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## **Explaining Variation in the Degree of Electoral Competition in a Mature Democracy: U.S. Senate Elections, 1922-2005\***

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### **Abstract**

The degree of electoral competition varies even in mature democracies like the U.S. In this paper we present evidence based on U.S Senate elections from 1922 to 2005 that indicates that this variation is related to constraints facing individual candidates that limit their ability to position themselves ideologically so as to present a strong challenge to their opposition. We develop and successfully test a model in which the interaction of these constraints and the differing character of electorates results in variation in the degree of electoral competition in Senate races across space and time.

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## 1 Introduction

Political competition is crucial for the success of a democracy, since highly competitive elections help to make governments more responsive to the preferences of citizens. It is of some importance, therefore, that the degree of electoral competition varies even in mature democracies like the United States.

In this paper we investigate the reason for such variation in Senate races from 1922 to 2005. In the framework that we develop and (in our view successfully) test, variation in the degree of competition in Senate races occurs because of the interaction of constraints on the ideological positioning of candidates and the differing character of the electorate across space and time. We also show that the factors that pull party platforms apart in an electoral equilibrium also increase the number of states with highly competitive elections, as predicted by our theoretical model.

There are two prominent types of models of electoral competition – those in which party or candidate platforms converge in an equilibrium, and those in which platforms diverge. In the median voter model, both candidates for an office converge on the platform preferred by the median voter. The policies chosen by the winner are the same, no matter which party's candidate wins the election. In contrast, in the second type of model, candidates select platforms that straddle the median voter's preferred platform and so diverge.<sup>1</sup>

The evidence clearly favors this second, divergent platform perspective. In the post World War II era, for example, Republican senators have a more conservative record than Democratic senators from the same state (see, for example, Grofman, Griffin, and Glazer (1990) and Francis and Kenny (2000), Poole and Rosenthal 1996). Consequently, our analysis emphasizes models in which divergent platforms emerge in an electoral equilibrium.

We begin the development of our model by asking about the role of the national

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<sup>1</sup> Ideological differences between parties can be explained by centrifugal incentives that are tied to the different nature of each party's key long-term support base (see e.g., Adams, Merrill and Grofman, 2006), and, relatedly, by party activists and national party organizations punishing (or failing to reward) defectors from the party line; or by parties (perhaps even collusively) acting to set up barriers to third party entry (Palfrey, 1994; Gerber and Morton 1998); or by a host of other factors (see the review in Grofman 2004).

party in the selection of platforms chosen by its candidates for Senate in statewide races. Are candidates able to select the “winning” platform in their states, or are there constraints on their ability to choose a platform imposed by the national party? We can imagine that there are three types models that can be used to answer to this question, two of which exhibit somewhat extreme equilibria, and one that lies in-between these.

In the *National Party Model*, each of the two major parties picks a “type” who espouses the national party platform and runs that type of candidate everywhere. In the parliamentary systems found in many European countries, Canada, and Australia for example, there is a strong national party that dictates the platform espoused by each of its elected officials. If both national party platforms are the same (i.e., the median voter model applies), then party success in the individual senate or house races will be quite random.

More realistically, the national parties pick distinctly different platforms, as implied by the divergent platform approach to electoral equilibrium. In this scenario, not only are the candidates of the two parties very different from one another, but a party’s candidates tend to espouse the same platforms no matter what are the preferences of voters in the constituency in which they are seeking office.

In this scenario we may posit that, by and large, a given party’s candidates win only in those constituencies where that candidate type is closer to the median voter in the constituency. Here there is a pattern of uncompetitive districts, except possibly in the most moderate states, where the positions of the two national parties might be roughly equidistant from the position of the median voter in the state; on the other hand, for most states we should see a given seat regularly won by one party (at least barring long term realignment processes). In other words, in this first scenario we should see (except for a few perhaps knife-edge exceptions) what looks like a clear separating equilibrium between the two party locations. This kind of situation has been modeled by Austen-Smith (ref), who looks to see whether there is an equilibrium in terms of each party’s choice of candidate type.

The *Local Platform Model* is a second type of extreme model. Here the parties recognize diversity across constituencies by running candidates everywhere whose platforms reflect the preferences of the “local” constituency in which they are running (see Burden, and Grofman, Brunell, McDonald and Koetzle 2000). In this extreme equilibrium,

candidate types are chosen for each state race so that each party is competitive in each race. Seats change party frequently. In this scenario, the variability across states in a party's candidates' platforms should reflect the variability in ideological preferences across constituencies.<sup>2</sup> The substantial variation in Congressional voting records that is found at a point in time among those who share the same party label (Aldrich; Francis and Kenny 2000; Poole and Rosenthal 2005) is consistent with the Local Platform Model and is inconsistent with the National Platform Model.

Note, however, that even in this scenario, we are not positing a median voter model in which candidates of the two parties would be tweedledum-tweedledee within any given constituency. Just as there are perfectly good reasons not to expect perfect party ideological convergence in national level party competition, the same kinds of arguments apply at the district or state level. Thus, within any given constituency, parties are expected to select candidates that straddle the constituency's median voter.

In a third, and we think more realistic equilibrium, one we shall call the *Mixed Influence Model*, each party tries to be competitive in more than just a few state races and thus allows the local party in many moderate states to select types that will make their races competitive. But there is a limit to how far the local platform can deviate from the national party position without repercussions. Suppose that candidates who deviate *too much* from the national party position receive less support from national party organizations and activists. Also independent voters, and certainly supporters of the other party, might distrust the claims of a candidate whose stated platform is too far from her party's national platform. As a result, selecting a "winning" platform leads to a loss of resources and voter disbelief, putting the candidate at a disadvantage.<sup>3</sup> Deviating less from the national party position would stem the loss of national resources and may make the candidate more credible, but pulling away from the "winning" platform (e.g., running a more conservative Republican in Massachusetts) also causes a loss of votes.

Thus, Republican candidates for state-wide office have difficulty getting elected in

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<sup>2</sup> There may also be differences between parties if, for one reason or another, candidates of a given party were advantaged in constituencies of a certain type.

<sup>3</sup> For example, in the Palfrey (1984) model, the optimal or winning platforms equal  $\frac{1}{4}$  and  $\frac{3}{4}$  when the distribution is uniform and spans from 0 to 1.

the states that provide the greatest voter support for Democratic presidential candidates, and Democratic candidates for state-wide office are unlikely to win in the states that most support Republican presidential candidates. In the middle range of “moderate” states, races are relatively competitive and seats change party frequently. Idiosyncratic contest aspects might determine in each constituency which of two candidates who had selected “winning platforms” won election.

We provide empirical evidence on which of the three scenarios outlined above best describes the level of competition found in U.S. Senate races. We use the average ranking of a state in the share of the two party vote going to the Republican *presidential* candidate to measure how “Republican” the state is. This is used to explain the average share of the two party vote received by the Republican *senate* candidate (or *gubernatorial* candidate in some regressions). We test whether 1) Republican senate candidates are at a disadvantage in Democratic stronghold states, which provide the least support to Republican presidential candidates, 2) there is a set of moderate states in which Republican senate candidates fare only slightly better in moderately Republican states than in moderately Democratic states, and 3) Republican senate candidates have an advantage in Republican stronghold states. Evidence of a large number of moderate competitive states would support the Local Platform and Mixed Influence models. Similarly, evidence of many Democratic and Republican stronghold states would provide support for the National Party and Mixed Influence models.

Our empirical analysis of Senate races from 1922 to 2005 allows us to characterize the extent of political competition. The patterns that we observe are most consistent with the Mixed Influence model. Our empirical results suggest that Republican Senate candidates have a difficult time getting elected in the states that provide the most support for Democratic presidential candidates. Republican Senate candidates have an advantage over Democratic nominees in states that provide the most support to Republican presidential candidates. But electoral competition in approximately 27 to 34 moderate states appears to be reasonably described by relatively even competition, in which neither party seems to be strongly advantaged. In reaching this conclusion, we control for whether an incumbent is seeking reelection and for shifts over time in the success of Republican candidates.

