CHAPTER 4

Federalism and Parties in Brazil

4.1 Introduction

One of the central challenges to comparative politics today is understanding why some countries have institutionalized party systems and others do not. This challenge is important first because parties can play an important role in maintaining stable, healthy democracies and second because many political actors are searching for ways to improve their party systems through institutional reforms - redesigning electoral systems, changing party legislation, and even moving between presidential and parliamentary forms of government.

Brazil is widely known as having an "inchoate" political party system.[1] Scholars typically blame this on two formal institutions: electoral rules and the decentralized federalist system. In the Chapter 3, I examined and tested the theories that link Brazil's electoral system to that country's weak party system.

In this chapter, I explore the theory and empirical evidence that tie Brazil's version of federalism to political parties. I pursue two goals. First, I identify and discuss the various mechanisms of Brazilian federalism that could contribute to weak national parties. Second, using several measures of legislative parties, I provide empirical evidence that can help distinguish among these mechanisms.

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[1] See [6], [109], and [54], for example. For a different view, however, see [61].

Previous work has noted the numerous features of Brazilian federalism that should reduce members of congress' incentives for party-building, including rules that strengthen state-level parties, powerful state executives, and locally-oriented career paths for politicians. But such work has not tried to distinguish between the various mechanisms or test for their different influences on legislative behavior.

Further, previous empirical work has used severely biased statistics to test for a federalist effect in the Brazilian Congress. Scholars have relied on comparisons of party cohesion with the cohesion of state-party delegations. I show how this methodology is biased in such a way as to practically guarantee that scholars will find evidence of party-dividing federalist forces - even where there are none. I provide an easy to use technique that solves the bias problem and apply my method to the data from Brazil.

There are several findings from this paper. First, there is evidence that several different features of Brazilian federalism do weaken national political parties, including state interests, state executives, and state parties. Second, while both governors and state parties make statistically significant contributions to models of national parties, and while both variables have a consistent impact across time, chamber, and various measures, national parties matter more. A consistent finding throughout this paper is that national parties, explain much or most of the variance in roll-call voting behavior. State variables make significant, but not huge effects above and beyond national parties.

4.1.0.4   Roadmap

The paper proceeds in 3 steps. In the next section (4.2), I provide an overview of the existing literature on the relationship between Brazilian federalism and the

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nature of Brazilian political parties, identifying and discussing the mechanisms that may work to weaken national political parties. In Section 4.3, I discuss the problems in previous empirical work, propose a solution, and present empirical evidence that can distinguish between the hypothesized federalist mechanisms. In Section 4.4, I discuss the implications of my findings, their generalizability, and several directions for future research.

4.2 Brazilian Federalism and Political Parties

On most measures, Brazil's government qualifies as one of the most federal in the world. The Federative Republic of Brazil is divided into 26 states and the federal district, Brasilia.[2] On both financial and political dimensions, essential decisions and controls are maintained at the state level. Table 4.1 compares national and state level spending as a percentage of total government spending.[3] Brazil clearly stands out as one of the most federal, with over 40% of government expenditures made at the state level, and only 36% made at the federal level. In comparison, only 23% of the United States' government expenditures are made at the state level, while 59% are at the federal level. Clearly Brazil has extremely decentralized government spending.

Brazilian politics is similarly decentralized, and this decentralization has been identified as having a significant impact on the nature of the Brazilian party system. Scholars have argued that federal legislators are effectively "ambassadors of their states", more interested in representing state interests than dealing with a

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[2]Brasilia has Senators and Deputies, just like any other state. On most measures, the district is equivalent to the states. See Chapter 2 for more details. Henceforth, I do not distinguish between the 26 states and Brasilia in theoretical discussion or in empirical analysis.

[3]The data are from [63, pages 5-6].

Table 4.1: Federal and State Spending in Selected Countries

	Spending	
Country	Federal	State
Argentina	52%	40%
Brazil	36%	41%
Chile	87%	1%
Colombia	67%	16%
Mexico	88%	10%
Venezuela	78%	16%
United States	59%	23%

national party legislative agenda.[4] Selcher writes of "...the vested interests of the state and regional actors now dominating the National Congress..."[158, page 29]. Souza writes that,"...the influence of governors over their state delegations in the National Congress can be, in most cases, greater than that of the political parties to which they belong".[174, page 580] Mainwaring writes that "The catchall parties are decentralized, and parties and politicians generally follow a logic of federalism... Politicians of the catchall parties focus a lot on state and local issues, so they are less likely to toe the line of the national party leadership."[105, page 83]. As a result, "...[f]ederalism influences the party system because most key decisions are made at the state level and abundant resources are allocated at this level."[109, page 263]

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[4]See [149].

4.2.1 The Antiparty Mechanisms of Federalism

Exactly what is it about federalist systems, and Brazil's in particular that prevents the formation of national coalitions working on national policy agendas? There is no reason why unitary systems could not have regional or local issues that trump national politics. I argue that what makes federalism different per say is the interaction of both formal and informal institutions. Federalist institutions strengthen the divisions over local and regional issues. They also create influential state-level political actors that can pressure national legislators. Federalist rules then increase the potential for conflict by creating new state interests. These interest differences can motivate political actors common to all systems - voters, interest groups, and other political elites - as well as actors created by federalism - governors, for example - to pressure national actors to respond to state interests.

I further consider how federalist forces interact with voters' preferences. I argue that the dynamic of federalism may vary with voters' preferences for private or public goods.

4.2.1.1 Federalist Actors that May Pressure Deputies

Brazilian federalism creates two key state-level actors with the institutional potential to divide national parties on state lines: state party organizations and state executives, i.e., governors.

State Political Parties State political parties have the potential to play an important role in politicians' careers. Under the Brazilian system, state political parties control nominations for federal deputy, senator, and gubernatorial candidates. These parties also control media access during campaign times, deciding

how to distribute television time to candidates.[5] Consequently, state parties are potentially very influential with national legislators.

State parties' influence, however, might be limited by several factors. First, in the Chamber of Deputies, legislators are guaranteed renomination under the *candidato nato* rule. Regardless of their voting records, party leaders cannot punish incumbents by limiting access to party lists. On the other side, however, many legislators aspire to state and local offices: mayorships, state cabinet jobs, the governorship, and other positions. Nomination for these elected offices are in the hands of state parties, though cabinet appointments are made by governors, as will be discussed below.

Second, state party strength is weakened by frequent, easy, and relatively painless party switching. A deputy under pressure from her state party could simply switch to another party.[6]

Third, state parties do not control significant financial resources for campaigns. Candidates have to raise their own funds, either using their own resources, soliciting contributions, or using state resources in one form or another.

Note, however, that these mechanisms may work more or less depending on the nature of existing political parties. For example, strong state parties with independent, autonomous, and institutionalized organizations should attempt to use these mechanisms to advance the state party's agenda. But where parties are personalistic machines for one or more powerful state bosses, the dynamics might be different. A powerful individual boss might be able to assert some of these mechanisms; a party of divided personalities might be less likely to do so.

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[5]All parties are allocated free media access in proportion to their share of the vote in previous elections. Parties then decide how to distribute this time among their candidates.

[6]See [48].

State Executives The other state actors created by Brazilian federalism are governors. Governors play a central role in Brazilian politics and politicians' career goals in particular. State governors control access to much pork and patronage. Not only is spending decentralized, but within the state governments most budget and policy authority is concentrated in the executive branch. Further, even federal grants may be passed through the state government. Federal funds for school construction might be transferred to the state department of education, for example.[154]

Further, while legislators each can make a number of political appointments to reward their supporters, the state executive branch controls many more jobs and may allow legislators to designate their own appointees for positions - in exchange for cooperating with the governor.[7]

Governors also control access to state ministerial jobs. Many deputies aspire to lead a state government department of planning, health, or roads. Many deputies take leaves of absence to take such positions in their home states. These positions enhance politicians' visibility as they work closely with the governor and present and implement projects. They also gain access to part of the state machine - and an opportunity to expand their own personal network.

Finally, close relationships with the state governor can be important for political campaigns. Deputies told me how the governor can facilitate campaigning by providing candidates with cars and drivers, paying for gasoline, and otherwise using the state machine to support their candidacies. They also told me how important it was that deputies be able to call their governor and have him or answer quickly. Demonstrating that relationship is an important sign to constituents that a legislator can "get things done." Further, given the very high

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[7]See [1].

information costs associated with deputy campaigns[8], deputies can use their association with a gubernatorial candidate to publicize their own campaigns and generate votes. Samuels[148] has shown a significant correlation between gubernatorial and legislative electoral returns, which he attributes to gubernatorial coattails. Deputies told me that they even fight over who stands closest to the governor in photographs.

Consequently, legislators who wish to deliver public works projects, provide their campaign workers with good jobs, build their own machine, or move up in state politics have an advantage if they are on good terms with the governor, In return, the governor may ask deputies for support on key votes, even when deputies' parties oppose the governor's position.

Governors also tend to dominate the activities of their own state political party, and sometimes of their coalition partners' parties. Consequently, they may be able to access the additional institutional advantages conferred on party organizations. In so doing, they take advantage of the lack of exogenously institutionalized parties, and the primacy of personal politics.

Examples of gubernatorial efforts to influence national legislators behavior are not uncommon. In early 1999, newly elected Minas Gerais governor Itamar Franco used his influence to challenge President Cardoso's legislative agenda. As in most states, the heads of many state departments in Minas Gerais are actually federal legislators on leaves of absence. Franco forced his department heads to go back to Congress to oppose the president on key votes - even though his national party was part of the President's coalition. Implicit was the threat that if these deputies voted with the President, they would lose their state jobs.

Similarly, some governors pressured their state delegations to oppose any ex-

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[8]See Chapter 3.

tensions of the Fiscal Stability Fund (FEF), which reduced state governments'
revenues. Governor Roseanna Sarney of Maranhão noted that the North and
Northeast parts of Brazil were the most hurt by this program, and she promised
that "The pressure will be very strong".[51]

4.2.1.2 Other actors

Other political actors may also pressure deputies to respond to state rather than
national interests. These actors may include business and political elites, local
politicians, voters, and interest groups. These groups are not the direct creation
of federalist structures; in fact, they are present in unitary polities as well. The
difference, however, is that in federal systems these groups are more likely to be
mobilized around state conflicts than national ideological issues.

