

**Government-Opposition or Left-Right?**  
**The Institutional Determinants of Voting in Legislatures**

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## **Abstract**

This paper investigates the institutional conditions under which our standard theories of legislative politics hold. We use roll-call voting data from 16 legislatures to test which theory fits which institutional context. These 16 legislatures include several cases of two key institutional features: (1) regime type (parliamentary or presidential); and (2) form of government (single-party or coalition). We use a geometric scaling metric (IDEAL) to estimate the ‘revealed space’ in each of these legislatures and a regression analysis to identify how much of this space can be explained by government-opposition dynamics as opposed to the left-right policy positions of parties. We also test these inferences in two natural experiments. We find that the standard ‘floor agenda’ spatial model fits legislative voting where coalitions have to be built issue by issue (as in presidential systems with coalition governments or parliamentary systems with minority governments). However, in all other institutional contexts we find a strong government-opposition dynamic in legislative voting. Put another way, voting in most legislatures is more like Westminster than Washington, DC.

## 1. Introduction: What Drives Voting in Legislatures?

Voting in legislatures is a central process in representative democracies. Parliamentary or congressional votes enable politicians to express their preferences on legislation and other issues as well as demonstrate their support for or opposition to the government. Our existing theories of legislative politics suggest different things about how to understand legislative voting. The *floor agenda model*, for example, suggests that legislative coalitions are built issue-by-issue, with the median legislator deciding whether a majority forms to the right or to the left of her position. The *cartel agenda model*, in contrast, suggests that if a group of legislators control the agenda, then votes should only occur on issues on which the agenda-setter prefers the likely policy outcome to the existing policy. Meanwhile, the *Westminster model* suggests that monopoly control of the agenda by a single governing party means that most votes will split along government-opposition lines. Our contention is that the institutional context of legislative voting – whether a regime is a parliamentary or presidential system, whether the agenda is controlled by a single party or a coalition, and whether the agenda-setter controls a majority or a minority of seats – determines which theoretical model best captures voting in a particular legislature in a particular period.

Recorded (roll-call) votes are common in most democratic legislatures, yet empirical research on legislative voting has lagged behind research on other aspects of democratic behavior, such as voting in mass elections. Collecting data from countries with different languages, histories, cultures, and institutional arrangements is not easy. Also, until recently there was a widely-held assumption that voting in many legislatures was uninteresting because parties are highly cohesive and outcomes are hence predictable. And, roll-call data were costly to collect (usually by hand) and required a supercomputer to analyze in a systematic way.<sup>1</sup>

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<sup>1</sup> See Hirsch (2011) for a discussion of arguments for and against using roll-call votes for testing legislative theories in the case of the US Congress.

Since the late 1990s, though, there has been an explosion of research on legislative voting. The impetus came from new scaling methods (e.g. Poole and Rosenthal 1997; Poole 2005). Armed with these new technologies, the increased availability of roll-call data on the internet from other legislatures, and the rapid development of computer power, scholars began to study voting behavior in legislatures outside the United States. Most of this new research has looked at single parliaments. There are some exceptions (e.g. Morgenstern 2004; Hansen 2006a,b). However, Carey (2007a) is the only paper we know of which looks at roll-call voting in several parliaments, yet this paper focuses on the determinants of party cohesion rather than the main dimensions of conflict in votes.

We focus on 16 legislatures: Australia, Belgium, Brazil, Canada, Chile, Czech Republic, the European Parliament, France, Israel, Mexico, New Zealand, Peru, Poland, South Korea, United Kingdom, and the USA. We use these cases for two reasons. First, roll-call data are publicly available only for a limited number of legislatures, and there is considerable variance in the quality and quantity of available data for many cases. In addition to the data in the public domain, we have collected new data from the Czech Republic, Belgium, and the European Parliament. The data from these 16 legislatures are reliable and include a sufficient number of votes to allow us to estimate legislators' positions using a standard scaling metric. Second, these legislatures include cases of all possible combinations of two institutional factors: regime type (parliamentary or presidential); and form of government (single-party majority, multi-party majority, and minority).<sup>2</sup>

Using individual level data and applying standard scaling methods on those 16 legislatures, we find, first, that the standard spatial model of politics (the floor agenda model) fits

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<sup>2</sup> Other institutional variations, such as the electoral system, also shape voting behavior in parliaments (e.g. Carey and Shugart 1995; Hix 2004; Shomer 2009).

legislatures where coalitions have to be built issue by issue: in presidential systems with coalition governments and in parliamentary systems with minority governments. Second, however, in all other institutional contexts, government-opposition splits dominate policy-based voting by parties or legislators. This result challenges some of our standard assumptions in political science about how decisions are made inside democratic legislatures.

The rest of the paper is organized as follows. In Section 2 we discuss three theoretical models of legislative voting, what they predict in terms of observed behavior, and the institutional contexts under which these models are likely to hold. In section 3 we investigate the dimensionality of voting in our 16 cases by looking at the ‘voting maps’ produced by a Bayesian ideal-point estimation method (IDEAL). In section 4 we use a regression analysis to interpret the substantive meaning of the dimensions, using exogenous measures of parties’ policy positions, and looking at which parties are in government. Section 5 further tests the findings in two natural experiments: where governments shifted in successful parliaments between minority and majority status in the Czech Republic and Mexico. Finally, section 6 contains a short conclusion.

## **2. Three Models of Legislative Politics**

There are numerous theoretical models of legislative voting in political science. We focus on three such models. Following standard usage we refer to these models as the Floor Agenda Model, the Cartel Agenda Model, and the Westminster Model. Each of these models builds on the standard assumptions of spatial voting in the legislative context (cf. Black 1948, 1958; Romer and Rosenthal 1978; Shepsle 1979; Shepsle and Weingast 1981; Tsebelis 2002; Poole 2005).

The basic set up of all three models is as follows. First, on a given issue, the status quo and a proposed alternative are represented as points in a multi-dimensional Euclidean space. Status quos vary, and if a proposal is not passed the status quo is the reversion point. Second,

there are a set number of legislators, and on any given dimension each legislator has a unique ‘ideal point’. Third, each legislator seeks to maximize her utility by securing a policy outcome which is as close as possible to her ideal point.

In the *Floor Agenda Model*, which is the median-voter model with randomly assigned proposal power, the legislative procedure works as follows (cf. Romer and Rosenthal 1978; Krehbiel 1998; Cox and McCubbins 2005: 38-41). One of the legislators makes a proposal and the other legislators are free to propose amendments. So, voting operates under an ‘open amendment’ procedure. Amendments are voted on one by one and then a final vote is taken on the amended bill. At each stage, voting is by a simple majority.

In any vote, each legislator with single-peaked preferences has a binary choice: between a policy represented by a bill (either amended or unamended) and the status quo reversion point. If the distance between a legislator’s ideal point and the bill is smaller than the distance between the legislator’s ideal point and the status quo, the legislator votes for the bill, otherwise she votes for the status quo. A cut-point in a vote (or cutting-line in two dimensions) divides the legislators who vote for a bill from the legislators who vote for the status quo.

A crucial assumption of the Floor Agenda Model is that legislators are not constrained by parties. They may belong to parties, but parties are not able to enforce cohesion in votes. Instead, each legislator votes for whichever of the status quo or the proposal is closest to her ideal point. Members of the same party might vote together, but this is because their ideal points are on the same side of a cut-point in a vote and not because the party has forced them to vote together (Krehbiel 1993).

Because votes are binary choices and decisions are taken by a simple majority, the Floor Agenda Model predicts that the median member on the policy dimension of the relevant bill is pivotal. As a result of open amendments, a final vote will come down to a choice between the

location of the status quo and the policy proposed by the median floor member. Hence, the floor agenda model predicts that cut-points (in final votes) will be located at the mid-point between the legislator who prefers the position of the median floor member to the status quo by the smallest margin and the legislator who prefers the status quo to the position of the median floor member by the smallest margin. If status quos are evenly distributed in a policy space, the Floor Agenda Model consequently predicts that cut-points will also be evenly distributed. This distribution of cut-points (cutting-lines in a two-dimensional policy space) should then allow standard ideal point estimation techniques to identify the positions of legislators on an underlying ideological (left-right) policy dimension from their roll-call voting behavior (Poole 2005).

The difference between the Floor Agenda Model and the *Cartel Agenda Model*, as proposed by Gary Cox and Mathew McCubbins (2005), is that while in the former there is no restriction of the agenda in the latter a particular legislator or group of legislators can restrict the agenda. For example, in the US Congress the majority party can decide which proposals are put to the floor of the House or Senate (*ibid.*). Similarly, in parliamentary systems, if the party or parties in government control a majority of parliamentary seats, then the government has a *de facto* monopoly on agenda control (Döring 2001).

In the Cartel Agenda Model there is hence an additional stage in the process prior to the floor stage. The legislators who control the agenda (the ‘agenda cartel’) decide – for example by a simple majority vote amongst themselves – which issues will be discussed in the legislature. Once the agenda-cartel has placed an issue on the agenda the process then follows the Floor Agenda Model: where a legislator makes a proposal, amendments are proposed and voted on one by one, and a final vote is taken on the amended bill.

Adding this prior agenda-control stage restricts the set of viable policy outcomes as well as the location of observed roll-call cut-points. This is because the median-member of the

agenda-cartel will prevent an issue from being placed on the agenda if the outcome on the floor will be further from the status quo than this legislator's most-preferred policy. Specifically, there should be no legislative proposals on any issue where the status quo is closer to the position of the median member of the floor than to the position of the median member of the agenda-cartel on the dimension. The set of status quo policies which fit this description is known as the 'blackout zone' since these policies will be absent from the agenda.

Because votes will not take place on status quo policies in this blackout zone, the Cartel Agenda Model consequently predicts that the set of observed roll-call cut-points will be more restricted than in the Floor Agenda Model. In the Cartel Agenda Model, roll-call cut-points should be observed at all points on a policy dimension except in the interval between the median member of the agenda cartel and the median member of the floor. This is because the median member of the agenda cartel will only allow issues to be put to the floor if the median member of the floor and the median member of the agenda cartel will both prefer the bill to the status quo, and so will vote on the same side in a vote. In contrast, the median member of the agenda cartel will block any issue coming to the floor if she expects to vote differently from the median member of the floor, knowing that the median member of the floor will always prefer the final bill to the status quo (as the median member will always be on the winning side in a floor vote).

The existence and location of this blackout zone means that in the Cartel Agenda Model a greater proportion of roll-call votes should divide the agenda-cartel (or government) members against non-agenda cartel (opposition) members than in the Floor Agenda Model. For status quos located outside the blackout zone, however, the predictions of the Cartel Agenda Model about the location of cut-points are the same as under the Floor Agenda Model. As a result, whereas under the Floor Agenda Model roll-call votes should be explained by the policy preferences of

legislators on an underlying left-right policy dimension, in the Cartel Agenda Model there should be a mix of majority-bloc vs. minority-bloc voting and individual left-right voting.

