One Strike and You're Out: The Effects of the Master Lever on Senators' Positions*

Olga Gorelkina
University of Liverpool†

Ioanna Grypari
IZA Institute of Labor Economics‡

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Abstract

This paper accounts for the effects of the master lever (ML), a straight-ticket voting option, on the positions of elected U.S. senators from 1961 to 2012. The ML, still present in some states, allows voters to select one party for all elections listed on a ballot by ticking only one box, as opposed to filling out each office individually. Introducing it changes the groups of voters targeted by parties and the positions of senatorial candidates. Theoretically, we analyze the effects of this shift in trade-offs by building a model of pre-election competition. Empirically, we use a difference-in-differences estimator to account for selection into treatment, and find that the ML has led to a right-wing shift of Republican positions, and has had on average no effect on Democratic senators. We explain this asymmetric result by examining the joint distribution of partisanship and positions in our sample.

Keywords: Ballot Design, Elections, Political Positions, U.S. Senate - *JEL:* D72, K16, N42

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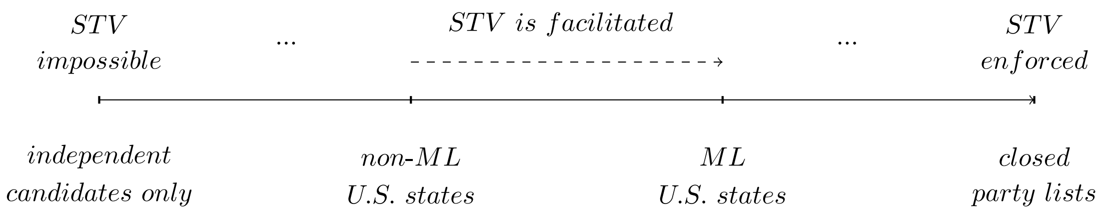
†ULMS, Chatham Street, Liverpool L69 7ZH, UK, olga@liv.ac.uk.

‡IZA, Schaumburg-Lippe-Strasse 5-9, Bonn 53113, Germany, igrypari@gmail.com.

1 Introduction

An important difference across electoral systems is the association between a party and its candidates running for office. In elections where several offices are contested at once, this relationship is related to the availability and easiness of voting a straight ticket, i.e. to cast the whole ballot for one party only. In the spectrum from closed party lists, where straight-ticket voting is mandatory, to elections with independent candidates only, where it is not at all possible, the U.S., as many other democracies, is between the two extremes.

In particular, in general elections,[1] voters are able to vote for each race separately, while the candidates' party membership is listed next to their names. In some states, however, there exists an additional choice at the top that offers the voter the possibility to select her preferred party for all races on the ballot, by ticking only one box; this is called a master lever (ML).[2] This option makes it easier to vote a straight ticket, rather than split it, and therefore, it implies a stronger association between parties and their candidates (see figure 1).



Notes: The availability and easiness of voting a straight ticket (STV) 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

This paper investigates the effects of a straight-ticket option on the positions of elected officials, and in particular of U.S. senators. The presence of the ML increases

[1]After each Congress (two years), there is a general election, either midterm or Presidential.

[2]a. The online Appendix (https://sites.google.com/view/ioannagrypari/research/ML) includes a sample ballot with a ML. b. It is called a master lever, because levers had to be pulled to vote in the past (a picture can be found on the same link). c. For the non-partisan elections on the ballot (those whose candidates are not affiliated to a party) voting only through the ML counts as a non-vote. d. Voters have the option to select a party through the ML and still vote for other offices individually without canceling the vote.

the number of partisan votes,[3] and thus redefines the groups of voters targeted by political candidates. Theoretically, we develop a model of electoral competition and show the importance of the joint distribution of partisanship and positions in the electorate and the political elite, in determining outcomes. Empirically, we identify the effects of the ML on the positions of incumbent senators seeking reelection, using a difference-in-differences approach. We find that from 1961 to 2012, Republicans have been on average more right-wing (extreme) when the option is available, whereas Democrats have seemingly not been affected by its presence.[4] Lastly, we use the theory and the political climate, as implied by the data, to explain the mechanism behind our results.[5]

The presence of the ML is in the competence of each state's legislature and is, in fact, a heavily debated issue.[6] As an example, in the run up to the 2016 general election, the GOP-held legislature of the state of Michigan passed a bill to ban the ML after a number previous unsuccessful attempts. The Democrats challenged the bill and eventually won the case in the U.S. Supreme Court, allowing the ML to take effect in the November election.[7] Further, even in Kansas where the option was abolished at some point before 1960, a bill to reinstate it was proposed (and rejected) in 2015.[8] The official arguments in favor of the ML are that citizen groups that are already using the option may become disenfranchised by removing it, and that its

[3]That is votes that are gained only because of the partisanship of a candidate and not her positions.

[4]The goal of this paper is not to explain the polarization in the Senate, but we do relate to that literature. See the next section and the conclusion for a discussion.

[5]The ML is commonly referred to as the straight-ticket or straight-party voting option, we will use all three terms interchangeably.

[6]In the 2018 midterm election, nine states will offer the ML: Alabama, Indiana, Kentucky, Michigan, Oklahoma, Pennsylvania, South Carolina, Texas and Utah. National Conference of State Legislatures (2017): http://www.ncsl.org/research/elections-and-campaigns/straight-ticket-voting.aspx [Accessed: 2018-03-10].

[7]Associated Press (2016-09-16): "Supreme Court Lets Michigan Use Straight-Party Voting in November," *The Wall Street Journal*, https://www.wsj.com/articles/supreme-court-lets-michigan-use-straight-party-voting-in-november-1473435855.

[8]Lefler, D. (2015-01-14), "Kris Kobach Proposes Bills to Return Straight-Ticket Voting, Change Election-Withdraw Procedure," *The Wichita Eagle*, http://www.kansas.com/news/politicsgovernment/article6557622.html.

availability decreases waiting times in polling stations. On the other hand, opponents argue that it leads to uninformed voters and a lack of accountability of politicians. The discourse in the media focuses instead on which party is "benefiting" from the option.[9,10] By examining senatorial positions in particular, we move the discussion from the state to the federal level, to policy making and to the overall composition of the U.S. Congress.

Moreover, as we discuss previously, there are other countries where voting a straight ticket is facilitated. One example is Argentina that until recently had a ballot and envelope system, before switching to electronic voting. Under that system, the voter is supplied with party ballots that each includes all of the party's candidates for the races contested. In order to vote a split ticket, the voter then has to physically cut the ballots and place her choices for each office in the casting envelope.[11] Clearly, in this case it is much easier to vote a straight ticket. In the conclusion, we discuss how our analysis can be used for such similar settings as well.

To summarize, the contribution of this paper is three-fold. First we formally establish a significant link between a common element of ballot design and the positions of elected officials, theoretically and empirically. This bridges the literature on the effects of voting procedures on electoral behavior with that of the determinants of political positions. Second, our results shed light on the broader issue of the association between parties and elected officials and have thus implications for a spectrum of electoral systems. We demonstrate one way this link determines how different groups of voters are targeted, and thus the strength of voters in policy making. Lastly, for the case of the U.S. and the ML in particular, despite the plethora of debates surrounding the option, we are the first ones that analyze its effects on (federal-level) policies.

[9] See `https://sites.google.com/view/ioannagrypari/research/ML` for a list of news articles.
[10] We take these arguments into consideration when addressing the selection problem in our sample.
[11] Barnes et al. (2017)

Theoretically, we examine the effects of the ML on political platforms through a pre-election competition model a-là Downs (1957). For each office contested in an election, parties nominate candidates to maximize their vote share, which they discount by the distance of their candidate's position from the party bliss point. Voters first decide whether to use the ML, if available. If they opt for the option, they save themselves the cognitive cost of going through the entire ballot, but they cannot fine-tune their choices per office. Otherwise they vote individually for each race on the ballot. Voters prefer candidates that are closer to their political positions and a partisan voter gets extra utility if she elects a representative of her preferred party.[12]

Since going through the ballot is costly, it is the voters that are nearly indifferent between voting a straight ticket and making exceptions for a small number of races that will be *most* tempted to use the ML, i.e. partisan voters (as opposed to swings). Therefore, when the option is available, partisans are more likely to use it and be diverted away from position voting. This implies that the positions of swing voters become relatively more important in determining election outcomes, so that candidates try to approach them, the *swing voter effect*. At the same time, the increase in "free" votes from partisans allows politicians to cater to their parties' political agenda and offer a platform closer to their party's bliss point, *the party loyalty effect*. Similarly, when examining the candidates' vote shares and expected position of the election winner, voter partisanship and the position of swings become more significant determinants of outcomes when the ML is available. We also study the spillover effects across different issue positions, which we find to be augmented in the presence of the option.

The variation in ML status in the U.S., across states and time, provides for our natural experiment. Due to data availability, we focus on the Senate. The Senate

[12]Note that non-partisan (swing) voters are identical to partisans besides this extra utility. Also, we separate partisanship and positions, so that Republican voters can be left-wing, for example.

is one of the two chambers of the federal legislative branch in the U.S. Each state is represented by two senators who serve staggered six-year terms. In other words, in every midterm or Presidential election at most one Senate seat is up for a vote, per state. In these years, other offices are also contested, so that a voter is faced with a list of elections on the ballot, that differs across states. As there is no term limit in the Senate, the majority of senators (78.72%) run for reelection at the end of their term. Therefore, we can use their positions while in power as their platform for the upcoming election.[13] Since other forces also determine these positions (besides reelection incentives), our estimates provide a lower bound of the ML effects on political campaigns. On the other hand, by looking at actual implemented policy, we offer an arguably more relevant measure. Note also that the Senate race is one of the most important ones in an election and, thus, voters are likely to have a preferred candidate and not be "distracted" by the option. For offices further down the ballot, the effects of the ML would be even stronger than our estimates.

We have two groups of states in our sample, leavers, that first had and then removed the ML, and stayers that always offer the option. Although the senator's office is a *federal* position and the presence of the ML is decided in the *state* legislature, the officials for both are elected by the same electorate. The resulting selection bias has two possible forms. The first one is long-term state-level party politics that are time-invariant, and the second is based on time-varying observables, namely the partisanship and positions of the electorate and state legislature. The former is taken care of using a difference-in-differences estimation, and with respect to the latter we find that these variables are well-balanced in the two groups of states and can thus be excluded from the regression.

Therefore, the DD estimator identifies the average treatment effect of the untreated, i.e. leaver states. Using the methodology in Autor (2003) we verify that

[13]We use the DW-Nominate scores that summarize positions on all issues into a left to right-wing score (Poole and Rosenthal (2015)).

both groups are experiencing the same effects from the option and their outcomes are trending similarly, prior to leavers removing it. Consistent with the theoretical setup, we also find that the ML does not have any permanent effects on voting, but rather only on election day. In other words, leavers immediately adjust to their long-term non-ML positions from the first year post-removal.

Our results show that the straight-ticket option leads to a significant right-wing shift in the positions of Republican senators, whereas it has no impact on Democrats. Moreover, as we expect, the effects are larger the closer a senator is to a reelection and the lower the office is on the ballot; i.e. in Presidential elections where the race for President is the most important federal office contested. These results are robust across all specifications.

However, there is nothing in the ballot option itself to warrant the asymmetry across parties in our findings. In order to understand it, we estimate the party loyalty (PL) and swing voter (SV) effects in the data. As in almost all state-Congress pairs the average voter's position is in between the two party bliss points, we have that PL is negative for Democratic senators and positive for Republicans. Moreover, in our sample most partisans are left-wing Democrats, so that swing voters tend to be more right-leaning, and thus SV is positive. In other words, consistent with our findings, both effects are positive for Republican senators and go in opposite directions for Democrats. In the conclusion, we discuss the external validity of our results and the values for SV and PL for non-leaver states. Note, that when it comes to policies that reinforce the association between party and candidate, such as the ML, the position of swing voters compared to all partisans together, as opposed to separately by party, becomes the relevant measure.

The rest of the paper is organized as follows. Section 2 summarizes the related literature. Section 3 presents the theoretical model and results, and discusses the modifications made to the model when taken to the data. In Section 4 we discuss the identification strategy, our empirical findings and the mechanism behind them. In Section 5 we conclude and consider the external validity and implications of our results.

2 Related Literature

First, our paper relates to the literature on the polarization of the US political elite. Although our objective is not to explain this phenomenon (our setting is not adequate for this task), our findings do have implications on the composition of a legislature.[14]

Political polarization is defined as the gap between the positions of the Democratic and Republican parties at the mass and/or elite-level in some issue or ideological space. There is general agreement that political elites in the U.S. are polarized. McCarty et al. (2006) show that the difference in mean positions between the two parties has continued to grow since the 1940s in both the House of Representatives and the Senate, and that this increase is driven more by the Republican Party.

There is an extensive literature on the causes of polarization,[15] with a strong focus on the role of the voters. At the national level, there is no evidence of mass polarization and changes in the Congress composition have not been following changes in voter ideology, overall and across issues.[16] At the district-level, there is conflicting evidence on the importance of the electorate's preferences in predicting legislative behavior. Krasa and Polborn (2014) find that there is a stronger effect from politicians to voters, as opposed to the other way around, whereas Kirkland (2014) and McCarty et al. (2015) show that within-state or district ideological heterogeneity does lead to more extreme politicians. Harden and Carsey (2012) demonstrate that voter preferences can predict senatorial positions only in homogeneous states, and that the voters'

[14]See the conclusion for a discussion.

[15]See Barber and McCarty (2015) for a review.

[16]E.g. Abramowitz (2010), Ansolabehere et al. (2006), Bafumi and Herron (2010), Fiorina et al. (2005), Fiorina and Abrams (2008), Tausanovitch and Warshaw (2013).

party affiliation is a much more important determinant of political polarization. In fact, there is a growing literature on the importance of party sorting (the increased correlation between voter positions and their party affiliation) and within-state party strength in determining Congress members' positions, with the direction of causality debated.[17]

In terms of economic causes, McCarty et al. (2006) and Garand (2010), among others, have examined the importance of income inequality in determining polarization. In general, periods of higher income inequality are associated with more extreme legislatures, that are also more right-leaning (Voorheis et al. (2015)). Further, Autor et al. (2016) find that the effects of foreign competition and shocks to local labor markets have also contributed to political extremism.

Significant attention has also been given to the interaction of mass media with the electorate.[18] Campante and Hojman (2013) show that broadcast TV has led to more extreme Congress members, but Prior (2013) finds no evidence of partisan media, *in particular*, influencing voter preferences. On the other hand, Snyder and Strömberg (2010) point to the importance of media coverage, with higher coverage leading to less ideologically extreme Congress members.

Other factors that have been considered as a source of the increasing polarization have been gerrymandering (redistricting), midterm vs Presidential elections, characteristics of the primaries and different elements of campaign financing. Engstrom (2013) accounts for the importance of redistricting on a variety of political outcomes (competitiveness of elections, partisan control, etc), but McCarty et al. (2009) find little evidence of a causal relationship between gerrymandering and ideological extremism, specifically.

Different types of elections have been studied as well, with Halberstam and Mon-

[17]See Krasa and Polborn (2014), Layman and Carsey (2002) and Levendusky (2009), among others.

[18]See Strömberg (2015) for a review of the literature.

tagnes (2015) finding that midterm elections are in fact associated with more extreme senators, whereas there is growing evidence that primary elections are weak in explaining polarization.[19] Lastly, in terms of campaign contributions, Barber (2016) finds that higher donation limits on PACs[20] lead to moderate legislators, and a larger number of donations from individuals to more extreme.

Second, we relate to the extensive literature on the way ballot design can affect voting behavior. Different ballot characteristics that have been examined are ballot secrecy (e.g. Heckelman (1995)), the ordering of names (e.g. Chen et al. (2014)), and the office bloc vs. party column ballot form (e.g. Walker (1966)), among others.[21]

In terms of the ML in particular, the literature shows that, as expected, its presence reduces the number of split tickets (voting for different parties for different offices), with varying effects depending on the party and seat up for election.[22,23] Note also that when selecting the ML, all partisan elections on the ballot[24] are automatically voted on, and all non-partisan elections are counted as non-votes, unless a voter specifically chooses a candidate for these offices as well. Feig (2007), Feig (2009) and Kimball et al. (2002) find that the ML decreases voter roll-off[25] and Bonneau and Loepp (2014) show that it decreases participation in non-partisan elections. In terms of voter errors, Herrnson et al. (2012) demonstrate that a straight-ticket option increases the occurrences of people not voting for the candidate they intend to, and Kimball and Kropf (2005) find that it reduces over-votes, i.e. cases when voters mark too many candidates. For our purposes, the most important take-away

[19]See Hirano et al. (2010), McGhee et al. (2014) and Barber and McCarty (2015).

