Legislative Effectiveness in the American States

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Abstract

We develop State Legislative Effectiveness Scores for state legislators across 97 legislative chambers over recent decades based on the number of bills they sponsor, how far those bills move through the lawmaking process, and their substantive importance. We then offer three illustrations of the immense opportunities these scores provide for new scholarship on legislative behavior. First, we show that majority-party lawmaking influence is linked to ideological polarization and to electoral competition for chamber control. Second, we identify the varying lawmaking challenges faced by female legislators across different state legislative chambers. And third, we show how institutional design choices – from legislative rules to the scope of professionalization – affect the distribution of policymaking powers across the states.

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In American legislatures, most policy proposals come from the legislators themselves, offering an important connection among citizens, their representatives, and the laws that govern them. Examinations of which legislators' proposals flourish and which languish may offer great insights into the lawmaking process. Is the minority party treated as a coproducer of public policy or as a nuisance to be brushed aside? Are the proposals of women and under-represented minorities given equal treatment? Is the legislature organized to place a high value on policy expertise in formulating new laws? These and many other important questions of public policy, legislative behavior, and representative democracy can be addressed with a focus on legislators and the fates of their proposals.

As such, scholars have long sought to study the effectiveness of individual legislators across the American states. Unfortunately, data availability and technological limitations have often restricted their ability to offer comprehensive, cross-sectional, time-series information about state legislators. These earlier efforts tended to rely on subjective surveys in a single state, on a single-period snapshot, or on restrictive metrics, such as how many of a sponsor's bills become law. Given increasingly accessible information on legislative proposals across the states and technological advances in data gathering and processing, we are able to overcome many of these limitations. As a result, we generate State Legislative Effectiveness Scores (SLES), building on innovative approaches that have been utilized in recent studies of the U.S. Congress.

Specifically, for each bill proposed in each state legislature across recent decades, we identified the bill sponsor and calculated the size of her overall legislative portfolio. We then identified the extent to which that portfolio survived through each major stage of the lawmaking process. To generate the SLES, we gave greater weight to later (and thus rarer) stages of

lawmaking, while also downgrading commemorative proposals and upgrading the most significant proposals. In total, this effort resulted in 80,344 scores for legislators over a total of 1,032 legislative sessions across 97 state legislative chambers, over a time span from 1987 to 2018.

We subject the SLES to several validity checks, showing that they correlate highly with the subjective surveys that are conducted regularly for the North Carolina legislature, and demonstrating that they reveal well-known lawmaking patterns, such as greater effectiveness among majority-party legislators, committee chairs, and more senior lawmakers. We then argue that these scores and their fifteen components are highly useful in examining significant questions surrounding lawmaking across the American states.

We demonstrate the usefulness of the SLES in three different contexts. First, we show that there is sizable variance across the states and over time in the extent to which majority-party legislators are more effective than their minority-party counterparts in advancing their proposals. Consistent with the theory of conditional party government – advanced with a focus on Congress – we show a greater bias in favor of majority-party lawmaking when the two major political parties are more distant from one another ideologically, and when the majority party is highly ideologically cohesive. Moreover, consistent with the parties' electoral goals, we show that the proposals of majority-party lawmakers are promoted and minority-party lawmakers' proposals are dismissed when the majority party holds only a slim margin of control in chamber seats.

Second, we explore the relative lawmaking effectiveness of male and female legislators across the states. Unlike emerging evidence of the enhanced effectiveness of women in Congress, we find that, on average, women in state legislatures are less effective lawmakers than are men. Yet, this finding appears to be conditional on many factors. Women in upper

chambers, for example, are more effective than men, all else equal, especially in the number of laws that they produce. Moreover, consistent with findings in Congress, we demonstrate that the gender gap in lawmaking effectiveness differs between majority-party and minority-party lawmakers. And we explore the extent to which achieving a critical mass of female legislators influences the lawmaking effectiveness of women in legislative chambers.

Third, we argue that the relative lawmaking powers across legislators are fundamentally linked to how state legislative institutions are structured. In particular, we analyze numerous rules and procedures across the legislatures, as well as the allocation of resources and other considerations, in order to demonstrate how these decisions impact the relative lawmaking influence of minority-party legislators, women, freshmen, and other rank-and-file legislators, relative to those who commonly wield more lawmaking power.

In so doing, we make the case that State Legislative Effectiveness Scores offer countless opportunities for new insights into legislative politics, questions of institutional design, and the study of representative democracy. We conclude with a discussion of many possible fruitful paths forward.

Constructing State Legislative Effectiveness Scores

The concept of legislative effectiveness is perhaps best conceived of as "the proven ability to advance a member's agenda items through the legislative process and into law" (Volden and Wiseman 2014, p. 18). "Proven ability" means that effectiveness must be on display. Committee chairs and others endowed with institutional power only become effective when that power is used. Otherwise their potential for effectiveness is unrealized. "To advance a member's agenda items" means a focus on positive changes in laws. On its face, legislative effectiveness thus excludes activities such as oversight, voting on the floor in accordance with or

opposition to district interests, communicating well with various audiences, or obstructing the proposals of others. That said, such concepts (measured properly in their own right) could be explored in terms of how they relate to legislative effectiveness. Finally, "through the legislative process" means that effectiveness is best captured not simply by number of laws produced, but also with a focus on many different stages along the way from bill introduction until (possibly) becoming law.

Together, these considerations point to a particular measurement strategy. First, we focus on individual lawmakers – relative to one another – rather than on the productivity of a legislature on the whole. Second, we measure the proposals of such legislators that, if enacted, have the full force of law. Third, we track these legislative portfolios throughout the lawmaking process, as gaining traction in committee or passing one's home chamber establishes a degree of effectiveness, even for proposals that ultimately fall short of becoming law in a given legislative session. Fourth, we believe that proven ability is established more fully in bringing about major substantive policy change rather than in moving forward commemorative or minor legislation. Fifth, to be most useful to those interested in understanding legislative behavior and policymaking, we include as many comparable legislatures as possible, over as long of a time series as possible.

We apply this measurement strategy to all U.S. state legislatures, gathering data on all available bill proposals, their importance, their sponsors, and their fates. To do so, we pulled data directly from each state government's online legislative archive. The benefit to this approach is that it allowed us access to an expansive time-series, with the data for the earliest states in our sample – Maine, New Hampshire, Pennsylvania, South Carolina, and Texas –

beginning in the late 1980s, and near full-coverage across the states from 2003 onward.[1] With these data in hand, we first parse the information for each proposal to include – at a minimum – the name of the primary legislative sponsor, a title or summary, and the bill's complete legislative history.[2] Next, we construct a set of state-specific text dictionaries to map legislative history items to stages of the lawmaking process, and we code each bill according to how far it progressed in the lawmaking process. Finally, we use the LexisNexis and Newsbank databases to gather an expansive set of newspaper articles within each state that covers legislation, and we parse the text to identify mentions of legislation in each state and year for which we have legislative data. We use these newspaper mentions, in tandem with an additional set of state-specific dictionaries based on the terms used by Volden and Wiseman (2014), to code the substantive significance of each proposal.[3]

Ultimately, for each bill that was introduced by a state legislator (BILL), we use the legislative histories to identify whether it received any action in committee (AIC), any action beyond committee (ABC), whether it passed its respective home chamber (PASS), and whether it became law (LAW). In addition, we use the bill titles and summaries in tandem with the newspaper mentions of legislation to code each bill as being Commemorative (C), Substantive (S), or Substantive and Significant (SS).[4] Counting how many bills a legislator sponsors at each

[1] Four states enter the sample after 2003: Massachusetts (2009), Nebraska (2007), Oregon (2007), and Rhode Island (2007). Kansas is the only state for which we are unable to gather sufficiently high-quality data to estimate our scores. Specifically, legislators in Kansas do not frequently attach their names to their bills, thus providing little opportunity for researchers to uncover their individual effectiveness or for voters to hold them accountable. See Table A1 in the Supplemental Appendix for a full list of states, dates, and observations.

[2] One challenge to identifying sponsors at the state level is that – unlike in Congress – many states permit multiple primary sponsors or committee-sponsored legislation. In these cases, we attribute each bill to the individual legislator most directly connected to each piece of legislation, using information about, for example, who formally introduced the bill, who requested it be written, or who guided it through the legislative process.

[3] In Table A4 of the Supplemental Appendix we provide a complete list of the newspapers that we use for each state. When possible, we used the newspaper located in the state capital; however, when not available, we instead used the largest daily newspaper by circulation within each state's borders.

[4] Put most simply, bills naming or renaming sites or buildings or those commemorating individuals or dates were downgraded as commemorative (see Table A5 in the Supplemental Appendix for a complete list of terms used to

of these three levels of substantive significance and that reach each of these five lawmaking stages results in fifteen indicators of effective lawmaking.

We then compute a State Legislative Effectiveness Score (SLES) for each state legislator (*i*) in each legislative term (*t*) within each legislative chamber based on a weighted average of these fifteen metrics:

$$SLES_{it} = \left[\begin{array}{c} \frac{\alpha BILL_{it}^{C} + \beta BILL_{it}^{S} + \gamma BILL_{it}^{SS}}{\alpha \sum_{j=1}^{N} BILL_{it}^{C} + \beta \sum_{j=1}^{N} BILL_{it}^{S} + \gamma \sum_{j=1}^{N} BILL_{it}^{SS}} \\ + \frac{\alpha AIC_{it}^{C} + \beta AIC_{it}^{S} + \gamma AIC_{it}^{SS}}{\alpha \sum_{j=1}^{N} AIC_{it}^{C} + \beta \sum_{j=1}^{N} AIC_{it}^{S} + \gamma \sum_{j=1}^{N} AIC_{it}^{SS}} \\ + \frac{\alpha ABC_{it}^{C} + \beta ABC_{it}^{S} + \gamma ABC_{it}^{SS}}{\alpha \sum_{j=1}^{N} ABC_{it}^{C} + \beta \sum_{j=1}^{N} ABC_{it}^{S} + \gamma \sum_{j=1}^{N} ABC_{it}^{SS}} \\ + \frac{\alpha PASS_{it}^{C} + \beta PASS_{it}^{S} + \gamma PASS_{it}^{SS}}{\alpha \sum_{j=1}^{N} PASS_{it}^{C} + \beta \sum_{j=1}^{N} PASS_{it}^{S} + \gamma \sum_{j=1}^{N} PASS_{it}^{SS}} \\ + \frac{\alpha LAW_{it}^{C} + \beta LAW_{it}^{S} + \gamma LAW_{it}^{SS}}{\alpha \sum_{j=1}^{N} LAW_{it}^{C} + \beta \sum_{j=1}^{N} LAW_{it}^{S} + \gamma \sum_{j=1}^{N} LAW_{it}^{SS}} \end{array} \right] \left[\frac{N}{5} \right]$$

The five large terms from top to bottom in this equation represent legislator *i*'s fraction of bills that were (1) introduced, (2) received action in committee, (3) received action beyond committee, (4) passed their respective chamber of introduction, and (5) became law, relative to all *N* legislators. Within each of these five terms, commemorative bills are weighted by $\alpha = 1$, substantive bills are weighted by $\beta = 5$, and substantive and significant bills are weighted by $\gamma = 10$. This means that substantive bills are given five times as much weight in our generation of the SLES as are commemorative bills, and substantive and significant bills are given ten times as much weight (double other substantive bills). The normalization (*N*/5) across all *N* legislators in the chamber ensures that the SLES takes an average value of one for each chamber in each

identify these bills). Those mentioned in prominent news outlets were characterized as substantive and significant. All other bills (as well as commemoratives with newspaper mentions) were coded as substantive.

legislative term.[5] State legislators with a higher SLES may be thought of as more effective at lawmaking than those with lower scores.

