intertemporal cooperation.[1]

Research on the *effects of institutions* has given less emphasis to the intertemporal dimensions of political and policy exchanges, and has focused mainly on interactions that take place at one point in time. – see for instance the excellent textbook treatments in and Mueller (2003) and Persson and Tabellini (2000).[2] Even though the models sometimes are dynamic in the sense of having a sequence of moves in extensive form, they do not, in general, consider intertemporal transactions in the spirit of "I am willing to give you this today in exchange for that tomorrow". There are some exceptions in the treatment of behavior within legislatures, especially in American Politics, where there are some repeated game versions of legislative bargaining models, for instance Fox (2006), Carrubba and Volden (2000), and Calvert and Fox (2003). But, to our knowledge, there is almost no formal work of that sort in the field of comparative politics.[3]

This paper is part of an agenda in which we study the effects of political institutions on intertemporal cooperation and, hence, on the resulting policies. Most existing formal literature has mapped political institutions (such as electoral rules, and forms of government) into parameters of the description of what are essentially one-shot games. We suggest modeling policymaking as a repeated game, and hence mapping political institutions into parameters of repeated games.[4]

As we show in this paper in one important specific context, viewing political institutions from the perspective of their effects on intertemporal interactions can lead to predictions different from those emerging from (predominant) models that do not emphasize temporal dimensions. We illustrate this point by contrasting predictions

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[1] For a complementary line of work seeing institutions as *equilibria* of repeated games, see Calvert (1995a, 1995b), Aoki (2001) and Greif (2006), and references there. As it will be seen below, the spirit of our framework is quite close to that line of work. A similar logic has been utilized (for instance by Przeworski, 2005) to study democracy as the equilibrium outcome of intertemporal cooperation.

[2] Part IV of the Persson and Tabellini text is devoted to "dynamic politics", but most of the dynamics there is through *economic* state variables, and not focused on the comparative analysis of the effects of political institutions, a topic covered in Part III in the context of static models. The contrast between the dynamic analysis of institutional origin and the static analysis of institutional effects is evident in Weingast's 2002 survey article on Rational Choice Institutionalism for the Centennial Edition of the APSA's *State of the Discipline* (Katznelson and Milner, 2002).

[3] There are, at a more discursive level, some insightful discussions of problems of intertemporal cooperation and their relation to some political institutions, such as party system institutionalization and Executive-Legislative relations – see Mainwaring and Torcal (2005) and Shugart (2006) for recent accounts and references.

from an intertemporal framework with predictions from veto player approaches. Veto player approaches have rightly gained great prominence in comparative politics. One important prediction of that logic is that in systems with more *veto players*, actors whose approval is necessary for policy to change, policy change is less likely. Our framework, by contrast, emphasizes the ability of political actors to cooperate intertemporally. If participants in policymaking can cooperate and uphold agreements over time, better public policies are likely to emerge. In more cooperative systems, consensus on policy orientation is more likely to emerge, successive administrations are more likely to build upon the achievements of their predecessors, and policy adjustment to new circumstances might be facilitated. When studying the effect of political institutions (for instance, the number of veto players) on policy, one also needs to ask the question of whether requiring the consensus of more people at each moment in time will make intertemporal cooperation easier or harder. We show that, under some conditions, increasing the number of veto players might facilitate intertemporal cooperation and hence, policy adjustment. We provide some evidence supporting this argument.

2. Veto Players' Theory

Veto player approaches and veto player theory have achieved great prominence in the field of comparative politics. In a work that has been characterized as a *tour de force* of modern political science theory,[5] George Tsebelis (1995, 1999, 2000, and 2002) elaborated a very useful approach to the study of comparative politics and policymaking. A review article states:

> "Veto point and veto player approaches have come to occupy a central place in comparative politics, especially in the fields of comparative public policy and political economy. Virtually every policy area has been studied within at least one of the various approaches, and the relevant literature grows at a fast pace. The most elaborate and prominent approach, George Tsebelis' veto player theory, moves well beyond the explanation of particular policy outputs on economic outcomes and tries to provide a unified theoretical perspective on political institutions in a wide variety of political

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[4] In section 3 we refer to some relevant political economy work utilizing repeated game formulations. But, to our knowledge, none of that work has explicitly asked the comparative questions about political institutions that the veto player approach and the agenda suggested here attempt to answer.
[5] Franzese (2005).

systems. Tsebelis' theory systematically relates veto players to the potential for policy change in a political system." (Ganghoff, 2003: 1).

Veto player logic has been applied to the study of welfare states (Jochem 2003, Obinger 2002), inequality (Birchfield and Crepaz, 1998) fiscal adjustment (Pamp, 2007), tax competition (Basinger and Hallerberg, 2004), monetary policy (Keefer and Stasavage, 2003), monetary institutions, (Hallerberg, 2002), international trade arrangements (Mansfield, Milner, and Pevehouse, 2007), the business environment (Henisz, 2000), and European Union decision-making, among various other important issues.

Tsebelis' work on veto players is motivated by the fact that comparisons across countries are difficult given the multidimensionality of the set of institutions. Most of the previous literature on political institutions tended to use a single criterion to identify the main characteristics of a polity (presidential/parliamentary, majoritarian/ proportional, two-party/multiparty, etc.); the relations and interactions among all those dimensions were underdeveloped. If one wants to understand the policymaking process of a given country, one cannot simply aggregate the generic effects induced by each of its institutional features. It is necessary to use some sort of **systemic** lens that permits comparing political systems which vary simultaneously along many dimensions. Tsebelis proposes the "configuration of veto players" as the optic to summarize the characteristics of political systems, especially when seen from the perspective of its policy consequences. A veto player is an (individual or collective) actor whose consent is necessary to change policy. Every political system has a configuration of veto players, with varying numbers, ideological differences, and internal levels of cohesion. In various works, Tsebelis and collaborators have developed a mapping, a set of rules, according to which all political institutions (regime types, parliaments, party systems, parties, and so on) are translated into a configuration of veto players.[6] Constitutional prescriptions, the attributes of the party system and the electoral rules determine the number and cohesion of veto players. The number and cohesion of veto players, given the ideological distances separating them, affect the set of outcomes that can replace the status quo (the *winset* of the status quo). The size of the winset is smaller when the number of veto players and the ideological distance between them are larger and when collective veto players are more cohesive. When the winset is very small, the status quo

prevails and "policy stability" obtains. One of the main predictions of the veto players approach is, then, that when the number of veto players is larger, policy change is less likely.

Even though Tsebelis' initial work has been applied mainly to parliamentary democracies, the framework has wider scope. There have been a number of applications to presidential regimes. For instance, an important volume edited by Haggard and McCubbins (2001),[7] provides some valuable extensions and applications of the veto player logic. In particular, the volume advances in the direction of applying the logic of veto player analysis to presidential democracies. It also provides further specification of the dependent variable, characteristics of policies (and of policymaking), which is quite useful for the purposes of comparison with the predictions from our intertemporal approach. Cox and McCubbins (2001) argue that one of the most important trade-offs in policymaking is that between the ability to change policy (*decisiveness*) and the ability to commit to a given policy once it is enacted (*resoluteness*). The abilities to change and to commit to policies depend on the number of veto points that political institutions establish (*separation of power*) and the diversity of party interests controlling those veto points (*separation of purpose*). Different institutions (electoral rules, the number of chambers, legislative procedures, etc.) map, through *separation of power* and *separation of purpose* into an effective number of veto players.[8] The effective number of vetoes increases when a polity has both many institutional veto points and political actors with diverse interests controlling those veto points. Countries with more effective veto players will be located closer to the resoluteness end along a decisiveness- resoluteness continuum.

We can summarize some of the main predictions from these veto player approaches in two propositions, which we state as hypotheses to be evaluated in the empirical section.

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[6] See for instance, Tsebelis (2002, part II).

[7] The volume (*Presidents, Parliaments, and Policy*) has theoretical contributions by the editors in combination with Gary Cox and Matthew Shugart and empirical contributions applied to a number of presidential democracies by various other distinguished scholars. For brevity we will often refer to this work as "Cox and McCubbins" to refer to chapter 2, the main theoretical chapter in the volume.

