Do Voters or Politicians Choose the Outcomes of Elections? Evidence from High Stakes U.S. State Legislative Elections

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June 28, 2017
First Version: June 20, 2016

Abstract

We study whether political parties exert precise control over the outcomes of legislative elections. We test for discontinuities in two outcomes that, in the absence of precise control, should be smooth at the threshold that determines control of the legislature: the identity of the party that previously held a majority, and the probability density of the election outcome. We apply these tests to high-stakes state elections that determine which party controls Congressional redistricting. We find overwhelming evidence of precise control, suggesting the majority party can—through legal means—ensure it retains just enough seats to stay in power. (JEL Codes: D72,D73,J11)

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1 Introduction

Precise control, sometimes called “precise sorting” or “complete manipulation,” arises when an agent has both a means and an incentive to guarantee that some continuous outcome falls on one side of an arbitrary cutoff. A teacher might choose to grade leniently enough to ensure a student’s test score lands just above the cutoff for a passing grade. A worker might choose to work few enough hours to ensure her income falls just below the cutoff for a housing subsidy. Many studies test for precise control at such cutoffs to better understand how agents make choices.¹

Our study differs in but one key respect: the outcome we study is the outcome of an election. It is clear that a political party wants to ensure it wins enough seats to hold a majority. But in the absence of poll rigging, the outcome of an election is not considered the choice of politicians. They can influence the outcome by fielding better candidates or buying more ads. But the final outcome, chosen by the electorate, is uncertain. Such uncertainty should make it impossible for the majority party ensure it wins the precise number of seats needed to retain control. Though it surely has the incentive, it is typically assumed to lack the means.

This paper presents evidence to the contrary. We show that political parties can exert remarkably precise control over the outcomes of elections even in a democracy as mature as the United States. We study not the outcomes of individual races, which may have little import for policy, but the aggregate outcome that determines which party controls the lower house of a state legislature. We show that when the stakes are sufficiently high the party that holds a majority before the election can, with exceptional precision, choose a set of unfavorable outcomes and drastically reduce their likelihood. These are precisely the outcomes that lie below the 50 percent threshold. Though the majority party may lose seats, it loses just few enough not to lose control of the legislature. We do not claim it rigs the election. Rather we argue that by changing the intensity and tactics of its electioneering it can influence the outcome with a comparable degree of precision.

We subject election outcomes to two tests for precise control of a contin-

¹See Section 1.1 for a partial review of this literature.
uous variable, both adapted from the literature on regression discontinuities. The first, adapted from McCrary (2008), tests for a discontinuity in the probability density of the percentage of seats won by the party that held a majority before the election. If this party cannot exert precise control, the density should be smooth at the cutoff where the party loses its majority. A party that holds a majority of 50 seats, for example, should be almost equally likely to lose 50 seats as 49 seats. If it is far more likely to lose 49 seats, that is evidence of precise control. The second test is based on the idea that in the absence of precise control, any pre-determined outcome—in our case, the probability that Democrats previously held a majority—should be smooth around the cutoff where Democrats win a majority. This test is akin to asking if Democrats are far more likely to have previously held a majority in states where they win 51 percent versus 49 percent of the seats. Neither test will reject as long as there is meaningful uncertainty about the election outcome, and this uncertainty has a smooth distribution. A rejection suggests the majority party has sufficiently warped the distribution to introduce a discontinuity, which appears at precisely the point that would cause it to lose its majority.

Could such a discontinuity be a natural feature of elections rather than the result of conscious effort by the majority party? We answer this question by exploiting differences in the stakes of elections. We compare the outcomes of regular, “low-stakes” elections to those of “high-stakes” elections in which the benefit of winning even a bare majority is especially high. If the probability density of election outcomes is naturally discontinuous our tests should reject in every election. But if they reject only in high-stakes elections it suggests precise control is no accident but a strategic choice.

High-stakes elections arrive every ten years through a quirk of American political institutions: Congressional redistricting. By law each state must redraw the boundaries of its Congressional districts every ten years. These boundaries determine how many left- or right-leaning voters a candidate will face. The party that controls redistricting can potentially redraw boundaries to favor its own candidates, reaping a windfall in Congress. In most states the redistricting plan is passed as regular legislation by the state legislature. The party that controls any chamber of the legislature—in particular, the lower house—has at
least a veto over any redistricting plan.\textsuperscript{2}

It is the state assembly election just prior to decennial redistricting that determines which party controls redistricting. Winning these elections is a priority not only for state legislators but the national political parties, which raise and channel vast sums of campaign contributions. The costs of losing control of redistricting serve to raise the salience of the 50 percent threshold. Campaign contributions, as our results suggest, are a plausible means by which parties can achieve precise control.

We find strong evidence of precise control in high-stakes elections. There is a clear discontinuity in the probability density of election outcomes. A narrow victory for the majority party is almost 4 times as likely as a narrow defeat. The probability that Democrats held a majority in the previous election jumps by 44 percent at the cutoff. These discontinuities suggest the majority party is able to ensure with great precision that it remains on the proper side of the cutoff. These large and statistically significant discontinuities appear only in high-stakes elections. In low-stakes elections that do not determine control of redistricting, there is no evidence of a discontinuity.

To understand how the majority party achieves precise control, consider how its objective changes in a high-stakes election. The most obvious change is that the outcome of the election is more important to more people. In a low-stakes election the outcome is important to the local Republican and Democratic parties, but may not be as important to national party committees or other outside donors. But when control of Congressional redistricting is at stake, a state election may have national consequences. That may explain why in high-stakes elections we find a massive increase in the total campaign contributions flowing to state legislative elections. This increase is especially high in states where the incumbent majority of the ruling party—the relative number of seats won in the previous election—is narrow. Either in response to this largess or because of arm-twisting by party committees, we also find a decrease in the rate at which incumbent state legislators choose not to seek re-election. Given that incumbents have a 93 percent chance of re-election, inducing them to seek re-election already gives the majority party a big advantage.

\textsuperscript{2}Many states also attempt at this time to redraw the boundaries of state legislative districts, possibly raising even further the stakes for retaining control.
The second change in objectives is more subtle: whereas in a regular election the party may aim to maximize the number of seats it wins, in a high-stakes election it should maximize the probability of retaining a majority. Political scientists have noted that under some circumstances a political party will switch its aim from “seat maximization” to “majority-seeking” (Makse, 2014). As shown by Snyder (1989), these objectives are best met through different strategies.

To see why, consider a simple example. Suppose the legislature has 3 seats, which the majority party may contest with either of two strategies. It can spread its resources equally across all three, winning each with 80 percent probability; or it can concentrate on two of the three seats, winning those with certainty while losing the third with certainty. If its objective is to maximize the number of seats won it will spread its resources evenly, which in expectation yields 2.4 seats versus 2. But if its objective is to maximize the probability of holding a majority it will concentrate its resources, retaining control with probability 100 percent versus 90 percent.

There is evidence of a concentration of resources in the data. The Democrats in particular ramp up the funds channeled from their party committees to incumbents in states where they hold a majority, especially when that majority is narrow. Even among incumbents they concentrate far more resources on some races than others, consistent with the aim of maximizing the probability of retaining a majority.

Our key contribution is to show that the majority party in a U.S. state election can, through legal but costly means, hang onto precisely the number of seats it needs to retain its majority. It is not surprising that the majority party would strive for this outcome or that it would use these means. What is surprising is the extent to which it succeeds. It is able to convert campaign spending and the individual popularity of its incumbent legislators into a tool that makes a precise set of outcomes discontinuously unlikely. At the cost of potentially losing seats it maximizes the probability that these losses are just small enough to preserve its majority. Perhaps most striking is that this discontinuity in the distribution of outcomes appears only in those elections where parties need it the most, suggesting its presence is their choice. Though it is ultimately voters who decide an election, political parties can influence their collective decision with scientific precision.
1.1 Related Literature

This paper most directly contributes to the literature on how politicians use legal or illegal means to retain elected office. This literature has found that incumbents will increase spending in election years (Nordhaus, 1975; Drazen and Eslava, 2010); allocate jobs, public goods or popular reforms to swing districts (Folke et al., 2011; Bardhan and Mookherjee, 2010; Baskaran et al., 2015; Nagavrapu and Sekhri, 2014); exploit the control of one level of government to increase the odds of winning at another (Curto-Grau et al., 2011); or alter the electoral system to marginalize opposition (Trebbi et al., 2008).

