Can the Party in Power Systematically Win a Majority in Close Legislative Elections? Evidence from U.S. State Assemblies

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Abstract

We study whether ruling parties can systematically win a slender majority of seats in close legislative elections, a phenomenon called “precise control.” We test for discontinuities in two outcomes that, in the absence of precise control, should be smooth at the 50% cutoff: the probability density of the share of seats won, and the identity of the party that previously held a majority. We find robust evidence of precise control, but only in high-stakes state elections that determine which party controls Congressional redistricting. Its absence in other elections suggests precise control is a strategic option used at the ruling party’s discretion. It shifts its strategy in high-stakes elections from seat maximization to majority-seeking, winning fewer seats but reducing the chance it loses its majority. These tactics are disproportionately effective for the party defending a majority. It is 4 times more likely to win than to lose a close election.
1 Introduction

In days when U.S. elections were compromised by patronage the ruling party, even in very close legislative elections, had a suspiciously overwhelming probability of barely retaining its majority (Folke et al., 2011). With every election it would mobilize its political machine to guarantee its losses were just small enough to retain a majority. Folke et al. (2011) and others have noted (in passing) that even after civil service reform the ruling party wins a slightly disproportionate share of close legislative elections. But this pattern has long been assumed an artifact, possibly arising because a discrete variable—number of seats won—might inevitably have kinks in the distribution of outcomes.¹

We give evidence that the systematic tendency for majority parties to barely retain their majorities—a phenomenon sometimes called “precise control”—is not an artifact but a strategic ability that the majority party chooses, at some cost, to exercise. In essence the majority party is able to identify a promising set of districts that comprise a bare majority and, at least in a subset of elections, ensure it wins each district with near certainty. Consistently winning just enough seats to hold the majority induces a discontinuity at 50% in the probability density of the share of seats won by the majority party. We show that these discontinuities arise only in high-stakes elections where it is disproportionately important for the majority party to retain its majority: elections where control of Congressional redistricting is at stake. The absence of a discontinuity in other elections suggests it is not an artifact. Parties actively choose to retain the precise number of seats they need only in elections where holding a bare majority is of especially high value.

The mechanism by which parties exert precise control also explains why they only do so in high-stakes elections. We appeal to the theoretical work of Snyder (1989), who shows that a party seeking to maximize how many seats it wins will optimally choose a different strategy than one seeking to maximize the probability of retaining a majority.

¹See, for example, Feigenbaum et al. (2017); Kirkland and Phillips (2018); Fiva et al. (2018).
This latter strategy, sometimes called a defensive or majority-seeking strategy, becomes optimal when the newly elected legislature must make a key procedural decision, like redistricting, where it is easy to maintain perfect party discipline. We show that in high-stakes elections parties change their spending to be consistent with majority-seeking tactics. Parties spend more funds, concentrate them in key races, and discourage incumbents from retiring. Since these tactics are inherently defensive they are disproportionately effective for the party that already holds a majority, potentially explaining why the majority party can exert precise control despite the opposition's countermeasures. Though it is impossible to prove that this shift in tactics by itself enables precise control, it is unlikely to be a coincidence.

While it is not surprising that the majority party would shift its tactics in high-stakes elections, what is surprising is the extent to which it succeeds. Our results suggest the majority party is 4 times as likely to win than to lose a close election, far beyond what could arise through chance.

### 1.1 Relation to Literature

Substantively our paper is related to the literature in political science on the electoral tactics of political parties. Most relevant is the work of Makse (2014) who shows that parties are more likely to switch to defensive (or “majority-seeking”) behavior when redistricting becomes imminent. Jacobson (1985), Gierzynski (1992), Herrnson (1989), Clucas (1992), Thompson et al. (1994), and Stonecash (1988) likewise explore what circumstances cause parties to pursue defensive tactics. Our contribution is to show that the change in tactics is so effective that it induces a discontinuity in the probability distribution of outcomes. This discontinuity implies the party in power can, with uncanny likelihood, ensure it retains just enough seats to hold its majority.

Our work unites this political science literature on electoral competition with the vast literature in economics on precise control and sorting (Dillender, 2016; Einav et
al., 2017; Ito, 2014, are just a few examples). The literature has universally focused on cases where it is clear the agent has control over the outcome—for example, a teacher awarding test grades that put students just above the passing threshold. We study a context where the very fact that parties have such precise control is surprising.

In drawing this connection we follow the approach of the recent literature in political science on whether the outcomes of close elections are as good as random. Several papers have found evidence of sorting in close races for the U.S. House (Snyder, 2005; Caughey and Sekhon, 2011; Grimmer et al., 2012). But other work has disputed their conclusions or shown that they are not a general feature of close races in other contexts (Eggers et al., 2015; de la Cuesta and Imai, 2016). Our work is distinct in two ways. First, the papers cited largely focus on the methodological question of whether the regression discontinuity approach first used by Lee et al. (2004) is valid. They are less concerned with the broader question of how political parties can exert precise control over outcomes. Their focus on methodology is in part because of the second distinction: they focus on the outcomes of individual races between candidates rather than the aggregate outcomes of elections. The outcome of one race may have little impact on the composition of the legislature. By contrast, we test whether the incumbent party can edge out victory to remain in control of the legislature.

