Supplemental Appendix for
Legislative Effectiveness in the American States

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Forthcoming *American Political Science Review*

December 2023

Table A1: States and Legislative Sessions Included in SLES Construction and Analysis

State	Years	Unique Legislators	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: State Newspapers Used to Detect Substantive and Significant Legislation

State	*Newspaper(s)*	*Newspaper Location*	*State Capital*
AK	*Anchorage Daily News*; Juneau Empire	Anchorage, Juneau	Juneau
AL	*The Birmingham News*	Birmingham	Montgomery
AR	*Arkansas Democrat-Gazette*	Little Rock	Little Rock
AZ	Arizona Capital Times; *Arizona Daily Star*	Phoenix, Tucson	Phoenix
CA	Orange County Register	OC (Irvine HQ)	Sacramento
CO	*Denver Post*; Daily Camera	Denver, Boulder	Denver
CT	*Hartford Courant*	Hartford	Hartford
DE	*Delaware State News*	Dover	Dover
FL	Tampa Bay Times	Tampa Bay	Tallahassee
GA	Atlanta Journal-Constitution	Atlanta	Atlanta
HI	*Honolulu Star Bulletin*; *Honolulu Star-Advertiser*	Honolulu	Honolulu
IA	Telegraph Herald	Dubuque	Des Moines
ID	Idaho Business Review	Boise	Boise
IL	State Journal-Register	Springfield	Springfield
IN	Fort Wayne News-Sentinel	Fort Wayne	Indianapolis
KS	*Topeka Capital Journal*	Topeka	Topeka
KY	*Lexington Herald-Leader*	Lexington	Frankfort
LA	*The Advocate*	Baton Rouge	Baton Rouge
MA	Telegram and Gazette	Worcester	Boston
MD	The Capital	Annapolis	Annapolis
ME	*Portland Press Herald*	Portland	Augusta
MI	The Detroit News	Detroit	Lansing
MN	St. Paul Pioneer Press	Saint Paul	Saint Paul
MO	*St. Louis Post-Dispatch*	Saint Louis	Jefferson City
MS	*Mississippi Sun Herald*; Mississippi Business Journal	Biloxi/Gulfport, Jackson	Jackson
MT	*Billings Gazette*	Billings	Helena
NC	*The News & Observer*	Raleigh	Raleigh
ND	Bismarck Tribune	Bismarck	Bismarck
NE	Lincoln Journal Star	Lincoln	Lincoln
NH	*New Hampshire Union*	Manchester	Concord
NJ	*The Press of Atlantic City*	Atlantic City	Trenton
NM	Santa Fe New Mexican	Santa Fe	Santa Fe
NV	*Las Vegas Review-Journal*	Las Vegas	Carson City
NY	New York Times; New York Daily News	New York City	Albany
OH	Dayton Daily News	Dayton	Columbus
OK	*Daily Oklahoman*	Oklahoma City	Oklahoma City
OR	Daily Journal of Commerce	Portland	Salem
PA	Philadelphia Daily News; *The Patriot-News*	Philadelphia, Harrisburg	Harrisburg
RI	Providence Journal	Providence	Providence
SC	*The Post & Courier*	Charleston	Columbia
SD	*The American News*	Aberdeen	Pierre
TN	*Chattanooga Times Free Press*	Chattanooga	Nashville
TX	*Austin American-Statesman*	Austin	Austin
UT	Salt Lake City Deseret News	Salt Lake City	Salt Lake City
VA	Richmond Times Dispatch	Richmond	Richmond
VT	*Brattleboro Reformer*	Brattleboro	Montpelier
WA	*Seattle Times*; The Columbian	Seattle, Vancouver	Olympia
WI	Wisconsin State Journal	Madison	Madison
WV	Charleston Gazette-Journal	Charleston	Charleston
WY	Wyoming Tribune-Eagle	Cheyenne	Cheyenne

Note: Newspapers in *italics* were accessed through Newsbank, with the rest accessed through LexisNexis.

Table A3: Prefixes and Restrictions Used to Capture Bills with Full Force of Law

State	Bill Prefixes	Additional Restrictions
AK	HB, SB	
AL	HB, SB	
AR	HB, SB	
AZ	HB, SB	
CA	AB, SB	
CO	HB, SB	
CT	HB, SB	
DE	HB, SB	
FL	HB, SB	
GA	HB, SB	
HI	HB, SB	
IA	HF, SF	
ID	H, S	
IL	HB, SB	
IN	HB, SB	
KY	HB, SB	
LA	HB, SB	
MA	H, S	Legislation is labeled “bill” on the state webpage
MD	HB, SB	
ME	HP, SP	Legislation has an LD number and is not titled “resolution”
MI	HB, SB	
MN	HF, SF	Legislation is labeled “bill” on the state webpage
MO	HB, SB	
MS	HB, SB	
MT	HB, SB	
NC	H, S	Legislation is labeled “bill” on the state webpage
ND	HB, SB	
NE	LB	
NH	HB, SB	
NJ	A, S	
NM	HB, SB	
NV	AB, SB	
NY	A, S	
OH	HB, SB	
OK	HB, SB	
OR	HB, SB	
PA	HB, SB	
RI	H, S	Legislation is labeled “an act” on the state webpage
SC	H, S	Legislation is not labeled “resolution” on the state webpage
SD	HB, SB	
TN	HB, SB	
TX	HB, SB	
UT	HB, SB	
VA	HB, SB	
VT	H, S	
WA	HB, SB	Legislation is labeled “bill” on the state webpage
WI	AB, SB	
WV	HB, SB	
WY	HB, SF	