[20]Political Action Committees

[21]See Barnes et al. (2017) for a review of the literature on the intended and unintended effects of ballot structures and voting procedures.

[22]See Campbell (1980), Campbell and Miller (1957), Darcy and Schneider (1989), Kimball et al. (2002), McAllister and Darcy (1992), Reynolds and McCormick (1986) and Rusk (1970), among others.

[23]Barnes et al. (2017) analyze a ticket reform in Argentina that is similar to removing the ML (see the discussion in the introduction). In this setting as well, the authors find that post "ML" removal, there is an increased numbers of split tickets.

[24]Those where candidates are affiliated to a party.

[25]Lack of votes for offices further down the ballot.

from this literature is that the ML is in fact used by voters, and it matters even for offices further up the ballot.[26]

This paper brings together the two aforementioned strands of literature. We do not examine directly the effects of the ML on electoral behavior, but we go one step further and account for the importance of this characteristic of ballot design on the positions of elected senators.

3 Theory

First, we present the setup and theoretical results of the paper, then, in the last subsection, we discuss the modifications we make when taking the theory to the data.

3.1 Setup

We develop a simple model of electoral competition. All the variables and parameters are public information, unless otherwise specified. Fix a U.S. state and an election period and let the offices listed on a ballot be indexed by k, $k \in \mathcal{K} \equiv \{1, 2, ...K\}$. Let $\mu \in \{0, 1\}$ indicate the availability of a ML, or straight-ticket option, so that $\mu = 1$ when a ML is present and $\mu = 0$, otherwise. We consider a multi-dimensional policy space, a product of N unit-length intervals

$$\mathcal{P} \equiv \left[-\frac{1}{2}, \frac{1}{2}\right]^N,$$

where N is the number of policy issues, such as economics, national defence, social issues, etc. Three types of actors are positioned within $\mathcal{P}$: voters, parties, and candidates.

[26]In terms of which voters actually use the ML, Feig (2007) and Feig (2009) show that blacks are more likely to use it, and in a lab experiment Lewkowicz (2007) finds that Democrats and Republicans are equally likely to select the ML, but strong, weak and non-partisans in order have decreasing probabilities of using it.

Each party $j \in \{R, D\}$ (Republican or Democratic) has a bliss point denoted by a vector of issue positions

$$Y_j \equiv (Y_{j1}, Y_{j2}, ...Y_{jN}) \in \mathcal{P}. \tag{1}$$

Without loss of generality, we label the positions so that the Democratic party's bliss point is to the left of the Republican in every coordinate, $Y_{Dn} < Y_{Rn}$, $\forall n \in \{1, 2...N\}$.

Candidates are characterized by an office, k, the party they represent, j, and their positions, $y \in \mathcal{P}$. For each office, the pool of candidates is $\mathcal{P}$ and each party selects one candidate, y_{j_k}, to represent them and run for the seat (see (10) below).[27]

There is a unit mass of voters, indexed by i, each with a bliss point given by x_i,

$$x_i \equiv (x_{i1}, x_{i2}, ...x_{iN}) \in \mathcal{P}. \tag{2}$$

Integrating over the mass of voters we obtain the average position in the state–period

$$X \equiv \int_{[0,1]} x_i di \in \mathcal{P}. \tag{3}$$

Apart from their political positions, voters are characterized by their partisanship status. Let $p_i(j)$ denote the probability that voter i (whose position is x_i) is a partisan of party j.[28] The realization of the random variable is denoted by I_i^P; $I_i^P = 1$ implies that the voter is a partisan, and $I_i^P = 0$ implies a non-partisan, or *swing*.[29] Assuming that everyone in the electorate can be a partisan of at most one party, we introduce the total probability of being a partisan

$$p_i \equiv p_i(j) + p_i(-j), \tag{4}$$

[27] We assume that, for each office, there are exactly two candidates running, one for the Republican and one for the Democratic party.

[28] Alternatively, p_i can be thought of as the mass of partisan voters within *voter group i* characterized by position x_i.

[29] From now on we will use "non-partisan" and "swing" interchangeably.

where $-j$ reads "other than j."[30] Party j's partisan advantage in the state–period is $p(j) - p(-j)$, where $p(j) = \int_{[0,1]} p_i(j)\, di$ is the mass of party j partisans. By analogy, $p = \int_{[0,1]} p_i di = p(j) + p(-j)$ is the share of partisans. We also let X_n^P denote the average position of partisans on issue n,

$$X_n^P \equiv \frac{1}{p} \int_{[0,1]} p_i x_{in} di \in \mathcal{P}. \tag{5}$$

A given voter's political positions and partisanship status are generally not independent, the covariance is given by $\int (p_i - p)(x_{in} - X_n)\, di$. In our analysis, we shall use its negative, namely the covariance between the voter's position on issue n and the likelihood of being swing,[31]

$$\sigma_n \equiv -\int (p_i - p)(x_{in} - X_n)\, di. \tag{6}$$

If $\sigma_n > 0$, then a non-partisan status is associated with a more right-wing position on issue n, as compared to the rest of the state. Similarly, $\sigma_n < 0$ implies that, for issue n, swing voters tend to be to the left of the state's average, and partisans to the right. This variable plays an important role in the analysis of ML effects. Notice that in X_n^P and σ_n we consider all partisans together, irrespective of which party they belong to.

Actions, Payoffs and Timing Our model of an election with a ML is a game between two parties and a mass of voters. Recall, that the ML gives the voter the opportunity to select one party for all offices listed on a ballot, as opposed to going through it, voting office by office. The game proceeds according to the following timeline:

$t = 1$ Party j chooses a candidate, y_{j_k}, to compete for seat k. The party derives utility

[30] $-j = \{R, D\}/j$.
[31] Here we use $(1 - p_i) - (1 - p) = -(p_i - p)$.

from the share of votes it gets and incurs a loss if its candidate's positions differ from the party's bliss point.

$t = 2$ Voter i decides whether to use the ML, if available; if she does not, she goes through the whole ballot incurring cost c_i.

$t = 3$ Voter i elects one candidate for each office, either indirectly (when using the ML) or directly (when going through the ballot).

We solve the game by backward induction.

$t = 3$: **Electing Candidates.** If the voter uses the ML, she solves a single maximization problem for the entire ballot:

$$\max_{j \in \{R,D\}} \sum_{k=1,..K} u_{ik}(j) \equiv \hat{U}_i. \tag{7}$$

Let $\hat{j}_i \in \{R, D\}$ denote the problem's solution, so that $\hat{j}_i$ is the party that gives the maximum payoff to voter i in the election.

If the voter goes through the ballot office by office, she solves a sequence of K distinct maximization problems:

$$\sum_{k=1,..K} \max_{j_k \in \{R,D\}} u_{ik}(j_k) \equiv U_i^*. \tag{8}$$

As the domain of (7) is a strict subset of (8), the more refined solution, $(j_{i1}^*, j_{i2}^*, ...j_{iK}^*) \in \{R, D\}^K$, yields greater utility to the voter, $U_i^* \geq \hat{U}_i$.

We build upon the probabilistic voting framework of Lindbeck and Weibull (1987) to define the voter's utility in (7) and (8).

$$u_{ik}(j) = \begin{cases} -\sum_n \omega_n (x_{in} - y_{jn})^2 + \beta_k + \varepsilon_{ij}, & \text{if } i \text{ is a partisan of } j, \\ -\sum_n \omega_n (x_{in} - y_{jn})^2 + \varepsilon_{ij}, & \text{otherwise.} \end{cases} \tag{9}$$

The first component of (9), $-\sum_n \omega_n (x_{in} - y_{jn})^2$, is the disutility experienced by i if candidate j's positions differ from i's bliss point, where every issue n has weight $\omega_n > 0$. The second component is a partisanship "bonus" $\beta_k > 0$; an extra payoff that the voter gets if the candidate from her partisanship party wins the election.[32] Thirdly, ε_{ij} is a private preference shock, an advantage over the opponent $-j$ ($\varepsilon_{ij} = -\varepsilon_{i,-j}$) that results from various factors such as presidential approval, differences in personality traits, perceived competence, etc.[33] ε_{ij} is uniform on $\left[-\frac{1}{2}, \frac{1}{2}\right]$ and independent of (x_i, p_i).[34] Although the shocks are private, their distribution is common knowledge, so that there is no aggregate uncertainty in the model.

$t = 2$: **Voter's Choice to Use the ML.** The voter decides whether to use the option by comparing the cost, $c_i > 0$, and the benefit $U_i^* - \hat{U}_i$ of making a better choice by going through the entire ballot. Note that voters are rational and can thus infer U_i^* and $\hat{U}_i$ at $t = 2$.

c_i represents the cognitive effort[35] and opportunity cost associated with solving K separate decision problems. Reversely, it can also be thought of as a boost in utility from "pulling the ML" on the party you like. It depicts any force that tilts the voter towards using option when she is almost indifferent. In Section 4.6 of the empirical, we discuss how our findings are consistent with this setup.

$t = 1$: **Party's Choice of Candidate.** The party's problem is a tradeoff between attracting votes and satisfying its own policy agenda (ideological purity), and it is separable across offices. In fact, for our purposes, i.e. the senatorial election, the

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

[33]In a model where parties maximize their winning probability, as opposed to vote share, we would also introduce an aggregate candidate-specific shock η_j.

[34]For a discussion of the framework with a continuum of random variables that are conditionally independent we refer the reader to Hammond and Sun (2008).

[35]This follows the "choice fatigue" literature. Most recently, Augenblick and Nicholson (2016) show that agents incur a cost when filling out an entire ballot.

$K-1$ other offices are only important in that they create a tradeoff for the voter between going through the ballot and using the ML.

For each office, the party solves the following optimization problem:

$$\max_{y_j \in \mathcal{P}} \left\{ V_j - \sum_n \gamma_n \left(Y_{jn} - y_{jn}\right)^2 \right\}, \tag{10}$$

where we have dropped the office subscript k, V_j is the share of votes for candidate j, and $\gamma_n > 0$.[36]

The first term V_j of the maximization program (10) reflects the driving force of political competition, namely the party seeking to capture more votes. The second term corresponds to the party's loss from disagreement with the candidate: a senator whose views diverge from Y_j will be less determined to pass the bills proposed by the party to implement its preferred policies. Generally speaking, it captures any force that deters the parties from offering the same exact position (policy convergence).

Optimization program (10) admits other interpretations as well. In the empirical exercise, instead of parties, we consider incumbent senators that want to get reelected. An incumbent's expected share of votes would be higher than that of any other senator, but the main tradeoff would remain. Namely, she will also want maximize her share of votes while not deviating too much from the party line, as doing so could cost her political and financial support. It is possible to also introduce the senators' own preferences, but as long as on average their bliss points are the same as the parties', (10) is sufficient.[37]

Back to the baseline interpretation, we assume that parties can freely select any

[36] We can think of the party's global election problem, i.e. the problem where the party cares about all seats $k \in \mathcal{K}$: $\max_{y_{jkn}} \left\{ \sum_k \pi_k \mathbf{E}_i \Pr\left(j_k \succ_i -j_k\right) - \sum_{k,n} \gamma_{jkn} \left(Y_{jn} - y_{jkn}\right)^2 \right\}$ with some weights π_k, γ_{jkn}. Due to the additive separability of the said global election problem in y_{jkn}, we can focus directly on (10).

[37] Note that in this case the separability of the K offices is not a concern as an incumbent senator only cares about her own reelection and the electoral success of the party in other offices is not a determinant of her platform.

candidate, $y_j \in \mathcal{P}$. Alternatively, their choice may be constrained to a candidate that would be able to pass through primary elections first, resulting in a position y_j confined to a subset of the policy space, $\mathcal{P}$. We do not study this possibility here.[38] Moreover, in practice, when selecting a senatorial candidate a party may also account for the congress member in power (of the Senate seat that is *not* up for election). We abstract from this consideration as well.

Lastly, note that whether or not y_j will be implemented after the election is not relevant in what follows. The key is that voters take this as the true position of a candidate. This could be either because it is observed, like in our setup, or because the senator credibly campaigns with that position. Therefore, for the rest of the theory we will use the words platforms and positions interchangeably.

Assumptions.

We normalize the issue weights, $\sum_n \omega_n = \sum_n \gamma_n = 1$, and bound the payoff to partisanship, $\beta < 1$, to guarantee that the solutions are interior. We assume $\frac{\gamma_n}{\omega_n} \geq 0.5$, for all n, implying that parties cannot put too little weight on issues that are important to the voters.[39]

To simplify the exposition in the main text, we also assume that the cost c_i of going through the ballot satisfies the following double inequality: $\left(U_i^* - \hat{U}_i\right)\Big|_{I_i^P=1} \leq c_i \leq \left(U_i^* - \hat{U}_i\right)\Big|_{I_i^P=0}$. This implies the following assumption: *A voter uses the ML if and only if she is a partisan.*

Qualitatively, our results do not depend on this assumption. In the online Appendix, we consider the relaxed set-up where c_i is not constrained to the above interval and is distributed independently in the population of voters. In that framework, the

[38] Hirano et al. (2010) and McGhee et al. (2014) find little evidence of primaries affecting the polarization (and thus the positions) of elected officials.

[39] Note that if parties and voters assign the same weights to issue n then $\frac{\gamma_n}{\omega_n} = 1 > 0.5$.

partisans are only *more likely* to use the ML than swing voters are. Propositions analogous to the ones that follow hold in that case as well.

3.2 Master Lever Effects

The change in ML status observed in the data provides an exogenous variation in $\mu \in \{0, 1\}$.[40] In this section, we study the model's solutions with and without the ML and deduce its effects on three outcomes: candidates' platforms (Proposition 1 and inequality (12)), their vote shares (Proposition 2), and the expected platform of the election winner (Proposition 3).

3.2.1 Candidates' Platforms

We start by characterizing the optimal platform derived as a solution to the three-stage game.

Note that since the choice set of candidates is unconstrained (i.e. it is the whole policy space, $\mathcal{P}$), the party's choice of an optimal candidate is equivalent to simply picking an optimal position.

Proposition 1. *The optimal position for the candidate of party j on issue n, y^*_{jn}, is a convex combination of the average voter position in the state X_n and the party's bliss point Y_{jn}, with a drift proportional to the swing-position covariance σ_n (6).*

$$y^*_{jn} = \frac{1 - \mu p}{1 - \mu p + \alpha_n} X_n + \frac{\alpha_n}{1 - \mu p + \alpha_n} Y_{jn} + \frac{\mu \sigma_n}{1 - \mu p + \alpha_n} \tag{11}$$

for all n, where $\alpha_n \equiv 2\gamma_n / \omega_n$.

Introducing a ML increases the weight of the party's bliss point, Y_{jn}, and the effect of the swing-position covariance, σ_n.

[40] Empirically, we solve the problem of selection into ML status using a difference-in-differences estimator.

The last statement follows directly from (11), derived in the Appendix (see Proof of Proposition 1 in Appendix A.1). This and all the results that follow hold whether there is one or multiple issues, since the entire problem is additively separable.

Recall that introducing a straight-ticket option results to all partisan voters using it, and all swings voting by position. Thus, the effects of the ML above are due to voters being diverted from position voting. This implies, on the one hand, that the candidate's position has a smaller effect on the voters' behavior and thus the party can choose a more "loyal" candidate. On the other hand, swing voters play a greater role in position voting. Therefore, the party has to pay increased attention to these voters' preferences. We start by discussing these effects as they appear in (11).