Note that our empirical analysis uses a state's support for Republican presidential candidates to explain the success of Republican senate candidates. This does not require the state party platforms to remain the same over the eight decades we examine. It can accommodate different eras, such as the south supporting both Democratic presidential candidates and Democratic senate candidates up through the mid 1960s and then later supporting both Republican presidential candidates and Republican senate candidates. We use various subsamples to deal with any potential problems caused by political realignments.

Are there factors that affect how far away from the median voter in each constituency the candidates of each of the two major parties are allowed to stray? We undertake three complementary extensions of the basic empirical analysis described above. As we have seen, a candidate whose "winning" platform in the local race would place her too far from the national party faces a loss of financial support and voter skepticism about her stated platform, making this state a stronghold for the other party. We examine the influences of constituency heterogeneity and the state primary system on the local "winning" platform and thus on whether the national party affects the degree of political competition. Our theoretical model predicts that there will be a more extensive region of competition in more heterogeneous states and in states with closed primaries (relative to states with open primaries). These predictions also receive empirical support.

## **2 Modeling Variation in Party Competition**

Let us assume that spatial competition between candidates for office is characterized by a divergent platform model, one in which the candidates straddle the median voter's preferred position. Palfrey (1984) modeled the major parties' strategic behavior when there is a threat of entry by a third party. Each voter is assumed to vote for the party that is closest to the voter's preferred position. He showed that if the distribution of preferred positions is uniform, then the two major parties select platforms at  $\frac{1}{4}$  and  $\frac{3}{4}$  in a distribution that goes from 0 to 1. We will use the equilibrium obtained in this simple Palfrey model for illustrative purposes.

Suppose then that the national parties require that each candidate in the party for a senate seat select the ideological platform that is chosen by the national party. Under this

scenario, there would be virtually no competition in senate races. Allowing for idiosyncratic factors that can affect the outcomes of the elections, Democratic candidates would win nearly all elections in which the state median voter is more Democratic than the national median voter and would lose most races in which the state median voter is more Republican than the national median voter.

The evidence does not support this National Party Model of dominant national parties. First, U.S. senate elections are more competitive than is implied by this model. Second, there is considerable variation both in the voting records of Democratic senators and in the voting records of Republican senators, in contrast to the total lack of variation assumed by this dominant national party model.

Evidence of intra-party heterogeneity in senate voting records can be found in the Americans for Democratic Action's index of liberal voting record that is compiled annually for Congress, based on typically 20 key votes chosen by the ADA; it ranges from 0 for supporting no important liberal positions to 100 for supporting all 20 key liberal positions. Francis and Kenny (2000, pp. 88-89) report the average attendance-adjusted ADA scores for Senators by state and party for 1979-1997. For this paper, we create a Conservative Index (CI), which is a transformation of the average ADA scores so that the most liberal position (ADA = 100) is given a Conservative Index value of 0 and the most conservative position (ADA = 0) is given a Conservative Index value of 100. The Democratic Conservative Index averages ranged from 10 in Minnesota to 67 in Mississippi. Similarly, the Republican means ranged from 21 in Connecticut to 100 in Arkansas. There was substantial party overlap in these positions. In 10 states the average Republican CI score was lower than the highest average Democratic CI score of 67 (Mississippi).<sup>4</sup> There were 22 states in which the average Democratic CI score was higher than the lowest average Republican score of 21 (Connecticut).<sup>5</sup> On the other hand, there are no average Republican scores that fell below 21 and no average Democratic scores that exceeded 67.

In contrast to a National Party Model, the Local Platform Model assumes that each party's candidate in a state race for the senate is able to adjust her platform to reflect the

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<sup>4</sup> MN 65, ND 65, IL 55, ME 53, PA 52, OR 45, RI 43, VT 38, MD 29, CT 21.

<sup>5</sup> IN 23, NM 23, MT 24, AR 26, TN 29, WV 29, NV 33, NC 33, VA 34, KY 38, FL 41, AZ 42, ID 43, SC 44, GA 49, NH 49, NE 50, TX 53, OK 55, LA 56, AL 63, MS 67.

state's distribution of ideology. This allows the party's candidate to be fully competitive in each senate race, thereby raising the odds of having a majority in the senate. Assume that the distribution of voter preferred positions in the country ranges from 0 (very liberal) to 100 (very conservative). Assume that the distribution of preferred positions in each state is uniform. For state  $i$ , the voter preferred positions range from  $(m_i - 2d_i)$  to  $(m_i + 2d_i)$ , where  $m_i$  is the preferred ideology of the median voter in state  $i$ , and  $d_i$  measures the dispersion of preferred positions in the state.

Using current party ideologies to illustrate platform setting in a local election, the Democratic candidate is assumed to represent the state's more liberal voters and to adopt a more liberal platform. Similarly, the Republican candidate is assumed to select a more conservative platform. If unconstrained, the Democratic candidate selects the platform that is one quarter up the distribution  $(m_i - d_i)$ , and the Republican candidate selects the position that is three quarters up the state's distribution of voter preferred points  $(m_i + d_i)$ . The election is fully competitive, with each candidate having a 0.5 probability of winning. For example, if  $m_i$  equals 60 and  $d_i$  equals 15, then the preferred ideology in state  $i$  ranges from 30 to 90; the Democrat runs on an ideology of 45, and the Republican candidate selects an ideology of 75.

If the median voter's preferred ideology then rises by  $\Delta$  (i.e.,  $m_i$  rises by  $\Delta$ ) with no change in the dispersion of ideology ( $d_i$ ), then each candidate's platform rises by the same amount ( $\Delta$ ), and each candidate continues to have a 0.5 probability of winning. If there are no other considerations, spatial competition would lead each candidate to select the "winning" party position [ $(m_i - d_i)$  for the Democratic candidate and  $(m_i + d_i)$  for the Republican candidate]. Relatively liberal Republican candidates for the senate would have the same probability of winning in liberal states as Democrats, and relatively conservative Democratic candidates would fare as well as Republicans in conservative states. This is unrealistic.

In a third, and we think more realistic framework, the Mixed Influence Model, candidates can stray from national party positions, but candidates who stray too far



are less successful.<sup>6</sup> More specifically, Republicans fare worse in very liberal states, Democrats don't do as well in very conservative states, and elections in moderate states are quite competitive.

As noted earlier, there can be various reasons for candidates of a party not doing well in some states. The national parties may influence the positions taken in individual Senate races by reducing support from the national Republican (Democratic) party if the candidate is too liberal (conservative). For example, the national party and/or its activists may withhold support to keep the party true to its ideals, to help the party put forward a more cohesive message, or to make the party's caucus in congress more effective by limiting disagreement. Alternatively independents and voters in the other party, exposed to messages from the national party, may not believe that a Republican candidate, for example, is as liberal as she claims to be. Voter skepticism and the loss of financial support make this an uncompetitive race. The candidate may regain financial support by adopting a platform that is closer to the national party's platform, but the candidate's platform is then farther from the state median voter, lowering her odds of winning.<sup>7</sup>

In which states are senate races not competitive? Returning to the 0 (very liberal) to 100 (very conservative) policy space described above, suppose that support from the national Republican party is withdrawn if the candidate's position is less than 30. If the dispersion parameter  $d$  equals 6, then the state median ideology at which this constraint begins to be binding ( $m_i^*$ ) is where

$$m_i^* + 6 = 30$$

$$m_i^* = 24.$$

The political equilibrium for such a state is depicted in the first two rows of Figure 1.

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<sup>6</sup> According to Grofman (2004, p. 39), the national parties allow candidates some freedom of movement from the national party position. Grofman et. al (2000) use this kind of structure to explain the incidence of split-ticket voting.

<sup>7</sup> Cf. Esiasson (1999).

