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Compared to What? Changes in Interest Group Resources and the Proposal and Adoption of State Teacher Policy

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What is the relationship between changes in interest group resources and the proposal and adoption of state policy? Using a dataset of proposed and enacted teacher policies across five legislative cycles in all 50 states and measures of interest group relative and absolute resource strength, I estimate a series of within-state fixed effects models that gain identification from changes in interest group resources and teacher policy over time. I find that legislatures propose more unfavorable and fewer favorable policies toward teachers' unions in states where teachers' union opposition interest groups are expending more election (but not lobbying) resources over time. Further, I find that more unfavorable and fewer favorable policies are adopted in states where teachers' union opposition groups are growing in election resource strength. Expanding on prior empirical work, this study suggests that interest group resources matter for policy change and highlights the importance of capturing interest group resource dynamics over time.

KEY WORDS: interest groups, policy change, campaign contributions, lobbying

利益集团资源的变化与州政策的提案和采纳之间的关系是怎样的？本文使用的数据集涵盖了所有50个州在五个立法周期内提出和实施的教师政策，以及对利益集团资源实力的相对和绝对值衡量。借此，我估算出了一系列的州内固定效应模型，并从利益集团资源和教师政策随着时间推移而发生的变化中得出了一些结论。我发现，当州内的教师工会反对派利益集团逐渐投入更多选举资源（但不是游说）时，该州的立法机构会提出对教师工会更加不利的政策，而对其有利的政策也会在数量上得到削减。此外，我在政策采纳上也发现了类似结果，随着反对派团体选举资源的实力不断增强，该州会对应采取对教师工会更加不利的且数量更少的有利的政策。本项研究拓展了先前的实证研究，表明利益集团的资源对政策变化至关重要，并强调了利益集团的资源随时间变化的动态性。

Policy and political scholars have long implicated interest group power as a mechanism for policy change (e.g., Baumgartner & Jones, 1991; Jones & Baumgartner, 2012; Sabatier & Jenkins-Smith, 1988, 1993; Sabatier & Weible, 2007). Prominent theories like Punctuated Equilibrium Theory (PET) highlight how policymaking

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is a continual struggle between interest groups that seek to maintain stability and the status quo and opposing forces that drive policy systems into disequilibrium and bring about rapid policy change (Baumgartner & Jones, 1991, 2002, 2009; Baumgartner, Jones, & Mortensen, 2014; Jones & Baumgartner, 2012). Similarly, the Advocacy Coalition Framework (ACF) hypothesizes that policy change can occur as external shocks to the policy subsystem (e.g., changes in public opinion) redistribute the resources among disparate interest coalitions, thereby affording new groups the opportunity to pursue their policy goals (Jenkins-Smith, Nohrstedt, Weible & Sabatier, 2014; Sabatier & Weible, 2007). Political science theories on interest group activities (i.e., lobbying and campaign contributions) also hypothesize a relationship between interest group resources and policy—interest groups provide monetary and informational resources to campaigns or directly to lawmakers through lobbying in exchange for favorable votes on policy (Ansolabehere, de Figueiredo, & Snyder, 2003; Snyder, 1990, 1991).

Notwithstanding these theoretical contributions, few studies have been able to demonstrate relationships between traditional measures of interest group resources and new policy (e.g., Ansolabehere et al., 2003; Baumgartner, Berry, Hojnacki, Kimball, & Leech, 2009; Burstein & Linton, 2002; Grossman, 2012; Lowery, 2013; Powell, 2013; Roscoe & Jenkins, 2005; Smith, 1995). Two decades ago, Baumgartner and Leech (1998, p. 134) summarized the state of the extant literature on interest groups and policy as follows: "the unavoidable conclusion is that PACs and direct lobbying sometimes strongly influence Congressional voting, sometimes have marginal influence and sometimes fail to exert influence." Even as new research on the topic has emerged (e.g., Grossman, 2012; Newmark & Nownes, 2017), very few definitive conclusions exist as to how, when, and which interest groups influence policy change.

In this paper, I investigate whether the disconnect between theory and empirics can be partially explained by the failure of prior research to properly consider the role political context plays in conditioning how interest groups translate resources into policy influence (e.g., Baumgartner & Leech, 1998; Gray & Lowery, 1995; Lowery, 2013; Mahoney, 2007). If we assume that lawmaker attention is scarce and space on the decision-making agenda is limited, then increased competition from disparate interest groups make the market for policy ideas more crowded (Hansen & Gray, 2016; Mahoney, 2007; Mawhinney & Lugg, 2001; Rosenthal, 1993). In terms of effectuating policy change, in the face of competition from opposing interests, not only does the degree to which interest groups have allied lawmakers in legislative seats, the extent to which their lobbyists have access to legislators, and the degree to which they have been able to marshal public opinion matter, but also the extent to which their opposition has been able to also use their campaign, lobbying, and membership resources to secure these same political advantages. While theories of policy change like PET and ACF highlight the importance of relative interest group activity and resources, existing research has not fully accounted for the presence and strength of opposing groups in the policy subsystem when trying to explain policy change (Baumgartner et al., 2009; Finger, 2019).

Using the case of teachers' unions and teacher policy, I introduce a new measure of "relative interest group resources" that accounts for the competitive context in

which interest groups vie for influence. Following recent research, I also broaden prior conceptualizations of interest group influence as "outcomes" or final policy passage to also consider influence as "agenda-setting" or the shaping of the types of policies under active consideration in the legislature (Finger, 2019; Newmark & Nownes, 2017). Finally, as noted by others (Baumgartner & Leech, 1998; de Figueiredo & Richter, 2014; Lowery, 2013), most studies on the effect of interest groups on policy focus on cross-sectional comparisons of a few groups working on a single issue at one point in time. In this paper, I observe relationships between resources and policy proposal and adoption across five legislative cycles. Doing so allows me to study change over time and to address confounding from time trends and fixed, unobserved state characteristics left unaccounted for in prior work.