4.2.2 Pro-Party National Forces

Two forces work toward unified national action: national legislative political
party institutions, and the national executive.

National parties are repeatedly identified as having little influence. They do
not control nominations, except for the presidential race, they do not distribute
media time, and they do not have financial resources for campaigns. What might
they be able to offer to unify a national coalition?

National parties do control access to resources within the National Congress.
They distribute committee assignments, set the legislative agenda, and can con-
trol some budget amendment initiatives.

Second, the Brazilian executive in particular is extremely influential. Broadly,
the president has been endowed with sweeping powers to control policy-making.

The president can propose legislation, and has the exclusive authority to propose legislation in certain policy areas. The president has both a veto and partial veto. She can move legislation to the top of the Congressional agenda and force action on stalled bills. She can also write decree-laws (*medidas provisórias*) that have the force of law, although they expire without Congressional approval and may be overturned by the legislature. The president also has substantial authority over the execution of the budget. The Brazilian budgetary system authorizes, but does not require, expenditures. This gives the executive branch substantial leeway to spend funds in certain areas but not others. Finally, the executive branch controls access to many political appointee jobs and nominates many judges.[9]

These sweeping powers also give the President potentially substantial influence over legislators, and this influence should counter pressure from state interests. In particular, the President controls state resources that have been widely documented as being essential for legislators' career advancement. Mainwaring notes that "Presidents, ministers, and heads of governmental agencies and firms use the dependence of deputies on obtaining resources to pressure them into supporting the president"[105, page 86].

Consequently, the national executive is well-armed to counter pressure from state interests. On a bill where local pressures are dividing the President's coalition, he can offer governmental resources to build support. On especially controversial bills, even deputies who do not face local constituency pressures may engage in such bargains. On such issues, when the legislation is essential and controversial, the value of each legislator's vote rises.

What should we expect when national and state interests are in conflict?

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[9]See [105].

Previous work suggests that when under heavy pressure from both local interests and the President, deputies will vote with their states. In previous work (see [49]), investigating patterns of roll-call votes during the authoritarian regime, I have shown that on bills increasing transfers of revenue from the federal government to state and local control, deputies resisted pressure from their party leaders and from the President even during the military regime.

Though suggestive, the relevance of this finding for current Brazilian situation faces three limitations. First, it is based on the few relevant roll-call votes during the authoritarian period and may not generalize to the current democratic period. Second, the bills in question mobilized both state and municipal interests. State interests are unique to federalist systems; municipal interests are not. Consequently, we cannot say whether federalist forces (states) influenced legislators more than non-federalist forces (municipalities).[10] Finally, even if the findings do demonstrate federalist influences in the Brazilian Congress, the extent to which these forces shape the national party system should vary with the frequency that such issues are on the legislative agenda. I only found a handful of such votes for the period 1964-1985.

4.2.3 Cross State Interests and National Legislative Politics

Why would governors or state political parties have different national interests and pressure national legislators to diverge from a national party platform? Why might other actors common to both federal and unitary systems be more likely to lobby for state interests in federal systems?

I suggest that scholars consider how federalism interacts with two different

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[10]In fact, my analysis of deputies' speeches during the period suggests that municipal interests were more important for deputies.

kinds of issues: general policy issues and what I call federalist issues. I argue that federalist institutions strengthen pre-existing cross-state political differences and create new grounds for interstate political conflict.

General policy issues are themes common to all polities, not just those with federalist institutions. All nations must make decisions (or decide not to) on education expenditures, gun control, family planning, tariffs, and income tax rates. If public opinion were randomly distributed geographically, these questions would *never* appear to be state conflicts. But often, state interests may have very different positions on such questions, because federalism itself can be a by-product of interest differences.

Cross-regional differences in interests and opinion often pre-date federalist institutions. Many polities have adopted federalist rules specifically to deal with the divergence of opinion on key questions. Delegating some governance on key questions to local arenas allows each subgroup to establish its own policies on controversial issues, but share in common interests, like the national defense. Thus, systems that use federalist constitutions may be predisposed to regional differences of opinion. Whenever these differences become part of the national political agenda, state actors, especially interest groups, elites, and the public, should pressure their national legislators to defend a state position.[11]

This pattern has been widely observed in many contexts. For example, aggregate opinions on questions of civil rights and racial issues vary greatly across the United States, with pronounced differences of opinion between the ex-Confederate states and the rest of the Union. Not surprisingly, for many years Southern Democratic legislators would frequently vote with a Republican coalition. Legislators who voted with the Democratic majority on key issues faced hostility from voters

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[11]These differences in interests could also emerge over time in response to different development paths taken by each state, or due to other events.

and were often not re-elected.

These kinds of issues could thus affect national level party cohesion in two ways - either through federalist institutions, or independent of them. Responding to local interests, Governors and state parties might use their influence with federal legislators as part of their own career strategies. In this case, pressure on deputies would come through federalist institutions, and could divide national parties on state lines.

On the other hand, deputies might themselves simply respond to local public opinion without regard to national party positions. In this case, national parties would again divide on state lines, but these divisions will be caused directly by differences in public opinion, not by the institutions of federalism. In fact, in this case federalist institutions are endogenous. They, like divided parties, would simply be a response to interstate interest differences.

These distinctions are important for several reasons. One is that they have fundamentally different implications for the success of institutional reform. For example, in the first case, where governors and state parties pressure legislators, eliminating federalism or weakening the role of state-level actors would increase national party cohesion. In the second case, changing the institutional rules would have no impact on legislators' behavior.

The second set of issues are those that are specifically created by federalism. Federalist institutions naturally create a set of political interests to the extent that resources and power are distributed among the states and between the federal and state governments. Since resources and power are finite goods, any change in their distribution will affect the interests of state actors.

Some such issues affect the distribution of goods across states. For example, reapportionment in the United States affects states' share of the votes in

Congress, and eventually their share of federal revenues. Little wonder that the Census counts that determine the distribution of Congressional seats are constantly challenged by states losing seats, and supported by those likely to gain.

One such question in Brazil has to do with the distribution of tax revenue. Brazil's tax structure is heavily redistributive from the developed to undeveloped states. The more developed center and southern region of the country accounts for about 80% of GDP, but only receives about 60% of tax revenue.[174, page 575] Brazilians from the South commonly complain about having to sustain poorer regions; those in the North and Northeast argue that such redistribution is only fair given the extreme poverty in those regions. Any change in this distribution is certain to involve state political conflict, pitting states that would gain from the redistribution against those that would lose.

Another kind of federalist issue is about the distribution of power and resources between the national and state government. Laws that define the balance between state and federal authority, responsibilities, and share of revenue are likely to mobilize state-level political actors. In this case, conflict is likely between the federal government on the one hand and all the state on the other.

Several examples can be found in recent Brazilian politics. In 1983, legislators voted overwhelmingly in favor of increasing revenue transfers from the federal to the state and municipal spheres. At that time, they faced heavy lobbying from the national executive and from state and municipal politicians. More recently (2001), the President was the winner, as the National Congress approved his Fiscal Responsibility Law. This measure restricts state and local governments' ability to deficit spend and makes local executives (governors and mayors) accountable for any such fiscal irresponsibility.

On such issues, we would expect a slightly different dynamic. Local actors -

state party elites and state governors - should oppose centralization of authority or resources. Such reforms reduce their control of valuable career resources. State interests may or may not have a clear position on such issues. These issues could be interpreted as administrative or ideological, with broad or narrow implications. For example, ending the state militias in the United States might seem efficient to voters in one state but a threat to state sovereignty to voters in another state. Two key factors in determining how state interests respond are the distribution of voters' preferences across states and states' being in the minority or majority on an issue. If preferences are distinctly distributed across states such that some states have strong support for an issue, and others oppose it, then state interests occupying the minority position should oppose centralization of that issue and state interests occupying the majority position should support centralization of that issue.

Further, beyond either kind of issue, federalism may naturally endow state actors with other interests in disrupting a national policy agenda. For example, state governors may harbor Presidential ambitions. Consequently, they may wish to use every opportunity to derail incumbents' political programs to further their own career ambition. A state party leader, in whatever office, might have similar ambitions and use the state party's influence to pressure the national legislative coalition.

4.2.4   Interaction with Voters' Preferences

The strength and nature of these federalist pressures on national legislators should vary with the nature of the issue and the nature of voters' preferences. As discussed in Chapter 2, I distinguish between two extremes in voting behavior: systems where citizens trade their votes for private goods and systems where citizens

trade their votes for public goods. The extent to which voters prefer one or the other should shape the nature and impact of federalist influences over national legislators, but this depends as well on the nature of policy goods.

Deputies should feel relatively constant pressure from voters on federalist issues, regardless of the nature of the political connection. Such issues often fall of the normal ideological space, so public goods voters should unite in their states' interests though they might be divided on other issues.

Is it reasonable to expect voters to be aware of or pay attention to individual issues? Electoral competition and attentive elites should keep pressure on deputies. Electoral competition means that challengers will be sure to remind voters of an incumbent's potentially damaging positions during an election. If an incumbent voted to support a redistribution that cost her state federal funds - voters will certainly hear about this during future campaigns. However, if voters do not care at all about such issues, elites should still pressure deputies to vote for their states. State political elites, including local politicians, state politicians, and financial interests that may contribute to campaigns all have interests in many federalist issues. Tax revenue distributions, for example, provide funds that these actors can use to implement policy proposals, advance their political careers, and skim for their own profit.