**Figure 1**

<b>(d=6)</b>		D	m	R			
		12	18	24	30	36	
<b>(d=10)</b>		D	m	R			
	0	10	20	30	40		
	0	10	20	30	40	50	60

The Democratic party selects a position of 18, while the Republican party campaigns at a Conservative Index value of 30. In states with this dispersion parameter ( $d=6$ ) that are more liberal (i.e.,  $m_i < 24$ ), the “winning” Republican position ( $m_i + d = m_i + 6$ ) is less than 30. Republican candidates who select these platforms, which are too liberal for the national Republican party or Republican activists, are punished with a withdrawal of support from these groups. Thus, Republican candidates in races in which the median voter’s preferred position is less than 24 are at a disadvantage. On the other hand, there is no loss of party support for Republican candidates in races in which the median voter is more conservative than 24 (i.e.,  $m_i > 24$ ). In these more conservative states, Republican candidates can select their “winning platform” with no interference from the national party and its activists; races in these more conservative states are expected to be competitive.

Our empirical analysis seeks to determine which of these three models best describes electoral competition. Do Republican candidates in very liberal states and Democratic candidates in very conservative states have a more difficult time getting elected than their opponents? In moderate states, is support for the Republican candidate relatively invariant to differences across states in the ideology of the median voter? If so, for how many “moderate” states is there strong party competition?

## 2.1 *Comparative statics*

We shall see that the Mixed Influence Model best describes the pattern of political competition. The extent of strong competition may hinge on the heterogeneity of voter preferences, rules governing the state’s nomination process, and whether the office is a federal or state office (e.g., senator vs. governor).

An increase in the dispersion of preferences in the state makes the national party less likely to withhold support. Suppose that the dispersion parameter  $d$  rises to 10 while the marginally acceptable CI value for Republican national party support remains at 30. Then the pivotal median preference for there to be no effect of the national party's potential lack of support ( $m_i^*$ ) is

$$m_i^* + 10 = 30$$

$$m_i^* = 20$$

This political equilibrium in this case is described in the second two rows in Figure 1. The Democratic candidate selects a platform equal to 10, and the Republican candidate selects a platform equal to 30. Republican candidates are expected to be disadvantaged in states in which the median voter has a less conservative position than 20, due to receiving less support from the national party and its activists.

The more heterogeneous states have a greater dispersion parameter. In this simple example, if  $d=6$ , elections are competitive as long as the state's median voter isn't too liberal ( $m_i^* < 24$ ). In the more heterogeneous states, where  $d=10$ , elections are competitive as long as ( $m_i^* < 20$ ). Thus there is a greater range of median voter ideologies over which elections are competitive in more heterogeneous states. This is because "winning" party platforms are farther from the median voter's ideology in more heterogeneous states, allowing median voter ideologies to be farther from the critical ideology, 30 in our example, at which national party support begins to be withdrawn.

We test this hypothesis using several measures of the heterogeneity of the electorate.

Party primaries introduce a second stage into the electoral process. A candidate must win her party's nomination before battling the other party's nominee in the general election. It has been hypothesized that the necessity of pleasing voters in a primary pulls candidates away from the median voter.<sup>8</sup> Primary rules determine who the median voter in the primary is and thus how far apart the two party nominees are in the general election. In a party's open primary, the party members, independents, and often members of the

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<sup>8</sup> See Coleman (1971, 1972), Aranson and Ordeshook (1972), and Owen and Grofman (2000).

other party are allowed to participate in selecting the party's nominee. In contrast, only a party's members are allowed to vote in a closed primary. Gerber and Morton (1998), Grofman and Brunell (2001), and Heckelman (2004) find that allowing independents and members of the other party to vote in a party's primary (i.e., having an open primary) results, as expected, in smaller party differences in ideology. This is equivalent to the state becoming less heterogeneous, which should result in more states being affected by national party restrictions on a candidate's ideological position in the general election.

The National Party may be more concerned with success in Congress than with which party controls state government. If so, fully competitive gubernatorial elections should be found in more states than are fully competitive senatorial elections. We will provide some evidence on whether gubernatorial races indeed tend to be more competitive than senate races.

### **3 Data, Estimating Equation and Results**

#### **3.1 *The sample***

We obtained state-level data on elections returns for presidential, U.S. senate, and gubernatorial elections between 1922 and 2005 from *Congressional Quarterly's Guide to U.S. Elections* (fourth ed., 2001) and from *America Votes*. This sample was determined by the availability of data. The 17<sup>th</sup> Amendment to the U.S. Constitution, which mandated the selection of U.S. senators by direct popular vote, was adopted in 1913; elections were phased in over the next half dozen years. These data were aggregated into seven 12 year time periods: 1922-33, 1934-45, 1946-57, 1958-69, 1970-81, 1982-93, and 1994-2005. This aggregation over time reduces the noise in the various elections variables and makes it possible to compare outcomes in senate (or gubernatorial) races with voting in presidential elections in a 12 year time period even though the senate and presidential elections often occurred in different years. Alaska and Hawaii entered the union in 1959. Louisiana in 1975 instituted a combined party primary system in which candidates from all parties competed in a common primary. If a candidate received a majority of the votes cast in the primary, the general election was canceled. Due to the departure from the two stage party-nomination general-election process used in all other instances, general elections in

Louisiana are dropped for the last three periods. Thus the complete sample consists of 48 states over the first three periods and 50 states for the fourth period, and 49 states for the remaining three periods, yielding 341 observations. The comparable sample that is limited to senate elections in which no incumbent is seeking reelection (i.e., open elections) has 252 observations.

Additional regression analysis based on three subsamples described below are reported and/or discussed. The first subsample does not include the 11 states that comprised the Confederacy in the Civil War. The Republican party was formed with a strong anti-slavery platform. Due to this fact, the Republican party for many years after reconstruction ended was unable to garner any sizeable support among (white) southern voters. The national Democratic party in the 1960's began to support voter registration for blacks, the elimination of the poll tax and the literacy test, and the establishment of other safeguards for black rights, which led to the defection of many white southerners to the Republican party. Excluding all southern observations is a crude way of dealing with any problems that might arise from using these states, which switched from providing strong support to the Democratic party to providing strong support to the Republican party.

Are there better ways to deal with political realignment? First, we recognize that not every southern state experienced a sizeable political realignment and that some non-southern states went through a substantial political realignment. A major realignment is said to have occurred if the state's rank in supporting Republican presidential candidates changed by at least 20 states. By this criterion, the following southern states are classified as having experienced a major realignment in 1922-2005 toward the Republican party: MS (rank changing by 34 states), SC (32), AL (28), GA (25), TX (23), NC (21), FL (20), VA (20).<sup>9</sup> OK (40), UT (28), and AZ (22) also are classified as switching to the Republican party. By the same criterion, VT (-31), MA (-24), MI (-24), PA (-24), and NY (-22) are classified as having experienced a major realignment from the Republican party to the Democratic party.

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<sup>9</sup> Three southern states were not counted as having experienced a major realignment. Arkansas and Tennessee experienced only a 14 state change in rank, while Louisiana's rank changed by 19 states. Furthermore note that Arkansas and Louisiana had not transitioned into solidly Republican states; the Republican presidential candidate won in only half the presidential elections after the state "switched" parties.

Political realignment causes us no problems in equilibrium. To take the example of the south, up through the early 1960s the meager support provided by voters for Republican presidential candidates was matched by the minimal support given to Republican senate candidates. After the southern realignment was completed, both Republican presidential candidates and Republican senate candidates did very well in the south.

We are concerned with the potential impact of top-down realignment (see Aistrup (1996)). In the south, for example, it often took several years for voter support for Republican senate candidates to catch up with voter support for presidential candidates. In the south during these transitional years, the strong support provided Republican presidential candidates was not matched by the strong support for Republican senate candidates found in other “Republican” states. This introduces error into the correspondence between presidential elections and senate elections that is estimated in the regressions.

