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Carlos Scartascini
Ernesto Stein
Mariano Tommasi

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POLITICAL INSTITUTIONS, INTERTEMPORAL COOPERATION, AND THE QUALITY OF PUBLIC POLICIES

CARLOS SCARTASCINI AND ERNESTO STEIN*

Inter-American Development Bank

MARIANO TOMMASI

Universidad de San Andrés

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While economists have tended to focus on specific public policies when developing recommendations, the achievement of welfare objectives might depend more on the quality of policies than their content. This paper develops several measures of the qualities of policies across countries, arguing that the quality of public policies depends on each polity's ability to strike intertemporal transactions necessary to develop and sustain effective policies. The analytical framework developed here indicates that this ability depends on several characteristics of political institutions, such as congressional capabilities, judicial independence, and bureaucratic independence and professionalism. The empirical evidence presented supports this idea.

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* Ernesto Stein (corresponding author): Research Department, Inter-American Development Bank, 1300 New York Ave, NW, Washington DC 20577; e-mail ernestos@iadb.org. Carlos Scartascini: Research Department, Inter-American Development Bank, 1300 New York Ave, NW, Washington DC 20577; e-mail carlossc@iadb.org. Mariano Tommasi: Departamento de Economía, Universidad de San Andrés, Vito Dumas 284, B1644BID Victoria, Buenos Aires, Argentina; email tommasi@udesa.edu.ar. We are particularly grateful to Heather Berkman, Lorena Caro Zambrano, Diego Focanti, María Franco Chuaire, and Juan Sebastián Galán, who provided assistance collecting and updating the data at different stages of this project. Fabiana Machado helped us to coordinate some of the data collection efforts and provided very valuable ideas and suggestions. We have greatly benefited from the comments of the referees and editor of the Journal as well as from those of colleagues and participants at several conferences and seminars. The information and opinions presented in this document are entirely those of the authors, and no endorsement by the Inter-American Development Bank, its Board of Executive Directors, or the countries they represent is expressed or implied.

I. Introduction

In every state, big or small, new or old, public policies play a fundamental role in influencing economic and social outcomes. In studying the effects of policies on various outcomes of interest, analysts have paid particular attention to the specific content of those policies. While recognizing that the content of policies is indeed important, in this paper we depart from this tradition, and focus instead on certain characteristics of policies which, we think, are every bit as important as their content. For example, are policies stable, so that they have time to work? Can they be adjusted when they fail, or in response to changing socioeconomic circumstances? Are they well implemented and enforced? Are they geared toward the public interest, or do they cater to special interests? Using a variety of international data sources, we put together a dataset to capture these characteristics of policies around the world, and study their political and institutional determinants.

Other authors before us have pointed out the importance of certain key policy characteristics such as the ones we focus on here. For instance, Rodrik (1995) analyzed six countries that implemented a set of policies that shared the same generic title—“export subsidization”—but had widely different degrees of success. Rodrik relates their success to such features as the consistency with which the policy was implemented, how the policy was bundled (or not) with other policy objectives, and how predictable the future of the policy was.

The effect of policies on the final economic and social outcomes of interest depends on the actions and reactions of economic and social agents, who take into account their expectations about the future of the policies in question before deciding their responses. As Rodrik explains, in reference to trade reform, “it is not trade liberalization per se, but credible trade liberalization that is the source of efficiency benefits. The predictability of the incentives created by a trade regime, or lack thereof, is generally of much greater importance than the structure of these incentives. In other words, a distorted, but stable set of incentives does much less damage to economic performance than an uncertain and unstable set of incentives generated by a process of trade reform lacking credibility.”¹

Engerman and Sokoloff (2008) take this argument further by adding to the role of credibility that of policy flexibility in explaining growth: “Credible commitment to acknowledge private property rights, whether in the interests of the elite or the

¹Rodrik (1989, p. 2). For models formalizing the effects of policies of uncertain duration in several economic contexts, see Calvo and Drazen (1998).

majority of the population, is the classic example of the value of certainty about policy action. More generally, however, allowing some *flexibility* in institutions, such that they can be altered to allow private or public agents to take fuller advantage of new opportunities that arise as technology or the environment changes, would be expected to foster improved economic performance and more rapid growth.”²

The examples above help motivate this project’s efforts to build measures of certain characteristics or key features of public policy beyond their specific content, which may affect countries’ ability to reach desirable outcomes, and to study their politico-institutional determinants.

Concern with such policy characteristics leads us to focus on the processes that shape policies, carry them forward to implementation, and sustain or adapt them over time. Taking any particular “policy reform” to fruition is a process that involves multiple actors through many stages of the policy process. Governments need the capabilities required to formulate and carry out policies, and the capacity to maintain momentum throughout the whole process. Many such “state capabilities” have been referred to in previous literature as key factors in explaining the impact of policies on desired outcomes. In a landmark study, Weaver and Rockman (1993) argue that governmental effectiveness can be measured according to several standards; the one they propose focuses on a set of tasks and on capabilities that governments need, regardless of their specific policy objectives, in order to perform those tasks (Weaver and Rockman, 1993: 6). Capabilities are a pattern of government influence on its environment that produces substantially similar outcomes across time and policy areas. Weaver and Rockman propose a number of government capabilities, including setting and maintaining priorities, targeting resources, innovating when old policies have failed, coordinating conflicting objectives, ensuring effective implementation, and ensuring policy stability so that policies have time to work.

In this paper we propose an explanation of such capabilities, and the related policy characteristics, based on a framework of intertemporal cooperation. The framework (developed in Section II) indicates that policies with good characteristics such as stability, adaptability and coherence are likely to emerge when policymaking actors can make and sustain agreements over time. In turn, the capacity to achieve such cooperative agreements (cooperative equilibria to repeated policymaking games) depends on some characteristics of the institutions of policymaking, including the policymaking capabilities of congress, judicial independence, party system institutionalization, and the like.

² Italics added for emphasis

II. The framework

The process of policymaking in modern-day democracies can be understood as a process of bargains and exchanges (or transactions) among various political actors. Some of these exchanges are consummated instantly (spot transactions), while in many other cases current actions or resources are exchanged for promises of future actions or resources (intertemporal transactions). Issues of credibility and the capacity to enforce political and policy agreements are crucial for political actors to be able to engage in intertemporal transactions.

The framework suggested here is an elaboration of previous work on transaction cost economics and its application to politics.³ A number of features, amenable to analysis from a transaction cost perspective, characterize the political transactions surrounding public policies. We mention six that are captured in a stylized manner by our framework:

- (1) Politics and policymaking take place over time. Decisions are made at different points in time, often by different configuration of actors, and decisions made at any point in time have both short-term and long-term consequences.
- (2) The relative political power of various actors changes over time.
- (3) There are elements of both conflict and commonality of interests in almost any relevant policy issue.
- (4) The socioeconomic reality on which policies operate changes over time. Random events require policy adaptation. New circumstances in international markets, policy decisions in other countries, technological changes, diseases, natural disasters, and social and demographic changes usually require new policies or adjustment of previous ones.
- (5) Most policies could be characterized as having two different decision frequencies: moments of major institutional definition (“contractual moments”) and regular policymaking under those rules.
- (6) Many of the changing realities in (4) are such that it would be impossible for political or policy agreements to cover every feasible future circumstance. Thus political contracts (5) are necessarily incomplete.