Party Loyalty Effect. To pin down the first effect, we focus on a state where the voter's partisanship status and her position on issue n are uncorrelated ($\sigma_n = 0$).[41] In this case, the optimal senator position is a convex combination of the average voter and the party bliss points. In the presence of the ML, the party can afford to choose a candidate whose views on the issue are closer to those of the party. Whether this leads to more extreme or more moderate candidates depends on the position of the average voter as compared to the party bliss point.[42] In moderate states, where $Y_{Dn} < X_n < Y_{Rn}$, the party loyalty effect leads to both parties nominating more *extreme* candidates. However, in an extreme right-wing state, $Y_{Dn} < Y_{Rn} < X_n$, the ML leads to the Republican party choosing a more *moderate* candidate. The same is true for the Democratic party in an extreme left-wing state, $X_n < Y_{Dn} < Y_{Rn}$.

Swing Voter Effect. Now let us drop the assumption of zero covariance and suppose we are in a state with few partisan voters, so that the party loyalty effect is

[41] As an illustration, consider any 0-symmetric distribution of positions x_{in} and let partisanship p_i be an even function of the position, i.e. $p_i(x_{in}) = p_i(-x_{in})$.

[42] For the purposes of the exposition, we say that a Republican is more moderate when she moves to the left, and more extreme when she moves to the right; inversely for a Democrat.

small. In this case, introducing the ML forces both parties to follow the direction of the swing voter. The reasoning is as follows. Assume that $\sigma_n > 0$ so that holding more left-wing views on issue n is associated with being a partisan and, therefore, with using the straight-ticket option. Since then the ML attracts left-wing voters, the average position of those who go through the ballot, and judge the candidates by their political positions, shifts to the right. Hence, the optimal candidate's position must satisfy a more right-wing voter when the option is introduced, so that the swing voters become more decisive. Therefore, when $\sigma_n > 0$ the swing voter effect is also positive (more extreme Republican candidate, more moderate Democrat), and vice versa for $\sigma_n < 0$.

Total ML Effect. The direction of the total effect of the ML depends on the relationship between the party loyalty and swing voter effects, which may concur or counteract each other. It is determined by a single inequality.

Introducing the ML results in a right shift of y^*_{jn} if and only if

$$\frac{\alpha_n}{\alpha_n + 1} Y_{jn} + \frac{1}{\alpha_n + 1} X_n > X_n^P. \tag{12}$$

This implies that if both the party and the average voter are more right-wing than the average partisan voter, the straight-ticket option leads to a more right-wing candidate. Consider for example a Republican candidate in California (a Democratic partisan state with mostly left-wing voters). Without the ML, the candidate would propose a moderate platform to try and accommodate the Democratic partisans. However, introducing the option will lead her to offer a more extreme (right-wing) platform. The swing voter effect is positive in order to compensate for the loss in Democratic partisan votes and try to get the (relatively right-wing) swings, and so is the party loyalty effect as the Republican bliss point is also to the right.

Similarly, if both the party and the average voter are more left-wing than the average partisan then the ML results in a left shift. When neither is true, the total effect depends on the partisan voter's position relative (RHS) to a convex combination between the party and the average voter (LHS).

In the empirical exercise, we identify the total ML effect and examine the interplay between party loyalty and swing voter effects in the data, to explain the mechanism behind our findings (Section 4.5).[43] The party loyalty, swing voter and total effects are treated formally in Appendix A.1 Lemmas 1, 2, and 3, respectively.

3.2.2 Effect on Vote Share

While both parties choose candidates to maximize their share of votes, one of the parties could have an advantage due to the average partisanship and distribution of voters' positions in the state. The ML has a differential effect on the relative importance of these determinants of election success.

Proposition 2. *The Republican vote share increases in (i) the Republican partisan advantage,* $p(R) - p(D)$*, (ii) the swing-position covariance* σ_n*,* $\forall n$ *only if the ML is available, and (iii) the average voter bliss point* X_n*,* $\forall n$*.*

Symmetrically, the Democratic vote share decreases in (i) $p(R) - p(D)$*, (ii)* σ_n*,* $\forall n$ *only if ML is available, and (iii)* X_n*,* $\forall n$*.*

The ML increases the effects of (i) and decreases the effect of (iii) on the distribution of votes between the parties.

Note first, that the voters' positions and partisanship have the obvious effect on the parties' success, so that the greater the party support in the state and the closer the party is to the average voter the higher its vote share ((i) and (iii) of the proposition, respectively). (ii) is also straightforward. In this setup, σ_n is a determinant of the election outcome only if the ML is present. In that case, it benefits the party that

[43] Note that there is only one issue position empirically.

follows the direction of the swing voters; the Republican if positive, the Democrats if negative.

The more interesting result is that the ML has a differential effect on these determinants. While it reinforces the role of partisanship and the covariance effect, it devalues the advantage of position proximity of the party to the state's average voter.

Suppose, for example, that there is an exogenous uniform right shift in all voters' positions, without changing their partisanship status. The claim of the proposition is that the Republican party would benefit more from such a right shift if the ML is *absent*. The intuition for the result is as follows. The ML makes both the state partisanship and the swing voters more decisive in the election, while the position of the average voter becomes less important, since fewer voters elect by position.

Notice that the voter's positions across issues are substitutes with respect to the party vote share. Suppose that New Jersey and Connecticut are equivalent except that $X_{econ}^{CT} = X_{econ}^{NJ} + 0.1$ and $X_{soc}^{CT} = X_{soc}^{NJ} - 0.1$, meaning that the average Connecticut voter is more right-wing in economic issues, but more left-wing in social, than the New Jersey voter. Then, under the assumption that both issues are weighted equally, the probability of a Democrat winning the state is exactly the same.

3.2.3 Compound Effect: Expected Position of the Elected Senator

Knowing the optimal positions of candidates and their corresponding vote shares we can evaluate the expected position of the election winner. Let

$$y_n^{**} = V_j y_{jn}^* + (1 - V_j)\, y_{-jn}^*. \tag{13}$$

The expected platform of the election winner, y^{**}, is a convex combination of the endogenous positions of the Republican and Democratic candidates, where the weights are their respective vote shares.[44]

[44] In a model with aggregate noise, vote shares represent the winning probabilities; in this case

Proposition 3. *The expected position of the elected senator on issue* n*,* y_n^{**}*, increases in (i) the Republican partisan advantage,* $p(R) - p(D)$*, (ii) the swing-position covariance in all issues,* σ_m*,* $\forall m$*, only if the ML is present, (iii) the average voter bliss point in issue* n*,* X_n*, and (iv) the average voter bliss point in all other issues* X_m*,* $\forall m \neq n$*.*

The ML decreases the effect of (iii) and increases all other effects on y_n^{**}*.*

This finding sheds light on the interplay of the results of Propositions 1 and 2. The election winner is expected to be more right-wing the more republican the state is, and the more right-wing the swings and the average voter are. Now, since issues are substitutes when it comes to parties' vote shares there are spillovers from voters' positions on one issue on the expected senator's position on another issue. For instance, a state that is right-wing in economic issues, but left-wing in social issues can expect a senator that is right-wing in social issues as well, if the weight of social issues in voters' utilities is small enough.

Moreover, for a fixed issue n, introducing the ML leads to a stronger effect of partisanship, and the positions of swings, and those of the average voter on other issues, $m \neq n$. For example, let n be economic issues and take Texas, a Republican state and California, a Democratic one.[45] Suppose also that the Texan electorate is more right-wing in social issues than the Californian one, $X_{soc}^{TX} > X_{soc}^{CA}$. First note that Texas is more likely to elect a right-wing senator in economic issues *ceteris paribus*, irrespective of the ML (due to (iv), the spillover effect). Introducing the option leads to an even higher y_{econ}^{**TX}, since the ML reinforces the effects of partisanship and the spillover effect between the issues.[46]

Now, shifting the focus to social issues and assuming away any difference in partisanship between the two states, we have that California is expected to elect a more

(13) is the mathematical expectation of the election winner's position.

[45]In terms of their partisanship levels.

[46]Note that the argument assumes that all else is equal in both states.

left-wing senator than Texas ((iii) in the proposition). However, introducing the ML in both states implies that the expected senator positions in social issues will be driven closer. This is because the X_{soc} becomes less influential in the election outcome, as we show in Proposition 2.

Lastly, consistent with the previous results, we also have that first, in the presence of a ML, partisanship becomes more significant, as it is a more important determinant of vote shares and may thus allow senatorial candidates to offer platforms closer to the parties they represent. Second, in terms of the political positions of the electorate, the average voter loses significance, whereas the swing voters and their positions become more decisive.

3.3 Theory to Empirics

In the empirical part of the paper, we focus on the U.S. Senate. Recall that each state is represented by two senators that serve staggered six-year (three-Congress) terms, so that every two years at most one seat is up for election per state.[47] We want to identify the effects of the ML on the campaigns/platforms of senatorial candidates, which corresponds to Proposition 1 and inequality (12), of the theory.

However, the data we have available (see Section 4.1) leads to two main changes in the empirical modeling. First, there is only one issue dimension (that summarizes positions in all issues) for both senators and voters. This assumption does not affect the predicted party loyalty, swing voter and total effects.

Second, we have data only on *elected* senators, rather than all senatorial candidates. Since there is no term limit in the Senate and most senators run for re-election at the end of their term, we can use their positions during a Congress as their platform for the *upcoming* election.[48] This suggests the following alternative timing in

[47] After every Congress term (two years) a general election is held which either includes the office of the President (Presidential election), or not (midterm election).

[48] 78.72% of senators run for re-election at the end of their term and 82.40% of those get re-elected.

the model (only the first step is different):

$t = 1$ The senator in power adjusts her position, to compete to keep her Senate seat in the upcoming election. She derives utility from the share of votes she gets and incurs a loss if her position differs from the party's bliss point.[49]

$t = 2$ Voter i decides whether to use the ML, if available; if she does not, she goes through the whole ballot incurring cost c_i.

$t = 3$ Voter i elects one candidate for each office, either indirectly (when using the ML) or directly (when going through the ballot).

This change in the setup does not affect the predictions of the theory. Empirically, using a senator's implemented position implies that our estimates are a lower bound to the ML campaign effects, as that position is also affected by other forces, such as current policy making. At the same time, the estimated effects are potentially more relevant as they relate to actual policy positions.

One issue with this approach is that incumbent senators are in power because of the ballot option itself, i.e. that the ML status has affected both their positions and electoral success already. However, we show in our results that it is the presence of the option in the upcoming, rather than the previous, election that is a determinant of their platforms.[50]

Moreover, note that in each Congress there are three types of senators: a. the ones whose seats are up for election now, b. the ones that have one more Congress to go and c. the ones that have two. All three types consider the tradeoff between representing their party and satisfying their future voters. Thus, even in the years

[49] See discussion after (10) for an explanation of why her maximization problem is equivalent to that of the party.

[50] See Sections 4.4 and 4.6. Another approach to identifying the ML effects would be to examine how the option impacts the electoral success of a candidate. In other words, focus on Proposition 2 of the theory. However, besides the fact that we do not have data on both senatorial candidates, we also do not know the margin of votes by which a senator won, which would be key in this estimation.

that they are not up for reelection, their future election incentives may alter their policy making. Therefore, in the estimation, for each Congress we include all three types.[51]

In summary, in order to identify the effects of the straight-ticket option on political platforms, we examine how the positions of senators in power are affected by the ML presence in the upcoming election. In Section 4.3, we formally develop the identification strategy and in Section 4.5 we estimate the party loyalty and swing voter effects in the data to explain our results given Proposition 1.

4 Empirics

4.1 Data

We use data from the 87th (1961-62) to the 112th (2011-12) Congresses and the elections following them. Our main dependent variable, a senator's position, is taken from Poole and Rosenthal's DW-NOMINATE scores. They use a senator's roll-call voting history to summarize her position into a two-dimensional vector, at the end of each congress.[52] The first dimension is the one that explains most of the variation in votes and the second, minor one is perpendicular to the first and set to explain the rest of the variation (Carroll et al. (2009)). We use only the former and it corresponds to y_{j^*} in the theory, where we no longer need the issue subscript n as all issues are covered in that one position.[53] In other words, we take the policy of a senator while in power as her campaign for the upcoming election (see Section 3.3 for an explanation).

[51] We consider them separately, as well.

[52] See Poole and Rosenthal (2015). DW stands for dynamic weighted and allows for cross-Congress comparisons. The scores are from around -1 (left-wing) to around 1 (right-wing) and we have converted them from 0 to 100.

[53] Poole and Rosenthal (2007) find that after 1978 the first dimension is sufficient in explaining Congress member behavior. If we do use the second dimension, which captures deviations from a senator's main bliss point, the effect of the ML on it is insignificant. Poole and Rosenthal (2007) also study the types of issues that cause these deviations in different years, so in practice the main dimension that we use does not capture every single issue before 1978.

We also create other senator variables using information on the U.S. Senate website and the CQ Press Guide to U.S. Elections: their party, year(s) of election, years in Senate, which elections they ran for and whether they were an incumbent, appointed into office (i.e. not elected) or did not complete a full term.

We construct our own data on the existence of the ML per state and Congress, which we compare with that of Klarner (2010) for corroboration.[54] There are three types of states: *stayers* that always have a ML, *leavers* that originally have the option but remove it at some point in our sample's time interval, and *nonparticipants* that never have it.[55] This is essential for our identification and we clean the data to remove any observations that do not fit this classification (see Appendix A.3).

In terms of state-level data, we want to capture covariates that can affect both the presence of the ML (a state-level decision) and senatorial positions, that is variables that represent the political climate in the state. First, we use state-level data on the average voter position, X in the theory, from Enns and Koch (2013).[56] To create the variable, the authors combine select questions of public opinion polls into a yearly two-dimensional state policy "mood" on the size and scope of government. This is in contrast with our variable for senators that sums up positions on *all* issues. However, as voter beliefs on the role of the government have direct implications on most Senate policies, we assume that the two policy spaces are comparable.[57] As with the DW-NOMINATE scores, the policy mood has a major and a (orthogonal) minor component which is weak in explaining voter opinions and which we do not use. We also create a *positional classification* of states which separates them into *extreme left-wing*, *moderate* and *extreme right-wing*, depending on the position of the average voter with respect to the parties' bliss points (see Appendix A.2).[58]

[54]In the contradicting cases we found sample ballots or other evidence to deal with the discrepancy. Note also that Washington, DC does not elect senators.

[55]We use the terminology of Ravallion et al. (2005). Definitions also in Appendix A.2.

[56]It varies from 0 (left-wing) to 100 (right-wing).

[57]This assumption is not essential for the identification.

[58]We define a party's bliss point as the median DW-NOMINATE score of all elected members of

We also make use of the Enns and Koch (2013) data on state-level party identification variables, i.e. the fractions of self-declared Democrat ($p(D)$), Republican ($p(R)$), and non-partisan ($1 - p$) voters per state and Congress. Besides employing them in our estimation, we use them to classify states into *red* (mostly Republicans), *blue* (mostly Democrats), *swing* (mostly non-partisans) and *purple* (almost equal and high numbers of both Democrat and Republican partisans). Appendix A.2 gives the precise empirical definition of this *partisanship* classification.

Empirical Timing and Voters' Variables. Recall that we take a senator's policy position in a Congress as her campaign for the upcoming election. In other words, when it comes to electoral incentives, a senator is responding to what she believes will be the political climate in the future. We keep track of three versions of the voters' variables (preferred position and partisanship levels): one at the beginning of the Congress, one after the first year and one at the end. In the rest of this section, we use the first one as it is both a reasonable match for a senator's expectations *and* it is not confounded by a senator's own policy during the Congress. However, all the results that follow are robust to using any of the three versions.

Lastly, we need a variable to proxy for the position and control of the state government. The voters determine electoral incentives, but it is the state legislature that decides on the ML presence depending on how these incentives are aligned with its own. We use the "NOMINATE measure of state government ideology" from Berry et al. (2010) that is constructed by aggregating the DW-NOMINATE scores of the governor and the two major party delegations in each house of the state legislature.[59]

that party for a specific Congress.

[59] We denote it by *gov*.

4.2 Summary Statistics

In the 26 Congresses that we examine there are 2549 observations, where each senator has 3 observations per term (one for each Congress she is in office). We have 418 unique senators that belong to either the Democratic or the Republican party[60] and have served from 1 to 9 terms each (there is no term limit in the Senate); the mean is 2.3 terms per senator.