[8] Such mapping is provided in detail in *Presidents, Parliaments, and Policy* in chapter 3 by Shugart and Haggard (2001) and in the introductory chapter 1 by Haggard and McCubbins (2001b). See also Perez-Liñan and Rodríguez Raga (2003) for a detailed mapping of institutions in presidential regimes to the veto players framework.
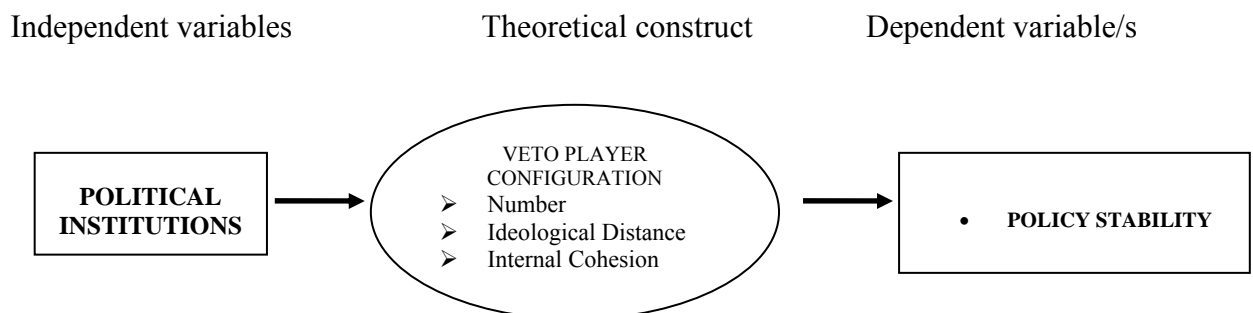
PROPOSITION 1 (Veto Player Theory): *A more decisive polity must necessarily be less resolute* (Haggard and Mc Cubbins, p. 6).

PROPOSITION 2 (Veto Player Theory): *As the effective number of vetoes increases, the polity becomes more resolute and less decisive* (Haggard and Mc Cubbins, p. 27). Or equivalently: *Many veto players make significant policy changes difficult or impossible* (Tsebelis 2002, p. XV).
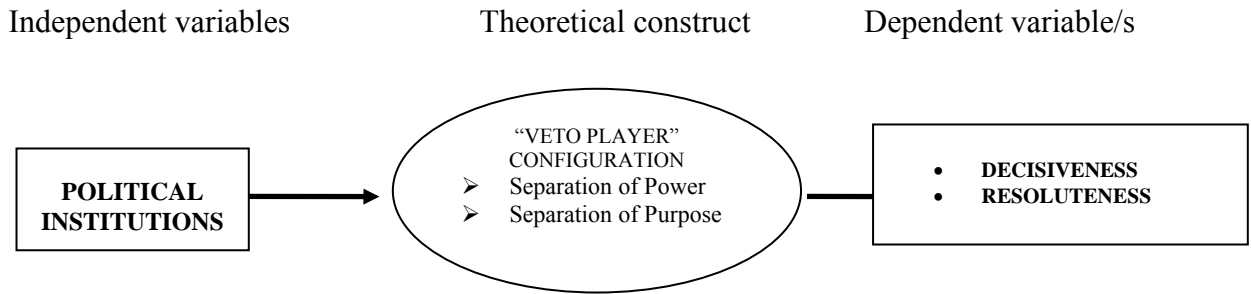
Panels A and B of Figure 1 summarize the logical structure of veto-player predictions going from political institutions to policy characteristics. Real world political institutions are mapped into an intermediate theoretical construct, the configuration of veto players, and that configuration has implications for some relevant policy or policymaking characteristics (policy stability in Tsebelis, decisiveness and resoluteness in Cox and McCubbins). It is interesting to notice that, even though the dependent variables are clearly intertemporal (it is impossible to define "stability" without reference to actions that take place at different points in time), the frameworks utilized to explain them are not explicitly intertemporal.
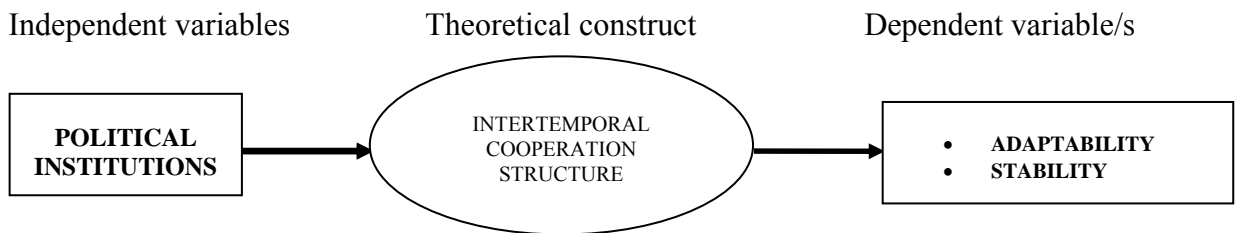
Figure 1

A. VP Framework of Tsebelis (1995 and 2002)

Independent variables   Theoretical construct   Dependent variable/s

B. Framework of Cox and McCubbins in Haggard and McCubbins (2001)

Independent variables   Theoretical construct   Dependent variable/s

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                            ┌─────────────────────┐
                           (   "VETO PLAYER"       )      ┌────────────────────┐
┌──────────────┐          (   CONFIGURATION         )     │  • DECISIVENESS    │
│  POLITICAL   │ ───────> (  ➢ Separation of Power   ) ────│  • RESOLUTENESS    │
│ INSTITUTIONS │          (  ➢ Separation of Purpose )     └────────────────────┘
└──────────────┘           (                       )
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C. Intertemporal Cooperation Framework

Independent variables   Theoretical construct   Dependent variable/s

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                            ┌─────────────────────┐
┌──────────────┐          (   INTERTEMPORAL        )      ┌────────────────────┐
│  POLITICAL   │ ───────> (   COOPERATION           ) ────│  • ADAPTABILITY    │
│ INSTITUTIONS │          (   STRUCTURE             )     │  • STABILITY       │
└──────────────┘          (                        )      └────────────────────┘
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3. An Intertemporal Framework

As indicated by Figure 1, the way we suggest looking at the effects of institutions on policies can be expressed in a visual scheme similar to the ones we used to summarize veto player approaches. The difference lies in the theoretical lens utilized to relate the workings of political institutions to the features of public policies. Our organizing principle is intertemporal cooperation.[9] The framework emphasizes the ability of political actors to cooperate. Better policies are likely to emerge if participants in the policymaking process can cooperate and uphold agreements over time. In systems that

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[9] The elements of this framework are not new, yet we believe that the way the ingredients are mixed is somewhat novel. The formal structure of the models within this framework has been presented before in Spiller, Stein and Tommasi (2003), and Spiller and Tommasi (2007, chapter 2); it builds upon previous contributions such as Alesina (1988), Dixit, Grossman and Gul (2000), Dixit (2003) and de Figueiredo (2002). The conceptualization of policymaking as intertemporal exchanges draws from a long tradition in transaction cost economics, which has been applied to the political arena by North (1990), Dixit (1996), Levy and Spiller (1996), Huber and Shipan (2002) and Epstein and O'Halloran (1999). Jacobs (2004) presents a logic of intertemporal policy choices very close in spirit to ours, and applies it to study the politics of pension reform in Britain and the Unites States in Jacobs (2008). The intertemporal nature of policymaking has also been emphasized in some theoretical work on political economy by economists, most notably Besley and Coate (1998).

encourage cooperation: consensus on policy orientation is more likely to emerge,[10] successive administrations are more likely to build upon the achievement of predecessors, and it might be easier to adjust to changing circumstances. Whether particular polities make policy in more or less cooperative mode depends on various things; several of them related to political institutions. In previous work we have argued that some characteristics of the workings of political institutions tend to facilitate cooperation and, in that way, to generate public policies with some desirable features (including both stability and adaptability). Better policies tend to emerge in countries with institutionalized and programmatic party systems, legislatures with strong policymaking capabilities, professionalized bureaucracies, and independent judiciaries.[11]

In this particular paper we focus on the effects of one very important "reduced-form" characteristic of a political system, the number of veto players. The effects of veto players in the context of static models are well analyzed and well understood in the previous literature. In this paper we inquire about possible effects of the number of veto players that operate through the likelihood of intertemporal cooperation. We argue that there are some channels through which more veto players can facilitate intertemporal cooperation and, through that, the capacity to adjust policies. Those channels operate through the logic of repeated games, which we explain below.

We summarize now a number of salient aspects of policymaking over time that are captured in some particular ways in the family of models (framework) that we suggest. In section 4, using some of the elements of the framework, we provide a brief explanation of the way in which we define the dependent variables (policy characteristics). Section 5 provides a specific model connecting the number of veto players to those policy characteristics. Section 6 provides some empirical evidence.

Political transactions surrounding public policies are characterized by a number of features that the framework attempts to highlight. In particular:

(1) *Politics and policymaking take place over time*. Decisions are made at different points in time, often by different configurations of actors. The framework captures this feature by modeling policy choice in the context of repeated games.

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[10] This resonates with complementary arguments from the "deliberative democracy" camp. (See for instance Fearon, 1998).

[11] See IADB (2005), Stein and Tommasi (2007), and Berkman et al (2008). In those papers and in our ongoing agenda we have also investigated the effects on public policies of some of the political

(2) *There are elements of conflict and of commonality of interests around almost any policy issue.* Almost all policy decisions involve conflicts among different values and different interests, most obvious when (as often the case) imply distributive issues. But also, most policy decision do have some valence dimensions, in the sense that everybody prefers more of that to less, ceteris paribus. As an example, macroeconomic stabilization has clear elements of public good (everybody is hurt by high inflation), but it can be achieved through various different policy packages characterized by diverse distributive implications. The objective function of the players in our models captures the presence of elements of conflict and commonality of interest.