Finally, our work extends the vast empirical literature on partisan redistricting in the U.S. (for example, Gelman and King, 1990, 1994a,b; Engstrom, 2006; Glazer et al., 1987; McCarty et al., 2009; Chen and Rodden, 2013; Chen and Cottrell, 2016; Brunell and Grofman, 2005; Hetherington et al., 2003; Grainger, 2010; Ansolabehere and Snyder Jr, 2012; Carson et al., 2007; McCarty et al., 2009; Lo, 2013). The literature remains divided on whether partisan redistricting has any meaningful effect on outcomes. Our results suggest that, at least in the eyes of national political parties, it is vital to deny the opposing side control of redistricting.
2 Testing for Precise Control by the Majority Party

Suppose a legislature has 99 seats. The probability the party with a current majority wins exactly 50 seats depends on any number of factors. But one might expect it to be close to the probability of winning 49 seats because there is uncertainty in the outcomes of at least some of the underlying races. For example, if the majority party wins each seat with 55 percent probability it would win 50 seats with 5.4 percent probability, similar to the 4.4 percent probability of winning 49 seats. Even if it channeled its resources towards winning only the most promising 55 seats, each with 90 percent probability, it would have an 18 percent chance of winning 50 seats and a 16.5 percent chance of winning 49 seats.\(^2\)

If the probability of winning 50 seats—a bare majority—is drastically higher than the probability of winning 49 seats, it suggests the party can systematically limit its losses to just retain its majority. The party must rank all races and focus its resources on the 50 most promising, tilting the odds in each race until it is all but guaranteed the seat is retained. As the 55-seat example shows, precise control is not possible if the probability of winning each seat is merely very high—it must be close to 1. Precise control is unsettling because its presence implies there is almost no chance the majority party will lose any of the seats it needs to win.

Precise control is distinct from the well-known “incumbency advantage,” the tendency for a candidate or party to win more seats if, all else equal, it is the incumbent. The distinction is clear in the first example given above. The majority party is expected to win roughly 54 seats (0.55 \times 99), but it does not exert precise control. We can make the distinction formal by defining \(X_{i,t}\) as the share of seats won by Democrats in election \(t\). Normalize \(X_{i,t}\) to be 0 when Democrats have 50% of the seats. Let \(M_{i,t}\) be a dummy for whether Democrats win a majority in election \(t\). Then

\(^2\)These binomial calculations in fact overstate the difference in probabilities because we assume the outcome of each race is independent. If we allowed aggregate uncertainty the distribution of outcomes would be even smoother.
**Definition 1 (Incumbency Advantage)**  There is an incumbency advantage if

\[
\mathbb{E}[X_{i,t} \mid M_{i,t-1} = 1; X_{i,t-1}] - \mathbb{E}[X_{i,t} \mid M_{i,t-1} = 0; X_{i,t-1}] > 0,
\]

meaning Democrats win more seats if they held a majority in the previous election.

To formalize precise control it is helpful to define \(\tilde{X}_{i,t}\) as the share of seats won by whichever party held a majority in the previous election (again, normalized to be 0 at 50%). Let \(h(\tilde{X}_{i,t})\) be the probability density function of the seat share of the party that previously won a majority. Then

**Definition 2 (Precise Control: Density Test)**  The majority party is able to exert precise control if

\[
\lim_{\varepsilon \to 0} \left\{ h(\varepsilon) - h(-\varepsilon) \right\} > 0,
\]

meaning there is a discontinuity in the probability density at the cutoff that determines control of the chamber. This definition implies a test for precise control: applying the Density Test of McCrary (2008) to the seat share won by the majority party. This test is based on the almost mandatory check for a discontinuity in the density of the running variable in a regression discontinuity design.

The literature on regression discontinuity also contributes a second test based on testing for discontinuities in pre-determined outcomes. Adapting a test proposed by Lee (2008), we test whether the winner of the previous election changes discontinuously at the cutoff where the seat share in the current election exceeds 50%. Since the outcome of the previous election cannot be changed by the outcome of the current election, any difference at the cutoff implies that Democrat-controlled assemblies have been “sorted” to put the outcome of the current election on the side of the cutoff where Democrats retain their majority. Define
Definition 3 (Precise Control: Sorting Test) The majority party is able to exert precise control if

$$\lim_{\varepsilon \to 0} \left\{ \mathbb{E}[M_{i,t-1} | X_{i,t} = \varepsilon] - \mathbb{E}[M_{i,t-1} | X_{i,t} = -\varepsilon] \right\} > 0.$$ 

Though on first glance it looks similar to the Incumbency Advantage, the Sorting Test takes the dummy for whether Democrats won a majority in the previous election as the outcome in a regression discontinuity design using the seat share won by Democrats in the current election as the running variable.

## 3 Research Design

The conventional view is that there are discontinuities in the distribution of seat shares because the outcome is too discrete. Since the outcome is equally discrete across all elections, the conventional view implies such discontinuities should arise regardless of how valuable it is for the majority party to retain its majority. But if the discontinuity appears only in elections where holding a bare majority is especially valuable—what we call “high-stakes elections”—it is likely not mechanical but the result of conscious effort by political parties.

### 3.1 High-Stakes Elections

High-stakes elections arise through a natural experiment created by the opportunity to control Congressional redistricting, which allows the party in power to draw boundaries favorable to its own Congressional candidates. Thanks to the rules of redistricting the plan ultimately adopted depends on which party controls the legislature. Most states pass new redistricting plans as regular legislation. Control of the lower house of the state legislature grants a measure of control—at least a veto—over redistricting.\(^3\) Control switches discontinuously away from Republicans when Democrats win at least 50

\(^3\)We focus on the lower house because most states stagger the terms of members of the upper house (much like the U.S. Senate). Only a fraction of seats are contested in the election before redistricting, making the definition of a high- versus low-stakes election less clear.
percent of seats. Though Democrats must also control the upper house and the governorship to enact their ideal plan, control of the lower house is sufficient to prevent any unfavorable redistricting plan.\(^4\) As we show in Appendix A.1 (p. 38) there is extraordinary party unity when voting on a redistricting bill. Controlling at least half the seats in the lower house is tantamount to having a veto over any unfavorable plan. That makes it critical to have a majority in the lower house in years when the opportunity to redistrict arrives.