The left graph of figure 2 depicts the decrease in the number of states with a ML over time.[61] Note that the increases prior to 1972 are not caused by states introducing the option, but rather "new" states entering our sample at that year. Section A.3 of the Appendix describes how we clean the data. The right panel shows the evolution of the average position of elected senators per party. The distance between the two parties defines the polarization in the Senate, which has been increasing over time. As it can be seen here, and consistent with previous findings, the Republican party seems to be the stronger driving force of the polarization.[62]

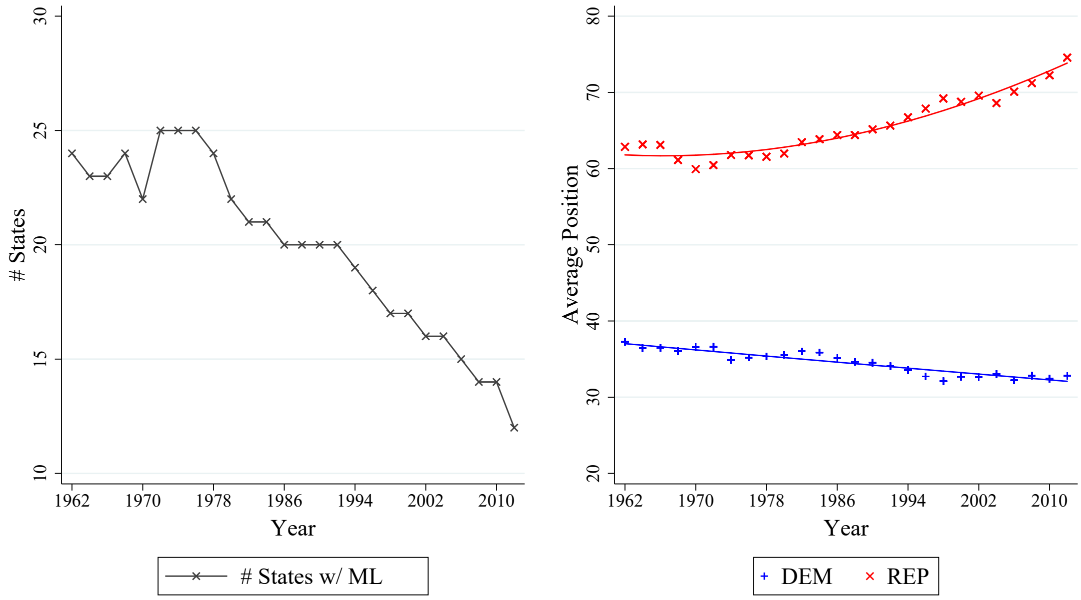
On the left of figure 3, we show the evolution of the average senatorial position per party, separating states by whether or not they have a ML.[63] It is evident that for the Republican party a straight-ticket option is correlated with more right-wing senators (closer to 100), whereas for the Democratic party the relationship, if any, is not clear. The right graph displays the fraction of Democratic senators elected with and without a ML, over time. We see that before 1986 there is no clear pattern with respect to which party is benefiting from the option, however, after that year it looks like Democrats are more likely to get elected *without* a ML. This suggests that, especially in later periods, Republicans have an incentive to have the option in their

[60] We have removed 14 observations of Conservative and Independent party senators.

[61] The following states offered a ML in 1962: Alabama, Alaska, Connecticut, Delaware, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Michigan, Missouri, New Hampshire, New Mexico, North Carolina, Pennsylvania, Rhode Island, South Carolina, South Dakota, Utah, Vermont, West Virginia and Wisconsin.

[62] See McCarty et al. (2006).

[63] Note that the sets of states with and without ML changes over time (figure 2).



Notes - Left: Number of States with ML over time. There are no states introducing the ML in our sample, the increases seen prior to 1972 are due to "new" states entering (see Appendix A.3). *Right:* Evolution of average party position in the Senate, from left (0) to right-wing (100). The distance between the two lines defines the polarization in the Senate. *Source:* Data from Poole and Rosenthal (2015)

Figure 2: ML Presence & Senate Polarization

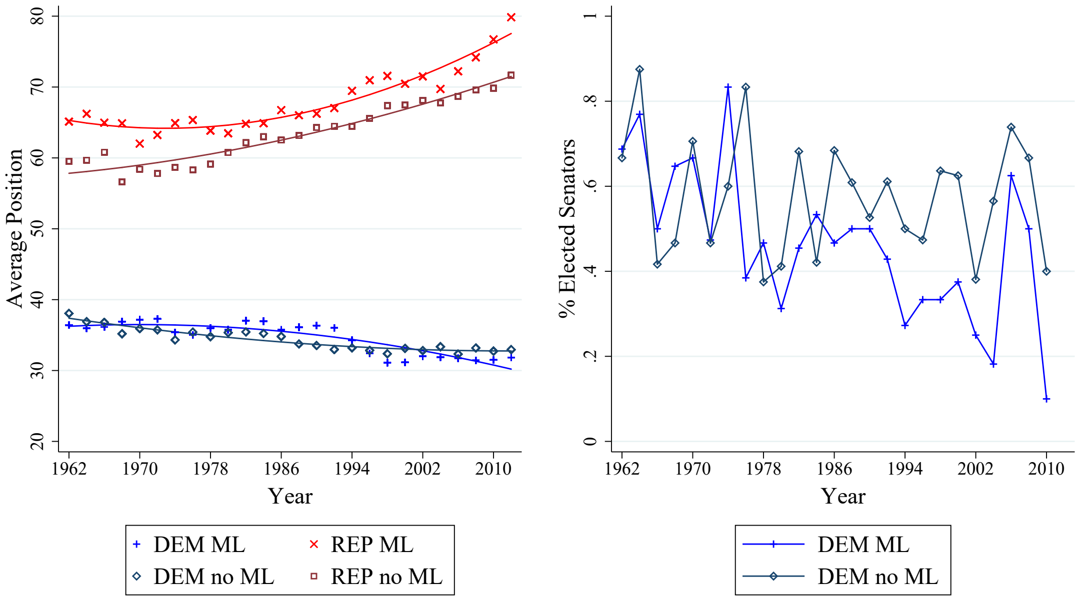
ballots. It is for this reason that when we deal with selection bias we allow it to be differential across parties (see Section 4.3).

On the flip side of the market, we have the electorate. Figure 4 shows the evolution of self-declared positions and partisanship of voters by ML presence, on the left and right graphs respectively. Voters do not seem to be systematically different across types of states, with an exception towards the end of the time period.[64] In other words, consistent with our theory, the same type of voters are electing different types of senators depending on whether the ML is available at the ballots.

As we discuss in Section 4.1, we have created *partisanship*, *positional* and *ML* classifications of states.[65] In the first two, states can move across classes from one period to the next; table 1 displays the number of observations per class and ML. The skewness observed across positional classes (more extreme right than extreme left

[64]Note that the remaining fraction of voters missing from the right graph are self-declared swings (non-partisans).

[65]Definitions in Appendix A.2.



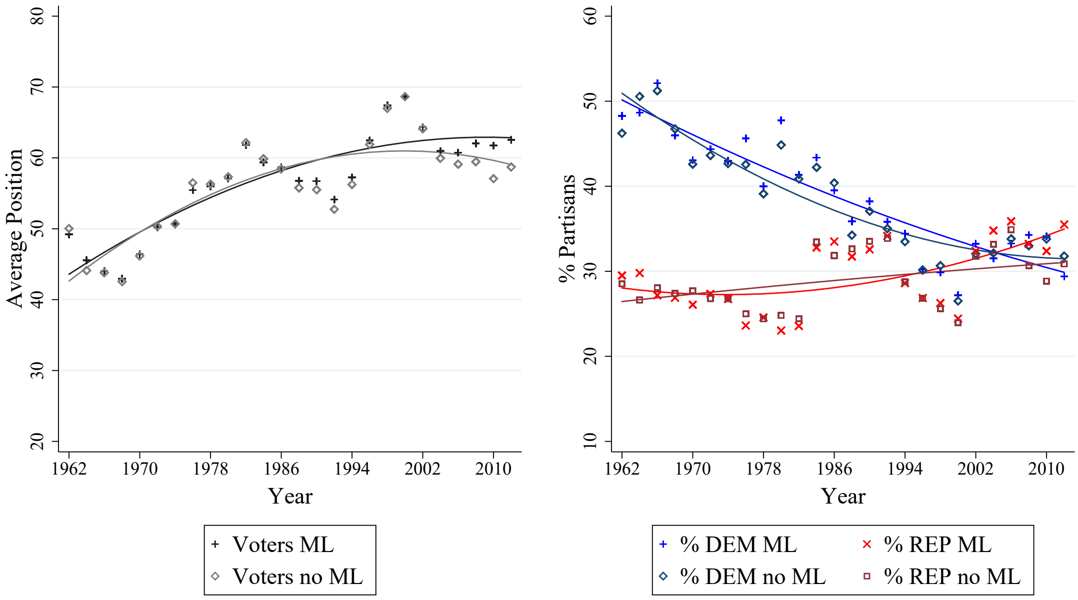
Notes - Left: Evolution of average party position in the Senate separating states by ML presence; positions vary from left (0) to right-wing (100). *Right*: Fraction of elected senators that are Democrats by ML presence. *Source*: Data from Poole and Rosenthal (2015)

Figure 3: Positions and Party of Elected Senators by ML Presence

observations) should be viewed with caution as the definitions of voter and senator positions, that determine this classification, do not perfectly align. In the ML classification, which is key for the identification, states stay in their respective categories for the whole time period, where we have 13 stayers, 15 leavers and 22 nonparticipant states. The corresponding number of observations per ML status is also in table 1.

Recall that each data point corresponds to one of the two senators in a state-congress pair. Therefore, all the state-level data is the same for both of senators. Instead, they may differ in the proximity to their next election (in zero, one or two congresses), their years in the senate and their party affiliation. At the bottom of the same table we present the number of observations for the latter.

Lastly, figure 5 includes scatter-plots depicting the correlation between the average voter position and different partisanship types across states. As expected, a higher fraction of Republican voters corresponds to a more right-wing average voter position in the state (top left graph), and vice versa for the Democrat voters (top right),



Notes - Left: Evolution of self-declared average voter position by ML presence; positions vary from left (0) to right-wing (100). *Right:* Fractions of Republican and Democrat partisans by ML presence. The remaining, missing fraction of voters are self-declared non-partisans. *Source:* Data from Enns and Koch (2013)

Figure 4: Positions and Party of Voters by ML Presence

although in this case the relationship is more clear. In terms of partisan and swing voters, there is no ex-ante reason to expect a specific direction, but we notice that in the U.S. from 1962 to 2012 a higher fraction of partisans has been associated with more leftist states (bottom left), whereas more swing voters imply a more right-wing state (bottom right). We use these correlations to estimate σ from the theory, which relates the position of swing voters in a state to that of the partisans, and can be used to understand the mechanism behind our empirical results (Section 4.5).

4.3 Identification

As we explain in Section 3.3, we want to estimate the effect of having a ML on the ballots of the upcoming election on the *current* positions of senators in power. The intuition, provided by the theory, is that the same electorate would vote differently depending on whether the option is available. A partisan voter that would otherwise go through the ballot and potentially pick candidates of the opposition party for some

Table 1: Number of Observations by State Classes & ML

Type	$ML = 0$	$ML = 1$	Total
Red	172	93	265
Blue	617	526	1143
Swing	513	269	782
Purple	202	157	359
Extreme Left-Wing	4	4	8
Moderate	1456	1015	2471
Extreme Right-Wing	44	26	70
Stayers	0	653	653
Leavers	372	392	764
Nonparticipants	1132	0	1132
Democrats	863	522	1385
Republicans	641	523	1164

Notes: Number of observations per ML status in partisanship, positional and ML classes (definitions in Appendix A.2) and by party. Each observation is one of the two senators in a state-congress pair. *Source:* Data from Enns and Koch (2013) and Poole and Rosenthal (2015)

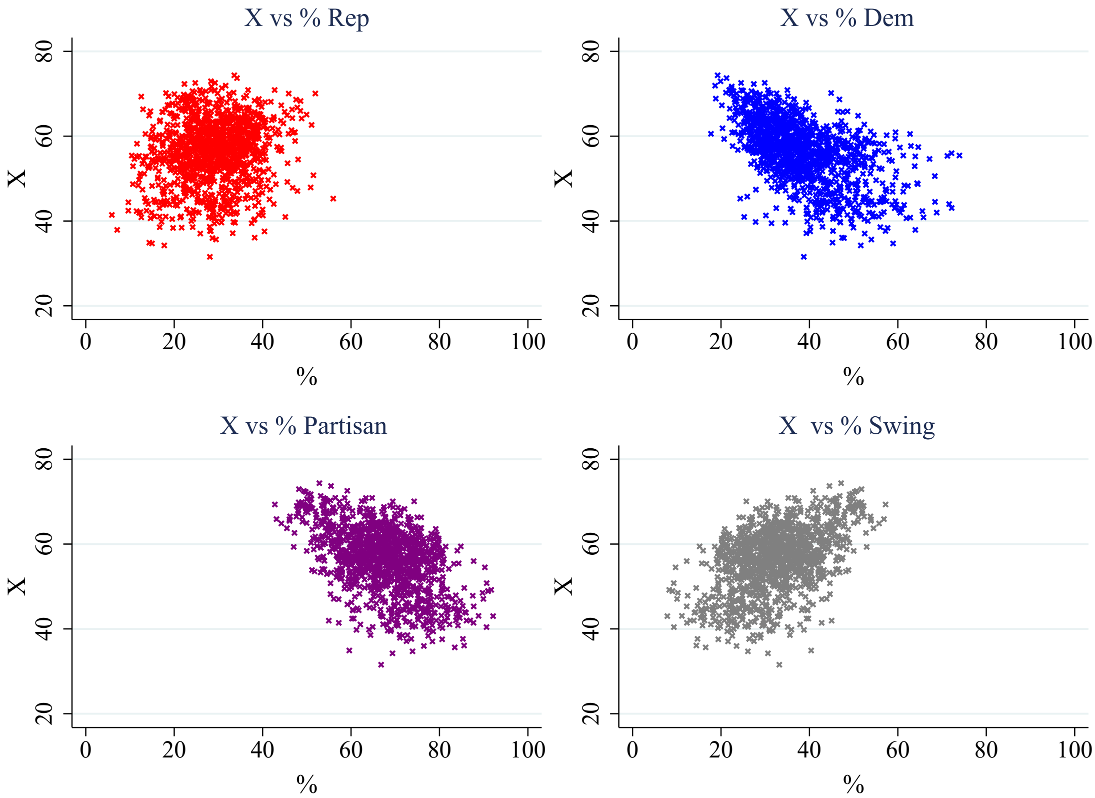
offices, will instead "get distracted" by the ML at the top, use it and thus vote only for her party in all races.[66] Expecting this type of voting, affects the way senators campaign for the upcoming election. If the ML is present, partisanship levels and swing voters become relatively more important and the average voter less, so that senators in power adjust their current policy, that acts in effect as their platform, to reflect that.

Selection Bias. The presence of the ML in a state is decided by the state legislature. Although it is a branch of the state government that acts independently of the state senators (a federal position), the composition of both is the result of local politics.[67] In other words, the ML status of a state is determined by forces that may also determine the type of senator that is in power.

One possible source of selection bias are intricate long-term political forces in the state which are both time-invariant and unobservable. These can be controlled for

[66] The intermediate case of the theory where some partisans vote by ML and some not is covered in the online Appendix.

[67] Popular media arguments for or against the removal of the ML are discussed in the introduction.



Notes: Scatter plots of average voter positions, from left (0) to right-wing (100) vs fractions of different partisanship types, in all state-Congress combinations. *Top Left:* republican voters, correlation = 0.16. *Top Right:* democrat voters, correlation = −0.56, *Bottom Left:* partisan voters, correlation = −0.49. *Bottom Right:* swing voters, correlation = 0.49. All correlations significant at 1% level. *Source*: Data from Enns and Koch (2013)

Figure 5: Average Voter Position and Partisanship Per State

using a difference-in-differences (DD) approach. We have one treatment (leavers, that had and then removed the ML) and two potential control groups (stayers that always had the option and nonparticipants that never had it). There are two options:

1. DD_{LS}, a DD between leavers and stayers and

2. DD_{LNP}, a DD between leavers and nonparticipants.

where table 2 illustrates the two estimations for the simple case of two periods.