But other work has shown that such tactics may fail or even backfire in mature democracies or in the presence of independent institutions (Peltzman, 1992; Akhmedov and Zhuravskaya, 2004; Brender and Drazen, 2008; Matsusaka, 2009; Durante and Knight, 2012; Fujiwara and Wantchekon, 2013). Our work suggests these may simply be the wrong tactics for a mature democracy. By exploiting campaign financing and the overwhelming electoral advantage of incumbent candidates, the ruling party can maintain its majority.

Methodologically our paper is most similar to the recent literature in political science on whether outcomes of close elections are as good as random. Using an approach similar to ours, 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.

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 work suggests such tactics are so effective that outcomes short of winning a majority are made discontinuously unlikely.

Our paper also builds on the vast literature on precise control and sorting. This literature has found that households adjust their actions to barely meet the criteria for social programs (Dillender, 2016; Camacho and Conover, 2011; Manoli and Weber, 2014; Persson, 2014) or health insurance (Einav et al., 2015, 2016). There is a vast literature in public finance studying how households and firms bunch at kinks and notches induced by tax policy (Kleven and Best, 2016; Kopczuk and Munroe, 2015; DeFusco and Paciorek, forthcoming; Saez, 2010; Kleven and Waseem, 2013). Other work studies bunching caused by policies governing the environment (Ito, 2014; Ito and Sallee, 2014), business (Garicano et al., 2013; Harasztosi et al., 2015; Le Barbanchon, 2016), or education (Diamond and Persson, 2016). In all of these cases the outcome being manipulated is one clearly under the control of the agent. Our study differs in that our outcome, the seats won in an election, is one generally not thought possible to manipulate.

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, 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.

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3 There is a related but distinct literature on incumbent redistricting. Abramowitz et al. (2006), Friedman and Holden (2009), and Carson et al. (2014) study whether politicians redraw districts not to favor one party but to favor incumbents of all parties.
2 Testing for Precise Control by the Majority Party

Our tests for precise control are adapted from the literature on regression discontinuity designs and bunching. In this section we show, first through intuition and then through a simple model, how these tests should be interpreted when the outcome of interest is the outcome of an election.

2.1 Interpreting the Tests: Intuition

The outcome of an election depends in part on the efforts of politicians. The majority party can improve its expected seat total by backing better candidates, crafting a better platform, or spending more funds. But as long as there is uncertainty in the outcome, the actual number of seats won will follow some distribution. Figure 1.a shows an example of such a distribution. There is no reason to expect the random component of the outcome to respect the arbitrary cutoff that determines whether the majority party retains control of the legislature. As long as the uncertainty is “smooth” (the probability density is continuous), the probability that the majority party wins slightly less than half the seats should be roughly equal to the probability it wins slightly more than half. More spending or better candidates may shift this distribution, but it should remain smooth at the cutoff.

What would it mean if, as in Figure 1.b, the distribution of outcomes is not smooth at the cutoff? A smooth distribution of outcomes is implied by a smooth distribution in the uncertainty. A lack of smoothness implies either a lack of uncertainty or that the majority party has introduced a discontinuity in the distribution of uncertainty at precisely the point that would cause it to lose its majority. The majority party has selected the precise set of outcomes just below the cutoff and either ruled them out entirely for some fraction of elections, or lowered the probability for all elections. If we reject smoothness at the cutoff, it implies that the majority party is somehow able to ensure the number of seats won is just high enough to retain control. That is the intuition behind the Density Test.

4These two scenarios are observationally indistinguishable—the model of Section 2.2 illustrates the first scenario.
Though simple in theory, the Density Test requires an estimate the probability density of the percentage of seats won by the majority party. As we explain in Section 3, estimating this density requires restricting the sample and choosing multiple tuning parameters. An alternative approach that avoids these issues is to test for a systematic difference in states where Democrats manage a narrow victory versus those where they suffer a narrow defeat. If these states differ on some pre-determined characteristic—in particular, whether the Democrats won a majority in the previous election—it suggests states are being “sorted” across the threshold based on the identity of the majority party.

To see why, consider observing the percentage of seats won in the lower house by Democrats in an unknown state in an unknown year. Given only this information, how would the optimal prediction of whether the Democrats held a majority before the election vary with their returns? Clearly the probability would increase with their returns. A state that elected many Democrats this election probably did so in the previous election, making it more likely they held a majority.

But the prediction should not change *discontinuously* when their winnings
surpass 50 percent. If the Democrats held a majority before the election, they should not be far more likely to eke out a bare win (say, 50 out of 99 seats) versus a bare loss (49 out of 99 seats). The same is true if the Democrats did not hold a majority before the election. Sheer chance should make a bare win and a bare loss almost equally likely. If $BW$ and $BL$ denote a bare win or bare loss, and $D$ the event that Democrats previously held a majority, then Bayes’ Law implies

$$Pr(D|BW) = \frac{Pr(BW|D)Pr(D)}{Pr(BW|D)Pr(D) + Pr(BW|D^c)Pr(D^c)}$$

$$Pr(D|BL) = \frac{Pr(BL|D)Pr(D)}{Pr(BL|D)Pr(D) + Pr(BL|D^c)Pr(D^c)}$$

In the absence of precise control, $Pr(BW|D) \approx Pr(BL|D)$ and $Pr(BW|D^c) \approx Pr(BL|D^c)$. Then these two expressions are approximately equal, implying the optimal prediction should not change discontinuously when the Democrats’ margin crosses zero. If the optimal prediction does change discontinuously it implies the Democrats are far more likely to barely win when they are the majority party, and to barely lose when they are the minority party.

### 2.2 Interpreting the Tests: Formal Model

The two parties contest a unit measure of elections identified by the state $i$ and election-year $t$. The outcome of interest is the number of seats won by Democrats as a percentage of the total relative to the 50 percent cutoff. In the absence of precise control they win

$$X^*_{i,t} = \alpha(2M_{i,t-1} - 1) + v_{i,t}$$ (1)

where $M_{i,t-1}$ is a dummy for whether the Democrats held a majority before the election and $v_i$ is a mean zero shock to the outcome. Assume $v_{i,t}$ is independent of $M_{i,t-1}$ and distributed according to the cumulative distribution function $F$, which is everywhere twice-continuously differentiable. The term $\alpha > 0$ gives the expected seats (relative to the 50 percent cutoff) of the party that holds a majority before the election.

For simplicity this model assumes away many features of an actual election. But one could allow the outcome to vary with demographics or the state of the
economy, allow the advantage of the majority party to vary continuously with
the number of incumbents, and allow the parties to influence the outcome
through their choice of platform or through electioneering. For example, one
could add a function \( h(Z_{it}) \) to (1), where \( Z_{it} \) is a vector containing all these fac-
tors. As long as \( Z_{it} \) does not contain any function of \( v_{i,t} \)—that is, no one is able
to perfect foresee and condition actions on the realized value of \( v_{i,t} \)—the results
that follow will hold.\(^5\)

Suppose the majority party can exert precise control over the outcomes of
a fraction of elections \( \kappa \). Let \( C^D \) and \( C^R \) be the set of elections controlled by
Democrats and Republicans. Let \( m(\cdot) \) denote a measure defined over sets of
elections. Then \( C^D \) and \( C^R \) satisfy

\[
m(C^D) = m(C^R) = \kappa
\]

and

\[
\{ i \in C^D_i \mid M_i = 0 \} = \{ i \in C^R_i \mid M_i = 1 \} = \emptyset
\]

When the majority party controls the outcome of election \( i \) it wins \( u^C_{i,t} \) seats,
which has a uniform distribution over half-open interval \([0, \nu)\) for a small num-
er \( 0 < \nu < 1 \).\(^6\) Then the realized outcome is

\[
X_{i,t} = \begin{cases}
  u^C_{i,t} & \text{if } i \in C^D \\
  -u^C_{i,t} & \text{if } i \in C^R \\
  X^*_i & \text{otherwise}
\end{cases}
\]

Then the following lemma holds:

**Lemma 1** If \( \kappa = 0 \) then \( X_{i,t} \) has an absolutely continuous conditional distribution function \( G(X_{i,t} \mid M_{i,t-1}) \). The conditional density \( g(X_{i,t} \mid M_{i,t-1}) \) is continu-

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\(^5\)McCrary (2008) notes the difference between “partial” and “complete” manipulation, where complete manipulation implies the running variable is completely controlled by the agent. The agent can only exert precise control in the case of complete manipulation. If the majority party has perfect foresight it can condition its choices on the realized value of \( v_{i,t} \), which puts the running variable under its complete control. But as long as there is any noise in its prediction of \( v_{i,t} \), some part of the running variable is outside its control.