Data for this study are derived from a self-collected nationwide database that chronicles proposed and enacted policies across 21 teacher policy topics and across five state legislative cycles (from 2011 to 2015) in all 50 states. The legislative database contains nearly 4,000 state teacher laws that are coded based on their intent in altering teachers' union rights and union-espoused policy positions—I define "favorable" laws as those that preserve or enhance the scope or impact of teacher collective bargaining agreements (CBAs), the rights of teachers' unions, or the policies they advocate for and "unfavorable" laws as those that remove or weaken the scope or impact of CBAs, the rights of teachers' unions, or the policies they advocate for. I argue that teachers' unions, as the primary state-level voice for teachers, will be more successful at mobilizing against unfavorable legislation and in favor of favorable legislation in areas where they face less opposition. Measures of relative and absolute group resources are derived from data on the membership size and campaign and lobbying activities of teachers' unions and opposing groups (defined as school-choice advocacy and business groups).

I find that changes in relative interest group resources are associated with the proposal and enactment of teacher policies. In states where opposition groups are exerting more resource power relative to teachers' unions over time, a higher proportion of unfavorable policies and lower proportion of favorable policies are proposed. Similarly, changes in opposition group resources relative to teachers' unions are associated with more unfavorable and fewer favorable bill enactments. I conclude that when trying to understand the relationship between interest group resources and policy proposals and outcomes, it is important to employ modeling and measurement strategies that capture changes in the relative balance in interest group resource power over multiple legislative cycles within a policy subsystem. Additionally, not all interest group resource efforts are equally predictive of policy proposals and outcomes—resources exerted toward elections appear to matter more than resources devoted to lobbying.

When Might Interest Group Resources Matter?

Relationships between elected officials and interest groups form based on the extent to which each side can satisfy the needs of the other party. Burstein and Linton (2002) note that "many political scientists have come to argue that what politicians

want and need most is information about electorally relevant resources" (p. 386). That is, that lawmakers are ultimately "reelection seekers," striving to maximize their chances at winning at the polls. Because the resources (e.g., time) of legislators are scarce, in order to maximize their reelection possibilities, lawmakers are dependent on the information of allied experts, who know relevant constituencies and can marshal resources in their favor. Well-resourced interest groups can provide campaign support (e.g., contributions and voters) as well as issue-relevant expertise (e.g., lobbying) that enhance the electoral chances of lawmakers. In exchange, interest groups receive access to lawmakers to persuade them to take group-friendly positions on legislation that ultimately help them achieve their organizational objectives (Ansolabehere et al., 2003; Hall & Wayman, 1990; Kalla & Broockman, 2016; Snyder, 1990, 1991).

Theories of the policy process suggest that this kind of behavior from well-resourced interest groups can maintain status-quo policies over long periods of time (Baumgartner & Jones, 1991, 2002, 2009; Baumgartner et al., 2009, 2014). Interest groups that benefit from existing status quo policies mobilize their resources to stymie policy reforms (Moe, 2015). Baumgartner and Jones, in their theory of Punctuated Equilibrium, note that interest groups help maintain existing policies through negative feedback processes, or resource mobilization (e.g., campaign contributions, informational lobbying, and public opinion campaigns) aimed at neutralizing any proposed changes that run contrary to existing policy positions (Baumgartner & Jones, 2002). Of course, the effort of an organized interest group does not occur in isolation—there are opposing interests seeking to unseat status quo policies and bring about change. These efforts, however, only gain traction when group power dynamics are altered—that is that new interest groups can generate enough resources to procure the attention of lawmakers, present themselves as viable supports in legislator reelection efforts, and ultimately secure the votes necessary to pass new legislation. Terry Moe (2015) argues that the challenge of policy reformers "is not simply to exercise power. It is to overcome power. And unless they can do that, they will fail" (p. 283).

By focusing on the absolute resources levels of single organized interests within policy subsystems, existing studies on interest groups and policy change have done a poor job of conceptualizing and operationalizing the power dynamics between competing interest groups in a policy subsystem, how they change over time, and how these changes might be related to new policy. One notable exception is Baumgartner et al.'s (2009) seminal work on lobbying and policy change. They follow 98 congressional policy issues over a 4-year period and note the degree to which the policies associated with these issues change over time. They document that the absolute resources of interest groups are poorly predictive of policy change. However, they argue that the story of resources is more complex than the absolute measures might indicate—when interest groups own a resource advantage compared to their opposition, their favored policies are more likely to succeed in Congress. Consequently, it is not sufficient to just focus on interest group resource levels or activity when trying to explain policy change. The inconsistent findings found in the current extant literature on interest group resources and policy change (e.g., Ansolabehere et al., 2003;

Brownars & Lott, 1997; Chamon & Kaplan, 2013; Hall & Deardorff, 2006; Hall & Wayman, 1990; Peoples, 2013; Powell, 2013; Stratmann, 2005) may be symptomatic of efforts to try and capture single interest group power without considering how the exercise of power might be conditioned by opposing groups and how it might be changing over time.

The Case of Teachers' Unions and Teacher Policy

A few recently observed trends in education policymaking and education politics make teachers' unions and teacher policy a ripe case for the study of relative interest group resources and policy change. First, policy scholars have documented a marked shift in the jurisdictional authority of education policy setting in recent years (Conley, 2003; Fusarelli & Fusarelli, 2015; Galey, 2015; Henig, 2013; Manna, 2006). Spurred by growing concern about the lagging achievement of the United States versus other countries acknowledged in reports like *A Nation at Risk,* the modern education reform movement can be classified by increasing state and federal involvement in education decision making and the squeezing out of local control. Federal and state education policies like No Child Left Behind (NCLB) (2001), Race to the Top (RTT) (2009), Common Core State Standards (2009) (CCST), state recovery school districts, performance evaluation, tenure, and compensation reform exemplify how state and federal politicians are now involved in decision making around the "core of the education enterprise"—decisions about teaching, curriculum, performance, and compensation that were formerly the prerogative of local school boards (Henig & Bulkley, 2010, p. 323).

The shifts in the education policy setting arena to more state and federal control provide new and different opportunities for political actors to influence the education policy agenda (Cibulka, 2001; Galey, 2015; Henig, 2013; McDonnell, 2013). Researchers have long noted that local control over education policy setting favors the interests of teachers' unions (Goldstein, 2014; Henig, 2013; Moe, 2005, 2006, 2011). Historically low voter turnout in school board elections affords unions the opportunity to drastically shape the composition of school boards and ultimately who ratifies their collectively bargained agreements (Moe, 2005, 2006). As the axis of decision making shifts to the state and federal level, state and federal policy not only becomes more important for teachers' union but winning may also become more difficult. Teachers' unions must compete (and succeed) in a policy space that is occupied by other organized interests (Cooper & Sureau, 2008; Goertz, 2009; Henig, 2013; Moe, 2011).