That opportunity arrives every ten years with the decennial census. Aside from making it possible to create districts with equal populations, the census helps the party in power gerrymander on demographics. As shown in Figure 1, the census is completed in years ending in 1.\(^5\) Whichever party wins the election to the state legislature just before this year has the opportunity to pass its own redistricting plan.\(^6\)

This accident of timing raises the stakes of these elections. Jeong and Shenoy (2018) show that partisan control of redistricting brings immediate benefits to Congressional candidates of the party in power.\(^7\) That implies national parties and out-of-state donors will muster far more resources for these elections. Statements from national party officials show that they are well aware of the stakes:

> “It’s pretty clear that we’re well ahead of them [the Republicans],” said Michael Sargeant, executive director of the Democratic Legislative Campaign Committee (DLCC). He notes the party has been building an infrastructure to handle this redistricting effort for more than six years. (D’Aprile, The Hill, 2010)

\(^4\)It is crucial to control a branch even if parties expect they will collude on a gerrymander that protects all incumbents, as the opposing party has no incentive to offer a deal unless one’s own party controls at least one branch of government.

\(^5\)The redistricting bill may not be successfully passed in the year ending in 1 if, for example, the legislature is divided and the bill is particularly contentious. As a result, the date of passage is both unpredictable and endogenous to our outcome of interest. Instead we focus on the opportunity to redistrict, which comes with the completion of the census. It is more likely that this opportunity, which is known and exogenous, is what drives the decisions of parties before the election.

\(^6\)In many states the election is in years ending in 0, but a few states are irregular. We define the most recent election before a year ending in 1 as a high-stakes election.

\(^7\)They find that the party that in control of the state house during redistricting is 11 percentage points more likely to win Congressional races just after redistricting.
Aside from increasing the prominence of the election, the chance to control redistricting also may change a party’s objective. As we describe in greater detail in Section 6.1, it is unwise for a party to seek a bare majority if its aim is to pass substantive legislation. But on an issue whose sole aim is to improve the electoral prospects of one party at the expense of another, defections are rare and there is extraordinary party unity when legislators vote on a redistricting bill.

### 3.2 Implementing the Tests

Define the seats held by Democrats as a percentage relative to the 50 percent threshold:

\[
X_{i,t} = \frac{[\text{Democrats elected}]_{i,t} - \frac{1}{2}[\text{Total Assembly Members}]_{i,t}}{[\text{Total Assembly Members}]_{i,t}} \times 100\% 
\]  

(1)

If there is an uneven number of seats in the assembly we round \(\frac{1}{2}[\text{Total Assembly Members}]_{i,t}\) up to the next integer to ensure \(X_{i,t} = 0\) implies winning at least 50%. To apply the Sort-

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8A recent and very prominent example comes from the U.S. Senate. Despite holding a slim majority, Republicans in the Senate were unable to repeal the individual mandate of the Affordable Care Act because 3 of their 52 senators defected.
ing Test we estimate a regression discontinuity using a local linear regression with a rectangular kernel, as proposed in Lee and Lemieux (2010). As we discuss in Appendix A.2 (p. 50), different methods for choosing an “optimal bandwidth” disagree on the optimum. Since our aim is mainly to test for robust evidence of precise control, we use as our baseline a bandwidth of 18, which lies between the optima of the different methods, and show that the main results are similar at any reasonable bandwidth. As in Section 2, let $M_{i,t}$ be a dummy for whether the seats won by Democrats $X_{i,t}$ is greater than or equal to 0. The estimating equation is

$$M_{i,t-1} = \gamma_0 + \gamma_1 X_{i,t} + \gamma_2 X_{i,t} M_{i,t} + \beta M_{i,t} + \text{Error}_{i,t} \tag{2}$$

which we estimate separately for high-stakes and low-stakes elections. The coefficient $\hat{\beta}$ gives the estimated difference between the right and left limit of $\mathbb{E}[M_{i,t-1} \mid X_{i,t} = x]$. We cluster the standard errors by state-redistricting cycle. If we reject the null $\hat{\beta} = 0$ it is evidence that the majority party can exert precise control over the outcome.

We apply the Density Test by running a standard McCrary Test (2008) on $\tilde{X}_{i,t}$, the seats won by whichever party held a majority before the election. To make the interpretation of $\tilde{X}_{i,t}$ as clear as possible we discard cases in which independent legislators (neither Democrats nor Republicans) win seats in either the current or the previous election. Restricting the sample ensures the share of seats won by the minority is just 1 minus the share won by the majority.\(^9\) We define

$$\tilde{X}_{i,t} = \begin{cases} \frac{\text{Democrats elected}_{i,t} - \frac{1}{2}\text{[Total Assembly Members]}_{i,t}}{\text{[Total Assembly Members]}_{i,t}} \times 100\% & \text{if } M_{i,t-1} = 1 \\ \frac{\text{Republicans elected}_{i,t} - \frac{1}{2}\text{[Total Assembly Members]}_{i,t}}{\text{[Total Assembly Members]}_{i,t}} \times 100\% & \text{if } M_{i,t-1} = 0 \end{cases} \tag{3}$$

where again $\frac{1}{2}\text{[Total Assembly Members]}_{i,t}$ is rounded up to the next integer. Then $\tilde{X}_{i,t} = 0$ implies the majority party has won the smallest number of seats possible without be-

\(^9\)The results are qualitatively unchanged if we do not drop observations with independent legislators.
coming a minority. We follow McCrary's suggestion of choosing a bin size by inspection and testing the results for robustness. In the main text we use a bin size of 1 and the default bandwidth (roughly 10), and show in Appendix A.2 (p. 50) that the results are robust to different bin sizes and bandwidths.