Table A4: Evaluating the Explanatory Power of Effectiveness Measures in North Carolina

Effectiveness Measure	Base Model		Covariate Model	
	R^2	RMSE	R^2	RMSE
SLES	0.460	25.0	0.658	19.8
SLES Rank	0.465	24.9	0.657	19.9
Hit Rate (Edwards 2018)	0.394	26.4	0.608	21.2
Bayesian Hit Rate (Edwards 2018)	0.425	25.7	0.614	21.0
Bayesian Hit Rate Rank	0.416	26.0	0.623	20.8
Hit Rate (SLES Data)	0.249	29.5	0.570	22.2
Passage Rate (SLES Data)	0.254	29.4	0.574	22.1

Note: 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 found in the analysis of Table 1. Taken together, the results show that the SLES measures outperform the more commonly used hit rate variables at explaining the NCCPPR Rankings (dependent variable), regardless of how those hit rates are constructed (i.e., with or without credit for cosponsored legislation), with the SLES metrics yielding the highest R^2 values and minimizing the root mean squared error.

Table A5: Descriptive Statistics and Sources for Individual-Level Variables

Variable	Description	Mean	Std. Dev.	Sources
SLES	State Legislative Effectiveness Score	1.000	1.118	Constructed by authors as described in main article text
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 the majority-party leader	0.026	0.159	Fouirnaies (2018); State Legislative Webpages
Minority-Party Leadership	Equals "1" if member is the minority-party leader	0.028	0.166	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)
Latino	Equals "1" if member is Latino/Latina	0.032	0.176	Estimated by authors using methods from Imai and Khanna (2016)
Vote Share	Proportion of vote received in previous election	0.685	0.253	Klarner (2018)

Table A6: Descriptive Statistics and Sources for Chamber-Level Variables

Variable	Description	Mean	Std. Dev.	Sources
SLES Partisan Difference	Median SLES among majority-party members minus that among minority-party members in the chamber	0.542	0.385	Constructed by authors as described in main article text
Share More Effective	Proportion of majority-party members with SLES above minority-party median SLES in the chamber	0.786	0.176	Constructed by authors as described in main article text

SLES Chair Difference	Median SLES among committee chairs minus that among rank-and-file members in the chamber	0.693	0.476	Constructed by authors as described in main article text
Majority SLES Seniority Difference	Median SLES among majority-party senior members minus that among majority-party freshmen in the chamber	0.414	0.377	Constructed by authors as described in main article text
Minority SLES Seniority Difference	Median SLES among minority-party senior members minus that among minority-party freshmen in the chamber	0.187	0.277	Constructed by authors as described in main article text
Annual Legislative Salary	Average yearly salary excluding per diem for state legislative service	28,977	24,653	Bowen and Greene (2014); The Book of the States (2014-2018)
Session Length	Average yearly length of legislative sessions (including specials)	76.518	45.585	Bowen and Greene (2014); The Book of the States (2014-2018)
Staff per Legislator	Average Number of legislative staff per state legislator	4.867	4.072	National Conference of State Legislatures
Squire Index	Squire index of legislative professionalism	0.205	0.120	Squire (1992); Squire (2017)
Majority Party Sets Calendar	Equals "1" if majority party leadership and/or majority party-controlled committees have power over the legislative calendar	0.619	0.486	Anzia and Jackman (2013)
Committee Gatekeeping Power	Equals "1" if majority party-controlled committees have the power to deny a bill a hearing and/or not report it to floor	0.780	0.414	Anzia and Jackman (2013)
Chamber Votes on Committee Appointments	Equals "1" if the full chamber membership votes on committee appointments	0.167	0.373	Anzia and Jackman (2013)
Number of Committees	Number of standing committees	17.987	8.657	The Book of the States (1987-2018)
Chamber Size	Number of seats in a legislative chamber	76.296	58.156	Klarner (2013)
Term Limits	Equals "1" if a state has adopted term limits for state legislators	0.304	0.460	National Conference of State Legislatures
Polarization	Absolute difference in median Shor-McCarty ideology scores between parties	1.520	0.480	Shor and McCarty (2011)
Majority Party Heterogeneity	Standard deviation of majority party's Shor-McCarty ideology scores	0.279	0.115	Shor and McCarty (2011)
Minority Party Heterogeneity	Standard deviation of minority party's Shor-McCarty ideology scores	0.290	0.114	Shor and McCarty (2011)
Partisan Seat Share Imbalance	Absolute difference in share of seats controlled by each party	0.263	0.194	Constructed by authors in tandem with data from Klarner (2013)
Unified Government	Majority party controls all legislative chambers and governor's office	0.540	0.499	Constructed by authors in tandem with data from Klarner (2013)