My interviews with politicians suggested that this was indeed the case: regardless of voters' preferences, all deputies felt pressure to defend their state on broad distributional questions. For example, Piauí is the poorest, most rural and least-developed state in Brazil. As discussed in Chapter 2, a significant proportion of citizens there trade votes for private goods. A staff member of the Piauí Governor's Representative in Brasília told me how on key issues they would attempt to unite their delegation. They faced some difficulty dealing with current

Senator Hugo Napoleão. Napoleão had run for governor and lost to incumbent Mao Santos, in a bitterly contested race. Napoleão did not want to support any program that might benefit Governor Santos, but was eventually convinced to vote with the Piauí delegation. Rio Grande do Sul is one of the most politicized states, with enduring and sometimes acrimonious ideological conflict between political parties. The Representative from Rio Grande do Sul is a member of the Workers' Party. The center-right forces from Rio Grande have strongly opposed the workers' party in within-state political struggles, contesting the governor's programs and passing other laws over his vetos. But in spite of their conflicts, federal deputies from Rio Grande do Sul meet weekly to discuss items on the legislative agenda that are state questions.

On policy issues, the impact of voters' preferences is not clear. Consider several dynamics. First, where voters prefer private goods, legislators' behavior should be a function of their bargains with the President and state governors. If some governors and the President take identical positions, deputies' choice should be easy. But where governors and the President are on opposite sides of an issue, deputies' behavior will be a function of pressure from both.

Which will prove more influential? Most existing scholarship would suggest that governors should have more influence. Deputies' local career ambitions in such settings will depend on their relationship with the state executive[12] and even deputies with long-term plans to stay in the Congress should have to maintain good relationships with the governor, given the ties between executive and deputy vote shares. However, whether the President or Governor proves more influential with legislators may also depend on deputies' party membership, coalition membership and future career plans.

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[12]See [148].

In public goods settings, voters should prefer well-defined and disciplined party labels, as discussed in Chapter 2. This should strengthen the importance of state parties, that might be able to exert some discipline on their delegations. It is not clear, however, whether these state party delegations will work to preserve a national party label - or a state party label.

4.2.5   Additional Considerations

Local ambitions   Many of these mechanisms may interact with another characteristic of the Brazilian system: local political ambition. Political ambition for many legislators is largely state-oriented. All members of Congress - deputies and senators - run in statewide elections, with the states acting as multimember districts. While most legislators do seek re-election, many legislators' career ambitions are in state and local politics, not in advancement in the national legislatures. Federal deputies regularly leave the Congress for ministerial positions in state government, or to run in mayoral races.[13]

Senators' career patterns are similar, though, with several key differences. Many Senators have gubernatorial aspirations, which will tie them to state politics. However, if they wish to challenge an incumbent governor, their incentives for coordinated state behavior in the Senate are reduced. Further, Senators frequently make Presidential bids, which might make them less prone to federalist behavior.

Both of these may increase the importance of federalist institutions, both directly and indirectly. Deputies and Senators who plan to run for mayor will likely need governors' support for their campaigns, as well as the support of a state party. In addition, while deputies may be able to represent distinct ideological

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[13]See [147].

sectors, when running for governor or mayor, they may not have that luxury. OLPR does allow deputies to represent distinct ideological groups (see Chapter 3), but when they run in a majoritarian election, they will have more pressure to build a broad coalition. Further, in such high-visibility campaigns, their voting records are likely to be examined and publicized. This line of reasoning suggests that legislators with local ambitions will need to keep local interests paramount while casting roll-call votes.

However, it is necessary to distinguish between local ambition that interacts with federalist institutions, and local ambition that is typical of all polities. Most nations, unitary and federal, have municipalities with some political independence and elected officials. A local orientation - a desire to run for mayor, for example - is not unique to federal systems.

Local ambition interacts with federalism to create incentives that differ from those in unitary systems when governors or state parties are influential in local politics. In federalist systems, legislators may need the support of governors or state parties in their bids for local office. This would strengthen the influence of these state actors in the national legislature. Similarly, if local ambition for legislators includes state-level cabinet positions, or nomination for a gubernatorial race, this should increase the influence of state-level actors.

Malapportionment   One additional consideration interacts with all the above - malapportionment. Malapportionment could exacerbate or reduce the impact of federalist forces on the overall system. In particular, if voters' preferences vary across states, and representation is not proportional, this could increase or decrease the overall impact of federalism on national parties.

In Brazil, states' representation in the National Congress is extremely dis-

proportional. States are allocated Senators and Federal Deputies to the national Congress. Each state receives three Senators. The number of deputies, however, is proportional to population, but with a minimum number of eight deputies, and a maximum of 70.

This would not be a problem if states did not vary so greatly in size and voting behavior. But almost half of Brazil's states fall above or below these limits. Eleven of the 27 states are too small to receive more than eight deputies.[14] These small states, all of which except Brasília are rural, underdeveloped, and vote conservatively, receive far more weight in the national political arena than their size would otherwise warrant. One state is large enough to be capped at seventy deputies (São Paulo). This large, urban state, the center of labor union activity and a stronghold of the leftist Workers' Party (PT), receives far less representation than its population warrants.

Figure 4.1 illustrates, graphing percentage of total population against percentage of political representation for the Chamber of Deputies. The solid line represents parity - where the proportion of voters equals the proportion of representation. The dashed line shows the actual relationship for the Chamber of Deputies. The top graph shows actual percentages; the bottom shows logged percentages, which is more revealing given the skew in the distribution of state population.

Most states' Chamber representation is roughly proportional - these are the points on the line. But the large number of small states are significantly overrepresented - the points above the line. And São Paulo, the largest state with over 20% of the country's population, is clearly very underrepresented. The disproportionality is even worse in the Senate, where most states are overrepresented,

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[14]These states are: Mato Grosso, Sergipe, Amazonas, Amapá, Roraima, Rondônia, Rio Grande do Norte, Brasília, Mato Grosso do Sul, Tocantins, and Acre.

Figure 4.1: Proportionality of States' Representation

Chamber

Rep. Percent

Pop. Percent

Chamber, logged

Rep. Percent

Pop. Percent
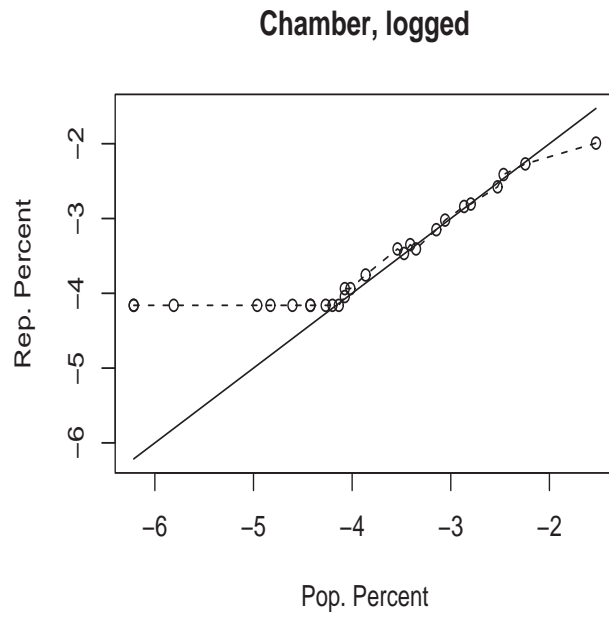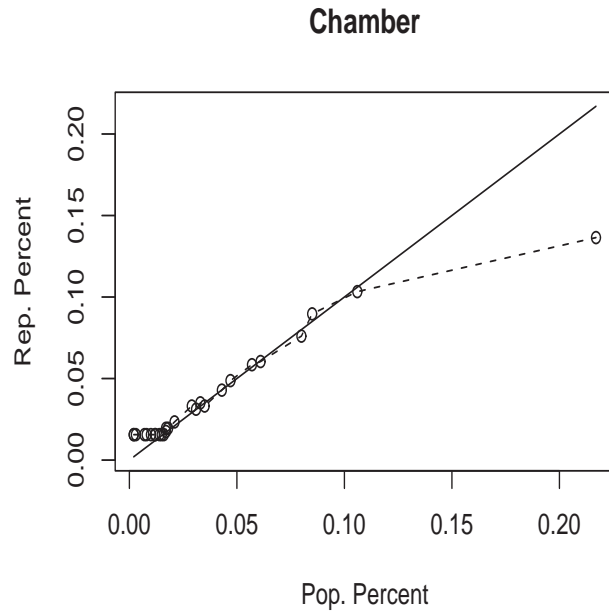
and the largest eight states are underrepresented.

This malapportionment should have the effect of magnifying any voter preferences' effects. Most of the small, over-represented states have less modernized economies and much higher indices of poverty; they also are largely known for clientelistic electoral practices. If voter preferences do interact - strengthening gubernatorial influence where voters prefer private goods, for example - then the extreme malapportionment will magnify the impact of those interactions on the political system above what we might expect based simply on population.

4.2.6 Summary

The above discussion suggests that federal institutions create a complex set of actors and incentives that may influence legislative parties. Federalist institutions may simply institutionalize existing interest differences - perhaps the same differences that gave rise to the federal form of government in the first place. They also create new state-level actors and interests with potential for interstate and state vs. federal conflict. Which groups are activated to pressure legislators depends on the nature of the issue at hand and the nature of the electorate.

Fully understanding these mechanisms is potentially very challenging. Influential groups might work behind the scenes to prevent controversial elements from entering the legislative agenda. Other kinds of controversial issues might just be very rare. Interests should only mobilize on certain issues, and should not be present and active in every roll-call vote, for example.

Unraveling all these mechanisms is beyond the scope of this chapter and I leave it for further research. Instead, I examine aggregate legislative behavior as measured by roll-call votes and party switching patterns. This has the disadvantage of not fully measuring each actors' potential power. However, it does show

in the aggregate which forces are affecting (or are not) the day-to-day operation of the National Congress in terms of roll-call votes and party-switching.

I focus on the influence of the key actors discussed above. In Brazil, federalist institutions create two actors and endow them with the potential to influence legislators: governors and state political parties. Federalism also reinforces existing regional political differences and creates new issues for conflict. As a result, governors, state parties, and other political actors have incentives to pressure national legislators to defect from their parties on key issues. Working against these local pressures are the President, national political parties, and the fact that many issues may not mobilize state interests.