It is valuable to pause at this point to consider how the approach to measuring legislative effectiveness advanced here differs from prior work across the U.S. states. Some examples are illustrative. Most common has been a single-state approach, based on subjective evaluations of legislators. Legislators and others involved in the lawmaking process in North Carolina, for instance, are routinely surveyed about who they think the most effective lawmakers are in their state. Meyer (1980) explores early results from this survey effort, while Weissert (1991a, 1991b) and Padro i Miquel and Snyder (2006) build upon this approach using the biennial survey administered by the North Carolina Center for Public Policy Research.

A second approach counts the number of each legislator's sponsored bills that become law, using that count as a measure of effectiveness directly, or turning it into a "hit rate" relative to the number of bills sponsored. Such an approach followed similar research on Congress by Matthews (1960) and Frantzich (1979). Notable studies along these lines include those of Hamm, Harmel, and Thompson (1983) studying ethnic minorities in Texas and South Carolina, Saint-Germain (1989) focusing on women in Arizona, and Bratton and Haynie (1999) examining gender and race effects across six states. This approach has received some criticism for ignoring earlier lawmaking stages and for generating inflated hit rates among those who sponsor few bills – a legislator who succeeds on the one bill he sponsors would be scored as more effective than one who sponsors four bills, only half of which become law. Edwards (2018), for example, confronts this latter problem in an analysis of legislators in Michigan, Georgia, and North

[5] Future scholars may find some value in normalizing these scores further to a mean score of zero and a standard deviation of one. Doing so may, however, limit opportunities to examine which institutions are the most egalitarian or to make other similar comparisons across members. How best to proceed depends on the research question one seeks to address.

Carolina, recognizing that greater confidence in one's effectiveness comes with a larger number of successful bills.

We believe that these efforts, while valuable, can be improved upon by examining multiple stages of the lawmaking process, different levels of bills significance, and a larger number of states and time periods. Our approach in constructing the SLES follows the widely-accepted standard currently used to assess legislative effectiveness in the U.S. House (Volden and Wiseman 2014) and U.S. Senate (Volden and Wiseman 2018).[6] Generating more than 80,000 scores for legislators across more than 1,000 chamber-sessions, we believe this approach represents both a qualitative and quantitative leap forward in state legislative effectiveness studies.

Below we offer a brief survey of the types of studies that could be conducted with these data at the individual or chamber level. Before turning in that direction, however, we offer a word of caution about general comparisons of scores across legislators in different states and different time periods. Given significant institutional differences, legislative agendas, and other considerations, direct comparisons between a legislator in Virginia from the late 1990s with a score of, say, 1.53 and a legislator in Tennessee in 2018 with a score of 2.04 would be inappropriate. The Tennesseean legislator may or may not be more effective than the Virginian legislator were they facing the same circumstances in the same legislature. Instead, comparisons of the relative effectiveness of legislators – based on factors such as party status, gender, or

[6] The Legislative Effectiveness Scores for Congress have been widely used in scholarship on Congress (e.g., Montgomery and Nyhan 2017; Battaglini, Leone Sciabolazza, and Patacchini 2020) and well as in the media, by those seeking legislative reforms, and by legislators themselves. To the extent that they have been criticized, such concerns are based on what is not included (e.g., oversight, obstruction, constituency service) or on not assigning credit for lawmaking activities behind the scenes. Casas, Denny, and Wilkerson (2020), for example, show how some legislators' proposals "hitchhike" on must-pass legislation. While using plagiarism-style software to detect bill language added across the lawmaking process may be feasible for assessing effectiveness in Congress, such an approach is currently infeasible at the state level.

seniority – in different settings would be much more appropriate than comparisons of individual lawmakers' scores directly.

SLES Validity Explorations

As the discussion above hopefully illustrates, we took great care in the construction of the State Legislative Effectiveness Scores. We adapted the approach commonly employed for the study of effective lawmaking in Congress to meet the challenges that arose in various state legislative chambers. That said, some assessment of the validity of the resulting metric is also warranted. Here we report two of the initial validity examinations we conducted.[7]

First, we engage in a form of "criterion validation," by comparing the SLES to the subjective measure of legislator effectiveness commonly used in the state of North Carolina. Specifically, we use the biennial effectiveness rankings that are produced by the North Carolina Center for Public Policy Research (NCCPPR) between 2005 and 2012, as collected by Edwards (2018). The NCCPPR rankings are constructed every two years by surveying all state legislators, lobbyists, and statehouse news correspondents in North Carolina; and the resulting measures have been used by scholars to examine the determinants of effectiveness in the state (e.g., Haynie 2002; Padro i Miquel and Snyder 2006; Edwards 2018). It is important to note that the NCCPPR rankings and the SLES may tap somewhat different concepts. For example, party leaders who act behind the scenes, or who structure the legislative agenda, may be seen as more powerful based on such considerations than what we are able to detect based on the pieces of legislation that they advance themselves. Nevertheless, as we discuss in greater detail in the Supplemental Appendix, the SLES for North Carolina is highly correlated with these subjective

[7] Further validity assessments can be made through the use of the SLES for additional analyses. For example, Bucchianeri, Volden, and Wiseman (2020) show that effective state legislators are more likely to become effective lawmakers in Congress than are less effective state legislators.

rankings. Notably, across both chambers and all legislative terms, the SLES explains approximately half of the variation in the NCCPPR rankings by itself. It also outperforms multiple alternative "hit rate" metrics, as measured by the R-squared and root mean squared error in specifications with and without supplementary covariates included.[8]

Second, we use a form of "construct validity" in ascertaining whether the SLES captures a number of well-established patterns about the characteristics of the most effective legislators across the American states. For example, prior work and conventional wisdom both point to majority-party legislators, committee chairs, and more senior lawmakers being more effective in advancing their proposals than are minority-party, rank-and-file, or freshman members. To examine whether such patterns emerge within our metric, we pool together all 72,879 scores for which we have a robust set of covariates and conduct an ordinary least squares analysis, including independent variables that capture these key considerations and other likely determinants of effectiveness.[9] To further account for any cross-state or over-time differences, we include appropriate fixed effects, and we cluster the standard errors by legislator. We report the results of our analyses in Table 1, and offer all variable definitions, sources, and summary statistics in Appendix Table A2.

[8] Table A6 in the Supplementary Appendix provides results from this analysis, showing the R-squared and root mean square error (RMSE) values for regression models where the different effectiveness measures are the primary covariate of interest.

[9] We lose approximately 8,000 observations as a result of missingness in the independent variables. This missingness can primarily be attributed to three variables: distance from the ideological median committee chair/leader, and vote share. In addition, given its nonpartisan structure, we also lose all 301 observations from the Nebraska Unicameral.

Table 1: Determinants of State Legislative Effectiveness Scores

	Dependent variable: SLES		
	Full Sample Model 1.1	Lower Chambers Model 1.2	Upper Chambers Model 1.3
Seniority	0.032**	0.038**	0.011**
	(0.006)	(0.008)	(0.004)
Committee Chair	0.501**	0.600**	0.307**
	(0.025)	(0.037)	(0.021)
Majority Party	0.374**	0.370**	0.380**
	(0.028)	(0.036)	(0.027)
Majority Leadership	0.112**	0.172**	0.056
	(0.032)	(0.049)	(0.039)
Minority Leadership	0.121**	0.183*	0.036
	(0.046)	(0.085)	(0.030)
Speaker/President	0.188	0.377	0.030
	(0.123)	(0.233)	(0.079)
Power Committee	0.098**	0.120**	0.031+
	(0.020)	(0.026)	(0.017)
Distance from Median	-0.107**	-0.108**	-0.125**
	(0.025)	(0.032)	(0.020)
Female	-0.039*	-0.063**	0.038+
	(0.015)	(0.019)	(0.022)
African-American	-0.103**	-0.100*	-0.121*
	(0.035)	(0.043)	(0.052)
Hispanic	-0.080**	-0.079*	-0.071+
	(0.028)	(0.034)	(0.043)
Vote Share	0.520*	0.516+	0.199
	(0.261)	(0.274)	(0.682)
Vote Share Squared	-0.325+	-0.307+	-0.154
	(0.169)	(0.180)	(0.438)
Constant	0.337**	0.257*	0.548*
	(0.120)	(0.130)	(0.274)
Observations	72,879	53,837	19,042
Adjusted R^2	0.129	0.130	0.169

Note: $^{+}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$, two-tailed. All models include fixed effects by term and by state-chamber. Standard errors are clustered by legislator. Among other findings, the results show that more senior legislators, committee chairs, and majority-party members all receive higher State Legislative Effectiveness Scores on average.

Consistent with expectations, and as evidence of SLES construct validity, we find strong patterns of senior legislators, majority-party members, and committee chairs being especially

effective, on average. In particular, as seen in Model 1.1, each term of seniority is associated with about a three-percent boost in a member's SLES, compared to the variable's average value of 1. Compared to the mean SLES for minority-party legislators (0.64), the 0.374 coefficient on *Majority Party* indicates a 58-percent greater effectiveness score among majority-party members, all else equal. And committee chairs are significantly more effective still.

