One strike and you're out!
The Master Lever's effect on senatorial policy-making*

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Abstract

We investigate the impact a straight-ticket voting option—a.k.a. the *Master Lever*—has on U.S. senators' roll-call voting records in Congress. Using difference-in-differences, we find the Master Lever leads to a 3–6 percent rightward shift in senators' policy positions. The effect is largely driven by the Republican party. To interpret our results, we analyse the Master Lever's impact on electoral incentives and outcomes. Our findings suggest that ballot design has a non-negligible impact on policy-making. They also imply that electoral outcomes in moderate to right-leaning Master Lever states may be especially vulnerable to right-wing, non-partisan voters.

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1 Introduction

The Master Lever is an option on a ballot to vote a "straight party" line—*i.e.*, to select all candidates from a particular party in every race. The Master Lever reduces wait times and discourages roll-off.[1] Between 1898–1980 it was offered in 30 U.S. states. Due to worries that it exacerbated uninformed voting and reduced accountability, however, the practice gradually fell out of favour.[2] By 2018, it was available in just 9 states.

Although sometimes considered a marginal component of ballot design, the Master Lever does reduce positional voting and ballot non-completion. As a result, the political positions of candidates elected when the option is present are unlikely to perfectly mirror the political positions of candidates elected when it is not.

In this paper, we estimate the size and direction of this effect by exploiting post-WWII changes to U.S. states' ballot design regulations. For our identification strategy, we use difference-in-differences to compare the Congressional voting records of senators in two types of states: leavers first had and then removed the Master Lever (15 states); stayers always offer the option (15 states). Prior to treatment, leaver and stayer states are relatively balanced on time-varying state-level observables; assuming state legislatures' decisions to abandon the Master Lever do not partially correlate with a change in electoral preferences not picked up by these variables, our approach provides a causal estimate of the Master Lever's impact on senatorial policy-making.

We find that more conservative senators are elected and incumbent senators vote more conservatively when the Master Lever is present; overall, this leads to a 3–6 percent rightward shift in their voting positions. Although senators immediately adjust to split-ticket voting once the option is removed, our evidence suggests that ballot design can nevertheless change the composition of a major democracy's principle deliberative assembly.

Moreover, when we break the Master Lever effect down by party, we find it primarily driven by Republican senators. Republican positions shift 7 percent rightward when the Master Lever is present; for Democratic senators, however, there is no significant change.

In order to investigate precisely *why* the Master Lever affects each party differently, we construct a model of electoral competition. Intuitively, the Master Lever encourages partisanship voting. This gives candidates more room to secure financial and political support by catering to their parties' agendas (*party loyalty effect*). It also shifts the average policy bliss point of remaining positional voters and so changes the platforms of the candidates they elect (*swing voter effect*). With or without the Master Lever, candidates adopt more extreme positions when both party loyalty and swing voter effects push rightward (Republicans) or leftward (Democrats). But when these conditions coexist with a straight-ticket voting option, then the latter pushes candidates *even further* toward extremes by: (i) reinforcing the likelihood of adopting (more extreme) party platforms; and (ii) reducing the influence of moderate (partisan) voters.[3]

To empirically determine the directional pull of the party loyalty effect, we assume each party's bliss point corresponds to the median political position of its elected members in Congress and compare them to average state-level voter positions over the same period. We find both parties' bliss points are consistently more extreme than average voter positions, suggesting a negative—*i.e.*, leftward—party

[1] For anecdotal evidence, see, *e.g.*, Gray (2016).

[2] For example, in the run up to the 2016 general election, Michigan's GOP-led legislature banned the Master Lever ostensibly for these reasons (see, *e.g.*, Malone 2018). (The Democrats had the ban overturned in court before the November election.)

[3] If swing voters occupy the left or right tail of the political spectrum, partisan voters are *moderate*-leaning. The Master Lever's presence therefore increases moderate voters' likelihood of casting a (more extreme) straight-ticket ballot.

loyalty effect for Democratic senators and a positive—*i.e.*, rightward—party loyalty effect for Republican senators.

Directly estimating the swing voter effect requires disaggregated data on individual voters' partisanship and positions which we do not have. We can indirectly deduce it, however, within the framework of our model. Since the Democratic party's party loyalty effect is negative but the Master Lever has not changed its senators' positions, our model suggests partisan Democratic voters are more extreme than the average voter in senatorial elections—*i.e.*, Democratic senators moderate their campaign platforms in order to attract non-partisan voters (positive swing voter effect).

For the Republican party, however, the party loyalty effect is positive *and* senatorial positions shift to the right when the Master Lever is present. According to our model, partisan Republican voters are therefore *less* extreme (and non-partisan voters more extreme) than the average voter—*i.e.*, Republican senators appeal to swing voters on the right of their partisan base (positive swing voter effect).

Swing voter and party loyalty effects counterbalance each other for Democrats but push Republicans rightward. This dovetails with evidence suggesting Congressional polarisation is predominantly driven by the Republican party (McCarty *et al.* 2006). It also emphasises that certain elements of ballot design may exacerbate differences in party ideology. We therefore join a large body of theoretical and empirical work investigating the U.S. political system's increasingly polarised climate and the causal factors driving it—including income inequality (Garand 2010; McCarty *et al.* 2006; Voorheis *et al.* 2015), foreign competition and local labour market shocks (Autor *et al.* 2016), mass media (Campante and Hojman 2013; Prior 2013; Snyder and Strömberg 2010), gerrymandering (Engstrom 2013; McCarty *et al.* 2009), electoral dynamics (Halberstam and Montagnes 2015), primary elections (Barber and McCarty 2015; Hirano *et al.* 2010; McGhee *et al.* 2014) and campaign contributions (Barber 2016).

We additionally contribute to a growing empirical literature studying how minor elements of ballot design affect voting behaviour (Chen *et al.* 2014; Heckelman 1995; Walker 1966). Evidence specific to the Master Lever suggests it decreases split ticket voting (Barnes *et al.* 2017; Campbell 1980; Campbell and Miller 1957; Darcy and Schneider 1989; Kimball *et al.* 2002; McAllister and Darcy 1992; Reynolds and McCormick 1986; Rusk 1970), ballot non-completion (Feig 2007; Feig 2009; Kimball *et al.* 2002) and participation in non-partisan elections (Bonneau and Loepp 2014). Depending on the context, it can reduce or exacerbate voting errors (Herrnson *et al.* 2012; Kimball and Kropf 2005). As we show in this paper, it also changes senators' electoral incentives and has a non-negligible impact on their policy-making.

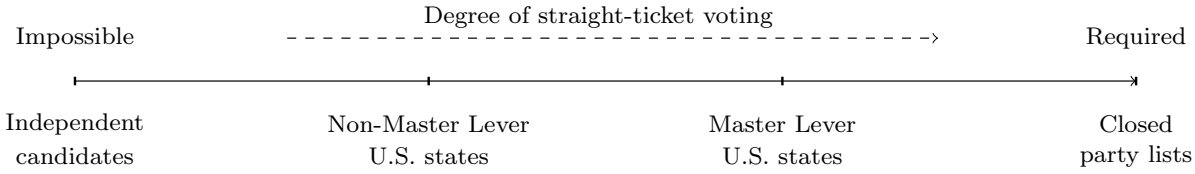
Although our results are derived from U.S. data, they speak to a broader question of possibility and ease of voting a straight ticket in an election. Thus, they contribute to the comparative analysis of electoral systems that vary in the salience and role of election candidates' party affiliation. Figure 1 illustrates the range of electoral systems in the form of a spectrum: on one end, straight-ticket voting is mandatory—*e.g.*, elections with closed party lists;[4] on the other end, elections are between completely non-partisan candidates.[5]

Countries can move along the spectrum by changing the list proportional representation system (Buisseret *et al.* 2019; Buisseret and Prato 2018; Kselman 2017), adopting staggered calendars for local and national elections (Burki *et al.* 1999; Nickson 1995; Peterson 1997), as well as changing their districting and primary elections rules (see the literature cited above). Over its history, the U.S. gradually moved away from partisan elections—first, by introducing the Australian ballot at the turn of the twentieth century

[4] Ballots that strongly encourage straight ticket voting have been used in a number of Latin American and African countries including, Argentina, Panama, Colombia, Uruguay, Chad, Guinea, Burkina Faso, Mali, Mauritania, Niger, Senegal, and Tunisia (Barnes *et al.* 2017).

[5] At the national level, non-partisan elections are extremely rare in practice, although they are more common in state and local elections.

and then by removing the Master Lever in the years that followed. Since the Master Lever makes straight ticket voting easier, it boosts the importance of party affiliations in the electoral process. Removing it corresponds to the decrease in political parties' influence and to decentralization.



Note. Figure shows the availability and ease of voting a straight ticket in different electoral systems and the implied strength of association between parties and their candidates (from no association (left) to full association (right)).

Figure 1: Party-candidate association in elections

The rest of the paper is organized as follows. Sections 2 and 3 discuss our data and identification strategy, respectively. Empirical results are presented in Section 4. In Section 5, we develop a simple model of electoral competition to investigate the mechanisms driving those results. Section 6 concludes.

2 Data

To estimate the Master Lever's contemporaneous impact on policy-making, we use data on U.S. senators elected (or appointed) to Congress between 1946–2009.[6] In Appendix G, we compare our results to the period just after the introduction of the Australian ballot and up to the end of the second World War (1898–1945).

As we argue in Section 5, the Master Lever's impact on policy-making is motivated by a desire to do well in future elections. As a consequence, it should primarily affect incumbent senators who intend to run for re-election. We nevertheless include in our sample even those senators who do not. First, U.S. senators are not subject to term limits and a very high percentage (79 percent) run for re-election at the end of their term (of which 82 percent are re-elected). Second, perceptions of electoral success predict whether an incumbent senator will run for re-election or not (see *e.g.*, Moore and Hibbing 1992; Theriault 1998), suggesting that most retiring senators spend some portion of their time in office intending—or at least hoping—to run. Third, even when a senator genuinely wishes to retire from public office, the way he votes during his remaining tenure impacts the future electability of the candidate he (or his party) hopes will succeed him.[7]

To capture senators' policy positions while in office, we use the first dimension of DW-NOMINATE, a multi-dimensional scaling application developed by Poole and Rosenthal (2015). DW-NOMINATE's primary dimension assigns senators dynamic positional scores on the left-right spectrum based on their roll-call voting histories in Congress.[8] Data on senators' parties, (re-)election years and term lengths were obtained from the U.S. Senate website and the CQ Press Guide to U.S. Elections.

Data on our variable of interest—the presence of the Master Lever on state ballots—were hand-collected. To assemble it, we consulted states' ballot design regulations in force during senatorial elections. We additionally cross-checked our interpretation of these regulations with data from Klarner (2010) and

[6] In the event a senator resigns from office, the Governor of his state may appoint a replacement to serve the remainder of his six-year term or until a special election is held to fill the vacancy. In most states, special elections are held relatively soon after a senator's resignation, so senatorial appointments last only a short time (*e.g.*, the remainder of the two-year Congressional term).

[7] Nevertheless, excluding the 273 observations (15 percent) from senators who do not run for re-election has little impact on our estimation results (see Table C.1, Appendix C).

[8] The first dimension of DW-NOMINATE explains most variation in senators' voting patterns since 1978 (Poole and Rosenthal 2007). The second dimension is meant to capture remaining variation and primarily provides additional explanatory power for pre-1978 issues that are hard to fit on a single left-right axis—*e.g.*, slavery and civil rights (Carroll *et al.* 2009).