In order to capture those features, we depict policymaking as the outcome of a repeated game (a simple example of which is formalized in the Appendix).⁴ Imagine a number of political actors who have to make some collective decision.

³ North (1990) and Dixit (1996) have labeled *transaction cost* politics the use of transaction-cost reasoning to think about politics.

⁴ This framework is presented in more detail in Spiller, Stein and Tommasi (2003) and Chapter 2 of Spiller and Tommasi (2007), building upon previous contributions which are duly cited in those texts.

These players have a common interest in having the policy respond to an *economic or technological shock*. At the same time, the heterogeneity of preferences and/or distributive nature of politics generate conflict. The relative power of different players in the collective decision process changes over time, according to a *political random shock*.⁵

Assume that the political game starts with an initial period, before the play of the repeated game, in which players can make some agreements by unanimity. This captures the notion of a “contracting moment,” a time when the parties possibly agree on some restrictions on the future play of the game. The set of feasible contracts at that moment will depend on a number of things, including the availability of enforcement technologies—for instance, whether there is an independent judiciary.

Define first best policies as those that would be agreed upon in a complete contract before the world starts running—or equivalently, those that a benevolent social planner would choose. It is easy to show (see Appendix) that these optimal policies will be “moderate” and invariant to the realization of political shocks,⁶ but flexible enough to adjust to economic shocks. It is also easy to see that if political actors are durable and patient enough, they can sustain first-best policies as a Nash equilibrium in an infinitely repeated game.⁷

On the other hand, if their discount rate is high enough, (full) cooperation will not be sustainable in equilibrium. In non-cooperative equilibria, such as the infinite repetition of the unique Nash equilibrium of the one-shot game, each party that has political power at a given point in time will maximize its own welfare without any intertemporal considerations for those holding power in the past or in the future. In such a case, policies will depend on the realization of political shocks, and welfare will be lower than in the cooperative case.

Looking into the prior contracting stage in which players can make some agreements, restrictions on the set of feasible (i.e., enforceable) contracts will depend on the issues in question and on available enforcement mechanisms. Suppose, for instance, that agreements can be enforced by third parties, but that the realization of economic shocks is not verifiable. In that case, it will not be possible to enforce agreements that prescribe (economic) state-contingent rules.

⁵ Imagine some variation of a random recognition rule *a la* Baron and Ferejohn (1989).

⁶ That is, first best policies will not depend so much on the identity of the each period’s agenda setter in Baron and Ferejohn (1989) or of the party in power in Alesina (1988).

⁷ As discussed later, the possibility of sustaining cooperation will depend on a number of factors beyond the discount rate.

Simple rules, however, can be agreed upon. These rules would imply relatively inflexible policies. Since *ex-ante* parties prefer policies that are independent of political shocks, these simple rules will not be sensitive to those shocks (which is good). On the other hand, since economic shocks are not verifiable, policies will not be able to adjust to the changing economic environment either (which is bad). The best *ex-ante* policies, then, may be rigid policies. As a consequence, they deliver lower welfare levels than could be obtained in a fully cooperative equilibrium or in an environment of complete enforcement.

Indeed, whenever the repeated game delivers full cooperation, these simple rigid rules will not be utilized—players will prefer adaptation to economic shocks to a set of rigid *ex-ante* rules. When the repeated game does not develop cooperation, though, there are conditions under which an inflexible policy rule will be chosen over the discretionary policy of the Nash equilibrium. That choice depends on the relative cost of not being able to adjust policies to economic shocks (related to the variance of the economic shocks), compared to the cost of “partisan” policymaking (related to the heterogeneity of preferences).⁸ Thus, when enforcement of intertemporal political exchanges is relatively weak, we may observe highly volatile political agreements or highly inflexible policies.⁹

Stability and adaptability are not the only features of public policies that will be affected by the cooperative or uncooperative nature of the equilibrium. Under the Nash equilibrium, policies will reflect the preferences of some sectors of society, those that are represented by the government of the day. Under full cooperation, policies will tend to reflect a more encompassing set of interests, since the preferences of the constituencies of future (and past) governments are taken into account as well. These more encompassing interests, in the spirit of McGuire and Olson (1996), could lead to policies that are more public-regarding, promoting general welfare rather than catering to the interests of more specific groups (see Cox and McCubbins 2001).

We can obtain a further connection between the degree of cooperation in equilibrium and other features of public policy by extending the model in a couple of directions: (i) adding intertemporal policy linkages, and (ii) introducing individual policy actions (by different layers of government in a federal hierarchy,

⁸ See the Appendix. Notice that this result is similar to the standard rules vs. discretion result in monetary policy. See for instance Persson and Tabellini (2000: Chapter 17).

⁹ As argued in Spiller and Tommasi 2007, Argentina is a clear example of a country with non-cooperative policymaking leading to volatile policies occasionally curtailed by very rigid credibility-enhancing mechanisms, such as the monetary Convertibility regime.

by different horizontal units such as ministries in a given level, by multiple actors throughout the policy process, etc.).

Regarding the first point, many policies are linked over time. Those linkages could arise because of technical reasons (i.e., policies that have intertemporal effects), legal reasons (a law is in place until it is changed), or economic reasons (present fiscal actions have future effects through intertemporal budget constraints). Introducing such linkages, Spiller and Tommasi (2007) show that in transaction environments that do not promote cooperation, some welfare-improving policies (or policy reforms) are not undertaken, and that there is under-investment in policymaking capabilities.¹⁰ The former result obtains due to an inability to instrument the intertemporal compensations necessary to improve the welfare of all veto players. The latter is just the “policy” analogue of the well-known result in transaction cost economics that *ex-post* opportunism reduces *ex-ante* investment.

Another extension of the model introduces individual policy actions other than participation in the “collective” choice discussed above by, for instance, the multiple policy authorities in a federal system, or the various ministries in charge of policy implementation. In bad transaction environments, those individual policy actions will be less cooperative (a basic result from non-cooperative game theory), leading to poorly coordinated (or “balkanized”) policies.

To summarize, we have argued that in less-cooperative policymaking environments policies might be too volatile and/or too rigid, may cater to more narrow interests, be poorly coordinated and of low quality due to insufficient investment in policy-making capabilities. These properties of policies are among the dependent variables we explore in Section III. After doing that, in Section IV we come back to discuss, on the basis of the framework just presented, the type of institutional variables that will constitute our explanatory variables.