Table A7: Replication to Seniority Coded Based on Total Prior Legislative Service

	Dependent variable: SLES				
	Full Sample	Lower Chambers		Upper Chambers	
	(A7.1)	(A7.2)	(A7.3)	(A7.4)	(A7.5)
Terms Served - Total	0.026**	0.033**		0.010**	
	(0.004)	(0.007)		(0.003)	
Terms Served - Same Chamber			0.033**		0.008**
			(0.007)		(0.003)
Committee Chair	0.517**	0.618**	0.619**	0.309**	0.310**
	(0.024)	(0.036)	(0.036)	(0.021)	(0.021)
Majority Party	0.367**	0.360**	0.360**	0.386**	0.384**
	(0.028)	(0.036)	(0.036)	(0.028)	(0.027)
Majority Leadership	0.078*	0.164**	0.164**	0.008	0.010
	(0.033)	(0.051)	(0.051)	(0.039)	(0.039)
Minority Leadership	0.164**	0.213*	0.214*	0.068*	0.067*
	(0.046)	(0.085)	(0.085)	(0.029)	(0.029)
Speaker/President	0.320**	0.578**	0.578**	0.082	0.085
	(0.121)	(0.224)	(0.224)	(0.071)	(0.073)
Power Committee	0.100**	0.119**	0.120**	0.033+	0.034*
	(0.019)	(0.026)	(0.026)	(0.017)	(0.017)
Distance from Median	-0.114**	-0.118**	-0.118**	-0.124**	-0.126**
	(0.025)	(0.032)	(0.032)	(0.021)	(0.021)
Female	-0.032*	-0.053**	-0.054**	0.039+	0.038+
	(0.015)	(0.019)	(0.019)	(0.022)	(0.022)
African-American	-0.100**	-0.094*	-0.095*	-0.121*	-0.121*
	(0.035)	(0.043)	(0.043)	(0.052)	(0.052)
Hispanic	-0.079**	-0.077*	-0.077*	-0.070+	-0.070+
	(0.028)	(0.034)	(0.034)	(0.042)	(0.043)
Vote Share	0.607*	0.617*	0.614*	0.209	0.259
	(0.265)	(0.279)	(0.279)	(0.686)	(0.688)
Vote Share Squared	-0.376*	-0.370*	-0.368*	-0.155	-0.183
	(0.172)	(0.183)	(0.183)	(0.441)	(0.442)
Constant	0.312**	0.226+	0.227+	0.525+	0.519+
	(0.121)	(0.131)	(0.131)	(0.274)	(0.274)
Observations	72,888	53,846	53,846	19,042	19,042
R^2	0.130	0.132	0.132	0.171	0.171

Note: $^{+}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$, *two-tailed.* All models include fixed effects by term (biennium) and by state-chamber. Standard errors are clustered by legislator. Complete model results, including fixed effects coefficients are available in the accompanying Dataverse files. The results demonstrate that the findings of Table 1 are robust to counting Seniority based on all terms served, even nonconsecutively, either within the same chamber or across either chamber in the state.

Table A8: Replication to Further Normalization of Scores across States

	Dependent variable: Normalized SLES		
	Full Sample	Lower Chambers	Upper Chambers
	(A8.1)	(A8.2)	(A8.3)
Seniority	0.029**	0.035**	0.010**
	(0.005)	(0.007)	(0.003)
Committee Chair	0.453**	0.545**	0.274**
	(0.023)	(0.033)	(0.019)
Majority Party	0.331**	0.324**	0.346**
	(0.026)	(0.033)	(0.025)
Majority Leadership	0.065*	0.138**	0.008
	(0.030)	(0.046)	(0.035)
Minority Leadership	0.139**	0.189*	0.058*
	(0.041)	(0.076)	(0.026)
Speaker/President	0.276**	0.508**	0.072
	(0.106)	(0.197)	(0.065)
Power Committee	0.087**	0.106**	0.030+
	(0.018)	(0.024)	(0.015)
Distance from Median	-0.102**	-0.106**	-0.112**
	(0.022)	(0.029)	(0.019)
Female	-0.030*	-0.050**	0.034+
	(0.014)	(0.017)	(0.019)
African American	-0.090**	-0.087*	-0.107*
	(0.031)	(0.038)	(0.046)
Hispanic	-0.070**	-0.068*	-0.063+
	(0.025)	(0.030)	(0.038)
Vote Share	0.531*	0.533*	0.206
	(0.237)	(0.249)	(0.612)
Vote Share Squared	-0.337*	-0.328*	-0.151
	(0.154)	(0.163)	(0.393)
Constant	-0.615**	-0.688**	-0.423+
	(0.108)	(0.117)	(0.244)
Observations	72,888	53,846	19,042
R^2	0.131	0.133	0.171

Note: $^{+}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$, *two-tailed.* All models include fixed effects by term (biennium) and by state-chamber. Complete model results, including fixed effects coefficients are available in the accompanying Dataverse files. Standard errors are clustered by legislator. The results demonstrate that the findings of Table 1 are robust to normalizing the State Legislative Effectiveness Scores to a mean of zero and standard deviation of one, set within each chamber and each legislative term.