National Conference of State Legislatures (2019). Whenever possible, we also obtained images of ballots held in state archives and searched local newspapers for sample ballots printed before each election. We were able to determine the presence of a straight-ticket voting option for every mid-term and presidential election held in each state between 1898–2009.

The data we analyse in the body of this paper include 3,034 observations on 501 senators serving in the 31 Congresses held between 1946–2009. (See Appendix G for additional analyses using data from the period 1898–1945.) Every senator/election-cycle pair corresponds to three observations—one for each two-year Congress during a senator's six-year term.[9] The Master Lever was present for 1,415 senator-Congress observations; for 1,619 it was not.

In Section 5 we use the distribution of voters' partisanship and positions within states to understand why the Master Lever impacts senators' policy choices. To empirically proxy for the latter, we take the first dimension of Enns and Koch (2013)'s dynamic scale of voters' policy "moods".[10] Enns and Koch (2013)'s indicator is a two-dimensional score that uses public opinion polls to gauge voters' support for more (or less) government; as with DW-NOMINATE, explanatory power is principally concentrated in the measure's first dimension.[11]

Table 1 displays observation counts broken down by whether the Master Lever was present on a senator's upcoming election ballot. The first panel shows counts for red states (mostly Republican partisan voters), blue states (mostly Democrat partisan voters), purple states (equal and high numbers of Democrat and Republican partisan voters) and swing states (mostly non-partisan voters).[12] The second panel breaks observation counts down by the political position of the average voter in a state: in right-wing states, the average voter is more conservative than the Republican party; in left-wing states, the average voter is more liberal than the Democratic party; in moderate states, the average voter's position falls between each party's position.[13] Although partisanship is strong—particularly for the Democratic party—voters' actual ideology appears far more moderate.

Table 1's final panel tabulates observation counts by party. A higher number of Democratic senators were elected when the Master Lever was not on the ballot; where it was present, however, Democrats and Republicans were fairly evenly split. No Conservative or Independent senator serving in Congress between 1947–2009 was elected on a straight-ticket ballot.

The graphs in Figure 2 summarise the Master Lever's presence and senator and voter characteristics across time. The number of states with a straight-ticket voting option on their ballots has steadily declined (top left-hand graph). Senate polarisation meanwhile has gradually increased (top right-hand graph). (Between 1947–2009 no state *adopted* the Master Lever.) Pre-1980s, Senate polarisation appears to have been driven by a left-ward shift from the Democratic party. Consistent with evidence from McCarty *et al.* (2006), however, the post-1980 trend is especially pronounced in later years and is more likely caused by the Republican party.

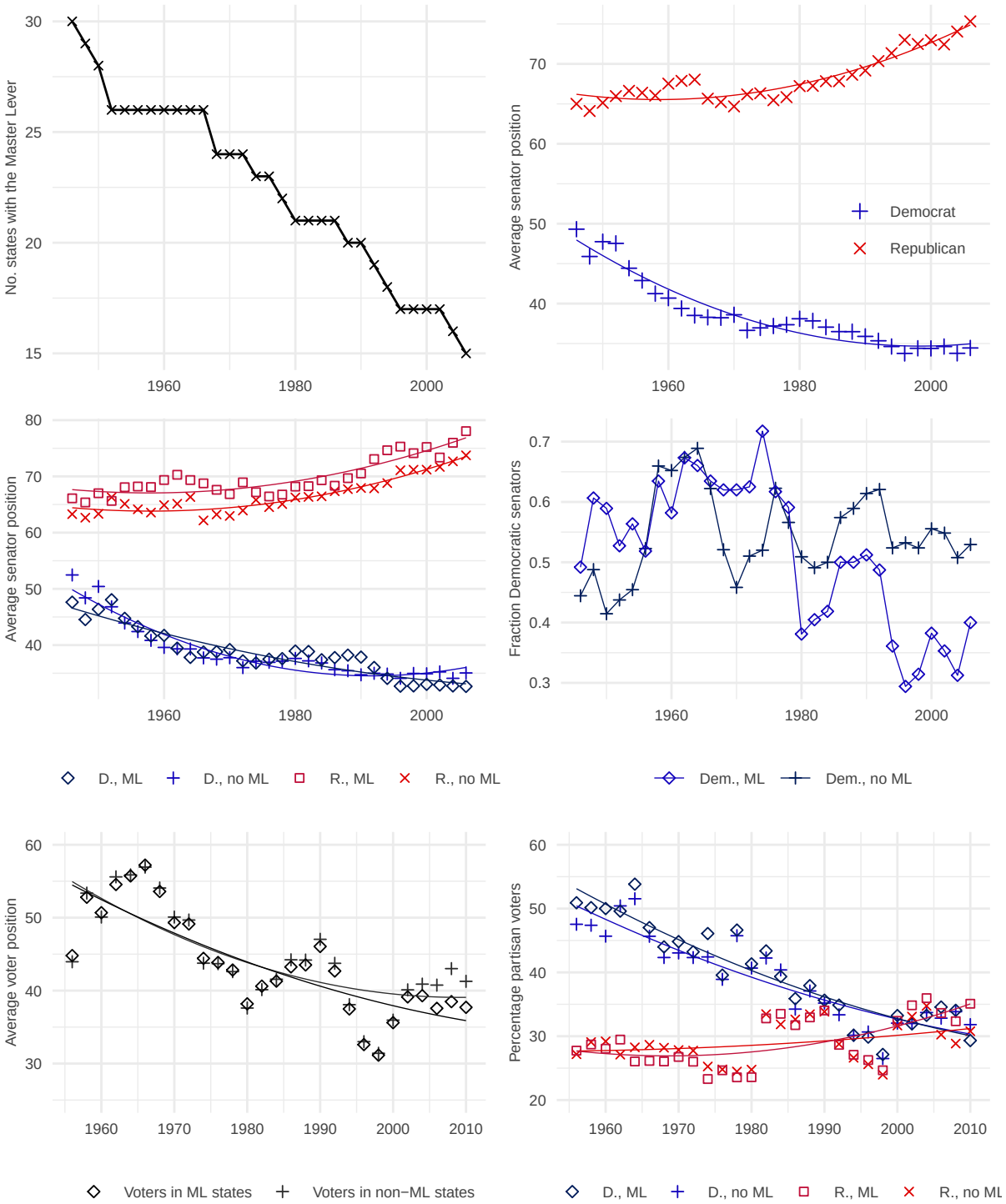
[9] Each U.S. state is represented by two senators that serve staggered six-year terms spanning three Congressional meetings. Every two years, at most one senatorial seat per state is up for re-election. Senators in our sample serve, on average, 2 terms. Senators Byrd (West Virginia) and Inouye (Hawaii) served longest (9 terms each). No senator is subject to term limits.

[10] Data are only available between 1956–2006.

[11] We use the version of voters' partisanship and positions calculated at the beginning of each Congress because it is both a reasonable match for senators' expectations of the political climate they will face in their (future) re-election campaigns, and it isn't confounded by the policies they will enact in any given Congress. Nevertheless, our results are robust to using versions of the variables calculated at other times during a Congress—*e.g.*, at the end or after the first year (available on request).

[12] Specifically, let $p(R)$, $p(D)$ and p be the fractions of Republican, Democratic and partisan voters in a state and set $b = 0.05$: (i) red states satisfy $p(R) > p(D) + b$ and $p(R) \geq 1 - p$; (ii) blue states satisfy $p(D) > p(R) + b$ and $p(D) \geq 1 - p$; (iii) purple states satisfy $|p(D) - p(R)| \leq b$ and either $p(R) \geq 1 - p$ or $p(D) \geq 1 - p$; (iv) states not falling within any of these categories are classified as swing states.

[13] Left-wing states satisfy $X < Y_D$, where X is the average voter's position and Y_D is the Democratic party's bliss point (proxied with the median party- and year-specific Congressional voting positions across all senators); right-wind states satisfy $Y_R < X$, where Y_R is the Republican party's bliss point; moderate states satisfy $Y_D < X < Y_R$.



Note. First row: left-hand graph plots the number of states with the Master Lever over time; right-hand graph displays average party positions in the Senate over time; the degree of Senate polarisation is the distance between the two lines. Second row: left-hand graph shows average senatorial positions by party and Master Lever status; right-hand graph plots the fraction of Democrats elected to Senate by Master Lever presence. Final row: left-hand graph displays self-declared average voter positions by Master Lever presence; right-hand graph plots the fraction of Republican and Democratic partisans by Master Lever presence (the fraction of self-declared, non-partisan voters not shown). All positional data are projected onto a left (0) right (100) axis. State-level data on voters' partisanship and positions calculated at the beginning of each Congressional term (see Footnote 11). Data from Enns and Koch (2013), Poole and Rosenthal (2015) and the authors.

Figure 2: Master Lever presence and senator and voter characteristics across time

Table 1: Observation counts by constituent characteristics

	Master Lever		
	Absent	Present	Total
State-level political affiliations			
Blue	642	621	1,263
Purple	214	159	373
Red	151	87	238
Swing	402	260	662
State-level political positions			
Left-wing	183	108	291
Moderate	1,226	1,017	2,243
Right-wing	0	2	2
Party			
Conservative	3	0	3
Democrat	883	749	1,632
Independent	12	0	12
Republican	721	666	1,387

Note. Table displays observation counts by constituent characteristics, where each observation corresponds to a single senator-congress pair. Panel one breaks counts down by red states (mostly Republican partisan voters), blue states (mostly Democrat partisan voters), purple states (equal and high numbers of Democrat and Republican partisan voters) and swing states (mostly non-partisan voters). Panel two displays observations by positional classification. The final panel shows observation counts by party. (See Footnotes 12 and 13 for precise definitions of the categories listed in panels one, two and three, respectively.)

Graphs in the second row of Figure 2 consider the positions and parties of elected senators. The left-hand graph plots average senatorial positions by party and Master Lever presence. For the Democratic party, the straight-ticket voting option and senators' positions are not obviously related. For the Republican party, however, the Master Lever correlates with right-wing senators. The right-hand graph plots the fraction of Democratic senators over time by Master Lever status. Neither party disproportionately benefited from the option before 1986, but the electoral success of Democratic senators and the presence of the Master Lever are negatively correlated post-1986.

Figure 2's final row plots voters' self-declared positions (left-hand graph) and partisanship (right-hand graph) by Master Lever status.[14] Voters in Master Lever states do not systematically differ from voters in non-Master Lever states on either dimension.

3 Identification

Our estimation strategy is based on the assumption that the Master Lever impacts voting behaviour and voting behaviour affects electoral incentives and outcomes. We model this relationship explicitly in Section 5; the intuition, however, is straightforward. The act of voting race-by-race may make some people marginally more likely to vote against their party. As a result, there is imperfect overlap between the set of candidates (and their ideologies) elected when the Master Lever is present and the set of candidates elected when it is not.

To estimate the Master Lever's overall impact on policy-making, we apply difference-in-differences to panel data on incumbent U.S. senators running for re-election between 1946–2009. (For more information

[14] We proxy for partisanship with the fraction of self-declared Democratic and Republican voters per state and Congress as reported by Enns and Koch (2013).

on the data, see Section 2.) To generate treatment and control groups, we classify states into one of three mutually exclusive groups: (i) "leaver" states first had and then removed the Master Lever (948 observations from 15 states); (ii) "stayer" states have always had the option (945 observations from 15 states); and (iii) "non-participant" states never had the Master Lever on their ballots during the period we cover (18 states and 1,141 observations).[15]

Our classification scheme yields one treatment group—senators in leaver states—and two potential counterfactual control groups—senators in stayer and non-participant states—with which to estimate Equation (1):

$$y_{ist} = \beta_0 + \beta_1 \text{Master Lever}_{st} + \eta_t + \eta_{sj} + \varepsilon_{ist}, \tag{1}$$

where y_{ist} denotes the policy position of senator i in state s during Congress t, Master Lever$_{st}$ is an indicator equal to one if there is a straight-ticket voting option on state s's ballot for the upcoming Congressional election year t and η_t absorb Congress fixed effects. To account for remaining time-invariant selection bias, we also include fixed effects for state-party interactions (η_{sj}, where party is denoted by j).[16] ε_{ist} is a senator-, state- and Congress-specific error term.