Beyond these expected findings, this baseline analysis of the scores shows some further intriguing patterns. First, party leaders see a modest increase in legislative effectiveness, particularly in lower chambers, and this increase is relatively stable regardless of whether the party controls the chamber or not. Second, particular committee appointments seem to be related to effective lawmaking in the states. Specifically, the positive coefficient on *Power Committee* implies that those legislators who sit on budget or appropriations-related committees, and those who set the rules for their legislatures, are more effective on average than are others, especially in states' lower chambers. Third, moderates – those closer to the chamber median, as captured by *Distance from Median* – are more effective lawmakers than extremists, consistent with Median Voter Theorem models of lawmaking (e.g., Downs 1957; Black 1958; Hitt, Wiseman, and Volden 2017). Fourth, women and under-represented minorities receive lower scores, all else equal, perhaps consistent with biases against the proposals they seek to advance. That said, there is some significant variance in this finding across institutional settings, as evidenced by the positive coefficient on *Female* in the upper chambers in Model 1.3. Fifth, the nonlinear relationship shown in the *Vote Share* and *Vote Share Squared* coefficients indicates that neither highly secure nor highly at-risk legislators perform as well as those from moderately safe districts. Presumably they are neither so complacent nor so focused on constituency service as to limit their lawmaking activities.

Opportunities for New Research Insights

The comparison to North Carolina's subjective rankings and the models of Table 1 help show that the SLES metric is tapping into the concept of legislative effectiveness as desired. Moreover, these analyses also offer a glimpse into how the scores can provide useful insights into lawmaking and representation across the American states. To mention just a couple of emerging insights, the finding of effective ideological moderates raises the possibility that centrists have been able to overcome rising polarization across the states in recent years, and the mixed results for female legislators show some grounds to hope that women lawmakers can achieve an equal footing to men, despite the substantial work that is left to be done.

More broadly, we believe the State Legislative Effectiveness Scores and their components present scholars of legislative politics with countless opportunities for new research projects and findings. For example, our inclusion of 97 legislative chambers, totaling more than a thousand legislative sessions, allows for important comparisons over time and across institutional settings. States have long been considered "laboratories of democracy." Theories and claims that have been made with respect to the U.S. Congress can now be more fully examined under varying conditions across the states. Whether studying the effects of polarization (e.g., Theriault 2008, Thomsen 2014), supermajoritarian institutions (e.g., Brady and Volden 1998, Krehbiel 1998), party competitiveness (e.g., Lee 2016, Hinchliffe and Lee 2016), legislative capacity (e.g., Bolton and Thrower 2016; Squire 1992), descriptive representation (e.g., Gay 2002; Lowande, Ritchie, and Lauterbach 2019; Mansbridge 1999; Minta 2011), or other elements that are central to our understanding of legislative politics, the data available here offer a level of variance that vastly exceeds what is possible through a focus solely on the U.S. Congress.

Additionally, the component parts of the SLES may also be valuable in addressing key questions. Focusing on the success of proposals as they move across lawmaking stages can help scholars better explore the gatekeeping influence of committees (e.g., Crombez, Groseclose, and Krehbiel 2006; Denzau and Mackay 1983), agenda-setting powers on the chamber's floor (e.g., Anzia and Jackman 2013, Cox and McCubbins 2005), or the consequences of bicameralism (e.g., Diermeier and Myerson 1999, Rogers 2003). Alternatively, a focus on the substantive and significant legislation highlighted here allows scholars to more fully incorporate the American states into explorations about the emergence of landmark legislation (e.g., Mayhew 1991), or legislators' responsiveness to the issues of greatest interest to the public (e.g., Binder 1999, Jones and Baumgartner 2005).

Moreover, the focus on legislative effectiveness across the states provides promising opportunities for experimental designs. For example, good-government organizations in a number of states offer training programs for legislative leaders, staff, and new members; while parties offer additional instruction and guidance for their members. Scholars could partner with organizations that are interested in identifying whether their programming is successful and how to improve their offerings, in order to explore whether their participants have been attaining higher scores. They could also randomly vary which legislators or staff members receive which of their programs, to determine whether some information or training opportunities are more impactful than are others.

To illustrate the value of the State Legislative Effectiveness Scores along some of these lines, we next offer three brief studies in which we use the SLES to examine fundamental issues arising within state legislative studies – the varying strength of the majority party, potential

biases against the proposals of women, and how institutional designs affect the balance of power across legislators.

Study 1: The Power of the Majority Party

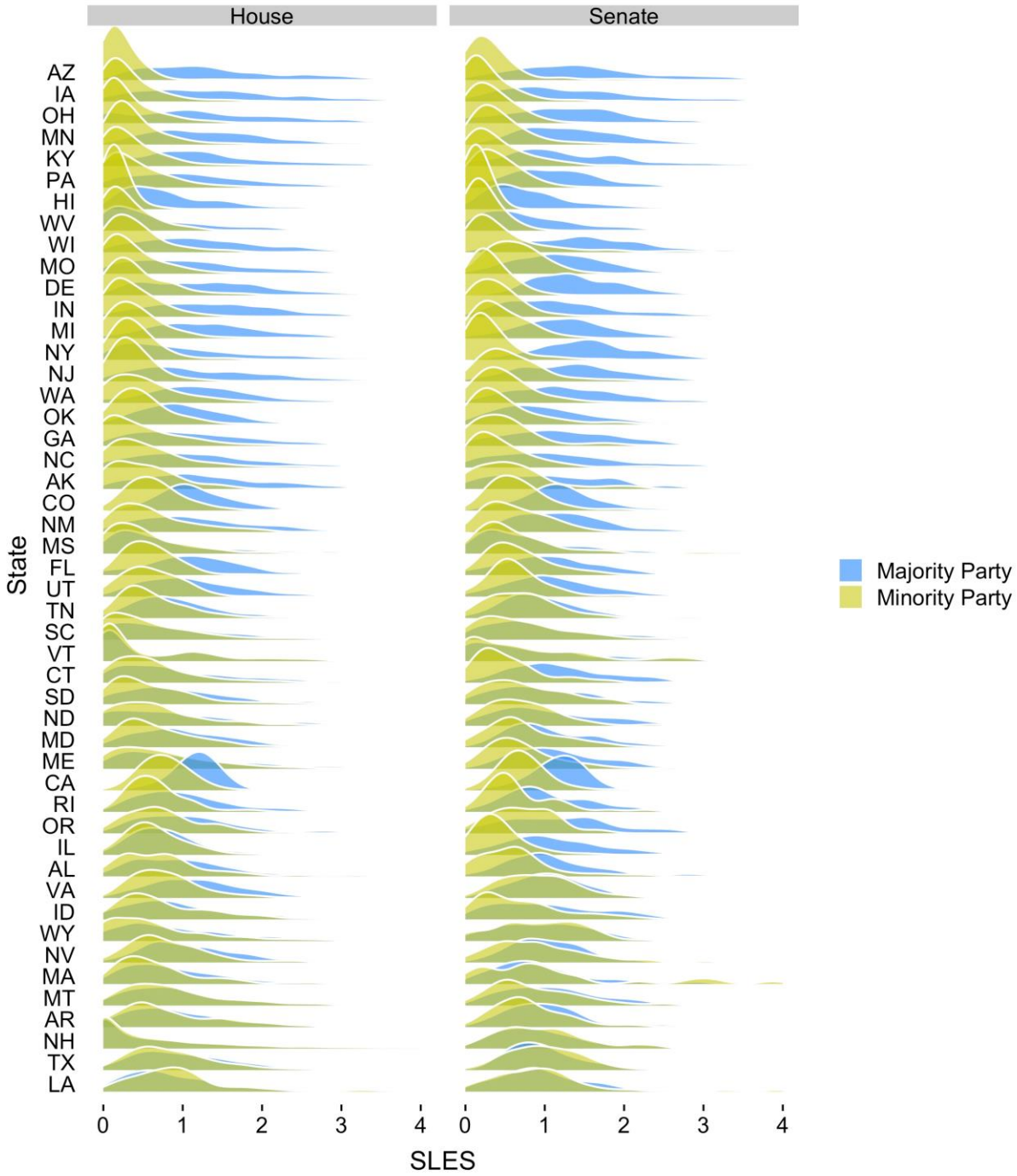
As was shown in Table 1, members of the majority party tend to be more effective as lawmakers across the American states. This is unsurprising. Being in the majority affords legislators a larger natural coalition, more ideologically aligned supporters, and control over the committees that are instrumental to lawmaking. However, the power of the majority party may vary across institutional settings and over time.

Figure 1 shows such variation across the states. The blue distributions show the State Legislative Effectiveness Scores for majority-party members, with the yellow distributions showing minority-party members. The states are sorted such that those with the greatest majority-party advantage are near the top and those with a lesser advantage are near the bottom. Why might states like Arizona, Iowa, and Ohio feature such strong majority-party differences, whereas little differences across parties are evident in New Hampshire, Texas, or Louisiana?

Although there are many explanations for party influence in the literatures on Congress and on state legislatures, we dedicate ourselves here to exploring two hypotheses. The first is commonly referred to as "conditional party government" (e.g., Aldrich 1995, Aldrich and Rohde 2000, Rohde 1991). In this theory, when the parties overlap with one another ideologically, they lack both the motive and the means for the majority party to select strong leaders and press its advantages. In contrast, when an ideological divide opens up between the parties – as has happened in Congress and in many states over recent decades (McCarty, Poole, and Rosenthal 2006; Shor and McCarty 2011; Theriault 2008) – the majority party takes a greater interest in strengthening its leadership to advance its own goals and thwart the minority party. This is

especially true – and easier to accomplish – when members of the majority party are themselves closely aligned ideologically.

Figure 1: Majority Party Advantages Across the States



A second theory about party strength arises from electoral considerations. When the electorate is evenly divided across party lines and neither party holds a large and secure majority in the legislature, legislative battles become highly partisan. Evidence suggests such patterns hold within Congress (Lee 2016) as well as on city councils (Bucchianeri 2020). In such situations, the majority party then works hard to establish its own policy successes (especially for legislators from highly contested districts) and to deprive minority-party lawmakers of legislative successes.