Table A9: Replication of Institutional Effects Including Binding Term Limits

	Dependent variable:			
	SLES Partisan Difference	SLES Chair Difference	Majority SLES Seniority Difference	Minority SLES Seniority Difference
	(A9.1)	(A9.2)	(A9.3)	(A9.4)
Log Annual Salary	0.028	-0.016	-0.032**	-0.025*
	(0.025)	(0.015)	(0.009)	(0.011)
Log Session Length	0.177**	0.204**	-0.046	-0.069*
	(0.051)	(0.067)	(0.047)	(0.028)
Staff per Legislator	-0.014+	-0.020*	-0.004	0.003
	(0.008)	(0.009)	(0.005)	(0.004)
Majority Party Controls Calendar	0.122*	0.124+	-0.027	-0.041
	(0.058)	(0.068)	(0.041)	(0.026)
Committee Gatekeeping Power	0.106+	-0.024	0.035	0.034
	(0.064)	(0.071)	(0.032)	(0.039)
Chamber Votes on Committee Appointments	0.106	-0.171**	-0.042	0.001
	(0.073)	(0.066)	(0.040)	(0.035)
Number of Committees	0.004	0.001	0.005+	-0.0005
	(0.003)	(0.005)	(0.003)	(0.001)
Log Chamber Size	-0.042	0.208*	0.082*	0.041
	(0.047)	(0.084)	(0.032)	(0.025)
Term Limits (Binding Date)	-0.050	-0.041	-0.088+	-0.017
	(0.058)	(0.065)	(0.051)	(0.030)
Polarization	0.227**	0.077	-0.058	-0.078*
	(0.054)	(0.063)	(0.045)	(0.033)
Majority Party Heterogeneity	-1.005**	-0.329	-0.062	0.245**
	(0.224)	(0.320)	(0.208)	(0.092)
Minority Party Heterogeneity	-0.234	-0.037	-0.082	0.236*
	(0.216)	(0.181)	(0.159)	(0.103)
Partisan Seat Share Imbalance	-0.403**	-0.181	0.017	-0.182**
	(0.100)	(0.149)	(0.091)	(0.060)
Unified Government	0.033	-0.008	-0.009	-0.032+
	(0.031)	(0.034)	(0.028)	(0.018)
Constant	-0.354	-0.778*	0.651**	0.580**
	(0.325)	(0.361)	(0.200)	(0.140)
Observations	803	818	787	776
R^2	0.359	0.211	0.113	0.125

Note: $^{+}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$, *two-tailed.* Standard errors clustered by state-chamber. The results show the effects from Table 3 with the substitution of binding term limits instead of the adoption of term limits.

Table A10: Replication of Institutional Effects on Individual-Level Data

	Dependent Variable: SLES			
	(A10.1)	(A10.2)	(A10.3)	(A10.4)
Log Session Length	-0.080**	0.022		
	(0.020)	(0.018)		
Log Session Length × Majority Party	0.192**			
	(0.020)			
Log Session Length × Committee Chair		0.051+		
		(0.030)		
Log Chamber Size			1.294	1.032
			(1.295)	(1.288)
Log Chamber Size × Committee Chair			0.384**	
			(0.039)	
Log Chamber Size × Seniority				0.037**
				(0.006)
Seniority	0.033**	0.033**	0.029**	-0.137**
	(0.006)	(0.006)	(0.006)	(0.027)
Committee Chair	0.479**	0.272*	-1.171**	0.500**
	(0.026)	(0.131)	(0.157)	(0.025)
Majority Party	-0.423**	0.374**	0.371**	0.374**
	(0.079)	(0.031)	(0.029)	(0.029)
Observations	68,948	68,948	72,888	72,888
R^2	0.130	0.128	0.138	0.135

Note: $^{+}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$, two-tailed. Fixed effects by chamber and term, standard errors clustered by legislator. All control variables from Table 1 are included in all models. Complete model results, including coefficients for all control variables and fixed effects coefficients are available in the accompanying Dataverse files. The results show that key institutional effects from Table 3 are robust to analyses of individual-level data.