III. Characteristics of public policies

The framework just presented generates specific predictions about some policy characteristics. Following its logic, we have selected the following six indicators of a country’s policy characteristics: stability, adaptability, coherence and coordination, quality of implementation and enforcement, efficiency, and public-

¹⁰ By investment in policy-making capabilities we refer to things such as developing a competent bureaucracy, or legislators investing in acquiring policy expertise. This is consistent with results in Besley and Persson (2007).

regardness. Here we briefly discuss each of these characteristics. The data used to capture them will be discussed in Section V.

Policy stability: While some countries seem capable of sustaining most policies over time, in others policies are frequently reversed, often in response to minor changes in political winds. Having stable policies does not mean that policies cannot change at all, but rather that changes tend to respond to changing economic conditions or failure of previous policies, rather than changes in government or other political shocks.

Policy adaptability: Countries should be able to change policies when they are clearly failing, adapt policies in response to changing economic conditions and international learning about best practices. Policy adaptability can be hindered by a policy making process prone to gridlock, or by rigidities introduced explicitly to avoid opportunistic policy manipulation, which limits volatility at the cost of reducing adaptability.¹¹ Low adaptability leads to inadequate response to shocks, and a propensity to keep sub-optimal policies for extended periods of time.

Policy coordination and coherence: Public policies are often the outcome of actions taken by multiple actors in the policymaking process. While these actors should coordinate their actions to produce coherent policies, this does not always occur, often leading to what Cox and McCubbins (2001) have called “balkanization” of public policies. Lack of coordination, which may occur among different agencies within the central government or between different levels of government, often reflects the non-cooperative nature of political interactions.

Policy implementation and enforcement: A policy could be well thought out and pass through Congress, and yet be completely ineffective if it is not well implemented and enforced. In many countries, the quality of policy implementation and enforcement is quite poor. This is associated in part with the lack of capable and independent bureaucracies and judiciaries. To an important degree, the quality of policy implementation and enforcement depends on the extent to which policymakers have incentives and resources to invest in policy capabilities.

Policy efficiency: Whatever policy direction a government decides to follow (redistribute to the poor, clean the environment, promote non-traditional exports), it can do so with varying degrees of efficiency—that is, by making better or worse use of its human and economic resources. Efficient policies imply, for example, that public spending is not wasteful.¹²

¹¹ This is sometimes accomplished by embedding policies (such as pension benefits in Brazil or intergovernmental transfers in Argentina) into the constitution.

¹² Unlike the other policy characteristics discussed in this section, efficiency has always been a central concern of economists.

Public-regardedness of policies: Public-regardedness refers to the extent to which policies produced by a given system promote the general welfare and resemble public goods (that is, are “public-regarding”) or tend to funnel private benefits to certain individuals, factions, or regions (Cox and McCubbins 2001).

IV. Political institutions and intertemporal cooperation

We argued in Section II that the ability of political actors to cooperate will be an important determinant of the characteristics of policies in each country. But what conditions make policy cooperation more likely? And which features of political institutions are associated to those conditions?

It has already been established in the above framework that the likelihood of political cooperation depends on the patience of the players (i.e., their discount rate). We list here some additional factors that may affect the degree of cooperation, drawing insights from the theory of repeated games.¹³

Number of political players: The larger the number of players, the smaller the set of other parameters for which cooperation obtains. Fudenberg and Tirole (1991: Section 5.1.2) show that, holding constant the set of feasible payoffs, increasing the number of players reduces the set of equilibria towards less cooperative ones.

Intertemporal linkages among key political actors: The intertemporal pattern of interactions among specific individuals in formal political positions (such as legislators, governors, and bureaucrats) matters for developing cooperative outcomes. It is not the same to have a legislature in which the same individuals interact over extended periods of time as one where individuals are drawn at random from given populations (parties, provinces, etc.) with frequent replacement. Cooperation is less likely in the latter. Self-enforcement of intertemporal deals will be more difficult when some of the current players have not been the ones who agreed to them in the first place.

Delegation: Other than self-enforcement through repeated play, certain forms of cooperation could be achieved by alternative institutional means. Delegating policy to an independent bureaucracy is one such alternative. In the example of the Appendix, it is easy to show that delegating policy forever to an individual with preferences falling in between those of the two parties leads to the first best.

Availability of enforcement technologies: As in transaction cost economics, intertemporal cooperation is easier to achieve if there is good third-party

¹³ See references in Spiller and Tommasi (2007).

enforcement. The presence of an impartial umpire and enforcer of political agreements, such as an independent judiciary, may thus facilitate cooperation.

Characteristics of the arenas where key political actors undertake their exchanges: The complex intertemporal exchanges required for the implementation of effective public policies could be facilitated by the existence of exchange arenas that are organized in ways that make cooperation easier to enforce. Seminal work on the U.S. Congress debates the role that different institutional arrangements have in facilitating legislative bargaining, but it is agreed that somehow things are arranged in a way that facilitates some intertemporal cooperation in political exchanges (see for instance Weingast and Marshall 1988; Shepsle and Bonchek 1997; and the collection in Shepsle and Weingast 1995). Whether the legislature as the arena where these transactions take place is adequately institutionalized depends on several factors, including legislators' incentives and capabilities.

To sum up, political cooperation leading to effective public policies is more likely if: (1) the number of political actors is small, (2) those actors have long horizons and/or strong intertemporal linkages, (3) good delegation technologies are available, (4) good enforcement technologies (such as a strong court to arbitrate) are available, and (5) the key political exchanges take place in arenas where properties (1)–(4) tend to be satisfied.

What are the actual features of political institutions that make political cooperation (and hence good public policies) more likely? The characteristics of the game listed above could be mapped to observable features of the policymaking environment. Here we concentrate on a few such features which capture some of the determinants of political cooperation for which there are proxy variables available in international datasets with wide enough country coverage (as shown in the next section). These characteristics are the following:

Congressional policymaking capabilities: Congress can be the democratic arena par excellence for the bargaining and enforcing of intertemporal policy agreements. A legislature made up of professional legislators (with technical capabilities for discussing and overseeing policies) and adequate organizational structures can facilitate the development of relatively consensual and consistent policies over time (Saiegh 2010, Palanza, Scartascini, and Tommasi 2012).

Judicial independence: The Judiciary, especially the Supreme Court or Constitutional Tribunal, is a natural candidate for the enforcement of those political or policy agreements reflected in constitutions and laws. In its role as an independent referee, the judiciary can provide a “durability mechanism” that can increase the probability of reaching intertemporal agreements and thus contribute

to better public policy outcomes such as enhanced policy stability, and the quality of policy implementation and enforcement.¹⁴

Civil service capacity: A strong, independent and professional bureaucracy seems the most natural vehicle for the flexible enforcement of political agreements via delegation. An effective and capable bureaucracy is likely to improve the quality of implementation of public policies, as well as their coordination across ministries. It may also decrease the likelihood that policy will be prone to political opportunism, and could increase policy adaptability to changing circumstances by relying on technical expertise (Zuwanic and Iacoviello 2010).