Note that the two models just discussed were originally developed in the context of the US Congress. As is well-known, the US Congress is characterized by low dimensionality, a two-party system with strong committees and a separation of powers between the legislature and the president. Nonetheless, one can argue that these models are likely to hold under similar institutional contexts to the US Congress, as we discuss below.

Finally, the *Westminster Model* captures how government works in a British-style parliamentary system with single-party cabinets that command a majority of seats (e.g. Lijphart, 1999). This model is an amalgam of several different propositions. On one side is the governing party, which can enforce party cohesion in votes via a variety of ‘carrots on sticks’. As carrots, the governing party can offer promotion to ministerial office or key committee positions (Benedetto and Hix 2007; Kam 2009). As a stick, the main weapon is the threat of a vote-of-confidence (Huber 1996; Diermeier and Feddersen 1998). Faced with the possibility of cabinet resignation and/or an early election, a governing party ‘backbencher’ will vote for a government proposal even when the policy on offer is further from her ideal point than the status quo.

On the opposition side, Dewan and Spirling (2011) add an assumption that opposition legislators can credibly pre-commit to oppose the government in most legislative votes. In their model, although members of each legislative party have similar policy preferences on most issues, there is sufficient heterogeneity within the governing and opposition members such that on some policies members of the opposition find themselves closer to the government than the opposition leadership. With sincere voting, some members of the opposition hence prefer the proposal of the government (the agenda-setter) to the status quo. However, if the opposition members can pre-commit to vote cohesively against a government proposal irrespective of the

location of the proposal of the agenda-setter and the status quo, then the government will be forced to make a proposal closer to the status quo than would be the case with sincere voting. This is because with all the opposition members voting to keep the status quo, the *de facto* pivotal member is closer to the status quo than the median floor member under sincere voting.

In all Westminster-style systems, some votes, such as ‘non-whipped’ votes, will not follow this strict government-opposition divide. Nevertheless, the Westminster Model, as we have characterized it here, predicts that most cutting-lines will split governing members against opposition members, and not between individual members or parties along a left-right policy dimension (cf. Laver, 2006; Spirling and McLean 2007).

There are numerous other models of legislative politics (e.g. Baron and Ferejohn 1989). However, the three models we have described are particularly useful for our purpose because they produce different inferences about what should be observed in roll-call votes. These inferences are summarized in Figure 1. The scenarios in the figure are highly stylized to draw out the key empirical predictions. In all three scenarios,  $L_1$ ,  $L_2$  and  $L_3$  are members of the ‘left party’ while  $R_1$  and  $R_2$  are members of the ‘right party’ and are located at intervals along a single left-right policy dimension. Note that  $R_1$  is to the left of  $L_3$  and that  $R_1$  is the median legislator.

[Figure 1 about here]

In the left-hand panel in Figure 1, in the Floor Agenda Model, all policies converge on  $R_1$ . As a result, a cut-point in a roll-call vote is the point which divides the legislators who are closer to the status quo than  $R_1$  from the legislators who are closer to  $R_1$  than the status quo. So, for example, for a status quo located anywhere to the left of  $2L_2 - R_1$ , the cut-point in a vote is between  $L_1$  and  $L_2$  because  $L_1$  votes to keep the status quo while  $L_2$ ,  $R_1$ ,  $L_3$  and  $R_2$  vote for the policy of  $R_1$ . Similarly, for a status quo located anywhere to the right of  $2L_3 - R_1$ , the cut-point in a vote is

between  $L_3$  and  $R_2$  since  $R_2$  votes to keep the status quo while  $L_1$ ,  $L_2$ ,  $R_1$  and  $L_3$  vote for the policy of  $R_1$ . As a result, cut-points should be observed in every interval along the dimension.

In the central panel, in the Cartel Agenda Model,  $R_1$  is the pivotal voter if an issue gets to the floor. However, this time,  $L_2$ , as the leader of the ‘left party’, controls the agenda.  $L_2$  will only allow votes on issues where the outcome (at  $R_1$ ) is closer to  $L_2$  than to the status quo. As a result, the region between  $2L_2 - R_1$  and  $R_1$  is the blackout zone, where  $L_2$  does not allow votes to take place and roll-call cut-points will not be observed.

In the right-hand panel, in the Westminster Model,  $L_2$  is the leader of the governing majority party, and has monopoly proposal power. As a member of the opposition,  $R_1$  commits to oppose the government even when a proposal from  $L_2$  is closer to  $R_1$  than the status quo, as this pre-commitment forces  $L_2$  to offer policy concessions when status quos are located to the right of  $L_3$ . As a result, in this model all cut-points are located between  $L_3$  and  $R_1$ , with  $L_3$  voting with the other two government legislators and  $R_1$  and  $R_2$  voting cohesively against the government.

Because these models make different assumptions about how the agenda is controlled and how far parties are able to control the voting behavior of their members, we contend that each model fits a particular institutional context. More specifically, these models are contingent upon two institutional factors: (1) whether there is a fusion of electoral incentives of the executive and the legislators (in a parliamentary or semi-presidential system) or whether there is a separation of these electoral incentives (in a presidential system); and (2) whether the legislative agenda is controlled by a single party with a legislative majority, a coalition of parties with a majority, or a single party or coalition without a majority (cf. Haggard and McCubbins 2001). Our expectations of which model fits which institutional context, as well as which of our cases, are set out in Figure 2.

[Figure 2 about here]

The main effect of the difference between parliamentary and presidential regimes in terms of legislative voting is the ability of parties to enforce voting cohesion in the legislature (Carey 2007a; Cheibub 2007: 116-135; Samuels and Shugart 2010). In parliamentary systems, party leaders have a variety of tools to force their members to vote cohesively. Governing and opposition leaders can offer promotion to the cabinet or opposition leadership positions, respectively. And, the possibility of parliamentary dissolution is a threat against legislative rebellion on the government side and an incentive to vote collectively to try to defeat the government on the opposition side. In contrast, in presidential systems, where there is independent election of the chief executive and the legislature, a president might be able to promote some people to cabinet positions, but a defeat of the governing party by the opposition in a particular bill, or a breakdown of party discipline, does not threaten the survival of the executive. For example, in a study of parliamentary voting in 19 parliamentary and presidential systems, Carey (2007a: 104) finds that on average governing parties in parliamentary systems are 17 percent more cohesive than opposition parties.<sup>3</sup>

Cutting across the regime type are the agenda-control rules inside the legislature. The key factor in this regard is whether the agenda is controlled by a single party or is divided between several parties or legislators. Where a single party has a monopoly over agenda control and also commands a majority in a legislature, the leader of that party is effectively a legislative dictator. This is most clearly the situation in the case of single-party government in a parliamentary system. In this context, the party in government is wholly unencumbered by the legislature. As one British backbench member of the British House of Commons once put it: ‘we are reduced to

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<sup>3</sup> To measure voting cohesion Carey (2007a) uses the Rice Index weighted by the closeness of a vote. For a party in a vote, the Rice Index is the absolute difference between the percent of MPs who voted ‘Aye’ minus the percent who voted ‘No’ (Rice 1925).

throwing paper airplanes at the government bulldozer'.<sup>4</sup> So, in a parliamentary system with single-party government we expect the Westminster Model to fit most legislative votes: with most votes splitting on government-opposition lines. There may be some 'free votes', where legislators are not whipped to vote along party lines. If sufficient free votes are held, a second dimension may be identifiable which captures legislators' personal (left-right) policy preferences.

In a presidential system, in contrast, where a single party controls a majority of seats inside the legislature and the agenda is set by this majority, the party can use this agenda control power to restrict the legislative agenda (cf. Cox and McCubbins 2005). However, because of the separation of executive and legislative elections, the majority party in the legislature will have few powers to enforce voting cohesion. Hence, single-party majority control in a presidential system is more likely to fit the Cartel Agenda Model than the Westminster Model, with a combination of government-opposition party voting and personal policy-based (left-right) voting, as individual legislators peel away from government and opposition positions on some issues.

Contrast this monopoly of agenda-setting power in a single actor with the sharing of agenda-setting between several actors: as is often the case in presidential systems (whether the executive and legislature both have agenda-setting power) and is also the case under coalition government in both parliamentary and presidential systems (cf. Cheibub 2007). Where agenda-setting is not monopolized by a single party, it is more difficult for a single actor to restrict the set of issues that come to the floor. In a coalition government, for example, different parties will have different ministerial portfolios, which can lead to different actors proposing to move policies in different directions (Laver and Shepsle 1996; Tsebelis 1999; Strøm et al. 2011). Related to this, in legislatures with coalition governments, the committee chairs are usually shared between several parties which grants several parties access to the agenda (Mattson and

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<sup>4</sup> This quote is allegedly attributed to Austin Mitchell, who has been the Labour MP for Grimsby since 1977.

Strøm 1995; Döring 2001). As a result, with coalition government a wide range of issues are likely to be voted on, and several parties are likely to have a chance to secure policies closer to their preferred policy positions than the status quos.

Nevertheless, where majority coalition government exists in a parliamentary system we expect the Cartel Agenda Model to apply. Here, several parties will have access to the agenda, and so will be able to propose some policies which will split parties within the government and opposition blocs. Nevertheless, because these are parliamentary systems, governing parties in parliamentary systems are more able to enforce party discipline than governing parties in presidential systems, so long as the coalition partners agree that parliamentary dissolution is not in their collective interests (Lupia and Strøm 1995; Diermeier and Feddersen 1998). As a result, where this is majority coalition government in a parliamentary system we expect some votes to split along government-opposition lines while other votes to divide parties within the government and opposition blocs along a left-right policy dimension.

In contrast, in cases of coalition government in a presidential system – where agenda powers are divided between several actors and parties have few tools to discipline their members – we expect the Floor Agenda Model to apply. In these cases we expect to be able to identify the left-right policy positions of individual legislators, and voting to be driven by both individual and party policy preferences rather than government-opposition dynamics.

Finally, minority government is a special case (Strøm 1990; Tsebelis 2002: 97-99). Minority governments, regardless of their regime type, are forced to build legislative coalitions issue-by-issue. On any given policy issue the median member, or party, in the legislature is pivotal, for both government bills and bills or amendments proposed by opposition members. We consequently expect the Floor Agenda Model to fit all situations of minority government, and legislative voting to be dominated by parties'/legislators' left-right policy positions rather than

government-opposition splits. Nevertheless, because of the ability of parties to discipline their members in parliamentary systems as compared to presidential systems, there is likely to be a difference in how the Floor Agenda Model operates across the two types of regimes: with *parties* as the units of analysis under minority government in parliamentary systems, and *individual legislators* the units of analysis under minority government in presidential systems.