\(^6\)We assume a uniform distribution only for concreteness. As long as the density of \( u^C_{i,t} \) (call it \( \phi \)) has support at 0 and \( \phi(0) > \phi(-\nu) \) for arbitrarily small \( \nu \), the result holds.
ous at $X_{i,t} = 0$. Finally,

$$\lim_{x \to 0} \left\{ \mathbb{E}[M_{i,t-1} \mid X_{i,t} = x] - \mathbb{E}[M_{i,t-1} \mid X_{i,t} = -x] \right\} = 0$$ (2)

**Proof:** If $\kappa = 0$ then $G(X_{i,t} \mid M_{i,t-1}) = G(X_{i,t}^* \mid M_{i,t-1}) = F\left[X_{i,t}^* - \alpha(2M_{i,t-1} - 1)\right]$ which is twice-continuously differentiable. Then the other results follow from Proposition 2 from Lee (2008). □

Equation 2 states that, in the limit, the optimal prediction of whether the Democrats were the majority party before the election is similar on either side of the threshold. To be precise, it should not change discontinuously when the Democrats switch from losing to winning the election. This result is akin to the falsification test used to verify a regression discontinuity design. If the design is valid—that is, if there is no precise control of the running variable—no predetermined outcome should change at the threshold.

To derive a test for precise control, take the contrapositive of Lemma 1.

**Test 1 (Sorting Test)** If

$$\lim_{x \to 0} \left\{ \mathbb{E}[M_{i,t-1} \mid X_{i,t} = x] - \mathbb{E}[M_{i,t-1} \mid X_{i,t} = -x] \right\} \neq 0$$ (3)

then the majority party can exert precise control over a strictly positive fraction $\kappa > 0$ of elections.

Though this test is standard in the literature on regression discontinuity design, the model clarifies what it means to reject the null when the running variable is the outcome of an election. Rejection does not imply that the majority party merely has an advantage in winning elections, which is true as long as $\alpha > 0$ regardless of whether $\kappa > 0$. Rather a rejection implies that the majority party has discontinuously reduced the probability of an unfavorable outcome.\(^7\)

As noted in the introduction, it implies the majority party can exert precise control over the outcome.

Lemma 1 implies another test based only on the density function of a suit-

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\(^7\)In this model we assume the probability falls discontinuously to zero for the set of elections that are controlled. We could instead assume the probability of $u_{i,t}^C < 0$ is positive but strictly less than the probability $u_{i,t}^U = 0$. In our dataset these two scenarios would be observationally equivalent.
able transformation of $X_{it}$. Define

$$\tilde{X}_{i,t} = \begin{cases} 
X_{i,t} & \text{if } M_{i,t-1} = 1 \\
-X_{i,t} & \text{if } M_{i,t-1} = 0
\end{cases}$$

which gives the seats won by whichever party held a majority before the election. Lemma 1 implies that in the absence of precise control $\tilde{X}_{i,t}$ has a probability density $h(\tilde{X}_{i,t})$ that is continuous at 0. The contrapositive of this statement is

**Test 2 (Density Test)** If $h(\tilde{X}_{i,t})$ is discontinuous at $\tilde{X}_{i,t} = 0$ then the majority party can exert precise control over a strictly positive fraction $\kappa > 0$ of elections.

This test is based on the usual check for a discontinuity in the density of the running variable (McCrary, 2008). The key, as noted first in Caughey and Sekhon (2011), is that even in the presence of precise control there may not be a discontinuity in the density of the original running variable $X_{i,t}$. That is because Lemma 1 deals only with the conditional density $g(X_{i,t} \mid M_{i,t-1})$. But since the definition of $\tilde{X}_{i,t}$ is itself is conditioned on $M_{i,t-1}$, precise control would create a discontinuity in its unconditional density $h(\tilde{X}_{i,t})$.

### 3 Research Design

#### 3.1 High-Stakes Elections

The tests proposed in Section 2 assume under normal circumstances the uncertainty in election outcomes has a smooth distribution. If the distribution is generally not smooth or the outcomes of elections are predictable, a discontinuity may be a natural feature of democracy. The problem is compounded by the fact that in a legislature with a finite number of seats, the running variable—the percentage of seats won by Democrats—is to some extent discrete. Our solution is to compare the outcome of the tests across elections that differ in the stakes for winning a bare majority. If a discontinuity only appears in elections where the stakes are high, it is likely not natural but the result of conscious effort by political parties. High-stakes elections arise through a natural experiment created by
the opportunity to control Congressional redistricting.\textsuperscript{8}

Why does the chance to control Congressional redistricting raise the stakes of an election? As noted in the introduction, the boundaries of a district may be drawn to favor one party over another. To see how, suppose there is a state that contains 6 likely Democratic voters and 3 likely Republican voters. These voters must be divided evenly into 3 Congressional districts. In Plan 1 each district contains 2 Democrats and 1 Republican. In Plan 2 all the Republicans are put into a single district while the other voters are put into the other districts. Though the total number of Democratic and Republican voters is held fixed, under Plan 1 the Democrats win all three seats while under Plan 2 the Democrats win only two seats. Clearly Democrats prefer Plan 1 while Republicans would prefer Plan 2.

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.\textsuperscript{9} Control switches discontinuously away from Republicans when Democrats win at least 50 percent of seats. Regardless of which party controls the other branches, if Democrats control the lower house they can vote down any unfavorable redistricting plan. As we show in Appendix A.1, 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 2, the census is completed in years ending in 1.\textsuperscript{10} Whichever party wins the

\textsuperscript{8}In the language of Section 2, testing for an absence of discontinuities in low stakes elections is implicitly a test of whether \( v \) is non-degenerate and \( F \) is twice continuously differentiable.

\textsuperscript{9}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.

\textsuperscript{10}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
Figure 2
Redistricting Cycle

In most states:
State legislature proposes redistricting plan as a regular law

1970 1980
Early 1971: Decennial Census Completed
Elections to state legislature [High stakes election]
Assembly serves…

1972: First U.S. House election under plan passed in 1971

1980: Last U.S. House election under plan passed in 1971
Cycle Repeats…
More elections to state legislature [Low stakes elections]

Note: The figure shows the redistricting cycle for a typical state (i.e. a state with lower house elections in even years).

Election to the state legislature just before this year has the opportunity to pass its own redistricting plan.11

This accident of timing raises the stakes of these elections. Even though the local party in each state may care about retaining control of the legislature in any election, the full resources of the national Republican and Democratic parties will likely be marshaled only when state elections have consequences for national elections. As we show in a companion paper (Jeong and Shenoy, 2017), partisan control of redistricting brings immediate benefits to Congressional candidates of the party in power. That implies national parties have a higher stake in elections that determine which party controls Congressional redistricting.

Statements from national party officials show that they are well aware of the stakes:

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.

11In 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.
“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)

As we show, the consequences of the parties’ response to these heightened stakes are dramatic.