Second, the shifting locus of education decision making is coupled with the rise of new interest groups and coalitions in public education (Bjork & Lindle, 2001; Mawhinney & Lugg, 2001; Mazzoni, 1995; Opfer, 2001; Reckhow, 2013; Reckhow & Snyder, 2014). In recent years, new education advocacy groups have cropped up around the nation, including Stand for Children (1996), K12 Inc. (2000), Democrats for Education Reform (2007), StudentsFirst (2010), 50Can (2011), and Students Matter (2011), and these groups are increasingly lobbying lawmakers and donating

to election campaigns (Sawchuk, 2012). Superfine and Thompson (2016) note, for example, how the *Vergara v. California* (2014) trial, a legal challenge to California state statutes governing teacher tenure, dismissal, and layoffs brought on by Students Matter, illustrates the shifting power of coalitions away from teachers' unions and the use of new policy venues by education advocates to influence education policy. Second, philanthropic foundations are increasingly funding new research and reform efforts, thus bringing new ideas into the education policy setting, some of which challenge traditional union positions (Reckhow & Snyder, 2014). Finally, business groups are also becoming more involved in public education by financially backing some of the advocacy groups mentioned above and by pushing for new accountability policies and schooling options (Cibulka, 2001; Henig, 2013).

The central contention of this paper is that these new interest groups could fundamentally alter the dynamics of teachers' union power and ultimately the mix of education policies proposed and enacted in legislatures. Lawmakers could be less responsive to traditionally dominant special interest groups, like teachers' unions, as the influence of competing groups increases and as new coalitions vie for power (Hansen & Gray, 2016; Mahoney, 2007; Mawhinney & Lugg, 2001; Rosenthal, 1993). Thus, as union power changes relative to that of other interests, so might policy. I hypothesize two relationships from insights in the interest group literature: First, *where teachers' unions are growing weaker relative to opposing interest groups, more unfavorable bills and fewer favorable bills will be proposed in state legislatures*. Second, *where teachers' unions are growing weaker relative to opposing interest groups, more unfavorable bills and fewer favorable bills will be enacted in state legislatures.* This is because lawmakers will be become more responsive to new and competing special interests.

Data

State Teacher Policy Database

Modeled after large education policy databases like those maintained by Education Commission of the States (ECS), the database used in this study is one of the first of its kind to track both *proposed* and *enacted* teacher policies across all 50 states over multiple legislative cycles.[1] The database tracks policy information (i.e., bill number, title, status, last action date, link to bill text, sponsor, and bill summary) across 21 different teacher policy topics specific to teachers and their unions—for example, collective bargaining, right-to-work/membership dues, teacher strikes, and teacher retirement (the 21 topics are listed in Appendix Table A1).

I generated the policy database through a combined search of the National Conference of State Legislatures (NCSL) (2018) collective bargaining law database and the Lexis Nexis State Capital archives. I used broad search filters in these databases to ensure that I did not miss relevant laws. An initial search in the NCSL database for collective bargaining laws and Lexis Nexis State Capital for bills related to "education agencies and personnel" revealed a total of 51,304 law summaries. I read the combined total of law summaries and categorized each relevant law based on their topic (e.g., collective bargaining). Because of the broad search terms used

in locating legislation, a large portion of the law records were not relevant for the database, either because they did not pertain to teachers' unions or teachers or were duplicative of other laws proposed in a given legislative session.[2] This led to a final total of 3,944 relevant proposed and enacted bills between 2011 and 2015. Specifically, to ensure that I did not miss enacted laws, I compared my database of enacted bills to the ECS database in the coinciding policy areas (e.g., teacher evaluation) to confirm 100 percent overlap.

Of upmost importance to this study is how proposed laws would change or how enacted laws did change the scope of CBAs, the rights of teachers' unions and the policies they support. Consequently, I coded legislation not only based on a broad topic but also on their "intent." While other studies have made efforts to code the "topic" (e.g., Worsham, 2006) and "flexibility" of public policies (e.g., Renzulli & Roscigno, 2005; Shober, Manna, & Witte, 2006; Stoddard & Corcoran, 2007) or developed typologies to categorize laws based on whether they are "redistributive" or "developmental" (Hwang & Gray, 1991; McFarlane & Meier, 2001), or restrictive of competition for public office (Mulligan, Gil, & Sala-i-Martin, 2004), classifications based on the intent of a law toward a dominant interest group, and the policy positions they espouse, do not exist in the current extant literature.

I created a new typology that classifies laws based on whether proposed and enacted teacher policies where "unfavorable," "favorable," or "neutral" toward teachers and their unions. Laws were determined to be unfavorable if they constrained the rights of teachers' unions or the scope, impact, or coverage of bargaining agreements, or if they were antithetical to traditional union policy positions. Laws were categorized as neutral if they pertained to the rights of teachers' unions or the scope of collective bargaining agreements but made no substantive changes. Laws were considered favorable if they recognized, preserved, or enhanced the rights of teachers' unions or the scope, impact, or coverage of collective bargaining agreements, or if they were in alignment with traditional union policy positions. I determined traditional teachers' union policy positions based on the stated legislative stances of the NEA and its state affiliates, made available in the "Issues and Action" section of their websites. Because not all state union affiliates provide their official stances on their websites, in cases where official union positions were not available, I relied on NEA state affiliate positions on similar legislation in other states.