(3) *Political power of different actors varies over time.* Political popularity, coalition formation, and the normal workings of democracy lead to substantial changes in the power of any political actor over time. This is also true even in autocratic polities, albeit in a different form. The framework captures this through a variable μ_t that indicates the distribution of political power at each point in time.[12]

(4) *Underlying conditions change over time.* Random events frequently call for policy adaptation. New circumstances in international markets, policy decisions in other countries, technological changes, diseases, natural disasters, and social and demographic changes are events that present new demands on public

institutions most emphasized in the comparative politics literature, such as electoral rules and regime type.

[12] We model μ_t as a random variable in order to simplify the model. Most certainly, the distribution of political power is not exogenous, but a crucial outcome of the political process. Some aspects of the endogeneity of μ (although technically more demanding for the model) would tend to favor an intertemporal approach. For instance, the fact that who governs in a democracy depends on the vote of most citizens who in turn might reward or punish past behavior, could be a force towards intertemporal policy compromise, as in Alesina (1988). Also, the fact that a great majority of voters vote for party A because they like their platform, would not be counted as "pure political noise", but as a way of identifying the right policies, more in the spirit of θ than of μ. What μ tries to capture are factors that most observers would agree should not substantially affect policy outcomes. As described in the next section on the dependent variables, our work in the Latin American field has identified clear instances of policies changing "at the turn of the wind" for reasons unrelated with deep changes in underlying circumstances. Also, whatever group happens to be favored by the distribution of political power at one point in time, would need to be quite ignorant of the history of the world to believe that "they will be on top" forever. The recognition that my political power of today will not be permanent is one factor why (in the context of repeated game reciprocity) I should take those currently out of power into account when choosing policies – at least in more cooperative equilibria, as we explain below.

policy.[13] These circumstances are captured in the model by the presence of some "environmental shocks", θ_t.

The last two features allow us to operationalize the dependent variables in a way that gets to the heart of this paper: we will say that a policy is **adaptable** if it responds adequately to shocks θ, we will say that a policy is **stable** if it is invariant to shocks μ. We devote the next section to a brief explanation of why we focus on these dependent variables.

4. Defining the Dependent Variables

Tsebelis defines his independent variable policy *stability* as the impossibility of significantly changing the status quo. In defending the importance of that choice, he refers to political scientists' interest in the *decisiveness* of a political system – its capacity to resolve problems as they arise (2002: 6-7). He relates that concern with the concerns of Weaver and Rockman (1993) on government capabilities, and contrasts it with economists' concern with policy *credibility*. In Tsebelis view, policy stability is a characteristic that embeds an inherent trade off between the virtues of commitment (more stability) and the virtues of decisiveness (less stability). Tsebelis is adamantly agnostic about the normative value of his dependent variable. According to him, those who dislike the status quo prefer a political system with the capacity to make changes while advocates of the status quo prefer a system that produces policy stability (Tsebelis 2002: 7-8). Decisiveness in bringing about policy change is a good thing when the status quo is undesirable, or when an exogenous shock disturbs a desirable process; while commitment may be preferable when the status quo is desirable (Tsebelis 2002: 8).

In Tsebelis' work, then, there is only one policy characteristic as dependent variable, and its normative properties cannot be judged since that characteristic embeds an inherent trade off. Cox and McCubbins (2001) take a further step and distinguish among two related, but different, dependent variables: *decisiveness*, the ability of a State to enact and implement policy change, and *resoluteness*, the ability of a State to commit to maintaining a given policy. Even though Cox, McCubbins and collaborators

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[13] For instance, in its suggestively titled *Guidelines for Designing Policies in Today's Complex, Dynamic, and Uncertain World* the International Institute for Sustainable Development (2007) asserts that "Governments must operate in an ever-changing and uncertain world".

distinguish between these two concepts, they assert that a more decisive polity must necessarily be less resolute. (Haggard and Mc Cubbins, 2001: 6). [14]

One of the points of this paper is to contend with the latter assertion. In order to do that we operationalize two potentially separate policy characteristics, which we call policy *adaptability* and policy *stability*, very close to the notions of decisiveness and resoluteness respectively.[15] We relate adaptability to the ability to change policy for the right reasons, and stability to the ability not to change policy for the wrong reasons. We believe this way of conceptualizing the dependent variables is consistent with the spirit of much of the previous literature (including even Tsebelis and Cox and McCubbins themselves), it can be well captured in a theoretical model, and it permits empirical implementation. Here we present our notions of adaptability and stability, and in latter sections we implement them both theoretically and empirically.

Adaptability of public policies

Policies might be more or less responsive to changes in the environment. As stated before, various events call for policy adaptation quite frequently. New circumstances in international markets, policy decisions in other countries, technological changes, diseases, natural disasters, and social and demographic changes are events that present new demands on public policy. These changing underlying circumstances might even include the stock of knowledge or information about the effects of previous policies. Our notion of adaptability embeds several desirable traits of policy or policymaking which have been referred to in the previous literature. For instance:

- the ability to adapt to exogenous shocks (Tsebelis 1999: 591)[16]
- the flexibility to resolve problems faster (Tsebelis 2002: 7)
- the capacity to solve problems when they arise (Tsebelis 2002: 6-7)
- the ability to innovate when policies fail (Weaver and Rockman 1993)

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[14] Cox, McCubbins and collaborators refer also to other relevant characteristics of policies, such as whether they are *private* or *public-regarding*. Those are important issues which we also address in other work (Stein and Tommasi 2007, Stein et al 2008, IADB 2005) but that are not the focus of the comparison that we emphasize in this paper.

[15] *Decisive* and *resolute* are adjectives that qualify the polity, why *adaptability* and *stability* are adjectives that qualify policies. In a sense, it is indistinct to focus on properties of polities or (generic) properties of policies. We use the latter wording mainly because we find the words *decisiveness* and *resoluteness* too difficult.

[16] In that paper Tsebelis refers to stability as the inability to adapt to exogenous shocks. Since we are reserving the word *stability* to refer to a positive concept, we would refer to said inability as "lack of adaptability".

- the adaptation of social programs to contemporary socio-economic risks (Natali and Rhodes, 2006)
- the ability of policy to adapt to new conditions (International Institute for Sustainable Development, 2007)

Stability of public policies

From our own work on Latin America, we see countries that seem capable of sustaining policies over time, while in other countries policies are frequently reversed, often at each minor change in political winds (see for instance IADB 2005 and Stein et al 2008). Having stable policies does not mean that policies cannot change at all, but rather that changes respond to changing economic conditions, to the failure of previous policies, or to the recognition of further objectives, rather than to political changes. In countries with stable policies, changes tend to be incremental, building upon achievements of previous administrations, and tend to be achieved through consensus. In contrast, volatile policy environments are characterized by large swings and by lack of consultation with different groups in society.[17] Our notion of stability, very similar to *resoluteness* in Cox and McCubbins, embeds several desirable traits of policy or policymaking which have been referred to in the previous literature. In particular, it captures the spirit of the whole discussion of credibility of economic policies. The effects of policies on the final economic and social outcomes of interest depends on the actions and reactions of a number of economic and social agents, who take into account their expectations about future policies before deciding on their responses. In the words of Rodrik (1995), it is not trade liberalization per se, but *credible* trade liberalization that is the source of efficiency gains. The predictability of a set of incentives of a trade regime, or lack thereof, is generally of much greater importance than the *structure* of these incentives."[18] Stability, then, refers to things such as:

- the ability to ensure policy stability so that policies have time to work (Weaver and Rockman 1993: 6)
- the ability to make and maintain international commitments in the realm of trade and national defense (Weaver and Rockman 1993: 6)

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[17] Chile is a clear example of the former (Aninat et al, 2008), while Argentina is a clear example of the latter (Spiller and Tommasi, 2007).
[18] On credibility and commitment in macroeconomic policy see the classic works of Kydland and Prescott (1977) and Barro and Gordon (1983), as well as recent statements in Alt (2002), Granato (1996), Drazen (2000) and Persson and Tabellini (2000).

- credible commitment not to alter the rules of the game each time there is a government change
- the ability to uphold promises (Cox and McCubbins 2001: 31)[19]
- the ability to carry out a policy compromise (Cox and McCubbins 2001: 31)
- the consistency with which a policy is implemented (Rodrik 1995: x)

5. The Model

Preliminaries

There are some channels in the structure of repeated games through which increasing the number of veto players might facilitate intertemporal cooperation, as well as some channels by which intertemporal cooperation can facilitate policy change. In this section we provide one example, a simple model that is consistent with the intertemporal framework introduced above. The model is a repeated divide-the-dollar game in which the efficiency of each allocation at each point in time is a function of random events that materialize over time. Before presenting the formal aspects of the model, it is useful to motivate its basic structure with some examples.