To test these hypotheses, we move from the level of individual lawmakers, characterized in Table 1, to instead consider entire legislative chambers as our units of analysis. Specifically, each chamber in each two-year term is considered as a unit of observation, and we create two dependent variables to explore the relative party strength across these chambers. The first variable is the *SLES Partisan Difference*, which captures the median SLES value among majority-party members minus the median SLES among minority-party members. The second variable is *Share More Effective*, which measures the proportion of majority-party legislators whose SLES exceed the median SLES of minority-party members. For both variables, greater values indicate a larger majority-party advantage in the legislature.

To capture the ideological positions of legislators in each chamber, we rely on the common-space ideology scores that have been advanced by Shor and McCarty (2011). We use these data to construct three variables. *Polarization* captures the ideological distance between the party medians, based on their left-right alignment. *Majority-Party Heterogeneity* is the standard deviation of ideological ideal points among majority-party members; and *Minority-Party Heterogeneity* is a similar metric among minority-party members. The conditional party government hypothesis predicts a positive coefficient on *Polarization* and a negative coefficient

on *Majority-Party Heterogeneity*, consistent with cohesive but polarized parties leading to greater majority-party influence in legislatures.

To test the insecure majorities hypothesis, we construct *Partisan Seat Share Imbalance*, which captures the proportion of seats in the legislative chamber controlled by the majority party minus the proportion controlled by the minority party. A negative coefficient would be consistent with greater partisanship in lawmaking as the party imbalance decreases (when party control of the legislature is more tenuous). We also include a variety of additional institutional variables capturing: the degree of legislative professionalism (Squire 1992, 2017); whether legislative rules empower the majority party through committee gatekeeping or setting the agenda via the legislative calendar (Anzia and Jackman 2013); and whether the majority party also controls the other chamber, the governorship, or both.[10]

Table 2 shows the results of our analyses. Across the nearly 900 chamber-terms in our analysis, we find strong support for both hypotheses.[11] When the parties are ideologically polarized and the majority-party is cohesive, majority-party lawmakers are significantly more effective according to the SLES. For example, each one standard-deviation (0.48) increase in *Polarization* is associated with both a 0.073 increase in the difference between the SLES of the median majority-party lawmaker and the median minority-party lawmaker (Model 2.1) and an additional 3.5% of majority-party legislators outperforming the median minority-party member (Model 2.2). Furthermore, a one-standard-deviation decline in *Majority Party Heterogeneity* is

[10] In Appendix Table A7 we show that the results from Table 2 are robust to inclusion of additional independent variables of interest. For chamber-session level variables used in Tables 2 and 5, their descriptions, summary statistics, and sources are given in Table A3.

[11] Although we score 1,032 chamber-terms, we lose observations in the analysis primarily due to missingness in two sets of covariates: (1) the measures constructed from the Shor and McCarty (2011) data, which cover 1993-2016, with some states starting later in the 1990s; and (2) the *Majority Party Controls Calendar* variable from Anzia and Jackman (2013), which is missing for three chambers.

accompanied by a similar rise in SLES advantage (0.10 points) and share of majority party legislators outperforming the median minority-party member (4.4%). Together, the conditional party government conditions go a significant way toward explaining the 0.37-point majority-party advantage found in Table 1.

Table 2: Determinants of Majority-Party Advantage

	Dependent variable:	
	SLES Partisan Difference Model 2.1	*Share More Effective* Model 2.2
Polarization	0.156*	0.073**
	(0.064)	(0.028)
Majority Party Heterogeneity	-0.890**	-0.379**
	(0.215)	(0.095)
Minority Party Heterogeneity	-0.110	-0.084
	(0.238)	(0.128)
Partisan Seat Share Imbalance	-0.469**	-0.147**
	(0.105)	(0.054)
Legislative Professionalism	0.609*	0.341**
	(0.256)	(0.095)
Committee Gatekeeping Power	0.130*	0.064+
	(0.060)	(0.033)
Majority Party Controls Calendar	0.128*	0.017
	(0.060)	(0.027)
Majority Party Governor	0.043	-0.009
	(0.069)	(0.030)
Majority Party Controls Out-Chamber	-0.051	-0.021
	(0.055)	(0.024)
Unified Government	0.058	0.039
	(0.071)	(0.031)
Observations	868	874
Adjusted R^2	0.292	0.230

Note: $^{+}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$, *two-tailed.* Standard errors are clustered by state-chamber. The results show support for the conditional party government hypothesis and the insecure majorities hypothesis.

Support also emerges for the insecure majorities hypothesis, as shown by the large and significant negative coefficient on *Partisan Seat Share Imbalance*. To see the effect of this variable, consider the most recent complete term (2017-18), in which the Arkansas Senate was dominated by Republicans, 26-to-9, yielding a partisan seat share imbalance of 0.49. In contrast, Colorado featured a nearly even Democrat-Republican split in 2017-18, with the Republicans holding a single-seat advantage, which equates to an imbalance of 0.029. Based on the seat share variable alone, Model 2.1 would predict a 0.21-point larger partisan SLES gap in Colorado than in Arkansas. This is consistent with the patterns emerging in Figure 1 and with the insecure majorities hypothesis.

Beyond the support for these hypotheses, Table 2 reveals additional potentially important findings. First, there appears to be a larger majority-party advantage in more professional legislatures. Second, Model 2.1 suggests greater majority-party advantages in state legislative chambers that have the institutional tools of gatekeeping and calendar control – tools that majority-party leaders can use to advance their preferred policies and thwart those of minority-party members. In Study 3 below, we explore these two patterns further. Third, there does not seem to be an added advantage that follows from the majority party also controlling the other chamber in the state, nor from controlling the governorship. In sum, while there is an overall lawmaking benefit from being in the majority party, this advantage varies across states and over time in ways that shed light on the conditions under which the majority party dominates state legislative processes.

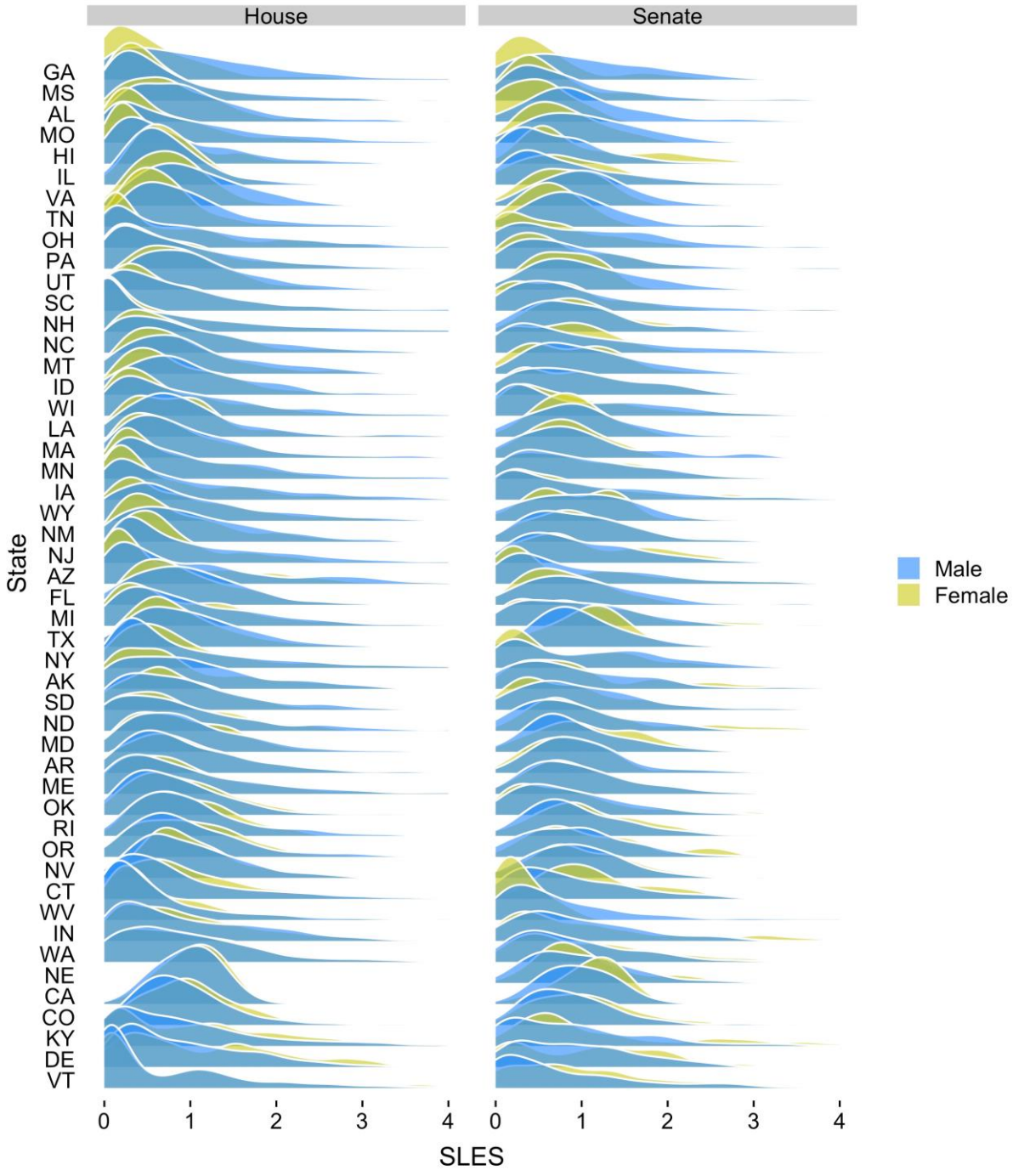
Study 2: The Relative Influence of Women in Legislatures

Similar to significant partisan variance in legislative effectiveness, we also see sizable variance in gender-based lawmaking advantages across the states. Figure 2 shows the SLES

distributions for men and women across the states, sorted by the mean male-female gender difference in SLES. Near the top of the figure are those states with a seemingly large male-favoring bias, such as Georgia, Mississippi, and Alabama, moving down to those with greater balance or even a female advantage like Kentucky, Delaware, and Vermont at the bottom. As a further difference, comparing the left and right columns suggests that the gender gaps may differ between lower and upper chambers, consistent with the findings from Table 1. What may be behind some of these patterns across states and legislative chambers?