Party system institutionalization: An institutionalized party system is a natural aggregator that reduces the effective number of players at the bargaining table and increases the horizons of individual political actors, as well as their intertemporal linkages. Institutionalized parties can more effectively engage in policy debates, and enhance the scope for coordination in congress. In addition their leaders will be more likely to uphold the commitments of past party leaders. Thus, institutionalized party systems may facilitate intertemporal policy compromise.¹⁵

In the next section we will discuss the data used to measure these features of the policymaking environment. Before moving on to the data and the empirics, however, it is useful to illustrate the way in which the institutional and political variables discussed in this section affect the degree of cooperation and hence of the characteristics of policies discussed in Section III. In the interest of brevity, we focus here on just one of the policy outcomes, namely stability.

Consider a hypothetical country with two similarly-sized parties that alternate in power, and with electoral rules that tend to endow the government with a legislative majority. If these parties are highly polarized and their policy preferences differ substantially, incentives to deviate from cooperation will be large. While other factors will come into play, each party would probably push to adopt its preferred policies when it is in office, leading to unstable policies. If preferences are more

¹⁴ This view follows the work of Landes and Posner (1975) in which the presence of an independent court tends to resolve time-inconsistency problems (that is, agreements made today have a higher discounted value because they are less likely to be changed in the future). See also Crain (2001) and references therein. The role of intertemporal *political* enforcement is explored, in the context of Latin American judiciaries, in Sousa (2010).

¹⁵ In previous work within Latin America we have found that institutionalized party systems, if programmatic, tend to correlate with high-quality policies (IDB 2005 and references there). Other variables, such as the legislative reelection rate, proxy very well some of the features of cooperation such as the horizon of legislators and the scope for intertemporal linkages. Unfortunately, there is no widely available cross-country data on legislative reelection rates.

closely aligned, the immediate gains associated with deviating from cooperation are smaller. Thus, political parties are more likely to agree on an intermediate policy and stick to it, resulting in policy stability.¹⁶

The break-up of cooperation may yield immediate gains for incumbents, but it also produces long-term costs. First, deviating today means that the opponent will respond in kind, so future policies will be farther from the (current) incumbent's preferences when the opponent is in office. Second, there are costs of switching policies frequently, which have to be borne as well. Whether the immediate benefits compensate for the long-term costs will depend on the rate at which political actors discount the future. If discount rates are low, it may be possible even for politicians with diverse preferences to agree on an intermediate policy that can be sustained over time. If discount rates are high, however, cooperation is more unlikely to arise. Discount rates, in turn, are determined in part by the length of the actor's horizons, including such factors as the tenure of presidents, legislators, and party leaders, and the degree to which political parties are long-lived.

Let us assume that discount rates are low, so politicians do have incentives to behave cooperatively. In order for cooperation to arise, they will need some mechanism by which they can reach the necessary agreements, which may involve compensation in other policy areas or across time. Institutionalized legislatures and political parties can play a very important role in this regard. In the absence of adequately institutionalized arenas where these deals can be brokered and upheld over time, it will be difficult for the parties to reach these deals.

If the immediate benefits of deviating from cooperation or the discount rates are large enough, however, cooperation may not be self-enforcing. While cooperation may benefit everyone *ex-ante* (before the results of the elections are known), once an incumbent is in office, she may have incentives to impose her preferred policy. In such cases, political actors may want to agree *ex-ante* to implement an intermediate policy, and put in place mechanisms that will ensure that the deal is upheld. Delegating policymaking to a competent autonomous bureaucracy is one way to do this, provided the delegation is credible. An independent judiciary may help make such delegation or other forms of commitment more credible, by forcing political actors to stand by them.

¹⁶ Notice that in this setting the content of some policies may be shifting as parties alternate in power. Yet features such as policy stability or volatility will be a constant as long as the institutional setting does not change. This may help clarify why we focus on these features of policies as our outcome variables, rather than on policy content.

V. Empirical analysis

A. Policy characteristics across countries

In this section we attempt to build cross-country indicators of policy characteristics drawing from available broad cross-national sources. The construction of this international dataset builds upon previous efforts (see Inter-American Development Bank 2005) in which these policy characteristics were constructed for 18 Latin American countries. Here coverage is expanded to include 97 democratic countries around the world.¹⁷ Whenever possible, we have cross-checked the expert survey-based data presented here with more objective data which in some cases is available, albeit for much smaller samples.¹⁸

In what follows, we will discuss the components of each of our indices of policy characteristics. The methodology for the construction of the indices on the basis of these components is discussed in detail in the online data appendix.¹⁹

stability: To gauge policy stability we used four variables from three different sources: i) the volatility of the Fraser Index of Economic Freedom. ii) a measure of the extent to which legal or political changes undermine firms' planning capacity, from the Global Competitiveness Report (GCR); iii) the extent to which new governments honor the contractual commitments and obligations of their predecessors, also from GCR; iv) a question from Profils Institutionnels (PI) evaluating the "Consistency and continuity of government action in economic matters."²⁰

adaptability: Our index on policy adaptability is based on three variables: i) a variable rating the states' ability to respond effectively to domestic economic problems from the Columbia University State Capacity Survey (CUSCS); ii) a measure capturing the ability of the political leadership to act flexibly, as well as their capacity to learn and to replace failing measures with innovative policy,

¹⁷ These include 23 developed countries, 7 from East Asia, 19 from Central Europe, 1 from the Middle East, 21 from Latin America, 5 from South Asia and 21 from Sub-Saharan Africa.

¹⁸ For example, we have checked the correlation of our adaptability index with indicators by Braun and Di Gresia (2002) of whether social policy adjusts well over the macroeconomic cycle, for 20 countries in Latin America for which the data is available. The correlation is 0.49, and is statistically significant. Other checks with fiscal variables are reported in Scartascini, Stein and Tommasi (2012).

¹⁹ See also Berkman et al (2009).

²⁰ For more details on each of these variables, as well as those in the indices that follow, see the online data appendix.

from the Bertelsmann Transformation Index (BTI); iii) a variable evaluating the decision-making capacity of political authorities in economic matters from PI.

coordination: Our measure of policy coordination and coherence is based on two variables: i) a measure of the effectiveness of coordination between the central government and local-level government organizations from CUSCS; ii) a variable rating coordination between ministries and within administrations from PI.

implementation: The index on policy implementation and enforcement is based on seven variables: from the GCR, i) expert evaluation of whether the minimum wage set by law in the country is enforced, ii) whether tax evasion in the country is rampant or minimal, and iii) whether environmental regulation in the country is enforced; from BTI, iv) estimates of whether the government implements its reform policy effectively; from CUSCS, v) a rating of states' ability to formulate and implement national policy initiatives, as well as vi) a rating of states' effectiveness in collecting taxes or other forms of government revenue; from the Economist Intelligence Unit (EIU), vii) experts' assessment of the effectiveness of the political system in formulating and executing policy.

efficiency: For policy efficiency, we employed two measures: i) expert ratings on whether Public Spending is wasteful, from GCR; ii) experts' evaluation of whether the government makes efficient use of available economic and human resources, from BTI.