### 3.2 Implementing the Tests

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

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

(4)

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. This ensures \(X_{i,t} = 0\) is the fewest number of seats Democrats can win without becoming the minority.\(^{12}\)

To apply the Sorting 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, choosing an “optimal” bandwidth is complicated. The most widely-cited methods disagree on the optimum. Instead, 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 robust to any reasonable bandwidth. As in Section 2.2, 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

\[
M_{i,t-1} = \gamma_0 + \gamma_1 X_{i,t} + \gamma_2 X_{i,t} M_{i,t} + \beta M_{i,t} + [\text{Error}]_{i,t}
\]  

(5)

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 \(\mathbb{E}[M_{i,t-1} | X_{i,t} = x]\). 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

\(^{12}\)In states where there is an even number of seats, a value of zero implies neither party is either the majority or the minority party. Democrats effectively have a veto over redistricting. For example, after the 2000 election left Washington with a perfectly divided house the two parties elected co-speakers and assigned each committee co-chairs from the two parties.
DO VOTERS OR POLITICIANS CHOOSE THE OUTCOMES OF ELECTIONS?

We apply the Density Test (Test 2) by running a standard McCrary Test (2008) on $\tilde{X}_{i,t}$, the seats won by whichever party held a majority before the election. Defining this transformation of $X_{i,t}$ creates a challenge because it is not clear how to handle cases in which there are independent legislators (neither Democrats nor Republicans). Thus, for Test 2 we drop all elections in which independents won seats in either the current or the previous election. We define

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

(6)

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 becoming a minority.

Actually applying the test raises another challenge: testing for a discontinuity in the density of $\tilde{X}_{i,t}$ requires estimating the density, which requires choosing both a bandwidth and a bin size. This is especially problematic because applying to our sample the rule-of-thumb suggested by McCrary (2008) yields a bin size that, as per McCrary’s guidelines, is too large relative to the bandwidth. Instead 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 that the results are robust to different bin sizes and bandwidths. However, these two limitations of the Density test make the Sorting Test more reliable and thus our preferred test.

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. In the early part of the past century, many state legislatures left district lines unchanged to avoid making incumbents face new voters. Only after the Supreme Court ruled in *Baker v. Carr* 369 (1962) and *Wesberry v. Sanders* 376 (1964) that their failure to redistrict was unconstitutional
did states apportioned more than one Congressional district start redistricting regularly.

We restrict our attention to elections after 1962, the year of *Baker v. Carr* 369 (1962), which yields 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. Not all states allow their Congressional districts to be drawn by the state legislature. The exceptions are generally independent or appointed commissions. There is some ambiguity about how to handle cases where states adopt a commission. In our main sample we discard all elections after a state adopts a commission (as per Levitt, 2016). In Online Appendix A.4 we show that the results do not change when we handle these states differently. We also discard states that have only a single House representative, as these states have a single district comprising the entire state. 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 show in Online Appendix A.4 that the main results do not change under any of several different assumptions.

We draw on data for campaign finances and career paths for state legislators from Bonica (2013). These data are available for state legislators in an expanding number of states starting in 1990 through 2012. 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.

Table 1 reports several summary statistics. At first glance low- and high-stakes elections seem similar in many respects. As our later results show, the aggregate statistics mask how parties change their tactics when a low-stakes versus a high-stakes election is expected to be close. But even the sample means

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14Alaska, 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.

15There 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. We show in Online Appendix A.4 that including them does not much change the results.
DO VOTERS OR POLITICIANS CHOOSE THE OUTCOMES OF ELECTIONS?

Table 1
Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>Low-Stakes Elections</th>
<th>High-Stakes Elections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Democrats win</td>
<td>0.66</td>
<td>0.63</td>
</tr>
<tr>
<td>Democrats held prior majority</td>
<td>0.66</td>
<td>0.69</td>
</tr>
<tr>
<td>Seats Won by Democrats*</td>
<td>7.69</td>
<td>7.66</td>
</tr>
<tr>
<td>Democrats Remain Majority</td>
<td>0.88</td>
<td>0.88</td>
</tr>
<tr>
<td>Democrats Remain Minority</td>
<td>0.77</td>
<td>0.90</td>
</tr>
<tr>
<td>Incumbent Re-Election Rate**</td>
<td>0.94</td>
<td>0.93</td>
</tr>
<tr>
<td>Total Receipts**</td>
<td>36564</td>
<td>36951</td>
</tr>
<tr>
<td>Party Committee Contributions***</td>
<td>4785</td>
<td>5531</td>
</tr>
<tr>
<td>Presidential Election</td>
<td>0.48</td>
<td>0.34</td>
</tr>
<tr>
<td>Elections</td>
<td>796</td>
<td>201</td>
</tr>
<tr>
<td>State-Redistricting-Cycles</td>
<td>242</td>
<td>201</td>
</tr>
</tbody>
</table>

*As a percentage of the total seats in the assembly, relative to the 50 percent threshold
**Based on elections from 1967 to 2010
***Based on elections after 1990 (mostly from 2000–2012), excluding odd-year election states

Note: Each cell gives the mean among either low- or high-stakes elections in the sample. “Democrats win” refers to their winning at least 50% of seats in the current election, while “Democrats held prior majority” refers to their having done so in the previous election. The margin is defined as the percentage of seats held by Democrats beyond the minimum number needed to give them at least 50% of the seats. “Democrats Remain Majority” is the fraction of elections in which Democrats win the current election conditional on having won the previous election. “Democrats Remain Minority” is the fraction in which they lose the current election conditional on having lost the previous election.
show a few key differences that foreshadow our later results. First, conditional on Democrats being in the minority, the probability that they remain so rises from 77 percent in low-stakes elections to 90 percent in high-stakes elections. Second, although average total campaign receipts to lower house legislators are broadly similar, contributions from party committees rise by roughly 16 percent in high-stakes elections. Party committees, which might be expected to give more strategically than regular donors, are increasing their involvement in these critical elections.

The last row of the table shows what fraction of high- and low-stakes elections coincide with presidential elections. One might worry that high-stakes elections are all presidential elections, and that the results have little to do with control of redistricting. In fact neither low nor high-stakes elections are dominated by presidential elections, and in our sample high-stakes elections are slightly less likely to be presidential elections.

Finally, the incumbent re-election rate, though similar across high- and low-stakes elections, is crucial to understanding how a majority party exerts precise control. The average incumbent re-election rate (conditional on the incumbent seeking re-election) is over 93 percent. This number, comparable to what Friedman and Holden (2009) find for U.S. House races, is extraordinary. It suggests the majority party has an enormous advantage in contesting elections if it simply convinces its incumbents to seek re-election.

5 Main Results: Can Parties Exert Precise Control?

5.1 Tests for Precise Control

We apply the Density Test (Test 2), 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. The left-hand panel of Figure 3 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 3, 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 not only on bandwidth but bin size. We show in Appendix A.2 that across different combinations of bandwidth and bin size the results are robust.

Nevertheless for a more robust confirmation of the result we turn to the Sorting Test (Test 1), which is depicted in Figure 4. 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 this election, that the democrats were the majority party before the election. We estimate Equation 5 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 5) 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 held a majority before the 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 2 reports the estimates from the baseline specification and several robustness checks. Columns 1 and 2 give the same baseline estimates shown in Figure 4. 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
DO VOTERS OR POLITICIANS CHOOSE THE OUTCOMES OF ELECTIONS?

### Table 2
Sorting Test: Main Results and Robustness

<table>
<thead>
<tr>
<th>(1) Low-Stakes</th>
<th>(2) High-Stakes</th>
<th>(3) Low-Stakes</th>
<th>(4) High-Stakes</th>
<th>(5) Low-Stakes</th>
<th>(6) High-Stakes</th>
<th>(7) Low-Stakes</th>
<th>(8) High-Stakes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discontinuity</td>
<td>0.095**</td>
<td>0.422**</td>
<td>0.119***</td>
<td>0.540***</td>
<td>0.072***</td>
<td>0.419***</td>
<td>-0.106***</td>
</tr>
<tr>
<td>(0.080)</td>
<td>(0.136)</td>
<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>
<tr>
<td>Observations</td>
<td>535</td>
<td>138</td>
<td>466</td>
<td>119</td>
<td>468</td>
<td>121</td>
<td>528</td>
</tr>
<tr>
<td>Clusters</td>
<td>178</td>
<td>138</td>
<td>163</td>
<td>119</td>
<td>154</td>
<td>121</td>
<td>176</td>
</tr>
<tr>
<td>Control Mean</td>
<td>0.48</td>
<td>0.35</td>
<td>0.46</td>
<td>0.27</td>
<td>0.48</td>
<td>0.31</td>
<td>0.71</td>
</tr>
<tr>
<td>Test: Low=High</td>
<td>0.06</td>
<td>0.02</td>
<td>0.06</td>
<td>0.06</td>
<td></td>
<td></td>
<td>0.09</td>
</tr>
</tbody>
</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 4. “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.