The above discussion suggests several hypotheses about Brazilian federalism's impact on national legislative parties:

1. *Null Hypothesis* National legislative behavior is not explained by federalist influences.

   If federal institutions and interests have no impact on national legislative behavior, then national party membership (or some other non-federal variable) should adequately explain legislative voting behavior.

2. *Federalism Hypothesis 1: State Executives* Variance in legislative behavior can be explained by state-executive coalition membership.

   If federalist institutions weaken parties through state executives, then state governor coalition membership should explain roll-call votes and party-switching. Deputies that are part of a governor's coalition should be responsive to pressure from state executives. The state governor controls resources important for their reelection and has substantial influence among his political party. Deputies not in the governor's coalition should work

against her positions.

3. *Federalism Hypothesis 2: State Parties* Variance in legislative behavior can be explained by state-party membership.

   If federal institutions weaken parties through state parties, then deputies from the same state party should respond to the same pressures for roll-call votes and other facets of legislative behavior.

4. *Federalism Hypothesis 3: State interests* Variance in legislative behavior can be explained by state delegation membership.

   If state interests weaken national parties, either through interstate conflicts that predate the federal pact, or through new conflicts, state delegations should act together. This would be observable through unified state delegations voting together regardless of party differences.

In the next section I compare the impact of each of these mechanisms on national legislative behavior, looking both at roll-call vote based measures, and patterns of party-switching. I begin by revisiting the limited empirical evidence on the impact of federalism which relies on comparisons of cohesion scores for national parties and state parties. These kinds of analyses have two problems. First, I show that these measures are significantly biased in favor of the alternative hypotheses, artificially increasing evidence of federalism in national legislative behavior. I build and implement an unbiased test that uses cohesion scores. Second, such analyses provide no leverage for understanding *which* mechanisms of Brazilian federalism affect national politics - and which do not.

To solve this problem, and provide a deeper understanding of the workings of Brazilian federalism, I examine two additional bits of evidence. The first relies on a roll-call vote based measure, examining the explanatory power of federalist

mechanisms in a spatial representation of roll-call votes. The second explores how the different mechanisms of federalism affect deputies' patterns of party-switching.

4.3 Evidence

4.3.1 Roll Call Vote Cohesion and Federalism

While the notion of federalism as a key inhibitor of the institutionalization of Brazil's party system is common among scholars, there has been little effort to demonstrate its impact empirically. What little empirical work exists relies primarily on analyses of roll-call voting scores, comparing average cohesion for national parties, and for within-state party delegations. I begin by using the same methodology, examining roll call cohesion for the last two legislative periods.

Table 4.2 presents two measures of cohesion for the Chamber of Deputies: a basic cohesion score (BCS) and weighted cohesion score (WCS). The scores are calculated at three levels of analysis: national party, state party, and state. National party figures are the standard average party cohesion of national parties. We can write state-party cohesion scores as follows.

$$C_{SP} = \frac{\sum_{i=1}^{n} \sum_{j=1}^{m} \sum_{k=1}^{o} c_{ijk} * q_{ijk} W_j}{\sum_{i=1}^{n} \sum_{j=1}^{m} \sum_{k=1}^{o} q_{ijk} W_j}$$

Where i indexes parties, j indexes roll-call votes, and k indexes states; q_{ijk} is the number of deputies of party i from state k that voted on bill j, W_j is a weight for roll-call vote j, and c_{ijk} is the cohesion of party j's members from state k on vote i:

$$c_{ijk} = \frac{|Y_{ijk} - N_{ijk}|}{Y_{ijk} + N_{ijk}}$$

I calculated W_j two ways, producing a Basic Cohesion Score (BCS) and Weighted Cohesion Score (WCS). For the BCS, W_j is coded "1" for votes with minimum opposition and participation, and "0" for votes not meeting that threshold. For the WCS, W_j is equal to $1 - C_j$, or one minus the overall cohesion on vote j. This effectively weights divisive votes more heavily than near-unanimous votes. See Chapter 3 for more details.

National party cohesion (C_P) and state cohesion (C_S), using the same notation, are just:

$$C_P = \frac{\sum_{i=1}^{n} \sum_{j=1}^{m} c_{ij} * q_{ij} W_j}{\sum_{i=1}^{n} \sum_{j=1}^{m} q_{ij} W_j}$$

$$C_S = \frac{\sum_{j=1}^{m} \sum_{k=1}^{o} c_{jk} * q_{jk} W_j}{\sum_{j=1}^{m} \sum_{k=1}^{o} q_{jk} W_j}$$

Where

$$c_{ij} = \frac{|Y_{ij} - N_{ij}|}{Y_{ij} + N_{ij}}$$

and

$$c_{jk} = \frac{|Y_{jk} - N_{jk}|}{Y_{jk} + N_{jk}}$$

Intuitively, state party figures are the average cohesion of individual parties within each state. For example, the state party figures require first calculating the average cohesion for each party in each state separately (the PMDB deputies from Bahia, the PMDB deputies from Sao Paulo, and so on), then taking the average cohesion of all these state parties. The national party cohesion is the standard, well-known average party cohesion score. Finally, I include a new indicator of federalism, state cohesion. This statistic is the average cohesion score across states. More details on these cohesion scores and their calculation can be found in Chapter 3.

Table 4.2: Federalism in the Chamber of Deputies

Mean Cohesion scores

(Standard errors in parentheses)

	National Party	State Party	State Total
1991-1994			
BCS	.84 (.004)	.88 (.004)	.64 (.002)
WCS	.78 (.004)	.84 (.004)	.47 (.002)
1995-1999			
BCS	.83 (.003)	.86 (.003)	.56 (.001)
WCS	.78 (.003)	.82 (.002)	.45 (.001)

Table 4.3: Federalism in the Senate
Mean Cohesion scores

(Standard errors in parentheses)

	Overall		State Party		State Total	
1991-1994						
BCS	.81	(.007)	.89	(.010)	.82	(.006)
WCS	.67	(.009)	.84	(.013)	.69	(.007)
1995-1999						
BCS	.87	(.004)	.92	(.003)	.84	(.003)
WCS	.68	(.004)	.82	(.007)	.69	(.005)

The table offers several insights as to the impact of federalism on Brazil's party system. Most simply, there is apparently a significant impact of federalism on cohesion scores. National parties are *always* less cohesive than the state-party delegations. The differences are modest, ranging from .06 to .03, but are very consistent.

Second, the legislature may be divided by state parties, but state delegations in the Chamber are clearly not acting in unison. State delegation cohesion scores are consistently much lower than national party and state party cohesion scores by at least .20. The state delegations may act in unison on some key votes, but on average, state delegations divide on party lines.

Table 4.3 presents the same data for the Senate. As with the Chamber, state parties are always more cohesive than the national parties, regardless of measure or period. The differences here are larger - over .10 in several cases. One key difference is the state vs. party comparison. State delegations - regardless of party - are consistently more disciplined than the national parties.

This suggests that federalism *might* work differently in the Senate than in the Chamber, but two qualifications are necessary. First, as I demonstrated in Chapter 3, cross-legislature cohesion scores may be biased by different agenda-setting norms and practices. I showed that such differences had a significant impact on hypotheses tests in Chapter 3; similar mechanisms might be at work here. Specifically, if the Senate has few controversial votes, the higher state cohesion levels might simply reflect the fact that most Senators vote the same way on almost everything.

Second, because Senators are elected from single-member plurality elections, number of Senate parties per state tends to be much lower. For example, Bahia's delegation to the Chamber of Deputies in 1994 included 11 parties, but there was

only one party in the Senate delegation. Consequently, high state cohesion in the Senate might simply reflect the fact that there are many fewer parties in each state's Senate delegation, and sometimes there is only one party.

4.3.1.1 The problem with comparisons of group and subgroup cohesion scores

Unfortunately, there is a much more serious problem with this methodology. This basic approach - comparisons of cohesion scores for national and state parties - has been taken before by several authors, including Morgenstern, Samuels, and Mainwaring.[15] At first glance it appears to indicate that there are strong and statistically significant federalism effects. Unfortunately, these measures suffer a severe bias problem that can make observed federalism effects a mere byproduct of the estimation method. In fact, it turns out that whenever we compare grouped and subgroup cohesion scores - like national parties and state parties, for example - the differences are practically guaranteed to make the subgroups (state parties) look more cohesive.

Consider cohesion scores for a single party on a single roll-call vote. For simplicity, supposed there are only two states, A and B, and the party has five deputies, two from state A and three from state B.

Table 4.4 illustrates the hypothetical situation. The upper half of the table shows the universe of all possible vote outcomes (Yes-No), and corresponding national party (C_P) and state party (C_{SP}) cohesion scores.[16]

Note that state party cohesion scores are *always* equal to or greater than national party cohesion scores - never lower. Why is this? Whenever the majority

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[15]See [145], [118], and [106].

[16]As throughout this thesis, cohesion scores are weighted by the number of deputies voting. See Chapter 3 for more details.

of each state party votes the same way as the overall national party, the state and national scores will be the same. For example, in cells 1 and 2, a majority of state A voted yes, and a majority of state B voted yes. Hence the national and state scores are the same.

But when the majority of *any* state party's members vote contrary to the national party's majority position, the state score will be higher. Looking again at Table 4.4, in Cell 7, the overall majority voted "yes", three to two. But in State A, the majority voted "no". Consequently, the state party scores will be greater. This happens because whenever a state's majority goes against the national majority, this position pulls down the overall national average more than the state average. The individual states may still look relatively cohesive - as in cell 3, for example. But overall, the national party looks divided.

The key problem is that under most random-utility models of legislative voting, any of the cells (1-12) are possible with some positive probability - even if there are no federalist effects. One such model uses a binomial distribution. Let each member of the party have an equal probability p of voting "yes" on that bill, and probability $1-p$ of voting against it. In this case, since each legislator's behavior on Vote A follows a bernouli distribution, the overall party vote of k ayes and $n-k$ nays follows a binomial distribution with parameters $n = 5$, k, and p.