Imagine that we are to allocate an annual budget for visiting faculty at a small university in a faraway place like Buenos Aires. The university is organized in N departments.[20] The committee in charge of allocating money for visiting faculty is composed of v members, coming from different departments ($v<N$), and it has to make its decisions by unanimity. Being the university located a bit far from the geographical center of international academia, it has difficulties in attracting great scholars. But occasionally, the opportunity of attracting a first rate academic arises; a Nobel laureate economist might feel like spending the northern summer near the wonderful trout fishing opportunities of Patagonia, or a distinguished political scientist might feel like spending her sabbatical in the world capital of tango. Given the significant reputational externalities for the University of having a top academic around, those circumstances

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[19] "Governments unable to make credible promises hinder economic development." (Keefer and Stasavage 2003: 407)

[20] Many readers of this Review may be familiar with this metaphoric scenario of budget allocation within a university. See chapter 4 of McCarty and Meirowitz (2007) for a similar example, one of hiring a new faculty member in a large academic department organized in several fields.

will call for an allocation of the budget quite loaded in favor of the department that faces such an opportunity in any particular year.

A similar intuition operates at the level of a country's budget. There are various circumstances that arise over time which might require reallocating budget in some particular directions. Say the economy has been hit by a natural disaster that requires the reconstruction of public infrastructure. Or there is a potential threat of military conflict with a neighboring country, which calls for more spending on military equipment and new recruits. Or it seems beneficial for aggregate welfare to alter international trade policy in a direction more favorable for some sectors.

Beyond budget-allocation situations, the model could also be interpreted as a set of independent random issues arising over time, leading to the possibility of changing from a given status quo (here normalized as zero payoffs for everyone). Each new issue would require some sort of action, but different actions would be evaluated differently by different players (in our language, alternative new policies on that issue would lead to different distributive and efficiency outcomes). The different intensity of preferences of different players across different issues will open the room for the intertemporal exchanges we emphasize here (as in Weingast and Marshall, 1988).

We will show that whether the polity in question is able to move resources (adjust policies) in the necessary direction will depend on the relevant actors' ability to strike agreements for intertemporal cooperation. And the probability of being able to cooperate over time will depend on some parameters of the model that we could interpret as "political institutions", including the number of veto players.

The set-up

Imagine a polity composed of N players (actors, parties, sectors). Let Ω be the set of players, denoted by $i = 1,2,...N$, so that $\Omega = \{1,2,....,N\}$. These players interact repeatedly and discount the future with a common discount factor $\delta \in [0,1]$. Let v denote the number of veto players; that is, the number of actors who will seat at the decision table and make a collective decision by unanimity. There is a random process μ_t that allocates political power at each point in time. The realization of this random process will define, for any given v, which will be the players sitting at the table at time t -- and as we will see below, also which of them will be agenda setter. We assume a

uniform probability distribution, so that the probability of each player being at the table is v/N.[21]

The decision they have to make in each period (in each "stage game") consists of allocating a budget, normalized to 1, across the N parties, so that $\sum_i x_{it} = 1$, where x_{it} is the share received by player i in period t. This divide-the-dollar game is not purely distributive; there is an element of efficiency of allocations which in a simplified manner captures the intuition of the examples above. There is an "externality" from allocating the budget in (what in each period turns out to be) the most productive way; an economic random variable θ_t indicates which is the salient sector or issue of the day. We model the payoff of each player at each time period (at each stage game) as $U_{it} = x_{it} + \alpha I_t$, where I_t is an indicator function which takes the values

$$ I_t = \begin{cases} 1 & if \quad x_{jt} = 1 \quad for \quad j = \theta_t \\ 0 & otherwise; \end{cases} $$

where θ_t is uniformly distributed across i's, taking each value with probability $1/N$. This formulation captures the fact that each player cares not only about his/her share, but also about the efficiency of the overall allocation.[22] The efficiency of the overall allocation is modeled as an externality that is present only if the entire budget is allocated to the sector with greater opportunities each period. The results we present here generalize to a more smooth formulation, but this stark one simplifies computations and presentation. The relative importance given to one's own share vis a vis overall efficiency depends on the size of the parameter α. (To make the problem interesting, we assume $\alpha < 1$, otherwise anyone would always choose the optimal allocation in a trivial manner.)

In order to close the description of the model it is necessary to specify, beyond the requirement of unanimity, the details of the decision-making procedure within the table. For concreteness, we take a simple (one-round closed rule) bargaining protocol. Assume that μ_t partitions the set of players Ω into three subsets in each period. The first

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[21] Think for instance that μ_t is a vector of N real numbers assigned at random to each of the players, and that the v players with larger numbers get to sit at the table. Or think that the v seats are allocated each period in the following manner: each player's name is put in an urn, and v names are taken at random.
[22] With minor modifications the model could be interpreted as a case in which different regions of the country face different investment opportunities which require public infrastructure, and it might be socially desirable to build that infrastructure where it will be more productive. The model could also be interpreted as an insurance context in which the regions or sectors affected by negative shocks receive transfers from the rest of the polity.

of those three sets is a singleton, i.e. a set composed of only one player, a_t, who will be the agenda setter, as in the random recognition rule in Baron and Ferejohn (1989). The second set W_t will contain *(v-1)* players, who will vote on the basis of a proposal made by a_t. The approval of each of those *(v-1)* voters is necessary for the proposal to pass. Let $V_t = W_t \cup \{a_t\}$ be, then, the set of *veto players* at time t. The rest of the players, belonging to the set Ω/V_t, will be outside the table. In each period, after the random variables μ and θ are realized, the agenda setter a_t will propose an allocation, a vector $X_t^a = \{x_{1t}^a, x_{2t}^a, \dots x_{Nt}^a\}$. After that, the *(v-1)* players belonging to W_t will vote. The decision of each of these voters in each period is a function ϕ from the set of possible allocations X (an N-dimensional simplex) to the set $\{0,1\}$, where 0 means voting against the proposal, and 1 means voting for the proposal, so that $\phi_{it} \in \{0,1\}$.[23] If all the voters vote in favor, that is if $\phi_{it} = 1 \ \forall i \in W_t$, then the allocation implemented X_t will be equal to the one proposed by the agenda setter, $X_t = X_t^a$. Otherwise, every player gets a status quo payoff which we normalize to 0 for notational simplicity.[24]

Having described the game, now we proceed to solve it. The steps of our analysis follow a standard usage in the study of cooperation in this type of games. We start by analyzing non-cooperative equilibria; then we explore first-best allocations, and we construct strategies that can support first-best allocations as part of a cooperative equilibrium to the repeated game. We will show that in non-cooperative equilibria, policies will not adjust to economic shocks, while in cooperative equilibria, they will. We will provide comparative statics on how the parameters of the game, in particular the number of veto players *v*, affect the feasibility of cooperation, and hence the adaptability of policies.

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[23] We assume away mixed strategies, for simplicity.

[24] The closed rule bargaining protocol is chosen to simplify the exposition. Our results generalize to a broader class of bargaining protocols. McCarty and Meirowitz (2007), chapter 10, provides an excellent summary of bargaining protocols. Most of the literature has focused on majority-rule bargaining a la Baron and Ferejohn (1989). In our case we are working with unanimity bargaining, as in Rubinstein (1982) since unanimity is the formal definition of veto players.

Non-cooperative equilibrium

It is convenient to start by specifying the outcome for the case of the one-shot version of this game (or equivalently, for the limit case of $\delta = 0$). It is easy to verify that, given $\alpha<1$, the stage game has a unique subgame-perfect equilibrium, in which the agenda setter proposes an allocation giving a tad above zero to each of the other *(v-1)* players at the table, nothing to anyone outside the table, and keeps almost the whole budget for himself.[25] Formally, that leads to the allocation vector $X^N = \left\{ x_{1t}^N, x_{2t}^N, \ldots x_{Nt}^N \right\}$ such that

$$ x_{it}^N = \begin{cases} 1 & for & i = a_t \\ 0 & for & i \neq a_t \end{cases} \quad {}^{26} $$

As it is well known from the theory of repeated games, the indefinite repetition of the one-shot subgame perfect equilibrium is also an equilibrium in the repeated game for any value of the discount factor δ. This non-cooperative equilibrium gives players an expected value of

$$ V^N = \left(\frac{1}{1-\delta} \right) \left(\frac{1+\alpha}{N} \right). $$

The first term on the right hand side brings the value of the series of allocation to the present, and comes from the fact that $(1 + \delta + \delta^2 + \ldots) = \frac{1}{1-\delta}$ for $\delta \in [0,1]$. The second term comes from the fact that on average each player gets to keep the whole budget one out of *N* periods and every player receives the externality α each time the agenda setter happens to be the player receiving the shock θ_t, an event which also occurs with probability *1/N*.

Notice that in this non-cooperative equilibrium policies do not adjust to economic shocks *θ*, hence they are not adaptable, while they do adjust to political realizations, and hence they are volatile (i.e., they are not stable). We will see below that the opposite is the case in more cooperative equilibria.

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[25] Given the rule of unanimity and the simultaneity of the voting moves, the one-shot game has multiple equilibria, since once one of the voters has rejected the proposal, any vote by another voter constitutes a weak best response. It is easy to get rid of all the other equilibria by using subgame perfection jointly with iterated elimination of weakly dominated strategies. (McCarty and Meirowitz, 2007, chapter 5).