4 Data

We apply the tests for precise control to data compiled by Klarner (2013b) on the number of Democrats, Republicans, and independents elected to the lower house of the state legislature. We restrict our attention to elections after 1962, when the Supreme Court ruled in Baker v. Carr 369 (1962) that legislatures must regularly redistrict.\(^\text{10}\) Our sample includes elections leading up to the 1970, 1980, 1990, 2000, and 2010 redistricting cycles. We also have elections through 2015, which add to our set of low stakes elections.

In some states Congressional districts are drawn by independent or appointed commissions rather than state legislatures. In our main sample we discard all elections after a state adopts a commission (as per Levitt, 2016).\(^\text{11}\) The results do not change when we handle these states differently (for example, excluding them entirely). We also discard states that have only a single House representative and thus do not redistrict.\(^\text{12}\) Maine presents an unusual case because unlike other states it has occasionally redistricted in years ending in 3 rather than 1. In our main sample we treat it like the other states, but the main results do not change under any of several different assumptions. Finally we exclude Nebraska, which has a non-partisan legislature, from our analysis.

We draw on data for campaign finances and career paths for state legislators from

\(^{10}\)The results are no different if we instead use Reynolds v. Sims (1964) as the cutoff (Appendix A.5.1, p. 56).


\(^{12}\)Alaska, Delaware, Vermont, and Wyoming are excluded. North Dakota is excluded after the 1972 reapportionment, Montana after the 1991 reapportionment, and South Dakota after the 1981 reapportionment.
Bonica (2013). These data are available for state legislators in an expanding number of states starting in 1990 through 2012.\textsuperscript{13} We compute the incumbent exit rate of state legislators using a dataset of state legislative races compiled from Klarner et al. (2013) and Klarner (2013a), which are available from 1967 to 2010.

We present descriptive statistics for our sample in Appendix A.1.2 (p. 38).

5 Main Results: Can Parties Exert Precise Control?

5.1 Tests for Precise Control

Figure 2 applies the Density Test, which tests for a discontinuity in the probability density of the percentage of seats won by the party that held a majority before the election. Each dot shows the density of elections in which the majority party won the number of seats given on the horizontal axis—that is, a higher dot indicates a larger number of elections had the given outcome. For example, the highest dot in the left-hand panel represents just over 30 elections, while that in the right-hand panel represents 12 elections. These high dots are not outliers, as they represent the modal outcome.

The left-hand panel of Figure 2 shows that in low-stakes elections there is a small and statistically insignificant difference in the density of outcomes around the cutoff. But as shown in the right-hand panel of Figure 2, a large and statistically significant discontinuity appears in high-stakes elections. The point estimates imply that a narrow win for the majority party is nearly 4 times as likely as a narrow defeat. As noted in Section 3.2, the estimates of any density test may depend on bandwidth and bin size. We show in Appendix A.2 (p. 50) that across different combinations of bandwidth and bin size the results are robust.

\textsuperscript{13}There is some ambiguity about how states that hold their elections in odd years are assigned to federal election cycles in the data. That creates a risk that funds meant for a high-stakes election are erroneously assigned to a low-stakes election and vice-versa. In the sample used in the main text we exclude these odd-year states from the campaign finance data. In unreported results we find that including them does not much change the results.
**Figure 2**

Density Test: The Majority Party is Far More Likely to Barely Win than Barely Lose a High-Stakes Election

![Density Test Diagram](image)

Note: The figure gives the estimates and the visual representation of the density test. The test is implemented using the procedure of McCrary (2008), which tests for a significant difference at the cutoff in the log of the density. For confirmation of the result we turn to the Sorting Test, which is depicted in Figure 3. We split the running variable—the percentage of seats won by Democrats in the lower house—into bins with a width of 2 percentage points. For each bin we plot the fraction of elections in which Democrats were the majority party before the election. This fraction can be interpreted as the probability, conditional on the outcome of the current election, that Democrats held the majority before the election. We estimate Equation 2 and plot the predicted values, which appear as lines on either side of the cutoff (at zero). We report the regression discontinuity estimate (\(\beta\) in Equation 2) and its standard error.

In low-stakes elections we are unable to reject the null of no precise control. As expected, the conditional probability that Democrats won a majority in the previous election is increasing in the percentage of seats won in the current election. States that elect more Democrats in the current election probably elected more in the previous election, making it more likely the Democrats held a majority in the lower house. But there is no statistically significant discontinuity at the cutoff, meaning the probability is similar in elections just barely won and lost by Democrats. By contrast we find strong evidence of...
precise control in high-stakes elections. The conditional probability jumps by 42 percentage points at the cutoff, suggesting the majority party is able to sort itself onto the more favorable side of the discontinuity with remarkable precision.

Table 1 reports the estimates from the baseline specification and several robustness checks. Columns 1 and 2 give the same baseline estimates shown in Figure 3. The other columns show the results of robustness checks. One possible concern with these estimates is that the presence of independent legislators (those unaffiliated with either major party) muddies the partisan narrative of Section 3. Columns 3 and 4 show that dropping elections in which independents either win seats or held seats before the election makes little difference in the estimates.