### **3. Bayesian Ideal Point Estimates of Voting in 16 Legislatures**

To investigate these propositions we apply standard scaling metrics to the roll-call votes in a range of parliaments: Clinton, Jackman and Rivers' IDEAL as well as Poole and Rosenthal's NOMINATE (Clinton et al. 2004; Poole and Rosenthal 1997). NOMINATE has become the 'industry standard' for estimating legislators' revealed preferences from roll-call votes because it is relatively easy to apply, and requires only a limited computer capacity to produce estimates on several dimensions. This method has several problems, however, such as the unreliability of the standard error estimates (e.g. Poole 2000, Clinton et al. 2004), inaccurate estimates in the presence of cohesive political parties (Rosenthal and Voeten 2004), and inconsistency of the estimates (Heckman and Snyder 1997). Because many datasets we analyze include legislatures with highly cohesive political parties we use IDEAL.<sup>5</sup> Although IDEAL is computer intensive, it produces more reasonable estimates even when political parties are cohesive. One problem with multidimensional Bayesian estimator, though, is that it requires identification restrictions. Without such restrictions IDEAL yields an arbitrary post-estimation rotation of the space. So, to identify the legislators positions, in post-processing we rotated and rescaled the IDEAL's two-dimensional ideal points so that they correlate with the output produced by NOMINATE. With

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<sup>5</sup> Keith Poole's Optimal Classification method is an alternative method that one can use in the presence of cohesive parties.

the exception of determining the polarity of each dimension and normalization, no identification restriction is required by NOMINATE.<sup>6</sup> So, we first ran NOMINATE, and then used its output to rotate and rescale the estimates produced by IDEAL. As a result, our first dimension is the one associated with the largest variance. This in turn implies that our first dimension captures between-party conflict when political parties are cohesive.<sup>7</sup>

Roll-call votes have been collected and analyzed in either published or publicly-available research for over thirty parliaments.<sup>8</sup> However, raw roll-call data are only in the public domain for a limited number of legislatures, and for many of these cases the data are not suitable for applying a scaling metric, as either there is an insufficient number of votes (as with the data from many of the Latin American parliaments and Japan), or the votes are heavily lop-sided (as in the Russian case).

For the legislatures where good quality roll-call data are available we proceeded as follows. We first chose one full term of the legislature in either the late 1990s or early 2000s, or a part of term if the data from a full-term were not available (in the Israeli case).<sup>9</sup> We then applied the same criteria to decide which votes and parliamentarians to exclude from the analysis. We dropped all lopsided votes (where less than 10 percent of legislators were on the minority side), and all legislators who voted less than 25 times. We then applied the same optimization algorithm: the latest versions of IDEAL and W-NOMINATE. We estimated two-dimensional

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<sup>6</sup> The first dimension of NOMINATE is the one associated with the largest Eigenvalue (or greatest variability). The second dimension is orthogonal to the first one and corresponds to the second largest Eigenvalue.

<sup>7</sup> An alternative strategy to identify the ideal points is used by Zucco and Lauderdale (2011), who use an anonymous survey of Brazilian legislators to identify party positions on a left-right ideology dimension. For more of our cases, comparable surveys of legislators' ideological positions do not exist.

<sup>8</sup> A non exhaustive list includes Stjernquist and Bjurulf 1970; Clausen and Holmberg 1977; Saalfeld 1990; Myagkov and Kiewiet 1996; Lanfranchi and Lüthi 1999; Skjaeveland 1999, 2001; Noury 1999; Rasch 1999; Cox et al. 2000; Figueiredo and Limongi 2000; Jensen 2000; Londregan 2000; Müller et al. 2001; Andrews 2002; Noury and Roland 2002; Schonhardt-Bailey 2003; Ferrara 2004; Morgenstern 2004; Rahat 2004; Rosenthal and Voeten 2004; Landi and Pelizzo 2005; Noury and Mielcova 2005; Pajala et al. 2005; Chiou 2006; Hansen 2006a,b; Hix et al. 2006, 2007; Carey 2007a,b; Hug and Schulz 2007; Spirling and McLean 2007; Jun and Hix 2009.

<sup>9</sup> To avoid using very different sample sizes, for the Czech Republic we used the first 2000 votes out of a population of over 13000 roll call votes.

models for each parliament for two reasons. First, dimensions higher than the first two rarely have a clear interpretation. Second, the increase in the goodness-of-fit statistics, such as the correct classification scores, is negligible for higher dimensions, which indicates that they are statistically insignificant. In addition, estimating a two-dimensional policy space is a standard practice in the literature (e.g. Poole and Rosenthal 1997; Londregan 2000; Morgenstern 2004).<sup>10</sup>

[Table 1 about here]

Table 1 summarizes the datasets and the goodness-of-fit statistics associated with our 16 cases. The first noteworthy finding is that voting in most legislatures is predominantly one-dimensional. Nevertheless, there is some variation between the cases. For example, the second dimension explains a significant amount of variance in the Polish and Canadian legislatures. Eigenvalues reported in Table 1 also suggest a third dimension in the Czech legislature, and to a lesser extent in the Polish, Israeli and South Korean legislatures and in the European Parliament, but not in any of the other cases. At the other extreme, the Australian, French and New Zealand legislatures look essentially one-dimensional, as the second and higher dimensions explain very little in these cases.

Figures 4-7 show the ‘voting maps’ of the two-dimensional estimates produced by IDEAL for each legislature.<sup>11</sup> In each map, the distance between any two legislators illustrates how often they voted the same way in the roll-call votes in a given period. So, if any two legislators voted the same way in every vote, they would be located in exactly the same place, while if they voted on opposite sides in every vote, they would be located on opposite sides somewhere around the rim of the unit circle in the figure. A note of caution, however: because

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<sup>10</sup> This low-dimensionality finding is partly due to the fact that in each legislature our analysis aggregated a large number of roll-call votes. An equally important question, though beyond the scope of this paper, is the extent to which legislative behavior across political systems differs when legislatures vote on similar issues.

<sup>11</sup> To estimate the ideal points, we ran IDEAL with 50,000 iterations, and varying the number of iterations did not change the estimates.

each legislature is scaled independently, distances in one figure cannot be compared to distances in another figure. So, within a legislature, if one party's members are close together while another party's members are dispersed, we *can* infer that the former party voted more cohesively than the later. However, across two legislatures, if a party's members in one legislature are close together while another party's members in another legislature are more dispersed, we *cannot* infer that the former is more cohesive than the later, as there may simply have been a higher number of inter-party vote splits in the former than the later legislature.

Nevertheless, the maps do provide suggestive evidence of whether voting inside a legislature is mainly driven by government-opposition splits or by left-right policy positions of parties. In each voting map, the members of the governing party are indicated by an ellipse and a possible left-right dimension is indicated by a dotted line from the most left-wing major party to the most right-wing major party (the names of the parties and their political affinities are listed in the Appendix).

Figure 3 shows the four cases of single-party majority government in a parliamentary system. The first dimension in all these maps clearly captures the government-opposition divide. With the two-party systems in the 1996-98 Australian House of Representatives and the 1990-93 New Zealand House of Representatives it is impossible to identify government-opposition voting independently from the left-right policy preferences of the parties. In contrast, in the 1994-97 Canadian House of Commons and the 1997-2001 British House of Commons while the first dimension is clearly a government-opposition split, the second dimension appears to capture left-right divisions *within* the opposition group of parties.

[Figure 3 about here]

The maps of the four cases of coalition-government in parliamentary systems, in Figure 4, are more varied. Voting in the 2003-07 Belgian Federal Chamber of Representatives was similar

to the single-party government cases, in that the legislators from the parties in the governing coalition are on the left while the legislators from the opposition parties are on the right, and the second dimension captures left-right divisions within both the opposition bloc and the governing coalition. Within each bloc, on the second dimension we also observe some conflicts between the Dutch-speaking parties (on the upper part) and the French-speaking parties (on the lower part). In the 1997-2002 French National Assembly and the 1999 Israeli Knesset, the government-opposition split correlates with the left-right positions of parties. The meaning of the second dimension is less clear in these cases. In Israel, for example, the location of the parties on the second dimension within the government and opposition blocs suggests that the second dimension captured several issues, such as religious parties versus secular parties. Meanwhile, in the 1993-97 Poland Sejm there was variation within the government and opposition blocs on both dimensions, and while the more left-wing party in the opposition is lower on the second dimension, the more left-wing party on the governing side is higher on the second dimension.

[Figure 4 about here]

Turning to the presidential systems, Figure 6 shows the four cases of single-party majority government in a presidential system. Again, there are a variety of patterns, with the first dimension generally relating to government-opposition voting and left-right policy positions of parties. In the 1998-2001 Mexican Chamber of Deputies, for example, the PRI (in government) are on the left on the first dimension and the two opposition parties are on the right, while on the second dimension the left-wing opposition party (PRD) is below the PRI and the right-wing opposition party (PAN) is above the PRI. The 1999-2000 Peruvian Congress and the 2004-07 South Korean National Assembly follow similar patterns to Mexico. While, the two-party system in the US means that government-opposition voting and left-right policy preferences of the parties cannot be separated for the US House of Representatives.

[Figure 5 about here]

Figure 6 shows the three cases of presidential/separated-powers systems and the one case of minority government in a parliamentary system. In all four of these cases the first dimension appears to correlate with the left-right positions of parties. In the 1995-98 Brazilian Chamber of Deputies, the government-opposition camps are identifiable, but there was considerable independent voting behavior by legislators, and some variance within the government and opposition blocs. Similarly, in the 2004-09 European Parliament, the political groups are lined up from left-right on the first dimension, while the political groups who have members in the European Union executive (the Commission) are close together on the second dimension but divided on the first dimension. In contrast, the 1998-2000 Chilean Chamber of Deputies looks similar to some of the patterns of voting under coalition governments in parliamentary systems, with a clear divide along government-opposition lines.

[Figure 6 about here]

Finally, voting in the 1998-2001 Czech Chamber of Deputies was clearly along party lines, with cohesive party-line voting and the parties lined up from left to right on the first dimension. The positions of the parties in the map also show that the minority governing party (CSSD) built coalitions issue by issue, either with the former communists (KSCM), or sometimes with the Christian democrats (KDU) and liberals (US), and less often with the conservatives (ODS), who are far away from the governing party on both dimensions.