β_1 identifies the Master Lever's mean causal effect on senatorial positions when the following assumptions hold: (i) stable unit treatment value; (ii) exogeneity; (iii) no anticipatory removal effects; and (iv) common trends.[17]

Exogeneity requires that the covariates we condition on are not affected by the treatment. The time-varying composition of voter positions and partisanship in a state—as well as the positions of the state government officials they elect into office—could affect voting behaviour *and* ballot design. Thus, controlling for them potentially biases our estimate of β_1 in Equation (1). Failing to control for them, however, might as well.

To circumvent this problem, we use senators in stayer states as our exclusive counterfactual control. As we verify and discuss in Appendix B, voters and local government officials in leaver and stayer states are relatively balanced on their partisanship status and political positions when both types of states implement the same Master Lever policy—*i.e.*, *before* leaver states remove the Master Lever. Their characteristics are significantly *imbalanced*, however, when non-participant and leaver states share the same policy—*i.e.*, *after* leaver states remove the Master Lever.[18] Other covariates included in our primary specification—*i.e.*, state and Congress fixed effects—are pre-determined.[19]

The assumption of a stable unit treatment value requires that the treatment applied to one state does not affect outcomes in another. In our setting, this implies senators in Master Lever states do not affect the positions of senators in non-Master Lever states. During the legislative bargaining process, senators from one state undoubtedly *do* influence senators in other states. Yet the causal root of this influence is most likely due to direct factors like individual preferences and party principles—which we control for with state, party and senator fixed effects. Conditional on these variables, we believe it unlikely that senators continue to affect each others' positions in a way that partially correlates with Master Lever status.

No anticipatory removal assumes senators in leaver states do not change their positions in advance of

[15] No state adopted straight-ticket voting between 1946–2009. See Appendix H for each state's Master Lever classification and the years in which the option was available on its ballot.

[16] Including only state fixed-effects does not alter our main conclusions (results available on request).

[17] We use a modified version of the terminology in Lechner (2011).

[18] Nevertheless, directly controlling for voters' partisanship and positions and/or using senators from non-participant states as our counterfactual control group does not noticeably impact our results or conclusions (see Appendices B and D.1). In Appendix D.2, we estimate the Master Lever's effect with the combined sample of stayer, leaver and non-participant states. Again, estimates and conclusions are similar to those presented in the main body of the paper.

[19] Although our primary specification includes party fixed effects (which are not pre-determined), conclusions are similar if they are excluded from the analysis (results available on request).

a policy change in straight-ticket voting. This implicitly requires that senators in both types of states correctly predict the Master Lever's presence on their upcoming election ballots. Unfortunately, we cannot know whether this was true for elections occurring shortly after the Master Lever was removed.[20] For this reason, we dropped 30 observations corresponding to Congresses during which a senator's state abolished the Master Lever.[21]

We also estimate the following modified version of Equation (1) proposed by Autor (2003). It explicitly tests for anticipatory removal and gauges the robustness of our assumption that the positions of senators in leaver and stayer states would have followed similar paths had the former not removed the Master Lever (common trends):

$$y_{ist} = \alpha_0 + \alpha_{-3}D_{-3} + \alpha_{-2}D_{-2} + \alpha_{-1}D_{-1} + \alpha_1 D_1 + \alpha_{2^+}D_{2^+} + \eta_t + \eta_{sj} + \varepsilon_{ist}, \tag{2}$$

where $D_t = 0$ for all t in stayer states ($t \in \{-3, -2, -1, 1, 2^+\}$); in leaver states, $D_t = 1$ the three periods before the Master Lever is removed ($t \in \{-3, -2, -1\}$), one period post-removal ($t = 1$) and all periods after that ($t = 2^+$). Because we drop observations corresponding to Congresses during which a senator's state abolished the Master Lever, D_0 is not included in Equation (2).

If our assumptions of no anticipatory removal and common trends are both satisfied, senators in stayer and leaver states should resemble one another before the latter removes the Master Lever, conditional on our controls—*i.e.*, α_{-3}, α_{-2} and α_{-1} in Equation (2) should not statistically differ from zero. We present these results—as well as our estimates of β_1 in Equation (1)—in Section 4.

4 Results

Table 2 displays our principal estimates of β_1 (Equation (1)). Columns (1), (3) and (5) include fixed effects for each state-party (or state) combination and all biennial Congressional terms between 1946–2009; columns (2), (4) and (6) replace state and state-party fixed effects with senator fixed effects, allowing us to investigate how the Master Lever impacts individual's positions.[22] Columns (1)–(2) are estimated on the entire sample; columns (3)–(6) split the sample by party (4 observations from members of the Independent party not included).

Although not significant, our estimate of β_1 in column (1) suggests the Master Lever leads to a 6 percent rightward shift in senatorial positions.[23] The significant figure in column (2) indicates at least half of this shift (3 percent) is from incumbent senators voting more conservatively when the Master Lever is present. Given the year-on-year average growth rate in Senate polarisation is only 3 percent, these results suggest a nationwide change in policy could considerably reshape the chamber's positional composition, *ceteris paribus*.[24]

The Master Lever has little or no impact on the Democratic party's position as a whole. Although not significant, the positive within-senator estimate shown in column (4) provides speculative evidence that incumbent Democratic senators support policies further on the left once the Master Lever is removed. Yet this appears to be offset by leaver states electing more conservative Democratic senators after the

[20] Ballot re-design requires time-consuming legislative intervention (for state-specific examples, see National Conference of State Legislatures (2011)) and is frequently contested in courts (*e.g.*, Michigan's effort to remove the Master Lever was resolved by the U.S. Supreme Court). We therefore assume senators do not anticipate changes to their state's Master Lever policy unless a law to adopt or remove it has *explicitly* passed.

[21] Including these observations does not noticeably change our results or conclusions (see Table C.2, Appendix C).

[22] Senator fixed effects additionally account for personal characteristics—*e.g.*, charisma, oratory ability and overall likeability—that might influence senators' positions and their state legislatures' propensity to alter ballot design.

[23] β_1 divided by the average senatorial position in the estimated sample.

[24] Polarisation is measured as the distance between average Republican and Democratic senatorial positions and plotted in Figure 2. 3 percent is the average year-on-year polarisation for all years between 1946–2009; since 2004, it has increased to 7 percent.

Table 2: The Master Lever's impact on senatorial positions (Equation (1))

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	3.209*	1.650**	1.061	1.537	5.168**	1.095
	(1.939)	(0.803)	(2.973)	(1.260)	(2.471)	(0.905)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	1,863	1,863	1,000	1,000	859	859
No. clusters	61	61	30	30	30	30
Adjusted R^2	0.876	0.984	0.551	0.957	0.647	0.964

Note. Figures estimate the average treatment effect on senators' policy-making in untreated leaver states (β_1 in Equation (1)), where senators in stayer states serve as the counterfactual control group. Columns (1) and (2) are estimated on the entire leaver-stayer sample. Columns (3)–(4) and (5)–(6) include only Democratic and Republican senators, respectively (4 observations from members of the Independent party not included). All results exclude 30 observations corresponding to Congresses during which a senator's state abolished the Master Lever (see Section 2 and Table C.2, Appendix C). Standard errors (in parentheses) clustered by state-party (columns (1)–(2)) or state (columns (3)–(6)) and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). (95 percent confidence intervals are 1.96 times displayed standard errors.) ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

policy change: β_1 in column (3) is close to zero and statistically indistinguishable from it.

For the Republican party, however, the Master Lever is clearly associated with a rightward shift in its senators' positions. Column (5) suggests party-wide positions jump 7 percent to the right when a straight-ticket option is available. Up to a quarter of this may be from changes to the types of policies incumbent senators support (column (6)).[25]

Table 3 estimates the Master Lever's impact under alternative electoral dynamics. Columns (1)–(3) restrict the sample to senators running for re-election in the current Congressional term, the next Congressional term and two Congressional terms away. The Master Lever appears to have the largest effect just after re-election; differences between coefficients are not, however, significant. Results in Table 3's fourth and fifth columns estimate β_1 in the sub-sample of Congresses held during mid-term and Presidential election years, respectively. The Master Lever seems to affect both types of elections similarly.

As discussed in Section 3, if no anticipatory removal and common trends are both satisfied, then senators in stayer and leaver states should resemble one another before the latter removes the Master Lever, conditional on our controls—*i.e.*, α_{-3}, α_{-2} and α_{-1} in Equation (2) should not statistically differ from zero. Results presented in Figure 3 suggests they do not. Dark grey figures estimate Equation (2) using senators from both parties; figures in blue and red split the sample by Democratic and Republican senators, respectively. Across all three specifications, senatorial positions in stayer states were similar to senatorial positions in leaver states just before the latter removed the Master Lever.

Moreover, α_1 and α_{2+} are negative (and the latter weakly significant) for Republicans but close to zero (and insignificant) for Democrats—*i.e.*, the Master Lever shifts senatorial positions to the right for Republican senators but has no significant effect on the positions of Democratic senators.[26] This suggests that the Master Lever does not produce long-term changes in voting behaviour, an assumption we also make in our model (Section 5). Instead, senatorial positions adjust almost immediately post-removal (α_1) and remain fairly constant over the long term (α_{2+}).

[25] β_1 divided by the average Republican senatorial position in the estimated sample.

[26] This is consistent with our results in Tables 2 and 3: because D_1 and D_{2+} pick up the effect of *removing* the Master Lever, the signs on α_1 and α_{2+} from Equation (2) are opposite to the sign on β_1 from Equation (1).

Table 3: The Master Lever's impact under varying electoral dynamics (Equation (1))

	Congressional terms to next re-election			Election type	
	This term	Next term	In 2 terms	Mid-term	Presidendtial
	(1)	(2)	(3)	(4)	(5)
Master Lever	3.137	2.967	3.619**	3.047	3.428*
	(2.400)	(2.074)	(1.655)	(2.038)	(1.916)
State-Party effects	✓	✓	✓	✓	✓
Congress effects	✓	✓	✓	✓	✓
Observations	633	612	614	962	901
No. clusters	59	59	59	61	61
Adjusted R^2	0.858	0.872	0.885	0.870	0.875

Note. Figures estimate the average treatment effect on senators' policy-making in untreated leaver states (β_1 in Equation (1)), where senators in stayer states serve as the counterfactual control group. Columns (1)–(3) restrict the sample to senators running for re-election in the current Congressional term, the next Congressional term and two Congressional terms away. Results in columns (4)–(5) estimate β_1 in the sub-sample of Congresses held during mid-term and Presidential election years, respectively. Sample excludes 30 observations corresponding to Congresses during which a senator's state abolished the Master Lever (see Section 2 and Table C.2, Appendix C). Standard errors (in parentheses) clustered by state-party and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). (95 percent confidence intervals are 1.96 times displayed standard errors.) ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

Finally, the fact that α_1 and α_{2^+} are negative (and in the latter case weakly significant), supports our assumption that upcoming electoral incentives affect senators' current policy-making. Consider senators elected at $t = -2$ or $t = -1$—*i.e.*, just *before* the Master Lever was removed—up for re-election at $t = 1$ or $t = 2$—*i.e.*, just *after* the Master Lever was removed. If Congressional voting patterns were independent of upcoming electoral incentives, then α_1 and α_{2^+} would not statistically differ from zero. The fact that the latter does for the Republican party suggests its senators use current policy-making to credibly signal their positions for future election campaigns.