public-regardedness: Public-regardedness of policies is captured by three variables: i) GCR's expert rating of whether when deciding upon policies and contracts, government officials usually favor well-connected firms and individuals; ii) GCR experts' evaluation of whether government social transfers go primarily to poor people or to the rich; and iii) the Transparency International Corruption Perceptions Index.

policy index: In the policy index, all variables discussed above (as well as the resulting indices) have been normalized to take values between 0 and 4, with 4 representing the best possible score. In order to construct an overall *policy index*, we use the simple average of the different policy characteristics.²¹

Table 1 presents the descriptive statistics for these variables, as well as the rest of the variables used in the empirical analysis. Table 2 presents the individual indices of policy characteristics, as well as the overall index, which vary significantly at

²¹ The online appendix, also available at <http://www.cscartascini.org/data>, discusses in detail the methodology we used to impute missing values to individual components of the indices, in order to preserve as much as possible the size of the sample. We have explored various weighting alternatives, as well as an alternative index based on the first principal component of the individual indices. The empirical results do not change in any substantial way.

the regional level. The developed countries, not surprisingly, rank highest in terms of the policy index by a large margin, followed by East Asia and the Pacific, Middle East/North Africa and Eastern Europe/Central Asia. Latin American and Caribbean (LAC) countries fall to fifth on the scale, surpassing only the Sub-Saharan Africa and South Asia regions. The fact that the indicators of policy quality are related to the level of development will be controlled for in the empirical analysis of Section V.C.

Table 1. Descriptive statistics

Variable	Obs.	Mean	Std. dev.	Min	Max
<i>stability</i> (policy stability)	90	2.83	0.54	1.14	3.90
<i>adaptability</i> (policy adaptability)	94	1.87	0.87	0.32	4.00
<i>coordination</i> (policy coordination and coherence)	85	1.74	0.92	0.00	4.00
<i>implementation</i> (policy implementation and enforcement)	98	2.11	0.71	0.74	3.65
<i>efficiency</i> (policy efficiency)	98	1.72	0.71	0.21	3.46
<i>public-regardedness</i> (public-regardedness of policies)	97	1.79	0.84	0.27	3.87
<i>policy index</i> (simple average of previous indices)	99	2.01	0.71	0.82	3.53
<i>congressional policymaking capabilities</i>	94	1.59	0.60	0.00	2.72
<i>party system institutionalization</i>	98	1.69	0.44	0.56	3.06
<i>judicial independence</i>	98	2.25	0.94	0.44	3.89
<i>civil service capacity</i>	95	2.03	1.06	0.31	3.97
<i>initial ln_gdppc</i> (natural log of GDP per capita in 1990)	97	7.71	1.58	4.55	10.41
<i>initial level of education</i> (from 1995)	94	0.75	0.21	0.13	0.99
<i>ethnic fractionalization</i>	95	0.44	0.26	0.00	1.00
<i>legal origin</i>	98	2.06	2.52	0.00	10.00
<i>proportional representation dummy</i> (= 1 if proportional)	99	0.72	0.45	0.00	1.00
<i>presidential system dummy</i> (= 1 if presidential)	99	0.52	0.50	0.00	1.00
<i>constraints on executive power</i>	96	5.86	1.22	2.47	7.00
<i>checks and balances</i>	97	3.53	1.26	1.08	10.20
<i>gini</i>	95	41.23	11.00	24.70	74.30
<i>political polarization</i>	92	0.71	0.74	0.00	2.00
<i>trust</i>	91	2.88	1.20	1.40	6.15
<i>terms of trade volatility * initial trade openness</i> (in 1990)	97	4.47	3.61	0.48	19.96

Table 2. Average policy characteristics per region and summary statistics

Region	<i>stability</i>	<i>adaptability</i>	<i>implementation</i>	<i>coordination</i>	<i>efficiency</i>	<i>public-regardedness</i>	<i>policy index</i>
Developed Countries	3.39	2.80	3.01	2.88	2.44	2.97	2.96
East Asia/ Pacific	2.74	1.79	2.10	1.84	1.81	1.61	1.97
Middle East/ North Africa	2.62	1.37	1.93	1.69	1.55	1.79	1.82
Eastern Europe/Central Asia	2.65	1.64	1.86	1.53	1.46	1.39	1.70
Latin America/ Caribbean	2.52	1.56	1.77	1.26	1.29	1.35	1.62
South Asia	2.83	1.44	1.49	1.19	1.32	1.16	1.53
Sub-Saharan Africa	2.58	1.21	1.76	1.11	1.29	1.32	1.53

Note: Regions ordered according to their standing in the *policy index*, which takes values between 0 and 4.

This distribution is similar when we look at the individual policy features. However, changes in the rankings suggest that some countries may be better able to deliver certain features of policies to the detriment of others. For example, when running cluster analysis on the data, all developed countries tend to score very well and are grouped within the same cluster with regards to stability. But when it comes to policy coordination the dispersion among these countries is much larger.²² Countries like Italy, Israel and France tend to be closer to the success cases in the developing world (e.g., Chile, and Brazil) than to the highest-ranking developed countries (e.g. Finland, Germany, and Sweden). Conversely, Singapore tends to cluster together with successful developed countries in several policy features. Korea scores high in policy adaptability, but relatively low in public-regardedness, while in Finland the exact opposite is true.

A concern usually expressed by researchers is that, despite the multitude of measures of policy and institutional capacity available, they are all getting at the same abstract concept (Van de Walle 2005; Knack and Manning 2000). In this regard, the patterns discussed above contribute to the validity of the measures proposed here to the extent that interesting and reasonable variations are observed when comparing country rankings on different dimensions.

²²The variance of the distance between developed countries with regards to *policy stability* (calculated as the mean of the Euclidean distances between them) is very small, at 0.03. In contrast, in the case of *policy coordination and coherence*, it is 0.48.

B. The workings of political institutions

As we have argued above, the ability of countries to achieve good policy characteristics depends on the quality of its institutional environment and the ability of the actors in charge of policymaking to reach intertemporal agreements. Here, we proxy the conditions for cooperation with some characteristics of key players and arenas such as congress, the party system, the judiciary, and the bureaucracy, following the logic of Section IV.

congressional policymaking capabilities: We use the effectiveness of lawmaking bodies, from GCR, and the population's confidence in parliament, from the World Values Survey Four Wave Integrated Data File.²³

judicial independence: Constructed from three different sources—GCR, BTI, and the Fraser Index—that attempt to measure the same phenomenon: whether the judiciary is subject to interference by the government or other political actors.²⁴

civil service capacity: Constructed using data from two sources—the Columbia University State Capacity Survey and the ICRG—and including indices that measure the degree of professionalism in the civil service, whether recruitment is based on merit, the level of the bureaucracy's functional capacity and performance, and its efficiency.

party system institutionalization: The party system institutionalization index is comprised of five variables, which measure the extent to which there is a stable, moderate and socially rooted party system that can articulate and aggregate societal interests, from the BTI; the level of confidence in political parties, from the World Values Survey and various Barometers; vote volatility, from various sources (see online appendix); the age of parties, from DPI; and the fairness of elections, taken from Profils Institutionnels.