#### **4. Statistical Analysis of the Meaning of the Dimensions**

These maps consequently allow some inferences to be drawn about the substantive meaning of the revealed dimensions of voting in these 16 legislatures. However, these inferences rely on rather *ad hoc* understandings of the left-right positions of the parties. We consequently try to

interpret the meaning of the two revealed dimensions of voting in a more systematic way using a regression analysis. We estimate the following basic model:

$$y_{ij} = \beta_0 + C_j + \beta_1 LR_{ij} + \beta_2 GO_{ij} + \beta_3 Z_{ij} + \varepsilon_{ij}$$

where the dependent variable,  $y_{ij}$ , is the average position of the legislators of political party  $i$  in legislature  $j$  on a given dimension. The two explanatory variables are the exogenous location of a party on the left-right dimension ( $LR_{ij}$ ), and whether the party is in government or in opposition ( $GO_{ij}$ ). We constrained the estimates so that the leftwing parties had negative coordinates and rightwing parties had positive coordinates on both the first and the second dimensions. Because the party position estimates might have different meanings in each country, and we scale each legislature separately, it is important to include country-specific fixed-effects ( $C_j$ ). Those fixed (across parties) effects take into account of other factors which vary across countries and might influence legislative behaviour, such as electoral systems, federalism, country/legislature size, and bicameralism. That is, our analysis focuses on within country variations. In addition, the fixed-effects control for important variables such as federalism, bicameralism, size of the country and so on that are invariant across parties within a given country. We also include another control variable ( $Z_{ij}$ ): the size (number of MPs) of a political party. In some legislatures, the size of the party is a potentially important control variable as larger parties may vote against smaller parties.  $\beta_k$  are the parameters of the model to be estimated, and  $\varepsilon_{ij}$  is the error term.

Ideally, we would like to have exogenous measures of individual legislators' left-right policy preferences rather than aggregated at the level of political parties. However, except for a few cases – such as the US Congress or the European Parliament – individual-level measures either do not exist or are unreliable (Laver 2006). In contrast, there are reliable exogenous

measures of party positions on a range of policy issues, and previous research has found that these measures correlate with party voting behavior inside legislatures (e.g. Hix, Noury and Roland 2006; Zucco and Power 2009).

So, for the left-right location of each party, we use the ‘expert estimates’ from the Benoit and Laver (2007) and Wiesehomeier and Benoit (2007) datasets. To explore whether other policy positions of parties explain the legislative voting behavior of parties, we also regressed party positions on the two IDEAL dimensions onto party locations on the environment protection dimension, the social left-right dimension, and the decentralization of administrations and decision-making dimension in the Benoit-Laver and Wiesehomeier-Benoit dataset.<sup>12</sup>

[Table 2 about here]

The results pooled across all institutional contexts are reported in Table 2. The first dimension is, on average, a government-opposition divide. The government-opposition and left-right variables are both statistically significant on this dimension. However, the government-opposition variable dominates the left-right: the standardized coefficients for these two variables are -.68 and .25 respectively. The second dimension, in contrast, is mainly explained by the location of parties on a left-right policy dimension. Interestingly, none of the other policy variables explain party positions on the first dimension, and adding these variables does not change the interpretation of this dimension as predominantly a government-opposition divide. On the second dimension, however, decentralization preferences are significant. Finally, together, government-opposition and left-right policy positions explain more than twice the variance in party positions on the first dimension than on the second dimension (as the R-squared statistics from models 1 and 4 reveal).

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<sup>12</sup> South Korea is not in the Benoit-Laver or Wiesehomeier-Benoit datasets. For this case we use the estimates of the policy positions of the parties that Jun and Hix (2009) generate from surveys of the Korean National Assembly members, scaled to the same scale used by Benoit-Laver and Wiesehomeier-Benoit.

Table 3 shows the results of estimating the models for the four institutional contexts separately. The results from the pooled models are reported here for comparison. First, fitting the Westminster Model, and as revealed in the voting maps, the first dimension in the parliamentary systems with single-party governments is clearly a government-opposition divide. In contrast, left-right policy positions of parties are unrelated to the main dimension of voting in these cases, but are correlated with party positions on the second dimension. As discussed, in these cases the second dimension is only meaningful in Canada. Nevertheless, in Australia, New Zealand and the United Kingdom, our results suggest that on the rare occasion that governing party ‘whips’ do not issue voting instructions (in ‘free votes’), the left-right policy preferences of parties and legislators are revealed in legislative votes (cf. Dewan and Spirling 2011).

[Table 3 about here]

Second, fitting our expectations from the Cartel Agenda Model, the first dimension in parliamentary systems with coalition governments captures both government-opposition divisions and party left-right policy positions. Having said that, in these cases government-opposition status is a stronger predictor of voting than left-right positions: the standardized coefficients for these two variables in this model are again  $-.68$  and  $.25$  respectively. Also, in these cases the second dimension fits left-right policy positions and is unrelated to the government-opposition status of parties.

Third, against our expectation, presidential systems with single-party governments are more similar to parliamentary systems with single-party governments than parliamentary systems with coalition governments. In these cases, the first dimension is mainly a government-opposition divide while the second dimension captures left-right policy positions of parties.

Finally, legislative voting in our cases of presidential systems with coalition governments or parliamentary systems with minority governments follows a strikingly different pattern to the

other three institutional contexts. Consistent with our expectations from the Floor Agenda Model, the first dimension in these cases is related to left-right policy positions of parties and not to government-opposition divisions. In these cases, moreover, the second dimension is neither related to left-right positions nor related government-opposition status. Instead, the party size variable is significant on the second dimension, which suggests that in these institutional contexts the interests of large parties as opposed to small parties matters in some votes.

As a robustness check of the stability of our findings about the nature of the first dimension, we estimated the models separately for right-wing and left-wing governments and our key result holds: that the first dimension of voting in parliamentary systems with majority governments (either single-party or coalitions) and in presidential systems with majority single-party governments is explained mainly by government-opposition dynamics.<sup>13</sup>

## **5. Two Natural Experiments**

It is, of course, not possible to conduct a controlled experiment of the causal relationship between institutional context and the dimensionality of politics because regime type and the form of government cannot be randomly assigned across legislatures. Nevertheless, within each country a government can shift between single-party and coalition government or between majority and minority government. In a sense, any such shifts are ‘natural experiments’, since while the regime type does not change, the form of government does change, and this ‘treatment’ is exogenously assigned.

As a result, we looked through our 16 legislatures to find such natural experiments: where the form of government changed from one legislature to the next. We found two cases: (1) in the Czech Republic, where the minority CSSD government in 1998-2002 was replaced by a majority

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<sup>13</sup> The results of these robustness checks are available from the authors.

CSSD-KDU-US coalition government in 2002-2006; and (2) in Mexico, where the majority PRI government in 1997-2000 was replaced by a minority PAN government in 2000-2003.<sup>14</sup>

If our theoretical propositions are right, these two changes should result in fundamental shifts in the structure of conflict in these two legislatures. In the Czech case, whereas the first dimension of voting in the period of minority government in 1998-2002 was a left-right policy dimension, the shift to majority coalition government in 2002-2006 should result in dominant government-opposition split with a second dimension capturing left-right positions of parties. In the Mexican case, in contrast, we expect the reverse: a shift from a first dimension capturing government-opposition voting and a second dimension capturing left-right positions in the period of majority government in 1997-2000, to a first dimension driven by left-right policy positions in the period of minority government in 2000-2003.

[Figure 7 about here]

We applied the same scaling and identification methods to the two periods of these two legislatures, and the results are shown in Figure 7.<sup>15</sup> The results are exactly as predicted. The two periods of minority government both fit the pattern of voting predicted by the Floor Agenda Model: where left-right policy positions are the dominant dimension of voting. In contrast, the two periods of majority government (of coalition government in a parliamentary system in the Czech Republic, and single-party government in a presidential system in Mexico) both fit the pattern of voting predicted by the Cartel Agenda Model: where the first dimension is government-opposition and a second dimension captures left-right positions. Furthermore, comparing the two Czech parliaments with the two Mexican congresses clearly shows that while

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<sup>14</sup> PVEM supported the PAN president in the 2000 Mexican congressional and presidential elections, but withdrew support of government after one year of the legislature.

<sup>15</sup> For comparability between the two legislatures, and because of limited computer power, we analysed the first 2,000 votes in the 2002-2006 session of the Czech legislature, out of the total of 13,000 votes in the whole period.

the dimensions of voting in the former (parliamentary system) mainly capture *party* positions, the dimensions in the later (presidential system) capture both *party* and *individual* positions.

## **6. Conclusion**

Recorded votes in legislatures are one of the ways parties and representatives can demonstrate their policy preferences to citizens. However, there have been few studies which use roll-call votes to analyze the revealed behavior of politicians across countries. In this paper we look at legislative voting in a number of countries using a consistent set of measures: looking at roll-call votes, applying the same scaling method, applying the same identification strategy, and applying the same restriction criteria.

Our results suggest that different models of legislative politics fit different institutional contexts. Where legislative coalitions have to be built issue-by-issue – as in presidential systems with coalition governments and in parliamentary or presidential systems with minority governments – the standard spatial (floor agenda) model fits the observed legislative voting patterns relatively well. Nevertheless, in all other institutional contexts, the dominant feature of legislative voting is the battle between those parties and politicians who are in government and those who are in opposition, rather than policy-based (left-right) divisions between parties or legislators.

Sometimes this government-opposition dimension correlates with a left-right ideological dimension. More often than not, though, the government-opposition dimension is orthogonal to the left-right. Regardless of their policy promises and ideological affinities, parties in opposition usually vote together against the party or parties in government. When government-opposition voting breaks down, governing and opposition parties then tend to split along left-right lines, hence producing a second dimension which correlates with left-right positions of parties. Put

another way, legislative politics in most democracies looks more like Westminster than Washington, DC.

This finding is a challenge to our standard theories of legislative politics, which usually assume policy-driven voting in a continuous (left-right) policy space. We already have theories which explain government-opposition divisions in parliamentary systems (e.g. Huber 1996; Diermeier and Feddersen 1998; Dewan and Spirling 2011). However, we do not have a good understanding of why government-opposition splits are common across presidential and parliamentary systems. For example, is this regularity driven by agenda-setting rules common to all chambers, the power of parties, electoral positioning of governing and opposition parties, or some combination of these factors?

There is also much still to be done empirically. Our 16 cases are a small sample of all democracies and all possible variations in the institutional design of government. With better quality data from more legislatures a wider variety of institutional variables could be taken into account, such as rules on the selection of roll-call votes, electoral systems, committee powers, and so on. With more data it would also be possible to look at how changes over time affect legislative voting, such as changing party policy positions, government turnover, length of term in office, the changing make-up of coalitions, shifts from unified to divided government in presidential systems, other cases of shifts from minority to majority government, and so on.