The U.S. Department of Justice (as per Section 5 of the 1965 Voting Rights Act). Columns 5 and 6 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). Nevertheless, the coefficient 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 5 shows that our results are not driven by the choice of bandwidth. We re-estimate Equation 5 for every bandwidth $h = \{4, 4.5, \ldots, 21.5, 22\}$. We plot the regression discontinuity estimate and the 90 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

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16 These are Alabama, Alaska, Arizona, Georgia, Louisiana, Mississippi, South Carolina, Texas, and Virginia.

17 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.
contrast, there is always a large discontinuity in high-stakes elections, though the estimates grow large and noisy when the bandwidth falls below 10.

We also report in Appendix A.1 several other tests to verify our interpretation. We show that Test 1 does not reject in elections preceding the decennial census in the years before Baker v. Carr 369 (1962) made redistricting mandatory. We show that Test 1 still does not reject in low-stakes elections when they are disaggregated by 1 election prior to high-stakes, 2 elections prior, and so on. We show using rolling regressions that the estimate of (5) in high-stakes elections is reasonably consistent over time (there is some slight evidence it may have grown smaller in recent years). Finally, 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 $g(X_{i,t} \mid M_{i,t-1})$. 

Note: Figure plots the estimate and confidence interval for the discontinuity using every bandwidth $h = \{4, 4.5, \ldots, 21.5, 22\}$. Standard errors are clustered by state-redistricting cycle.
5.2 Winning Seats Versus Winning Control

The key to understanding the main result is that precise control does not necessarily imply winning many seats. The optimal strategy may require the majority party to, in expectation, lose seats. The goal is to maximize the probability that it loses just few enough to still retain its majority.

This pattern is visible in the data. We calculate the change in the seats won by Democrats from the election prior to the high-stakes election. It is essentially the seats gained by the Democrats. Figure 6 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 density among low-stakes elections, while the red shows high-stakes elections.

The left-hand panel shows that although the modal low-stakes elections 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 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 seats.

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 no change. But now the probability of a small loss (less than 2.5 percent of seats) is substantial. 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.

Figure 7 links this phenomenon back to our main result by plotting Democrats’ gains not against the outcome of the previous election but the outcome of the
current election. Like Figure 4, it divides elections into bins based on the outcome. For any outcome it plots the fraction of those outcomes that arose because the Democrats gained seats greater than or equal to 5 percent of the total seats in the legislature.

In low-stakes elections there are two clear patterns. First, a sizable fraction of elections where Democrats win a majority arose because Democrats gained seats. Compared to the elections they lose, the elections they win are more likely to have been won by making gains. Second, a comparable fraction of elections barely won and barely lost by Democrats arose through Democratic gains—there is no evidence of a sharp change at the cutoff.

Both patterns are reversed in high-stakes elections. Elections where Democrats win a majority are far less likely to have been won because Democrats made gains. In high-stakes elections Democrats win a majority by either losing seats to Republicans (though not enough to lose their majority) or because neither party makes meaningful gains. The most extreme example is the set of elections where Democrats win a slim majority of less than 5 percent of seats, which never arise through Democratic gains. That implies Democrats almost never win a slim majority by taking control from Republicans. By contrast nearly 20
percent of elections barely lost by Democrats arise because Democrats make gains, creating a large discontinuity in the graph. This discontinuity implies that although Democrats do make gains in states where Republicans hold a majority, these gains are never quite large enough to let them take control.

The consequences are visible in Figure 8, which shows the probability that the lower house switches hands between elections. We define a switch as any event where the Democrats win a majority in this election but not the previous election, or vice-versa. The probability of a switch 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 likely to lose control.

6 How Do Parties Change their Actions to Achieve Precise Control?

Since precise control occurs only in high-stakes elections, it is likely the result of a conscious change in campaign tactics. By studying how the parties change their actions in high-stakes elections, we can uncover which tactics let them
exert precise control. We find two differences: a major increase in overall effort (both campaign spending and incumbent retention), and a discrete change from offensive to defensive tactics.

6.1 Parties Expend More Effort to Win High-Stakes Elections

The most obvious exertion a party can make is to spend more money. Campaign spending can sway the outcomes of elections. Gerber (2004) and Gerber et al. (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. It is reasonable to expect that when an election is very competitive and its outcome has high stakes, parties should spend more in the hopes of winning.

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 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. 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 bare 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.

A less obvious investment is for incumbent legislators to run for re-election. Roughly 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 can be convinced to delay their ambitions for two more years?

The additional funds documented in Figure 9 may themselves convince incumbents to run for re-election. An incumbent who knows she need not spend
as much effort fund-raising may be more willing to seek re-election. Alternatively, she 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.\footnote{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.} 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, the party may have 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. Figure 10 plots a moving local linear regression of the exit rate of incumbents against the percentage of Democratic incumbents. 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.

Figure 11 checks these two patterns more formally. We define a dummy for whether there is a “close” relative number of incumbents, meaning whichever party won more seats in the previous election had narrow win. The current election would then likely be competitive. We regress the incumbent exit rate and total campaign receipts on this dummy for closeness, a dummy for being a high-stakes election, and their interaction. To be precise, for candidate $c$ contesting an election in state $i$ during election year $t$ we estimate

$$[\text{Outcome}]_{c,i,t} = \pi_0 + \pi_1 \mathbb{I}(|X_{i,t-1}| < h) + \pi_2 \mathbb{I}(\text{High-Stakes}) + \omega \mathbb{I}(|X_{i,t-1}| < h) \times \mathbb{I}(\text{High-Stakes}) + [\text{Error}]_{c,i,t}$$

for $h = 12, 11.9, 11.8, \ldots, 3$

where $\mathbb{I}$ is the indicator function. The coefficient $\omega$ on the interaction measures the extent that parties make greater efforts to win close elections when
the stakes are high. We vary the window within which the incumbent majority is defined to be close \((h)\), starting with a wide definition and narrowing it. We re-estimate our specification at each of these definitions. The change in the estimated coefficient as the window narrows shows how much more the parties exert themselves in the most competitive elections.

Figure 11 confirms the patterns in Figures 9 and 10. When the election is competitive the incumbent exit rate is especially low and campaign contributions to state assembly members are especially high during high-stakes elections. Though the estimates for campaign finance are somewhat noisy (recall we have campaign finance data for relatively few elections), the pattern is clear.

6.2 Parties Change their Tactics

Though it is clear that more spending and more incumbent retention would help a party win an election, these facts by themselves do not explain why a change in tactics helps the majority party more than the minority party. The answer to that question lies in how a change in tactics might enhance the majority party’s natural advantages.

Its most obvious advantage is that, by definition, it has more incumbent leg-
islators than the minority party. This advantage is critical because incumbents are almost certain to be re-elected. In lower house elections from 1968 to 2012, incumbents won 93 percent of the elections they contested (compared to 26 percent for non-incumbents). To get a sense of the potential advantage, suppose the incumbent re-election rate is 0.93 and that every incumbent runs for re-election. If the majority party holds 55 out of 99 seats, it retains control with roughly 97 percent probability. If its number of seats falls to 52 out of 99, it still wins with 81 percent probability. The majority party can raise this probability higher, and thus effectively guarantee its victory, by reinforcing the already daunting re-election chances of its incumbents. If the aim is to retain control rather than to win additional seats—which is what Section 5.2 suggests is happening—it is in the interests of the majority party to pursue such a purely defensive strategy.