Next we redo our estimates excluding the so-called pre-clearance states. These states are required to submit changes to their voting rules for pre-clearance to the U.S. Department of Justice (as per Section 5 of the 1965 Voting Rights Act).\textsuperscript{14} Columns 5 and

\textsuperscript{14}These are Alabama, Alaska, Arizona, Georgia, Louisiana, Mississippi, South Carolina, Texas, and Vir-
Table 1
Sorting Test: Main Results and Robustness

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th></th>
<th></th>
<th>No Ind. Leg.</th>
<th>Drop VRA States</th>
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<th></th>
<th>Republican Seats</th>
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<tr>
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<td>(5)</td>
<td>(6)</td>
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<td>(8)</td>
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<tr>
<td></td>
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<td>Low-Stakes</td>
<td>High-Stakes</td>
<td>Low-Stakes</td>
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<td>Low-Stakes</td>
<td>High-Stakes</td>
</tr>
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<td>0.119</td>
<td>0.540***</td>
<td>0.072</td>
<td>0.419***</td>
<td>-0.106</td>
<td>-0.391***</td>
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<tr>
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<td>(0.084)</td>
<td>(0.136)</td>
<td>(0.086)</td>
<td>(0.145)</td>
<td>(0.085)</td>
<td>(0.136)</td>
</tr>
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<td>119</td>
<td>468</td>
<td>121</td>
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<td>136</td>
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<tr>
<td>Control Mean</td>
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<td>0.06</td>
<td>0.06</td>
<td></td>
<td></td>
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</tr>
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</table>

Note: Outcome is a dummy for whether Democrats held a majority before the election (to be precise, whether they won a majority of seats in the previous election). "Baseline" is the same specification used to construct Figure 3. "No Ind. Legislators" drops elections in which independent legislators are elected in either the current or previous election. "Drop VRA States" drops states that require pre-clearance from the Justice Department for any change in election law. "Republican Margin" defines the running variable as the Republican rather than Democratic margin. The last row gives the p-value of test for the equality of the estimates for low- and high-stakes elections. The test is based on a single regression that jointly estimates both discontinuities.

6 shows that the estimate is not much changed. Columns 7 and 8 report the estimate using as the running variable the percentage of seats won by Republicans rather than Democrats. It is not precisely equal to the negative of the percentage won by Democrats (as there may be independents).\(^\text{15}\) Nevertheless, the estimated discontinuity is essentially the negative of that in the baseline specification. Finally, the last row of the table gives the p-value of a joint test for the equality of the discontinuities estimated for low-stakes and high-stakes elections. In all specifications we reject equality at either the 10 percent or 5 percent level.

As noted in Section 3.2, bandwidth is always a concern when estimating discontinuities. Figure 4 shows that our results are not driven by the choice of bandwidth. We re-estimate Equation 2 for every bandwidth \(h = \{4, 4.5, \ldots, 21.5, 22\}\). We plot the regression discontinuity estimate and the 95 percent confidence interval against the bandwidth. The left-hand panel confirms that for any but the widest choice of bandwidth, there is no discontinuity in low-stakes elections. By contrast, there is always a large discontinuity.

\(^{15}\)This is why the number of observations is not quite the same as in the baseline specifications. A different running variable implies a different set of elections will fall within the bandwidth of the local linear regression.
continuity in high-stakes elections, though the estimates grow large and noisy when the bandwidth falls below 10.

5.1.1 Additional Robustness

Small Sample Bias (Appendix A.3, p. 54): We verify that the difference between low- and high-stakes elections is not an artifact of having a smaller sample of high-stakes elections. We rerun the Sorting Test on subsamples of the low-stakes elections, keeping each subsample the same size as our full sample of high-stakes elections. We show that less than 1 percent of the point estimates are as large as that of the high-stakes elections.

Nonlinear Conditional Expectation (Appendix A.4, p. 54): We confirm that estimating the Sorting Test using local quadratic regression instead of local linear regressions does not change the result, suggesting it is not driven by sharp nonlinearity in the neighborhood of the cutoff.

Consistency of Estimates Over Time (Appendix A.1.7, p. 46): We show that Sorting Test still does not reject in low-stakes elections when they are disaggregated by time, e.g. 1 election prior to high-stakes, 2 elections prior, and so on. We show using rolling
regressions that the estimate of (2) in high-stakes elections is reasonably consistent over time (there is some slight evidence it may have grown smaller in recent years).

**Interpretation (Appendix A.1.7, p. 46):** We show that Sorting Test does not reject in elections preceding the decennial census in the years before *Baker v. Carr* 369 (1962) made redistricting mandatory. We show that after disaggregating by whether Republicans versus Democrats are the majority party there is a discontinuity in the conditional density of seats won by Democrats. We verify that the results are robust to an alternative running variable, the level rather than percentage of seats.

### 5.2 There is Precise Control but No Incumbency Advantage

As noted in Section 2 there is a difference between precise control (Definitions 2 and 3) and the oft-studied Incumbency Advantage (Definition 1). Figure 5 uses data on U.S. House races to illustrate the difference in the context of the well-known study of Lee (2008). The left-hand panel plots the average probability the Democrat wins the current
election as a function of the Democrat’s vote share (relative to the 50 percent threshold) in the previous election. When the share in the previous election crosses zero the Democrat discontinuously switches to contesting this election as the incumbent.\textsuperscript{16} At the threshold, the probability the Democrat wins the current election jumps from 0.25 to 0.65. This is the incumbent advantage.

By contrast, the right-hand panel plots the average probability the Democrat won the previous election as a function of the Democrat’s vote share in the current election. This is the analog to Figure 3, the Sorting Test, applied to individual House races. At the threshold, the Democrat switches from barely losing to barely winning this election. There is nothing like the large discontinuity visible in the left-hand panel. Democrats who barely win are no more likely to be the incumbent than Democrats who barely lose.\textsuperscript{17} In other words, individual incumbents are not able to sort themselves onto the winning side of the threshold. That is not surprising, as the mechanism proposed in Section 6 makes sense only in the context of an election that determines the number of seats won, not an individual race to determine which candidate wins.

We make the distinction clear in our context by estimating the direct analog of the left-hand panel of Figure 5 in our sample. Using the seats won by Democrats in the previous election as the running variable, we test for a discontinuity at the cutoff in the probability Democrats win a majority in the current election. Figure 6 shows the estimate for several choices of bandwidth (we decrease the bin size as the bandwidth shrinks to better display the raw data). At no choice of bandwidth is the estimate statistically significant, and it shrinks as the bandwidth narrows. This result stands in stark contrast to Figures 3 and 4, which show a large discontinuity at almost any choice of bandwidth.