Table 1 provides some examples of how I classified legislation. For example, S.B. 441 (2013) in California, if enacted, would require permanent (tenured) teachers to be evaluated on a 3-year cycle, would remove the evaluation from the scope of collective bargaining, and would require teachers to be evaluated on the basis of student test scores. The California Teachers' Association (CTA) opposed the bill, arguing that it would have "silenced teachers' voices on … evaluation" (California Teachers' Association, 2013). Given the union's opposition to the evaluation bill, I coded this legislation as "unfavorable." In contrast, S.B. 1458 (2013) in Texas increased the state contribution to teachers' retirement, provided a cost-of-living adjustment (COLA), and grandfathered in active teachers into the state health plan if they had at least 5 years in the system. The Texas State Teachers' Association supported this bill, arguing that it "should help secure the defined benefit plan for Teacher Retirement

Table 1. Examples of Coded Legislation

Bill Number	State	Year	Topic	Final Action	Summary	Stated NEA Position	Law Intent
S.B. 441	CA	2013	Evaluation	Failed	Relates to evaluation of certificated education employees assigned as classroom teachers who have been employed for a specified time. Provides for rating levels. Requires the governing board to avail itself of the advice of parents of pupils. Change permanent employees who have been employed in the district for 10 years to a 3-year evaluation cycle instead of a 5-year evaluation cycle	Oppose ("Bad Evaluation Bill Defeated, Win for Students and Teachers"—California Teachers' Association, 2013)	Unfavorable
S.B. 866	VA	2015	Salary & benefits	Failed	Relates to health insurance for local school board employees; allows local school boards to elect to have all their employees and retirees, as well as the dependents of employees and retirees, eligible to participate in the state employee health insurance plan in lieu of the current state- administered local health insurance plan; provides that the local school board shall be responsible for whatever portion of the cost of such insurance is not paid by the employee	Oppose (Virginia Education Association Legislative Report Card, 2015)	Unfavorable
S.B. 1587	NJ	2014	Retirement	Failed	Requires spousal consent to election of certain pension payout options under Teachers' Pension and Annuity Fund, Judicial Retirement System and Public Employees Retirement System	No official position	Neutral
A.B. 2604	CA	2012	Collective bargaining negotiations	Failed	Makes technical, nonsubstantive changes to the Meyers-Milias-Brown Act authorizing a local public agency to adopt reasonable rules and regulations after consultation in good faith with representatives of an employee organization or organizations for the administration of employer-employee relations	No official position	Neutral
H.B. 30	UT	2015	Salary & benefits	Enacted	Relates to math teacher training; expands a grant program for teacher training in math by allowing a grant to be used to provide a stipend, professional development, and leadership opportunities to an experienced mathematics teacher to assist the teacher in becoming a teacher leader	Support (Utah Education Association Legislative Tracking Sheet, 2015)	Favorable
S.B. 1458	TX	2013	Retirement	Enacted	Relates to the administration of and benefits payable by the Teacher Retirement System of Texas; provides an optional group health plan for retirees	Support (Texas State Teachers' Association Summary of the 83rd Legislature, 2013	Favorable

System members (Texas State Teachers' Association, 2013)." Consequently, I coded this bill as "favorable." Finally, not all laws made substantive changes. California Assembly Bill 2604 (2012) made "technical, nonsubstantive changes to the Meyers-Milias-Brown Act," a law that imposes rules around dispute resolution procedures between unions and management in California. Because this law only made minor tweaks to the language of the Meyers-Milias Brown Act, it is classified as "neutral" in my coding scheme.

Policy Outcome Measures

Using the laws contained in the database, I first generate policy measures that are intended to capture the various policy ideas under consideration by state legislatures or the extent to which the decision agenda, as defined by Kingdon (2003), actively aligns with teachers' union interests. I operationalize these measures as the relative "favorableness" or "unfavorableness" of proposed and enacted policies in a given legislative session as shown in equations (1) and (2). I use proportional rather than absolute number measures because the latter would confound other state characteristics that might be related to the sheer number of bills under consideration, like the size of the state, the length of the legislative session, or the number of lawmakers. Furthermore, the proportional measures provide a better indication of the relative intent of the policy agenda in a state toward teachers' unions.[3]

$$\text{Prop. Favorable Proposed}_{st} = \frac{\#\,\text{favorable laws proposed}_{st}}{\#\,\text{laws proposed}_{st}} \tag{1}$$

$$\text{Prop. Unfavorable Proposed}_{st} = \frac{\#\,\text{unfavorable laws proposed}_{st}}{\#\,\text{laws proposed}_{st}} \tag{2}$$

Table 2 provides summary statistics for the measures of proposed policy. Column (1) indicates that the height of unfavorable legislative proposals occurred in 2011 when the proportion of unfavorable legislative proposals in the average state reached 55 percent. Some scholars have deemed the results of the 2011 state legislative sessions a "war on public sector collective bargaining" due to the high volume of legislation aimed at curtailing union rights (Freeman & Han, 2012). This session included the Wisconsin Budget Repair Bill, a law that organized labor vehemently protested, and similar bills in other states. However, following 2011, the outlook for teachers' unions improved potentially as a result of their organized response to the 2011 session (Marianno, 2015). The proportion of unfavorable proposals decreased over time, reaching as low as 31 percent in 2014.[4] The proportion of favorable laws started as low as 38 percent in 2011 but increased over subsequent sessions to reach as high as 55 percent in 2015.

To measure policy adoption, I follow studies from the legislative productivity literature (e.g., Edwards, Barrett, & Peake, 1997; Krutz, 2000) to generate a series of policy successes and failure rates. In terms of policy outcomes, teachers' unions are concerned with ensuring that their favored policies are enacted and that damaging

Table 2. Summary Statistics for Dependent and Independent Variables

	2011	2012	2013	2014	2015	All Years
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Dependent Variables						
Proportion unfavorable laws proposed	55.012 (21.372)	48.217 (28.680)	47.278 (23.131)	30.596 (25.196)	44.356 (21.104)	45.092 (25.191)
Proportion favorable laws proposed	37.588 (18.894)	37.496 (24.412)	50.142 (22.933)	52.653 (29.953)	55.080 (20.643)	46.592 (24.672)
Unfavorable law failure rate	71.472 (26.654)	65.999 (38.820)	78.654 (28.124)	61.962 (43.016)	77.955 (31.075)	71.208 (34.483)
Favorable law success rate	19.622 (25.756)	14.440 (24.240)	23.971 (23.762)	27.703 (33.448)	21.868 (29.711)	21.521 (27.764)
Independent Variables						
Republican control	0.420	0.460	0.480	0.480	0.480	0.464
Democrat control (reference category)	0.220	0.220	0.280	0.300	0.140	0.232
Split control	0.360	0.320	0.240	0.220	0.380	0.304
Session calendar days (ln)	4.917 (0.493)	4.369 (1.442)	4.893 (0.585)	4.221 (1.436)	4.932 (0.599)	4.666 (1.047)
No laws proposed	0.020	0.014	0.000	0.120	0.000	0.056
	2010	2011	2012	2013	2014	All Years
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Citizen ideology (conservative to liberal)	47.279 (15.730)	48.089 (14.567)	48.475 (14.921)	49.761 (15.681)	47.772 (15.443)	48.275 (15.175)
Debt-to-service ratio	54.051 (25.304)	49.362 (24.090)	58.018 (28.846)	49.886 (25.358)	47.148 (24.151)	51.040 (25.598)
Unemployment rate	8.946 (8.946)	8.468 (2.064)	7.538 (1.867)	7.050 (1.646)	6.104 (1.425)	6.891 (1.987)
NAEP math score	240.387 (5.462)	240.850 (5.256)	241.504 (5.157)	242.158 (5.222)	241.285 (4.878)	241.242 (5.051)
Student enrollment (ln)	13.301 (1.039)	13.305 (1.035)	13.305 (1.036)	13.311 (1.035)	13.316 (1.035)	13.312 (1.027)