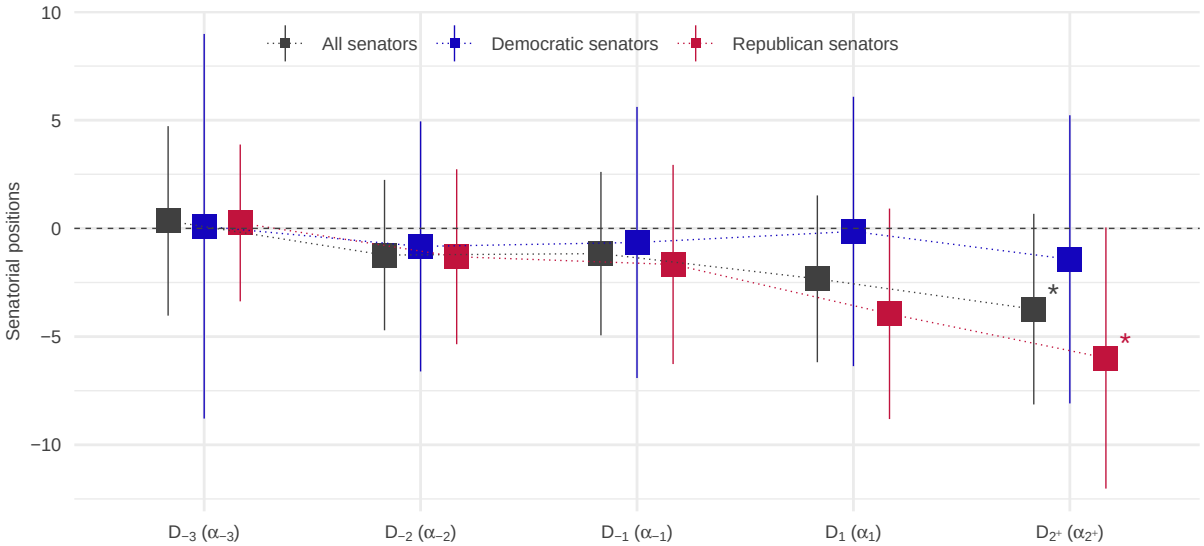
4.1 Robustness

Results are consistently robust to several alternative specifications presented in the Appendix. First, compared to leaver and non-participant states, leaver and stayer states are relatively balanced on the positions of local government and voters at the state level (Appendix B). Although there is a slight imbalance in voter partisanship, conclusions are similar if we re-estimate Equation (1) including it as a control (Table B.2, Appendix B).

In Appendix C, we replicate our estimates in Table 2 on alternative estimation samples. In Table C.1 we include senators who did not run for re-election; Table C.2 adds observations from years the Master Lever was removed. U.S. party politics underwent several changes between 1946–2009—most notably the Civil Rights movement and Democrats subsequently losing the South (see Kuziemko and Washington (2018)). We therefore re-estimate Equation (1), sequentially dropping observations from the 80–87th Congresses (January 1947 to January 1963) (Table C.3), the 88–96th Congresses (January 1963 to January 1981) (Table C.4), the 97–104th Congresses (January 1981 to January 1997) (Table C.5) and the 105–110th Congresses (January 1997 to January 2009) (Table C.6).

Appendix D.1 estimates Equation (1) using senators from non-participant states as our counterfactual control group (Table D.1). To account for imbalance on state-level variables, Table D.2 also controls for voter partisanship and positions and the positions of state government officials. In Appendix D.2, we estimate the Master Lever's effect with the combined sample of stayer, leaver and non-participant states.

In Appendix E we reproduce Figure 3 including an additional lag for the 4–10 Congresses before a Master



Note. Figures represent coefficients from OLS estimation of Equation (2), where senators in stayer states serve as the counterfactual control group. All results include state-party and Congress fixed effects. Dark grey figures are estimates from the entire leaver-stayer sample; figures in blue and red split the sample by Democratic and Republican senators, respectively (4 observations from members of the Independent party not included). Sample excludes 30 observations corresponding to Congresses during which a senator's state abolished the Master Lever (see Section 2 and Table C.2, Appendix C). Vertical lines correspond to 95-percent confidence intervals from standard errors clustered at the state-party level and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

Figure 3: Senatorial positions, years to treatment (Equation (2))

Lever policy change (Figure E.1). Appendix F shows 2 with alternative standard errors. In Appendix G, we evaluate the Master Lever's impact on senatorial positions starting from the introduction of the Australian ballot up to the end of World War II (1898–1945).[27]

5 Mechanism

The results we present in Section 4 suggest that the Master Lever's presence causes a right-ward shift in the positions of Republican—but not Democratic—senators. In this section, we use a model of electoral competition to investigate why.

Our model features three types of actors—voters, parties and candidates—within the policy space $\mathcal{P} \equiv \left[-\frac{1}{2}, \frac{1}{2}\right]$. Each party $j \in \{R, D\}$ (Republicans or Democrats) has a bliss point $Y_j \in \mathcal{P}$, where $Y_D < Y_R$. Each election cycle, two candidates—one from each party—compete for a single Senate seat. $y_j \in \mathcal{P}$ denotes the political platform of party j's candidate.

There is a unit mass of voters, indexed by i. $x_i \in \mathcal{P}$ represents each voter's bliss point; the average voter's bliss point is denoted by X. Voters are additionally characterised by their partisanship status, where p denotes the share of partisan voters in a state, $1-p$ the share of non-partisan (or *swing*) voters in a state and X^P the average position of partisan voters. σ is the covariance between voters' non-partisanship status and x_i. $\sigma > 0$ implies swing voters are more right-wing than the average voter in a state.

We model elections as games between candidates and voters. They proceed as follows. In anticipation of an upcoming election, candidate j adjusts her platform y_j.[28] Voter i then votes in the election. If the Master Lever is available, he decides whether to use it. If he does not use it, he goes through the

[27] In contrast to results presented in the body of this paper, the straight-ticket voting option during this earlier period was associated with a *left-ward* shift in senators' policy positions. Interpreted in conjenction with our model (Section 5), these results suggest important differences in pre- and post-war party politics.

[28] Conclusions are similar if parties pick candidates based on their platforms (see Gorelkina *et al.* 2020).

ballot race-by-race. Race-by-race voting allows voter i to choose a set of candidates closer to his bliss point—yielding greater utility—but incurs a cognitive and/or opportunity cost equivalent to the boost in utility he would have received had he quickly and efficiently "pulled the Master Lever" for his preferred party.

Voter i ticks the Master Lever if its benefits outweigh its costs. When they do, he chooses either party R or party D by solving a single utility maximisation problem. When they don't—or the option is not available—he goes through the ballot race-by-race, voting for the candidate in each that maximises his utility for that particular office.

We derive voters' utility over candidates using the probabilistic voting framework developed by Lindbeck and Weibull (1987). Voter i's utility contains three components: (i) the disutility incurred when a candidate's platform differs from x_i; (ii) a partisanship "bonus"—*i.e.*, an additional pay-off i experiences when the candidate from his preferred party wins the election;[29] and (iii) a random preference shock specific to i that incorporates factors such as presidential approval ratings and/or candidates' personality traits, perceived competence, *etc.*

Meanwhile, candidates face their own trade-off—one between attracting votes and toeing party line. Candidate j's optimal platform balances her desire to win votes by appealing to X with the cost of losing political and financial support by deviating from Y_j. The solution to her problem is found using backward induction and presented in Proposition 5.1. (All proofs shown in Appendix A.)

Proposition 5.1. *The optimal position for the candidate of party j, y_j^*, is a convex combination of the average voter position in the state, X, and the party's bliss point, Y_j, with a drift proportional to the swing-position covariance, σ. Adopting the Master Lever increases the weight of the party's bliss point, Y_j, and the effect of the swing-position covariance, σ.*

Proposition 5.1's intuition is straightforward. The Master Lever diverts partisan voters away from positional voting so candidates' platforms have less of an influence on voting behaviour. This gives candidates the opportunity to either campaign on a platform closer to their party's position (*party loyalty effect*) or steer it instead toward the preferences of non-partisan voters (*swing voter effect*). Both effects are discussed below.

5.1 Party loyalty effect

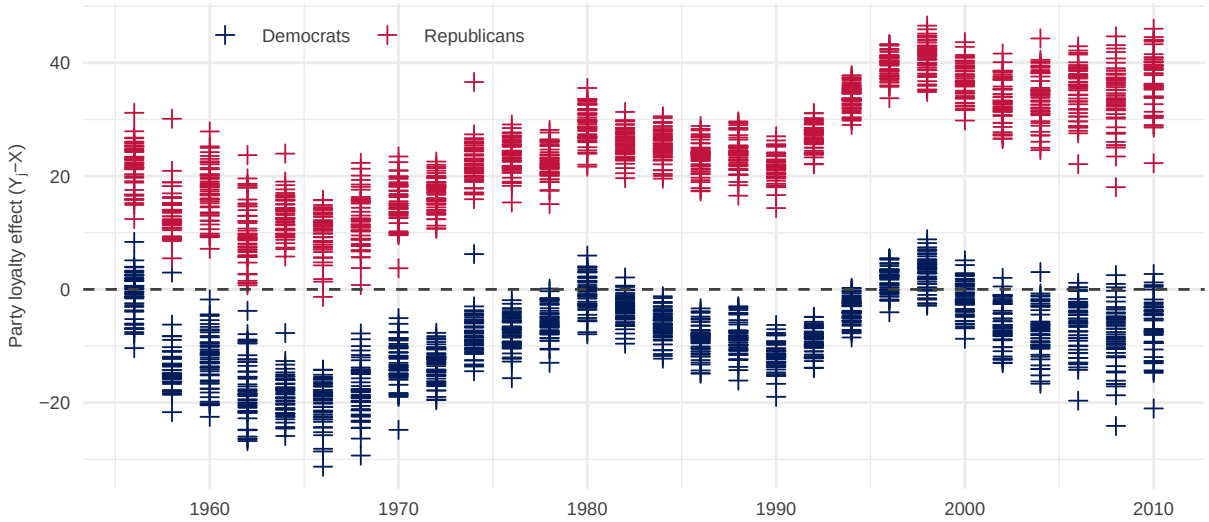
Consider a state in which voters' partisanship status is unrelated to x_i ($\sigma = 0$). Senator j's optimal position in this case is a convex combination of the average voter's position in her state and her party's bliss point (Lemma 5.1).

Lemma 5.1 (Party loyalty effect)**.** *If $\sigma = 0$, then introducing the Master Lever shifts the optimal y_j^* away from X and towards Y_j.*

When the Master Lever is present, candidates can afford to adopt a position closer to their party's line while campaigning for office. In moderate states ($Y_D < X < Y_R$), the party loyalty effect leads to more extreme candidates regardless of party. In left-wing ($X < Y_D < Y_R$) and right-wing ($Y_D < Y_R < X$) states, however, the Master Lever moderates Democratic and Republican candidates, respectively.