In the second subsample, senate elections that correspond to these transition years are not included when the average support for senate candidates is calculated for each state-period observation. The transition is defined as beginning when the state’s presidential vote first puts it in the top half of states supporting the “new” party; the transition is said to be ended when the state elects a senator from the “new” party. In four states (AZ, TX, UT, and VT), the state embraced the new party in both presidential and senate elections in the same year; the transition in these states was immediate. Florida is typical of the remaining 12 states. The state first was in the top half of the states’ support for Republican presidential candidates in 1960. Subsequently the first senate race to be won by the Republican candidate occurred in 1968, eight years after the transition began. For the second subsample, we eliminate the transition races in Florida by dropping the state’s senate elections in 1960-1967. In total, 36 senate races are dropped when calculating the average fraction of the two party vote garnered by Republican senate candidates in the state-time observations (see below). We will see that deleting these transition races has virtually no impact on the empirical results.

The third subsample is based on the recognition that the Great Depression and World War II caused major disruptions in the first two periods. This subsample is confined to the subsequent five periods.

### **3.2 *The dependent variable in Senate elections***

Between 1922 and 2004 there were 1473 general elections for a U.S. Senate seat. A third party candidate won 14 of these elections, which are not used in the calculation of the measures of the success of Republican candidates against Democratic opponents in the general elections. For each Senate election, the Republican share in the total number of votes cast for the Democratic and Republican candidates was determined.

REPUBLICAN SENATE SHARE equals the average Republican vote share in all the senate elections in the time period. This variable has a mean of 0.46 and ranges from 0 to 0.82. These averages are based on 4 to 7 U.S. Senate elections in a state over a 12 year period. With two senators each elected every 6 years, the means in nearly three quarters of our 341 state-time cells are based on 4 elections. Elections to fill mid-term vacancies resulted in 5 to 7 elections in a quarter of the state-time cells.

How competitive are U.S. Senate elections? Table 1 reports the distribution of the absolute difference of the Republican share of the votes received by the two major parties in Senate elections from 0.5. This is reported in the first row for all elections and in the second row for open elections, in which there is no incumbent seeking reelection. In both the full sample and the open election subsample the winner received on average between 0.50 and 0.55 of the two party vote in 40 percent of the state-time cells. The winner received between 0.55 and 0.60 percent of the two party vote in 31 percent of the cells in the open elections and in 23 percent of all-election cells. Thus, open elections were somewhat more competitive than closed elections.

[Table 1 here]

Table 1 also describes how competitive senate elections were in each of the seven 12 year periods. More open races were landslides in the first three periods (1922-1957) than in the latter four periods (1958-2005). But there has been a steady decline in the number of states in which there have been any open elections in the 4-7 elections in a 12

year period. In the first two periods, there were some open elections in 40 to 43 states. In the last two periods, only 28 to 30 states had at least one open election.

### 3.3 *Independent variables*

It is well known that an incumbent has a considerable advantage in an election. In each election a variable was created that equaled 1 if the Republican candidate was an incumbent (i.e., a closed election), -1 if the Democratic candidate was an incumbent, and 0 if neither candidate was a major party incumbent (i.e., an open election). **REPUBLICAN INCUMBENT ADVANTAGE** equals the average of this variable in all the state's elections during that time period. This variable has a mean of -0.09 and ranges between -1 and 1. It should be positively related to Republican electoral success.

Our two measures of the ideology of the state's electorate are based on how much support the voters provided the Republican presidential candidates in the 3 presidential elections in the 12 year state-time cell. Six state presidential outcomes in which a third party candidate received a majority of the state's votes were deleted.<sup>10</sup> A Republican presidential candidate garnering, say, 55 percent of the vote in a state has different meanings in Democratic landslides (e.g., 1964), close elections (e.g., 1960, 2000), and Republican landslides (e.g., 1972). Our two measures of the ideology of the state's voters place the state on the national distribution of support for Republican presidential candidates in that election.

One measure utilizes the state's *rank* in the distribution of the states' shares of the two major party vote cast for the Republican presidential candidate in a particular presidential election relative to the number of states included in that year. Using a rank relative to the number of states included in that presidential election's returns allows us to control for loss of observations due to third party success and to control for gain of observations associated with the entry of Alaska and Hawaii into the union in 1959. For example, in the 2004 presidential election, Massachusetts had the smallest share of votes cast for Bush (0.37) and was coded as 0.02 (=1/50). Utah cast the largest share for Bush (0.73) and was coded as 1(=50/50). **REPUBLICAN PRESIDENTIAL RANK** is the average of the state's relative rank in all the presidential elections in the time period. This mean is

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<sup>10</sup> These include WI in 1924; AL, MS, and SC in 1948; and AL and MS in 1968.



based on 3 presidential elections except in the 6 cells in which a third party candidate received a majority of votes in one of the elections.

Our empirical analysis uses a transformation of the measure of the ideology of the state's electorate (REPUBLICAN PRES RANK), which is based on votes cast in the state for Republican presidential candidates, to explain the success of the Republican candidates in the state's senate races (REPUBLICAN SENATE SHARE). The Mixed Influence model hypothesizes that in states with very low levels of REPUBLICAN PRES RANK (i.e., heavily Democratic states) the Republican candidates are pressured by the national party or party activists to take more conservative positions than would be optimal in state-wide elections. In this first segment, Republican candidates for the U.S. senate should have more success when the state becomes more conservative (i.e., less of a Democratic stronghold); the conservative platform dictated by the Republican national party or its activists is closer to a viable platform for a Republican candidate in that state.

In more moderate states, the platforms espoused by candidates are close enough to the national party platforms to be plausible to voters and to not cause much of a loss of support from the national party or its activists. The ability of activists to challenge sitting senators is also probably diminished because the threat of swing voters deserting a candidate seen as too extreme is quite real. We expect that candidates in these states select platforms that make open-seat elections quite competitive. As a result, Republican senate candidates should not fare much better in moderately Republican states than in moderately Democratic states.

The third segment describes the states with very high values of REPUBLICAN PRES RANK. In these states Democratic candidates are unable, due to pressure from the Democratic national party or their own activists, to select the most viable platforms. Also, voters may not believe Democratic candidate claims to be conservative. As voters in a state become more conservative, the Democratic candidates' restricted platforms become farther and farther from their optimal relatively conservative platforms, causing the Republican candidates to have greater electoral success.

To test the hypotheses about the effects of REPUBLICAN PRES RANK on Republican success in Senate elections in the three segments of REPUBLICAN PRES RANK described above, we employ a three segment spline. This is a linear and piecewise continuous

function that changes slope at two break points on REPUBLICAN PRES RANK, labeled as BREAK1 and BREAK2. In the definitions that follow, let REPUBLICAN PRES RANK be denoted by REP PRES RANK.