Table A11: Importance of Calendar Control across Legislative Stages

	Dependent variable:				
	BILL Score (A11.1)	*AIC Score* (A11.2)	*ABC Score* (A11.3)	*PASS Score* (A11.4)	*LAW Score* (A11.5)
Majority Party × Majority Party Controls Calendar	0.110**	0.239**	0.309**	0.305**	0.316**
	(0.022)	(0.028)	(0.028)	(0.025)	(0.028)
Majority Party Controls Calendar	0.065	0.038	0.018	0.027	0.039
	(0.112)	(0.162)	(0.165)	(0.125)	(0.147)
Majority Party	0.154**	0.236**	0.232**	0.212**	0.160**
	(0.030)	(0.038)	(0.041)	(0.025)	(0.027)
Observations	69,186	69,186	69,186	69,186	69,186
R^2	0.067	0.105	0.123	0.139	0.107

Note: $^{+}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$, *two-tailed.* Fixed effects by chamber and term, standard errors clustered by legislator. All control variables from Table 1 are included in all models. Complete model results, including coefficients for all control variables and fixed effects coefficients are available in the accompanying Dataverse files. The dependent variables are the five legislative stage components that make up the SLES (each normalized to a mean value of one). The results from the interactive variable show that – in state legislative chambers where the majority party controls the calendar (according to Anzia and Jackman 2013) – the average difference between a majority- and minority-party lawmaker's SLES rises through the committee stages and remains large throughout later lawmaking stages.

Table A12: Importance of Gatekeeping Powers across Legislative Stages

	Dependent variable:				
	BILL Score (A12.1)	*AIC Score* (A12.2)	*ABC Score* (A12.3)	*PASS Score* (A12.4)	*LAW Score* (A12.5)
Majority Party × Committee Gatekeeping Power	0.112**	0.387**	0.426**	0.360**	0.346**
	(0.026)	(0.029)	(0.030)	(0.028)	(0.031)
Committee Gatekeeping Power	-0.183*	-0.420**	-0.474**	-0.409**	-0.401**
	(0.082)	(0.092)	(0.099)	(0.096)	(0.103)
Majority Party	0.142**	0.091*	0.107**	0.139**	0.105**
	(0.031)	(0.038)	(0.039)	(0.029)	(0.030)
Observations	72,888	72,888	72,888	72,888	72,888
R^2	0.068	0.107	0.127	0.142	0.109

Note: $^{+}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$, *two-tailed.* Fixed effects by chamber and term, standard errors clustered by legislator. All control variables from Table 1 are included in all models. Complete model results, including coefficients for all control variables and fixed effects coefficients are available in the accompanying Dataverse files. The dependent variables are the five legislative stage components that make up the SLES (each normalized to a mean value of one). The results from the interactive variable show that – in state legislative chambers where the majority party exercises committee gatekeeping authority (according to Anzia and Jackman 2013) – the average difference between a majority- and minority-party lawmaker's SLES rises through the committee stages and remains large throughout later lawmaking stages.

Code, Coding Decisions, and Validation Across States

Given the differences across states, legislative chambers, and over time, significant research was done to properly code each bill in respect to: (1) linking the bill to its primary sponsor; (2) coding bill progress, in terms of which stages of the lawmaking process the bill reached; and (3) coding the bill as "commemorative", "substantive", or "substantive and significant". This section of the appendix discusses each of these in turn.

For each state, constructing and refining an accurate coding protocol involved consulting the state legislative websites and related documents, contacting the relevant parliamentarian or other officials in the state, and working through numerous examples.

Upon a determination by the authors that the resultant code was working well, we drew a sample of 10% of the bills from each chamber-term, up to a maximum of 250 bills within each. We used stratified random sampling, with the strata based on the different patterns of bill codings (such as substantive bills that became law or commemorative bills that received action in committee), in order to ensure that no single category would represent the entire validation set and thus crowd out our ability to identify errors.

A team of graduate student research assistants then used this sample and validated 49,037 bills in total. Of those, 95.2% (46,693) were determined to be accurately coded. For the remaining cases (38 of which identified an error between commemorative and substantive bills; and 2,306 of which identified an error with the lawmaking stage classification), we checked each possible error raised. Many of these were ultimately not errors, but were misidentified as such by the RA's. For the others, often there was a single common cause that led to the errors being repeated multiple times within the same chamber-term. In such cases, one or two corrections to the code were sufficient to remove the errors. When such coding changes were made, we then verified that they corrected the identified errors and that they did not introduce any other unanticipated changes to the data. This process allowed in excess of 99% alignment between the automated data and the bills checked by hand. It is this refined code that we include in the replication materials on the APSR Dataverse.

Further details of each of these coding decisions are given below.

Identifying Primary Bill Sponsor

Across the states, there are different processes involved in sponsoring bills. We engaged in an in-depth analysis state-by-state, confronting such issues as multiple sponsors, bills sponsored by request, and bills sponsored by committees. In each case, we consulted legislative rules and, when necessary, contacted state parliamentarian (or similar) offices.

The following three subsections explain how we identify the legislator most closely associated with each piece of legislation.

Selecting among Multiple Primary Sponsors

When an individual legislator is identified as the primary sponsor or primary author alone, we credit that individual with having introduced the bill and shepherded it through the legislative process. However, in many states, more than one sponsor may be identified as the primary sponsor or author.