[26] More generally, the allocation could be defined as $x_{it} = 0$ for $i \in \Omega/V_t$, $x_{it} = \varepsilon$ for $i \in V_t$, and $x_{it} = 1-(v-1)\varepsilon$ for $i = a_t$. We follow the standard convention of letting ε go to zero, and assuming that players who are indifferent between two actions at zero, will chose the one they would have chosen for ε>0.

First best

In order to explore other equilibria we start by specifying the first best allocation, the one that maximizes the sum of the objective functions of the *N* players. It is easy to see that the optimal allocation gives the full budget to the sector that received the productivity shock θ_t in each period. That is, the optimal vector $X^*(\theta_t)$ contains

$$x_{it}^* = \begin{cases} 1 & for \quad i = \theta_t \\ 0 & for \quad i \neq \theta_t \end{cases}.$$

Expected welfare from the first best is

$$V^* = \left(\frac{1}{1-\delta}\right)\left(\frac{1}{N} + \alpha\right).$$

The difference with the non-cooperative case lies in the fact that now the externality is realized every period; clearly $V^* > V^N$.

A strategy to induce cooperation

Even though repeated games have multiple equilibria,[27] most of the literature applying repeated games has focused on comparing equilibria characterized by different degrees of cooperation; in most cases choosing to focus on relatively simple "punishment strategies" in order to induce cooperation. This is typically done by positing a strategy profile (a set of strategies for the players) and then studying under what subsets of parameters of the game such strategies can be supported as an equilibrium.[28] We follow that practice and we look now at a strategy profile that could allow implementation of the first best in the repeated game. The strategy profile calls for cooperation along the equilibrium path sustained by the threat of reversion to non-cooperation (the subgame-perfect equilibrium of the one-shot game) forever. This type of "grim trigger" strategy is particularly suitable to analyze repeated games of complete and perfect information such as this one (de Figueiredo, 2002). In this model, cooperation along the equilibrium

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[27] A number of "folk theorems" have demonstrated that for high enough δ, every feasible payoff that is individually rational can be supported as a subgame perfect equilibrium (Fudenberg and Tirole 1991, McCarty and Meirowitz 2007).

[28] See for instance Stokes (2005), de Figueiredo (2002), Carruba and Volden (2000), and Nocke and White (2007).

path requires the agenda setter proposing the first best allocation $X^*(\theta_t)$, and the *(v-1)* other veto players accepting that allocation, $\phi_i(X^*(\theta_t)) = 1 \quad \forall i$. This leads to the payoff V^*. The punishment strategy we postulate is one that reverts the game to non-cooperation forever if a proposal different from $X^*(\theta_t)$ is ever accepted and (hence) implemented;[29] in that punishment path, everybody receives V^N.

We now need to verify for what values of parameters, this postulated strategy profile constitutes an equilibrium, in the sense that each player has no incentive to deviate from the equilibrium path, given that other players are sticking to the postulated strategies. A number of results in the theory of repeated games simplify this effort; a crucial one is the "one-shot deviation principle", which tells us that in order to verify whether a postulated equilibrium is indeed subgame perfect, it is enough to verify that there is no profitable one period deviation (Mailath and Samuelson, 2006). Identifying when cooperation is sustainable requires determining who has the greatest incentive to defect and then calculating the conditions under which that person will cooperate. In the context of this model, the person with the greatest incentive to defect in any given period is the player who turns out to be the agenda setter, provided he is not the same agent who received the "efficiency" shock θ_t. (In this latter case the agenda setter will be happy to conform to the cooperative requirement of keeping the whole budget for himself).

If an agent who happens to be the agenda setter of the period were to deviate, in order to ascertain his payoff from a proposal different from $X^*(\theta_t)$ he needs to consider the possible reaction of the other *(v-1)* veto players. For that reason we work by backwards induction from the behavior of the voters of a period of possible deviation.

Imagine a proposal different from X^* was made. Take as given the action of the other *(v-2)* voters as accepting the deviant proposal, and consider the decision of one $i \in W_t$. If he accepts the deviant X_t^a, it gets implemented, and the play of the game switches to non-cooperation forever after. If he rejects it, he and everyone else gets zero

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[29] In a technical appendix available upon request we demonstrate that this punishment strategy is more effective that an alternative one in which punishment is triggered just by the proposal, independently of whether it is accepted by the other veto players or not. It turns out that the strategy of making all the veto players jointly responsible enforces cooperation for a larger set of parameters.

in that period,[30] but the equilibrium remains cooperative forever after. In comparing this two options, voter ***i*** will pay special attention to how much the deviant proposal gives to him, x_{it}^a. Define x^0 as a critical value such that ***i*** accepts the proposal only if it gives him $x_{it}^a \geq x^0$. The player will be indifferent, then, if he were to receive x^0 in this deviation, that is if $0 + \delta V^* = x^0 + \delta V^N$. This implies that $x^0 = \left(\dfrac{\alpha\delta}{1-\delta}\right)\left(\dfrac{N-1}{N}\right)$.

The most profitable deviation for the agenda setter which might be accepted will then offer $\left(\dfrac{\alpha\delta}{1-\delta}\right)\left(\dfrac{N-1}{N}\right)$ to each of the other ***(v-1)*** veto players, and will give zero to everyone outside the table. Such a strategy will allow him to keep $1-(v-1)\left(\dfrac{\alpha\delta}{1-\delta}\right)\left(\dfrac{N-1}{N}\right)$ for himself in the deviation period. That would be a worthwhile deviation as long as

$$1-(v-1)\left(\frac{\alpha\delta}{1-\delta}\right)\left(\frac{N-1}{N}\right) + \delta V^N > \alpha + \delta V^* .$$

The converse needs to be true in order for our equilibrium to be sustained, which is equivalent to what we express in the following Lemma.

Lemma:
Under the proposed strategies, cooperation implementing the first-best allocation can be sustained if and only if

$$\left(\frac{\delta}{1-\delta}\right) \geq \left(\frac{N}{N-1}\right)\left(\frac{1-\alpha}{\alpha}\right)\left(\frac{1}{v}\right).$$

This is our main result. It is easy to see that the inequality in the Lemma is relaxed by having a larger number of veto players ***v***. Having more players sitting at the table reduces the incentives to deviate from cooperation, and hence makes cooperation sustainable over a larger set of other parameters.

Given that cooperation in our model leads to the optimal allocation $X^*(\theta_t)$, we say that, in the equilibrium we have constructed, *a larger number of veto players increases the likelihood of adjusting policies to economic shocks.* Hence, in this

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[30] Remember that, for expositional simplicity, we are (i) assuming a closed rule bargaining protocol, and (ii) normalizing the disagreement payoff to 0. The generality of our results does not depend on either of these assumptions.

example, more veto players increase the adaptability of policies, contrary to the predictions of veto player frameworks as summarized in Proposition 2 above.

Our model also contradicts Proposition 1 (above) from veto player theory. In our cooperative equilibrium we have both more adaptability (more response to θ) and more stability (less response to μ) than in the non-cooperative case. If different polities were in different equilibria, our model would predict a <u>positive</u> correlation between adaptability and stability (between decisiveness and resoluteness).

Since our model and the particular cooperative equilibrium we have built constitute just examples, not general cases, we express our results in a less taxative manner than veto player approaches.

PROPOSITION 1' (Intertemporal Approach): *A more decisive polity <u>not necessarily</u> must be less resolute. There are some forces (of different equilibria in repeated-interaction contexts) leading to a positive association between decisiveness and resoluteness (adaptability and stability).*

PROPOSITION 2' (Intertemporal Approach): *Many veto players do <u>not necessarily</u> make significant policy changes difficult or impossible. There are some channels through which more veto players increase policy adaptability.*

In the formulation of this section, the channel by which more veto players can lead to more cooperation is the fact that the more players at the table, the more costly an opportunistic deviation for the agenda setter. There are other channels that could bring this result. For instance, my willingness to cooperate today (to permit an adjustment unfavorable to me) could be affected by my likelihood of sitting again at the table in the future, when efficiency might call for reallocation towards me.[31]

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[31] From personal experience we recognize that channel as being present in budget making at universities.

6. Empirical Analysis

The dependent variables

In this section we provide preliminary evidence consistent with our argument. In particular, we show that some of the propositions coming out of the veto player literature do not necessarily hold. More adaptability does not necessarily imply lower stability, and a higher number of vetoes does not necessarily imply lower adaptability. The results obtained are consistent with the idea that intertemporal cooperation may allow policy makers to reach certain agreements over policy that are not possible in the more traditional veto player models.