policies are defeated. Consequently, the unfavorable bill failure rate is simply defined as the number of unfavorable policies failed divided by the number of unfavorable bills proposed (equation 3). Bills are considered failed if they are not enacted by the legislature or if they are enacted but subsequently vetoed by the governor. Similarly, the favorable bill success rate is defined as the number of favorable policies enacted divided by the number of favorable bills proposed (equation 4). Bills are considered enacted if they are passed by the legislature and signed by the governor.

$$\text{Unfavorable Failure Rate}_{st} = \frac{\#\,\text{unfavorable laws failed}_{st}}{\#\,\text{unfavorable laws proposed}_{st}} \tag{3}$$

$$\text{Favorable Success Rate}_{st} = \frac{\#\,\text{favorable laws enacted}_{st}}{\#\,\text{favorable laws proposed}_{st}} \tag{4}$$

Table 2 shows the state policy success rates over time. In general, the failure rate is much higher for unfavorable legislation than the success rate is for favorable legislation, consistent with theoretical observations that the policy system is built in a way to ensure that blocking legislation is much easier than taking actions to see that a bill is enacted (Moe, 2011, 2015).[5] The failure rate of unfavorable legislation reached its highest in 2013 at 79 percent, whereas the success rate of favorable legislation reached its highest in 2014 at 28 percent.

Resource Measures: Membership, Elections, and Lobbying

Most existing studies employ unidimensional measures of interest group resources, like membership rates and campaign contributions, without capturing the full breadth of how interest groups engage in policymaking and without considering the relative power of interest groups to other groups in the policy subsystem (de Figueiredo & Richter, 2014; Finger, 2019; Lowery, 2013). Prior research suggests that interest groups influence policy through three main avenues—elections (Ansolabehere et al., 2003; Grossman & Helpman, 1994, 1996), lobbying (de Figueiredo & Richter, 2014), and membership organizing (Leighley, 1996; Leighley & Nagler, 2007). In this paper, I argue that teachers' unions will exert more pressure on policy where they exercise more election, lobbying, and membership organizing resources relative to opposing interest groups. Put another way, teachers' unions will be less impactful in states where their strength is countered with the strength of competing interests (Hansen & Gray, 2016; Mahoney, 2007; Mawhinney & Lugg, 2001; Rosenthal, 1993).

With the surge in education-specific groups in recent years, a number of organizations may now challenge teachers' unions' policy-setting efforts. In this study, I define opposition interests as school choice advocacy organizations and business groups. First, school choice advocates include 116 organizations identified by the National Institute on Money in State Politics as groups supportive of charter school and voucher expansion. This list includes some of the most active education

advocacy organizations involved in politics, including Democrats for Education Reform, 50Can, Stand for Children, StudentsFirst, Education Reform Now, and Families for Excellent Schools (Sawchuk, 2012). I hand-checked this list for completeness to ensure that the largest school choice groups in each state were in the data.

I also generate measures of business group resource strength that includes information on election and lobbying resources for over 40,000 business organizations across all 50 states. Prior research documents how business groups serve as a potential counterbalance to the exercise of union power (Moe, 2011). Business groups are becoming increasingly interested in school quality and school curriculum (Cibulka, 2001; Henig, 2013) and are frequently on the opposite side of labor when it comes to collective bargaining rights and union organizing. Nevertheless, because business groups have policy goals that extend well beyond education (Moe, 2011), their political interests are more pluralistic than school choice groups. Their varied policy objectives may create a different political calculus when determining which candidates to support for public office, who to lobby, and when to stand against union interests. For example, prior research suggests that business groups frequently support union-allied candidates for public office (Marianno, 2018). Given the ambiguity around business groups' policy interests in relation to teachers' unions, instead of creating a single measure of opposition group resources, I evaluate school choice advocacy and business group resources separately.

In what follows, I describe the different components of the measures of relative resource strength and the corresponding data sources (summarized in Table 3). I then describe how I construct the resource index for each component using principal components analysis (PCA).

Elections. I generate an overall election score from three measures of interest group political resources. First, borrowing from Hartney and Flavin (2011), I create a measure of what they call "political activism" by dividing the number of campaign contributions from a specific group in a state by the total amount of campaign contributions given to candidates for state legislative offices (adjusted for inflation). This measure has the attractive feature of reflecting the donating strength of an organized interest relative to other interest groups in the state. However, this measure fails to capture how much money interest groups donate to candidates for public office (in absolute terms) and how often interest group-supported candidates are elected. Consequently, I generate two additional measures—the amount of contributions donated by teachers' unions or opposition groups per candidate for legislative office (adjusted for inflation and logged) and the proportion of teachers' union-supported or opposition group-supported candidates elected.[6] The intuition behind this latter measure is that weaker unions are less able to mobilize voter turnout or engage in broad grass roots campaigns among their membership to support their favored candidates, leading to less success at the ballot box.[7]

All data on contributions and election outcomes were derived from the National Institute on Money in State Politics Database (2016) on political spending in state