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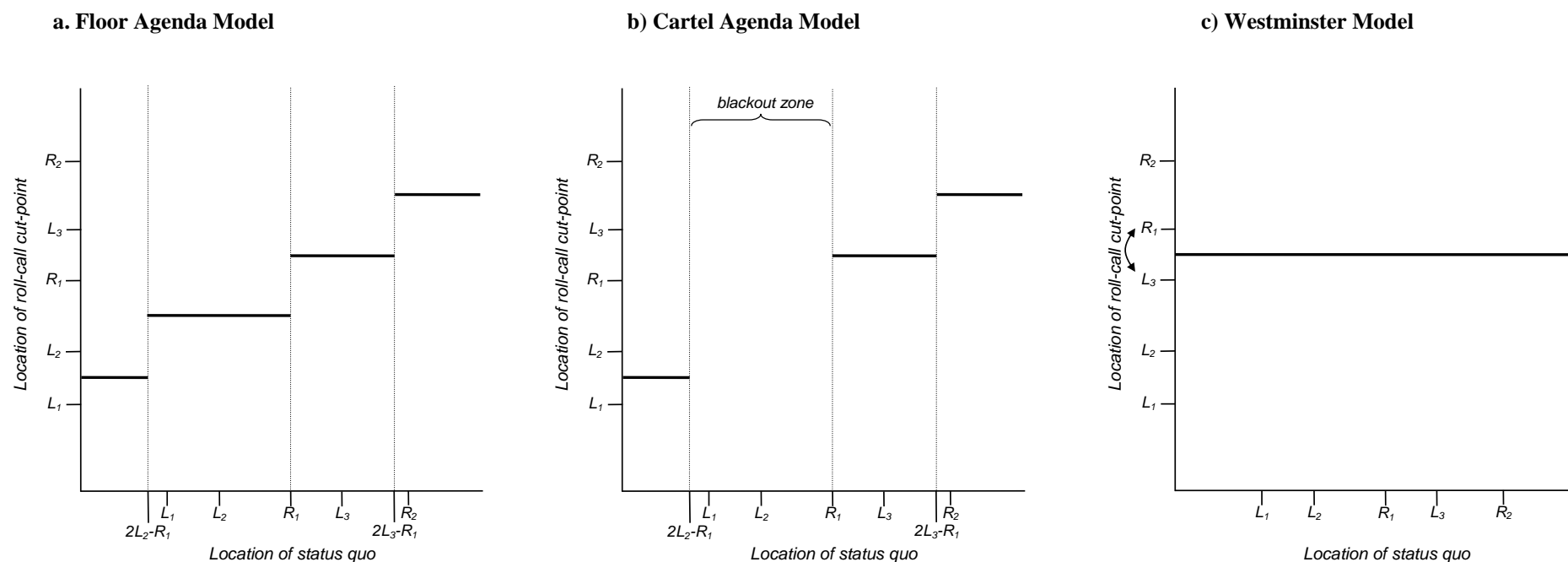
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**Figure 1. Predicted Observed Cut-Points in Three Models of Legislative Politics**



Note: In all three models  $L_1$ ,  $L_2$  and  $L_3$  are members of the ‘left party’ while  $R_1$  and  $R_2$  are members of the ‘right party’.

In the Floor Agenda Model,  $R_1$  is the pivotal voter, and all policies converge on  $R_1$ . In this model, a cut-point in a roll-call vote is the point which divides the legislators who are closer to the status quo than  $R_1$  from the legislators who are closer to  $R_1$  than the status quo. For example, for a status quo located anywhere to the left of  $2L_2 - R_1$ , the cut-point in a vote is between  $L_1$  and  $L_2$  because  $L_1$  votes to keep the status quo while  $L_2$ ,  $R_1$ ,  $L_3$  and  $R_2$  vote for the policy of  $R_1$ .

In the Cartel Agenda model,  $R_1$  is again the pivotal voter. However,  $L_2$ , as the leader of the ‘left party’, controls the agenda, and will only allow votes on issues where the outcome ( $R_1$ ) is closer to  $L_2$  than the status quo. As a result, in this model the region between  $2L_2 - R_1$  and  $R_1$  is the ‘blackout zone’, where  $L_2$  does not allow votes to take place.

In the Westminster Model,  $L_2$  is the leader of the governing majority party, and has monopoly proposal power. Also,  $R_1$  can commit to oppose the government, even when  $L_2$  is closer to  $R_1$  than the status quo, because this forces  $L_2$  to offer policy concessions. As a result, in this model all cut-points are located between  $L_3$  and  $R_1$ , but  $L_3$  votes with the other two government legislators while  $R_1$  and  $R_2$  vote cohesively against the government.

**Figure 2. Institutional Contexts of the Legislative Theories**

		Regime type	
		Parliamentary (strong parties)	Presidential/Separated-Powers (weak parties)
Form of government (agenda- control)	Single-party majority	<i>Westminster Model</i> Australia, 1996-98 Canada, 1994-97 New Zealand, 1990-93 United Kingdom, 1997-2001	<i>Cartel Agenda Model</i> Mexico, 1997-2000 Peru, 1999-2000 South Korea, 2004-05 USA 1993-95
	Coalition majority	<i>Cartel Agenda Model</i> Belgium, 2003-07 France, 1997-2002 Israel, 1999 Poland, 1993-97	<i>Floor Agenda Model</i> Brazil, 1995-98 Chile, 1998-2000 European Parliament, 2004-09
	Minority government	<i>Floor Agenda Model</i> Czech Republic, 1998-2002	<i>Floor Agenda Model</i> Mexico 2000-03

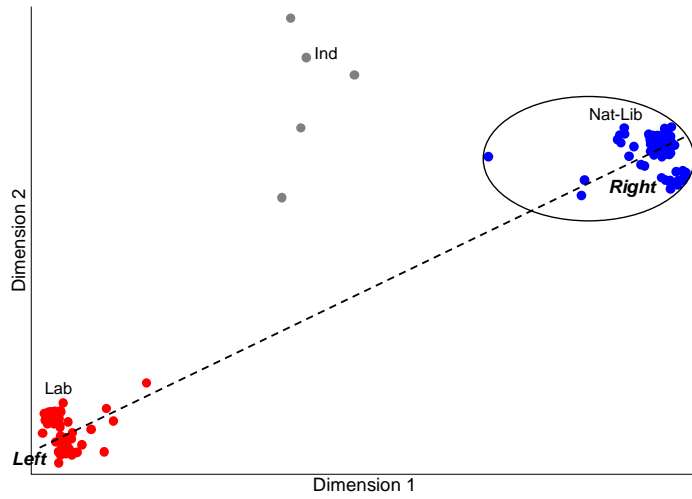
Note: France and Poland have semi-presidential regimes. However, because the government, via the president, can dissolve the parliament in both systems, and hence enforce party discipline, we group these cases together with the other parliamentary systems. We categorize the European Union (EU) as a separated-powers system because the EU Commission has a monopoly of legislative initiative, the Commission cannot dissolve the European Parliament, and the European Parliament can only remove the Commission by a special oversized majority vote (e.g. Hix and Høyland 2011).

**Table 1. Dimensionality in the Fourteen Parliaments: Goodness-of-Fit Statistics**

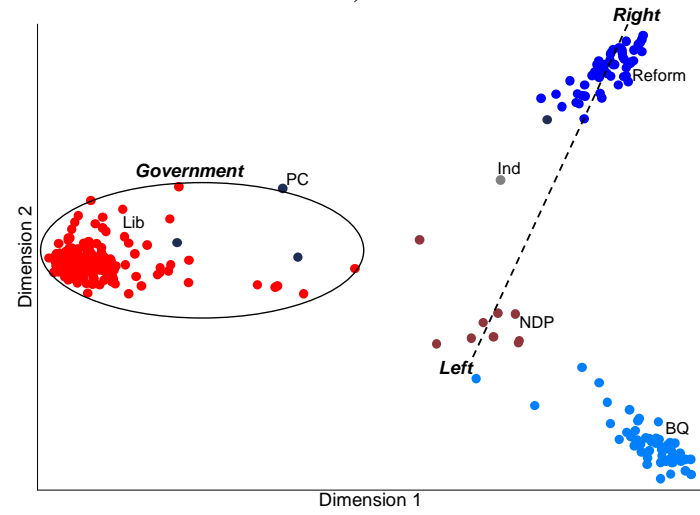
Legislature	Chamber size	Period	Scalable votes	Scalable legislators	Eigenvalues: first/second/third dimensions	APRE dimension1/ dimension2	APRE dimension1 minus dimension2
<i>Single-Party Parliamentary</i>							
Australia, 1996-98	148	1996-98	446	149	85 / 4 / 1	99.2 / 99.2	0.0
Canada, 1994-97	295	1994-97	696	297	49 / 15 / 2	73.0 / 96.0	22.1
New Zealand, 1990-93	97	1990-93	570	97	80 / 3 / 1	94.3 / 96.2	1.9
United Kingdom, 1997-2001	651	2001-05	1165	655	62 / 8 / 2	92.0 / 93.9	1.9
<i>Coalition Parliamentary</i>							
Belgium, 2003-07	150	2003-07	663	178	53 / 7 / 3	89.5 / 92.9	3.4
France, 1997-2002	577	1997-02	105	594	81 / 4 / 1	97.0 / 97.0*	0.0
Israel, 1999	120	Oct-Nov 99	584	121	37 / 18 / 8	53.7 / 74.1	20.4
Poland, 1993-97	460	1997-99	1050	445	30 / 18 / 6	48.1 / 65.9	17.8
<i>Single-Party Presidential</i>							
Mexico, 1997-2000	500	1998-2000	149	554	43 / 13 / 4	95.7 / 97.7	2.0
Peru, 1999-2000	120	1999-2000	235	122	60 / 4 / 3	82.7 / 87.7	5.0
South Korea, 2004-05	299	2004-05	136	304	23 / 8 / 3	37.1 / 51.6	14.5
USA, 1993-95	435	1993-95	947	438	70 / 4 / 2	65.7 / 69.2	3.5
<i>Coalition Presidential</i>							
Brazil, 1995-98	513	1995-98	428	610	30 / 6 / 2	72.8 / 75.3	2.5
Chile, 1998-2000	120	1998-2000	522	121	50 / 4 / 3	73.0 / 77.9	4.9
European Parliament, 2004-09	732	2004-09	2204	906	20 / 9 / 5	51.9 / 56.8	4.9
<i>Minority Parliamentary</i>							
Czech Republic, 1998-2002	200	1998-01	2049	201	45 / 15 / 12	68.5 / 74.7	6.2

Note: \* This number actually slightly decreased, indicating that the second dimension did not have any explanatory power. APRE = aggregate proportional reduction in error, where the classification errors of the model are compared to that of a naïve benchmark assuming that all MPs vote with the majority.