In order to capture the notions of policy stability and policy adaptability discussed in Section 4, we rely on data from a variety of international data sets. We use four different measures of policy stability. The first one (FRASER VOLATILITY) is based on the Fraser Index of Economic Freedom, an index put together by the Fraser Institute which attempts to capture the extent to which institutions and policies in a country are consistent with the free operation of the market. Since our interest is the stability of policies –or, conversely, their volatility--, we use the standard deviation of the index (redefined so that larger values indicate less volatility) as our first measure of policy stability.[32] The second measure of stability (POLICY CHANGE) comes from the Global Competitiveness Report (GCR), and captures the extent to which legal and political changes undermine a firm's planning capacity. Our third measure (GOVERNMENT COMMITMENT) is also from the GCR, and captures the extent to which new governments honor the contractual commitments and obligations of previous ones. Our fourth measure (POLICY CONSISTENCY) comes from the Profils Internationnel database, and captures the "consistency and continuity of government action on economic matters". In addition to these four, we also use a summary variable (STABILITY) which combines these four measures into a composite index, constructed

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[32] The series for each country was detrended (using a quadratic trend) before calculating the standard deviation, so that countries that moved steadily towards more (or less) free market policies throughout the period are not characterized as having volatile policies, unlike those that present a seesaw pattern. Our more detailed analysis of these data for the Latin American cases justifies this procedure.

to maximize the use of the available information and obtain the largest possible number of observations.[33]. Table 1 provides additional details on these measures.

To capture policy adaptability, we also used four different measures. The first one (ADAPTABILITY-BTI) is taken from Bertelsmann Transformation Index, and is associated to the ability of the political leadership to act flexibly, its capability for learning, and whether political leaders can replace failing measures with innovative policy. The second one (STATE RESPONSIVENESS), from Columbia University State Capacity Survey, rates the State's ability to respond effectively to domestic economic problems. The third one (DECISION-MAKING CAPACITY), from Profils Internationnel dataset, rates countries according to the "Decision-making capacity of the political authorities in economic matters". The last one (STATE EFFECTIVENESS), also from Columbia University State Capacity Survey, rates the state's ability to formulate and implement national policy initiatives. As in the case of stability, here we also compute a summary variable (ADAPTABILITY) on the basis of the four measures discussed above.

As Table 1 shows, data for some of our measures is available for more than one year. Given the intertemporal nature of policy characteristics such as stability and adaptability, rather than exploiting the time series dimension of the data (which is very limited, anyway), we average the available data for all existing years, in order to come up with a single data point for each variable in each country.

One potential problem with the use of survey data is that it may be susceptible to subjectivity bias. Because our composite indices have been compiled through different surveys over several years, a usual criticism of survey data, which is that opinions over policies depend on "the general mood" given the current state of the economy, is somewhat less serious in this case. While we would have liked to have more objective data instead of relaying on survey information alone, we haven't been able to find data with broad geographical coverage. Whenever possible, however, we have tried to validate our stability and adaptability measures by comparing them with objective measures linked to specific policy domains. For example, we have found a significant and positive relationship between our measures of policy adaptability and a measure computed by Braun and Di Gresia (2002) that captures the extent to which fiscal policy

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[33] All the components of the index were given the same weight. The data appendix describes the procedure used for cases in which some of the values of the individual components were not available. For more details, see Berkman et al (2008).

responds countercyclically to the fluctuations in economic activity, a measure of fiscal policy adaptability.[34]

Table 1. The dependent variables

Stability	Coverage	Observations	Source
Frazer volatility: Standard deviation of the detrended Fraser Index of Economic Freedom (quadratic trend)	1999-2004	113	Frazer Institute
Policy Changes: Legal or political changes over the past five years have (1=severely undermined your firm's planning capacity, 7=had no effect)	2002	75	Global Competitiveness Report
Government Commitment: New governments honor the contractual commitments and obligations of previous regimes (1=not true, 7=true).	1998, 1999, 2000, 2002	75	Global Competitiveness Report
Policy Consistency: "Consistency and continuity of government action in economic matters" (from 1=low levels to 4=high levels)	2006	85	Profils Institutionnels-database
Stability: Composite index using the previous components		148	
Adaptability	Coverage	Observations	Source
Adaptability (BTI): The variable is created by BTI's from questions that include ratings for the ability of the political leadership to act flexibly, political leaders' capability for learning, and whether political leaders can replace failing measures with innovative policy.	2006	117	Bertelsmann Transformation Index (BTI)
State Responsiveness: Rate the state's ability to respond effectively to domestic economic problems, originally on a scale from 1- 10.	1990, 1999, 2000, 2002)	124	Columbia University State Capacity Survey
Decision Making Capacity: "Decision-making capacity of the political authorities in economic matters (responsibility, rapidity, etc)" ranked 1 to 4, 4 being highest.	2006	85	Profils Institutionnels-database
State Effectiveness: Rate the state's ability to formulate and implement national policy initiatives	1990, 1999, 2000, 2002	124	Columbia University State Capacity Survey
Adaptability: Composite index using the previous components		146	

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[34] A second exercise was to look at the correlation between the variables and similar variables we constructed in a more detailed manner for a smaller sample of Latin America and the Caribbean countries. The survey questioned more than 150 experts in 18 Latin American countries, and was explicitly designed with these characteristics of policies in mind. For both stability and adaptability the correlation of these variables with the more detailed ones for the Latin American subsample was positive and highly significant.

Veto-players theories have very sharp and conclusive predictions that we have summarized in Propositions 1 and 2 above. Our intertemporal approach calls into question the generality of those predictions, stating that there are channels and conditions that can make these predictions more or less likely to be fulfilled. In this subsection we present evidence that turns out to reject these veto-player hypotheses. In later subsections we provide some evidence attempting to reconcile veto player predictions with a broader framework that incorporates intertemporal considerations.

Proposition 1: "…*a more decisive polity must necessarily be less resolute…*"

Following the traditional veto player literature, we would expect a negative correlation between adaptability and stability. However, a negative correlation does not appear –at least easily- in our data. As Table 2 shows, the correlation between the variables that proxy adaptability and stability and the composite indexes is not negative even after controlling for the initial level of development of the country, the group or region the country belongs to, and the legal origin of the country.[35] Moreover, in the case in which all the controls are included all of the correlations are positive and eleven out of seventeen are at least significant at the 10 percent level.

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[35] Ln(GDPpc) is the log of GDPpc in 1980. Regions include dummies for Developed, Asia, ECA, LAC, MNA, SSA, and Africa. Legal origin includes dummies for British, French, German, Scandinavian and Socialist. Legal origin has been selected because it is exogenous to some of the variables that we incorporate later on in the model and it responds to some interrelated criticisms on the comparative politics literature: i) they can capture some of the political variables that can't be modeled explicitly (legal origin usually affects the type of institutions chosen); ii) the legal origin is one of the main determinants of the actual policy-making (in the end, the things that can or can't be done depend in part on the legal system); iii) political institutions today depend in part on the basic institutional setting at the time of the colony (North and Weingast (1998).

Table 2. Correlation between the components of stability and adaptability –no controls

Stability Components	Adaptability Components				Adaptability
	Adaptability (BTI)	State Responsiveness	Decision Making Capacity	State Effectiveness	
Frazer Volatility	0.18	0.41***	0.31***	0.42***	
	83	93	73	93	
	0.08	0.32***	0.23*	0.29***	
	70	83	65	83	
Government Commitment	0.10	0.72***	0.41***	0.61***	
	49	61	54	61	
	0.22	0.37***	0.15	0.29**	
	39	53	46	53	
Policy Changes	0.35***	0.62***	0.62***	0.59***	
	49	61	53	61	
	0.40**	0.22	0.47***	0.26*	
	39	52	45	52	
Policy Consistency	0.35***	0.47***	0.74***	0.51***	
	65	78	85	78	
	0.41***	0.13	0.50***	0.28**	
	49	63	69	63	
Stability					0.54***
					122
					0.16
					100

*Note: significant at 1% level (***), 5% (**), and 10% (*)*
Second line in each row is number of observations
Second row for each variable is the correlation controlling for Ln(GDPpc), Region, and Legal Origin

In Figure 2, the results of the last cell –last column and row- can be observed in terms of a scatter plot diagram that plots the residuals of our two dependent variables after controlling for development, region, and legal origin. Again, from this data, it would be difficult to argue that a negative correlation exists between stability and adaptability for the cross section of a large number of countries.[36] This leads us to reject (a simple version of) proposition 1. From now on, for a matter of simplicity we would use the composite indexes as proxies for adaptability and stability.

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[36] As we will see below, it doesn't imply that a trade-off cannot exist for subset of the sample.

Figure 2. Stability and Adaptability Scatter plot
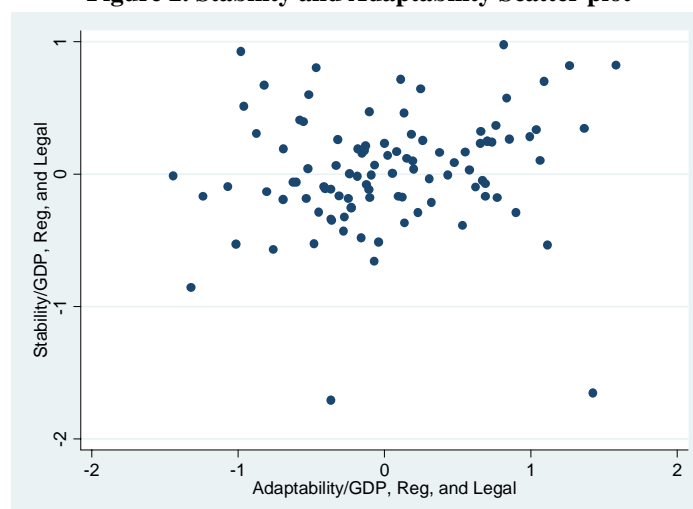
Proposition 2: *"… more veto players reduce policy adaptability"*

This second hypothesis is one of the central tenets of the veto player approach. (Contrary to that, in our model above we showed that there are certain conditions under which increasing the number of vetoes may also increase the adaptability of policies.) For testing this hypothesis, we use the variables that have been traditionally used in broad cross national empirical studies in the veto player tradition. These variables are summarized in table 3.