Figure 4 plots the driving force behind the party loyalty effect—*i.e.*, the difference between the average voter's position in a state and each party's bliss point—using median party- and year-specific Congressional voting positions across all senators to proxy for Y_j. It suggests a consistently negative party loyalty effect for Democratic senators—*i.e.*, $Y_D - X < 0$—and consistently positive party loyalty effect for Republicans senators—*i.e.*, $Y_R - X > 0$.

[29] The model's predictions do not change if the utility function is modified so that electing a "counter-party" candidate yields a *negative* pay-off to a partisan voter.



Note. Figure plots $Y_j - X$—*i.e.*, the driving force behind the party loyalty effect—across states, parties and time. We proxy for Y_j during Congress t with the median party-specific Congressional voting positions across all senators (data from Poole and Rosenthal (2015)). We proxy for X using the first dimension of Enns and Koch (2013)'s state-level policy "mood" variable calculated at the beginning of each Congressional term (see Footnote 11).

Figure 4: Party loyalty effect

5.2 Swing voter effect

Consider a state with a small party loyalty effect due to few partisan voters. Introducing the Master Lever encourages candidates from both parties to chase after swing voters (Lemma 5.2).

Lemma 5.2 (Swing voter effect)**.** *If the number of swing voters is sufficiently large, then introducing the Master Lever shifts y_j^* to the right when $\sigma > 0$ and to the left when $\sigma < 0$.*

The swing voter effect pushes candidate platforms in the direction of σ. $\sigma > 0$ implies swing voters are more right-wing—and partisans more left-wing—than the rest of the state. In order to attract them, senators adopt policies further to the right. Hence, the optimal candidate's position must satisfy a more right-wing voter when the Master Lever is present. Similarly, $\sigma < 0$ implies swing voters are more left-wing than the average voter in a state—and therefore partisan voters are more right-wing. The Master Lever's presence solidifies the support of the latter so senators move to the left in order to attract the former.

Directly estimating the swing voter effect requires disaggregated data on individual voters' partisanship and positions which we do not have. By combining the direction of the Master Lever's total effect by party—small and insignificant for Democrats, positive and significant for Republicans (Table 2)—with the direction of each party's party loyalty effect—negative for Democrats and positive for Republicans (Figure 4)—we can, however, indirectly deduce it (Corollary 5.1).

Corollary 5.1. *The Master Lever shifts the optimal senatorial position, $y_j^\star$, to the right if and only if*

$$X - Y_j < \frac{3}{2}(X - X^P).$$

For the Democratic party, the party loyalty effect is negative ($Y_D - X < 0$) but the Master Lever has not affected senatorial positions. Thus, Corollary 5.1 implies that $X_P < X$—*i.e.*, partisan Democratic voters are more extreme than the average voter so swing voters have a moderating impact on senatorial positions ($\sigma > 0$).

For the Republican party, the party loyalty effect is positive ($Y_R - X > 0$) while the Master Lever

has shifted the optimal senatorial position to the right. Corollary 5.1 therefore implies $X > X_P$—*i.e.*, partisan Republican voters are less extreme than the average voter and so swing voters must be *more* extreme ($\sigma > 0$).

Our model assumes voters are perfectly informed and rational; in real life, however, they're probably neither. When voters are prone to certain forms of irrationality such as the "ostrich effect" (see, *e.g.*, Panidi 2015), the Master Lever is likely to have an even greater impact on electoral outcomes. In this case, pulling the Master Lever allows voters to delegate undesirable choices—*e.g.* voting for party candidates they explicitly disapprove of—to party elites. Thus, a straight-ticket voting option allows its users to accrue both the utility they receive from toeing party line while also escaping personal responsibility for their actual vote.

6 Conclusion

We estimate the Master Lever's effect on policy-making using data on U.S. senators' roll-call voting histories in Congress. Our difference-in-differences estimator suggests the Master Lever shifts senatorial positions 3–6 percent rightward. The effect is larger the closer a senator is to re-election and the lower down her race appears on the ballot.

When we investigate the Master Lever's impact by party, we find it largely driven by Republican senators. In order to interpret this last result, we build a theoretical model of electoral competition. The Master Lever saves voters' the cost of going through a ballot race-by-race, so introducing it increases partisanship voting. With fewer positional voters, candidates are left with more political energy to either pander to remaining non-partisan voters—the *swing voter effect*—or cater to their party's agenda in order to secure its support—the *party loyalty effect*.

Empirically, we find the party loyalty effect induces both Republican and Democratic senators to take positions more extreme than the average voter in their states. Because the Master Lever does not affect Democratic senators' positions, however, our model suggests that their non-partisan voters are more right-wing than the average voter—*i.e.*, the swing voter effect counteracts the party loyalty effect. But since Republican senators' positions shift rightward when the Master Lever is present, the model suggests partisan Republican voters are more left-wing than the average voter—*i.e.*, for the Republican party, swing voter and party loyalty effects reinforce each other.

This paper formally establishes theoretical and empirical links between an element of ballot design common to many countries and the policy choices of elected officials. Although our results are specific to the U.S., the framework we develop can be used to analyse the impact a straight-ticket voting option has had in a variety of other jurisdictions.

Our estimates, moreover, are likely lower bounds. Senatorial elections are the first or second most important races on a ballot, so they are arguably less affected by the straight-ticket option. The Master Lever should have an even greater impact on electoral outcomes in state and local races since they are particularly prone to ballot non-completion (for evidence, see Feig 2007; Feig 2009).

Finally, our analysis suggests the Master Lever reduces the weight moderate Republican partisan voters have in determining electoral outcomes. As a result, Republican senators are pushed to take positions further to the right than they otherwise would if the Master Lever were absent. This conclusion corresponds to evidence that Congressional polarisation is predominantly driven by the Republican party (McCarty *et al.* 2006). It also suggests that electoral outcomes in moderate- to right-leaning Master Lever states—*e.g.*, Michigan and Pennsylvania—may be especially sensitive to conservative, non-partisan voting blocks.

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Appendices

A Proofs **2**

B Co-variate balance in leaver and stayer states **3**

B.1 Controlling for state-level characteristics 4

C Alternative estimation samples **6**

C.1 Including senators who did not run for re-election 6

C.2 Including observations during years the Master Lever was abolished 7

C.3 Sequentially excluding observations across time 8

D Alternative counterfactual groups **13**

D.1 Non-participant counterfactual control group 13

D.2 Combined samples 15

E Including an additional pre-treatment lag in Equation (2) **16**

F Alternative standard errors **17**

G The Master Lever's impact between 1898–1946 . . . . . **18**

H The Master Lever by state **19**

References **22**

A Proofs

Proposition 5.1. It follows from Gorelkina *et al.* (2020) Proposition 1, where $n = 1$, and hence $\gamma = \omega = 1$, $\alpha = 2$, that

$$y_j^* = \frac{1-\mu p}{3-\mu p} X + \frac{2}{3-\mu p} Y_j + \frac{\mu\sigma}{3-\mu p}, \tag{A.1}$$

where $\mu = 1$ if the Master Lever is available and $\mu = 0$ otherwise. Proposition 5.1 follows immediately from Equation (A.1). □

Lemma 5.1. Under the lemma's conditions Equation (A.1) becomes

$$y_j^* = X + \frac{2}{3-\mu p}\left(Y_j - X\right).$$

It follows immediately that

$$y_j^* \in \left[\min\left\{X, Y_j\right\}, \max\left\{X, Y_j\right\}\right].$$

Introducing the Master Lever corresponds to a decrease in the denominator and thus an increase in the coefficient weighing Y_j. □

Lemma 5.2. The proof follows from Equations (A.5) and (A.6). For any $X \in \left[-\frac{1}{2}, \frac{1}{2}\right]$, $Y_j \in \left[-\frac{1}{2}, \frac{1}{2}\right]$ and $\sigma > 0$ there exists $\widehat{p} > 0$ such that for all $p \in (0, \widehat{p})$,

$$Y_j + \frac{3}{2p}\sigma > X.$$

Conversely, for any $X \in \left[-\frac{1}{2}, \frac{1}{2}\right]$, $Y_j \in \left[-\frac{1}{2}, \frac{1}{2}\right]$ and $\sigma < 0$, there exists $\widehat{p} > 0$ such that for all $p \in (0, \widehat{p})$,

$$Y_j + \frac{3}{2p}\sigma < X.$$

□

Corollary 5.1. The politician's solution in the presence of a Master Lever is given by

$$y_j^*\,|_{\mu=1} = X + \frac{2}{3-p}\left(Y_j - X\right) + \frac{\sigma}{3-p}, \tag{A.2}$$

and the politician's solution without a Master Lever by

$$y_j^*\,|_{\mu=0} = X + \frac{2}{3}\left(Y_j - X\right). \tag{A.3}$$

Subtracting Equation (A.3) from Equation (A.2) we get

$$y_j^*\,|_{\mu=1} - y_j^*\,|_{\mu=0} = \frac{2p\left(Y_j - X\right) + 3\sigma}{3\left(3-p\right)}. \tag{A.4}$$

The denominator in Equation (A.4) is positive, so Equation (A.4) is positive if its numerator is positve. Since

$$\frac{\sigma}{p} = \frac{pX - \int p_i x_i di}{p} = X - X^P, \tag{A.5}$$

this implies

$$2\left(Y_j - X\right) + 3\left(X - X^P\right) > 0, \tag{A.6}$$

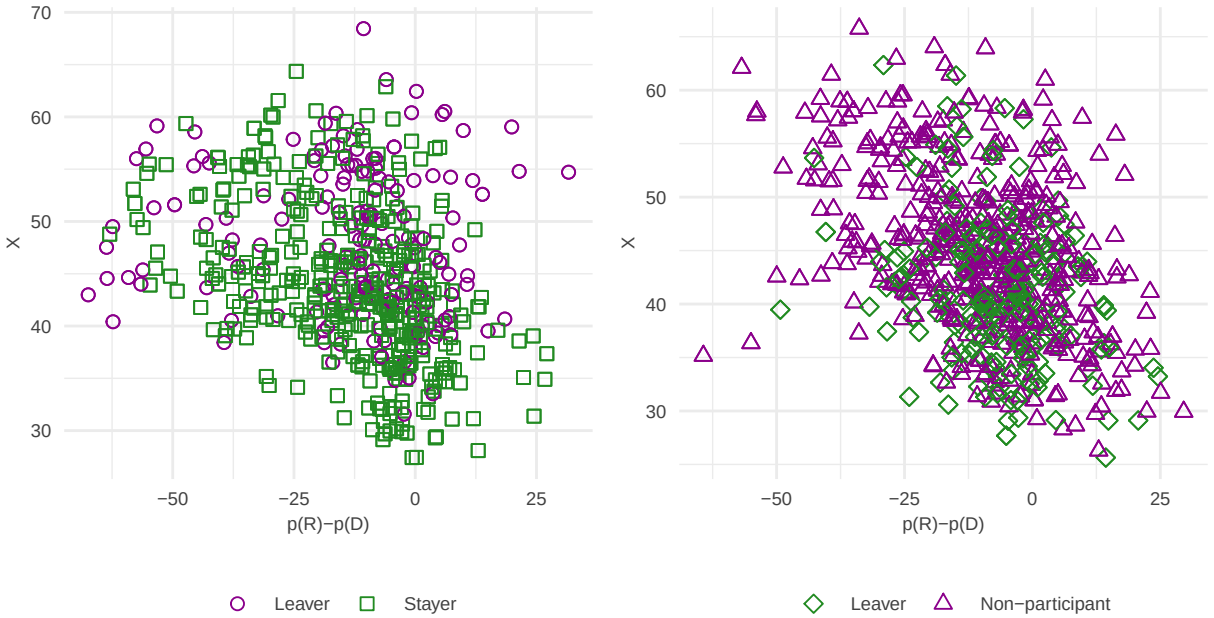
as desired. □

B Co-variate balance in leaver and stayer states

Although U.S. senators are federal positions, their elections are influenced by state-level politics. Thus, a state legislature's decision to change ballot design may partially correlate with time-varying forces that also determine the type of politicians its voters elect.[1]

As we argue in Sections 3 and 5, voters' state-level positions and partisanship status are the source of this bias. Unfortunately, directly controlling for either in Equation (1) could violate our identifying assumption of treatment and co-variate independence: because the Master Lever determines the type of politicians in power across all elected offices, its presence (or absence) will change the composition of state governments and, as a result, could eventually influence voters' partisanship and stated positions.