\textsuperscript{16}Technically the Democrats become the incumbent party. The candidate is the incumbent assuming she seeks re-election.

\textsuperscript{17}As noted by Caughey and Sekhon (2011), at a very narrow bandwidth one can reject that there is no difference at the cutoff. But Eggers et al. (2015) have shown that this discontinuity is largely driven by a small number of outliers very close to the cutoff. The discontinuity does not survive a standard “doughnut-hole” test.
There is No Evidence of an Incumbent Party Advantage in High-Stakes Elections

Figure 6

These plots are the direct analog of the left-hand panel of Figure 5 when applied to high-stakes elections in our sample. We take the seats won by Democrats in the previous election as the running variable and test for a discontinuity at the cutoff in the probability Democrats win the current election. Bin sizes are (from left to right): 2, 1.5, 1.

These results imply that holding a bare majority does not help a party win a bare majority (or any majority) in future elections. Aside from showing the distinction between an incumbent party advantage and precise control, this result is suggestive about the mechanism for precise control. Simply having the Speaker’s gavel does not suffice. This is another major difference between our results and those of Folke et al. (2011), who find stronger evidence of an incumbent party effect than of precise control. That is not surprising, as in their context the mechanism for both is that control of government gives a party the power of patronage. In the pre-civil service reform elections they study, machine politics is a plausible mechanism for precise control.

That cannot be the mechanism in our post-reform sample. As we discuss in greater detail in Section 6, the key to precise control in our sample is that holding more (ideally many more) seats than the opposition enables the majority party to switch to defensive tactics. It sacrifices the chance of greatly expanding its majority in order to maximize the chance of retaining it. The absence of an incumbent party advantage also suggests why, as we show in Online Appendix A.1 (p. 38), there is no evidence of precise control in
the election before the high-stakes election. Figure 6 suggests winning a bare majority would be useless in helping subsequently contest the high-stakes election. In fact, the mechanism for precise control proposed in Section 6 implies the optimal strategy is to win as many seats as possible in the election prior to the high-stakes election. The larger its pool of incumbent legislators, the bigger its advantage in leveraging a majority-seeking strategy in the high-stakes election.

6 Mechanism: How Does the Majority Party Exert Precise Control, and Why Only in High-Stakes Elections?

At first glance the results of Section 5 are hard to reconcile. The party that holds a majority—or rather, the party that has more seats—is somehow able to exert precise control (Section 5.1). But it only chooses to do so in high-stakes elections—there is no evidence of precise control in low-stakes elections (Section 5.1). And even in high-stakes elections there is no evidence that holding a bare majority confers some sort of “incumbent party advantage” in winning seats or winning a majority (Section 5.2).

But as we show, theory—in particular, the model of Snyder (1989)—can reconcile these results. The model makes counter-intuitive predictions about how parties behave in a high-stakes election. We show that the patterns in the data are consistent with these predictions, at least for the Democratic party.

6.1 Theoretical Predictions: The Consequences of a Switch to Majority-Seeking Tactics

The first step to understanding our results is to understand how the chance to control Congressional redistricting changes the incentives of political parties. Clearly it increases the prominence of an election—what would otherwise be a state contest now
has national implications—but it also raises the benefit of winning even a bare majority. That may seem puzzling, as a majority is all that is needed to pass—or at least block—any law. Why not seek a bare majority in every election?

The key is that on issues of substance, a bare majority in the assembly need not translate to a bare majority for a vital piece of legislation. On tax policy, for example, legislators within a party may differ in their ideology about the size of government. Using measures of ideology from Bonica (2014) we find that in about half of state assembly elections, some elected Democrats were more conservative than at least 5 percent of elected Republicans. Such a Democrat may not side with her party on a substantive issue, making it unwise for party leadership to aim for retaining a bare majority.

But on a purely partisan issue—whether to enact a redistricting bill favorable to Democrats versus Republicans—party discipline is strong (see Online Appendix A.1, p. 38). Since defections are less likely, parties may find it worthwhile to maximize their chance of winning even a bare majority. This difference in objectives is the crucial distinction between what we call high-stakes and low-stakes elections.

When parties switch their goal from maximizing the number of seats won to maximizing the chance of holding a majority, both the optimal strategy and the outcome are drastically different. This is the key insight behind Snyder's (1989) model of legislative elections, which predicts much of what we see in the data. When maximizing the number of seats won, parties will direct their resources to districts where they are naturally the weakest (against an enemy incumbent, for example). Using money to compensate for other disadvantages equalizes the marginal return of each dollar, maximizing the average probability of winning any seat.

But when maximizing the probability of holding a majority, parties channel their funds to pivotal districts most likely to put them over the 50 percent threshold. Snyder (1989) shows what this strategy implies in the case where there are three types of districts: those relatively and uniformly safe for one party (which, in our application,
would be districts contested by that party's incumbents), those safe for the other party, and those where each party has an equal chance of winning (open districts). For the party that holds a majority before the election, and thus contests the election with more incumbents, the pivotal districts are actually those where its own incumbents are running. The party sends relatively little money to districts where it is challenging an opponent's incumbent. Though an extra dollar would have a bigger impact in these districts, they are unlikely to be part of the party's winning majority. To summarize, the majority party does exactly the opposite of what it would do if it were maximizing the number of seats won.

As a result, choosing this majority-seeking strategy comes at a cost. The party gives up the chance to win large numbers of seats, and may even lose seats. The party would have likely used a seat-maximizing strategy in the previous election (because, as noted above, holding a bare majority is usually not useful in passing legislation). Switching to a majority-seeking strategy might cause its majority to shrink, even though the chance it shrinks below 50 percent may be low. The trade-off can be phrased as one of risk versus reward; seat-maximization is a risk-neutral strategy while majority-seeking is a risk-averse strategy.