Under this simple model, there are no state or federalism effects. But we could randomly see greater state party cohesion scores that are higher than those of the national party. Further, because state party cohesion can never be less than national party cohesion, the expected value of state parties will always be greater than that of national parties, except under perfect party discipline when

Table 4.4: Bias in Cohesion Tests of Federalism

	Sample Space of Roll-Call Outcomes for Party P											
	1	2	3	4	5	6	7	8	9	10	11	12
State A	3-0	3-0	3-0	2-1	2-1	2-1	1-2	1-2	1-2	0-3	0-3	0-3
State B	2-0	1-1	0-2	2-0	1-1	0-2	2-0	1-1	0-2	2-0	1-1	0-2
Cohesion												
C_N	1	.6	.2	.6	.2	.2	.2	.2	.6	.2	.6	1
C_S	1	.6	1	.6	.2	.6	.6	.2	.6	1	.6	1
State cell entries are numbers of Yes and No votes (Yes-No)												

all deputies cast yea, or all cast nay votes ($p = 0$ or $p = 1$).[17]

Figure 4.2 plots the expected values for national and state party cohesion under the assumptions presented above.[18] The solid line represents the expected national cohesion score, $E(C_P)$, and the dotted line represents the expected state party cohesion score $E(C_{SP})$. As argued, the expected value for state party cohesion is *always* above national party cohesion. The difference is greatest where cohesion is lowest ($p = .5$) and the two values converge at the extremes ($p = 1$ or $p = 0$).

This shows that any group vs subgroup comparison of cohesion scores can produce a false federalism effect where there is none. How often we observe random federalist effects, and how great they are will vary with several parameters.

First, as seen in Figure 4.2, the lower the overall party cohesion, the greater the observed difference. Cohesion is lowest where the probability of voting yes is equal to the probability of voting no, i.e., $p = .5$. At that point we observe the largest difference between state and national party cohesion. At the extreme values, where the probability of voting yes is equal to one or zero, there is no difference between group or subgroup scores. Second, the pattern is most likely to emerge in small state delegations. The smaller the delegation, the more likely that a majority of its members will vote the "wrong" way just by chance. For example, in a state with just three members and with $p=.8$, this will happen about 10% of the time.[19] In a state with 20 members, the probability of this event is less than .001.[20]

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[17]This requires there to be two or more states, a minimum of five legislators, and a minimum of two legislators per state. Note that when there is just a single legislator from party Z in a state, that legislator will contribute to the calculation of the overall national party cohesion score, but no state cohesion score can be calculated. Cohesion has no meaning when there is only a single legislator.

[18]Here $C_{SP} = |k - (n - k)|/n$, where $k ˜ Binomial(p, k, n)$.

[19]Binom($p = .8, n = 3, k = 1$)+Binom($p = .8, n = 3, k = 0$)=.104.

[20]There is one artificial circumstance under which state party cohesion could be lower than

Figure 4.2: Bias in Cohesion Scores' Tests

**Expected Values of Party and Party–State Cohesion Under the Null Hypothesis**
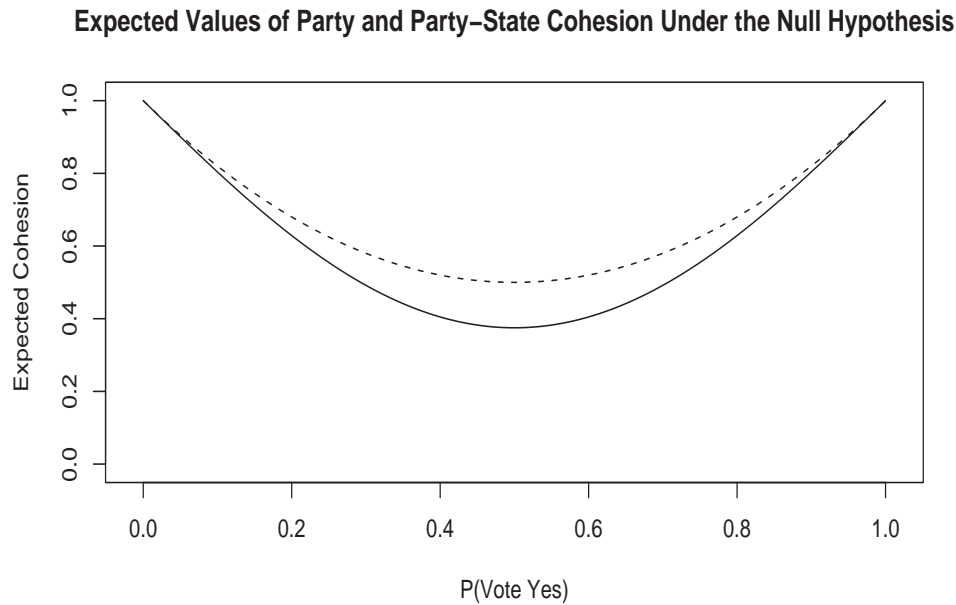
The Bottom Line Brazil is ideally suited to give a false positive to researchers using cohesion scores to test for federalist effects. There are many states with small delegations to the National Congress, and extreme party fragmentation assures that many states send just one or two members from the same party.

Figure 4.3 shows the distribution of state-party delegation size based on the 1994 Congressional election results. Clearly, the vast majority of state-party delegations are quite small. Fully 44% are of size one, and hence are not included in state-party cohesion score calculations. Another 20% are of size 2, and 90% are of size six or less. There are a few delegations of more than 10 members, especially

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national party cohesion. This can happen when there are many state-party delegations of size one. If there were many states with only one member of party Z, and all voted 'yea', and there were several states with two members of party Z who split their votes, state party cohesion would be lower than national party cohesion. This only happens, however, because the single-member states fall out of the cohesion calculations at the state party level. By definition, we need more than one member per state party to calculate a state-party cohesion score.

Figure 4.3: State Party Delegation Size, 1995
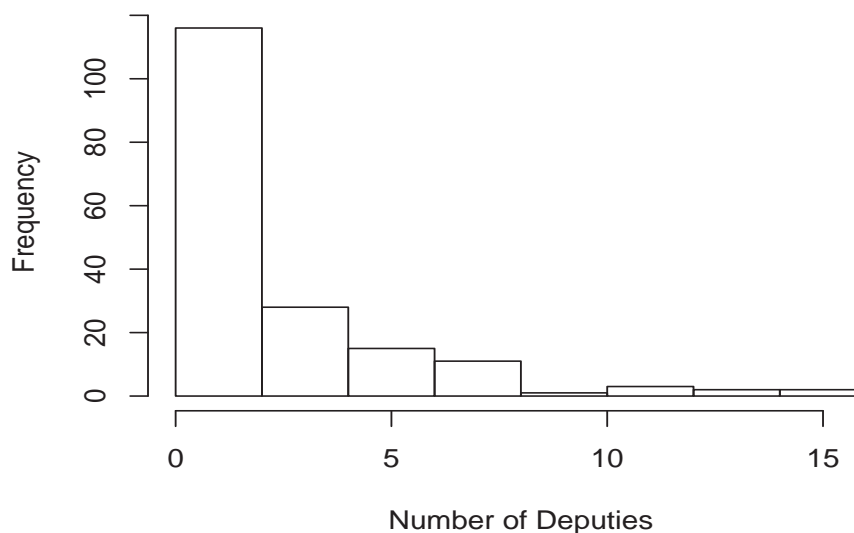
from Sao Paulo.[21] But these only represent about 4% of all delegations.

The skewing of delegation size does not directly affect cohesion scores since my measures weight for the number of legislators voting. But all these small delegations have a much higher probability of randomly voting against the overall party majority - without any federalist effects. The large number of small state-party delegations virtually guarantees that scholars will find a federalist impact when comparing party and state-party cohesion scores even if there is none.

These results shed serious doubt on all previous tests for federalism's impact on national legislative parties. The measures that all scholars have previously used have been biased in their favor, against the null hypothesis.

[21]Though the largest state-party delegation in 1994 was Bahia's PFL.

A Solution This does not mean that state politics have not affected roll call vote behavior - just that all previous measures are biased toward a false positive finding. In this section, I propose and implement a nonparametric permutation test that avoids the bias problem associated with previous methods.

Permutation tests require minimal assumptions, but allow us to explore the distribution of the statistic of interest under the null hypothesis. The test uses a simple logic to build a distribution of the statistic of interest under the null hypothesis. First, assume that there are no state effects - that every deputy's vote is an independent draw from the same underlying distribution. Note that no assumptions about the form that distribution takes are necessary.

With these basic assumptions, we can see that any re-ordering of a roll-call vote is equally possible. For example, with five legislators, as above, and a final vote of four to one in the party, each of the outcomes in Table 4.5 is an equally likely outcome under the null hypothesis.
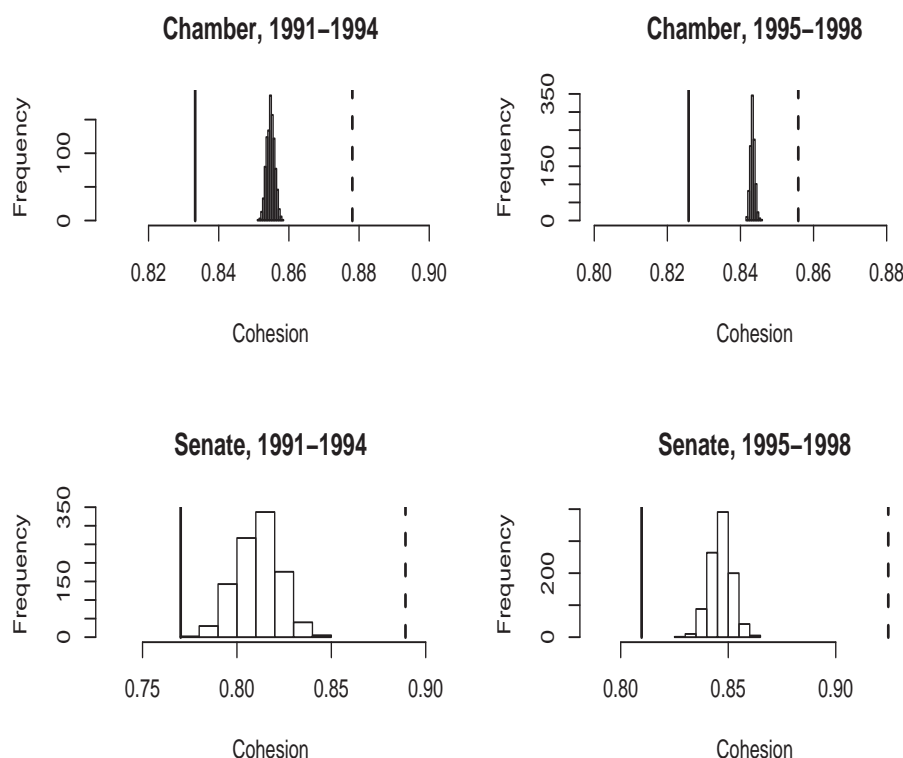
Hence exploring the distribution of the statistics of interest (C_N and C_S) under various reorderings (permutations) provides insight into their distributions under the null hypothesis. We then compare these permutated values with the actual observed values. Practically, the test is implemented as follows.