*Define:*

1<sup>st</sup> SPLINE SEGMENT = REP PRES RANK if REP PRES RANK < BREAK1

1<sup>st</sup> SPLINE SEGMENT = BREAK1 if BREAK1 ≤ REP PRES RANK

2<sup>nd</sup> SPLINE SEGMENT = 0 if REP PRES RANK < BREAK1

2<sup>nd</sup> SPLINE SEGMENT = (REP PRES RANK - BREAK1)  
if BREAK1 ≤ REP PRES RANK < BREAK2

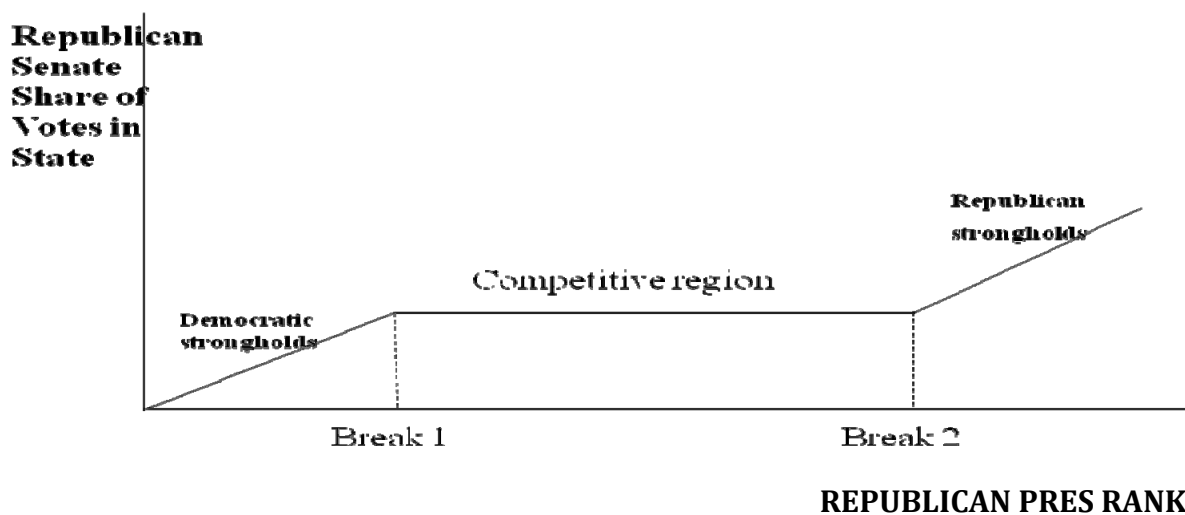
2<sup>nd</sup> SPLINE SEGMENT = (BREAK2 - BREAK1)  
if BREAK2 ≤ REP PRES RANK

3<sup>rd</sup> SPLINE SEGMENT = 0 if REP PRES RANK < BREAK2

3<sup>rd</sup> SPLINE SEGMENT = (REP PRES RANK - BREAK2)  
if BREAK2 ≤ REP PRES RANK

We searched over values for the two break points (constrained by us to be equidistant from 0.5) that produced the best fit; the first break point was constrained to lie between 0.05 and 0.45. The resulting spline is depicted in Figure 2 below:

**Figure 2**  
**A Three segment Spline Explaining REPUBLICAN SENATE SHARE**



The regression that estimates this simple spline is given below:

$$\text{REPUBLICAN SENATE SHARE} = \alpha + \beta_1 (\text{1st SPLINE SEGMENT}) \\ + \beta_2 (\text{2nd SPLINE SEGMENT}) + \beta_3 (\text{3rd SPLINE SEGMENT}) \quad (1)$$

The coefficients on the first and third spline segments ( $\beta_1$  and  $\beta_3$  respectively) estimate the slopes of these two segments, which are hypothesized to be positive. The coefficient on the second segment ( $\beta_2$ ) is hypothesized to be zero or very small. In this “highly competitive” region, changes in the state median voter’s ideology are expected to have little, if any, effect on the success of Republican senate candidates.

The rank variable REPUBLICAN PRES RANK assumes that the states are equally spaced in liberal-conservative space. An alternative measure of state ideology is based on the *position* of a state’s Republican share of the two party vote in the ideology space between the largest and smallest Republican shares in that election (e):

$$\text{REPUBLICAN PRES POSITION}_e = \frac{\text{a state's Rep. share}_e - \text{minimum Rep. share}_e}{\text{maximum Rep. share}_e - \text{minimum Rep. share}_e}$$

In each election e this variable ranges from 0 in the state that had the smallest share of votes cast for the Republican candidate to 1 in the state that provided the most support to the Republican nominee. The average value over the presidential elections in the time period is called REPUBLICAN PRES POSITION. This has a mean of 0.55 and ranges from 0 to 1. The correlation between REPUBLICAN PRES POSITION and REPUBLICAN PRES RANK is 0.86. An alternative set of spline variables is calculated based on REPUBLICAN PRES POSITION.

These measures of the state’s location on the distribution across all states in the Republican vote share do not take into account the ebbs and flows in the success of the two parties. We shall use time period dummies to capture any time-specific effects.

### 3.4 *Basic empirical results*

Regressions explaining the outcome of Senate elections are reported in Tables 2-5. Each table contains three regressions, which are based respectively on 1) the full sample, 2) the sample excluding the 11 southern states, and 3) the sample that excludes the transitional senate elections in the 12 states that experienced a major political realignment and some lapse in time between supporting the new party in presidential elections and supporting the new party in senate elections. Tables 2 and 3 utilize the state's average rank in supporting Republican presidential candidates (REPUBLICAN PRES RANK), and Tables 4 and 5 rely on the state's position in the range of states' support for Republican presidential candidates (REPUBLICAN PRES POSITION). Regressions based on only open senate elections, in which there are no incumbents seeking reelection, are reported in Tables 2 and 4. The regressions in Tables 3 and 5 rely on closed senate elections (i.e., incumbent seeking reelection) as well as on open elections.

We also estimated regressions in which the sample was limited to the five time periods covering 1946-2005, thereby avoiding any disruptions due to the Great Depression or World War II. Since these regressions are virtually identical to those based on the all time periods and reported in Tables 2-5, they are not reported in tables here.

[Tables 2 to 5 here]

As expected, the coefficients on REPLICAN INCUMBENT ADVANTAGE are positive and highly significant. Incumbents are estimated to have a sizeable advantage in Senate regressions. The Republican vote share is estimated to be 0.113 to 0.156 higher in elections in which a Republican senator was seeking re-election (REPUBLICAN INCUMBENT ADVANTAGE = 1) than in elections with no incumbent (REPUBLICAN INCUMBENT ADVANTAGE = 0). Similarly the Republican vote share is 0.113-0.156 lower in races with an incumbent Democratic senator (REP INCUMBENT ADVANTAGE = -1) than in races with no incumbent.

As noted earlier, we constrained the two break points in the spline to be equidistant from 0.5 and then searched for the break points that minimized the square root of the mean squared error. To better understand the spline results, let us consider the first regression in Table 2. The estimated break points are 0.20 and 0.80 for REPUBLICAN PRES RANK. The slope for REPUBLICAN PRES RANK equals 1.620 when REPUBLICAN PRES

RANK is less than 0.20, equals 0.186 when REPUBLICAN PRES RANK falls between 0.20 and 0.80, and equals 0.384 when REPUBLICAN PRES RANK is greater than 0.80.

The first segment pertains to the approximately 10 states in “Democratic territory,” where Republican candidates are not expected to fare well, perhaps due to the loss of support from the national Republican party or party activists if the candidate adopts a viable, relatively Democratic platform. As REPUBLICAN PRES RANK rises, the state’s electorate becomes more supportive of Republican policies and the Republican national party’s constraint becomes less binding, which should lead to greater Republican success in Senate races. This prediction receives strong support. The coefficient on the first spline segment is positive and statistically significant. An increase in REPUBLICAN PRES RANK from its lowest value (0.02) to the first break point (0.20) results in a 0.292 ( $=1.620 \times 0.18$ ) rise in the Republican vote share in Senate elections.

The second segment should correspond to a region of competitive races, with very little national party influence and where we expect activist concerns about ideological purity to be muted, since winning is better than being doomed to defeat. Changes in the ideology of the state’s voters should have little, if any, influence on Republican success in Senate elections. There are 30 relatively moderate states in this segment. The middle segment coefficient (0.186) is statistically significant and is much smaller than the coefficient on the first spline segment (1.620). The increase in REPUBLICAN PRES RANK over the entire the middle segment, from 0.20 to 0.80, is estimated to cause the Republican vote share in Senate elections to rise by 0.112 ( $=0.186 \times [0.80 - 0.20]$ ). Republican Senate candidates receive slightly more support in moderately Republican states than in moderately Democratic states.

The third segment may reflect a region of Republican dominance. Democratic candidates, perhaps constrained by the Democratic national party or activists, don’t adjust their platforms to become sufficiently more Republican as the electorate becomes very Republican, resulting in greater Republican success in Senate races. The coefficient on the third spline segment is positive, as predicted, and is statistically significant. An increase in the third segment from 0.80 to 1.00 is associated with a 0.077 ( $=0.384 \times 0.20$ ) rise in the Republican vote share.