That is exactly what Democrats at least seem to do. Figure 12 plots the average contributions to Democratic incumbents from party committees as a func-
Figure 12
Democrats Channel Funds to Incumbents in States Where they Hold a Majority

![Graph showing the relationship between party committee contributions and Democratic incumbents' performance in low- and high-stakes elections.](image)

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

...tion of the number of incumbents. It suggests these contributions may be discontinuously higher in states where Democrats hold a majority before the election, and that the size of the discontinuity is much larger in high-stakes elections. Such a pattern would be consistent with the findings of Gierzynski et al. (1992), who finds some evidence that parties change how they allocate campaign contributions when they are in the majority. The discontinuity in contributions must be treated with caution, as the number of elections for which we have data is small. But regardless of whether there is an actual discontinuity, the figure suggests Democrats are more likely to focus on protecting incumbents in states where they hold a majority.

Equally striking is that they do not protect all incumbents equally, but concentrate their resources on protecting a few. We compute the within-state inter-quartile range in contributions from Democratic party committees to their incumbents. Figure 13 plots the local average of the inter-quartile range against the number of Democratic incumbents. The figure suggests that Democrats

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19 We focus in this section on the party committees because they are most likely to distribute campaign funds strategically. As noted in Section 3.1, the Democratic Legislative Campaign Committee had been preparing for 6 years to hold control during the 2010/2011 redistricting.
choose some of their incumbents to defend at all costs while leaving others to fend for themselves. Given that we also find they often lose seats in high-stakes elections (see Section 5.2), this result suggests they concentrate on protecting only as many incumbents as are needed to retain their majority. If their objective is only to retain control of the legislature, it is optimal to pursue such a purely defensive strategy.

We find that Republicans by contrast defend their majority by taking the fight to the enemy.\textsuperscript{20} They channel funds to challengers in states controlled by Democrats, possibly to force Democrats on the defensive. As a result, Democratic challengers in Republican-controlled states receive little support, suggesting Republicans can precisely retain control by keeping their incumbents running for re-election (as Figure 10 suggests they do). They may rely on the overwhelming advantages of incumbency do the rest.

\textsuperscript{20}The difference in strategy may be a consequence of what Jacobson (1985) calls the higher “organization capacity” of the Republicans. 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.
6.3 Alternative Explanations

6.3.1 Incumbent Advantage

One immediate but spurious interpretation of our results is that they are explained by a party-level analog to the well-known incumbent advantage. Lee (2008) found that individual candidates for the U.S. House enjoy a big incumbent advantage when they seek re-election. The incumbent advantage is the extra votes received by the incumbent because she is familiar to voters or has served them in the past (Ansolabehere et al., 2000). For a political party to enjoy such an advantage, it would have to be that the extra press coverage gleaned by the Speaker or the majority leader of the lower house translates into extra support for her followers.

Even if such an advantage exists, it cannot explain our results because, as noted earlier, there is a difference between the incumbent advantage and precise control of outcomes. An incumbent advantage implies the incumbent gets “extra votes” simply for being the incumbent; it implies the incumbent is more likely to win. It does not imply the incumbent is far more likely to barely win than to barely lose, which is precise control. They are distinct phenomena; in the model of Section 2.2 there is an incumbent advantage regardless of whether there is precise control. In the presence of uncertainty, the probability the incumbent barely wins or barely loses should be similar even in the presence of a large incumbent advantage.

To make this difference clear, Figure 14 uses data on U.S. House races from Lee et al. (2004) to illustrate the difference between the incumbent advantage found by Lee (2008) and precise control. 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. 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 Demo-
Figure 14
Comparison to the Results of Lee (2008)

Note: Each dot represents the average outcome within a bin of width 0.25 percentage points.

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.

22As 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.
DO VOTERS OR POLITICIANS CHOOSE THE OUTCOMES OF ELECTIONS?

6.3.2 Abuse of Power

The other explanation is that the majority party somehow abuses its power to ensure it barely wins the election—for example, by poll rigging. Though possible in theory, most studies in the U.S. have found little evidence of voter fraud (see, for example, Levitt, 2007; Caughey and Sekhon, 2011). Moreover, it is not clear why control of the lower house of the state legislature would allow influence over the tallying of votes, which is done by local officials of both parties in each precinct.

Another possibility is that control of patronage allows the use of machine politics, as found by Folke et al. (2011) in the years before U.S. states adopted civil service reforms. But by the time of our first high-stakes election nearly all states had adopted such reforms. Meanwhile the Hatch Act amendment, which extended the Hatch Act’s civil service protections to many state and local employees, was adopted in 1940. A third possibility is that control of the lower house gives a party the means to precisely predict the outcome of any particular race, which allows the party to divert resources to that race. It is hard to imagine what source of information is available to the assembly’s majority party that is not available to the public. Finally, we show in Appendix A.1 that precise control does not arise because the majority party is more likely to have controlled redistricting in the previous cycle.

7 Conclusion

Though it is ultimately voters who decide the outcomes of elections, our results suggest the majority party has enough influence over their decisions to achieve precise control over the outcome. It manages this not through fraud but by reinforcing the near-certain re-election of its incumbents with well-targeted campaign spending. This shift in tactics may reduce the number of seats it can expect to win, but drastically decreases the probability of the precise set of outcomes in which it loses its majority.

23 Of the states that are ever close to the threshold (within 5 percentage points), only Minnesota and Montana during the high-stakes election of 1970 had not yet adopted reforms. Dropping these two observations makes little difference to the results. Both states had adopted civil service reforms by the 1980 high-stakes election (see Folke et al., 2011, for details).
Given that the means are legal, is there really any cause for concern? Making such a normative judgment is beyond the scope of this study. However, there is a body of work (e.g. Besley et al., 2010; Acemoglu et al., 2014; Bernecker, 2014; De Paola and Scoppa, 2011; Galasso and Nannicini, 2011; Ashworth et al., 2014) that suggests meaningful political competition fosters economic growth. If the means to eliminate competition are legal, it may suggest the laws should be reconsidered.

References


DO VOTERS OR POLITICIANS CHOOSE THE OUTCOMES OF ELECTIONS?


A Empirical Appendix (For Online Publication)

This appendix shows additional figures and tables referenced in the main text.

A.1 Additional Tables and Figures Referenced in the Text

A.1.1 Party Unity in Votes on Redistricting Plans

We show using data from the 2011 redistricting cycle that legislators switch discontinuously from opposition to support of the redistricting bill when control of the lower house passes to their party. Figure 15 shows the fraction of Democrats and Republicans who support the redistricting bill as a function of the percentage of seats won by Democrats. When it switches from negative to positive the Democrats win control of the assembly. At this point they switch from near universal opposition to near universal support for the redistricting bill. The response of the Republicans, though slightly less extreme, is similar.

24These data were constructed from Vote Smart (2016), which has roll call votes on 51 bills from 21 states for the most recent redistricting cycle. Consistent roll call votes are only available for the 2011 cycle.
The reversal in support suggests not only that the bill favors the party in power, but that party discipline is almost perfect. That makes it critical to win a majority in the lower house in years when the opportunity to redistrict arrives.

**A.1.2 Transition Probabilities**

In the main text we show that the majority party loses seats in high-stakes elections but not quite enough to lose its majority. To assess whether this pattern holds across the distribution, consider what fraction of all the elections in which Democrats win a margin of 5 to 10 percent (say) had they in the previous election won an even higher margin. Figure 16 splits the outcomes of the current election (the margin won by Democrats) into bins. Within each bin we subdivide each state by the outcome in the previous election (essentially the incumbent majority). The height of each bar shows what fraction of outcomes in the current election had each of several possible outcomes in the prior election. For example, the left-hand panel shows that of all the elections in which Democrats won a majority of 5 to 10 percent, in roughly 30 percent they had previously won a majority of at least 10 percent.
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Figure 16
Transition Probabilities

Note: Conditional on an election outcome (seats won by Democrats), we compute the fraction of states in which the previous election had any of several outcomes. This is essentially the incoming (outcome-conditional) transition probability. We restrict the sample to cases where independent legislators won no seats in either the current or previous election. This restriction implies a negative number is equivalent to a Republican majority.