Table 3. The veto variables

Variable	Coverage	Observations	Source
Executive Constraints (Polity IV) It refers to the extent of institutionalized constraints on the decision-making powers of chief executives, whether individuals or collectivities. The concern is therefore with the checks and balances between the various parts of the decision-making process.	average of data from 1990-2003	147	University of Maryland Polity IV Project
Executive Constraints (Henisz): It refers to the limit on the executive's actions. (1) Unlimited Authority: There are no regular limitations on the executive's actions, to (3) Slight to Moderate Limitations an Executive Authority, to (7) Executive Parity or Subordination: Accountability groups have effective authority equal to or greater than the executive inmost areas of activity. Those polities described with a (3) or above also contain an independent judiciary	average of data from 1990-2004	147	Political Constraints Index Dataset

	POLCONV: It is constructed by identifying the number of independent branches of government with veto power over policy change and is then modified to take into account the extent of alignment across branches of government using data on the party composition of the executive and legislative branches.	average of data from 1990-2004	151	Political Constraints Index Dataset
	Checks: This variable adds the number of checks a country has. Starting with one in countries where legislatures are not competitively elected, it increments its value if there is a chief executive, if the chief executive is competitively elected, if the opposition controls the legislature, and so on.	average of data from 1990-2004	148	Database of Political Institutions,

As indicated in Table 4, the regression results show that vetoes is always positive and significant but in only one case.[37] A higher number of vetoes leads to higher adaptability of policies.[38] Hence, we reject veto player proposition 2.

Table 4. Regressions on adaptability (weighted least squares).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Executive Constraints (Polity IV)	0.14*** (0.04)				0.16*** (0.05)			
Executive Constraints (Henisz)		0.14*** (0.04)				0.17*** (0.05)		
PolconV			1.07*** (0.29)				0.94*** (0.32)	
Checks				0.12** (0.05)				0.08 (0.06)
Ln(GDPpc)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region					Yes	Yes	Yes	Yes
Legal Origin					Yes	Yes	Yes	Yes
AdjR^2	0.43	0.43	0.44	0.40	0.63	0.61	0.61	0.45
Obs	107	108	109	109	106	107	108	106

Note: significant at 1% level (***), 5% (**), and 10% (*)

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[37] For the empirical analysis we use weighted least squares according to the number of sources we have used for constructing the composite index. This way we give more weight to those countries whose data has been generated with a higher number of sources. Results are the same, both in terms of signs and significance, if regressions are run without weights.

[38] The results on the veto player variables are also positive and significant with respect to stability, for most specifications, as predicted both by veto player theories and by our intertemporal approach.

Some evidence incorporating intertemporal factors

The veto player literature postulates (proposition 1) a stark negative relation between stability and adaptability. In our view, stability and adaptability are both desirable traits that even though rival at some level, are both more likely to emerge in polities with higher degrees of intertemporal cooperation. Intuitively, we can think of the negative correlation predicted by veto player theories as operational along an iso-cooperation frontier, while different countries might be located on different iso-cooperation lines at different "distances from the origin" in the stability/adaptability space. More cooperative polities will tend to have more of both desirable traits, while the two traits might trade-off for a given level of cooperation. In order to explore this logic in the data, we take two steps. In this sub-section, we look at the impact on stability and adaptability of some possible proxies for the determinants of intertemporal cooperation identified in the theoretical framework. In the next sub-section we explore whether the negative correlation between stability and adaptability predicted by the veto player approach can be recovered after imposing these controls.

One natural candidate for a determinant of intertemporal cooperation is the discount factor of the actors involved in negotiations. As shown in the model, if actors have a low discount factor (high discount rate), the probability of reaching cooperative agreements falls. The discount factor of policymakers (δ in the model) might be proxied (quite roughly) by the time horizon of the policymakers (the probability that they will be around in the future). For example, a legislator from the US, who is usually reelected several times, might have a much lower discount rate (higher δ) than a legislator from Mexico, who can only serve for one term without the possibility of reelection.[39] While those politicians who may be out of office in the next period have no incentive for reaching agreements that go beyond the present, those who know that they will be in the negotiation table in the future may trade policies today for policies in the future. In order to approximate the time horizon of the policymakers, while having high country coverage, we have chosen two components: changes to the constitution and changes in the cabinet.[40] The first variable is defined as the number of basic

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[39] In Stein et al (2008) we analyze the particular impact of these types of factors on the policymaking process in a number of Latin American countries.

[40] As discount factor we use the reverse of the first principal component. We have done exercises using other, sometimes even more accurate, variables such as the reelection rate of legislators, changes in the number of vetoes, changes of the executive and the vote volatility of the executive but we don't include

alterations in a state's constitutional structure that have a significant impact on the political system. The second is defined as the number of times in a year that a new premier is named and/or 50% of the cabinet posts are occupied by new ministers. Consequently, each one of the variables proxy the volatility of the polity, hence, they proxy the uncertainty faced by some of the most relevant policymakers regarding their rate of survival. The time horizon variable is constructed in a way such that, as with δ in the model, higher values imply a higher probability of cooperation.

Beyond the attempt to measure some variables affecting the time horizon, there are a number of other characteristics of the polity which also affect the likelihood of achieving intertemporal cooperation. One of the factors we consider is the degree of cohesion of the polity. We construct a *cohesion* variable by using the opposite of ethnic fractionalization and language fractionalization.[41] We expect that as cohesion increases (i.e., the percentage of actors sitting at the negotiation table have more similar preferences) it also does the probability of reaching cooperative agreements. For example, in the case of the university budget discussed previously, cooperation would be more likely if everybody cares about the university's reputation instead of only caring about their own department.

The other two variables we use are party institutionalization and judicial independence.[42] Higher levels of party institutionalization may allow polities to internalize the changes of particular individuals in government, providing the conditions for intertemporal commitments. An independent judiciary may provide additional enforcement mechanisms to the transactions made in the present, increasing the probability that actors may be willing to engage in intertemporal transactions. Consequently, we expect that as parties become more institutionalized and the judiciary becomes more independent, the conditions for cooperation rise too.

Regression results are presented in Table 5. The regression results for stability and adaptability are basically the same regardless of which one of the variables is used: as the polity is less volatile, there is more cohesion among the players, parties are more

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them here because results are basically the same but in some combinations it reduces the sample size considerably. Sources and definitions are in the appendix.

[41] In some specifications we have tried adding a third variable called *distrust* from the World Values Survey. While the results are the same, it reduces the sample significantly (30 observations).

[42] These issues have been explored in more detail, conceptually and empirically, in IDB (2005) and Stein and Tommasi (2007). Stein et al (2008) presents country case studies showing some of these characteristics at work on specific policy arenas in various Latin American countries.

institutionalized, or the judiciary is more independent, both stability and adaptability are higher.

Table 5. Intertemporal cooperation, and stability and adaptability (weighted least squares).

	Stability				Adaptability			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Time Horizon	0.09**				0.22***			
	(0.04)				(0.07)			
Cohesion		0.01				0.20***		
		(0.04)				(0.07)		
Party Institut.			0.20***				0.42***	
			(0.07)				(0.12)	
Judicial Independence				0.31***				0.54***
				(0.06)				(0.09)
Ln(GDPpc)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Legal Origin	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AdjR^2	.53	.52	0.55	0.64	.50	.61	0.63	0.62
Obs	103	75	104	100	107	73	108	104

Note: significant at 1% level (***), 5% (**), and 10% (*)

The interpretation of the results is straightforward. At higher levels of the independent variables, policy actors find it more feasible to reach intertemporal agreements. Hence, it is easier for them to agree on policies independent of the realizations of the economic and political shocks, which provides higher stability and adaptability. On the contrary, at low levels of the independent variables, cooperation falls apart. In that case, policies would have lower stability and lower adaptability to changing economic circumstances.

Attempting to recover the veto-players trade off

In addition to looking at the impact of the "cooperation" variables on each of the dependent variables, we could use the logic of our framework to attempt to disentangle the intertemporal factors leading to cooperation from the trade-offs implied by veto-player analysis. Picturing again a stability/adaptability space, the distance from the origin of coordinates to the point representing any given polity would be higher if that polity is in a more cooperative equilibrium. As shown in Table 5, this is the case; as the conditions for cooperation arise, it is easier to obtain more of both variables.