The impact of this change in strategy can be stark. Snyder (1989) calculates the relative probability of holding a majority under a functional form assumption that makes the problem tractable. He finds that if the majority party contests a 65-district state with 30 incumbents against 20 opposition incumbents, it can retain its majority with 92 percent probability. The size of the difference in the number of incumbents is crucial. If the majority party contests with a bare majority—say, 30 incumbents versus 29 for the opposition in a 65-district state—it retains its majority with only 56 percent probability. That is little different from the 50-50 chance of winning a majority when both parties

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\textsuperscript{18}Would the model also imply a discontinuity in the actual density of election outcomes? In the limit—in an arbitrarily large legislature—perhaps not. But our aim is not to make a hypothetical point that holds universally in any context, only to describe how an actual party might retain precise control of an actual legislature.
are equally matched. Holding a bare majority does not confer any discontinuous “in-cumbent party advantage.”

This chain of reasoning reconciles precise control in high-stakes elections with the absence of an incumbent party advantage. By switching to a majority-seeking strategy, the majority party can drastically reduce the chance it loses its majority. It only chooses to do so in a high-stakes election because these are the elections in which winning only a bare majority pays off. But it can only effectively pursue these strategies as long as it contests the election with a sizable majority. The model assumes no electoral benefit from simply being the ruling party. As a result there is no discontinuous increase in the chance of winning a majority in a future election when a party wins a bare majority in the current election.

6.2 Patterns in the Data: Evidence of a Switch to Majority-Seeking Tactics

6.2.1 The Majority Party Limits Losses Just Enough to Retain Control

Winning a majority does not necessarily imply winning more seats. We show in Appendix A.1.3 (p. 40) that the majority party retains control by either holding steady or even suffering some losses. The key prediction of the model is that there should be an asymmetrically low chance that these losses push the party’s returns below the cutoff for defeat. In a low-stakes election there should be a roughly equal chance that its losses are just small enough to retain the majority versus barely pushing it into the minority. But in a high-stakes election it will ensure these slightly larger losses are far less likely.

We look for evidence of this asymmetry by calculating the change in the seats won by Democrats compared to the election prior to the high-stakes election. It is essentially the seats gained by the Democrats. Figure 7 plots the histogram of the change within states where Democrats initially held the majority. The left-hand panel restricts
the sample to states where the Democrats contest the high-stakes election with an incumbent majority of less than 5 percent (meaning they won between 50 percent and 55 percent of the seats in the previous election). The right-hand panel restricts to elections where their majority is between 5 and 10 percent. The gray histogram shows the fraction of observations among low-stakes elections, while the black outline shows high-stakes elections.

The left-hand panel shows that although the modal low-stakes election features either no change or a slight (less than 2.5 percent) gain for the Democrats, there is a similar probability mass at nearby outcomes. There is a reasonable chance they will lose seats equal to between 0 and 5 percent of total seats, possibly costing them control of the legislature. But there is also a reasonable chance they will gain seats equal to between 2.5 and 10 percent of the legislature. By contrast, about half of high-stakes elections feature little or no change. The chance of losing a small (0-5 percent) number of seats is very small. But compared to low-stakes elections, they are also unlikely to win many seats (which was exactly the pattern noted above in Figure 12).

The right-hand panel is even more striking. As when they contest with a narrower majority, Democrats are most likely in high-stakes elections to see little or no change. But now the probability of a small loss (less than 2.5 percent of seats) is somewhat higher. Though the sample is admittedly small, this pattern is consistent with the theory that parties lose just few enough seats not to lose control. With an incumbent majority of 5 to 10 percent of seats, Democrats can afford to lose a few seats without losing control. But their chances of slightly larger losses that might put them just below the 50 percent cutoff remain low, as do the chances of substantial gains. The majority party is able to precisely limit its losses to ensure it remains in the majority.

The consequences of this precision are stark. The probability the lower house switches hands between elections falls from over 30 percent in low-stakes elections to less than 20 percent in high-stakes elections. Despite losing seats the majority party is much less
Figure 7
Democrats Hold Just Enough Seats to Retain Control

Note: We plot histograms of the percentage point change in the seats won by Democrats from the previous election to the current election \((X_{i,t} - X_{i,t-1})\), conditional on the size of their incumbent majority (the seats won in the previous election \(X_{i,t-1}\)). We restrict attention to observations that lie within the bandwidth used for Figure 3 to keep the histogram legible. The left-hand figure shows the histogram conditional on Democrats holding a majority of less than 5 percent of the assembly. The right-hand figure shows cases where their majority is slightly larger (5 to 10 percent).

likely to lose control.

6.2.2 Incumbents Are Less Likely to Retire in a High-Stakes Election

According to the theory, the strategy that achieves precise control relies heavily on having many incumbent legislators. A majority-seeking party should thus take special care to ensure these incumbents run for re-election. On average about 22 percent of lower house incumbents do not seek re-election. In part that is because many politicians see the lower house of the state assembly as a stepping stone to higher office. Among lower house members who won office in 2002, roughly 15 percent sought higher office over the next 10 years. Nearly 80 percent of them ran for the upper house of the state legislature, and over 10 percent ran for the U.S. House. Can such legislators be convinced to delay their ambitions for two more years?

Additional funding for state legislators may be enough to convince incumbents to run for re-election. An incumbent who knows she need not spend as much effort fundraising may be more willing to seek re-election. We show in Section 6.2.3 that total cam-
campaign receipts to state assembly candidates spike in closely-contested high-stakes elections. Alternatively, an incumbent may decide that her ambitions are best served by staying in office. If her plan is to run for the U.S. House, she may believe her run would be more successful after her party draws favorable Congressional boundaries.\textsuperscript{19} Alternatively, state and national political parties may pressure incumbents to delay seeking higher office. If running for higher office is easier with the support of the party, it may hold considerable leverage over an ambitious legislator.