We explored whether to assign credit to multiple legislators in such cases or to focus solely on a single primary sponsor, ultimately choosing the latter approach. Our decision was based on three considerations. First, qualitatively, we contacted individuals in the legislative research and drafting offices in several states that allowed multiple sponsors. Based on these conversations, we discerned that the first sponsor listed was typically the introductory sponsor and that such an individual tended to be most heavily involved in the shepherding and advocating work that signals their effectiveness at lawmaking. Second, for the state of North Carolina, we constructed three sets of State Legislative Effectiveness Scores – one based on the first-listed introducing sponsor; one based on dividing credit among all primary sponsors equally; and one based on all sponsors and cosponsors equally. In comparing these scores to the NCCPPR survey rankings (as discussed in the main body of the manuscript and in Appendix Table A4), we found much worse performance for the broadest measure and no significant (substantive nor statistical) difference between the inclusion of a single introductory sponsor vs. all primary sponsors combined. Third, relying on the newspaper coverage for Substantive and Significant legislation (as discussed in the main body of the manuscript and detailed further below), we searched for proper names within 50 words of the bill reference in each article. In 308 instances, such articles included a reference to one of the primary sponsors. For 281 of these cases (91%), the reference was to the introducing sponsor that we identified, yielding further confidence to the central lawmaking role played by such single individuals. Coupled with the desire for consistency with the coding for other states in which multiple sponsors are not allowed, we proceeded with assigning credit to a single sponsor for each bill in each state.

To identify the single primary sponsor in states allowing multiple sponsors, we rely on the order that legislators' names are listed on the state legislative records for each bill. Notably, for all of the states in our sample where multiple sponsors are permitted, these lists are *not alphabetized* in the available bill text (a feature that might suggest the order is not meaningless); rather, the individual who either requested the bill's drafting or formally introduced it to the chamber is listed first.[1] In turn, in cases where we need to select from among multiple possible primary sponsors, we use this ordering as our primary means of doing so.

As a related issue, we occasionally encounter pieces of legislation for which the legislative records are missing information about the primary sponsor. In these cases, we are tasked with the choice of either selecting a primary sponsor from among the set of cosponsors (or coauthors) listed on the bill page or omitting the legislation entirely from our calculations. When possible, we opt for the former method. For example, in Indiana, when the primary sponsor is not listed, we attribute the bill to the first coauthor, who tends to be more like a co-primary sponsor than what we would typically describe as a cosponsor. In contrast, for Massachusetts, we attribute

[1] It is worth noting that for some states and time periods, the main bill information page from which we pull most of our data does alphabetize the list of primary sponsors. In these cases, we instead pull the names of the sponsors from the bill text directly, which does not suffer from this problem.

bills with missing primary sponsors to the individual who originally filed the bill. More generally, we adapt our solutions to the recording practices and rules for each state, and when not able to identify the likely missing information, omit the record instead.

Accounting for Bills Sponsored by Request

Another relatively unique feature of the lawmaking process in state legislatures is that many permit their members to introduce bills by request of an outside party. Typically, this means the governor, state agencies, and interest groups, though in some states, this can even be individuals. Our general rule for "by request" bills is that we attribute them to the member who introduced it and ignore the requesting entity. While an outside party may have written the legislation and lobbied for it throughout the legislative process, the legislator still had to make the choice to introduce the bill to the chamber, and that legislator's institutional position and/or lawmaking skills may help determine the bill's fate, thus signaling the lawmaker's effectiveness. As such, we take this introduction as a tacit endorsement of the legislation and a stated willingness to advocate for the bill.[2]

The primary exception to our standard practice for "by request" bills is Massachusetts, where we drop all bills introduced by request. The reason for this is that the Massachusetts state constitution establishes a right of free petition (see Article XIX), which essentially requires legislators to introduce petitions from constituents in their district. Whereas in other states legislators have a choice of whether or not they introduce a bill by request, members of the Massachusetts General Court must do so regardless of their preferences for the legislation. Given this lack of choice, we drop all such bills from our sample and do not use them in the estimation of our effectiveness scores.

Identifying the Primary Sponsor on Committee-Sponsored Legislation

For the majority of states that permit committee-sponsored legislation, we drop committee bills entirely. In most cases, these bills make up less than 10 percent of all legislation. In other states, however, committee bills make up a larger portion of the bills that are written and advanced through the legislative process. For example, in North Dakota, South Dakota, and Wyoming, committee bills make up approximately 20 to 35 percent of all legislation. In Oregon, this number is closer to 50 percent. Despite the larger share of legislation in these states that is sponsored by committees, however, what all these states have in common is that committee-sponsored legislation is not the primary vehicle through which law gets made. As such, we largely drop committee bills from our analysis and instead focus on bills directly sponsored by individual lawmakers.

The four exceptions to this rule are Connecticut, Iowa, Idaho, and Kansas. In each of these states, the overwhelming majority of legislation is sponsored by committees; and we were not comfortable with simply dropping these bills, because the remaining sample is incredibly small, meaning very few legislators would ultimately end up being credited with sponsoring any legislation. Instead, for three of these states, we identified an alternative method to identify the legislator most closely connected to each piece of legislation. Unfortunately, we were not able to

[2] Interestingly, some states openly specify in their records that introduction of "by request" bills neither implies support nor opposition of the legislation. Yet, so long as the legislator has a choice to introduce it, we take the action of doing so as sufficient evidence to attribute credit for it to the legislator.

find a solution for Kansas, and so we chose not to estimate scores for the state at all. While we are optimistic this may change in the future, for now we simply cannot include it.