The second source of bias may come from state-level time-varying covariates. That would be variables that capture both the political incentives of the local government and those of the electorate, in each state-Congress pair. Consider for example a right-wing government that is not winning some of the other state elections and wishes to

Table 2: Estimation

	Stayers	Leavers	Nonparticipants
$t = 0$	$ML = 1$	$ML = 1$	$ML = 0$
$t = 1$	$ML = 1$	$ML = 0$	$ML = 0$
	| $\mathbf{DD_{LS}}$	|	
		| $\mathrm{DD_{LNP}}$	|

Notes: ML status and possible DD estimations in the simplified case of two time periods. We only run DD_{LS}. See Appendix A.4 for an explanation.

remove the ML. As the latter determines how citizens vote, the potential effect of such a move depends on the composition of positions and partisanship of the electorate. We do in fact have data for these forces; the average position of the state legislature, gov, the average position of voters in the state, X, and the different partisanship shares, $p(D)$, $p(R)$, $1 - p$. It is thus possible to capture this source of selection as well.

However, for stayer and leaver states these variables have been possibly affected by the treatment. As the ML determines the type of politicians that are in power in all offices, it will affect both the composition of the state government and eventually the political preferences of the voters as well. Including these variables would thus lead to biased estimates of the ML effects. To circumvent this problem we verify that our treatment and control groups are balanced in these covariates, in which case we can ignore this source of bias, see Appendix A.4.

For the leavers-stayers subsample we check the variables *before* the former remove the ML, as in this case *removing the ML* is the policy change. We find that the treatment and control groups are well-balanced. For the leavers-nonparticipants subpopulation, the relevant covariates are those *after* the removal of the ML where both groups do not offer the option. We find that they are significantly *imbalanced*.[68] Therefore, we only run the DD_{LS} estimation and we have that any heterogeneity in outcomes between the two groups is *not* due to the covariates listed above.

[68]Note that given the small cross-section (50 states per year) and different timing of ML removal per state, matching is not a good alternative.

Lastly, to clarify, DD_{LS} estimates the average treatment effect of the untreated, where the untreated are the leaver states, and stayers provide the counterfactual group. We discuss the external validity of our results in the conclusion.

DD Assumptions & Specification. In the following, we use a modified version of the terminology in Lechner (2011). The corresponding regression framework for DD_{LS} is:

$$y_{ist} = \beta_0 + \beta_1 ML_{st} + \eta_t + \eta_{sj} + \varepsilon_{ist}. \tag{14}$$

where i is the senator identifier, s is the state, t the Congress and j the party she belongs to. y denotes her position and ML the presence of the straight-ticket option in the state in the upcoming election. The η_t absorb the Congress fixed effects and η_{sj} the state-party fixed effects, and thus the unobservable time-invariant selection bias. We have included the party, as opposed to just a state fixed effect, to allow for the possibility of different selection forces by party. This seems like a likely possibility given figure 3 where we see that Republican senators are correlated with both more extreme positions (potentially closer to their bliss point) and are also more likely to be elected in ML states. In the robustness checks in Appendix A.5, we also present results using only state fixed effects.[69]

Further, the ideal error clustering in our sample would be at the state-level, as this determines the treatment. However, not all 50 states are included in the DD_{LS} estimation (only 27 in fact) and thus the number of clusters under this error structure would be too small. As on average we have 6.242 observations per senator and we at least need to allow for arbitrary correlation among them, we instead cluster the errors at the senator level. This produces 219 clusters in DD_{LS}. In Appendix A.5 we consider other types of clustering.

[69]Note that group (stayers, leavers) fixed effects are redundant since they are covered by η_{sj}.

DD Assumption 1: Exogeneity. *Any covariates included in the model are not affected by the treatment.*

This assumption is trivially satisfied in our specification. As we discuss previously, the relevant covariates are balanced across groups and we do not include them in the model.

DD Assumption 2: Stable Unit Treatment Value Assumption (Rubin (1978)). *Outcomes are well-defined and treatment applied to one state does not affect the outcome for another state.*

In our setting, the only possibility of treatment externalities is through legislative bargaining. That is if senators in ML states were able to affect the positions of those in non-ML states. Although in general this is possible, we posit that it is unlikely that any interdependence can be traced back to the ML, i.e. that the effects of the ballot option would go over party principles, special interest groups and other individual preferences and eventually influence the positions of senators in non-ML states.

Now, we have that DD_{LS} identifies the treatment effect on leavers by comparing their change in outcomes before and after abolishing the ML, to that of stayers. This implies, first, that pre-removal leaver outcomes can be used as their baseline and have thus not been affected by the upcoming change in policy. Second, stayers are the right control group for leavers. In other words, the following have to hold.

DD Assumption 3: No Anticipatory Removal Effects (NARE). No behavioral changes in the positions of senators in leaver states prior to removing the ML, in anticipation of the removal.[70]

[70] In the simplified two-period case (NARE) implies that we have $E(y_0^1|leavers) = E(y_0^0|leavers)$, so that the period 0 (before removal) outcomes for leavers are the same in the actual, y_0^0, and counterfactual, y_0^1, cases, where the superscript denotes the ML status in the next period.

DD Assumption 4: Common Trends (CT). The positions of senators in leaver and stayer states would have followed the same trends if the former had never removed the ML.

In order to verify both of these assumptions, we use the methodology in Autor (2003), which we describe in detail in Section 4.6.

Further, in our setting within-party analysis of effects is key. As explained in the theory, the forces of interest may move in opposite directions for Democrats and Republicans. In order to examine the possibility of heterogeneous effects we run DD_{LS} separately for each party and thus we also confirm that our assumptions hold in these cases as well.

Measurement Error. In our sample, when a state legislature passes a bill to remove the ML, it is implemented immediately. In other words, the vote and the actual policy change happen during the same Congress. However, we do not know the *exact* time the bill was passed. This may be a source of measurement error. If the vote happened close to the end of the Congress, although in that election the data would have $ML = 0$, senators would have been campaigning up until then as if $ML = 1$. If instead we change the data so that $ML = 1$ for that Congress, but the vote happens early, senators would know from the beginning that the option would not be present in the upcoming election and would have been campaigning expecting $ML = 0$. In other words, in the Congress of the policy change it is impossible to know the ML policy that the senators believe is in place. For this reason, we remove all observations of that Congress.[71]

Lastly, one can argue that any time the status of the option is up for discussion in the legislature it creates the possibility of measurement error in the ML variable. However, since ballot policy is very difficult to change we posit that senators always

[71] The DD assumptions hold even if we include these observations.

believe they will be facing the status quo option, unless it is explicitly changed.

4.4 Results

In table 3 we present the main empirical results of the paper. To interpret them, recall that positions vary from 0 (left-wing) to 100 (right-wing). A positive effect suggests a more extreme Republican senator, but a more moderate Democrat (an extreme Democrat is one closer to 0).

In column (1), we see that introducing the ML causes a right-wing shift of senatorial positions (by 2.393). However, once we look within party, the result disappears for Democrats, (2), both statistically and in size, and is positive and significant for Republicans, (3). Having heterogeneous effects makes intuitive sense given that the two parties are on different sides of the political spectrum. In fact, in Section 4.5, we show that the particular results are consistent with the theory, given the political climate that we observe in the data.

In terms of the size of the impact, the range of Republican senatorial positions in our sample is $[42.751, 100]$ and the standard deviation is 10.211. Compared to these numbers, a 4.569 point (about 8% in this range) marginal increase due to the straight-ticket option is presumably not very large. However, if we take into consideration the growth rate of the polarization in the Senate,[72] which is about 2% for the whole sample and 4% since 2005, we can see that changing the ML policy across the U.S. would have significant effects on both the composition of the chamber and its trend, ceteris paribus.

One possible concern in our specification can be that there are senator-specific unobservables (charisma, oratory ability, overall likability and so on) that may affect both her position and the existence of the ML in the state. Suppose, for example, that there is a senator with extremely high approval ratings. This may increase the

[72]That is the distance between the average Republican and Democratic positions in the Senate, depicted also on the right of figure 2.

probability that a voter selects that senator's party when voting a straight ticket. This in turn, will influence the decision of the state legislature to keep the ML, depending on whether the "ruling party" benefits from these dynamics.[73] To take care of this type of scenario we run a model with senator, rather than state-party, fixed effects (column 4 in table 3).[74] Although this specification has significantly fewer degrees of freedom and we do not prefer it, we still find that the ML coefficient is positive and significant.

Table 3: Main Results

y	(1)	(2)	(3)	(4)
ML	2.393*	0.151	4.569**	1.375**
	(1.386)	(1.693)	(2.237)	(0.692)
State-Party FE	✓			
State FE		✓	✓	
Senator FE				✓
Congress FE	✓	✓	✓	✓
N	1340	700	640	1340
R^2-adjusted	0.911	0.621	0.692	0.992
Subsample	ALL	DEM	REP	ALL

Notes: Huber-White standard errors clustered at senator-level, in parentheses. y: position of senator, * $p < .1$, ** $p < .05$, *** $p < .01$. Robustness checks in Appendix A.5.

In table 4, we examine how the estimates change when we consider different electoral dynamics. The first three columns present the results of DD_{LS} run separately for senators that are up for reelection immediately, in one or in two Congresses.[75] As we anticipate, the further away a senator's upcoming election, the smaller (both in size and significance level) the influence of the ballot option on current policy.

Furthermore, we also expect the impact of the ML to vary depending on the importance of the Senate office relative to others on the ballot. Voters are more likely

[73]We do not consider this scenario very probable for two reasons: 1. the strongest force that selects the direction of the ML is a voter's partisanship and 2. this type of coattail effects (assuming they operate through the ML) are more likely to be due to a voter's choice for President or governor, rather than senator.

[74]Since in our sample senators never switch party or state, this model still takes care of selection bias.

[75]Note that the senators up for reelection in two congresses are the ones that just got elected.

to choose *independently* of the ML for the highest ranking offices.[76] In other words, we anticipate that in midterm elections, where the Senate race is the highest federal position contended, the effect of the ballot option on senatorial positions is smaller than that in Presidential elections, where the Presidential race is the most important one. Columns (4) and (5) focus on these two subsamples; the results confirm the above reasoning.

Note that this table provides evidence that our empirical timing is correct, i.e. that we can take a senators policy when in power as her campaign for the upcoming election. If that was not the case we would not have the particular election dynamics. In Appendix A.5, we alter the controls and error clustering of the main specification, and present more robustness results.

Table 4: ML & Electoral Dynamics

y	(1)	(2)	(3)	(4)	(5)
ML	2.792^{*}	$2.343^{\#}$	$2.281^{\#}$	$2.237^{\#}$	2.574^{*}
	(1.462)	(1.583)	(1.438)	(1.484)	(1.456)
N	445	443	452	668	672
R^2-adjusted	0.904	0.905	0.907	0.911	0.905
Subsample	$k = 0$	$k = 1$	$k = 2$	midterm	Presidential

Notes: Huber-White standard errors clustered at senator-level, in parentheses. State-party and Congress FE in all specifications. y: position of senator, k number of Congresses before senator up for reelection, $^{\#}$ $p < .15$, * $p < .1$, ** $p < .05$, *** $p < .01$. Robustness checks in Appendix A.5.

4.5 Mechanism behind Results

In the previous section we showed that, controlling for selection, having the ML present in an upcoming election causes Republican senators to be more right-wing than otherwise, and has no effect on Democrats. There is nothing in the ballot option itself that warrants this asymmetry, therefore we use data and the theory to explain the mechanism behind our results.

[76] Recall that in practice a voter can both select the ML and vote separately for an office, without invalidating the ballot.

Recall that senators can get votes either through the partisanship of voters or by offering an "attractive" position. Introducing the ML implies a shift in senatorial tradeoffs. In the extreme, all partisans select their preferred party and swings are the only ones voting according to the position of a candidate. This increase in partisan votes allows senators to shift closer to their party's bliss point, what we call the *party loyalty* effect (PL). At the same time, the change in the relative importance of swings implies that candidates would also adjust to offer a position closer to them, the *swing voter* effect (SV).[77]

Table 5 presents the predicted ML effects given the values of our variables, as implied by the data. In Appendix A.6, we explain in detail how we constructed it. In short, the positional classification, which relates the party bliss points to the average voters, also determines the party loyalty effect. In extreme left-wing states, for example, where $X < Y_D < Y_R$, as PL shifts positions closer to Y_D for Democrats and Y_R for Republicans, it is positive for both parties.

The direction of the swing voter effect depends on the position of the swings relative to the state average. Making a simplifying empirical assumption (EA), namely that *the distribution of voter positions and partisanship across states is the same as that within states*, we find that SV is positive for all but red states.

In table 11, we include the number of observations for each class. Most states are moderate, therefore almost always $PL < 0$ for Democrats, and $PL > 0$ for Republicans. Moreover, in the majority of cases we have $SV > 0$. In other words, for the Republican party both effects are positive. In fact, if we remove red states from our sample (where SV is negative) the marginal ML effect rises from 4.569 (table 3) to 4.871 (table 11). Although the coefficients are not significantly different, the change is in the right direction.

On the other hand, for Democratic senators, in most cases SV and PL have

[77] The intermediate case where partisans are only more likely to use the ML is covered in the online Appendix and predicts the same qualitative effects.

Table 5: Predicted ML Effects

	PL	SV	PL	SV	PL	SV
	Extreme Left		Moderate		Extreme Right	
			Democratic Senators			
Red	> 0	< 0	< 0	< 0	< 0	< 0
Blue	> 0	> 0	< 0	> 0	< 0	> 0
Swing	> 0	> 0	< 0	> 0	< 0	> 0
Purple	> 0	> 0	< 0	> 0	< 0	> 0
			Republican Senators			
Red	> 0	< 0	> 0	< 0	< 0	< 0
Blue	> 0	> 0	> 0	> 0	< 0	> 0
Swing	> 0	> 0	> 0	> 0	< 0	> 0
Purple	> 0	> 0	> 0	> 0	< 0	> 0

Notes: Predicted party loyalty (PL) and swing voter (SV) effects per party, for different classes of states. Horizontally, the positional classification of states and vertically the partisanship one; definitions in table 7. SV calculated using observed σ. Boxes contain cases with highest number of observations (see table 11). *Source:* Data from Enns and Koch (2013) and Poole and Rosenthal (2015)

opposite signs and it seems to be the case that, on average, they perfectly counteract each other. The theory provides a test for the direction of the total effect (inequality (12)) which we can rewrite in the following way for Democratic senators, using also the fact that we only have one issue dimension in the empirical.

Total Effect. *Introducing the ML leads to a right shift of y_D^* (i.e. the SV effect dominates) if and only if*

$$X - Y_D < 2(X - X^P) \tag{15}$$

Consider only the observations for which $SV > 0$ and $PL < 0$.[78] (15) implies that the closer the average voter is to the party (LHS smaller), the less is to be gained by moving even closer to Y_D, so that approaching the swing voters is more profitable on the margin and the SV effect dominates. However, we do not have data on the average partisan position in the state, X^P, and can thus not evaluate this inequality empirically. Instead, we do know X and Y_D, and we expect to observe that as $X - Y_D$

[78] $PL < 0$ if and only if the left-hand side of the inequality is *positive*.

increases, so that SV goes down and PL goes up, the ML effect on y_D^* will decrease and eventually become negative (when PL dominates SV). The right graph in figure 7 supports this reasoning. Each data point is the average $X - Y_D$ and $corr(ML, y_D)$ for a specific Congress. Indeed, we see that the higher the voter's distance from the party bliss point, and the stronger PL is, the more negative the correlation between ML and Democratic positions.

In summary, given the political climate observed in the data, our theory explains the empirical results. On the one hand, Republican senators experience positive PL and SV and thus shift to the right, in the presence of the ML. On the other hand, for Democrats, the opposite directions of the two forces, negative PL and positive SV, imply a total effect of zero.