Because leaver and stayer states are relatively balanced on these variables, we use senators in stayer states as our counterfactual control group. Figure B.1 plots the average voter position in a state (X) against its Republican partisan advantage ($p(R) - p(D)$) in the leaver-stayer (left-hand graph) and leaver-non-participant (right-hand graph) sub-samples when both groups share the the same Master Lever policy.[2] Leaver and stayer states significantly overlap. Compared to leaver states, however, non-participant states are disproportionately "blue"—*i.e.*, they have relatively large shares of left-wing and Democratic partisan voters.[3]



Note. Scatter plots of average voter positions, X, from left- (0) to right-wing (100) vs. the Republican partisan advantage, $p(R) - p(D)$ (fraction of Republican minus fraction of Democratic partisan voters), for: (i) stayer and leaver states before the latter removed the Master Lever (left-hand graph); and (ii) non-participant and leaver states after the latter removed the Master Lever (right-hand graph). Data from Enns and Koch (2013).

Figure B.1: Covariate balance between stayer/leaver and stayer/non-participant states

[1] For example, right-wing governments losing ground in state-level elections might be more likely to abolish the Master Lever. Note that Equation (1) already accounts for all time-*invariant* forces.

[2] We proxy for partisanship with the fraction of registered Democratic ($p(D)$) and Republican ($p(R)$) voters in a state. $p(R) - p(D)$ intends to capture relative partisanship weight across parties; results are similar if $p(R)$, $p(D)$ or $1 - p$ (where $p = p(R) + p(D)$) are used instead.

[3] We draw identical conclusions by re-constructing Table B.1 to compare senators from non-participant and leaver states after the latter remove the Master Lever. Additionally, similar patterns emerge if we include state government positions in either graph.

B.1 Controlling for state-level characteristics

Table B.1 reports pre-treatment means and standard deviations for X, $p(R) - p(D)$ and the state legislature's position (Gov. position) for stayer and leaver states before the latter removed the straight-ticket option.[4] Stayer and leaver states are relatively balanced on X and Gov. positions. On partisanship status, however, they may be slightly imbalanced. We therefore replicate Table 2 controlling for $p(R) - p(D)$ and X (Table B.2).[5] Despite the smaller estimation sample—data on X and $p(R) - p(D)$ are only available starting in 1956—treatment effects are similar to those presented in Table 2.

Table B.1: Co-variate balance between leaver and stayer states

		All senators		Democratic senators		Republican senators	
		Leavers	Stayers	Leavers	Stayers	Leavers	Stayers
X	Mean	44.37	43.94	45.24	45.52	43.35	42.15
	Std. dev.	7.60	7.50	7.31	7.32	7.85	7.29
$p(R) - p(D)$	Mean	50.82	51.93	53.97	54.13	47.03	49.55
	Std. dev.	12.21	11.01	9.87	9.72	13.56	11.80
Gov. position	Mean	−9.52	−13.23	−14.57	−17.64	−3.66	−8.24
	Std. dev.	15.48	16.50	16.67	16.50	11.57	15.02

Note. Means and standard deviations of state-level co-variates for senators in stayer and leaver states before they removed the Master Lever. X is the range of average voter positions, $p(R) - p(D)$ is the Republican partisan advantage (fraction of Republican minus fraction of Democratic partisan voters) and Gov. position is the position of state government. Sample excludes 30 observations corresponding to Congresses during which a senator's state abolished the Master Lever (see Section 2 and Table C.2, Appendix C). Data on X and $p(R) - p(D)$ from Enns and Koch (2013) and are only available between 1956–2006; government positions from Berry *et al.* (2010) and are only available between 1960–2006.

[4] Data from Berry *et al.* (2010) aggregate DW-NOMINATE scores from each state's governor and major party delegations to both chambers of its bicameral legislature; they are only available between 1960–2006.

[5] Results are similar if we control only for $p(R) - p(D)$, X and/or include the positions of state-level government officials (data for which only start in 1960). (Results available on request.)

Table B.2: Table 2, controlling for voters' positions and partisanship status

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	3.068*	1.179*	0.867	0.802	4.128	0.299
	(1.862)	(0.644)	(2.590)	(0.916)	(3.054)	(1.121)
X	−0.135	0.026	−0.144	0.050	−0.022	0.030
	(0.091)	(0.034)	(0.137)	(0.065)	(0.139)	(0.037)
$p(R) - p(D)$	0.000	0.011	−0.057	0.009	0.087*	−0.002
	(0.037)	(0.013)	(0.051)	(0.012)	(0.052)	(0.022)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	1,560	1,560	832	832	724	724
No. clusters	61	61	30	30	30	30
Adjusted R^2	0.901	0.988	0.543	0.966	0.703	0.971

Note. Figures identical to those in Table 2 except that Equation (1) additionally controls for voters' state-level positions (X) and relative Republican partisanship status ($p(R) - p(D)$, where $p(R)$ and $p(D)$ are the fractions of partisan voters from the Republican and Democratic party, respectively). Smaller sample sizes due to data availability: data on voters' partisanship and positions from Enns and Koch (2013) only available between 1956–2006. Standard errors (in parentheses) clustered by state-party and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). (95 percent confidence intervals are 1.96 times displayed standard errors.) ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

C Alternative estimation samples

C.1 Including senators who did not run for re-election

Although the Master Lever's impact on policy-making is presumably motivated by electoral incentives, results presented in Table 2 nevertheless include every incumbent senator, whether they actually ran for re-election or not. (See Section 2 for the reasons behind this decision.)

For robustness, table C.1 re-estimates Equation (1) excluding these observations. Results are very similar—and conclusions identical—to those presented in the main body of the paper.

Table C.1: Table 2, excluding senators who did not run for re-election

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	3.707*	1.634*	1.916	1.761	5.267**	0.509
	(2.152)	(1.002)	(3.317)	(1.574)	(2.679)	(1.026)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	1,586	1,586	866	866	720	720
No. clusters	60	60	30	30	30	30
Adjusted R^2	0.877	0.985	0.552	0.957	0.656	0.971

Note. Figures identical to those in Table 2 except that 273 observations corresponding to senators who did not run for re-election are excluded. Standard errors (in parentheses) clustered by state-party and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). (95 percent confidence intervals are 1.96 times displayed standard errors.) ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

C.2 Including observations during years the Master Lever was abolished

To interpret the results we present in Section 4 as causal requires that senators in leaver states do not change their positions in anticipation of the Master Lever's removal (see Section 3). This approach implicitly requires that senators in both types of states correctly anticipate the Master Lever's presence on their upcoming election ballots. Because we do not know if this was true for elections occurring shortly after the Master Lever was removed, we dropped observations corresponding to Congresses during which a senator's state abolished the Master Lever. Table C.2 replicates Table 2 including these observations. Results are similar to those presented in Table 2.

Table C.2: Table 2, including observations during years the Master Lever was abolished

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	2.767	0.505	1.003	1.149	4.220*	−0.424
	(1.785)	(0.669)	(2.860)	(1.031)	(2.187)	(0.773)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	1,893	1,893	1,013	1,013	876	876
No. clusters	61	61	30	30	30	30
Adjusted R^2	0.876	0.983	0.552	0.957	0.640	0.961

Note. Figures identical to those in Table 2 except that 30 observations corresponding to Congresses during which a senator's state abolished the Master Lever are included. Standard errors (in parentheses) clustered by state-party and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). (95 percent confidence intervals are 1.96 times displayed standard errors.) ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

C.3 Sequentially excluding observations across time

Between 1946–2009, Democrats have consistently supported social welfare programmes, business regulation and workers' rights (including trade union representation). Republicans, meanwhile, have coalesced around policies supporting small government (including states' rights), low taxes and a light-touch regulatory environment. Thus, the post-war policies espoused by both parties have largely resembled the policies those same parties promote today.

Nevertheless, U.S. party politics during this period has undergone important changes on other dimensions—most notably the Civil Rights movement and Democrats subsequently losing the South (see Kuziemko and Washington 2018). To a lesser extent, the Republican party has also experienced a shift toward more conservative views on social issues (*e.g.*, abortion) sometime around the Reagan presidency (see Greenhouse and Siegel 2011).

To investigate whether our results are robust across the entire period we study, we sequentially drop observations spanning 8–9 Congresses starting with Congresses 80–87 (January 1947 to January 1963, Table C.3), 88–96 (January 1963 to January 1981, Table C.4), 97–104 (January 1981 to January 1997, Table C.5) and 105–110 (January 1997 to January 2009, Table C.6). Our estimates of β_1 in Equation (1) remain relatively stable despite these exclusions.

C.3.1 Excluding the 80–87th Congresses (Jan. 1947 to Jan. 1963)

Table C.3: Table 2, excluding observations from the 80–87th Congresses (Jan. 1947 to Jan. 1963)

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	2.199	1.214*	0.158	0.780	3.983	0.156
	(1.969)	(0.637)	(2.917)	(0.900)	(3.270)	(1.072)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	1,374	1,374	719	719	651	651
No. clusters	60	60	30	30	29	29
Adjusted R^2	0.914	0.989	0.546	0.975	0.721	0.972

Note. Figures identical to those in Table 2 except that 489 observations from the 80–87th Congresses (January 1947 to January 1963) are excluded. Standard errors (in parentheses) clustered by state-party and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). (95 percent confidence intervals are 1.96 times displayed standard errors.) ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

C.3.2 Excluding the 88–96th Congresses (Jan. 1963 to Jan. 1981)

As demonstrated in Kuziemko and Washington (2018), the Democratic party experienced a sudden about-face on Civil Rights issues around 1963.[6] This ignited a long Democratic decline (and eventual Republican rise) in Southern U.S. states: "in 1960, all U.S. senators from the South were Democrats, whereas today all but three (of 22) are Republican." (Kuziemko and Washington 2018, p. 1).

This change has undoubtedly impacted the political positions supported by Democratic and Republican senators alike (McCarty *et al.* 2006). To investigate the extent to which it impacts our results, Table C.4 excludes observations from the 88–96th Congresses (January 1963 to January 1981). We find Republican senators tend to adopt more right-wing policies when the Master Lever is present regardless of Southern whites' partisan allegiance.[7]

Table C.4: Table 2, excluding observations from the 88–96th Congresses (Jan. 1963 to Jan. 1981)

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	3.143	1.543	1.198	0.665	5.091*	0.940
	(2.116)	(1.249)	(2.990)	(1.962)	(2.941)	(1.491)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	1,322	1,322	653	653	665	665
No. clusters	60	60	29	29	30	30
Adjusted R^2	0.877	0.985	0.565	0.967	0.650	0.974

Note. Figures identical to those in Table 2 except that 541 observations from the 88–96th Congresses (January 1963 to January 1981) are excluded. Standard errors (in parentheses) clustered by state-party and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). (95 percent confidence intervals are 1.96 times displayed standard errors.) ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

[6] Before the spring of 1963, Kuziemko and Washington (2018)'s analysis suggests voters considered Democrats and Republicans about equally likely to advocate for social change in response to the Civil Rights movement. By 1964, however, these issues were considered the Democratic party's exclusive domain.