The literature on the experiences and effects of women in legislatures is vast. It suggests numerous conditions under which male and female legislators might differ in how they vote, the proposals they advance, and their overall effectiveness. It contains somewhat mixed evidence of gender differences in legislative behaviors and their consequences (e.g., Anzia and Berry 2011; Bratton and Haynie 1999; Lawless, Theriault, and Guthrie 2018; Lazarus and Steigerwalt 2018; Reingold 2003; Swers 2002). Differences across studies to date may be due to the conditional nature of where gender biases and imbalances emerge (e.g., Osborn 2012). We here explore three such conditions. First, Volden, Wiseman, and Wittmer (2013) link the greater effectiveness of women in Congress to their behavior when in the minority party. They suggest that minority-party men tend to adopt a more obstructionist posture when not in power, compared to women who continue to advance their interests and build coalitions across party lines. Does such a difference occur in the state legislatures, as well as in Congress?

Figure 2: Gender Differences Across the States



Second, biases against women and the issues they raise may vary depending on the proportion of seats they hold in the legislature. Such variance certainly exists across our data. For example, of the 46 legislators in the South Carolina Senate between 2001 and 2016, no more

than two were women during any given session. In contrast, in the Arizona Senate over the same time period, women comprised nearly 40% of the chamber, on average, typically holding 11 or 12 of the chamber's 30 seats. As women achieve a critical mass in legislatures, the power dynamics they face appear to change in their favor (e.g., Saint-Germain 1989, Thomas 1991). Unfortunately, as under-represented groups gain more political power, they may also face a backlash against their candidacies in elections, and against their proposals in legislatures (e.g., Haider-Markel 2011, Mansbridge and Shames 2008, Sanbonmatsu 2008). Thus the effects of moving toward a critical mass in state legislatures might be uneven. On the one hand, women could face a backlash, with their proposals being pushed aside and dismissed. On the other hand, they may be better positioned to overcome such biases and advance their legislative agendas. Or perhaps such critical-mass-based claims are over-stated (e.g., Bratton 2005). Put simply, we are interested in whether critical-mass effects are significant enough to influence gender differences in the State Legislative Effectiveness Scores across Arizona, South Carolina, and elsewhere.

Third, there are differing views in the literature about what becomes of the proposals of women as they move their way through committees and across the floor. In one view, the "collaborative" predispositions of women help them build coalitions that allow their legislative proposals to achieve greater success, gaining sufficient consensus to navigate committee and floor debates and votes (e.g., Rinehart 1991, Rosenthal 1998). However, women have different interests and tend to focus on different issues than their male colleagues (e.g., Reingold 2000, Reingold and Swers 2011, Swers 2002), including powerful male committee chairs and potential coalition partners. As a result, the proposals of women may be more likely to be dismissed than are those of men, as they navigate the various lawmaking stages. Such a lower success rate has been found specifically regarding the advancement of "women's issues" in Congress (e.g.,

Volden, Wiseman, and Wittmer 2018) and may extend to the proposed bills of women more generally.

To explore these three areas of gender differences across state legislatures, we return to the individual-level models of Table 1 rather than the chamber-level models of Table 2. We do so for a variety of reasons. Most importantly, because women tend to be less senior and because they less frequently hold committee chairs, it is important to control for their different circumstances. Female legislators also are more frequently Democrats than Republicans across the states, and therefore which party holds the majority may also influence overall gender patterns. Finally, to explore gender effects at different stages of the lawmaking process, we need to break the overall SLES into some of its component parts, which is again most easily accomplished at the individual level.

Table 3: Conditions Influencing the Effectiveness of Women in Legislatures

	Dependent variable: SLES				
	Full Sample			Lower Chambers	Upper Chambers
	Model 3.1	Model 3.2	Model 3.3	Model 3.4	Model 3.5
Female	-0.014	0.012	0.063	0.088	-0.082
	(0.015)	(0.046)	(0.046)	(0.063)	(0.056)
Female × Majority Party	-0.043^{+}		-0.039^{+}	-0.070*	0.045
	(0.024)		(0.024)	(0.028)	(0.040)
Share Female in Chamber		0.048	0.600**	-0.104	0.046
		(0.129)	(0.137)	(0.206)	(0.145)
Female × Share Female in Chamber		-0.204	-0.317^{+}	-0.421	0.388^{+}
		(0.190)	(0.188)	(0.258)	(0.214)
Controls?	Yes	Yes	Yes	Yes	Yes
Observations	72,879	72,879	72,879	53,837	19,042
Adjusted R^2	0.129	0.129	0.125	0.130	0.169

Note: $^{+}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$, two-tailed. All models include fixed effects by term and by state-chamber, as well as all independent variables included in Table 1. Standard errors are clustered by legislator. The results show diminished effectiveness among women when in the majority party, and uneven changes in effectiveness as the share of women in the chamber increases.

We begin our analyses with a focus on women in the majority and minority parties and with an examination of the share of seats held by women in each legislative chamber. In Table 3, we replicate the models from Table 1, but now explore the various conditions under which men and women may perform differently in their State Legislative Effectiveness Scores. Specifically, we first interact our *Female* variable from Table 1 with *Majority Party*. If, similar to what occurs in Congress, women tend to perform better relative to men when in the minority party, all else equal, we should expect a negative coefficient on this interaction term. We also include a variable for *Share of Women* in the legislature, and interact this proportion with *Female*. A positive interaction would show support for women becoming more effective as lawmakers as they move toward and obtain a critical mass in the legislature, whereas a negative coefficient would indicate a backlash against women as their numbers rise. Once again, we show these results for all legislative chambers, as well as broken down by upper and lower chambers.

In Model 3.1, we see a negative coefficient on the interaction between *Female* and *Majority Party*, consistent with greater effectiveness of women (relative to men) when in the minority party (relative to when in the majority party).[12] That said, the coefficient on the non-interacted *Female* variable is negative and insignificant, indicating that women in the minority party are no more effective as lawmakers than minority-party men, and may actually perform somewhat worse. In this light, the negative coefficient on the interaction indicates that women in the majority party are less effective than their male majority-party colleagues, a difference that is only partially diminished when in the minority party.

[12] This finding is statistically significant with $p < 0.04$ from a one-tailed test.

Model 3.2 explores the extent to which more women in the legislature boosts the lawmaking effectiveness of all women in the chamber. Here, the negative coefficient on the interaction between *Female* and *Share Female in Chamber* suggests no particular benefit to women from having more women in the chamber, all else equal, perhaps instead hinting at a backlash against women in chambers in which they hold a larger seat share. Model 3.3 includes both sets of interactions, while Models 3.4 and 3.5 report similar analyses on the subsets of lower and upper chambers, respectively. It is only in the upper chambers that evidence emerges of a critical mass improving the legislative effectiveness of women. In lower chambers, and on the whole (Model 3.3), negative coefficients on the interaction between *Female* and *Share Female in Chamber* suggest that in many settings women face additional challenges as their numbers rise.

Finally, to explore the lawmaking stages in which the proposals of women perform particularly well or poorly, we break apart the SLES into its component parts. Specifically, we look at the weighted averages for legislators considering: (1) only their bill introductions, (2) only their sponsored bills having received action beyond committee, and (3) only their sponsored bills that became law. For each of the three of these, we again upweight substantive and significant bills and down-weight commemoratives. And for each of these three component variables we again normalize to an average value of one.[13]

[13] The formulas for constructing these variables follow that of the overall SLES formula, but now only focus on one of the five main terms found there, and weight the calculation by *N* rather than by (*N/5*) for the normalization.

Table 4: The Relative Effectiveness of Women across Lawmaking Stages

	Dependent variable: Weighted SLES Components					
	Bill Introductions		Action Beyond Committee		Signed into Law	
	Lower Chambers	Upper Chambers	Lower Chambers	Upper Chambers	Lower Chambers	Upper Chambers
	Model 4.1	Model 4.2	Model 4.3	Model 4.4	Model 4.5	Model 4.6
Female	*-0.088***	*0.012*	*-0.066***	*0.041*+	*-0.049***	*0.057***
	(0.018)	*(0.022)*	*(0.023)*	*(0.024)*	*(0.018)*	*(0.022)*
Seniority	0.041***	0.010*	0.043***	0.012***	0.033***	0.013***
	(0.009)	(0.004)	(0.014)	(0.004)	(0.009)	(0.004)
Committee Chair	0.353***	0.226***	0.635***	0.325***	0.742***	0.339***
	(0.034)	(0.020)	(0.053)	(0.026)	(0.034)	(0.020)
Majority Party	0.233***	0.231***	0.439***	0.426***	0.369***	0.412***
	(0.039)	(0.026)	(0.058)	(0.033)	(0.039)	(0.026)
Majority Leadership	0.069	0.001	0.163***	0.068	0.251***	0.083*
	(0.043)	(0.034)	(0.057)	(0.042)	(0.043)	(0.034)
Minority Leadership	0.198*	0.038	0.240+	0.031	0.075	0.039
	(0.092)	(0.033)	(0.144)	(0.036)	(0.092)	(0.033)
Speaker/President	0.214	-0.007	0.519	0.070	0.414+	0.050
	(0.230)	(0.082)	(0.350)	(0.116)	(0.230)	(0.082)
Power Committee	0.072***	0.008	0.093*	0.022	0.197***	0.059***
	(0.027)	(0.017)	(0.040)	(0.021)	(0.027)	(0.017)
Distance from Median	0.027	-0.010	-0.117*	-0.144***	-0.210***	-0.205***
	(0.035)	(0.020)	(0.052)	(0.023)	(0.035)	(0.020)
African-American	-0.083+	-0.090	-0.096*	-0.144***	-0.100*	-0.122*
	(0.043)	(0.055)	(0.048)	(0.052)	(0.043)	(0.055)
Hispanic	-0.037	0.004	-0.089*	-0.076+	-0.107***	-0.115***
	(0.033)	(0.042)	(0.037)	(0.045)	(0.033)	(0.042)
Vote Share	0.402+	0.434	0.518+	0.180	0.513*	0.144
	(0.237)	(0.617)	(0.310)	(0.718)	(0.237)	(0.617)
Vote Share Squared	-0.255	-0.279	-0.320	-0.153	-0.255	-0.120
	(0.158)	(0.396)	(0.209)	(0.463)	(0.158)	(0.396)
Constant	0.463***	0.532*	0.212	0.532+	0.179	0.539*
	(0.116)	(0.250)	(0.149)	(0.289)	(0.116)	(0.250)
Observations	53,837	19,042	53,837	19,042	53,837	19,042
Adjusted R^2	0.072	0.068	0.123	0.160	0.104	0.157

*Note: +p < 0.1; *p < 0.05; **p < 0.01, two-tailed.* All models include fixed effects by term and by state-chamber, as well as all independent variables included in Table 1. Standard errors are clustered by legislator. Dependent variables capture the weighted averages of legislator activities across three stages of the lawmaking process – bill introduction, action beyond committee, and becoming law. The results show increases in the shares of activities of female legislators when moving across lawmaking stages.