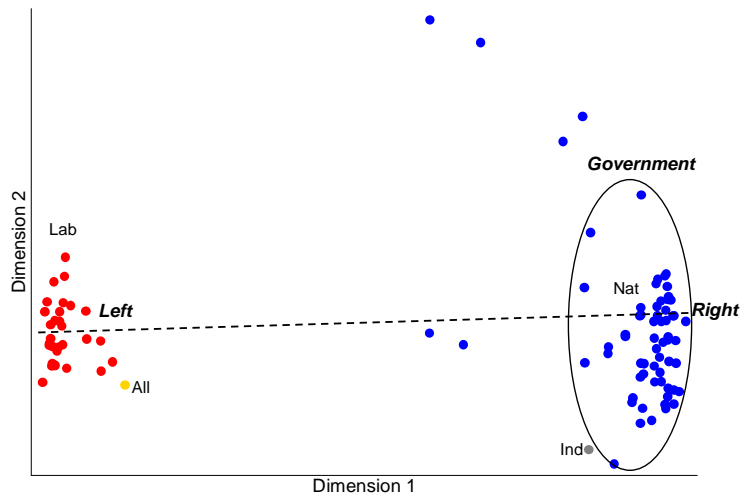
**Figure 3. Parliamentary Regimes with Single-Party Governments**  
**Australia, 1996-98**



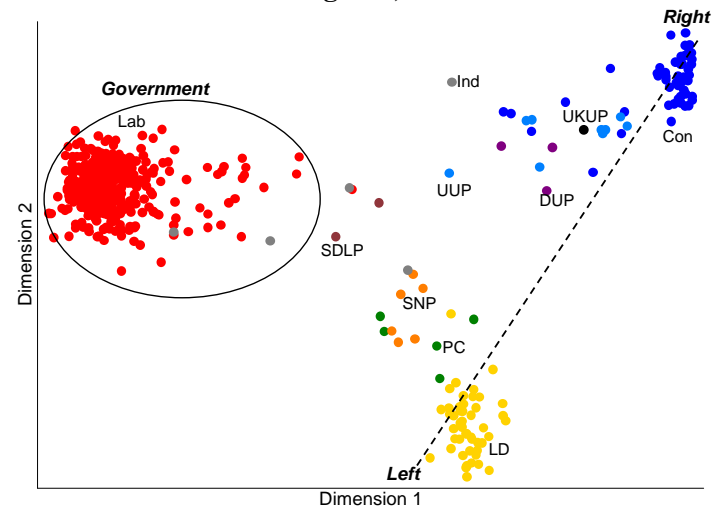
**Canada, 1994-97**



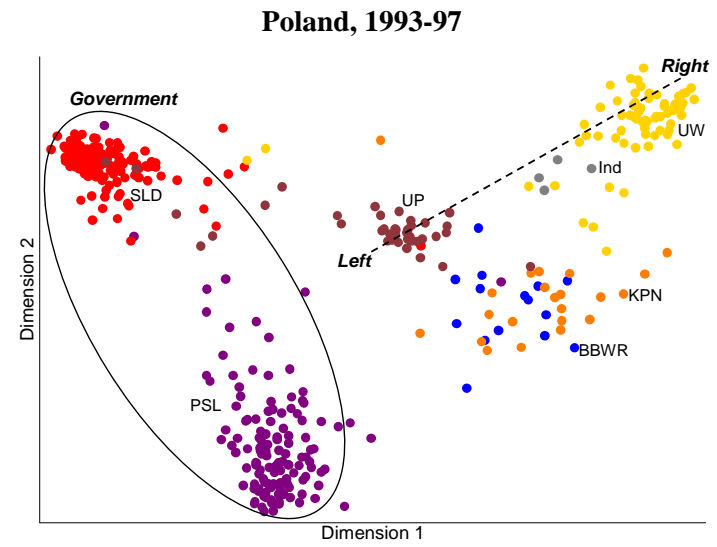
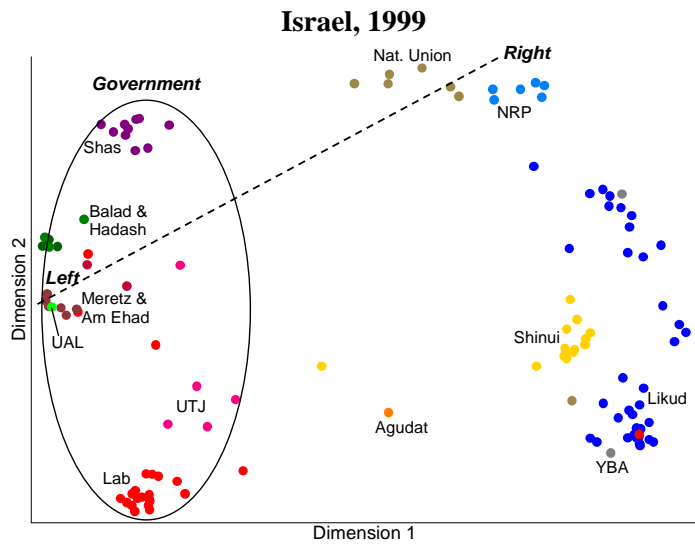
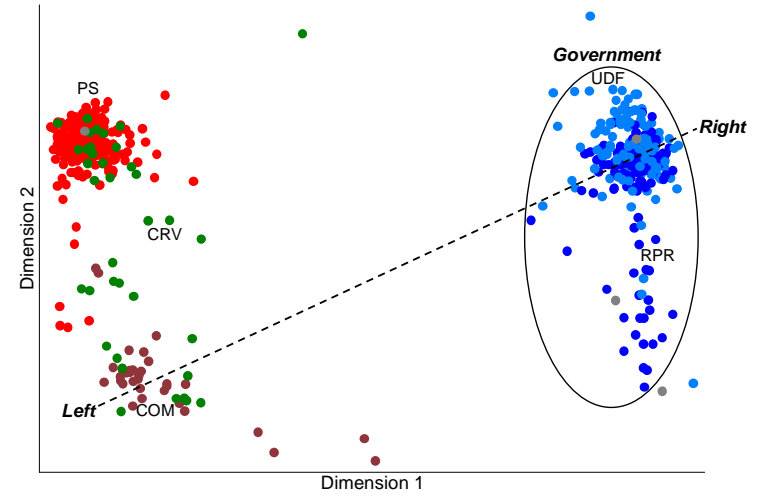
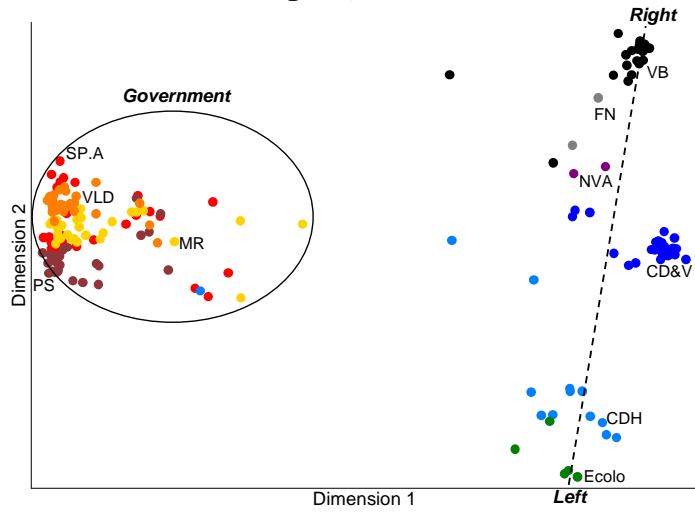
**New Zealand, 1990-93**



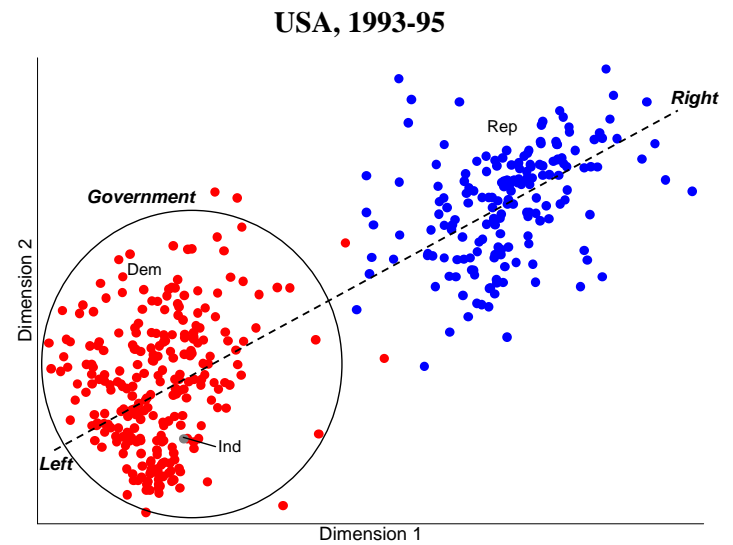
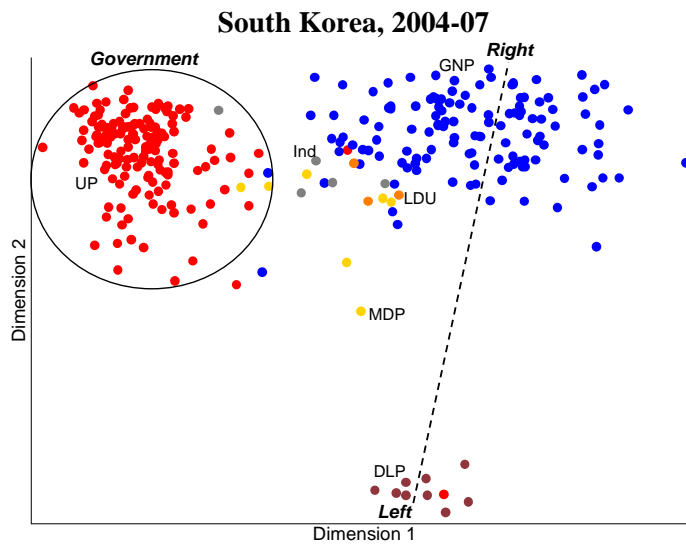
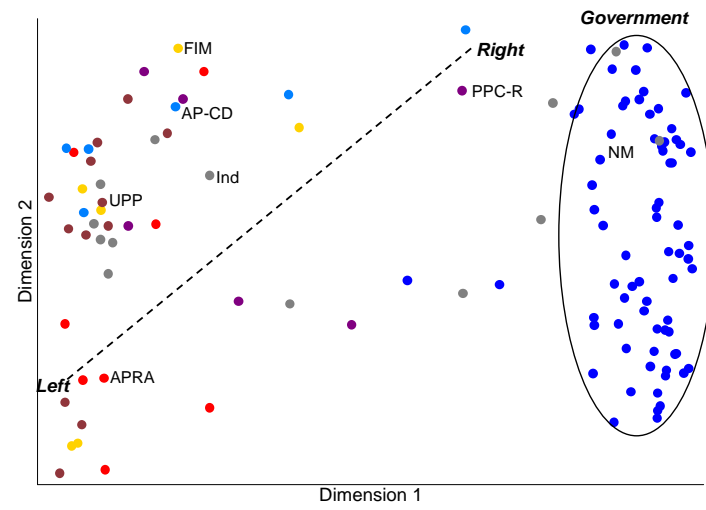
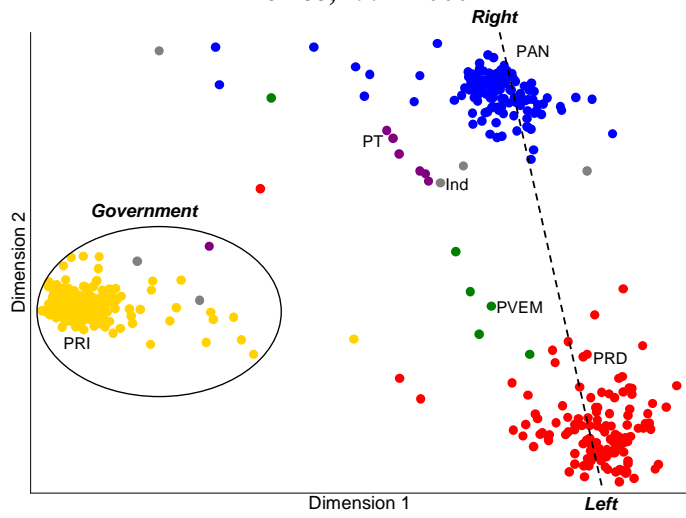
**United Kingdom, 1997-2001**