[7] During this Era, Southern whites were slightly to the left of non-Southern whites on non-Civil Rights policy issues (Kuziemko and Washington 2018). The model we present in Section 5 therefore suggests that, if anything, their party change probably exacerbated the Master Lever's long-term impact within the Republican party.

C.3.3 Excluding the 97–104th Congresses (Jan. 1981 to Jan. 1997)

Table C.5: Table 2, excluding observations from the 97–104th Congresses (Jan. 1981 to Jan. 1997)

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	3.264	2.023	0.228	3.407	5.834**	1.504
	(2.423)	(1.433)	(3.879)	(3.403)	(2.631)	(1.029)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	1,387	1,387	770	770	613	613
No. clusters	61	61	30	30	30	30
Adjusted R^2	0.862	0.984	0.573	0.956	0.597	0.961

Note. Figures identical to those in Table 2 except that 476 observations from the 97–104th Congresses (January 1981 to January 1997) are excluded. Standard errors (in parentheses) clustered by state-party and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). (95 percent confidence intervals are 1.96 times displayed standard errors.) ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

C.3.4 Excluding the 105–110th Congresses (Jan. 1997 to Jan. 2009)

Table C.6: Table 2, excluding observations from the 105–110th Congresses (Jan. 1997 to Jan. 2009)

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	4.280*	1.722**	3.483	1.989	4.911**	1.291
	(2.209)	(0.861)	(3.950)	(1.404)	(2.295)	(0.979)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	1,506	1,506	858	858	648	648
No. clusters	59	59	30	30	29	29
Adjusted R^2	0.868	0.984	0.568	0.959	0.663	0.961

Note. Figures identical to those in Table 2 except that 357 observations from the 105–110 Congresses (January 1997 to January 2009) are excluded. Standard errors (in parentheses) clustered by state-party and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). (95 percent confidence intervals are 1.96 times displayed standard errors.) ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

D Alternative counterfactual groups

D.1 Non-participant counterfactual control group

As we verify in Appendix B, voters and local government officials in leaver and stayer states are well-balanced on their partisanship status and political positions when both types of states implement the same Master Lever policy—*i.e.*, *before* leaver states remove the Master Lever. Their characteristics are significantly *imbalanced*, however, when non-participant and leaver states share the same policy—*i.e.*, *after* leaver states remove the Master Lever.

For that reason, we use senators in stayer states as our counterfactual control in Section 3. Nevertheless, using senators from non-participant states instead (Tables D.1) and controlling for constituent characteristics (Table D.2) does not fundamentally impact our principle results and conclusions.[8] (Note that leaver states are used as the treatment group in both Table 2 *and* Tables D.1 and D.2.)

Table D.1: Table 2, alternative counterfactual control group

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	2.440	0.756	−0.288	1.476	5.425**	0.046
	(1.969)	(0.893)	(2.911)	(1.236)	(2.141)	(1.006)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	2,059	2,059	1,099	1,099	945	945
No. clusters	69	69	32	32	33	33
Adjusted R^2	0.851	0.978	0.593	0.956	0.635	0.966

Note. Figures identical to those in Table 2 except that non-participant states are used as the counterfactual control group. (Note that leaver states are still used as the treatment group.) Standard errors (in parentheses) clustered by state-party and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). (95 percent confidence intervals are 1.96 times displayed standard errors.) ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

[8] See also Table B.2 in Appendix B, which controls for voter partisanship in the leaver-stayer sample.

Table D.2: Table D.1, controlling for constituent characteristics

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	1.804	1.035*	−0.699	1.017	3.712	−0.232
	(1.824)	(0.585)	(2.459)	(0.884)	(2.854)	(1.030)
X	−0.141	−0.042	−0.084	−0.025	−0.165	−0.019
	(0.092)	(0.038)	(0.148)	(0.064)	(0.133)	(0.046)
$p(R) - p(D)$	−0.045	0.001	−0.122**	−0.008	0.061*	−0.004
	(0.036)	(0.012)	(0.047)	(0.016)	(0.038)	(0.014)
Gov. position	−0.038	−0.011	−0.083	−0.008	0.012	−0.012
	(0.032)	(0.011)	(0.052)	(0.020)	(0.042)	(0.012)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	1,590	1,590	875	875	702	702
No. clusters	68	68	32	32	33	33
Adjusted R^2	0.890	0.989	0.561	0.971	0.707	0.976

Note. Figures identical to those presented in Table D.1 except that they also control for state legislatures' positions (Gov. position), voters' positions (X) and the latter's Republican partisanship advantage ($p(R) - p(D)$). Smaller sample sizes due to data availability: state legislatures' positions from Berry *et al.* (2010) only available between 1960–2006. Standard errors (in parentheses) clustered by state-party and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). (95 percent confidence intervals are 1.96 times displayed standard errors.) ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

D.2 Combined samples

The estimation sample in Table D.3 includes observations from all three state types (stayer, leaver and non-participant). The coefficient on the Master Lever dummy represents senatorial positions in states with straight-ticket voting compared to senatorial positions in states without it.

Table D.3: Table 2, entire sample

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	2.688	1.074	0.242	1.356	5.424**	0.310
	(1.810)	(0.813)	(2.801)	(1.215)	(2.091)	(0.823)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	3,004	3,004	1,619	1,619	1,370	1,370
No. clusters	99	99	47	47	48	48
Adjusted R^2	0.866	0.980	0.598	0.957	0.655	0.967

Note. Figures identical to those in Table 2 except that the sample includes observations from both stayer and non-participant control groups. Standard errors (in parentheses) clustered by state-party and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). (95 percent confidence intervals are 1.96 times displayed standard errors.) ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

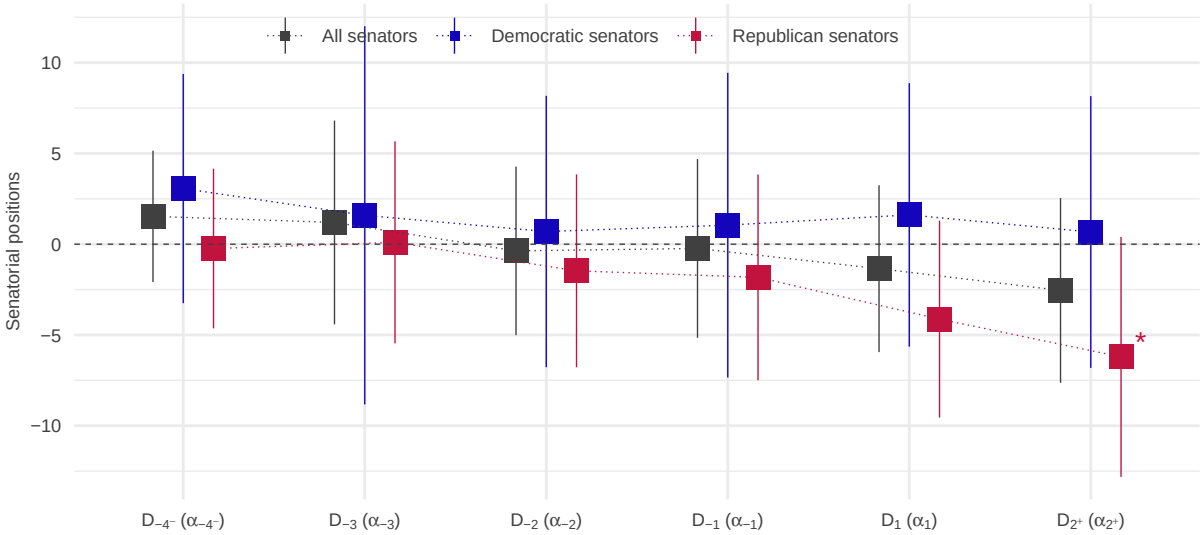
E Including an additional pre-treatment lag in Equation (2)

Equation (E.1) adds an additional lag to Equation (2) in order to capture the cumulative difference between stayer and leaver states 4–10 Congresses (8–20 years) before the latter abolished straight-ticket voting:

$$y_{ist} = \alpha_0 + \alpha_{-4^-} D_{-4^-} + \alpha_{-3} D_{-3} + \alpha_{-2} D_{-2} + \alpha_{-1} D_{-1} + \alpha_1 D_1 + \alpha_{2^+} D_{2^+} + \eta_t + \eta_{sj} + \varepsilon_{ist}, \quad \text{(E.1)}$$

where $D_{-4^-} = 1$ in leaver states 4–10 Congresses (8–20 years) before they removed the Master Lever from their ballots. The other variables in Equation (E.1) are the same as those defined for Equation (2) in Section 3.

Figure E.1 displays coefficients from OLS estimation of Equation (E.1). As required, α_{-4^-}, α_{-3}, α_{-2} and α_{-1} do not statistically differ from zero—and for Republican senators, all are especially close to zero. Thus, conclusions coincide with those drawn from Figure 3—*i.e.*, there appear to be no pre-treatment differences in senatorial positions between leaver and stayer states.[9]



Note. Figure identical to Figure 3 except that five pre-treatment lags are included in Equation (2). Vertical lines correspond to 95-percent confidence intervals from standard errors clustered at the state-party level and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

Figure E.1: Figure 3, with an additional pre-treatment lag

[9] Including additional lags for individual years produce similar results—*i.e.*, pre-treatment indicator variables are close to zero (particularly for the Republican party) and not statistically different from it. (Results available on request.)

F Alternative standard errors

Throughout the body of the paper we use standard errors clustered by state-party and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). Table F.1 reports standard errors clustered by senator. Table F.2 shows standard errors clustered by state-party but without the Bell and McCaffrey (2002) degrees-of-freedom correction.

Table F.1: Table 2, standard errors clustered by senator

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	3.209*	1.650**	1.061	1.537	5.168**	1.095
	(1.695)	(0.779)	(2.391)	(1.137)	(2.336)	(0.768)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	1,863	1,863	1,000	1,000	859	859
No. clusters	61	61	30	30	30	30
Adjusted R^2	0.876	0.984	0.551	0.957	0.647	0.964

Note. Figures identical to those presented in Table 2 except that standard errors are clustered by senator (in parentheses). ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

Table F.2: Table 2, without Bell and McCaffrey (2002) degrees-of-freedom corrected standard errors

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	3.209*	1.650**	1.061	1.537	5.168**	1.095
	(1.837)	(0.731)	(2.688)	(1.030)	(2.174)	(0.750)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	1,863	1,863	1,000	1,000	859	859
No. clusters	61	61	30	30	30	30
Adjusted R^2	0.876	0.984	0.551	0.957	0.647	0.964

Note. Figures identical to those presented in Table 2 except that unadjusted standard errors clusters by state-party are shown in parentheses. ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

G The Master Lever's impact between 1898–1946

In this Appendix, we compute the Master Lever's impact for the period just after the introduction of the Australian ballot and up to the end of the second World War (1898–1945). During this earlier period, we find the straight-ticket voting option is associated with a *left-ward* shift in senators' policy positions. The impact is apparent in both the leaver-stayer (Table G.1) and leaver-non-participant samples (Table G.2), although it is only significant for the Republican party in the leaver-stayer sample.