1. Within each national party-vote combination, randomly reorder all the votes cast as a new variable. In other words, on each bill, randomly shuffle the PT deputies' votes, and redeal them to that party. Then do the same for the PFL, PSDB, and all other parties.

2. Calculate the state party cohesion scores from this new dataset, as described above. Save the result.

3. Repeat this process many times, saving all the results.

Table 4.5: A Simple Example of Permutations

Deputy	Votes with 4-1 Outcomes				
	1	2	3	4	5
A	yea	yea	yea	yea	nay
B	yea	yea	yea	nay	yea
C	yea	yea	nay	yea	yea
D	yea	nay	yea	yea	yea
E	nay	yea	yea	yea	yea
Each vote is equally likely under H_o					

Figure 4.4: 1,000 Permutations of Basic State Party Cohesion Scores

Chamber, 1991–1994

Chamber, 1995–1998

Senate, 1991–1994

Senate, 1995–1998

The resulting density is an approximation to the distribution of the statistic of interest under the null hypothesis. That is, the saved party cohesion values are what we would expect to see if there really were no federalist impact on party cohesion, and if legislators' votes were not affected by state-based considerations.

We can then compare the actual value observed using the original dataset and ask - does it fall within the range of normally-occurring values under the null hypothesis? If the observed value is greater than 95% of the permutated values, we can say that the Achieved Significance Level, or ASL is .05. If there are federalist effects, the observed value should be above the distribution of permutated values.[22]

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[22]See [57] for more details on the permutation test and other nonparametric statistics.

Figure 4.5: 1,000 Permutations of Weighted State Party Cohesion Scores

Chamber, 1991–1994

Chamber, 1995–1998

Senate, 1991–1994

Senate, 1995–1998
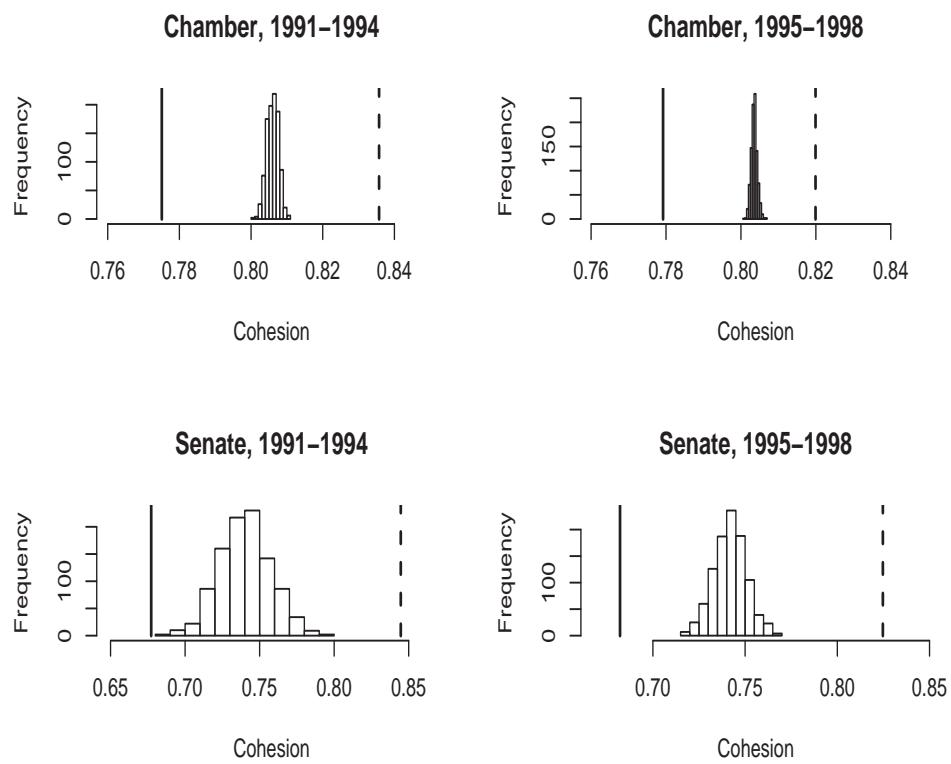
Figures 4.4 and 4.5 show the distribution of state party cohesion based on 1,000 permutations of the original dataset. The distribution shows the frequency of permutated values. The solid line shows the actual or observed national party cohesion level. The dashed line shows the actual or observed state party cohesion level. Several patterns stand out. First, the figures all clearly show the bias in state-party cohesion scores. Even where there were no federalism effects, *all* the 1,000 permutated state-party cohesion scores were well above the national party score. As I suggested, Brazil is an ideal case for producing false positives in this particular test.

Second, even so, there *are* consistent federalist effects observable in the data. The observed state-party cohesion scores are well above what we would expect to observe under the null hypothesis. The impact of federalism on party cohesion, however, is only about half as large what we previously observed.

Third, these results are consistent for both the Senate and Chamber of Deputies, for both periods, and using both measures of party cohesion, the BCS and WCS.[23]

4.3.2   State Party Cohesion vs. National Party Cohesion

This section compares party cohesion in the Chamber of Deputies with party cohesion in the state assemblies. Brazil's state assemblies are virtual duplicates of the national Chamber of Deputies. They share very similar institutional rules, with one crucial difference: the state assemblies are part of unitary systems, while the national legislature is part of a federalist system. Consequently, the state legislatures provide a natural experiment for testing the impact of federalism on

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[23]The distributions appear in some cases to be *very* narrow - is this correct? Yes. The distributions are narrow (and the standard errors in Table 4.2 small) because these cohesion scores are calculated from over 60,000 individual roll-call votes. Their variances would be much greater were there fewer legislators and fewer votes.

Brazilian political parties. If federalism does weaken Brazilian parties, then the state assemblies should have greater cohesion than the national legislature.

The following paragraphs discuss the similarities and differences of the state assemblies and national legislature, then compare cohesion scores from the Chamber of Deputies and a sample of state legislatures.

4.3.2.1 A natural experiment?

Brazil's twenty-seven state governments share nearly identical institutional frameworks. Their institutions also share many characteristics of the national government, except that the states are unitary systems.[24]

The states and Chamber of Deputies all share virtually identical institutions for two reasons. First, many features of their political systems are established by federal law or by the National Constitution, including the electoral system, number of legislators per state assembly, and even maximum compensation.

Second, state constitutions were written and state legislative rules adopted shortly after the return to democracy. During the authoritarian regime (1964-1985), the state political arena atrophied. Without any real preparation to assume new responsibilities, most state assemblies simply adopted modified versions of the national constitution and Chamber of Deputies' internal rules.

There are several key differences. First, the state assemblies are much smaller than the Chamber of Deputies. The smallest state assemblies have only 24 deputies; the largest (São Paulo) has 94. The Chamber of Deputies currently has 513 members.

Second, the state legislatures are unicameral, unlike the national government

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[24]In this section I do not distinguish between the 26 states and the Federal District. For a discussion of the few differences between them, see Chapter 2.

where there is a Chamber of Deputies and also a Federal Senate.

Third, and most important for this section, the Chamber of Deputies is federalist; the state assemblies are unitary. Deputies have to balance pressure from state parties and national parties. For the Chamber of Deputies, states serve as at-large electoral districts. Nominations for all state and national offices (except President) are made by state parties. Media time is distributed by state parties. National deputies must also balance the demands of possibly competing executives: Presidents, Governors, and mayors.

In contrast, the states are unitary systems. The same state party nominates all the candidates running for deputy in a particular state. State parties also distribute media time to state deputies. And state deputies only have to respond to a governors and to mayors. There are no other influential intermediary executives.[25]

Consequently, while federal deputies have to balance the demands of state and national executives and parties, state deputies only have demands from state-level actors. Hence, if federalism does reduce party cohesion in Brazil's National Congress, party cohesion in the State Assemblies should be higher than that in the National Congress.

4.3.2.2 Cohesion Scores

The results provide additional evidence that federalism does divide national political parties. Almost all the state assemblies, on all the measures, have higher

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[25]Why don't municipalities, city parties, and city politicians create similar federalist effects? Because they have no direct influence over state-level careers. State parties have direct influence over national politicians; municipal parties only have influence when state deputies leave the assembly to run for a municipal office. Note as well that influential mayors are not unique to federalist systems. Further, mayors may seek to influence both state and national level actors. See [185].

Table 4.6: Chamber of Deputies vs. State Assembly Party Cohesion, 1991-1998

	BCS	WCS
National		
Chamber of Deputies	.83	.79
Federal Senate	.85	.68
State Assemblies		
Rio Grande do Sul	.92	.90
São Paulo	.87	.86
Brasília	.86	.85
Piauí	.69	.67
Bahia	.89	.92

See Appendix A for details on data.

cohesion levels than the National Congress. Using the Basic Cohesion Score (BCS), the National Chamber and Senate have slightly lower cohesion scores than all the states except Piauí. The differences are not large - from .01 to .09 - but they are consistent.