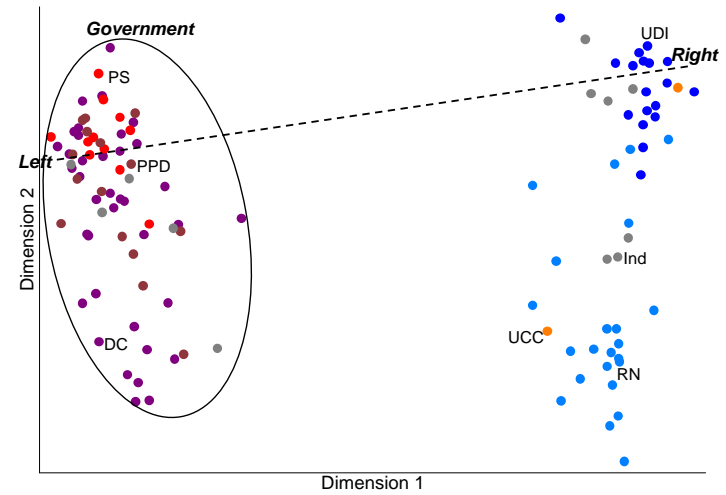
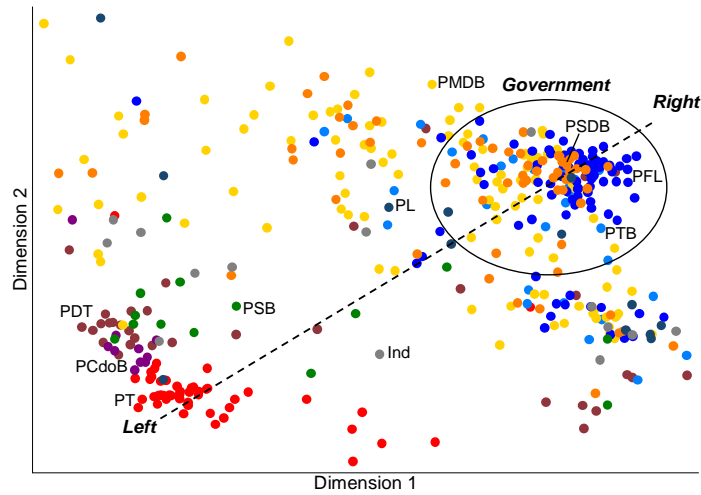
**Figure 4. Parliamentary Regimes with (Majority) Coalition Governments**  
**Belgium, 2003-07** **France, 1997-2001**



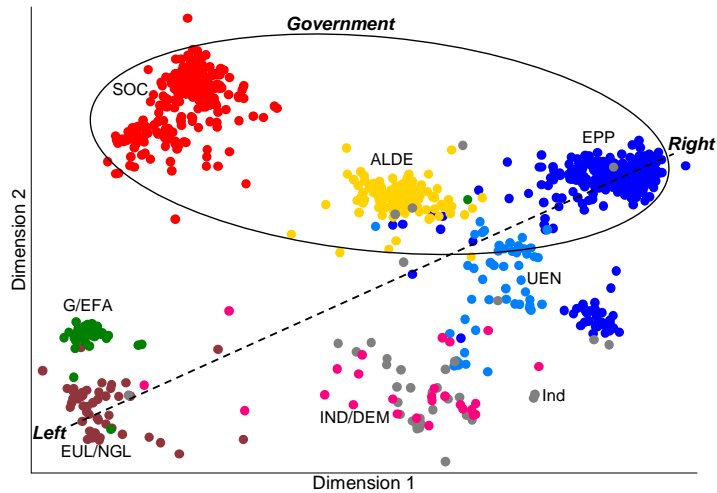
**Figure 5. Presidential (Separated-Powers) Regimes with Single-Party Governments**  
**Mexico, 1997-2000** **Peru, 1999-2000**



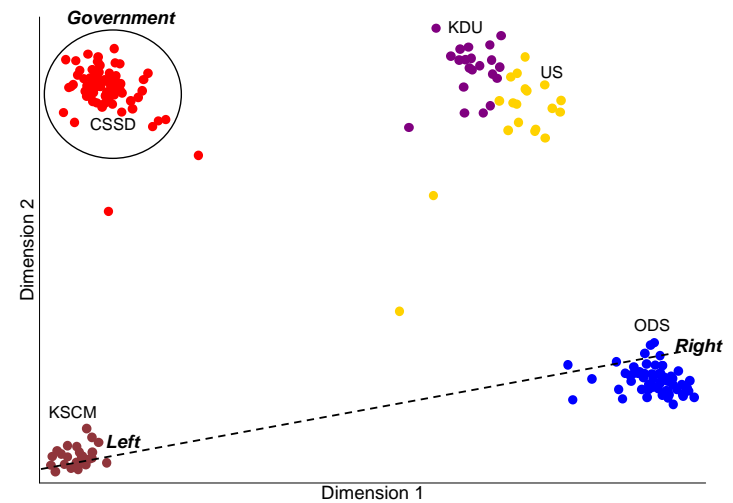
**Figure 6. Presidential (Separated-Powers) Regimes with Coalition Governments**  
**Brazil, 1995-98** **Chile, 1998-2000**



**European Parliament, 2004-09**



**Czech Republic, 1998-2002 (Parliamentary/Minority Government)**



**Table 2. Interpreting the Dimensions: Pooled**

	First Dimension			Second Dimension		
	(1)	(2)	(3)	(4)	(5)	(6)
Government-opposition	-.744*** (.108)	-.804*** (.110)	-.821*** (.101)	.117 (.076)	-.002 (.080)	-.022 (.079)
Left-right	.029*** (.001)	.021** (.011)		.027*** (.008)	.032*** (.008)	
Environment			.006 (.014)			.016 (.014)
Social left-right			.015 (.010)			.016 (.014)
Decentralisation			-.005 (.013)			-.024** (.011)
Party size	.001 (.001)	-.00004 (.0006)	.0002 (.0005)	.001 (.0004)	.0002 (.0004)	.001 (.0004)
No. of observations	95	76	76	85	76	76
R-squared	.727	.768	.764	.327	.363	.366

Note. Estimation method: OLS. Robust standard errors in parentheses. Country fixed-effects are included in all models. \*\*\*  $p \leq .01$ , \*\*  $p \leq .05$ , \*  $p \leq .10$ . Model 2 is a replication of model 1 and model 5 is a replication of model 4 for only those observations for which we have data on the environmental, social left-right, and decentralization policy positions of parties. The left-right variable is dropped from models 3 and 6 because of multicollinearity between this variable and the social left-right and environmental variables.

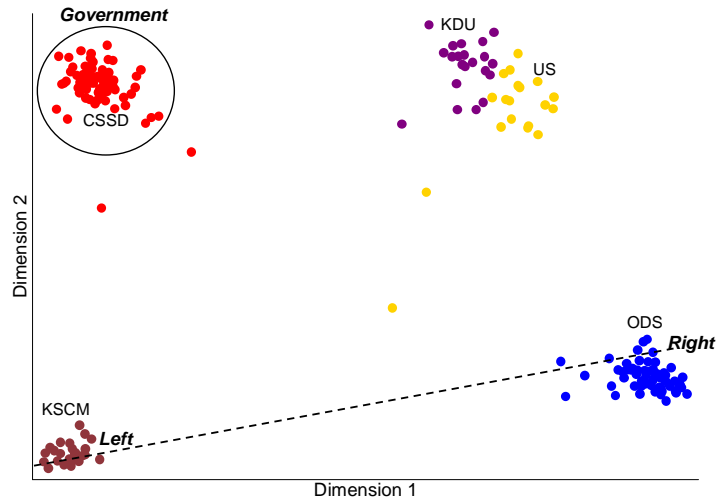
**Table 3. Interpreting the Dimensions: by Institutional Context**

	First Dimension					Second Dimension				
	All cases (table 3, model 1)	Parl.+ SPG	Parl.+ coalition	Pres.+ SPG	Pres.+ coalition/ Parl.+ minority	All cases (table 3, model 4)	Parl.+ SPG	Parl.+ coalition	Pres.+ SPG	Pres.+ coalition/ Parl.+ minority
<i>Expected theoretical model</i>	<i>Westminster</i>	<i>Cartel agenda</i>	<i>Cartel agenda</i>	<i>Floor agenda</i>		<i>Westminster</i>	<i>Cartel agenda</i>	<i>Cartel agenda</i>	<i>Floor agenda</i>	
Government-opposition	-.744*** (.108)	-1.390*** (.140)	-.841*** (.159)	-.907*** (.138)	-.268 (.181)	.017 (.076)	-.166 (.165)	.117 (.126)	.117 (.162)	-.146 (.145)
Left-right	.029*** (.010)	.017 (.015)	.029** (.015)	-.0001 (.008)	.059*** (.019)	.027*** (.008)	.046*** (.013)	.030** (.011)	.050** (.022)	-.001 (.015)
Party size	.001 (.001)	.001 (.001)	-.001 (.001)	.002** (.001)	.001 (.001)	.001 (.0004)	.0004 (.0005)	.001 (.001)	-.001 (.001)	.002*** (.001)
No. of observations	95	19	33	18	25	95	19	33	18	25
R-squared	.727	.890	.842	.923	.597	.327	.668	.312	.482	.341