Other institutional variables: The variables listed above are natural proxies for some facilitators of intertemporal cooperation. In our analysis we have included some of the institutional rules used more broadly in the literature on political institutions and policy, such as the political regime, the electoral system, the effective number of parties in the legislature, the extent to which there are

²³ For this variable, we have found a strong correlation within the Latin American subsample between these measures and more focused measures constructed for 18 countries and reported in Inter-American Development Bank (2005) and Saiegh (2010), such as the average tenure of the legislators, their educational attainment and the degree of specialization in congressional committees. Unfortunately, these variables are not available for our full sample of countries. However, the correlation between an index of these more focused measures and the legislative measures based on international surveys used here is 0.84.

²⁴ See online data appendix for further details.

checks and balances (from DPI) as well as the political constraints index (from Henisz's POLCON database). These variables, which are widely used in the Political Economy literature (e.g., Persson and Tabellini 2003) are not easily mapped directly into this project's motivating framework, and as will be shown below, they are usually not related to the policy variables.²⁵

C. Relating political institutions and policy outcomes

The framework used to construct these variables generates a number of predictions relating some institutional conditions likely to foster intertemporal cooperation to the features of policies captured by our policy indices. Table 3 offers a first look at the relationship between these two sets of variables. Each cell in the table shows the results of a different regression, and reports the impact of each institutional variable on each of the policy outcome variables. All the regressions include a number of control variables. These include GDP per capita at the beginning of the period, regional dummies, legal origin (La Porta et al. 1999), ethnic fractionalization (from Alesina et al. 2003), and the initial level of education (from Barro and Lee 2000). Controlling for initial GDP per capita is particularly important, since it addresses one important channel through which endogeneity may become a concern: the possibility that both our institutional variables and our outcome variables may be explained by the level of development. The last column in the table shows the relationship between our institutional variables and the overall policy index, calculated as an average of its components.

In general, our expectations are borne out by the data. All the coefficients for the institutional variables are positive, and 26 out of 28 are significant, most of them at the 1% level. However, not all institutional variables have similar effects, and their effects are somewhat heterogeneous depending on the policy characteristic in question. For example, while *judicial independence* seems to matter for all these policy characteristics, *party system institutionalization* seems to matter for some, but not for others. In the regressions for the overall *policy index*, the coefficients for each one of the institutional variables are significant at the 1 percent level, and are economically important. For example, a one point increase in the degree of *judicial independence* leads to a 0.422 increase in the policy index.²⁶ Similarly, a one point

²⁵ Scartascini (2007) develops the potential links between the institutional variables traditionally utilized in the literature and the features of cooperation.

²⁶ Both of these variables as well as the individual policy characteristics and the rest of the institutional variables were constructed to vary between 0 and 4. Standard deviations for *judicial independence* and the overall *policy index* are 0.94 and 0.71, respectively. Thus, another way to look at the impact of *judicial independence* is to say that a 1 standard deviation increase in this variable is associated with a 0.56 (=0.422*0.94/0.71) standard deviation increase in the overall *policy index*.

Table 3. Policy characteristics and institutional strengths: one institutional variable at a time

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	stability	adaptability	implementation	coordination	efficiency	public-regardness	policy index
<i>congressional policymaking capabilities</i>	0.379** [0.114]	0.464* [0.228]	0.617** [0.155]	0.415* [0.183]	0.783** [0.164]	0.567** [0.122]	0.589** [0.123]
Observations	76	79	82	74	83	83	83
Adjusted R-squared	0.655	0.564	0.769	0.667	0.626	0.858	0.860
<i>party system institutionalization</i>	0.0904 [0.101]	0.630** [0.169]	0.403** [0.109]	0.0674 [0.251]	0.206 [0.136]	0.258** [0.0834]	0.246** [0.0830]
Observations	81	84	87	78	87	88	88
Adjusted R-squared	0.592	0.617	0.702	0.661	0.469	0.798	0.790
<i>judicial independence</i>	0.295** [0.0687]	0.360** [0.121]	0.444** [0.0812]	0.264* [0.111]	0.408** [0.124]	0.398** [0.0687]	0.413** [0.0652]
Observations	80	83	86	77	87	87	87
Adjusted R-squared	0.702	0.612	0.792	0.686	0.570	0.882	0.887
<i>civil service capacity</i>	0.182* [0.0810]	0.435** [0.126]	0.397** [0.0792]	0.384** [0.104]	0.269* [0.132]	0.336** [0.0757]	0.340** [0.0731]
Observations	80	83	86	78	85	86	86
Adjusted R-squared	0.632	0.615	0.765	0.722	0.516	0.855	0.849

Note: Standard errors in brackets ** p<0.01, * p<0.05, + p<0.1. Controls included: *initial ln_gdppc*, *ethnic fractionalization*, *initial level of education*, *legal origin dummies*, and *regional dummies*.

increase in *congressional policymaking capabilities*, *party system institutionalization* and *civil service capacity* are associated with increases in the *policy index* of 0.585, 0.299 and 0.349 points, respectively.

Table 4 presents the results of the analysis when we include all of our institutional strength variables at the same time. We focus this analysis on the *policy index*. Looking at column 1, we see that three of our four institutional strength variables still have a significant effect on the overall quality of policies, although the size of the coefficients becomes smaller. In contrast, *party system institutionalization* no longer has a significant impact on the *policy index*.

The result for *party system institutionalization* may not be that surprising. IDB (2005) shows that, for the 18 Latin American countries included in that study, party system institutionalization did not have a significant impact by itself. It was the interaction of party system institutionalization with a variable that measured the extent of programmatic politics that mattered. In some countries (such as for example the Dominican Republic) parties are institutionalized in the sense that they are long lived, there are relatively stable patterns of party competition, they are deeply rooted in society, relatively well organized and parties as well as elections are perceived as legitimate. Yet they are much more focused on maintaining narrowly based support networks than on the nature of public policies. In such countries with clientelistic politics, it did not make much difference for the policy index whether parties were institutionalized or not.