Moreover, we introduce a new political variable of interest, namely the position of the swing voters relative to that of the partisans, irrespective of whether the latter are Democrats or Republicans. In the last 50 years in the U.S., swing voters have been on average to the right of partisans. This is because there have been more self-declared Democratic (rather than Republican) supporters which also tend to be left-wing, so that the swings support relatively more right-wing policies. If the correlation between voters' partisanship and preferred positions was different, the tradeoff between SV and PL would be altered. In other words, conditional on data availability, we are able to examine the effects of a ML introduction, or any other ballot tool that reinforces the connection between party and politician, in different settings. One would need to know where the parties' ideologies/positions are located relative to each other and the voters (determines PL), as well the relative position of the non-partisans (determines SV).

4.6 Verification of Identifying Assumptions

In this section, we verify that DD Assumptions 3 and 4, presented in Section 4.3, hold. In other words, we need to show, first, that prior to ML-removal the leavers' positions are not showing any anticipatory effects (NARE) and we can thus use them as the group's baseline. Second, these outcomes must also be following the same trend as stayers, so that, had it not been for the policy change the two groups would have continued their parallel paths (CT). We can test both of these together using the methodology in Autor (2003). Consider the following alteration of the main specification.

$$y_{ist} = \beta_0 + \beta_1 D_{t-3} + \beta_2 D_{t-2} + \beta_3 D_{t-1} + \beta_4 D_{t+1} + \beta_5 D_{\geq t+2} + \eta_t + \eta_{sj} + \varepsilon_{ist} \quad (16)$$

where $D_k = 0$, $\forall k$ except for the following cases of leaver states.

$$\begin{aligned} D_{t-n} &= 1 \quad \text{in the Congresses } n \text{ periods pre-ML removal, } n = 1, 2, 3 \\ D_{t+1} &= 1 \quad \text{in the Congress 1 period post-ML removal} \\ D_{\geq t+2} &= 1 \quad \text{in all Congresses 2 periods post-ML removal and onwards} \end{aligned}$$

Note that for stayer states all dummies are zero. In other words, the dummies pick up the effects of abolishing the ML, period by period, before and after removal. Therefore, we have that if either (NARE) or (CT) is violated, at least one of the coefficients on the lags $D_{t-n} = 1$, $n = 1, 2, 3$ will be significant. On the other hand, if they are not, stayers and leavers are indistinguishable prior to ML removal (conditional on fixed effects), and the identifying assumptions are satisfied. Note that there is no dummy for the year of the removal, D_t, because on that year we do not know the exact timing of the change in policy (see the discussion in Section 4.3).

The first column of table 6 displays the results of the main specification with the dummies. As the coefficients of the latter depict the effect of *removing* the option, the signs are the opposite of the ones in our main results. As we require, none of the lag dummies are significant. Columns (2) and (3) present the results for Democratic and Republican party senators respectively. Again, we have that our assumptions are not rejected at any standard significance level.

Moving on to the leads, D_{t+1} and $D_{\geq t+2}$, they pick up the effect of the change in ML status. As in our main regression we observe that although for the Democratic party there is no effect, for Republican senators there is a right-wing shift in their positions (opposite sign of coefficients) whenever the option is available in the upcoming election. In terms of how the effects evolve over time, there is no significant difference between the coefficients of the two leads across any of the specifications.[79] This is consistent with the theoretical setup in that the ML does not produce long-term behavioral effects on the electorate, it is only at the time of casting their ballots that the voters may get "distracted" by the presence of the option. Therefore, even after the first Congress post-removal of the option (D_{t+1}), senatorial positions change by the same amount that they do in the long-term ($D_{\geq t+2}$).

Lastly, consider the senators elected right before $t-1$ who are up for reelection at $t+1$ and those elected right before t and are up for reelection at $t+2$ (when the date of removal is t again). Both of these types of senators were elected with $ML = 1$ and will face $ML = 0$ in the upcoming election. If the upcoming electoral incentives did not affect their current policy making, we would have that D_{t+1} is insignificant. The fact that it is not, is evidence to the contrary and is consistent with our empirical timing.[80]

[79]The P-values for the F-statistic for equality of β_4 and β_5 are 0.879, 0.753, and 0.7439 respectively, for each regression in table 6.

[80]This is also apparent from table 4.

Table 6: Verifying Identifying Assumptions

y	(1)	(2)	(3)
D_{t-3}	0.859	0.609	1.184
	(1.156)	(1.632)	(1.534)
D_{t-2}	-0.685	-0.247	-0.680
	(1.240)	(1.670)	(1.701)
D_{t-1}	-1.773	-1.542	-0.664
	(1.419)	(1.928)	(2.037)
D_{t+1}	-2.527*	-0.794	-3.977*
	(1.504)	(2.006)	(2.206)
D_{t+2}	$-2.692^{\#}$	-0.400	-4.563*
	(1.709)	(2.152)	(2.669)
N	1340	700	640
R^2-adjusted	0.911	0.620	0.690
Subsample	All	DEM	REP

Notes: Huber-White standard errors clustered at senator-level, in parentheses. Congress and state-party FE in all. $^{\#}$ $p < .15$, * $p < .1$, ** $p < .05$, *** $p < .01$.

5 Conclusion

The purpose of this paper is to account for the tradeoffs that political candidates face when choosing a platform, in the presence of a straight-ticket option on electoral ballots; i.e. any feature that makes it easier to vote for one party for all offices rather than split the ticket. We focus, in particular, on the master lever (ML), which is still available in some U.S. states.

Theoretically, we model the option as saving the voter the cost of filling out all the races individually, or as an emotional benefit from "pulling the lever" for her preferred party. Introducing it, leads to a higher fraction of partisan votes, and thus changes the optimal platform of a politician. On the one hand, these "free" votes allow candidates to offer positions closer to their party's bliss point, the party loyalty effect (PL). On the other hand, swing (non-partisan) voters become relatively more important, so that optimal platforms approach their preferred positions, the swing voter effect (SV). In terms of the vote share of candidates and the expected position of election winners, following the same intuition, we find that voter partisanship and the positions of swings become more significant determinants of outcomes, whereas the position of the average voter less. We also examine the spillovers across different issue dimensions, i.e. how voter preferences on one issue may affect the expected position of a senator in another, and the way this is reinforced by the ML.[81]

Empirically, we use data from 1961 to 2012 and a difference-in-differences (DD) estimator to identify the total marginal effect of the option on senators' platforms, where we have one issue dimension that summarizes their preferences in all. As there is no term limit in the Senate and almost all senators run for reelection, we use their positions while in power as their platform for the upcoming election. We estimate the average treatment effect of the untreated, i.e. leavers states, which first have and then remove the ML. The DD estimator controls for selection and relies on the fact that leavers and stayers (always offer ML) were experiencing the same effects from the option, prior to the former abolishing it. We also find that this characteristic of ballot format is not permanently changing the way voters evaluate political positions and partisanship, but rather only on election day. This implies that leavers experience the full effects of not having a ML immediately after removing the option.

Our results, which are robust across all specifications, show that the ML causes Republican senators to be more extreme (right-wing), whereas it seemingly has no impact on Democrats. Moreover, as we expect, positions are affected more by the option the closer the senator is to a reelection, and the lower the office is on the ballot.

We can explain the asymmetry across parties in our findings, by looking at the average political climate in the U.S. in the past 50 years. It is such that PL is negative for Democrats and positive for Republicans, i.e. the parties' bliss points are on opposite extremes and the average voter in between them. Further, there have been more Democratic (rather than Republican) partisans in the U.S., which are also left-wing, implying that the average swing voter is relatively right-leaning, and that

[81] As in our sample there is only one issue we do not examine this further, but given the right dataset, examining polarization spillovers across issues in this setting is a possibility for future research.

thus SV is positive. Therefore, for Republican senators both effects push them to the right, whereas for Democrats they counteract each other.[82]

External Validity. Although we do not have adequate data to examine the validity of our results for non-leaver states,[83] by analyzing their variables of interest we predict that SV and PL would follow the same direction as they do for leavers, although the total effect may be different.[84]

This sort of analysis can also be conducted for offices further down the ballot, with the caveat that there may be local dynamics at play, that we do not account for. Moreover, as the senator office is one of the most important ones in an election, it is one of the least likely to be affected by the straight-ticket option. Voters possibly have an optimal candidate in mind that fits their preferences, and are thus less likely to get "distracted" by the ML. Offices further down the ballot that are still economically very relevant (state Commissioner in the Department of Education for example) and are prone to voter-roll off,[85] will be significantly more affected by the option, implying that our estimates are only a lower bound.

Further, there are other countries around the world that offer similar features. Using our analysis, and given the right dataset, one can then estimate PL, SV and the total effect of this ballot characteristic on the positions of politicians in these systems as well. The dynamics, although in theory still tractable, become more complicated in a multi-party system where the parties are distributed all across the

[82]Our dataset is not perfect for estimating these effects, but under some assumptions we are able to extrapolate them.

[83]That is the rest of the U.S. states, and includes stayers (always have a ML) and nonparticipants (never have a ML).

[84]The only significant differences between the two groups are that non-leaver states have on average 1. a higher fraction of Democratic partisans which are also more left-wing and 2. a smaller number of swing-voters which are also more left-wing (but still to the right of partisans). These imply that PL for Republicans is the same, PL for Democrats is larger, i.e. more negative, and the SV effect for both parties is smaller but still positive, except for Republicans in blue states where the high number of very left-wing Democratic partisans implies relatively more right-wing swing voters and an even larger SV.

[85]Voters not filling out offices closer to the bottom of the ballot.

ideological spectrum and voter partisanship is potentially more "fluid."

Implications. Our results suggest that, as states have been abandoning the ML over time, there has been a wave of more moderate Republicans. At the same time, the states that do still offer the option keep producing Republican senators that are more extreme than the party average. In terms of the increasing polarization observed in the U.S. Senate, we are not able to tell the exact contribution of the ML, but there are implications from our findings.

First, as the option introduces party loyalty effects, imposing it across the U.S. could mean more unified parties, which may worsen congressional gridlock. Second, the increased attention on swing voters could go in either direction. Assuming that there is uniformity across the states, if swing voters are in the middle of the political spectrum, a ML could elect senators that are more able to "reach across the isle." On the contrary, swings may be ideologically at an extreme, and pull politicians in that direction instead. No matter the effect, a straight-ticket option always draws attention away from the average voter, therefore if representing the preferences of the average is the objective, one would prefer not offering a ML on the ballot.[86]

We can also examine our findings from the voters' perspective. If politicians believe that a voter will use the ML, they will not take into consideration her position, thus she is better off not using the option. This is not surprising in the sense that it is usually better, from the point of view of positions, to not be a "blind" partisan, i.e. one that votes for the party no matter the platform. However, in the presence of a straight-ticket option this is even stronger, as it reinforces the association between candidate and party.[87]

To conclude, this paper demonstrates a way that ballot design can affect policy

[86]These are a few points that come out from our paper, the ongoing political debate includes other arguments.

[87]It is stronger because it is not only "blind" partisans that are swayed away from position voting when the ML is available.

making, and the importance of the distribution of partisanship and positions in the political elite and the electorate, in determining these effects.

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A Appendix

A.1 Theoretical Proofs

Remark. In the Proofs of Propositions 2 and 3 we use the following additional notation. Let $\Delta y_{jn} = y_{jn} - y_{-jn}$ be the difference in the two nominated candidates' positions for issue n and $\overline{y_n} = \frac{y_{jn}+y_{-jn}}{2}$ the average of the two. Similarly, ΔY_{jn} and $\overline{Y_n}$ denote the difference and the average of the parties' bliss points. We drop the subscript k from all equations as we focus on one office.

Proof of Proposition 1. We use the following transformation

$$\int (1-\mu p_i)(x_{in}-y_{jn})\,di = \int (1-\mu p - \mu(p_i - p))(x_{in} - X_n + X_n - y_{jn})\,di$$

$$= (1-\mu p)(X_n - y_{jn}) - \mu \int (p_i - p)(x_{in} - X_n)\,di = (1-\mu p)(X_n - y_{jn}) + \mu\sigma_n \quad (17)$$

The solution to the party's problem must satisfy the following first order conditions:

$$\int_{[0,1]} (1-\mu p_i)(x_{in} - y_{jn})\,di + \alpha_n (Y_{jn} - y_{jn}) = 0 \quad (18)$$

for all n; where $\alpha_n \equiv 2\gamma_n/\omega_n$ is the relative importance of issue n to the party. The first order condition can be rewritten as

$$(1-\mu p)(X_n - y_{jn}) + \mu\sigma_n + \alpha_n (Y_{jn} - y_{jn}) = 0 \quad (19)$$

for all n, where $p = \int p_i di$ is the average partisan status of voters, X_n is the average voter position in the state, and $\sigma_n = -\int (p_i - p)(x_{in} - X_n)\,di$.

We can derive the explicit solution for the optimal choice of candidate:

$$y_{jn}^* = X_n + \frac{\alpha_n}{1 - \mu p + \alpha_n} (Y_{jn} - X_n) + \frac{\mu \sigma_n}{1 - \mu p + \alpha_n}. \tag{20}$$

Note that the solution is interior given the range of the parameters. The Hessian is a diagonal matrix with $-(\omega_n (1 - \mu p) + 2\gamma_n) < 0$, $n = 1..N$, on the diagonal. The matrix is negative definite and thus the second-order condition is satisfied. $\square$

Lemma 1. *If $\sigma_n = 0$, then $y_{jn}^* \in [\min\{X_n, Y_{jn}\}, \max\{X_n, Y_{jn}\}]$ for all n. Introducing the ML shifts the optimal y_{jn}^* away from X_n and towards Y_{jn}.*

Proof. Under the lemma's conditions equation (11) of the main text becomes

$$y_{jn}^* = X_n + \frac{\alpha_n}{1 - \mu p + \alpha_n} (Y_{jn} - X_n). \tag{21}$$

It follows immediately that $y_{jn}^* \in [\min\{X_n, Y_{jn}\}, \max\{X_n, Y_{jn}\}]$. Introducing the ML corresponds to a decrease in the denominator and thus an increase in the coefficient weighing Y_{jn}. $\square$

Lemma 2. *If $\sigma_n > (<)\, 0$ and the number of swing voters is sufficiently large, then introducing the ML shifts y_{jn}^* to the right (left).*

Proof. Follows from (26) and (27). For any $X_n \in \left[-\frac{1}{2}, \frac{1}{2}\right], Y_{jn} \in \left[-\frac{1}{2}, \frac{1}{2}\right], \sigma_n > 0$ $\exists \hat{p} > 0$ such that $\forall p \in (0, \hat{p})$: $Y_{jn} + \frac{1+\alpha_n}{\alpha_n p}\sigma_n > X_n$. And conversely, for any $X_n \in \left[-\frac{1}{2}, \frac{1}{2}\right], Y_{jn} \in \left[-\frac{1}{2}, \frac{1}{2}\right], \sigma_n < 0$ $\exists \hat{p} > 0$ such that $\forall p \in (0, \hat{p})$: $Y_{jn} + \frac{1+\alpha_n}{\alpha_n p}\sigma_n < X_n$. $\square$

Lemma 3. *The ML shifts the optimal senatorial position, y_{jn}^* to right if and only if $\alpha_n \left(Y_{jn} - X_n^P\right) + \left(X_n - X_n^P\right) > 0$.*

Proof.