Table G.1: Table 2, estimated on the 56–79th Congresses (Jan. 1899 to Jan. 1947)

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	−0.393	0.417	0.462	1.390	−5.057	−0.328
	(3.088)	(1.494)	(4.839)	(2.810)	(5.629)	(2.481)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	1,715	1,715	813	813	883	883
No. clusters	75	75	34	34	30	30
Adjusted R^2	0.772	0.965	0.548	0.930	0.411	0.890

Note. Figures identical to those in Table 2 except that the Master Lever's effects are estimated on the 56–79th Congresses (January 1899 to January 1947). Standard errors (in parentheses) clustered by state-party and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). (95 percent confidence intervals are 1.96 times displayed standard errors.) ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

Table G.2: Table G.1, non-participant counterfactual control group

	All senators		Democratic senators		Republican senators	
	(1)	(2)	(3)	(4)	(5)	(6)
Master Lever	−2.025	−2.044*	−0.213	−1.908	−7.356**	−2.988*
	(2.715)	(1.119)	(3.257)	(1.257)	(3.602)	(1.709)
State-Party effects	✓					
State effects			✓		✓	
Senator effects		✓		✓		✓
Congress effects	✓	✓	✓	✓	✓	✓
Observations	886	886	452	452	412	412
No. clusters	37	37	17	17	14	14
Adjusted R^2	0.791	0.979	0.568	0.935	0.427	0.955

Note. Figures identical to those in Table 2 except that the Master Lever's effects are estimated on the 56–79th Congresses (January 1899 to January 1947) and the counterfactual control group is non-participant states. Standard errors (in parentheses) clustered by state-party and adjusted with the degrees-of-freedom correction proposed by Bell and McCaffrey (2002) and Imbens and Kolesár (2016). (95 percent confidence intervals are 1.96 times displayed standard errors.) ***, ** and * statistically significant at 1%, 5% and 10%, respectively.

H The Master Lever by state

Before the 20th century, voting in most U.S. states followed the "party strip" system. Single-party ballots were printed and distributed by the parties themselves and instructions on how to "split the ticket" were rarely provided.[10] In any case, ballots were typically distinguishable by party (*e.g.*, by colour and size), the ballot box was publicly displayed and party "hawkers" routinely monitored the vote. As a result, split-ticket voting was rare (Rusk 1970).

In 1856, Australia adopted the following balloting guidelines (also known as the "Australian Ballot" principles): (i) ballots should be prepared and administered by state government officials; (ii) all candidates from both parties should be listed together on a consolidated ballot; and (iii) voting should be done in secret. By the early 1890s, 90 percent of U.S. states had adopted these principles. As a result, split-ticket voting increased (Rusk 1970).

Since then, state-level differences in ballot design have been exclusively confined to a ballot's internal format. Today, most states have adopted "office bloc" or "Massachusetts" ballots which list candidates by office. Before the 1970s, the "party bloc" or "Indiana" ballot—where candidates' names are arranged by party—were more common. Figure H.1 displays both types of ballots side-by-side.

Straight-ticket voting options can be found on both types of ballots (see Figure H.1). It generally takes the form of a circle or box displayed beside party names at the top of a ballot. On some party bloc ballots, running a line through the columns of parties one does not wish to vote for registers a straight-party vote (*e.g.*, Texas before the 1970s).

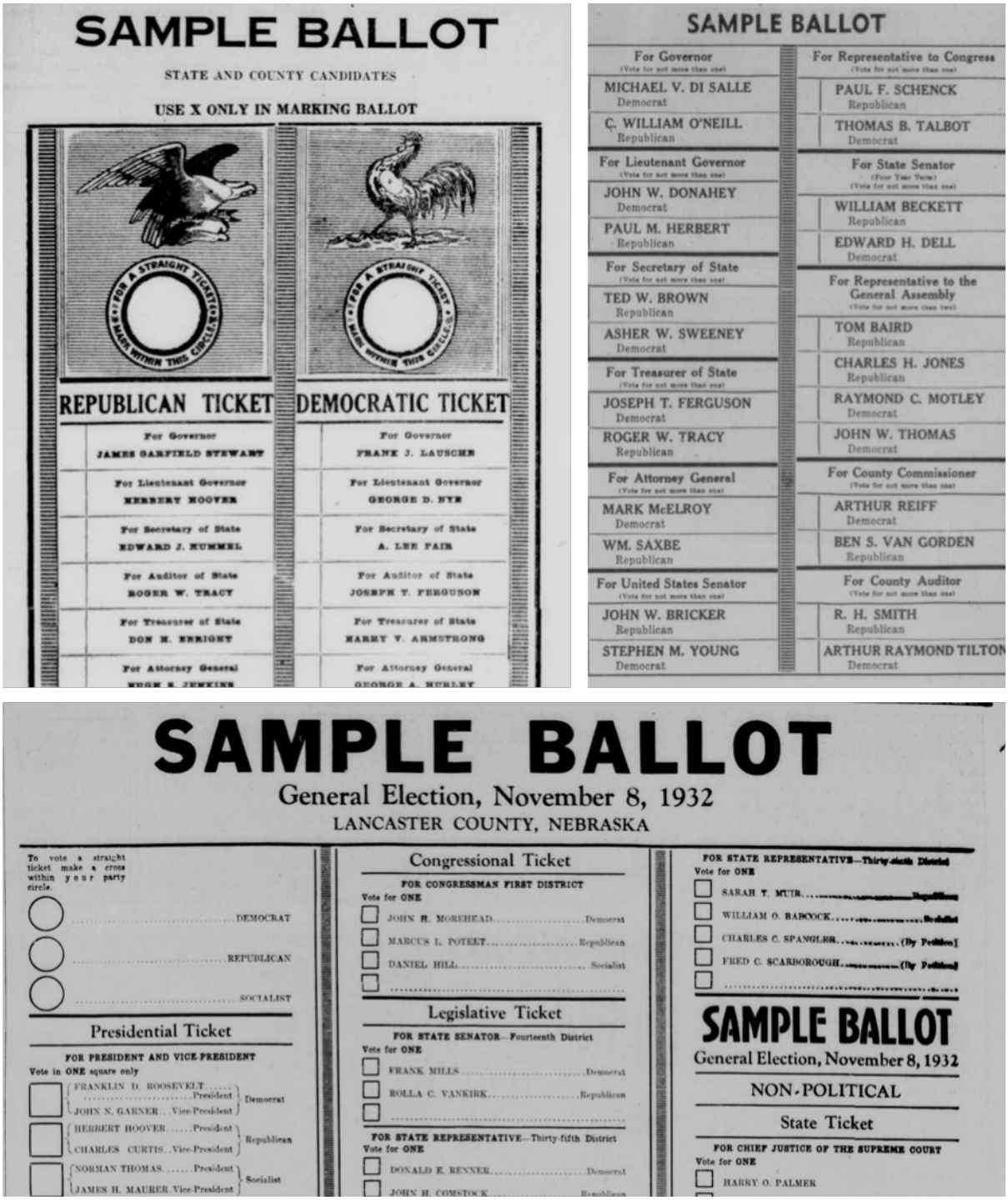
Although modern voting machines date back to the 1800s, they were first widely adopted in the 1940s and 1950s.[11] During this period, straight-ticket voting usually involved pulling a "party lever" at the top or side of the machine. Earlier voting machines tended to require pulling the party lever in order to begin voting—*e.g.*, in Tennessee before 1952—or else tied it to the vote for a particular office—*e.g.*, in Texas during the 1970s, voting for a presidential candidate automatically depressed the levers corresponding to candidates from the same party running in other races listed on the ballot. To "split" their tickets, voters then had to go through the ballot office-by-office, reversing the vote from the party lever. In later years, most lever voting machines either did not have the straight-ticket voting option or did not require pulling a party lever to initiate voting.

Finally, most states consolidate every race on a single ballot so their straight-ticket options are valid across all partisan elections. In some states, however, ballot design limits the option's scope. For example, prior to Ohio's adoption of the office bloc ballot in 1950, its voters received several ballots when going into a voting booth: the presidential ballot, another ballot specific to state- and county-level partisan elections (*e.g.*, U.S. senator, governor or sheriff) and one or more non-partisan ballots (*e.g.*, for judicial positions and referenda). Ticking the straight-ticket circle at the top of the presidential ballot would not carry through to the local partisan ballot (and visa versa).

Table H.1 displays the categories we use for our difference-in-differences identification strategy—*i.e.*, stayer, leaver or non-participant (see section 3).

[10] For example, some states allowed voters to scratch out individual candidates' names and write above them the names of candidates from other parties; in other states, voters were required to paste the name of alternative candidates over the names of candidates they were meant to replace.

[11] For example, Thomas Edison patented an electric voting machine in 1869. Although ballot design is almost always governed by the state legislature, the decision to use voting machines is generally decided at the county or city level—*e.g.*, one city in a state may vote by machine while another still votes with paper ballots.



Note. Top-left figure Ohio partisan state- and county-level sample ballot from 1944 in party-bloc form. (Note the straight-ticket voting option at the top.) Source: *Hamilton Daily News Journal*, Saturday 4 November 1944 edition, p. 12. Top right-hand figure Ohio partisan state- and county-level election ballot from 1958 in office-bloc form. (Note the absence of a straight-ticket voting option.) Source: *Hamilton Daily News Journal*, Friday 1 November 1948 edition, p. 17. Bottom figure Nebraska sample ballot in 1932 in office-bloc form. (Note the presence of a straight-ticket voting option on the top-left hand side of the ballot.) Source: *Lincoln State Journal*, Thursday 3 November 1932 edition, p. 8.

Figure H.1: Sample office and party bloc ballots

Table H.1: States' Master Lever status

	Difference-in-differences group	
State	1898–1945	1946–2009
Alabama	Stayer	Stayer
Arizona	Stayer	Leaver
Arkansas	Non-participant	Non-participant
California	Non-participant	Non-participant
Colorado	Leaver	Non-participant
Connecticut	Stayer	Leaver
Delaware	Stayer	Leaver
Florida	Non-participant	Non-participant
Georgia	Stayer	Leaver
Idaho	Stayer	Leaver
Illinois	Stayer	Leaver
Indiana	Stayer	Stayer
Iowa	Stayer	Stayer
Kansas	Leaver	Non-participant
Kentucky	Stayer	Stayer
Louisiana	Stayer	Leaver
Maine	Stayer	Leaver
Maryland	Non-participant	Non-participant
Massachusetts	Non-participant	Non-participant
Michigan	Stayer	Stayer
Minnesota	Non-participant	Non-participant
Mississippi	Non-participant	Non-participant
Missouri	Stayer	Leaver
Montana	Non-participant	Non-participant
Nebraska	Leaver	Non-participant
Nevada	Non-participant	Non-participant
New Hampshire	Stayer	Leaver
New Jersey	Non-participant	Non-participant
New Mexico	Stayer	Stayer
New York	Non-participant	Non-participant
North Carolina	Stayer	Stayer
North Dakota	Leaver	Non-participant
Ohio	Stayer	Leaver
Oklahoma	Stayer	Stayer
Oregon	Non-participant	Non-participant
Pennsylvania	Stayer	Stayer
Rhode Island	Stayer	Stayer
South Carolina	Stayer	Stayer
South Dakota	Stayer	Leaver
Tennessee	Stayer	Leaver
Texas	Stayer	Stayer
Utah	Stayer	Stayer
Vermont	Stayer	Leaver
Virginia	Non-participant	Non-participant
Washington	Stayer	Leaver
West Virginia	Stayer	Stayer
Wisconsin	Stayer	Stayer
Wyoming	Leaver	Non-participant

Note. Table displays states, their Master Lever category and the years that the Master Lever was present for mid-term and presidential elections held between 1898–2009.

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