For the other three states, we took the following steps:

1. Connecticut:
   - There are 3 main types of bills in Connecticut: "proposed bills", "committee bills", and "raised bills". See the "About Bills" page from the Connecticut Legislative Commissioner's office for more details.
   - Committee bills generally begin as proposed bills, and once the committee formalizes the language, the committee becomes the sponsor. Thus, for committee bills, we recode committee-sponsored legislation using the name of the legislator who introduced the bill (i.e., is listed first on the original "proposed bill"). For example, compare the bill information page for S.B. 1 here with the PDF of the proposed bill here. Note that for the period 1991 to 1998, we do not have the name of the legislator who introduced each bill. Instead, we use the first cosponsor. The reason for this is that from 1999 onward, the legislator who introduced the bill is nearly always the first cosponsor listed on committee bills.
   - For raised bills, we follow the pre/post-1999 logic above and fill in as many sponsors as possible using the first cosponsor from the chamber where the bill was introduced. We attribute all remaining raised bills (approximately 20 percent of the total sample in any given term) to the relevant committee chair.
2. Iowa:
   - We code the individual designated as the floor manager as the primary sponsor for committee-sponsored bills. Based on our interpretation of the legislative rules and discussions with their legislative information office, floor managers play a similar role to sponsors in other states (opening/closing debate, guiding a bill through the floor). They also are often the chair of the subcommittee that heard the bill. The downside to using floor managers is that bills that do not make it out of committee do not necessarily have floor managers. In practice, however, most bills make it out of committee and so we only end up dropping a relatively small number of the remaining uncoded bills.
3. Idaho:
   - We recode committee-sponsored bills with the name of the individual who originally requested the bill. This is listed on the bill's statement of purpose. For an example, see the bill information page for HB93 in 2019 here and click the link for the statement of purpose.

Coding Bill Progress

The terminology capturing bill progress also varies across states. Again, we consulted rules and procedures as well as knowledgeable individuals to generate a protocol for coding decisions on a state-by-state basis.

For example, key phrases used to capture stages after bill introduction in North Dakota are:

- **AIC**: 'committee hearing', 'reported back', 'do pass', 'do not pass', 'divided committee report', 'majority report'

- **ABC**: ‘reported back’, ‘placed on calendar’, ‘second reading’, ‘^amendment’, ‘passed’, ‘failed’, ‘reconsidered’, ‘rereferred’
- **PASS**: ‘second reading, passed’
- **LAW**: ‘signed by gov’, ‘filed with secretary of state’

All code needed to identify these stages is available in the replication materials in the APSR Dataverse. As shown in the code, the standard language sometimes changes from one term to the next within certain chambers. As such, we advise future researchers who wish to use our code to extend this work to follow a similar iterative coding and verifying process as we note above for the current data.

Coding Bill Significance

As mentioned in the text, references in major newspapers in each state are used to identify “substantive and significant” bills. Table A13 provides a list of the base terms that we use to generate the list of commemorative bills, with the initial categories in rows 1 and 2 identifying such bills as possibilities and the third category used to exclude bills that have phrases often used in commemorative bills but also by our definition deal with substantive issues. For each state, we adjust these terms manually, to account for the unique patterns and recording practices used in that state. As noted above, we then had a team of research assistants verify the accuracy of this coding. They identified 38 errors in the 49,037 bills checked (for a greater than 99.9% confirmation rate); nevertheless, we hand corrected these 38 instances to reduce the known errors to zero.

Table A13: 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 for each bill. We begin by using the terms identified by Volden and Wiseman (2014) in their coding of 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 coding substantive bills as commemorative.

To identify bills that are both substantive and significant, we rely on newspaper coverage of legislation from all 49 of the states for which we estimate effectiveness scores. The logic here is relatively simple: bills that are likely to have a large impact on state politics and policy should be more likely to receive coverage in a state-focused newspaper, and so by extracting mentions of legislation from newspaper coverage, we can identify a list of bills to classify as substantive and significant. To do so, we do the following:

1. Identify a newspaper for each state and time period using three criteria: (a) availability in either LexisNexis or Newsbank over an extended period of time; (b) coverage of state legislative action, including specific reference to bill numbers in each legislative session; and (c) location (either in the state capital, one of the state's largest cities, or having one of the largest circulations of newspapers in the state).[3] Of the 58 newspapers selected across the 49 states that we analyze, 29 are located in state capitals. Of the remaining 29, most are from the largest non-capital city in the state or the largest newspaper by circulation (or both). However, where such a paper was not available to us in LexisNexis or Newsbank over a consistent period of time, or where such paper did not include reports of legislative bill numbers, we continued down the list to smaller outlets. Three cases stand out as being from smaller cities and lower circulation outlets: *The Telegraph Herald* (Dubuque, Iowa), *The Mississippi Sun Herald* (Biloxi/Gulfport, Mississippi), and the *Brattleboro Reformer* (Brattleboro, Vermont). A complete list of Newspapers that we use to identify legislation can be found in Table A2.
2. Identify and gather (temporarily) the text of all articles covering state legislation. To do so, for each state, we restrict our search to the selected newspaper and time period, keeping only articles that are published during each legislative session (with a two-week buffer on each side). For most states, we deem an article to be related to legislation if it uses either the term "bill" or "legislation". However, in some states, we also require that the term "bill" be paired with a mention of one of the legislative chambers (i.e., "house", "senate", or "assembly").
3. Trim down the list of articles identified as discussing legislation. To do so, we drop any article that:
    - Includes a link to the website for the U.S. Congress (as these are almost certainly federal bills)
    - Is located in the sports section or contains one of a set of terms that is blatantly sports related (e.g., "quarterback", "ground ball").[4]
    - Does not include any remotely political or legislative terms, such as "chamber", "committee", "agenda", "hearing", "vote", "election", and approximately 25 others.

[3] Because Newsbank was unavailable at our universities, we paid for access to the needed newspapers and signed a data licensing agreement, allowing us to share the output from our analysis but not the raw text files. Researchers seeking a similar agreement should reach out to Newsbank directly (newsbank.com/sales).

[4] For whatever reason, there are many sports writers named "Bill". Relatedly, we also encounter a number of difficulties with baseball box scores, which include text like "ab", which we might interpret as a reference to an assembly bill rather than an "at bat".

4. Extract mentions of legislation from the text of each article using a highly flexible set of regular expressions (included in the replication files). This allows us to collect all mentions of the form: “House Bill 1000”, “HB1000”, “1998-HB-1000”, “HB1000-EX1”, and many others.
5. Parse and standardize the extracted bill mentions. After doing so, we drop any bill mention that:
    - Contains dollar amounts, decimals, or clear but frequent mismatches (unions like “local s6”, the airbus “a300” airplane, etc.)
    - Refers to a bill type that is incompatible with the state’s recording practices or chambers (e.g., “HB” or “SB” in Maine or mentions of an assembly bill in states where the lower chamber is not identified as the assembly).
    - Is of the form “S0123” and the article mentions the U.S. Congress (excluding “ID”, “MA”, “NC”, “NJ”, “NY”, “RI”, “SC”, “VT”, which also use the format “S0123” to identify Senate bills).
    - Indicates the bill is a Senate bill and the article mentions the U.S. Congress within a 25-word text snippet on either side of the bill mention (this applies to newspapers sourced from Newsbank only).
    - Comes from an article that mentions 10 or more unique pieces of legislation. This is necessary because some papers will occasionally publish articles identifying all pieces of legislation that are either currently active or have scheduled committee hearings.
    - Is identified via a manual evaluation of the matches as being a false positive.
6. Merge the mentions into our larger database of legislation, accounting for legislative term and, when possible, special sessions.

We make two sets of adjustments to our coding processes by state. First, for Tennessee and Vermont, we drop any bill mention in which the article also mentions Georgia and New Hampshire, respectively. We do this to account for the fact that the newspapers that we use for these states provide significant coverage of the Georgia and New Hampshire legislatures as well as the Tennessee and Vermont legislatures.

Second, for a subset of states (California, Colorado, Iowa, Maine, Michigan, Minnesota, Nebraska, New Hampshire, and Wyoming), we either supplement or omit terms from the main set of regular expressions to identify bill mentions, in order to account for unique features of each state’s bill recording practices or newspaper coverage.

Once this process is complete, we use our commemorative and S&S lists to code each bill. When a bill is identified as being both commemorative and substantive and significant (or when a bill is identified as neither commemorative nor substantive and significant), we code it as substantive.

For the Substantive and Significant bills coding, as described here, we also engaged in a lengthy process of replication by a team of research assistants. Specifically, for the states of North Carolina, Virginia, and Texas, over the years of 2009-2017, student research assistants read each of the newspapers we used during the terms of the legislative sessions including all stories that

mentioned the word “bill” or the partial phrase “legis”. Our main purpose for doing so was to identify whether our restriction in the automated process to bills that were identified by bill numbers was missing a significant number of those that are identified by sponsor alone or by title or common phrasing (e.g., North Carolina’s “bathroom bill” targeting transgender individuals). Whereas the automated process took less than a month of programming time for all states and years, this hand-coding took a team of three RA’s about three months per state. In the end, the automated process identified about 70% of the manually coded bills (634 out of 923 substantive and significant bills in North Carolina, 920 out of 1221 in Texas, and 774 out of 1065 in Virginia). Considered in reverse, the hand-coding identified just under 70% of the automated bills (634 of 979 in North Carolina, 920 of 1235 in Texas, and 774 of 1273 in Virginia). Thus the errors in research assistants missing bills (due to various human errors) that are identified automatically seemed on par with the errors in the coded process missing bills (due to focusing on bill numbers alone) identified by the research assistants.

The Code

All code used to collect and characterize bills and lawmakers across all state legislatures included here is available as a series of R scripts in the accompanying APSR Dataverse files.