Given that the likelihood of reaching intertemporal agreements seems to matter for explaining stability and adaptability, it may be relevant to check if there are

substantial differences in terms of the correlation between stability and adaptability among groups of countries more likely to be on the cooperative versus non-cooperative end. Because it is easier to interpret –and closer to the model- we divide the sample among those countries with low and high levels of the time horizon.

The correlation between stability and adaptability for the different samples shows two different stories –even after controlling for the independent variables. On the one hand, for the group of countries with high time horizon, the correlation remains non-negative and there is no trade-off. On the other hand, a trade-off between stability and adaptability may appear in the data for low values of the time horizon; that is, for the group of countries with lower probability of reaching intertemporal agreements.

Table 6. Correlation between adaptability and stability

| | | Sample divided by | | | |
| | | Time horizon[1] | | Time horizon[2] | |
Controlling for Ln(GDPpc) + Regional + Legal Origin	Whole sample	High	Low	High	Low
	0.16	0.62***	-0.22	0.45***	-0.61***
N	100	50	50	78	21

Note: significant at 1% level (***), 5% (**), and 10% (*)
[1] Low and high corresponds to countries being above or below the median
[2] Low and high corresponds to countries being above or below the 75th percentile

Finally, we have checked whether the results from proposition 2 could also be recovered by incorporating intertemporal interaction considerations. As it is shown in Table 7, the variables that proxy the number of vetoes are still positive but not significant to explain adaptability. The fact that the results at least move in the direction of veto player predictions, suggest the future possibility of recovering the result after controlling more fully for the factors that affect both adaptability and stability in the same direction.

Table 7. Regressions on adaptability (weighted least squares).

	(1)	(2)	(3)	(4)
Executive Constraints (Polity IV)	0.08			
	(0.08)			
Executive Constraints (Henisz)		.09		
		(.08)		
PolconV			.18	
			(.42)	
Checks				.01
				(.06)
Time horizon	.09	.09	.09	.08
	(0.09)	(.09)	(.09)	(.09)
Cohesion	.18***	.18***	.18***	.18**
	(.06)	(.06)	(.06)	(.07)
Party Institutionalization	.25*	.26*	.24*	.23
	(.14)	(.14)	(.14)	(.14)
Judicial Independence	.32**	.31**	.36***	.40***
	(.13)	(.13)	(.13)	(.11)
Ln(GDPpc)	Yes	Yes	Yes	Yes
Region	Yes	Yes	Yes	Yes
Legal Origin	Yes	Yes	Yes	Yes
AdjR^2	0.72	0.72	0.71	0.71
Obs	69	69	69	68

Note: significant at 1% level (***), 5% (**), and 10% (*)

7. Conclusions

This paper is part of an agenda in which we study the effects of political institutions on intertemporal cooperation and, hence, on the resulting policies. Most existing formal literature, particularly the veto players approach, has mapped political institutions (such as electoral rules, and forms of government) into parameters of the description of what are essentially one-shot games. We suggest modeling policymaking as a repeated game, and hence mapping political institutions into parameters of repeated games.

By introducing the concept of intertemporal cooperation we are able to show that two of the main implications of the veto players' theory are not necessarily true: more adaptability <u>does not necessarily</u> imply lower stability, and having more veto players <u>does not necessarily</u> make a polity less able to adjust its policies. On the contrary, under some specific circumstances, adding veto players may increase the adaptability of policies.

More generally, if one ones to venture in the difficult terrain of institutional design, we believe it would be important to consider the possible implications of the design chosen in terms of fostering intertemporal cooperation.

Appendix

Data definition and sources

Variable	Definition and sources	Obs
Ln(GDPpc)	▪ Log of GDP per capita in 1980 ▪ When data unavailable for 1980, closest year available used ▪ Source: World Bank World Development Indicators	115
Legal Origin	▪ Dummy variables that identifies the legal origin of the Company Law or Commercial Code of each country. ▪ Source: Quality of Government by La Porta el at 1999. ▪ Includes: British, French, Germany, Scandinavian, Socialist	148
Regions	▪ Dummy variables according to the country region ▪ Source: World Bank. ▪ Includes: Developed, Asia, ECA, LAC, MNA, SouthAsia, Africa.	152
Constitutional changes	▪ Defined as the number of basic alterations in a state's constitutional structure, the extreme case being the adoption of a new constitution that significantly alters the prerogatives of the various branches of government. Examples of the latter might be the substitution of presidential for parliamentary government or the replacement of monarchical by republican rule. Constitutional amendments which do not have significant impact on the political system are not counted. ▪ Source: Cross National Time Series database (S21F2), covering 1980-2003	151
Cabinet changes	▪ Defined as the number of times in a year that a new premier is named and/or 50% of the cabinet posts are occupied by new ministers. ▪ Source: Cross National Time Series database (S22f2), covering 1980-2003.	151
Volatility of vetoes	▪ Defined as Standard deviation of Vetoes ▪ Source: see Vetoes	152
Executive changes	▪ Executive Power Change ▪ The number of times in a year that effective control of the executive power changes hands. Such a change requires that the new executive be independent of his predecessor. ▪ Source: Cross National Time Series database (S22f3)	151
Ethnic Fractionalization	▪ Source: Alesina et al (2003) from various sources	102
Language Fractionalization	▪ Source: Alesina et al (2003) from various sources	99
Law & Order	▪ Law & Order (n=128) ▪ As noted in (Political Risk Services, 1996): "A country with a sound law and order tradition has sound political institutions, a strong court system and provisions for an orderly succession of power. This indicator reflects the degree to which the citizens of the country are willing to accept the established institutions to make and implement laws and adjudicate disputes. A high point total means that there is a strong law and order tradition, while a low point total means that there is a tradition of depending on physical force or illegal means to setting claims." ▪ Source: Henisz, 1980-2004, 1990-2004	128
Military	▪ Is Chief Executive a military officers? (1 if yes, 0 if no) ▪ Source: Database of Political Institutions, 1990- 2004/ 1980-2004. The value is the mean of the years 1980/1990- 2004 for which data is available	150
Congress Capabilities	▪ Composed of the average of the following two components:	118

	▪ Legislative efficiency ▪ Confidence in Parliament (conparl)	
Party Institutionalization	▪ Composed by five variables: ▪ BTI (2006): To what extent is there a stable, moderate and socially rooted party system to articulate and aggregate societal interests? Ranked from 1 to 7, higher numbers indicating higher levels of a stable party system. ▪ Confidence in Political Parties ▪ Vote Volatility ▪ Party Age ▪ Fairness of Elections	152

Executive Constraints (Polity IV)	▪ University of Maryland Polity IV Project, Political Regime Characteristics and Transitions, average of data from 1990-2003. Refers to the extent of institutionalized constraints on the decision-making powers of chief executives, whether individuals or collectivities. The concern is therefore with the checks and balances between the various parts of the decision-making process. A seven-category scale is used.
	  o (1) Unlimited Authority, (3) Slight to Moderate Limitation on Executive Authority, (5) Substantial Limitations on Executive Authority, (7) Executive Parity or Subordination
	  o Those polities described with a (3) or above also contain an independent judiciary
		152

Executive Constraints (Henisz)	▪ Henisz Dataset, average of data from 1990-2004. Constraints on the Executive: A seven-category scale is used ▪ (1) Unlimited Authority: There are no regular limitations on the executive's actions, to (3) Slight to Moderate Limitations an Executive Authority, to (7) Executive Parity or Subordination: Accountability groups have effective authority equal to or greater than the executive inmost areas of activity. ▪ Those polities described with a (3) or above also contain an independent judiciary	
POLCONV	▪ Henisz Dataset: POLCONV variable, which takes the average of country data from 1990 to 2004. Data ranges from 0-1. Was rescaled to 0-6 ▪ This measure of political constraints estimates the feasibility of policy change (the extent to which a change in the preferences of any one actor may lead to a change in government policy). It is constructed by identifying the number of independent branches of government with veto power over policy change and is then modified to take into account the extent of alignment across branches of government using data on the party composition of the executive and legislative branches.	
Checks	▪ Source: Database of Political Institutions, 1980/90- 2004. ▪ Equals one in countries where legislatures are not competitively elected, considered countries where only the executive wields a check. ▪ Incremented by one if there is a chief executive (it is blank or NA if not).Incremented by one if the chief executive is competitively elected ▪ Incremented by one if the opposition controls the legislature. ▪ In presidential systems, CHECKS is incremented by one for each chamber of the legislature unless the president's party has a majority in the lower house and a closed list system is in effect (implying stronger presidential control of his/her party, and therefore of the legislature). for each party coded as allied with the president's party and which has an ideological (left-right-center) orientation closer to that of the main opposition party than to that of the president's party.	

	▪ In parliamentary systems, CHECKS is incremented by one for every party in the government coalition as long as the parties are needed to maintain a majority for every party in the government coalition that has a position on economic issues (right-left-center) closer to the largest opposition party than to the party of the executive. In parliamentary systems, the prime minister's party is not counted as a check if there is a closed rule in place – the prime minister is presumed in this case to control the party fully.	

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