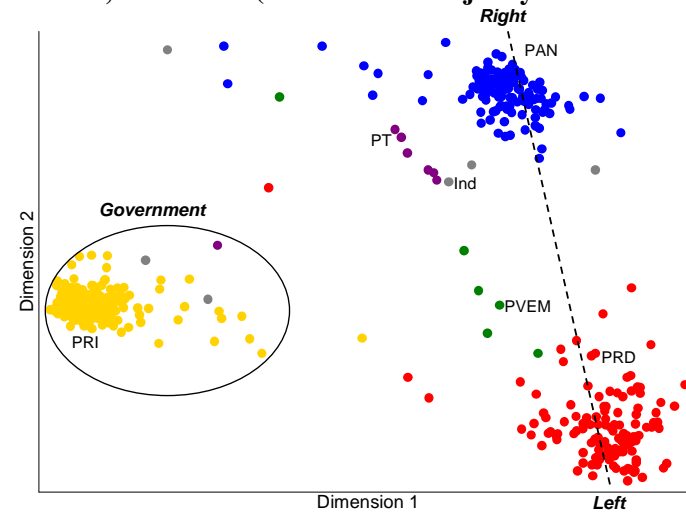
Note: Estimation method: OLS. Robust standard errors in parentheses. Country fixed-effects are included in all models. \*\*\*  $p \leq .01$ , \*\*  $p \leq .05$ , \*  $p \leq .10$ . SPG = single-party government.

**Figure 7. Two Natural Experiments**

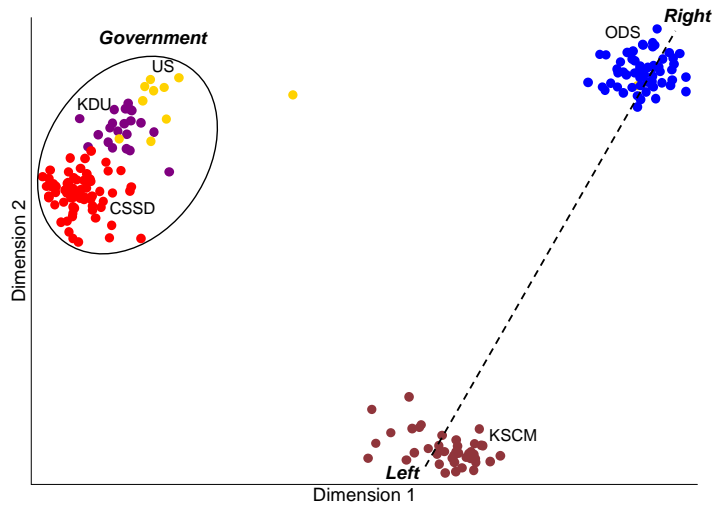
**Czech Republic, 1998-2002 (Parliamentary/Minority Government)**



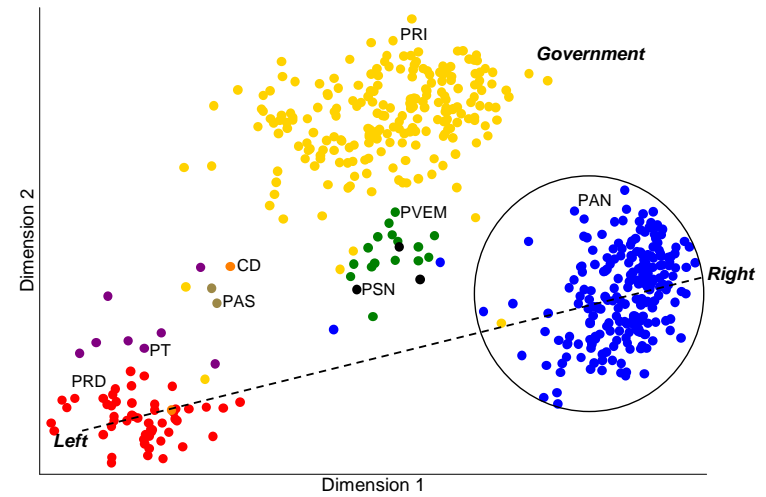
**Mexico, 1997-2000 (Presidential/Majority Government)**



**Czech Republic, 2002-2006 (Parliamentary/Majority Government)**



**Mexico, 2000-2003 (Presidential/Minority Government)**



## Party Abbreviations

### Australia

Ind	Independent
Lab	Labor Party (social democratic)
Lib	Liberal Party (liberal/conservative)
Nat	National Party (conservative)

### Belgium

CD&V	Christen-Democratisch en Vlaams (Flemish, Christian democratic)
CDH	Centre démocrate humaniste (Walloon, Christian democratic)
Ecolo	Écologistes confédérés pour l'organisation de luttes originales (Walloon, green)
FN	Front national (Walloon, radical right)
NVA	Nieuw-Vlaamse Alliantie (Flemish, left-regionalist)
MR	Mouvement Réformateur (Walloon, liberal)
PS	Parti Socialiste (Walloon, social democratic)
SP.A	Socialistische Partij Anders (Flemish, social democratic)
VB	Vlaams Belang (Flemish, radical right)
VLD	Vlaamse Liberalen en Democraten (Flemish, liberal)

### Brazil

Ind	Independent
PCdoB	Partido Comunista do Brasil (radical left)
PDT	Partido Democrático Trabalhista (social democratic)
PFL	Partido da Frente Liberal (conservative)
PL	Partido Liberal (liberal)
PMDB	Partido do Movimento Democrático Brasileiro (centrist)
PSB	Partido Socialista Brasileiro (social democratic)
PSDB	Partido da Social Democracia Brasileiro (centrist)
PT	Partido dos Trabalhadores (social democratic)
PTB	Partido Trabalhista Brasileiro (conservative)

### Canada

BQ	Bloc Québécois (left-regionalist)
Ind	Independent
Lib	Liberal Party (liberal)
NDP	New Democratic Party (social democratic)
PC	Conservative Party (conservative)
Reform	Reform Party (conservative)

### Chile

RN	Renovación Nacional (conservative)
UCC	Unión del Centro Centro Progresista (centrist)
Ind	Independent
PPD	Partido Por la Democracia (social democratic)
PS	Partido Socialista de Chile (social democratic)
DC	Demócrata Cristiano (Christian democratic)
UDI	Unión Demócrata Independiente (conservative)

### Czech Republic

KSCM	Komunistická strana Čech a Moravy (radical left)
ODS	Občanská demokratická strana (conservatives)
US	Unie svobody (liberal)

KDU	Křesťanská a demokratická unie – Československá strana lidová (Christian democrats)
CSSD	Česká strana sociálně demokratická (social democrats)

### European Parliament

SOC	Party of European Socialists (social democrat)
EPP	European People's Party (Christian democrat and conservative)
ALDE	Alliance of Liberals and Democrats for Europe (liberal)
G/EFA	Greens/European Free Alliance (green, left-regionalist)
EUL/NGL	European United Left/Nordic Green Left (radical left)
Ind	Independent
IND/DEM	Independence/Democracy (anti-European)
UEN	Union for Europe of the Nations (nationalist)

### France

COM	Parti communiste français (radical left)
CRV	Groupe des citoyens, radical et verts (left-radical-green)
PS	Parti Socialiste (social democratic)
RPR	Rassemblement pour la République (conservative)
UDF	Union des Démocrates pour la République (conservative)

### Israel

Agudat	Agudat Yisrael (religious)
Am Ehad	One Nation (social democratic)
Balad	Brit Le'umit Demokratit (Arabic, social democratic)
Hadash	HaHazit HaDemokratit LeShalom VeLeShivion (Arabic, social democratic)
Lab	Labor Party (social democratic)
Likud	Likud (conservative)
Meretz	Meretz (social democratic)
Nat. Union	National Union (radical right)
NRP	National Religious Party (religious)
Shas	Shas (religious)
Shinui	Shunui (liberal-secularist)
UAL	United Arab List (Arabic, religious)
UTJ	United Torah Judaism (religious)
YBA	Yisrael Be'aliyah (conservative)

### Mexico

CD	Convergencia por la Democracia (social democratic)
Ind	Independent
PAN	Partido Acción Nacional (conservative)
PRD	Partido de la Revolución Democrática (social democratic)
PRI	Partido Revolucionario Institucional (centrist)
PAS	Partido Alianza Social (centrist)
PSN	Partido de la Sociedad Nacionalist (social democratic)
PT	Partido del Trabajo (radical left)
PVEM	Partido Verde Ecologista de México (green)

**New Zealand**

All	Alliance Party (social democratic)
Ind	Independent
Lab	Labour Party (social democratic)
Nat	National Party (conservative)

**Peru**

APRA	Alianza Popular Revolucionaria Americana (social democratic)
FIM	Frente Independiente Moralizador (centrist)
AP-CD	Acción Popular – Coordinadora Democrática (Christian democratic)
Ind	Independent
UPP	Unión por el Perú (social democratic)
PPC-R	Partido Popular Cristiano – Renovación (Christian democratic)
NM	Nueva Mayoría (conservative)

**Poland**

SLD	Sojusz Lewicy Demokratycznej (social democratic)
PSL	Polskie Stronnictwo Ludowe (Christian democratic)
UP	Unia Pracy (social democratic)
Ind	Independent
KPN	Konfederacja Polski Niepodległej (nationalist)
BBWR	Bezpartyjny Blok Wspierania Reform (independents)
UW	Unia Wolności (liberal)

**South Korea**

UP	Uri Party (progressive)
Ind	Independent
GNP	Grand National Party (conservative)
MDP	New Millennium Democratic Party (progressive)
LDU	Liberal Democratic Union (liberal)
DLP	Democratic Labor Party (radical left)

**United Kingdom**

Con	Conservative Party (conservative)
LD	Liberal Democrats (liberal)
DUP	Democratic Unionist Party (N.Ireland, conservative)
Ind	Independent
Lab	Labour Party (social democratic)
PC	Plaid Cymru (Welsh, social democratic)
SDLP	Social Democratic and Labour Party (N.Ireland, social democratic)
SNP	Scottish National Party (Scottish, social democratic)
UKUP	United Kingdom Unionist Party (N.Ireland, conservative)
UUP	Ulster Unionist Party (N.Ireland, conservative)

**United States of America**

Dem	Democratic Party (liberal)
Ind	Independent
Rep	Republican Party (conservative)