Table 3. Sources for Measures of Teachers' Union and Opposition Group Resources

Measure	Years	Data Source	Selection of Studies Using Measure
Election			
Proportion of open seats won by interest group allies	Election years (2010–15)	National Institute on Money in State Politics, Follow the Money Database (2016)	
Contributions per candidate	Election years (2010–15)	National Institute on Money in State Politics, Follow the Money Database (2016)	
Proportion of contributions from interest group	Election years (2010–15)	National Institute on Money in State Politics, Follow the Money Database (2016)	Hartney and Flavin (2011); Winkler, Scull, and Zeehandelaar (2012)
Lobbying			
Lobby organization density	2010–15	National Institute on Money in State Politics, Follow the Money Database (2016)	Gray and Lowery (1993, 1995)
Lobbyist per lawmaker	2010–15	National Institute on Money in State Politics, Follow the Money Database (2016)	
Membership (Teachers' unions only)			
Teachers' union membership dues per teacher	2010–15	IRS 990 tax forms, Foundation Center	Lott and Kenny (2013)
Teachers' union spending per student	2010–15	IRS 990 tax forms, Foundation Center	Lott and Kenny (2013); Winkler et al. (2012)
NEA membership rate	2010–15	Antonucci (2017)	Finger (2018), Kleiner and Petree (1988); Renzulli and Roscigno (2005); Shober et al. (2006); Stoddard and Corcoran (2007); Winkler et al. (2012)
Proportion covered by collective bargaining agreement	2010–15	Hirsch and Macpherson (2003)	Kleiner and Petree (1988); Kurth (1987); Nelson and Rosen (1996); Steelman, Powell, and Carini (2000)

politics which includes contributions and outcomes for state house and senate races. Because my outcome measures are measured yearly and the election resources variables (i.e., win rates and campaign contributions) are only available in years in which state elections are held (which, in most states, is every other year), values for the election resource variables are copied for subsequent years until the next state election is held.

The summary statistics for the election variables shown in Table 4 provide some indication for how teachers' union election resources might be changing over time relative to other interest groups. In 2010, 45 percent of open state legislature seats were won by teachers' union allies, but this number dropped to 37 percent by 2014. Comparatively, the proportion of seats won by business allies has remained relatively steady over time and the proportion of seats won by school choice advocates has increased over the same time period (from 7 percent to 14 percent). Notwithstanding losing ground in the proportion of allies in state legislatures, teachers' unions are donating more money to election campaigns—from 1,423 dollars per candidate in 2010 to 1,885 dollars per candidate in 2014. However, business groups and school choice advocates also increased their contributions on a per candidate basis from 2010 to 2014.

Lobbying. Despite the prevalence of lobbying in state legislatures, specific measures of teachers' union or opposition group lobbying efforts are largely absent from the extant literature. New data from the National Institute on Money in State Politics allows researchers to track the number of teachers' unions and opposition groups employing lobbyists and the specific number of lobbyists employed per teachers' union/opposition group in a state. I generate indicators of teachers' union and opposition group lobbying resources by building on Gray and Lowery's (1993, 1995) concept of interest group density—I generate a measure of interest group lobbying density by dividing the total number of teachers' unions or opposition groups actively registered to lobby in a state by the total number of organizations registered to lobby. Because a single organization may maintain multiple lobbyists within their organization, I generate a second indicator of lobbying resources defined as the number of teachers' union or opposition group lobbyists employed per lawmaker in a state.

Summary statistics for all lobbying resource variables are shown in Table 4. While teachers' unions are employing a similar ratio of lobbyists to lawmakers over time, the proportion of lobbying organizations that are registered to teachers' unions has decreased slightly (from 0.64 percent to 0.51 percent). In contrast, school choice and business groups have increased their lobbying presence from 2010 to 2014.

Membership. Large membership bases afford interest groups the opportunity to pursue influence by mobilizing their membership in grass roots efforts to shape election campaigns and legislative proposals (Leighley, 1996; Leighley & Nagler, 2007; Verba, Scholzman, & Brady, 1995). Beyond grass roots campaigns, interest groups with larger memberships are able to derive more resources from the collection of membership dues which they can expend on building a stronger organization.

Because school choice and business groups are not membership organizations, the membership organizing measure is only available for teachers' unions. To

Table 4. Summary Statistics for All Interest Group Resource Variables

		2010	2011	2012	2013	2014	All Years
		Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Election							
Teachers' unions	Proportion of open seats won by allies	44.641 (22.177)	43.129 (21.428)	43.320 (21.236)	43.663 (21.746)	36.841 (21.440)	42.300 (21.609)
	Contributions per candidate	1422.864 (2176.431)	1428.621 (2144.503)	1783.199 (2978.382)	1801.962 (2987.728)	1885.345 (3764.452)	1666.346 (2862.645)
	Proportion of contributions from	1.446 (1.179)	1.397 (1.171)	1.463 (1.474)	1.488 (1.478)	1.394 (1.667)	1.438 (1.398)
School choice advocacy groups	Proportion of open seats won by allies	6.891 (11.506)	6.719 (11.305)	8.801 (13.493)	8.960 (13.423)	13.641 (19.798)	9.019 (14.368)
	Contributions per candidate	199.737 (657.426)	211.297 (652.844)	291.968 (782.010)	293.757 (781.412)	395.095 (775.060)	279.005 (730.321)
	Proportion of contributions from	0.164 (0.588)	0.162 (0.576)	0.195 (0.539)	0.196 (0.538)	0.247 (0.540)	0.193 (0.553)
Business groups	Proportion of open seats won by allies	86.278 (23.278)	86.489 (26.853)	83.788 (26.175)	83.850 (26.200)	83.142 (26.615)	84.697 (25.704)
	Contributions per candidate	5772.491 (7146.041)	6802.446 (9526.518)	8168.804 (10929.970)	8011.200 (10845.270)	7297.187 (9859.028)	7222.022 (9735.971)
	Proportion of contributions from lobbying	5.710 (2.948)	5.769 (2.907)	6.064 (2.990)	6.072 (2.978)	5.603 (3.206)	5.845 (2.990)
Teachers' unions	Lobby organization density	0.647 (0.590)	0.612 (0.421)	0.536 (0.383)	0.527 (0.351)	0.510 (0.332)	0.566 (0.426)
	Lobbyist per lawmaker	0.090 (0.076)	0.085 (0.075)	0.084 (0.080)	0.081 (0.080)	0.089 (0.082)	0.086 (0.078)
School choice advocacy groups	Lobby organization density	0.196 0.263	0.234 (0.256)	0.339 (0.374)	0.349 (0.342)	0.339 (0.375)	0.291 (0.330)
	Lobbyist per lawmaker	0.020 0.035	0.033 (0.056)	0.033 (0.040)	0.050 (0.060)	0.045 (0.058)	0.036 (0.051)