The relative height of each bar gives the incoming transition probability. By construction, the heights of all bars within a bin add up to 1. The bars are color-coded to make them easier to read. Blue bars represent cases where Democrats had previously held a majority (darker blues represent a larger majority), while red/orange bars represent cases where Republicans held a majority (darker reds represent a larger majority). To make the interpretation easier, we drop all cases where independents won seats in either the current or previous election, meaning a negative number implies a Republican majority. The stacked heights of the blue bars represent the fraction of cases within a bin where Democrats previously held a majority. They roughly correspond to the heights of the dots in Figure 4 (although the bins in Figure 4 were narrower). In the right-hand panel (high-stakes elections), the sharp increase in the height of the blue bars at the point where the winning margin turns positive matches the result of the Sorting Test.

The most obvious difference between the left-hand panel (low-stakes elections) and the right-hand panel (high-stakes elections) is in the two bins just on either side of the threshold. The fraction of elections in the \([-5, 0)\) bin “colored blue,” meaning cases where Democrats had previously held a majority, drops
from about 0.4 to less than 0.2. Likewise, the fraction of elections in the \([0, 5]\) bin “colored red” drops by a similar amount. When a party barely wins an election, it was less likely to have previously been won by the opposing party. This decrease in states won from the opposing party is matched by an increase in the fraction of elections in which there is relatively little change. In the \([-5, 0]\) bin there is a big increase in the fraction in which the previous outcome was also \([-5, 0]\). The \([0, 5]\) bin shows a similar pattern.

But what is also notable (especially in elections won by Democrats) is that there seems an increase in cases where Democrats had previously held a larger margin. For example, in elections where Democrats won a majority of \([5, 10]\), in low-stakes elections nearly 40 percent are cases where they improved on their performance in the previous election (the bars colored either light blue or red/orange). In high-stakes elections, this portion falls to barely 10 percent. Meanwhile, the proportion of these elections in which their performance actually declined—those colored the darkest blue, representing cases where they won a majority of more than 10 percent in the previous election—increases from about 25 percent to over 40 percent. Taken together, these results confirm that it is not the case that the majority party is necessarily winning more seats in high-stakes elections.

A.1.3 Additional Tables and Figures Referenced in Section 5

Figure 17 shows that precise control creates a visible discontinuity in the conditional density of the election outcome \(g(X_{i,t} \mid M_{i,t-1})\). Each panel shows a histogram for the seats won by Democrats in elections that meet the condition given in the title. Each dot plots the fraction of observations that falls within a 3-percentage point bin. Atop these dots we plot the line of best fit. The left-hand panels show the density for low-stakes elections. Regardless of which party held a majority before the election, there is no large discontinuity in the density. By contrast, the right-hand panels show that there are large discontinuities in high-stakes elections. When Republicans previously held a majority, there is far more mass just to the left of the threshold—that is, far more elections are barely won than barely lost by Republicans. The converse is true when Democrats previously held a majority.
Figure 17
Conditional on the Party that Held a Majority, there is a Discontinuity in the Probability Density of High-Stakes Election Outcomes

Note: Each panel shows a histogram for the seat margin of Democrats in elections that meet the condition given in the title. The right-hand panels show the probability mass in each bin for observations in high-stakes elections, while the left-hand panels show low-stakes elections. The top panels show elections in which Republicans previously held a majority, while the bottom panels show elections in which Democrats previously held a majority.
Table 3
Interpreting Test 1

<table>
<thead>
<tr>
<th></th>
<th>Incumbency Effect</th>
<th>Pre-Redistricting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) $BW = 18$</td>
<td>(2) $BW = 10$</td>
</tr>
<tr>
<td>Discontinuity</td>
<td>0.253</td>
<td>0.079</td>
</tr>
<tr>
<td></td>
<td>(0.155)</td>
<td>(0.217)</td>
</tr>
<tr>
<td>Observations</td>
<td>130</td>
<td>78</td>
</tr>
<tr>
<td>Clusters</td>
<td>130</td>
<td>78</td>
</tr>
<tr>
<td>Control Mean</td>
<td>0.29</td>
<td>0.29</td>
</tr>
</tbody>
</table>

Table 3 shows several estimates to help interpret the main results. Columns 1 and 2 test for an incumbent party advantage in high-stakes elections. Our specification is the party-level analog of Lee’s (2008) analysis. The seats won by Democrats in the previous election is the running variable. Columns 1 and 2 report the regression discontinuity estimate of the change in the probability the Democrats win the current election at the cutoff. There is no robust evidence of an incumbent party advantage.

Columns 3 and 4 of Table 3 apply the Sorting Test to elections in our sample before the Baker v. Carr 369 (1962) made it mandatory to redistrict after each census. Since the number of elections is small, we use all states rather than just those that would subsequently form our estimation sample. As before, we restrict to elections just before the decennial census. There is no significant evidence of sorting. Though the coefficient seems large at a bandwidth of 18, it shrinks at a smaller bandwidth. We conclude there is little evidence of precise control in the years before redistricting was at stake.

Table 4 applies the Sorting Test after disaggregating low-stakes elections based on their place in the redistricting cycle. We label the $n$-th election before a high-stakes election “Lead: $n$.” The first two columns (Lead: 0) are essentially a reproduction of the Main Result from Table 2. The columns labeled “Lead: 1” apply the sorting test to the election before a high-stakes election, and so on. Only in true high-stakes elections is there robust evidence of sorting.

Table 5 applies the Sorting Test to subsets of high-stakes elections taken from rolling windows of time. We take each post-Census year 1971, 1981, …, 2011 as the center of the window and restrict the sample to high-stakes elec-
Table 4
Disaggregating Low-Stakes Elections

<table>
<thead>
<tr>
<th>Lead: 0</th>
<th>Lead: 1</th>
<th>Lead: 2</th>
<th>Lead: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>$BW = 18$</td>
<td>$BW = 10$</td>
<td>$BW = 18$</td>
<td>$BW = 10$</td>
</tr>
<tr>
<td>Discontinuity</td>
<td>0.422***</td>
<td>0.417**</td>
<td>0.208</td>
</tr>
<tr>
<td>(0.136)</td>
<td>(0.195)</td>
<td>(0.157)</td>
<td>(0.226)</td>
</tr>
<tr>
<td>Observations</td>
<td>138</td>
<td>85</td>
<td>121</td>
</tr>
<tr>
<td>Clusters</td>
<td>138</td>
<td>85</td>
<td>121</td>
</tr>
<tr>
<td>Control Mean</td>
<td>0.35</td>
<td>0.35</td>
<td>0.41</td>
</tr>
</tbody>
</table>

Table 5
Discontinuity Persists Across Time

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discontinuity</td>
<td>0.587***</td>
<td>0.487***</td>
<td>0.468**</td>
<td>0.211</td>
</tr>
<tr>
<td>(0.218)</td>
<td>(0.183)</td>
<td>(0.187)</td>
<td>(0.183)</td>
<td>(0.181)</td>
</tr>
<tr>
<td>Observations</td>
<td>50</td>
<td>79</td>
<td>83</td>
<td>88</td>
</tr>
<tr>
<td>Clusters</td>
<td>50</td>
<td>79</td>
<td>83</td>
<td>88</td>
</tr>
<tr>
<td>Control Mean</td>
<td>0.11</td>
<td>0.20</td>
<td>0.43</td>
<td>0.63</td>
</tr>
</tbody>
</table>

The purpose of these regressions is to reveal whether precise control is confined to some specific era in history, or if there is a trend in its prevalence. The estimated coefficients are smaller in more recent years than in earlier years. However, the samples are small enough (and the standard errors large enough) that we cannot reject that all coefficients are equal. Moreover, the apparent change in coefficients is not monotonic, suggesting the apparent decline may be driven by one or two unusual decades. We conclude that there is not much evidence that our estimates vary across time.