In columns 2 through 4, we introduce some of the political institutions variables that are commonly used in the literature: whether the electoral system is proportional; whether the political regime is presidential or parliamentary; the extent to which there are political constraints (from POLCON); and the extent of checks and balances (from DPI). While proportional representation has a negative and marginally significant impact on the *policy index*, none of the other variables seems to matter. Moreover, for the most part they do not affect the impact of our own institutional strength variables. In columns 5 through 7 we add other controls that may help explain the cooperative or uncooperative/confrontational nature of the political environment: income inequality (from WIDER), the extent of political polarization (from DPI), as well as a measure of trust from the Global Competitiveness Report. Only this last measure has positive and significant impact on the policy index, and the results for our variables of interest change very little (although *congressional policymaking capabilities* and *judicial independence* lose some significance). Finally, in the last column we control for exposure to economic shocks, more specifically, for the volatility of the terms of trade, which could potentially affect some components of the *policy index*, such as policy

Table 4. Policy characteristics and institutional strengths: multivariate regressions using the overall policy index

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>congressional policymaking capabilities</i>	0.270+ [0.140]	0.166 [0.150]	0.263+ [0.142]	0.270+ [0.139]	0.256+ [0.141]	0.255+ [0.140]	0.244 [0.146]	0.259+ [0.140]
<i>party system institutionalization</i>	-0.0501 [0.109]	-0.0503 [0.0948]	-0.0460 [0.113]	-0.0500 [0.107]	-0.0699 [0.106]	-0.0406 [0.114]	0.0415 [0.109]	-0.0508 [0.106]
<i>judicial independence</i>	0.219** [0.0785]	0.253** [0.0868]	0.229** [0.0747]	0.219** [0.0805]	0.245** [0.0806]	0.239** [0.0841]	0.150+ [0.0751]	0.206** [0.0742]
<i>civil service capacity</i>	0.156* [0.0684]	0.138* [0.0674]	0.163* [0.0680]	0.156* [0.0724]	0.138+ [0.0711]	0.165* [0.0743]	0.157* [0.0651]	0.162* [0.0682]
<i>proportional representation dummy</i>		-0.154+ [0.0829]						
<i>presidential system dummy</i>		-0.114 [0.0761]						

Table 4. (continued) Policy characteristics and institutional strengths: multivariate regressions using the overall policy index

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>constraints on executive power</i>			-0.168 [0.198]					
<i>checks and balances</i>				-8.32e-05 [0.0291]				
<i>gini</i>					-0.00168 [0.00364]			
<i>political polarization</i>						-0.0174 [0.0589]		
<i>trust</i>							0.118** [0.0435]	
<i>terms of trade volatility *</i>								-0.0143 [0.00963]
<i>initial trade openness</i>								
Observations	82	82	82	82	81	78	80	82
Adjusted R-squared	0.899	0.904	0.899	0.897	0.899	0.904	0.906	0.901

Note: Standard errors in brackets ** p<0.01, * p<0.05, + p<0.1. Controls included: *initial ln_gdppc*, *ethnic fractionalization*, *initial level of education*, *legal origin dummies*, and *regional dummies*.

stability, or the perceptions of policy adaptability.²⁷ However, the coefficient is not significant, and the inclusion of this variable does not alter the rest of the results

Next, we explore a variety of potential interaction effects between some of our institutional strength variables, as well as non-linear effects. To help guide this exploration, we start from the observation that some of our institutional variables may be somewhat different in nature from others. A strong Congress that offers an institutionalized arena for political exchanges, with longer lasting legislators who accumulate policy expertise, or well institutionalized parties that are also programmatic, can both contribute to lengthen time horizons (and thus lower discount rates), increase the frequency of interactions, and contribute to facilitate political agreements which could be self-enforced. An independent judiciary and a high quality bureaucracy, on the other hand, may help facilitate cooperation (through third party enforcement or delegation) when self-enforcement does not work. According to this view of the different roles played by our institutional variables, we would expect judicial independence and bureaucratic quality to matter more when the other institutions are weak, so that self-enforcement does not work. This would suggest a negative interaction effect of, say, *congressional policymaking capabilities* and *judiciary independence*. However, there are other channels that would point in the opposite direction: the capabilities that Congress has in order to pass good quality legislation related to public policies will not result in improved policies if these are poorly implemented by a weak bureaucracy, or poorly enforced by a weak judiciary. In this case, we can think of these different types of institutions as complements, and we would expect a positive interaction effect between them.

Table 5 shows the results of some of these interactions. We find no evidence of significant interaction effects. For instance, column 5 explores the interaction of *judicial independence* and *civil service capacity*. Once again, we can think of arguments that would go in both directions. On the one hand, judicial enforcement and delegation to the bureaucracy could be alternative mechanisms to obtain a cooperative equilibrium when self-enforcement does not work. In this case, they would be substitutes, and we would expect a negative interaction effect. On the other hand, in order to provide third party enforcement to the agreements struck by political actors, the judiciary has to be not just independent, but also capable. If the quality of the bureaucracy within the judiciary is highly correlated with the

²⁷ Our measure is actually the interaction of terms of trade volatility with initial trade openness (in 1990), to capture the fact that the same amount of TOT volatility will be more disruptive the more open the economy is to trade.

quality of the bureaucracy in the government as a whole, we would expect that judicial independence would only improve the policy index when bureaucratic quality is high (i.e., a positive interaction coefficient). While the coefficient of the interaction is positive, it is not statistically significant.

Table 5. Marginal and non-linear effects on overall policy index

Variables	(1)	(2)	(3)	(4)	(5)	(6)
<i>congressional policymaking capabilities</i>	0.167 [0.164]		0.255 [0.161]			
<i>party system institutionalization</i>		-0.0593 [0.161]		0.119 [0.193]		
<i>judicial independence</i>	0.204+ [0.119]	0.280* [0.117]			0.200+ [0.106]	
<i>civil service capacity</i>			0.139 [0.116]	0.334** [0.122]	0.0525 [0.114]	0.103 [0.120]
<i>congressional policymaking capabilities * judicial ind.</i>	0.0640 [0.0584]					
<i>party system inst. * judicial independence</i>		0.0643 [0.0659]				
<i>congressional policymaking capabilities * civil service cap.</i>			0.0633 [0.0517]			
<i>party system inst. * civil service capacity</i>				-0.0126 [0.0652]		
<i>judicial independence * civil service capacity</i>					0.0530 [0.0426]	
<i>civil service capacity squared</i>						0.0627* [0.0242]
Observations	83	87	82	86	85	86
Adjusted R-squared	0.893	0.882	0.884	0.853	0.893	0.860

Note: Standard errors in brackets ** p<0.01, * p<0.05, + p<0.1. Controls included: *initial ln_gdppc*, *ethnic fractionalization*, *initial level of education*, *legal origin dummies*, and *regional dummies*.

Finally, we explore non-linear effects, by including the squared term for each of the independent variables of interest, as well as the variable in levels. We only find significant and robust non-linear effects in the case of one of our institutional strength variables, *civil service capacity*, as reported in column 6 (the rest are available upon request). This suggests that the impact of *civil service capacity* on the quality of public policies increases with the level of capacity.

VI. Conclusions

The paper has introduced a number of cross-national measures of various properties of public policies. We have shown that certain characteristics of the policymaking environment, which are linked to the capacity to facilitate intertemporal agreements, tend to generate better policy features. For example, we show that countries with higher congress capabilities, judicial independence, and bureaucratic quality tend to produce higher-quality policies.

While we believe these results are interesting in their own right, we hope that the dataset will stimulate scholars to utilize it in their analysis of political institutions, public policies, and development outcomes.