We now summarize the twelve regressions in Tables 2 to 5. The regressions fit the data well, and there is robust support for the Mixed Influence model 1) in open as well as open and closed senate elections, 2) with both measures of support for Republican presidential candidates, 3) when southern states are excluded, 4) when transitional senate elections are not used, and 5) when the first two time periods are deleted.

There is remarkable consistency in the estimates of the two break points, where the spline changes slope, when the measure based on state ranks (REPUBLICAN PRES RANK) is used to measure voter preferences. Five of the six estimates of the first break point lie between 0.19 and 0.21, implying that the second break point falls between 0.79 and 0.81. In the regressions that use the state's position, captured by REPUBLICAN PRES POSITION, there is considerable variation in the estimated first break point: 0.05, 0.05, 0.16, 0.23, 0.44, and 0.45.

The coefficients on the first spline segment, representing Democratic dominance, are all positive, as predicted. Ten of the 12 coefficients are statistically significant at the 0.05 level, and one is significant at the 0.10 level under a one-tailed test. These results provide strong support to the hypothesis that the advantage of Democratic candidates over Republican candidates for the Senate in Democratic strongholds erodes as the state becomes more Republican.

Ten of the 12 coefficients for the third spline segment, corresponding to the region of Republican dominance, have the predicted positive sign. Eight of these coefficients are significantly positive. The lack of support for the prediction is confined to four regressions in Tables 3 and 5 that include closed (i.e., incumbent seeking reelection) as well as open elections. The evidence thus provides support for the hypothesis that in Republican strongholds the Republican party becomes more dominant as the state becomes more supportive of Republican ideology.

All the coefficients on the middle spline segment are positive. Under a two-tailed test, nine coefficients are statistically significant at the 0.05 level, two are significant at the 0.10 level, and one is insignificant. In this segment, the competitiveness of Senate races is hypothesized to be *relatively* insensitive to variation in the ideology of the voters. To test this, we compare the coefficients for the middle segment with the first segment coefficients and with the third segment coefficients.

In the regressions that are based on both open and closed elections, the first segment coefficients are 5.6 times as large as the middle segment coefficients. The differences are even more striking in the regressions that are based only on open (non-incumbent) elections. In these regressions, the first segment coefficients are 11.9 times as large as the middle segment coefficients.

The differences between the third segment coefficients and the middle segment coefficients are sizeable but not as large as the first to second segment differences. In the regressions based on both open and closed races, the third segment coefficients are on average 2.4 times as large as the middle segment coefficients.<sup>11</sup> Once again, the Mixed Influence model receives more support in the regressions based only on open races; the third segment coefficients are on average 7.4 times the size of the middle segment coefficients.

Our findings that the first segment coefficients are much larger than the middle segment coefficients and that the third segment coefficients are much greater than the middle segment coefficients supports our contention that the middle segment corresponds to a region of competitive senate races little influenced by national parties and their activists.

The six time dummies capture changes over time in the share of votes going to Republican senate candidates, holding the state's rank in support for the Republican candidate for president constant. Very few of the time period coefficients in the non-incumbent regressions were significantly different from zero. In the full-sample regressions based on open races in Table 2, two of the six period coefficients are significantly negative [when compared to the most recent period]. They imply that the Republican senate candidates' share of the vote was 0.101 lower in 1934-45 than in 1994-2005 and was 0.056 smaller in 1946-57 than in the most recent period.

On the other hand, most of the dummy coefficients are significant in the regressions in Tables 3 and 5, which also contain races in which an incumbent is seeking reelection. Eleven of the twelve full-sample period coefficients are significant and negative. Based on these regressions, the republican senate candidates appear to have garnered the most

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<sup>11</sup> The two negative coefficients for the third segment in Table 5 were not included in this mean.

votes in 1994-2005 and to have captured the fewest votes in the period from 1922 to 1969.

Let us now consider the two subsamples. Excluding transitional elections does not alter the time period results. But when the sample is limited to non-southern states, not nearly as many of the period coefficients are significant.

### **3.5 *The role of heterogeneity***

We reiterate the conclusions that were reached earlier in the paper on the effect of voter heterogeneity on the extent of competitive races. Recall that in our conservative index, a higher number indicates a more conservative position. Support from the national Republican party is hypothesized to be withdrawn if the candidate's position is too liberal, and in this example less than 30. The more heterogeneous states have a greater dispersion parameter ( $d$ ). In the simple Palfrey uniform distribution example described earlier in the paper, if  $d=6$ , elections are competitive as long as the state's median voter isn't too liberal ( $m_i^* < 24$ ). In the more heterogeneous states, where  $d=10$ , elections are competitive as long as  $m_i^*$  is not less than 20. Thus in more heterogeneous states there is a greater range of median voter ideologies over which elections are competitive. This is because "winning" party platforms ( $m_i^* + d$ ) are farther from the median voter's ideology in more heterogeneous states, allowing median voter ideologies to be farther from the critical ideology, 30 in our example, at which national party support begins to be withdrawn. Put differently, greater heterogeneity of voter preferences in a state pull the candidate's "winning" position farther from the median voter's position toward the national party's position, making the candidate more acceptable to the national party; this in turn is associated with a greater range in median voter ideologies that are associated with competitive races.

We tested this prediction with several measures of the heterogeneity of the electorate. Income inequality, measured by the Gini coefficient, is expected to be an important source of variation in the preferred platforms among the electorate. Gini coefficients based on state *family* income were taken from the 1950, 1960, and 1970 Censuses. The Current Population Surveys for 1977-2004 were the basis for data on the



inequality of state *household* income. These data were interpolated and extrapolated to produce annual data for 1949-2005.<sup>12</sup> Note that over these five decades there have been numerous changes in the income categories used to calculate the Gini coefficients.

To test the heterogeneity hypothesis, the sample for 1949-2005 was split into a low Gini (low heterogeneity) subsample and a high Gini (high heterogeneity) subsample. The heterogeneity hypothesis received no empirical support in this test. That is, there was no relationship between income inequality and the length of the middle spline segment. This may be due to inconsistency in the calculation of income inequality, as noted above.

To the extent that votes cast by a legislator reflect the preferences of voters in the legislator's district, then variation in the legislators' voting record within a state's congressional delegation should reflect variation in the electorate's political preferences within the state. Poole and Rosenthal (1997) claim that differences along a liberal-conservative dimension generally can explain most of the variation in votes cast in congress. States in which most of the legislators have similar (e.g., all moderately liberal) voting records, for example, are likely to be less heterogeneous than states in which the state's delegation ranges from extremely liberal to moderate to extremely conservative. To measure the variation of the state's delegation along the liberal-conservative dimension, we use the standard deviation in the first dimension of Poole and Rosenthal's DW-NOMINATE scores for a state's delegation in the U.S. House of Representatives. This measure was chosen because the coordinate is comparable across congresses and is available for all the years in our sample. Obviously this standard deviation of DW-NOMINATE scorers cannot be calculated for small states that have only one representative, which are omitted from our empirical analysis.

To test the heterogeneity hypothesis, we created two subsamples: low standard deviation of DW-NOMINATE scores states, and high standard deviation of DW-NOMINATE scores states. The break points, which measure the length of the middle "flat" segment, are reported in Table 6 under four scenarios. All scenarios utilize REPUBLICAN PRES RANK to measure the conservative ranking of the state's electorate. The first scenario utilizes all the open elections for which there are data. In the low heterogeneity subsample, the

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<sup>12</sup> There were no income data for Alaska in 1949. Consequently, Gini coefficients for Alaska for 1949-1958 were extrapolated from the 1959 and 1969 Gini coefficients that were based on the 1960 and 1970 Census data.

competitive middle ranges from 0.31 to 0.69, implying that competitive races occur in 0.38 (0.69-0.31) of the states. That is, races in 19 (0.38×50) states are competitive. In the high heterogeneity subsample, the middle spline ranges from 0.15 to 0.85, which implies that races in 35 states are competitive. This supports our prediction that competition is more pervasive in more heterogeneous states.