Model 4.1 focuses on bill introductions in lower chambers, and indicates that the lower SLES among women found in Model 1.2 above can be linked back to women introducing about 9% fewer bills in these legislative chambers than their male counterparts, all else equal. Tracing the coefficient on *Female* across lawmaking stages to Model 4.3 and 4.5 shows this gender bias diminishing toward zero across later lawmaking stages. Such a pattern is suggestive not of a bias against the proposals of women in committee or beyond, but rather that those proposals and the coalitions that women cultivate to move them forward are achieving a bit more success at these later lawmaking stages than are those of men. That said, these coefficients continue to be negative, indicative that subsequent good performance does not overcome the smaller portfolios that women are offering.

A somewhat similar pattern of increasing coefficients across lawmaking stages on the *Female* variable is evident in states' upper chambers also, as evidenced across Models 4.2, 4.4, and 4.6. However, as indicated in Model 4.2, in these chambers, women tend to introduce about the same number of bills (as weighted by the proposals' substantive significance) as do men. Their success at later lawmaking stages means that, when it comes to writing bills that become law, women in states' upper chambers are about 6% more effective than are men.

While this section is dedicated substantively to the effectiveness of women in legislatures, Table 4 also demonstrates the value of examining SLES components in order to gain insights on numerous other questions in legislative studies. For example, unlike the rising coefficients across the table's models for women, the opposite pattern emerges for African American and Hispanic lawmakers, whose proposals seem to be brushed aside at a greater rate in their attempts to move from bill to law. Another interesting finding comes from the significant boosts in coefficient sizes on *Majority Party* and *Committee Chair* in moving from introductions

(Models 4.1 and 4.2) to committee success (Models 4.3 and 4.4), showing the dominance of the majority party and party-chosen chairs in committee deliberations on which bills to advance. And the coefficients on *Distance from Median* demonstrate that centrists and extremists introduce about the same number of bills, but that the centrist proposals are more likely to find success in committee and onward to law, with the proposals of extremists being abandoned.

On the whole, the patterns for women in Tables 3 and 4 highlight a mixed record. Perhaps the most straightforward summary is that women in different states and different legislative chambers experience the challenges of lawmaking very differently. In upper chambers, for instance, women tend to be more effective than men generally, especially in legislatures with more women and especially in the proportion of their bills actually becoming law. In contrast, women in lower chambers are less effective, on average, introducing fewer bills and seemingly only performing on par with men when in the minority party. These patterns (and others) may be linked to the size of these chambers and the opportunities for women to distinguish themselves and build support for their proposals, to differences in women's representation across lower and upper chambers generally, or to other considerations entirely. Such complex relationships merit much further examination.

Study 3: The Impact of Institutional Designs

In the above two studies, we explored the conditions under which party status and gender mattered in explaining who attains the greatest effectiveness in lawmaking in state legislatures. We now turn to questions of institutional design. Do the rules under which legislatures operate, and their choices of how to allocate money, time, and personnel within the chamber, influence the relative power of members in ways that can be detected by patterns in the State Legislative Effectiveness Scores? Quite possibly so, if one believes the colorful wisdom of Congressman

John Dingell (D-MI), who was known to say, "If you let me write the procedures … I'll screw you every time."[14]

Unlike in the previous sections, where we focused exclusively on party or on gender, respectively, here we explore a wide range of differences – not only based on party control and gender, but also on being a committee chair vs. a rank-and-file lawmaker, and on being a freshman or a more senior legislator. While we thus vary the dependent variables on which we focus, we hold steady the independent variables that account for differences across legislative chambers in their professionalism, their internal procedures and electoral rules, and their resource allocations. We discuss each of these variables in turn.

To explore these broad relationships of how chamber-level rules and conditions influence the relative power of groups of lawmakers, we return the chamber-level unit of analyses as found in Table 2. Our first dependent variable likewise comes from that earlier analysis: *SLES Partisan Difference*, which captures the difference between the median SLES values in the majority and minority parties. We build on this approach to model our other dependent variables. *SLES Gender Difference* captures the median SLES among men minus the median SLES among women. *SLES Chair Difference* captures the median SLES among committee chairs minus the median SLES among rank-and-file legislators.[15] *SLES Seniority Difference* captures the median SLES among non-freshmen legislators minus the median SLES among freshmen, which we examine separately for those in the minority and the majority party (due to differences in whether freshmen are more likely to be in one party of the other). Across these five dependent variables, we should be able to gain an understanding of various power dynamics within American state legislatures.

[14] Oleszek (1996, p. 12) offers a more sanitized version of Dingell's commonly referenced quote.
[15] Berry and Fowler (2018) show the many dimensions of committee chair advantages in the congressional setting.

We construct independent variables for nine key decision elements that shape the lawmaking environment across the various legislative chambers. The first two involve financial resources in support of lawmakers. *Log Annual Salary* captures legislator pay, whereas *Log Legislative Spending per Legislator* captures the average amount spent in each state on legislative operations less salaries for legislators. *Log Session Length* captures the average number of days out of year during which the legislature is in session.[16] *Personal Staff* and *Shared Staff* are indicators for whether legislators are allocated staff either personally or in groups to help them in their legislative activities. In combination, these first five institutional variables characterize the degree of professionalism found in the legislature. Next, we include two indicator variables to capture agenda-setting power: *Committee Gatekeeping Power* for the ability of committees to bottle proposals and keep them from floor consideration, and *Majority Party Controls Calendar* for the ability of the majority party to keep proposals off the floor. We also include an indicator for whether the legislators face *Term Limits*. Finally, we assess the *Number of Committees* found in the chamber. Beyond these nine variables of institutional choice and design, we include those control variables that are introduced in Table 2, as well as the *Share Female Legislators* as incorporated in Table 3 and *Log Chamber Size*.

There are many reasons to expect that such institutional designs will influence the relative lawmaking effectiveness of different groups of legislators. Prior research relates some of these features to majority-party influence. For example, Anderson, Butler, and Harbridge (2016) establish that term limits, legislative professionalism, and partisan agenda controls all affect the degree to which legislator preferences over issues reflect those of party leaders. Anzia and

[16] These first three variables are adapted from the professionalism components used by Bowen and Greene (2014). However, as our scores follow the electoral calendar of the lower chamber in each state, and some terms are four years long, we take the yearly averages of each metric as opposed to summing over each biennium.

Jackman (2013), show that gatekeeping and agenda control rules lower majority-party "roll rates," building on the congressional work of Cox and McCubbins (2005). But institutional design elements may also influence relative legislator power beyond partisan considerations, as evidenced by assessments of term limits across the states (e.g., Kousser 2005; Carey, Niemi, and Powell 2009).

All that said, in many ways this analysis is exploratory. Although we have several expectations, we do not describe them as hypotheses to be tested. Moreover, future examinations of the relationships uncovered here may benefit from confronting endogeneity considerations. Were agenda-setting rules chosen by already-strong parties to enhance their control? Were term limits or various components undergirding professionalism adopted in order to reduce the tight grip on power by entrenched politicians? Future work on the stability of these institutional designs and on patterns before and after they are changed may be quite fruitful. For now, our purposes are more suggestive. We are simply interested in showing some of the questions that can be asked and answered through the sorts of analyses now possible with SLES data.

Table 5 shows the results of five regression models, relating our nine key institutional variables to the relative effectiveness scores based on party control, gender, committee chair positions, and seniority. For each institutional variable, we find one or more significant and intriguing relationship across our dependent variables of interest. A few highlights are as follows. First, legislatures that provide more financial resources to their members – either in terms of salary or of office spending allotments – promote the effectiveness of rank-and-file lawmakers relative to committee chairs, and of freshmen relative to more senior lawmakers. Such effects may arise because these well-endowed legislatures attract candidates who are more

capable of hitting the ground running from day one and have the resources to set their offices up for lawmaking success, without needing to rely as much on committee chairs or other leaders.

Second, legislatures that are in session for more days seem to promote majority-party and committee-chair powers. This is the sole component of the Squire professionalism measure – found to be positively related to majority-party influence in Table 2 – which accounts for such an overall finding. Professional legislatures (in terms of time in session) seem to go hand-in-hand with strong majority-party and committee influence. However, such long sessions also seem to give time for freshmen to learn the ropes and to narrow the lawmaking gaps to their senior colleagues, especially when they are part of the powerful majority party (Model 5.5). Third, offering staff directly to members – individually or in groups – seems to promote individual lawmaking effectiveness, rather than the strong powers of committee chairs who largely control legislative staff resources in other chambers. Together, these results suggest that an aggregate measure of professionalism may mask some intriguing variance in the types of time and money considerations that dramatically shift the levers of lawmaking power across state legislatures.

Fourth, consistent with the Anzia and Jackman (2013) finding, committee gatekeeping and majority-party agenda control via the calendar enhance the lawmaking effectiveness advantages of majority-party members. As should be expected, committee gatekeeping powers also significantly enhance the effectiveness of committee chairs relative to other legislators.