The party's solution in the presence of a ML is given by

$$y_{jn}^* |_{\mu=1} = X_n + \frac{\alpha_n}{1 - p + \alpha_n} (Y_{jn} - X_n) + \frac{\sigma_n}{1 - p + \alpha_n}, \tag{22}$$

and the party's solution without a ML by

$$y_{jn}^{*}\left|_{\mu=0}\right. = X_n + \frac{\alpha_n}{1+\alpha_n}\left(Y_{jn} - X_n\right). \tag{23}$$

Subtracting (23) from (22) we get

$$y_{jn}^{*}\left|_{\mu=1}\right. - y_{jn}^{*}\left|_{\mu=0}\right. = \frac{\alpha_n p}{1-p+\alpha_n}\frac{Y_{jn} - X_n}{1+\alpha_n} + \frac{\sigma_n}{1-p+\alpha_n}, \tag{24}$$

or equivalently

$$y_{jn}^{*}\left|_{\mu=1}\right. - y_{jn}^{*}\left|_{\mu=0}\right. = \frac{\alpha_n p\left(Y_{jn} - X_n\right) + \left(1+\alpha_n\right)\sigma_n}{\left(1-p+\alpha_n\right)\left(1+\alpha_n\right)}. \tag{25}$$

Since α_n is positive, we obtain that $y_{jn}^{*}\left|_{\mu=1}\right. - y_{jn}^{*}\left|_{\mu=0}\right. \gtrless 0$ which is equivalent to $\alpha_n p\left(Y_{jn} - X_n\right) + \left(1+\alpha_n\right)\sigma_n \gtrless 0$. Moreover

$$\frac{\sigma_n}{p} = \frac{pX_n - \int p_i x_{in} di}{p} = X_n - X_n^P, \tag{26}$$

so that the inequality can be rewritten as

$$\alpha_n\left(Y_{jn} - X_n\right) + \left(1+\alpha_n\right)\left(X_n - X_n^P\right) \gtrless 0, \tag{27}$$

$$\frac{\alpha_n}{\alpha_n+1}Y_{jn} + \frac{1}{\alpha_n+1}X_n \gtrless X_n^P. \quad \square \tag{28}$$

Proof of Proposition 2. The proof consists of two steps. In the first step we consider fixed y_{jn}, y_{-jn}. At the second step, they are endogenized.

Step 1. If a ML is on the ballot, the total probability that i votes for j is given by

$$\Pr\left(j \succ_i -j\right)\Big|_{\mu=1} = p_i\left(j\right) + \frac{1-p_i}{2}\left[\sum_n \omega_n\left(\left(x_{in}-y_{-jn}\right)^2 - \left(x_{in}-y_{jn}\right)^2\right) + 1\right], \quad (29)$$

since the partisan voters use the ML and vote for their preferred party, and the following holds for the swing voters: $j \succ_i -j \Leftrightarrow -\sum_n \omega_n\left(x_{in}-y_{-jn}\right)^2 + \left(\varepsilon_{ij}-\varepsilon_{i,-j}\right) \geq -\sum_n \omega_n\left(x_{in}-y_{-jn}\right)^2$ and $\Pr\left(\varepsilon_{ij}-\varepsilon_{i,-j} < x\right) = \left[\frac{1}{2}+\frac{x}{2}\right]_0^1$.

If there is no ML available, the analogous expression is

$$\Pr\left(j \succ_i -j\right)\Big|_{\mu=0} = \frac{1}{2}\left[\sum_n \omega_n\left(\left(x_{in}-y_{-jn}\right)^2 - \left(x_{in}-y_{jn}\right)^2\right) + 1 + \beta\Delta p_i\left(j\right)\right], \quad (30)$$

where we used that $j \succ_i -j \Leftrightarrow -\sum_n \omega_n\left(x_{in}-y_{-jn}\right)^2 + \beta p_i\left(j\right) + \left(\varepsilon_{ij}-\varepsilon_{i,-j}\right) \geq -\sum_n \omega_n\left(x_{in}-y_{-jn}\right)^2 + \beta p_i\left(-j\right)$ and recalling that $\beta \in (0,1)$.

Equations (29) and (30) can be combined in one expression

$$\begin{aligned}\Pr\left(j \succ_i -j\right) &= \mu p_i\left(j\right) \\ &\quad + \frac{1-\mu p_i}{2}\left[\sum_n \omega_n\left(\left(x_{in}-y_{-jn}\right)^2 - \left(x_{in}-y_{jn}\right)^2\right) + 1\right] \\ &\quad + \frac{1-\mu}{2}\beta\Delta p_i\left(j\right) \qquad (31)\end{aligned}$$

Party j's vote share V_j is the average (across voters) probability of preferring j to $-j$:

$$V_j = \mathbf{E}_i \Pr\left(j \succ_i -j\right) = \int_{[0,1]} \Pr\left(j \succ_i -j\right) di. \quad (32)$$

Combining (29) and (32) we obtain the difference in the two parties' vote shares, namely

$$\begin{aligned}\mathbf{E}_i \Pr\left(j \succ_i -j\right) - \mathbf{E}_i \Pr\left(-j \succ_i j\right) &= \mu\Delta p\left(j\right) \\ &+ \sum_n \omega_n \int_{[0,1]} \left(1-\mu p_i\right)\Delta y_{jn}\left(x_{in} - \overline{y_n}\right)di \\ &+ \left(1-\mu\right)\beta\Delta p\left(j\right) \end{aligned} \tag{33}$$

where $\Delta p\left(j\right) = p\left(j\right) - p\left(-j\right)$. Hence

$$\begin{aligned} V_j &= \mathbf{E}_i \Pr\left(j \succ_i -j\right) = \frac{1}{2} + \frac{\Delta p\left(j\right)}{2}\left(\mu + \left(1-\mu\right)\beta\right) \\ &+ \frac{1}{2}\sum_n \omega_n \Delta y_{jn}\left(X_n - \mu\int_{[0,1]} x_{in}p_i di - \left(1-\mu p\right)\overline{y_n}\right), \end{aligned} \tag{34}$$

where $\Delta y_{jn} = y_{jn} - y_{-jn}$ and $\overline{y_n} = \frac{y_{jn}+y_{-jn}}{2}$. This can be further simplified

$$\begin{aligned} V_j &= \frac{1}{2} + \frac{\Delta p\left(j\right)}{2}\left(\mu + \left(1-\mu\right)\beta\right) \\ &+ \sum_n \frac{\omega_n}{2}\Delta y_{jn}\left(\left(1-\mu p\right)\left(X_n - \overline{y_n}\right) + \mu\sigma_n\right). \end{aligned} \tag{35}$$

Step 2. With respect to the optimal positions y^*_{jn} and y^*_{-jn} from (11) of the main text we have:

$$\overline{y^*_n} = \frac{1-\mu p}{1-\mu p+\alpha_n}X_n + \frac{\alpha_n}{1-\mu p+\alpha_n}\overline{Y_n} + \frac{\mu\sigma_n}{1-\mu p+\alpha_n}, \tag{36}$$

$$X_n - \overline{y^*_n} = \frac{\alpha_n}{1-\mu p+\alpha_n}\left(X_n - \overline{Y_n}\right) - \frac{\mu\sigma_n}{1-\mu p+\alpha_n}, \tag{37}$$

$$\Delta y^*_{jn} = \frac{\alpha_n}{1-\mu p+\alpha_n}\Delta Y_{jn}. \tag{38}$$

Substituting in (35)

$$\begin{aligned} V_j &= \frac{1}{2} + \frac{\Delta p\left(j\right)}{2}\left(\mu + \left(1-\mu\right)\beta\right) + \frac{1}{2}\sum_n \omega_n \frac{\alpha_n}{1-\mu p + \alpha_n}\Delta Y_{jn} \times \\ &\times \left(\mu\sigma_n + \left(1-\mu p\right)\left(\frac{\alpha_n}{1-\mu p+\alpha_n}\left(X_n - \overline{Y_n}\right) - \frac{\mu\sigma_n}{1-\mu p+\alpha_n}\right)\right). \end{aligned} \tag{39}$$

Consider the last parenthesis term. It can be rewritten as

$$\frac{1}{1-\mu p+\alpha_n}\left(\left(1-\mu p+\alpha_n\right)\mu\sigma_n + \left(1-\mu p\right)\left(\alpha_n\left(X_n - \overline{Y_n}\right) - \mu\sigma_n\right)\right). \tag{40}$$

Simplifying we get

$$\frac{\alpha_n}{1-\mu p+\alpha_n}\left(\mu\sigma_n + \left(1-\mu p\right)\left(X_n - \overline{Y_n}\right)\right). \tag{41}$$

Thus (39) becomes

$$\begin{aligned} V_j &= \frac{1}{2} + \frac{\Delta p\left(j\right)}{2}\left(\mu + \left(1-\mu\right)\beta\right) \\ &+ \frac{1}{2}\sum_n \omega_n \left(\frac{\alpha_n}{1-\mu p+\alpha_n}\right)^2 \Delta Y_{jn}\left(\mu\sigma_n + \left(1-\mu p\right)\left(X_n - \overline{Y_n}\right)\right). \end{aligned} \tag{42}$$

Thus, the Republican vote share increases in (i) the Republican partisan advantage, $p(R) - p(D)$, (ii) the swing-position covariance σ_n, $\forall n$ (on any issue) only if the ML is available, and (iii) the average voter bliss point X_n, $\forall n$. Symmetrically, the Democratic vote share decreases in (i) $p(D) - p(R)$, (ii) σ_n, $\forall n$ only if ML is available, and (iii) X_n, $\forall n$.

To prove the second part of the statement, we consider V_j when ML is present ($\mu = 1$):

$$V_j = \frac{1}{2} + \frac{\Delta p\,(j)}{2} + \frac{1}{2}\sum_n \omega_n \left(\frac{\alpha_n}{1-p+\alpha_n}\right)^2 \Delta Y_{jn}\left(\sigma_n + (1-p)\left(X_n - \overline{Y_n}\right)\right), \tag{43}$$

and when $\mu = 0$:

$$V_j = \frac{1}{2} + \frac{\Delta p\,(j)}{2}\beta + \frac{1}{2}\sum_n \omega_n \left(\frac{\alpha_n}{1+\alpha_n}\right)^2 \Delta Y_{jn}\left(X_n - \overline{Y_n}\right). \tag{44}$$

Subtracting (44) from (43) we get

$$\begin{aligned}\Delta_\mu V_j &= \Delta p\,(j)\,\frac{1-\beta}{2} \\ &+\frac{1}{2}\sum_n \omega_n \frac{\alpha_n^2}{\left(1-p+\alpha_n\right)^2}\Delta Y_{jn}\left[\sigma_n + \left(X_n - \overline{Y_n}\right)\frac{p\left(1-p-\alpha_n^2\right)}{\left(1+\alpha_n\right)^2}\right]\end{aligned} \tag{45}$$

Thus, the ML increases the effects of (i) and decreases the effect of (iii) on the distribution of votes between the parties. □

Proof of Proposition 3. First, we need to compute $V_j y^*_{jn} + (1-V_j)\, y^*_{-jn}$ which is

$$= \left(V_j - \frac{1}{2}\right) y^*_{jn} + \left(\frac{1}{2} - V_j\right) y^*_{-jn} + \frac{1}{2}\left(y^*_{jn} + y^*_{-jn}\right) = \left(V_j - \frac{1}{2}\right)\Delta y^*_{jn} + \overline{y^*_n}. \tag{46}$$

Substituting (36) and (38) into (46) we get

$$\begin{aligned}= &\left[\frac{\Delta p\,(j)}{2}\left(1-\beta\left(1-\mu\right)\right)\right. \\ &\left.+\sum_m \frac{\alpha_m \gamma_m}{\left(1-\mu p+\alpha_m\right)^2}\Delta Y_{jm}\left[\mu\sigma_m + \left(X_m - \overline{Y_m}\right)\left(1-\mu p\right)\right]\right]\frac{\alpha_n}{1-\mu p+\alpha_n}\Delta Y_{jn} \\ &+\frac{1-\mu p}{1-\mu p+\alpha_n}X_n + \frac{\alpha_n}{1-\mu p+\alpha_n}\overline{Y_n} + \frac{\mu\sigma_n}{1-\mu p+\alpha_n},\end{aligned} \tag{47}$$

Hence, the expected position of the elected senator on issue n, y_n^{**}, increases in (i) the Republican partisan advantage, $p(R) - p(D)$, (ii) the swing-position covariance in all issues, σ_m, $\forall m$, only if the ML is present, (iii) the average voter bliss point in issue n, X_n, and (iv) the average voter bliss point in all other issues X_m, $\forall m \neq n$. Next, consider $\mu = 1$, (47) becomes

$$\left[\frac{\Delta p\,(j)}{2} + \sum_m \frac{\alpha_m \gamma_m}{(1-p+\alpha_m)^2} \Delta Y_{jm} \left[\sigma_m + \left(X_m - \overline{Y_m}\right)(1-p)\right]\right] \frac{\alpha_n}{1-p+\alpha_n} \Delta Y_{jn}$$

$$+ \frac{1-p}{1-p+\alpha_n} X_n + \frac{\alpha_n}{1-p+\alpha_n} \overline{Y_n} + \frac{\sigma_n}{1-p+\alpha_n}. \tag{48}$$

If $\mu = 0$, then (47) becomes

$$\left[\frac{\Delta p\,(j)}{2} \beta + \sum_m \frac{\alpha_m \gamma_m}{(1+\alpha_m)^2} \Delta Y_{jm} \left[X_m - \overline{Y_m}\right]\right] \frac{\alpha_n}{1+\alpha_n} \Delta Y_{jn}$$

$$+ \frac{1}{1+\alpha_n} X_n + \frac{\alpha_n}{1+\alpha_n} \overline{Y_n}. \tag{49}$$

Subtracting (49) from (48) we obtain[88]

$$= \left[\frac{\Delta p\,(j)}{2}(1-\beta) + \sum_m \frac{\alpha_m \gamma_m}{(1-p+\alpha_m)^2} \Delta Y_{jm} \left[\sigma_m + \left(X_m - \overline{Y_m}\right)(1-p)\right]\right.$$

$$\left. - \sum_m \frac{\alpha_m \gamma_m}{(1+\alpha_{jm})^2} \Delta Y_{jm} \left[X_m - \overline{Y_m}\right]\right] \times \frac{\alpha_n}{1-p+\alpha_n} \Delta Y_{jn}$$

$$+ \left[\frac{\Delta p\,(j)}{2} + \sum_m \frac{\alpha_m \gamma_m}{(1-p+\alpha_m)^2} \Delta Y_{jm} \left[\sigma_m + \left(X_m - \overline{Y_m}\right)(1-p)\right]\right] \left(\frac{\alpha_n}{1-p+\alpha_n} - \frac{\alpha_n}{1+\alpha_n}\right) \Delta Y_{jn}$$

$$+ \left(\frac{1-p}{1-p+\alpha_n} - \frac{1}{1+\alpha_n}\right) X_n + \left(\frac{\alpha_n}{1-p+\alpha_n} - \frac{\alpha_n}{1+\alpha_n}\right) \overline{Y_n} + \frac{\sigma_n}{1-p+\alpha_n}. \tag{50}$$

[88] To find the difference between the first term in (48) (denote $a_1 b_1$) and the first term in (49) (denote $a_0 b_0$) we use the following decomposition formula: $a_1 b_1 - a_0 b_0 = (a_1 - a_0) b_1 + a_0 (b_1 - b_0)$.

Simplifying we get

$$= \left[\pi_n \Delta p(j) + \sum_m \underbrace{\frac{\alpha_n}{1-p+\alpha_n} \left(\frac{1+\alpha_n+p}{1+\alpha_n} \right) \frac{\alpha_m \gamma_m}{(1-p+\alpha_m)^2}}_{\delta_{nm}} \Delta Y_{jm} \sigma_m \right] \Delta Y_{jn}$$

$$+ \left[\sum_m \underbrace{\frac{\alpha_n \alpha_m \gamma_m}{1-p+\alpha_n} \frac{p\left[(2-3\alpha_m)(1-p)-\alpha_m^2\right]}{(1+\alpha_m)^2 (1-p+\alpha_m)^2}}_{\theta_{nm}} \Delta Y_{jm} \left[X_m - \overline{Y_m} \right] \right] \Delta Y_{jn}$$

$$- \frac{p\alpha_n}{1-p+\alpha_n} \frac{X_n - \overline{Y_n}}{1+\alpha_n} + \frac{\sigma_n}{1-p+\alpha_n}, \tag{51}$$

where $\pi_n = (2-\beta) \frac{\alpha_n/2}{1-p+\alpha_n} - \frac{\alpha_n/2}{1+\alpha_n} > 0$. Note that $\delta_{nm} > 0$ and $\theta_{nm} > 0$ since $\alpha_m \geq 1$. Thus, the ML decreases the effect of (iii) and increases all other effects on y_n^{**}. $\square$

A.2 Classifications of States

We construct *ML*, *positional* and *partisanship* classifications of states. Table 7 presents their definitions.