The heterogeneity hypothesis also is supported in the other three DW-NOMINATE scenarios. The second scenario is based on no-incumbent races outside the Confederacy. Races are competitive in 6 states in the low heterogeneity subsample and in 34 states in the high heterogeneity subsample. The remaining two scenarios utilize both open races and races in which an incumbent is seeking reelection. With the full (non-confederacy) sample, there are 20 (5) competitive states in the low heterogeneity subsample and 30 (13) competitive states in the high heterogeneity subsample.

Rapidly growing states may be more heterogeneous than slowly growing states. If so, competition may be more pervasive in rapidly growing states. We tested this with data on net migration rates for 1910-1940, 1940-1950, and 1950-1990, but found no evidence that supports this heterogeneity hypothesis.

### **3.6 Differences between open primary and closed primary states**

As noted above, party platforms tend to be farther apart in closed primary states, where only a party's members can select the party's nominee, than in open primary states, where independents and perhaps members of other parties also are allowed to participate in the nomination process. We showed that constraints imposed by the national party are less likely to be binding in states in which the natural distance between party platforms is greater. This implies that there should be a longer flat middle section in closed primary states than in open primary states.

The longest classification of states according to the type of primary they utilize is found in *The Book of the States*. Tables on primary type begin in volume 3 (1939-1940) and continue, with the exception of volume 7 (1948-1949), through volume 28 (1990-1991). For volumes 3-6 and 8-9, the classification was worded as "party membership tests – Open or Closed." For volumes 10-28 (1954-1991), the classification was described as "voters

receive ballots of: [one party] or [all parties participating].”<sup>13</sup> During the period of the initial classification (1939-1953), the classification seems to have been somewhat erratic. The primaries in thirteen states were reported as initially closed, then open, and then closed (or vice versa) during this period. To avoid this apparent problem in classification, our primary classification data begin in 1954, when the second description of primary classification was first used and continuing through 1991. We extended the classification of state primary systems to 2005 by utilizing tables found in Bott (1990), Bibby (1992, 1996, and 2000) and Bibby and Schaffner (2008).

The length of the second (“no interference from national parties”) spline segment under closed primaries is compared with that under open primaries in Table 7 for the four scenarios described in Table 6. The first two scenarios are based on open races involving no incumbent. The first scenario utilizes all the states, and the second scenario is based on only non-southern states. Under both scenarios, the second segment goes from 0.08 to 0.92 in open primaries and from 0.06 to 0.94 in closed primaries. Thus, the second segment is slightly longer with closed primaries, as expected. There are 42 competitive states when a party’s nominee is selected in open primaries and 44 states when closed primaries are used.

The differences between open and closed primaries in the extent of competition are more pronounced in the third and fourth scenarios, where the analysis is based on races involving an incumbent as well as races with no incumbent. This may be because these regressions are based on more data. Under open primaries, competitive races are estimated to occur in between 28 and 31 states. With closed primaries, competitive races are found in 45 states. Once again, the second spline segment is estimated to be longer under closed primaries than under open primaries, as predicted. Thus in each of the four scenarios the evidence supports the prediction that senate races are competitive in more states under closed primaries than under open primaries.

### **3.7 *A comparison of gubernatorial elections and Senate elections***

We hypothesized that the national party might be more interested in national policy

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<sup>13</sup> In 1954-55, the wording was “voters receive ballots of [one party] or [both parties].”

than in state policies. If so, the national party may be less concerned about the positions taken by candidates for Governor than about the platform chosen by candidates for the U.S. Senate. On the other hand, the governor, as chief executive, arguably has more power than one U.S. Senator. A Gubernatorial election elicits a greater rise in voter turnout than does a Senate race.

In Table 8 we compare the length of the middle spline segment found in U.S. Senate races with that found in similar Gubernatorial elections using the same four scenarios. The Senate break points were taken from the first two regressions in Tables 2 and 3. The empirical results are inconclusive. The middle segments for the two types of races have the same or nearly the same length in the full sample regressions. When the analysis is confined to open races in the non-southern states, competition is found in more states in Senate races than in Gubernatorial elections. This pattern is reversed in the regressions that are based on both open elections and elections with an incumbent in non-southern states.

#### **4 Concluding Remarks**

We have begun to map how the degree of electoral competition varies across the political landscape. We find that in the states that have provided the most support for Republican presidential candidates, Democratic senate candidates garner fewer votes than their Republican opponents. Similarly, Republican candidates in Democratic strongholds are at a disadvantage when they campaign for a seat for the senate. Many may be surprised by our finding that there are negligible differences in the degree of competition in senate elections across typically 27 to 34 moderate states. That is, there is very little difference in the votes received by Republican candidates in moderately Republican states and the votes garnered by Republican candidates in moderately Democratic states. In this broad set of moderate states, candidates appear to select platforms that make each party's candidate nearly equally likely to win the election. Candidates seem to have a lot of latitude in selecting platforms before the national party withholds support or other factors kick in that would constrain candidate ability to stray from national party positions.

It is plausible that the national party exercises more influence in congressional elections than in gubernatorial elections. If so, fully competitive gubernatorial elections

should be found in more states than are fully competitive senatorial elections. The empirical evidence, however, does not support this hypothesis.

Party platforms are expected to be farther apart in states in which the electorate is more heterogeneous and in which only party members are allowed to participate in a party's primary. The greater distance between the party's platform and the median voter's preferred position may allow some Republican (Democratic) candidates in strongly Democratic (Republican) states to adopt a "winning" platform without incurring her party's wrath. That is, there is a larger set of states in which senate elections are competitive. This hypothesis is supported empirically. Elections are competitive in more states in politically heterogeneous states than in relatively homogeneous states. Also, competitive races are more prevalent in states with closed primaries than in states with open primaries.

On balance, the Mixed Influence model receives remarkably robust support. Its predictions are supported: (1) in open as well as open and closed senate elections; (2) with both measures of support for Republican presidential candidates; (3) when southern states are excluded; (4) when transitional senate elections are not used; and (5) when the first two time periods are deleted. The model's predictions that greater heterogeneity in voter preferences would cause senate elections would be competitive in more states and that there would be competitive races in more states with closed primaries than with open primaries also are supported.

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Table 1

Extent of Political Competition in U.S. Senate Races  
|REP VOTE SHARE - 0.5|

	<u>0.00-0.05</u>	<u>0.05-0.10</u>	<u>0.10-0.20</u>	<u>0.20-0.30</u>	<u>0.30+</u>
Open & Closed Elections 341 obs.	39.9%	23.2%	19.9%	7.3%	9.7%
Open Elections 252 obs.	40.1%	30.6%	15.1%	6.8%	7.5%
Open Elections 1922-1933 48 states 40 obs.	<u>25.0%</u>	<u>25.0%</u>	<u>50.0%</u>		
1934-1945 48 states 43 obs.	27.9%	37.2%	34.9%		
1946-1957 48 states 36 obs.	36.1%	25.0%	38.9%		
1958-1969 50 states 37 obs.	64.9%	18.9%	16.2%		
1970-1981 49 states 38 obs.	41.1%	40.5%	18.4%		
1982-1993 49 states 28 obs.	46.4%	28.6%	25.0%		
1994-2005 49 states 30 obs.	40.0%	43.3%	16.7%		



Table 2

Regressions Explaining Average Share of Two Party Vote  
Received by Republican Senate Candidate

Open (No Incumbent) Races  
Uses REPUBLICAN PRES RANK  
(absolute t-statistics in parentheses)