(Continued)

Table 4. (Continued)

		2010	2011	2012	2013	2014	All Years
		Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Business groups	Lobby organization density	13.506 (2.073)	13.754 (2.512)	13.965 (2.662)	14.107 (2.319)	13.867 (2.319)	13.840 (2.375)
	Lobbyist per lawmaker	1.197 (1.646)	1.380 (1.845)	1.202 (1.449)	1.523 (1.908)	1.562 (2.266)	1.373 (1.834)
Membership							
Teachers' unions	Membership dues per teacher	319.708 (222.787)	317.119 (231.033)	314.444 (233.441)	316.908 (239.163)	319.445 (244.401)	317.525 (232.399)
	Spending per student	25.530 (17.115)	24.558 (17.885)	23.946 (17.622)	24.441 (18.151)	24.857 (19.159)	24.667 (17.862)
	NEA membership rate	91.341 (43.317)	88.039 (44.227)	85.782 (44.058)	84.086 (44.600)	83.582 (45.205)	86.566 (44.021)
	Proportion covered by collective bargaining agreement	37.740 (18.337)	36.466 (18.018)	35.796 (18.271)	36.176 (18.862)	36.198 (17.200)	36.475 (18.012)

measure the size of teachers' unions' membership, I draw upon data compiled from National Education Association (NEA) reports by Mike Antonucci (2017). Teachers' union membership rates are defined as the number of NEA members divided by the number of full time teachers employed in a state. To define collective bargaining coverage, I employ data compiled by Hirsch and Macpherson (2003) who use information from the Current Population Survey (CPS) to track the percentage of public employees covered by a collective bargaining agreement in each state from 1973 to 2017. Following Lott and Kenny (2013), I generate a measure of the amount of dues revenue the state teachers' union raises per teacher and the amount of money they expend per student (both logged for use in the measure). The IRS requires nonprofit organizations to report their membership dues revenue and their total expenditures on their 990 tax forms which are publicly available.

Summary statistics for the membership variables (shown in Table 4) reveal that while teachers' unions' dues revenue and expenditures have remained relatively stable over time, teachers' unions are losing membership. The proportion of teachers maintaining membership in the union dropped over the duration of the panel. This is consistent with national trends in teachers' union membership over time (Marianno & Strunk, 2018).

Component Creation. Following Finger (2018), to create the measures of union and opposition group resources, I use principal component analysis (PCA). PCA is typically employed as a data reduction technique when faced with multiple variables that are highly correlated (Julnes, 1999). To create a measure of overall union resource strength, I run PCA collectively on the four membership variables, the three election resource variables, and the two lobbying resource variables. The results from PCA (shown in Appendix Table A2) suggest that the first component captures the most variation in the data at 43 percent, although the first three components all have eigenvalues over one. Components two and three explain an additional 21.90 percent and 14.0 percent of the variation in the nine variables, and all three components collectively explain 78.90 percent of the variation. The four teachers' union membership variables all load highly on component one with correlations of 0.84 or higher. The three election resource variables load the strongest on component two with correlations at 0.59 or higher, and the lobbying resource variables load the highest on component three with correlations of 0.70 or higher. When looking at all the variables on component one, teachers' union lobbying density loads the lowest at 0.14, while all other variables load at 0.39 or higher.[8]

To generate a measure of overall union resources, I predict the score on component one for each state in each year. PCA is done on each year separately to handle the non-independence of the observations in the panel data structure. Consequently, the measure of overall union resources is standardized within year, such that the mean in each year is zero with a standard deviation of one. The measure of overall teachers' union resources is correlated with the measure created by Winkler et al. (2012) at 0.85. I then limit PCA to just the variables within each component. In short, I run PCA on just the three election resource variables to create a measure of election resources and the two lobbying resource variables to create a measure of lobbying

resources. The same process is also followed when creating the measures of school choice advocacy and business group resources (shown in Appendix Tables A3 and A4).

Measure of Relative Resources. To generate specific measures of opposition group resources relative to teachers' unions' resources, I take the difference between the school choice advocacy group or business group resource measures within each year and the overall union resource measure. Because these measures are standardized within year, they are on comparable scales and have a mean of zero and a standard deviation of one. These measures have the attractive property of indicating the relative balance of resources between teachers' unions and their opposition in a state. A positive value on these measures indicates that opposition groups command more resources than teachers' unions within a state. I create similar measures for relative election and lobbying resources by subtracting the school choice advocacy or business group election and lobbying scores from the teachers' union scores on these same measures.

Table 5 shows the states ranked by the relative resource strength of their school choice advocacy groups relative to teachers' unions in 2015. In short, states at the top of column 1 have stronger school choice advocacy groups relative to teachers' unions. The "SD Diff" column (column 3) captures the standard deviation unit difference in resource strength between school choice advocacy groups and teachers' unions. School choice advocacy groups in Tennessee are approximately two standard deviation units stronger than teachers' unions in the state on the overall resource measure. In contrast, school choice advocacy groups in New Jersey are 1.5 standard deviation units weaker than teachers' unions in the state.

Table 5 also shows the relative resource ranks for business groups (column 8) and the absolute ranks for teachers' unions, school choice advocacy, and business groups in 2015 (columns 14, 15, and 16). The last column shows the teachers' union strength rankings from Winkler et al. (2012). My overall union resource rankings (column 14) are correlated with the relative school choice advocacy group resource strength rankings (column 1) at –0.69 and my relative business group resource strength rankings (column 8) at –0.70. If strong opposition group states also had weak teachers' unions then we would expect a near perfect negative correlation between the absolute resource rankings and the relative resource rankings (since lower numbers correspond with better-resourced interest groups and higher numbers indicate poorer-resourced groups). The moderate negative correlation suggests some variation in the resource strength of state teachers' unions and opposition groups. The rankings make clear that in some states teachers' unions are much stronger; in some states they are equally matched; and in some states, they are much weaker than their opposition. For example, Minnesota has the 13th strongest teachers' union (column 14), but its school choice advocacy and business groups are ranked 36th and 44th, respectively (columns 15 and 16). New York has the second strongest teachers' union, but its school choice and business groups are fairly equally resourced (ranked 7th and 8th, respectively). In contrast, Georgia has the second weakest state teachers' union in the nation (49th), but its school choice groups are ranked as the