Table 5: The Effects of Institutional Design on Patterns of State Legislative Effectiveness

	Dependent variable:				
	SLES Partisan Difference	*SLES Gender Difference*	*SLES Chair Difference*	*Majority SLES Seniority Difference*	*Minority SLES Seniority Difference*
	Model 5.1	Model 5.2	Model 5.3	Model 5.4	Model 5.5
Log Annual Salary	0.031	0.012	-0.003	-0.027**	-0.022*
	(0.026)	(0.010)	(0.011)	(0.008)	(0.010)
Log Legislative Spending per Legislator	-0.018	0.005	-0.116**	-0.036	-0.017
	(0.034)	(0.026)	(0.037)	(0.023)	(0.018)
Log Session Length	0.118*	0.061	0.192**	-0.030	-0.068*
	(0.052)	(0.043)	(0.070)	(0.048)	(0.029)
Personal Staff	-0.005	-0.058	-0.097	-0.005	0.049+
	(0.058)	(0.049)	(0.071)	(0.052)	(0.026)
Shared Staff	0.009	-0.047	-0.120*	-0.005	-0.008
	(0.047)	(0.036)	(0.051)	(0.047)	(0.023)
Committee Gatekeeping Power	0.115+	-0.030	0.143*	0.056	0.019
	(0.067)	(0.047)	(0.066)	(0.039)	(0.041)
Majority Party Controls Calendar	0.104+	-0.043	0.054	-0.031	-0.037
	(0.061)	(0.039)	(0.062)	(0.041)	(0.028)
Term Limits	-0.093+	-0.048	-0.029	-0.097*	0.016
	(0.053)	(0.037)	(0.060)	(0.046)	(0.028)
Number of Committees	0.003	-0.005*	0.005	0.005*	0.0003
	(0.003)	(0.002)	(0.004)	(0.002)	(0.002)
Polarization	0.184**	-0.119**	0.034	-0.062	-0.094**
	(0.062)	(0.045)	(0.069)	(0.044)	(0.030)
Majority Party Heterogeneity	-1.078**	0.417*	-0.539+	-0.143	0.252**
	(0.223)	(0.167)	(0.275)	(0.198)	(0.087)
Minority Party Heterogeneity	-0.186	0.003	0.001	-0.100	0.239*
	(0.213)	(0.183)	(0.152)	(0.150)	(0.112)
Partisan Seat Share Imbalance	-0.475**	-0.257**	-0.308*	0.020	-0.156*
	(0.116)	(0.086)	(0.140)	(0.091)	(0.075)
Unified Government	0.053+	0.033	0.010	-0.013	-0.037*
	(0.030)	(0.032)	(0.037)	(0.028)	(0.019)
Share Female Legislators	0.524+	0.451+	0.990**	0.151	0.151
	(0.301)	(0.232)	(0.307)	(0.218)	(0.156)
Log Chamber Size	-0.047	-0.038	0.163**	0.066+	0.030
	(0.050)	(0.026)	(0.058)	(0.034)	(0.024)
Majority Party Governor	0.025	-0.079	0.504	1.010**	0.773**
	(0.456)	(0.327)	(0.520)	(0.297)	(0.206)
Observations	813	830	828	797	785
Adjusted R^2	0.332	0.068	0.221	0.092	0.097

Note: $^{+}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$, *two-tailed.* Standard errors are clustered by state-chamber.

Fifth, term limits, for all their other benefits and harms, seem to shift the balance in lawmaking power away from traditional sources, especially from the majority party and from more senior lawmakers (significantly so within the now-somewhat-powerful minority party). Sixth, and finally, legislative chambers with more committees appear to reduce gender differences. Perhaps this is due to their more focused jurisdictions. With broader jurisdictions, proposals on "women's issues" may be more likely to be pushed aside for items that their male colleagues and chairs feel are more pressing and important. Smaller jurisdictions could mean that all members of the committee are interested in working together on the same issues (including women's issues), held in communally high regard.

Many more interesting relationships emerge in the lower half of the table, although they do not directly involve features of institutional design. We therefore briefly mention only two. The first is the positive coefficient on *Share Female Legislators* in Model 5.2, reaffirming our finding from Table 3 that a critical mass of women in the legislature does not significantly reduce gender biases in lawmaking – and may in fact yield the opposite effect. The second is the difference between small and large chambers. Perhaps relying more heavily on committees as an organizational device given a sizable and unruly body of legislators, larger chambers exhibit enhanced effectiveness among their committee chairs. These legislative chambers also appear to enhance the importance of seniority, as freshmen likely struggle to build relationships with so many more colleagues.

Take as a whole, Table 5 reveals that the relative lawmaking power across legislators varies significantly from one state to the next, and for understandable reasons. Reformers who are concerned about any such imbalances therefore have many tools at their disposal to address

their concerns. That said, in many cases, those who hold the power in these institutions are also the ones who set the rules and allocate resources. It is unsurprising, for example, that majority-party leaders would seek to continue their ability to bottle proposals up in committee or keep them off the floor, or that committee chairs would rather control staffing resources instead of having them spread out to all lawmakers. Lawmaking is tilted in favor of these groups, and they would like to keep it that way.

Conclusions and Future Directions

State legislators differ from one another in how effective they are at lawmaking. Such differences arise due to their institutional positions and their individual characteristics. We seek to measure differences in effectiveness by constructing State Legislative Effectiveness Scores. The SLES is based on a weighted average of fifteen metrics based on the bills that each legislator sponsors within each legislative term, how far those bills move through five lawmaking stages, and how important those bills are. In total, we generate more than 80,000 scores across more than 1,000 chamber-sessions, for 97 legislative chambers across recent decades.

We confirm the validity of these scores, comparing them to subjective survey-based rankings in North Carolina and assessing the extent to which they pick up common patterns of greater effectiveness among senior legislators, committee chairs, and those in the majority party. In so doing, we establish other important findings, such as higher lawmaking effectiveness among ideological moderates and those whose seats are neither too safe nor overly at-risk. We then show how these scores – by themselves, aggregated to the chamber level, or broken into their various components – can be used to shed light on a number of pressing concerns about legislative politics.

For example, we reveal that advantages of majority-party legislators are enhanced when the majority party has a tenuous grip on power, when it is ideologically distance from the minority party, and when it is ideologically cohesive. We also show that the majority party is further advantaged through institutional designs, such as committee gatekeeping and floor agenda setting. Such institutional design components also influence relative lawmaking advantages between committee chairs and rank-and-file members, as well as between senior and junior legislators. For example, giving greater staff resources to members themselves narrows the lawmaking gap they experience relative to committee chairs. Higher legislative salaries, longer session, and term limits are all linked to greater relative effectiveness among freshmen legislators. We also explore gender differences in effectiveness, showing conditions under which women outperform or underperform relative to men.

We believe that the SLES approach to measuring legislative effectiveness and the data undergirding this effort offer countless paths forward for scholars of legislative politics, public policy, and representative democracy. At a minimum, we see opportunities in three broad categories. The first explores the identification of potentially effective lawmakers. Are there clear and measurable characteristics of potential candidates who would be effective if only they would choose to run for and be elected into their state legislatures? We've explored gender differences here, but other characteristics – from holding law degrees or other educational backgrounds, to having served in the military, to having careers that help them develop policy expertise, to displaying entrepreneurship or a tendency to build broad coalitions – might matter as well, and are fruitful paths to explore.

Second, research could focus on cultivating the effectiveness of legislators once they have been elected, and likewise cultivating institutional structures that help them success. Our

work here on institutional designs offers a glimpse at what can be accomplished in this area. Are there some institutional designs and patterns of lawmaking effectiveness that result in more effective legislatures on the whole? For example, are legislatures that empower minority-party and majority-party lawmakers alike, and that incorporate the ideas of freshmen and under-represented minorities, more likely to adopt innovative policy solutions that resonate across the country (e.g., Boehmke and Skinner 2012)? Are there also individual choices – such as reaching more regularly across party lines or tailoring an agenda based on their backgrounds and committee assignments – that can help members succeed? Do the training programs offered to new legislators work, to make them more effective as lawmakers? How do leadership styles matter, and what are the roles of lobbyists, staff, and interactions with the executive branch in cultivating effective lawmaking?

Finally, what are the effects of being effective? Are those who excel at lawmaking more likely to be reelected, to achieve committee chair status or become party leaders, or to seek higher office and win? On the flip side, are there conditions under which voters hold ineffective lawmakers accountable? We hope that scholars will explore these and other issues with renewed vigor and with the ability to focus on a wide array of states and over-time variation through the metrics and approaches illustrated here.

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Supplemental Appendix

Table A1: States and Legislative Sessions Included in the SLES And Analysis Samples

State	Years with SLES	Number of Unique Legislators	Number of Unique Scores
AK	1993-2018	210	795
AL	1999-2018	301	736
AR	1997-2018	536	1485
AZ	1995-2018	367	1101
CA	1993-2018	501	1588
CO	1999-2018	358	1046
CT	1999-2016	431	1703
DE	2003-2018	121	503
FL	2001-2018	470	1475
GA	2001-2018	592	2169
HI	1999-2018	193	769
IA	2003-2018	343	1217
ID	1999-2018	324	1081
IL	1997-2018	472	2030
IN	1999-2018	349	1529
KS	None	0	0
KY	2001-2018	293	1268
LA	1996-2019	400	953
MA	2009-2018	326	1024
MD	1995-2018	457	1192
ME	1987-2018	1019	3006
MI	1995-2018	614	1798
MN	1995-2018	630	2449
MO	1995-2018	745	2409
MS	1996-2019	408	1098
MT	1999-2018	522	1500
NC	1993-2018	603	2252
ND	1997-2018	366	1568
NE	2007-2018	125	301
NH	1989-2018	2228	6406
NJ	1996-2017	306	1379
NM	1997-2018	306	1246
NV	1995-2018	212	755
NY	1999-2018	493	2210
OH	1997-2018	457	1531
OK	1993-2018	500	1965
OR	2007-2018	182	552
PA	1989-2018	709	3845
RI	2007-2018	229	687
SC	1989-2018	532	2588
SD	1997-2018	394	1176
TN	1995-2018	363	1614
TX	1989-2018	609	2729
UT	1997-2018	325	1180
VA	1994-2017	358	1728
VT	1993-2018	667	2395
WA	1991-2018	517	2111
WI	1995-2018	373	1597
WV	1993-2018	468	1781
WY	2001-2018	254	824