Whatever the cause, we find a decrease in the incumbent exit rate in high-stakes elections, especially in those expected to be close. Define the percentage of Democratic incumbents as the percentage of seats won by Democrats in the previous election relative to the 50 percent threshold ($X_{i,t-1}$ in the notation of Section 3). When this percentage is close to zero, both parties contest with a similar number of incumbent legislators. These are cases where the outcome of the election may be particularly uncertain and thus heavily contested.

Figure 8 plots a moving local linear regression of the exit rate of incumbents against the percentage of Democratic incumbents.\textsuperscript{20} The rate of incumbent exit is lowest in high-stakes elections where neither party has a big advantage in the number of incumbents. Among Republicans the exit rate not only falls but falls almost one-for-one as their majority diminishes. This pattern suggests the number of legislators who choose to retire before a high-stakes election in part depends on the number of seats their party can afford to lose.

\subsection{6.2.3 Parties Spend More to Win High-Stakes Elections}

Most any model of electoral competition predicts that when the returns from winning increase, candidates and parties will spend more to win. Gerber (2004) and Gerber et al.\textsuperscript{19} For example, The Economist (2002) reports that after the 2000 Census the chairman of North Carolina's redistricting commission stood for office in a Congressional district he himself created.\textsuperscript{20} See Online Appendix A.1 (p. 38) for a slightly more rigorous check.
Figure 8
The Incumbent Exit Rate Falls in High-Stakes Elections

Note: We plot a moving local linear regression of the incumbent exit rate against the number of Democratic incumbents as a percentage of the total—to be precise, the percentage of seats won by Democrats in the previous election. The dashed lines give 95 percent confidence intervals.

(2011) report that randomized campaign mailings and television ads, two of the most common uses for campaign spending, can have substantial effects on vote totals. A basic test of the hypothesis is to confirm that when an election is very competitive and its outcome has high stakes, parties spend more in the hopes of winning.

Figure 9 plots a moving local linear regression of the total campaign contributions (by state) received by candidates for the lower house of the state assembly. Though this state-level sample is too small to make formal tests informative, the patterns are at least consistent with the theory. In high-stakes elections there is a spike in the total contributions to candidates in states where neither party has a large majority of incumbents. There is no similar spike in low-stakes elections. The spike is especially pronounced among Republicans. In states where they enter the high-stakes elections with a small majority of incumbents, their receipts among all candidates in the state spikes at roughly 10 million (in 1983 dollars). In low-stakes elections their receipts are only 3.5 million dollars.
6.2.4 When in the Majority, Democrats Direct Funds to Incumbents

The most interesting theoretical predictions, however, are about how parties change the targeting of their campaign spending. As explained in Section 6.1, when the majority party aims to maximize its chances of retaining a majority it should redirect funds to support incumbents. These seats are more likely to be in the set of districts that put the party over the 50% cutoff.

That is exactly what Democrats at least seem to do. Figure 10 plots the average contributions to Democratic incumbents from party committees as a function of the number of incumbents. It suggests these contributions are higher in high-stakes elections in states where Democrats already hold a majority. There is even some evidence that contributions are discontinuously higher, though this result should be treated with caution (recall that the sample of elections for which we have campaign finance data is small). Regardless of whether there is an actual discontinuity (which the model does...
Figure 10
Democrats Channel Funds to Incumbents in States Where they Hold a Majority

Note: Outcome is contributions to Democratic incumbents from Democratic party committees. Standard errors are clustered by state-redistricting cycle.

not require), the figure suggests Democrats are more likely to focus on protecting incumbents in states where they hold a majority—exactly as predicted. And as we show in Appendix A.1.5 (p. 44) party committees are more likely to concentrate their giving during high-stakes elections. That suggests they are concentrating on the bare subset of incumbents needed to hold power.

In unreported results we find that Republicans take a different approach to defending their majority, one outside Snyder’s model. They take the fight to the enemy, channeling funds to challengers in states controlled by Democrats. This asymmetry in strategies is not discussed in Snyder (1989), who restricts the discussion to symmetric strategy equilibria. The difference between the parties’ responses may be an asymmetric equilibrium of the model. It may also be beyond the model, which considers a single election in isolation, while in reality the parties must contest elections across many states simultaneously. The Republican approach may force the Democrats’ coordinating committees to pull funds from Democratic challengers in Republican-controlled states. These unfunded challengers may find it impossible to beat Republican incumbents, making
it possible for the Republican party to retain control by simply keeping the incumbents running for re-election (as Figure 8 suggests they do). Why Republicans are able to pursue this strategy while Democrats do not is beyond the scope of any formal model we are aware of, though it may arise from the difference in the funding structures of the two parties.22

7 Conclusion

Our results suggest the majority party is able to consistently win the precise number of seats needed to retain its majority. It manages this not through fraud but by targeting campaign spending to reinforce the already overwhelming strength of incumbents. These tactics reduce the number of seats it can expect to win while raising the probability it holds its majority.

It may seem that the ability to exert precise control is not relevant for policy. In the past, parties could not rely on passing substantive legislation with only a bare majority. But as state parties grow ever more ideologically polarized, party-line votes may become common. Eventually a bare majority may suffice to pass bills on taxes or health care, making precise control increasingly attractive and of immediate relevance to policy.

References


22Jacobson (1985) writes that Republicans have a higher “organization capacity.” Aside from being able to raise more money the Republicans also have “a more centralized and strategically efficient resource distribution system” that ensures challengers get the money they need.