Using the Weighted Cohesion Score (WCS), the differences are more pronounced. All WCS scores are lower than their corresponding BCS figures, but while the states' scores fall only slightly, the Chamber and Senate scores fall significantly. On average, there is about a .10 difference between national and state legislatures, with the national scores significantly lower.[26]

How should we interpret the low scores from Piauí? This appears to be evidence against my hypothesis. However, recall the findings from Chapter 2. Opposition parties in Piauí actually had a majority in the legislature - but could not enforce discipline. The government party was very cohesive (about .90 on average) but the opposition parties had fallen apart as opposition deputies publicly sided with the state governor against their leaders' wishes. Hence the low scores may simply reflect a combination of voters' preferences for private goods and a large opposition coalition, at least in name.

There are two central weaknesses to this test. First, as discussed in Chapter 3, comparing cohesion scores across legislatures risks agenda confounding. To the extent that the states hold roll-call votes on very different kinds of legislation, their scores may not be comparable. To the extent that the Assemblies and Chamber address different kinds of agendas, their scores may not be comparable.

Certainly the Chamber does vote on some issues that the Assemblies do not. However, most of the controversial legislation of the last ten years has a state-

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[26]Note that since the State Assemblies and Chamber of Deputies are independent institutions, these comparisons do not suffer the bias observed in group vs. subgroup cohesion comparisons within a single institution, as discussed above.

level counterpart. Most states implemented administrative reform legislation, some reducing their public sector significantly. Assemblies also voted on the privatization of state-level government businesses, including airlines, banks, and telecommunications industries. Future research might limit the comparison to just budget, privatization, or reform bills, but we have no reason to expect that agenda effects explain the consistent state-national differences.

Second, district magnitude may change the dynamics of representation for comparing state and national legislatures. Each State Assembly's size is determined by the size of its Chamber delegation: 3 state deputies for each federal deputy up to twelve, and one additional state deputy for each federal deputy above twelve. Consequently, small states have eight federal deputies and twenty-four state deputies. The largest state, São Paulo, has 70 federal deputies and 94 state deputies.[27]

Scholars have previously argued that small electorates may increase the role of private goods in elections. The total price of a winning election should be lower where there are fewer votes, and legislators have more contact with constituents and more opportunity to develop personalistic followings. In effect, because there are more state deputies than federal deputies in each state, state deputies should be more likely to engage in private goods campaigns. This could increase their need for private goods and consequently make state governors' stronger, confounding the real test of interest: the impact of federalism.

This potential source of bias is not a problem for this comparison, because the states vary widely in district magnitude. Were there a private goods effect, it should be most obvious in the small states of Piauí, which has 30 state deputies and 10 federal deputies, or in Brasília, which has 24 state deputies and 8 federal

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[27]12*3 + 58 = 94.

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deputies. There are three times as many state deputies as federal in these cases, greatly reducing electorate size for state deputies and increasing the possibility of bias.

But these states are balanced by Rio Grande do Sul, Bahia, and São Paulo. In particular, state and federal deputies in São Paulo all have large constituencies. There are 70 federal deputies and 94 state deputies, a ratio of just 1.3 to 1. The result that São Paulo's State Assembly cohesion level is also higher than the Chamber of Deputies suggests that private goods campaigns to not bias the state-national difference upward.

4.3.3   A second limitation with previous work

The permutation tests basically confirmed previous work, but also showed that the federalist effect is probably about half of what roll-call vote analysis would suggest. The comparison of State Assembly party cohesion with National Congress cohesion produced similar results. This is evidence that federalism does reduce national party cohesion, though the effects are apparently quite small.

But this analysis does not shed any light on the specific mechanisms at work in Brazil. That is, we now know that state parties are more cohesive than national parties, but it is not clear if this is due to state party institutions, pressure from the state governor, or variance in public opinion between states.

Previous work has acknowledged that different mechanisms may exist, but has not attempted to distinguish between them. Instead, all have been lumped into a single federalism hypothesis. As I showed, even this basic federalism hypothesis has been estimated using severely biased statistics. The permutation test I implemented above solved this bias problem, but did not address the more fundamental question for understanding Brazilian federalism: which mechanisms

are at work?

Fully exploring all the mechanisms of federalism, and the conditions under which they affect national politics is beyond both the scope of this paper and the quality of existing data. However, we can take several steps toward understanding Brazilian political institutions by differentiating between the mechanisms discussed above:

1. *Null Hypothesis 1* National legislative behavior is explained by national party membership.

   Under the null hypothesis, there are no significant effects due to decentralized federalism. Either national parties or coalitions overcome any centrifugal political forces and organize their members at the national level to advance a political agenda.

2. *Federalism Hypothesis 1: State Executives* Variance in legislative behavior can be explained by state-executive coalition membership.

   Powerful state executives orient their own parties' members, and their coalition members to vote cohesively on questions of state importance or for the governors' own political agendas. Governors are unable to capture members of opposing state parties, who then may act as part of a national party.

3. *Federalism Hypothesis 2: State Parties* Variance in legislative behavior can be explained by state-party membership.

   Members of each state party band together to bargain for goods and advance their own state-party agenda. They are subject to pressures from party leaders in their home state and must respond to the economic and political interests of their constituents.

4. *Federalism Hypothesis 3: State interests* Variance in legislative behavior
   can be explained by state delegation membership.

   The national congress is effectively divided into competing state delega-
   tions. This effect might reflect the extensive influence of the state governor,
   repeated legislative conflicts over the terms of the federalist bargain, or fun-
   damental differences in public opinion or state interests on key questions.

Testing and comparing these hypotheses is the focus of the next two sections.

4.3.4 Federalist effects in ideal point estimates

In the next section, I compare how well each mechanism explains legislators' ideal
points, estimated via the Poole-Rosenthal WNominate methodology.[28] Model
legislator i's estimated ideal point on dimension j as:

$$d_{ij} = X\beta_{ij} + \epsilon_{ij}$$

Before discussing the explanatory variables, however, the error component of
the model, ϵ_i deserves some additional comment. Since the dependent variable
here is an *estimated* quantity, it is measured with some uncertainty. That is,
we do not know precisely what each legislators' ideal point is - we only have an
estimate of that value. Technically, then, we are working with a model of the
following form:

$$d_{ij} = X\beta_{ij} + \epsilon_{ij} + \sigma_{ij}$$

where σ_{ij} is the error associated with the estimated the estimated ideal point
d_{ij}. If all σ_{ij} are identically distributed, then under many circumstances the

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[28]Note that in this case, the term "ideal points" does not refer to legislators' sincere ideological
preferences. Instead, it refers to an ideal point that includes career considerations and balances
constituents' and other actors' lobbying and pressures. For additional information on this
method, see Chapter 3, Appendix B, and [130].

model can be estimated without any adjustment using simple ordinary least squares (OLS).

But where the σ_{ij} are heteroscedastic, OLS can be problematic. One alternative in this case is weighted least squares. Since each legislator's ideal point is estimated based on her n_i roll calls, we could weight the model by the number of votes cast.

Lewis [97], however, shows that both OLS and WLS can be inefficient and produce estimated standard errors below their true values, erroneously raising scholars' confidence in estimates. Ordinary least squares simply ignores the heteroscedasticity, assuming constant error variance. WLS effectively assumes that the variance of ϵ is zero that there is no error term.[29]

Lewis proposes several solutions. First, he shows that estimating the model with Huber-White robust standard errors is often an adequate solution. Second, where information about the distribution of σ is available, scholars could use a version of fully-generalized least squares, modeling the information into the regression. Lewis discusses two cases: one where full information is available on the random shock from the estimated dependent variable, and another where that information is only available up to a proportional constant. One could adopt any of the three approaches in this case. The Poole-Rosenthal Nominate scores do have estimated standard errors, so one could adopt the FGLS approach. Second, we could use the proportionality approach, setting the σ variance inversely proportional to the number of votes each deputy cast. I adopted the third approach, Huber robust standard errors, for simplicity's sake and to minimize additional assumptions based on the Nominate model.

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[29]One could rephrase this by saying that WLS assumes that the model's ϵ is heteroscedastic in perfect proportion to the heteroscedasticity of σ.

Baseline Models   Table 4.7 shows simple models predicting the first two dimensions of estimated ideal points for the Chamber of Deputies, 1991-1994. Table 4.8 shows the same models for the Chamber of Deputies, 1995-1998.

The tables present simple models, each including a separate indicator variables for each of the relevant mechanisms:

Model I_P: $d_{ij} = I_{Party} + \rho_{ij}$

Model I_S: $d_{ij} = I_{State} + \rho_{ij}$

Model I_{G*S}: $d_{ij} = I_{State*Governor'sCoalition} + \rho_{ij}$

Model I_{S*P}: $d_{ij} = I_{State*Party} + \rho_{ij}$

Where d_{ij} is legislator i's estimated location on dimension j, I_{Party} represents a series of indicator variables for party, I_{State} is a series of indicator variables for each state, $I_{State*Governor'sCoalition}$ is a series of indicator variables for state-coalition membership[30], and $I_{State*Party}$ is an indicator variable for state party membership.

Several initial observations stand out. First, national party dummy variables do a reasonable job of predicting legislators' ideal points, especially on the first estimated dimension. The R^2 for these models is around .80 in the Chamber in both periods. This would suggest that national party membership alone explains most of the variance in legislators' ideal points. The pattern is similar on the second dimension, though the explanatory power is much lower. National party explains about half of the overall variance in both periods. In both dimensions and periods the overall model is very significant, beyond the .0001 level for an overall F-test.

The other columns show how simple models with indicator variables for states

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[30]Specifically, there are 52 indicator variables: one for each state governor's coalition, and one for each state opposition coalition, less two (covered by the intercept).

(I_S), Governors' coalitions and opposition membership (I_{G*S}) and state parties (I_{SP}) perform on the same dependent variable. In most cases the results are also quite significant.