A.1.4 The Result is Not Driven by Prior Control of Redistricting

Given that the act of redistricting may affect a party's fortunes, it is possible that the winner of a high-stakes election uses redistricting to ensure it will remain the majority party for years to come. Could this explain our results? Suppose control of prior redistricting were what let a party exert precise control in the current high-stakes election. Then there would be sorting based on whether Democrats or Republicans won the previous high-stakes election. Figure 18
Figure 18
Is Precise Control Driven by Prior Redistricting?

Note: This figure is similar to the right-hand panel of Figure 4, but the outcome is a dummy for whether the Democrats won a majority in the previous high-stakes election.

tests this hypothesis by running the Sorting Test as was done in the right-hand panel of Figure 4, except the outcome is now a dummy for whether Democrats won the previous high-stakes election. There is no evidence of sorting, suggesting prior redistricting cannot explain precise control.

A.2

A.2.1 Optimal Bandwidth Methods

Standard methods of choosing optimal bandwidth give wildly different suggestions for the optimal bandwidth of Equation 5. The cross-validation method suggested in Ludwig et al. (2007) and Lee and Lemieux (2010) chooses a bandwidth of 22 percentage points or higher. The method of Calonico et al. (2014) suggests bandwidths closer to 10. Finally, the method of Imbens and Kalyanaraman (2011) suggests a bandwidth close to 1 (which contains very few observations). The disagreement may arise because our sample is relatively small. Even the smallest example considered in Imbens and Kalyanaraman (2011) used 500 observations, several times as many as in our sample of high-stakes elections. As noted in the text we opt instead to choose a bandwidth that gives relatively
conservative estimates and show that the main results are robust to other choices.

### A.2.2 Verifying the Results of Test 2 are not Sensitive to Bandwidth or Bin Size

As noted in the text, the Density Test requires making a nonparametric estimate of the probability density of $\tilde{X}_{i,t}$. Any such estimate requires choosing not only a bandwidth for smoothing but the size of the bins used to form observations of the empirical density. Figures 19 and 20 show that our estimates are robust to many choices of both bandwidth and bin size.
Figure 19
Robustness to Bin Size and Bandwidth: Figure 3
Figure 20
Robustness to Bin Size and Bandwidth: Figure 3
A.3 Verifying the Results are Not Mechanical because of Small Sample Size

This appendix verifies that the main result—the estimate of Equation 5—is not driven by a small sample size. Finding a larger discontinuity in high-stakes elections might be mechanically more likely because there are fewer of them. To test this hypothesis we test for whether we can produce an equally large discontinuity by discarding some of the low-stakes elections.

To be precise, we start with the dataset of all low-stakes elections. We randomly select a subsample of these elections of the same size as the set of high-stakes elections. We then estimate Equation 5. We repeat this procedure 2000 times. Figure 21 plots the histogram of the 2000 estimates. The red line marks the actual estimate from the high-stakes elections. Just 19 of the 2000 estimates are larger than the actual estimate based on the sample of high-stakes elections. Only 7 (0.35 percent) have a larger absolute t-statistic. This exercise suggests it is unlikely that the high-stakes elections are drawn from the same data-generating process as the low-stakes elections.

Figure 21
Subsamples of the Low-Stakes Elections Rarely Produce Discontinuities as Large as in the High-Stakes Elections

Note: See text for details.
A.4 Verifying the Results are Robust to the Definition of the Sample

A.4.1 Maine

In this section we confirm that the results of the Density and Sorting tests are unchanged under different assumptions about high-stakes elections in Maine. During the 1981, 1991, and 2001 redistricting cycles Maine passed its redistricting legislation in the years ending in 3. In the front-matter we treat Maine like all other states. Here we consider three alternatives:

1. We assume it was common knowledge that the redistricting would happen in these years rather than the year after the Census. The elections in 1980, 1990, and 2000 are no longer high-stakes elections. Those in 1982, 1992, and 2002 are high-stakes elections.

2. We assume it was NOT common knowledge that the redistricting would happen in these years rather than the year after the Census. Parties would have tried to hold a majority in the year after the Census as well as the year before redistricting actually happened. The elections in 1982, 1992, and 2002 are now high-stakes elections in addition to those in 1980, 1990, 2000.

3. We simply drop Maine from the sample.

Figures 22 and 23 show that in all cases the estimates are largely unchanged from what we find in the front-matter.
Figure 22
Density Test: Different Assumptions About Maine

Alternative 1

Low-Stakes Election
Log Difference: 0.32 (0.23)

High-Stakes Election
Log Difference: 1.36 (0.56)

Alternative 2

Low-Stakes Election
Log Difference: 0.32 (0.23)

High-Stakes Election
Log Difference: 1.36 (0.57)

Alternative 3

Log Difference: 0.28 (0.24)

Log Difference: 1.33 (0.56)

Note: See text for details.
Figure 23
Sorting Test: Different Assumptions About Maine

Alternative 1

Low-Stakes Election
Discontinuity: 0.093 (0.080)

High-Stakes Election
Discontinuity: 0.425 (0.134)

Alternative 2

Low-Stakes Election
Discontinuity: 0.092 (0.080)

High-Stakes Election
Discontinuity: 0.428 (0.133)

Alternative 3

Low-Stakes Election
Discontinuity: 0.064 (0.081)

High-Stakes Election
Discontinuity: 0.436 (0.139)

Note: See text for details.
A.4.2 Redistricting Commissions

In this section we confirm that the results of the Density and Sorting tests are unchanged under different ways of handling states that set up independent commissions. We consider two alternatives to how we handle these states in the front-matter:

1. We keep the state in the sample until the first election that would have had high stakes in the absence of the commission. This approach maximizes the number of low-stakes elections.

2. We drop all elections after the commission is established and also all elections within the redistricting cycle during which the commission is established. This ensures high- and low-stakes elections are evenly represented in each redistricting cycle.

Figures 24 and 25 show that in all cases the estimates are largely unchanged from what we find in the front-matter.
**Figure 24**
Density Test: Different Assumptions About Redistricting Commissions

**Alternative 1**

**Low-Stakes Election**

- Lose Control
- Retain Control

Log Difference: 0.31 (0.24)

**High-Stakes Election**

- Lose Control
- Retain Control

Log Difference: 1.38 (0.56)

**Alternative 2**

**Low-Stakes Election**

- Lose Control
- Retain Control

Log Difference: 0.32 (0.23)

**High-Stakes Election**

- Lose Control
- Retain Control

Log Difference: 1.36 (0.57)

*Note: See text for details.*
Figure 25
Sorting Test: Different Assumptions About Redistricting Commissions

Alternative 1

Low-Stakes Election

High-Stakes Election

Alternative 2

Low-Stakes Election

High-Stakes Election

Note: See text for details.
Figure 26
Campaign Contributions to Lower House Candidates Rise in High-Stakes Elections

Note: We plot a moving local linear regression of total state-level campaign receipts for lower house members 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.

A.4.3 Odd-Year Elections and Campaign Finance Data

In the main text we exclude states that have elections in odd years from all analysis using the campaign finance data. Given that the campaign finance data span from 1990 to 2012, the states excluded are Louisiana, Mississippi, New Jersey, and Virginia. In Figures 26—29 we confirm that including these states does not substantively change the results.
**Figure 27**
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.

**Figure 28**
The Inter-Quartile Range in Contributions to Democratic Incumbents Rises in High-Stakes Elections where they Hold a Majority

*Note:* Outcome is the within-state inter-quartile range of contributions to Democratic incumbents from Democratic party committees.
Figure 29
Estimated Interaction Effect: [Close Margin of Incumbency] × [High-Stakes Election]

Note: For different definitions of what counts as a “close” incumbent majority, we regress the incumbent exit rate and total campaign receipts (at the candidate-level) on a dummy for a close margin, a dummy for being a high-stakes election, and their interaction. We plot the estimated interaction and 90 percent confidence interval against the cutoff for what counts as a close margin. Standard errors are clustered by state-redistricting cycle.