Table A2: Descriptive Statistics for Individual-Level Independent Variables

Independent Variable	Description	Mean	Std. Dev.	Sources
Seniority	Number of consecutive terms served by member in chamber	3.787	3.196	Constructed by authors in tandem with data from Klarner (2018)
Committee Chair	Equals "1" if member is a committee chair	0.257	0.437	Fouirnaies (2018); Fouirnaies and Hall (2018); State Legislative Webpages
Majority Party	Equals "1" if member is in majority party	0.614	0.487	Constructed by authors in tandem with data from Klarner (2018)
Majority-Party Leadership	Equals "1" if member is in majority-party leadership	0.049	0.216	Fouirnaies (2018); State Legislative Webpages
Minority-Party Leadership	Equals "1" if member is in minority-party leadership	0.029	0.169	Fouirnaies (2018); State Legislative Webpages
Speaker/President	Equals "1" if member is Speaker or President of the chamber	0.025	0.157	Fouirnaies (2018); State Legislative Webpages
Power Committee	Equals "1" if member serves on a committee related to the budget, finance, appropriations, or rules	0.434	0.496	Fouirnaies and Hall (2018); State Legislative Webpages
Distance from Median	| Member i's Shor-McCarty ideology score - Median member's ideology score |	0.679	0.600	Shor and McCarty (2011)
Female	Equals "1" if member is female	0.232	0.422	Center for American Women and Politics Women Elected Officials Database
African-American	Equals "1" if member is African American	0.024	0.152	Estimated by authors using methods from Imai and Khanna (2016)
Hispanic	Equals "1" if member is Hispanic	0.032	0.176	Estimated by authors using methods from Imai and Khanna (2016)
Vote Share	Share of vote received in previous election	0.685	0.253	Klarner (2018)

Table A3: Descriptive Statistics for Chamber-Level Independent Variables

Independent Variable	Description	Mean	Std. Dev.	Sources
Chamber Size	Number of seats in a legislative chamber	120.24	92.107	Klarner (2013)
Term Limits	Equals "1" if a state has adopted term limits for state legislators	0.267	0.442	National Conference of State Legislatures
Partisan Seat Share Imbalance	Absolute difference in share of seats controlled by each party	0.246	0.177	Constructed by authors in tandem with data from Klarner (2013)
Percent Female in Chamber	Percent of legislators in a chamber who are women	0.232	0.083	Center for American Women and Politics Women Elected Officials Database
Polarization	Absolute difference in median Shor-McCarty ideology scores between parties	1.524	0.445	Shor and McCarty (2011)
Majority Party Heterogeneity	Standard deviation of majority party's Shor-McCarty ideology scores	0.289	0.110	Shor and McCarty (2011)
Minority Party Heterogeneity	Standard deviation of minority party's Shor-McCarty ideology scores	0.287	0.099	Shor and McCarty (2011)
Avg. Yearly Legislative Salary	Average yearly salary excluding per diem for state legislative service	28,972	25,604	Bowen and Greene (2014); The Book of the States (2014-2018)
Avg. Session Length	Average yearly length of legislative sessions (including specials)	77.216	48.294	Bowen and Greene (2014); The Book of the States (2014-2018)
Avg. Annual Legislative Expenditures per Legislator	Average yearly expenditures per legislator on legislative operations less salaries	346,962	403,013	Bowen and Green (2014); U.S. Census Annual Survey of State Finances (1996-2018)
Unified Government	Majority party controls all legislative chambers and governor's office	0.529	0.499	Constructed by authors in tandem with data from Klarner (2013)
Personal Staff	Individual legislators are provided personal staff (year-round or session-only)	0.570	0.495	The Book of the States (1987-2018)
Shared Staff	Individual legislators have access to shared staff (year-round or session-only)	0.636	0.481	The Book of the States (1987-2018)
Committee Gatekeeping Power	Majority party-controlled committees have the power to deny a bill a hearing and/or not report it to floor	0.782	0.413	Anzia and Jackman (2013)
Majority Party Sets Calendar	Majority party leadership and/or majority party-controlled committees have power over the legislative calendar	0.677	0.467	Anzia and Jackman (2013)
Number of Committees	Number of standing committees	20.357	9.758	The Book of the States (1987-2018)

Table A4: List of Newspapers Used to Identify Substantive and Significant Proposals

State	Newspapers
AK	*Anchorage Daily News; Juneau Empire*
AL	*Birmingham News*
AR	*Arkansas Democrat-Gazette*
AZ	*Arizona Capital Times; Arizona Daily Star*
CA	*Orange County Register*
CO	*Denver Post; Daily Camera*
CT	*Hartford Courant*
DE	*Delaware State News*
FL	*Tampa Bay Times*
GA	*Atlanta Journal-Constitution*
HI	*Honolulu Star Bulletin; Honolulu Star-Advertiser*
IA	*Telegraph Herald*
ID	*Idaho Business Review*
IL	*State Journal-Register*
IN	*Fort Wayne News-Sentinel*
KS	*Topeka Capital Journal*
KY	*Lexington Herald-Leader*
LA	*The Advocate*
MA	*Telegram and Gazette*
MD	*The Capital*
ME	*Portland Press Herald*
MI	*The Detroit News*
MN	*St. Paul Pioneer Press*
MO	*St. Louis Post-Dispatch*
MS	*Mississippi Sun Herald; Mississippi Business Journal*
MT	*Billings Gazette*
NC	*The News & Observer*
ND	*Bismarck Tribune*
NE	*Lincoln Journal Star*
NH	*New Hampshire Union*
NJ	*The Press of Atlantic City*
NM	*Santa Fe New Mexican*
NV	*Las Vegas Review-Journal*
NY	*New York Times; New York Daily News*
OH	*Dayton Daily News*
OK	*Daily Oklahoman*
OR	*Daily Journal of Commerce*
PA	*Philadelphia Daily News; The Patriot-News*
RI	*Providence Journal*
SC	*The Post & Courier*
SD	*The American News*
TN	*Chattanooga Times Free Press*
TX	*Austin American-Statesman*
UT	*Salt Lake City Deseret News*
VA	*Richmond Times Dispatch*
VT	*Brattleboro Reformer*
WA	*Seattle Times; The Columbian*
WI	*Wisconsin State Journal*
WV	*Charleston Gazette-Journal*
WY	*Wyoming Tribune-Eagle*

Table A5: Regular Expression Terms Used to Code Commemorative Bills

Terms from Volden and Wiseman (2014)	expressing support; urging; condol; commemorat; honor|^honor; memoria; congratul; public holiday; for the relief of; for the private relief of; retention of the name; medal; posthumous; provide for correction; to name; rename; to remove any doubt
Additional Terms	anniversary; raise awareness; awareness (day|week|month); dedicating; celebrat; appreciat; commend|^commend; official design; official emblem; remembrance; state symbol; proclamation
Excluded Terms	appropriates; appropriation; approp\\.; appropriating; to appropriate; \\$; dollars; to fund; funding; funds; expenditure; penalt; felony; memorial (act|law); criminal; lien; statutory; license fee; ^tax| tax; prohibit; rainy day; procedure; contract; firearm; weapon; inflation; exempt; legislative intent; deposit; budget; tuition; violation; compensation; promulgate; regulation; bonds; jurisdiction; liabilit; task force; annuity; probate; financ; honor[a-z]+ discharge; revenue; compliance; sale of; health benefit; insurer; primary care; grant program; purchase; donation; official language; refund; election; capital improvements; liquor sales

Note: To code commemorative bills, we use all available title, summary, and keyword information available for each bill. We begin by using the terms identified by Volden and Wiseman (2014) to code commemoratives for Congress and then supplement this list with a set of additional terms that are useful for state legislation specifically. To minimize the false positive rate, we also establish a set of excluded terms, primarily but not exclusively related to spending, that – if contained in a bill's description – will not be coded as commemorative. Finally, for each state, we adjust these terms as necessary to ensure that particular aspects of a state's textual style either do not prevent us from identifying known commemorative bills or incorrectly code substantive bills as commemorative.

Table A6: Evaluating the Explanatory Power of Effectiveness Measures in North Carolina

Effectiveness Measure	Base Model		Covariate Model	
	R^2	RMSE	R^2	RMSE
SLES	0.472	24.7	0.653	20.0
SLES Rank	0.487	24.4	0.659	19.8
Hit Rate (Edwards 2018)	0.399	26.3	0.609	21.2
Bayesian Hit Rate (Edwards 2018)	0.429	25.6	0.615	21.0
Bayesian Hit Rate Rank	0.418	26.0	0.621	20.9
Hit Rate (SLES Data)	0.256	29.4	0.568	22.3
Passage Rate (SLES Data)	0.257	29.3	0.570	22.3

Note: Dependent variable is NCCPPR Rankings. The base model includes the effectiveness measure of interest, interacted with an indicator for chamber to account for differing chamber sizes, and term fixed effects. In the covariate models, we also add variables related to majority party status, seniority, being in the party leadership or acting as a committee chair, female, race, ideology, and an indicator for having won a special election or been appointed. Taken together, the results show that the two SLES measures (raw and used to rank legislators) outperform the more commonly used hit rate variables at explaining the NCCPPR Rankings, regardless of how they are constructed, yielding the highest R^2 values and minimizing the root mean squared error.

Table A7: Determinants of Majority-Party Advantage, Expanded Models

	Dependent variable:	
	SLES Partisan Difference	Share More Effective
	Model A7.1	Model A7.2
Polarization	0.170**	0.073*
	(0.065)	(0.029)
Majority Party Heterogeneity	-0.950**	-0.384**
	(0.237)	(0.096)
Minority Party Heterogeneity	-0.144	-0.092
	(0.227)	(0.122)
Partisan Seat Share Imbalance	-0.476**	-0.137*
	(0.109)	(0.054)
Legislative Professionalism	0.669*	0.314**
	(0.276)	(0.105)
Committee Gatekeeping Power	0.125+	0.057
	(0.067)	(0.035)
Majority Party Controls Calendar	0.123+	0.020
	(0.066)	(0.029)
Personal Staff	-0.010	0.014
	(0.063)	(0.027)
Shared Staff	0.027	0.016
	(0.050)	(0.023)
Majority Party Governor	0.047	-0.007
	(0.065)	(0.030)
Majority Party Controls Out-Chamber	-0.029	-0.018
	(0.051)	(0.024)
Unified Government	0.041	0.035
	(0.069)	(0.031)
Term Limits	-0.075	-0.010
	(0.060)	(0.025)
Log Chamber Size	-0.050	-0.035
	(0.054)	(0.025)
Number of Committees	0.003	0.002
	(0.003)	(0.001)
Constant	0.553*	0.818**
	(0.238)	(0.102)
Observations	846	852
Adjusted R^2	0.302	0.241

Note: $^{+}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$, *two-tailed.* Standard errors are clustered by state-chamber. Results replicate Table 2 with additional control variables.