	Full Sample	Non- Southern States	Non-transitional Senate Elections
REPUBLICAN PRES RANK			
1 <sup>ST</sup> SPLINE SEGMENT	1.620 (7.35)	3.775 (2.22)	1.544 (7.55)
2 <sup>ND</sup> SPLINE SEGMENT	0.186 (4.34)	0.087 (3.46)	0.185 (4.21)
3 <sup>RD</sup> SPLINE SEGMENT	0.384 (1.98)	2.055 (2.51)	0.356 (1.99)
1922-33	-0.043 (1.54)	0.034 (1.51)	-0.043 (1.57)
1934-45	-0.101 (3.70)	-0.042 (1.89)	-0.101 (3.74)
1946-57	-0.056 (1.96)	.0072 (0.32)	-0.057 (2.03)
1958-69	-0.044 (1.55)	-0.037 (1.68)	-0.030 (1.05)
1970-81	-0.026 (0.94)	-0.015 (0.65)	-0.022 (0.78)
1982-93	-0.027 (0.91)	-0.030 (1.24)	-0.027 (0.91)
Break points	.20 .80	.06 .94	.21 .79
Root Mean squared error	0.1148	0.0794	0.1137
Adjusted R-square	0.4335	0.2186	0.4478
Number of Observations	252	196	247

Table 3

Regressions Explaining Average Share of Two Party Vote  
Received by Republican Senate Candidate

Open (No Incumbent) and Closed (Incumbent) Races  
Uses REPUBLICAN PRES RANK  
(absolute t-statistics in parentheses)

	Full Sample	Non- Southern States	Non-transitional Senate Elections
REPUBLICAN INCUMBENT ADVANTAGE	0.156 (16.2)	0.113 (15.9)	0.149 (15.4)
REPUBLICAN PRES RANK			
1 <sup>ST</sup> SPLINE SEGMENT	1.235 (8.60)	0.352 (2.47)	1.262 (8.74)
2 <sup>ND</sup> SPLINE SEGMENT	0.125 (4.26)	0.072 (3.30)	0.133 (4.48)
3 <sup>RD</sup> SPLINE SEGMENT	0.145 (1.07)	0.321 (3.16)	0.138 (1.01)
1922-33	-0.064 (3.62)	.0039 (0.28)	-0.065 (3.62)
1934-45	-0.076 (4.27)	-0.018 (1.32)	-0.078 (4.34)
1946-57	-0.077 (4.36)	-0.015 (1.09)	-0.074 (4.17)
1958-69	-0.063 (3.54)	-0.029 (2.20)	-0.060 (3.36)
1970-81	-0.039 (2.19)	-0.021 (1.56)	-0.028 (1.56)
1982-93	-0.038 (2.12)	-0.027 (2.05)	-0.038 (2.13)
Break points	.20 .80	.19 .81	.20 .80
Root Mean squared error	0.0870	0.0575	0.0875
Adjusted R-square	0.6996	0.6507	0.6935
Number of Observations	341	267	340

Table 4

Regressions Explaining Average Share of Two Party Vote  
Received by Republican Senate Candidate

Open (No Incumbent) Races  
Uses REPUBLICAN PRES POSITION  
(absolute t-statistics in parentheses)

REPUBLICAN PRES POSITION	Full Sample	Non- Southern States	Non-transitional Senate Elections
1 <sup>ST</sup> SPLINE SEGMENT	0.355 (3.54)	0.665 (2.01)	0.377 (3.68)
2 <sup>ND</sup> SPLINE SEGMENT	0.413 (1.55)	0.072 (1.68)	0.406 (1.82)
3 <sup>RD</sup> SPLINE SEGMENT	0.606 (7.18)	0.993 (4.21)	0.604 (7.06)
1922-33	-0.135 (4.79)	0.020 (0.81)	-0.135 (4.80)
1934-45	-0.184 (6.61)	-0.054 (2.29)	-0.183 (6.63)
1946-57	-0.130 (4.55)	-.00015 (0.01)	-0.131 (4.53)
1958-69	-0.030 (1.06)	-0.034 (1.51)	-0.018 (0.62)
1970-81	-0.016 (0.57)	-.0095 (0.42)	-0.013 (0.46)
1982-93	.00055 (0.02)	-0.022 (0.90)	.0013 (0.04)
Break points	.45 .55	.16 .84	.44 .56
Root Mean squared error	0.1140	0.0790	0.1133
Adjusted R-square	0.4413	0.2272	0.4511
Number of Observations	252	196	247

Table 5

Regressions Explaining Average Share of Two Party Vote  
Received by Republican Senate Candidate

Open (No Incumbent) and Closed (Incumbent) Races  
Uses REPUBLICAN PRES POSITION  
(absolute t-statistics in parentheses)

	Full Sample	Non- Southern States	Non-transitional Senate Elections
REPUBLICAN INCUMBENT ADVANTAGE	0.153 (16.0)	0.113 (16.1)	0.146 (15.1)
REPUBLICAN PRES POSITION			
1 <sup>ST</sup> SPLINE SEGMENT	1.168 (1.28)	0.286 (2.43)	1.125 (1.22)
2 <sup>ND</sup> SPLINE SEGMENT	0.340 (11.8)	0.124 (4.10)	0.350 (12.0)
3 <sup>RD</sup> SPLINE SEGMENT	-1.385 (1.34)	0.349 (3.82)	-1.368 (1.32)
1922-33	-0.127 (6.91)	-0.026 (1.77)	-0.129 (6.96)
1934-45	-0.134 (7.16)	-0.044 (2.93)	-0.137 (7.29)
1946-57	-0.134 (7.39)	-0.037 (2.51)	-0.133 (7.26)
1958-69	-0.058 (3.30)	-0.028 (2.17)	-0.055 (3.09)
1970-81	-0.035 (1.96)	-0.022 (1.69)	-0.023 (1.30)
1982-93	-0.017 (0.96)	-0.018 (1.37)	-0.016 (0.93)
Break points	.05 .95	.23 .77	.05 .95
Root Mean squared error	0.0866	0.0568	0.0873
Adjusted R-square	0.7023	0.6592	0.6944
Number of Observations	341	267	340

Table 6

Effect of Heterogeneity  
 [std. dev. Of House DW-NOMINATE Scores]  
 On Length of Middle ("No Interference") Segment  
 1922-2005

Uses REPUBLICAN PRES RANK  
 Number of Observations in Parentheses

	<u>Low Heterogeneity</u>			<u>High Heterogeneity</u>		
	Break Points	#Competitive States		Break Points	#Competitive States	
Open (No Incumbent) Races						
Full Sample	.31 (123)	.69	19	.15 (110)	.85	35
Non-Southern States	.44 (85)	.56	6	.16 (92)	.84	34
Open (No Incumbent) and Closed (Incumbent) Races						
Full Sample	.30 (154)	.70	20	.20 (155)	.80	30
Non-Southern States	.45 (105)	.55	5	.37 (130)	.63	13

# competitive states = (high break point - low break point) × 50

Table 7

Effect of Primary Structure on  
Length of Middle ("No Interference") Segment  
1954-2005

Uses REPUBLICAN PRES RANK  
Number of Observations in Parentheses

	<u>Open Primaries</u>			<u>Closed Primaries</u>		
	Break Points	#Competitive States		Break Points	#Competitive States	
Open (No Incumbent) Races						
Full Sample	.08 (41)	.92	42	.06 (128)	.94	44
Non-Southern States	.08 (35)	.92	42	.06 (97)	.94	44
Open (No Incumbent) and Closed (Incumbent) Races						
Full Sample	.19 (64)	.81	31	.05 (181)	.95	45
Non-Southern States	.22 (53)	.78	28	.05 (140)	.95	45

# competitive states = (high break point - low break point) × 50

Table 8

Length of Middle ("No Interference") Segment:  
 Comparison of Senate Elections and Gubernatorial Elections  
 1922-2005

Uses REPUBLICAN PRES RANK  
 Number of Observations in Parentheses

	Senate Elections			Gubernatorial Elections		
	Break Points	#Competitive States		Break Points	#Competitive States	
Open (No Incumbent) Races						
Full Sample	.20 (252)	.80	30	.19 (326)	.81	31
Non-Southern States	.06 (196)	.94	44	.15 (252)	.85	35
Open (No Incumbent) and Closed (Incumbent) Races						
Full Sample	.20 (341)	.80	30	.20 (341)	.80	30
Non-Southern States	.19 (267)	.81	31	.05 (267)	.95	45

# competitive states = (high break point - low break point) × 50