Table 7: Classifications of States

Type	Rule
ML CLASSIFICATION:	
stayer	$ML = 1$ for the whole time period
leaver	$ML = 1$ at first then $ML = 0$ (only ONE date of removal)
nonparticipant	$ML = 0$ for the whole time period
POSITIONAL CLASSIFICATION:	
extreme left-wing	$X < Y_D < Y_R$
moderate	$Y_D \leq X \leq Y_R$
extreme right-wing	$Y_D < Y_R < X$
PARTISANSHIP CLASSIFICATION:	
red - *mostly Republicans*	$p(R) > p(D) + b$ and $p(R) \geq 1 - p$
blue - *mostly Democrats*	$p(D) > p(R) + b$ and $p(D) \geq 1 - p$
purple - *mostly partisans, $D \simeq R$*	$(p(R) \geq 1 - p$ or $p(D) \geq 1 - p)$ and $\lvert p(D) - p(R) \rvert \leq b$
swing - *mostly swing voters*	otherwise

Notes: $ML = 1$ when there is a ML in the state, 0 otherwise. Y_R, Y_D, Republican and Democratic party bliss-points (median of all elected Congress members' positions), X, average voter position in state. $p(R)$, $p(D)$, $1-p$, fractions of Republican, Democratic and swing (non-partisan) voters, b set at 5%.

A.3 State Special Cases

Our estimation identifies the ML effect as long as states are split into stayers, leavers and nonparticipants (see Section 4.3). In other words, we consider observations from states that either never changed their ML status, or they made exactly one switch to remove the option. There are six states that do not fit into this categorization; table 8 presents how we cleaned their data. For all them, there are two or more policy changes in ML status. We drop observations so that we are left with the longest period of time where each state fits in one of our three categories. We also remove the data points that are "close" to one of the changes in policy that we dropped. Consider for example the case of Oklahoma that removed the ML only for one year, 1968. We keep only the observations from 1972 to 2012 and treat the state as a stayer. In theory, we could also keep the observations from 1970, however, we do not know exactly when in that Congress the bill was passed to reintroduce the ML and whether senators were acting as if they were expecting to face the option in the upcoming election or not, so we drop it as well. Lastly, we remove all observations from Texas as doing so significantly improves the covariate balance which is key for the identification (see Appendix A.4).

A.4 Covariate Balance

In this section, we verify that our pre-treatment covariates are balanced between treatment and control groups. In the leaver-stayer (LS) subsample, the treatment is the removal of the ML by the leavers, therefore we need to check the covariate balance, prior to the removal. Table 9 shows the means and standard deviations for each group for the variables of interest, and we present them also per party as we run DD_{LS} separately for Democratic and Republican senators as well. X is the average position in a state, gov the state government position and $p(R) - p(D)$ is the state Republican partisan advantage, i.e. the fraction of Republican voters minus

Table 8: Data Cleaning

State	ML Status	Fix
Arizona	$ML = 1 : 1960 - 1974, 1980$ $ML = 0 : 1976 - 1978, 1982 - 2012$	dropped obs. before 1984 treated as NP
Michigan	$ML = 1 : 1962 - 2000, 2004 - 2012$ $ML = 0 : 2002$	dropped obs. after 2000 treated as S
Nebraska	$ML = 1 : 1962, 1970 - 1978$ $ML = 0 : 1960, 1964-1968, 1980-2012$	dropped obs. before 1972 treated as L
Oklahoma	$ML = 1 : 1962 - 1966, 1970 - 2012$ $ML = 0 : 1968$	dropped obs. before 1972 treated as S
Tennessee	$ML = 1 : 1970 - 1976$ $ML = 0 : 1962 - 1968, 1978 - 2012$	dropped obs. before 1972 treated as L
Texas	$ML = 1 : 1962, 1966 - 2012$ $ML = 0 : 1964$	dropped all obs. - Appendix A.4 (o/w would have been S by removing all obs. before 1968)

Notes: $ML = 1$ when there is a ML in the state, 0 otherwise. Stayer states (S) always have a ML, leavers (L) originally have and then remove it, nonparticipants (NP) never have it.

the fraction of Democratic voters. We picked the particular form of the partisanship variables as it is a relative measure; results are the same if instead we use $p(R)$, $p(D)$ or $1 - p$. Note that we have dropped Texas altogether from the stayer observations as doing so significantly improves the covariate balance. We can see from the table that there are no significant differences between the groups in the remaining sample, both in aggregate and by party.[89]

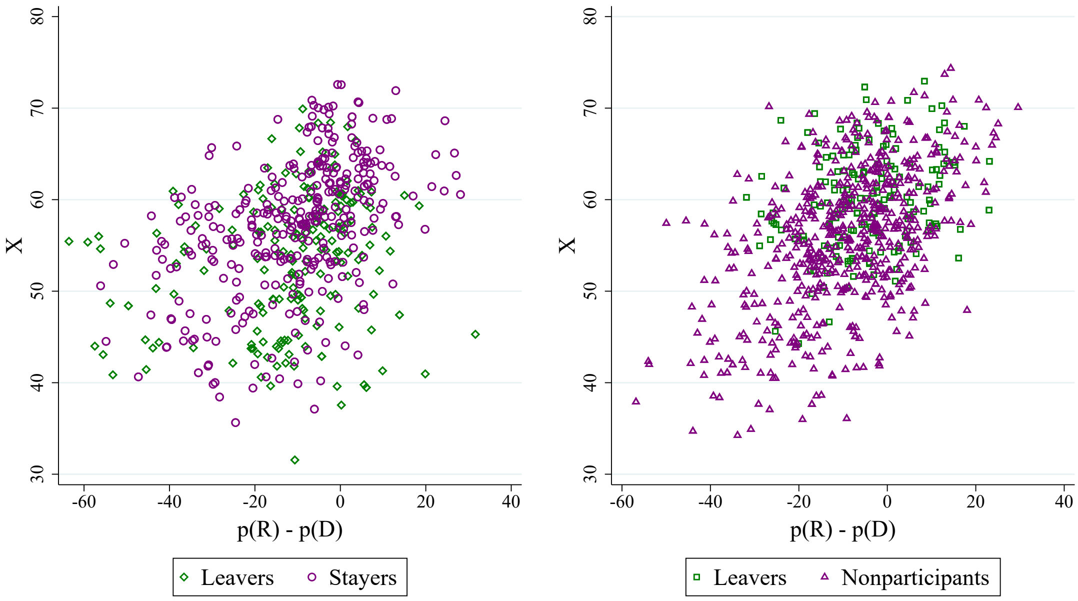
Table 9: Covariate Balance for Leavers and Stayers when $ML = 1$

		All		DEM		REP	
		Leavers	Stayers	Leavers	Stayers	Leavers	Stayers
X	mean	53.385	56.778	52.613	55.146	54.353	58.376
	st. dev.	7.364	7.52	7.149	7.671	7.534	7.067
$p(R) - p(D)$	mean	-11.646	-10.464	-16.265	-15.4	-5.859	-5.935
	st. dev.	16.209	15.375	17.839	14.953	11.580	14.348
gov	mean	43.128	42.99	40.428	37.361	46.510	48.156
	st. dev.	19.142	18.849	17.320	15.52	20.764	20.136

Notes: Means and standard deviations of state-level covariates for stayers and leavers before removal of the ML (i.e. all obs. with $ML = 1$), aggregated and by party. $X \in [31.599, 72.949]$ is the average voter position, $p(R) - p(D) \in [-63.527, 31.619]$ the Republican partisan advantage (fraction of Republican minus fraction of Democrat voters) and $gov \in [0, 93.508]$ the state government position. *Source:* Data from Berry et al. (2010) and Enns and Koch (2013)

[89] X is the only variable that shows a (small) imbalance. If we include it in the DD_{LS} model, it has no impact on the treatment effect estimates and it is insignificant in all our specifications.

The left panel of figure 6 provides a scatter plot of average voter positions, X versus the Republican partisan advantage, $p(R) - p(D)$, in the LS subsample. We observe that there is significant overlap between the two groups. On the right, we provide the same scatterplot for the leavers-nonparticipants subsample, when neither group offers the ML. As it can be seen, the whole bottom left corner has observations almost entirely of nonparticipants only. We note that these do not all belong to one or two states and we can thus not "clean" the data easily.[90] Matching or including these variables is not feasible either (see Section 4.3). Similar patterns emerge for both graphs if instead we use the state government position, *gov*.



Notes: 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 Democrat voters) for: 1. stayers and leavers before removal of the ML (*left*) and 2. nonparticipants and leavers after removal of the ML (*right*). *Source*: Data from Enns and Koch (2013)

Figure 6: Covariate Overlap

[90] The same conclusion can be drawn if we construct a table similar 9 for the leaver-nonparticipant subsample.

A.5 Robustness Checks

In table 10 we present the results of DD_{LS} while varying the set of senators considered, the clustering of errors and some of the controls. The first specification includes only state fixed effects rather than state-party. The coefficient of interest jumps up to 12.73. This is most likely because in this case we have not taken care of selection forces, that differ by party. In other words, the coefficient is confounded by the fact that it is in right-wing states, where the Republican party benefits from the ML, that the option is *not* removed.

In the main specification, errors are clustered at the senator-level. An alternative option is to instead cluster them at the state-party level, which has the benefit of being a more aggregate measure, and the downside that there are fewer clusters. The rest of table 10 replicates the main results with this error structure for all observations (column (2)), only Democrats (3), only Republicans (4), and with senator fixed effects (5). Note that for specifications (3) and (4) the number of clusters is too small to satisfy the required assumption that it approaches infinity.

We find that although errors are larger in this setup, the ML remains a significant determinant of senatorial positions for Republicans and overall, when we include a senator fixed effect. We explain these results in Section 4.5.

A.6 Theoretical Predictions in the Data

This section describes the way we constructed table 5 in Section 4.5. Note that all the data calculations that follow are the same regardless of whether we use the leavers-stayers subsample, or all the observations together.

Party Loyalty Effect (PL). PL varies across positional classes[91] and the party of the senator. When the party bliss point is less than the average voter position in

[91] See Appendix A.2 for the definitions.

Table 10: Robustness Checks

y	(1)	(2)	(3)	(4)	(5)
ML	12.73***	2.393	0.151	4.569*	1.375**
	(3.322)	(1.850)	(2.451)	(2.603)	(0.585)
State-Party FE		✓			
State FE	✓		✓	✓	
Senator FE					✓
Congress FE	✓	✓	✓	✓	✓
Error Clustering	senator	state-party	state-party	state-party	state-party
No. Clusters	219	53	27	26	53
N	1340	1340	700	640	1340
R^2-adjusted	0.330	0.911	0.621	0.692	0.992
Subsample	ALL	ALL	DEM	REP	ALL

Notes: Huber-White standard errors in parentheses. y: position of senator, * $p < .1$, ** $p < .05$, *** $p < .01$. Main results in Section 4.4.

the state, $Y_j < X$, PL pulls the senator's position to the left (towards the party), and vice versa when $Y_j > X$. For example, in moderate states where by definition $Y_D \leq X \leq Y_R$, PL will be negative for Democrats and positive for Republicans, and so on for the rest of the cases. The columns labeled (PL) in table 5 display the direction of the party loyalty effect for the two parties and different state classes.

Swing Voter Effect (SV). SV follows the direction of $\sigma = -cov(p, x)$, the negative of the covariance between partisanship and voter positions within states, and it is the same for both parties. If, for example, $\sigma > 0$, so that swing voters tend to be more right-wing than the rest of the state (and partisans more left-wing), senators move to the right to attract the swings' votes. In other words, to estimate σ, we would also need state-level data on the average position of partisans (or swings), which we do not have. To circumvent this problem, we make the following assumption.

Empirical Assumption (EA). *The distribution of voter positions and partisanship across states is the same as that within states.*

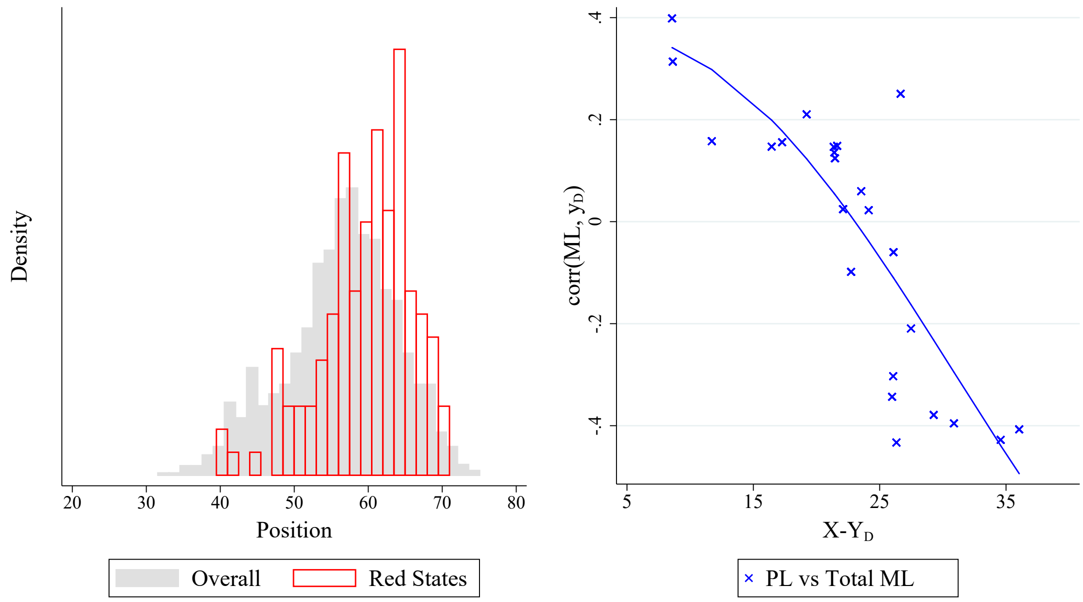
This allows us to estimate SV by considering separately each partisanship class of states, starting with blue. From the top right graph of figure 5, we have that the higher the fraction of Democrats in a state, the more to the left is the average voter. EA then implies that *within a state* the higher the probability any given voter is a Democrat, the more likely it is for her to be left-wing. Therefore, in blue states where a random partisan voter will probably be a Democrat (by definition), she will also be left-wing. In other words, in blue states, partisans tend to be to the left, and swings to the right of the rest of the state, so that $\sigma_{blue} > 0$. Similarly, from figure 5 and the definition of purple and swing states, we can deduce that $\sigma_{purple} > 0$ and $\sigma_{swing} > 0$.

In red states, the relationship is not as clear.[92] Consider the left panel in figure 7. We see that there is a high concentration of right-wing positions in these states. Thus, any given voter is relatively more right-wing than the rest of the states and, by construction of the partisanship classification, is also most likely a (Republican) partisan, so that EA implies that $\sigma_{red} < 0$.[93] Columns (SV) in table 5 display the swing voter effect for different classes of states.

Lastly, table 11 works in conjunction with table 5 to provide further evidence that the theory captures the mechanism at play behind the empirical results. See Section 4.5 for the discussion.

[92]Note that the correlation between $p(R)$ and X is only 0.16.

[93]Using this methodology for the other partisanship classes either corroborates the σ's, or is not informative (in the case of purple states).



Notes - Left: The distribution of average voter positions in red states compared to that of all states. *Right:* The relative importance of PL in the total ML effect for Democratic senators in states where $PL < 0$ and $SV > 0$; see the discussion in Section 4.5. For each Congress, $X - Y_D$ is the distance of the average voter position to the Democratic party bliss point (median position of elected Democratic Congress members), and $corr(ML, y_D)$ is the average correlation between ML status and Democratic senators' positions. *Source:* Data from Enns and Koch (2013) and Poole and Rosenthal (2015)

Figure 7: Positions of Voters, Parties & Senators

Table 11: No Obs per Class and a Regression

	Extreme Left	Moderate	Extreme Right		y
		Democratic Senators			
Red	0	51	0	ML	4.871**
Blue	0	370	9		(2.324)
Swing	0	196	1	N	552
Purple	0	73	0	R^2-adjusted	0.708
		Republican Senators		Clustering	senator
Red	0	88	0	State FE	✓
Blue	4	208	9	Congress FE	✓
Swing	0	200	13		
Purple	0	118	0		

Notes - Left: Number of observations per party, for different classes of states. Horizontally, the positional classification of states and vertically the partisanship one; definitions in table 7. *Right:* DD_{LS} for Republican senators excluding red states, ** $p < .05$; see Section 4.5 for the discussion.