The measures of policy characteristics that we have assembled can have several uses beyond the one developed in this paper. We are pursuing two such uses. First, we are using these variables to challenge some of the results of the veto player theory. One of the main predictions of veto player theory, developed and summarized by Tsebelis (2002)—and applied to presidential democracies in Cox and McCubbins (2001), is that polities with a higher number of veto players are less likely to change their policies (which is good for sustaining policy commitments, but bad for adapting to changing circumstances or policy failures.) Using the policy variables constructed in this paper and the framework summarized earlier, Scartascini, Stein and Tommasi (2012) challenges this prediction from the veto player approach. We postulate that polities more able to sustain policies over time will not necessarily be less able to adjust policies when necessary, and our separate notions of stability and adaptability attempt to capture these two distinct concepts. From our perspective, polities that are better able to cooperate over time might be able to achieve more of *both* desirable policy qualities in such a way that we could find these two variables positively correlated in a cross section of countries (as we indeed do). Furthermore, in that paper we find that a higher number of veto players indeed increases both stability and adaptability, and that both variables are better explained by institutional variables attempting to capture intertemporal cooperation than by variables that measure the number of veto players.

Second, we are also attempting to use these proxies for state capacity as control variables for explaining the impact of public spending on a number of social areas. Preliminary results suggest that the policy environment does indeed matter. However, it also suggests that it matters differently depending on the issue at hand (in our example, the policy environment seems to matter more in education than in health). Despite the differences, a common message comes out: countries may achieve important gains if they could improve their institutions and the quality of policies they produce.

Appendix

Consider a simple model of political cooperation and public policy. Imagine a game between two players or “groups,” $i = A, B$. Each player tries to minimize:

$$\sum_{t=0}^{\infty} \delta^t E[L_i(y_t, \theta_t)], \quad (\text{A1})$$

where $\delta \in [0, 1]$ is a (common) discount factor measuring “patience,” and $L_i(\cdot)$ is a loss function that depends on the “collectively” chosen policy y and the economic shock θ , identically and independently distributed over time, with $E(\theta) = 0$. For simplicity, let:

$$L_i(y_t, \theta_t) = [y_t - (y_i + \theta_t)]^2. \quad (\text{A2})$$

The fact that $y_A \neq y_B$ captures the elements of conflict, while the fact that everybody’s preferred policy responds in the same direction to the economic shock θ captures the common interest, or economic efficiency. Assume that $y_B = -y_A > 0$.

In each period, after the random shock θ_t is realized, the policy y_t is decided through a collective choice mechanism. Also assume that the recognition rule, $\mu_t = i$, generates an equal probability that each player $i \in \{A, B\}$ be the one-period dictator ($\mu_t = i$ implies that player i decides y_t in period t .) That is:²⁸

$$\mu_t = i, i \in \{A, B\} \quad \text{with probability } 0.5. \quad (\text{A3})$$

²⁸ This is a very simplified version of several richer collective decision-making mechanisms, such as those in Alesina (1988), Baron and Ferejohn (1989) and Dixit, Grossman and Gul (2000).

Assume furthermore that there is an initial period (zero) in which, by unanimity, players can make some agreements.

We start defining a first-best utilitarian benchmark as:

$$\text{Min} \quad \sum_{t=0}^{\infty} \delta^t E[L_A(y_t, \theta_t) + L_B(y_t, \theta_t)] . \quad (\text{A4})$$

Given our assumptions, the above minimization simplifies to:

$$\text{Min} \quad \sum_{t=0}^{\infty} \delta^t E(y_t - \theta_t)^2 , \quad (\text{A5})$$

so that the first-best policy is $y_t = y^*(\theta_t) = \theta_t$ for all t . This result indicates that the first-best policy is a function of the realization of economic shocks, but independent of the realization of political shocks.

We analyze now the solution to the non-cooperative game. The one-shot Nash equilibrium has $y_t = y_\mu + \theta_t$. That is, each political player implements his or her most desired policy, ignoring the interest of others. Turning to the repeated game, the infinite repetition of one-shot Nash is always an equilibrium. We define V^N as the present value of expected loss for each player from the infinite repetition of the one-shot Nash equilibrium. Then we have that:

$$V^N = \frac{1}{2} [0 + (2y_B)^2] + \delta V^N = \frac{2y_B^2}{1-\delta} . \quad (\text{A6})$$

To simplify the analysis we focus now on the possibility of the most cooperative behavior being supported by the punishment strategy of permanent reversion to non-cooperation (as in Dixit et al. 2000, and Dixit 2003). This is strategy S1 for both i :

$$y_1^i = y^*(\theta_1) = \theta_1 \quad \text{and} \quad (\text{A7})$$

$$y_t^i = \begin{cases} y_t^* = \theta_t & \text{if } y_\tau = \theta_\tau \quad \forall \tau < t \\ y_i + \theta_t & \text{otherwise.} \end{cases} \quad (\text{A8})$$

The payoff along the equilibrium path of cooperation is:

$$V^* = \frac{y_B^2}{1-\delta} \quad (\text{A9})$$

for both players, which coincides with the value of the loss function in the first best scenario. In order to verify whether this strategy pair constitutes an equilibrium, we have to consider the value of an opportunistic deviation to $y_{\mu_t} + \theta_t$. Such deviation would move the game to non-cooperation forever, leading to the value:

$$V^D = 0 + \delta V^N = \frac{\delta}{1-\delta} 2y_B^2 \quad (\text{A10})$$

Comparing the loss functions V^* and V^D , we can conclude that cooperation can be sustained if $\delta \geq 1/2$. The first-best can be attained, then, for δ large enough, that is, when players have long horizons.

Consider now what might transpire in the previous stage of the game, what we call the contracting moment. The features of the resulting policies will depend on the set of feasible contracts. Assume that agreements can be enforced, but that the realization of economic shocks is not verifiable. In that case, it will not be possible to sign contracts that prescribe (economic) state-contingent contracts. On the other hand, the parties can agree on simple “rules.” In our example, it can be shown that the best such rule is to set $y_t = 0$ for all t . This will deliver an expected loss of:

$$V^0 = \sum_{t=0}^{\infty} \delta^t E(y_B + \theta_t)^2 = \frac{y_B^2 + \text{Var}(\theta)}{1-\delta} \quad (\text{A11})$$

This outcome is inferior to the first best for both players, i.e., $V^0 > V^*$. (Remember that we are dealing with loss functions.) The discretionary cooperative equilibrium is preferable to a rigid rule. Thus, whenever the repeated game delivers cooperation, a rigid rule will not be utilized. Comparing the rigid rule to the non-cooperative case, we have that $V^N > V^0$ if $(y_B)^2 > \text{Var}(\theta)$. This implies that when the parties have a limited capacity to self-enforce cooperative agreements (i.e., when δ is low), rigid policy rules (not responsive to the economic environment) will be chosen if the conflict of interest (y_B) is large compared to the volatility of the economic environment ($\text{Var}(\theta)$). Thus, we find that when there is a low capacity to enforce intertemporal political exchanges, depending on the extent of the distributive conflict as related to the nature of economic volatility, we may observe highly volatile political agreements or highly inflexible policies.

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