The overall predictive power of the models, however, varies greatly. State dummies explain little of legislators' ideal point variance; the R^2 from these models is only .11. Governors' coalitions fare slightly better, but are still less predictive than national party dummies. Finally, state parties *always* explain more variance than national parties - but they must by definition. National party dummies are a restricted subset of state party dummies (restricting party mean locations to be constant across all states) hence the state party models will always look at least as good as national party models.

We cannot formally compare these models, but we can formally test for the contribution each makes above that of the null hypothesis. In the following tables, I compare four models:

1. $d_{ij} = I_{Party} + \epsilon_i$

2. $d_{ij} = I_{Party} + I_{State} + \epsilon_i$

3. $d_{ij} = I_{Party} + I_{StateCoalition} + \epsilon_i$

4. $d_{ij} = I_{Party} + I_{StateParty} + \epsilon_i$

These four models are naturally nested, with the last model having the fewest restrictions (all state parties have their own mean ideal point), the third with some additional restrictions (parties within each governor or opposition coalition have the same ideal point mean), the fourth further restricts members of each state party to have some equal difference from their national parties' positions (like a public opinion difference or key financial issue). Because they are nested,

we can formally test for each variable's significant contribution above the null hypothesis of only national parties explaining legislative behavior.

We can compare these using the standard F test using classical regression results. See [74] for more details.

Tables 4.9 through 4.10 show these nested models' results for the first and second dimension of estimated ideal points, for the Chamber, 1991-1994 and 1995-1998.

The tables provide two sets of tests. The first, labeled $M_P vs M_i$, compares a baseline model (I_P) with each of the three alternatives. Effectively, this test asks, "Does adding State, State-Coalition, or State-Party information significantly improve the fit over a model where all we have is national party membership?" The most restricted model is I_P, where all federal mechanisms are forced to be equal to zero. The least-restricted model is I_{S*P}, where ideal points can vary with national party, state, state coalition, and state party membership.

The second set of tests, labeled $M_i vs M_{i-1}$, examines the significance of removing restrictions one at a time. Specifically, it compares the fit of the model in column i with that of the model in the adjacent column ($i - 1$), zeroing in on the additive contribution of each mechanism.

Several results stand out. First, each of the three models that include federal mechanisms offers a significant reduction in unexplained variance over the national-party model. In almost every case, the difference is significant beyond the .001 level. In other words, adding state, state-coalition, and state-party information all significantly improve the fit over a simple model that only includes national party membership.

Second, in most cases, relaxing each restriction significantly improves the model above its' adjacent form. Adding each federal mechanism to the model has

an impact. For example, a model with state parties offers a significant reduction in variance over a model with national parties and governors' coalitions. Similarly, governors' coalition indicators significantly improve the fit over a model with just separate indicators for party and state. Most significance levels are beyond .001. The only case for which the difference is not significant is the first dimension of the Senate, 1991-1994.

How can we interpret these findings? The fact that each federalist mechanism makes a significant improvement, both over a baseline model only including party, and over higher-level effects suggests that all three mechanisms are at work. The significance of simple state indicator variables suggests that overall state interests do affect legislator's behavior. The significance of state-coalition indicator variables suggest that governors' coalitions also shape deputies' roll-call votes. Finally, the significance of state-party indicators suggests that state parties and state party politics also influence legislators' voting decisions.[31]

Perhaps the most important finding, however, is what matters even more: national parties. In the Chamber of Deputies, national party indicator variables alone explain about 85% of the variance in legislators' ideal points on the first dimension. This suggests that while federalist institutions do explain variance within Brazil's legislative parties, that variance appears to be a smaller part of the story than the consistency of national political parties.[32]

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[31] This finding, however, must be qualified. The nesting of these indicators makes testing easy, but also leaves us with an untestable alternative hypothesis. If state and state party indicators are correlated with party membership, then the significance of either set of indicators could be driven by a single mechanism - state parties. If the indicators were not nested, we could separately test the impact of states, controlling for state parties and governors' coalitions. But since state parties are subsets of governors' coalitions, and governors' coalitions are subsets of states, we cannot fully distinguish between mechanisms.

[32] Since the Workers' Party (PT) stands out visually as a disciplined, extreme group on the spatial maps of the legislature (see Chapter 3), I compared these results with models excluding that party. The predictive power for national parties fell only slightly for both dimensions. The impact of federalism rose on all dimensions - states, governors' coalitions, and state parties, but the basic ordering of the models did not change.

Table 4.7: Federalism and Spatial Dispersion - Chamber, 1991-1994

Dep. variable: legislators' estimated ideal points

Dimension 1				
Model	I_P	I_S	I_{G*S}	I_{S*P}
R^2	.84	.14	.33	.89
F	429.8	8.3	74.2	862.5
$df1, df2$	17,590	26,581	45,562	128,479
n	608	608	608	608
$P(F)$	.000	.000	.000	.000
Dimension 2				
Model	I_P	I_S	I_{G*S}	I_{S*P}
R^2	.50	.07	.28	.66
F	58.7	2.4	14.5	64.0
$df1, df2$	17,590	26,581	45,562	128,479
n	608	608	608	608
$P(F)$	.000	.000	.000	.000

Table 4.8: Federalism and Spatial Dispersion - Chamber, 1995-1998

Dep. variable: legislators' estimated ideal points

Dimension 1				
Model	I_P	I_S	I_{G*S}	I_{S*P}
R^2	.79	.09	.37	.84
F	1525.5	6.7	861.8	970.0
$df1, df2$	14,721	26,709	53,683	144,591
n	736	736	736	736
$P(F)$	.000	.000	.000	.000
Dimension 2				
Model	I_P	I_S	I_{G*S}	I_{S*P}
R^2	.58	.04	.21	.66
F	174.8	1.6	11.3	185.9
$df1, df2$	14,7214	26,788	52,683	144,591
n	736	736	736	736
$P(F)$	.000	.04	.000	.000

Table 4.9: Federalism and Spatial Dispersion - Chamber, 1991-1994

Dep. variable: legislators' estimated ideal points

Dimension 1				
Model	I_P	$I_{P,S}$	$I_{P,G*S}$	I_{S*P}
R^2	.84	.86	.87	.89
F	429.8	180.7	147.9	862.5
$df1, df2$	17,590	43,564	62,545	128,479
n	608	608	608	608
M_P vs M_i		.000	.000	.000
M_i vs M_{i-1}		.000	.000	.000
Dimension 2				
Model	I_P	$I_{P,S}$	$I_{P,G*S}$	I_{S*P}
R^2	.50	.54	.58	.66
F	59.0	26.6	22.5	64.0
$df1, df2$	17,590	43,564	62,545	128,479
n	608	608	608	608
M_P vs M_i		.000	.000	.000
M_i vs M_{i-1}		.000	.000	.000

Table 4.10: Federalism and Spatial Dispersion - Chamber, 1995-1998

Dep. variable: legislators' estimated ideal points

Dimension 1				
Model	I_P	$I_{P,S}$	$I_{P,G*S}$	I_{S*P}
R^2	.79	.81	.82	.84
F	1525.5	651.2	837.4	970.0
$df1, df2$	14,721	40,695	66,669	144,591
n	736	736	736	736
M_P vs M_i		.000	.000	.000
M_i vs M_{i-1}		.000	.002	.000
Dimension 2				
Model	I_P	$I_{P,S}$	$I_{P,G*S}$	I_{S*P}
R^2	.58	.60	.62	.66
F	174.8	59.6	46.9	185.9
$df1, df2$	14,721	40,695	66,669	144,591
n	736	736	736	736
M_P vs M_i		.019	.016	.016
M_i vs M_{i-1}		.019	.019	.021

4.4 Conclusion

This paper offers several findings and contributions for our understanding of the Brazilian system of legislative political parties. I explored the existing ideas linking federalism to weak political parties. I proposed three mechanisms of federalism in particular that might reduce national party cohesion: state interests, state parties, and state executive coalitions. I proposed a theory of federalism and issues that distinguishes between general policy issues and what I call federalist issues. I offered two hypotheses. All legislators should feel significant state-based pressures when dealing with federalist issues. But on general policy issues, the centrifugal forces of federalism should vary with voters' preferences for private or public goods. Where voters seek private goods, federalism could have stronger effects. Where voters prefer public goods, federalist mechanisms should have little impact on legislators behavior.

Fully testing these hypotheses is beyond the scope of a single chapter, but I provided several pieces of empirical evidence to test the basic hypothesis that federalism has strong effects on the cohesiveness of the Brazilian political party system.

First, I showed how previous empirical work has relied on biased estimates of federalism's impact on national party cohesion. I argued that the expected value of subgroup cohesion scores is always greater than that of the aggregate group, except under perfect party cohesion. I provided a nonparametric permutation test that avoids the bias problems associated with previous work. The results show that state parties are indeed more cohesive than national parties, though the difference is only about half of what previous methods would suggest.

Second, I used an analysis of legislators' estimated ideal points to try and

separate out the influence of different state variables on national legislative be-havior. I compared the impact of state-effects, governor effects, and state party effects on our predictions regarding legislators' ideal points. The results cannot rule out any of the mechanisms - all seem to be at work in Brazil.

But while state interests, governor's coalitions, and state parties all make significant contributions above that of parties for explaining legislators' estimated ideal points, national political parties explain most of the variance. This suggests minimally that while federalist institutions explain some of legislative behavior in Brazil, national party membership may explain more.

This chapter leaves several tasks for future research. Perhaps most important is revisiting the ideal point models while counting absences and abstentions as roll-call votes. It is certain that on some roll-calls, legislators use abstention as a 'no', or at least not a 'yes' vote. Unfortunately, neither the Senate nor Chamber of Deputies record who did not vote - just who did. Reconstructing these figures is potentially very complicated, since deputies are constantly taking leaves of absence, being replaced by substitutes, and returning to reclaim their seats. I have collected most of the data required to include this information in my analysis, but additional programming and data checking are required before I can present any results.

Using absences will also create a third quagmire - modeling trivariate instead of just bivariate choices. One alternative would be to code abstentions as 'no' votes; another would be to explicitly model them as a third choice. This sec-ond option would require developing a new spatial modeling program; the first would require extremely strong, perhaps unrealistic assumptions about absence legislators.