Table 5. State Rankings on Interest Group Resource Variables (2015)

	(School Choice Advocate Resources—Teachers' Union Resources)						(Business Group Resources—Teachers' Union Resources)						Absolute Overall Resource Rankings			
	Overall Relative Resources		Election Relative Resources		Lobbying Relative Resources		Overall Relative Resources		Election Relative Resources		Lobbying Relative Resources		TU	SC	BU	Winkler
State (1)	Rank (2)	SD Diff (3)	Rank (4)	SD Diff (5)	Rank (6)	SD Diff (7)	Rank (8)	SD Diff (9)	Rank (10)	SD Diff (11)	Rank (12)	SD Diff (13)	Rank (14)	Rank (15)	Rank (16)	Rank (17)
TN	1	2.31	1	2.10	1	1.99	13	0.71	25	0.02	27	0.06	34	2	20	41
TX	2	2.15	5	1.65	31	−0.12	1	1.84	13	0.77	18	0.35	44	4	4	44
GA	3	2.02	2	2.08	3	1.56	4	1.61	3	1.61	7	1.03	49	10	16	45
IN	4	1.98	3	1.99	8	1.13	17	0.61	20	0.24	39	−0.73	23	1	7	31
LA	5	1.57	15	0.46	10	0.96	3	1.67	11	0.91	16	0.42	47	13	9	42
SC	6	1.50	16	0.46	5	1.26	2	1.71	4	1.41	25	0.16	50	19	19	49
AZ	7	1.39	14	0.48	2	1.79	14	0.70	19	0.37	29	−0.10	43	12	32	51
NC	8	1.18	20	0.33	9	1.04	7	1.25	12	0.87	21	0.27	46	20	25	40
OK	9	0.89	24	0.14	4	1.27	19	0.56	23	0.05	12	0.65	39	16	31	43
MO	10	0.87	7	1.01	23	−0.01	9	1.07	10	0.96	5	1.17	42	18	12	38
FL	11	0.77	10	0.76	12	0.80	6	1.25	5	1.31	6	1.09	29	14	3	50
NV	12	0.61	12	0.59	13	0.73	8	1.15	2	1.92	31	−0.23	19	6	1	25
MS	13	0.51	41	−0.76	22	0.05	11	0.91	33	−0.33	10	0.87	45	33	36	46
AR	14	0.43	18	0.39	14	0.66	5	1.38	1	1.93	14	0.54	48	36	21	48
IL	15	0.25	32	−0.52	21	0.15	31	−0.23	49	−1.78	11	0.77	4	3	5	8
MI	16	0.25	22	0.28	6	1.25	32	−0.25	22	0.12	30	−0.14	8	5	10	16
CO	17	0.22	39	−0.74	19	0.56	22	0.17	41	−0.87	8	1.01	28	21	33	35
NM	18	0.22	43	−0.86	27	−0.05	18	0.60	27	−0.04	19	0.32	38	27	28	37
WI	19	0.19	31	−0.39	25	−0.04	20	0.40	24	0.04	32	−0.35	32	25	27	18
ID	20	0.16	21	0.29	18	0.61	16	0.64	6	1.26	13	0.65	41	29	30	36
PA	21	0.12	19	0.38	17	0.63	36	−0.53	40	−0.87	17	0.39	12	8	24	4
UT	22	0.10	23	0.15	50	−2.26	12	0.73	7	1.20	47	−1.59	40	31	26	39
AL	23	−0.02	47	−1.30	37	−0.66	34	−0.44	48	−1.76	48	−1.67	6	9	15	20
CA	24	−0.07	30	−0.36	7	1.19	21	0.30	35	−0.41	2	2.31	9	11	2	6
IA	25	−0.14	6	1.09	30	−0.11	27	−0.15	14	0.76	15	0.47	26	26	37	27
VA	26	−0.16	34	−0.56	42	−1.04	10	0.91	9	0.96	36	−0.56	37	36	13	47
KS	27	−0.23	27	−0.27	35	−0.52	15	0.68	8	1.06	28	0.04	30	32	17	32

(Continued)

Table 5. (Continued)

	(School Choice Advocate Resources—Teachers' Union Resources)						(Business Group Resources—Teachers' Union Resources)						Absolute Overall Resource Rankings			
	Overall Relative Resources		Election Relative Resources		Lobbying Relative Resources		Overall Relative Resources		Election Relative Resources		Lobbying Relative Resources		TU	SC	BU	Winkler
State (1)	Rank (2)	SD Diff (3)	Rank (4)	SD Diff (5)	Rank (6)	SD Diff (7)	Rank (8)	SD Diff (9)	Rank (10)	SD Diff (11)	Rank (12)	SD Diff (13)	Rank (14)	Rank (15)	Rank (16)	Rank (17)
WV	28	−0.23	46	−1.11	36	−0.57	23	0.02	38	−0.73	41	−0.80	36	36	39	13
SD	29	−0.24	36	−0.65	14	0.66	28	−0.16	36	−0.67	4	1.19	35	36	42	34
ND	30	−0.28	4	1.76	40	−0.98	46	−1.43	31	−0.22	20	0.27	33	36	50	24
WY	31	−0.33	29	−0.29	14	0.66	42	−1.28	50	−1.98	3	1.46	31	36	48	29
OH	32	−0.39	33	−0.56	20	0.26	24	−0.11	26	−0.02	24	0.21	18	22	22	12
NY	33	−0.40	13	0.53	11	0.88	37	−0.68	42	−0.97	1	2.61	2	7	8	9
WA	34	−0.52	25	0.13	44	−1.19	33	−0.35	18	0.47	42	−0.87	7	15	11	10
KY	35	−0.61	45	−1.09	39	−0.97	35	−0.47	39	−0.86	49	−1.73	27	36	41	28
VT	36	−0.70	26	0.08	47	−1.47	50	−1.68	46	−1.45	50	−1.99	25	36	49	11
NH	37	−0.72	11	0.74	28	−0.06	45	−1.37	30	−0.18	35	−0.55	24	36	46	30
OR	38	−0.74	37	−0.69	26	−0.05	29	−0.17	28	−0.07	22	0.27	5	17	6	2
CT	39	−0.76	9	0.83	33	−0.23	43	−1.32	21	0.19	37	−0.70	20	30	45	17
MD	40	−0.80	44	−0.87	32	−0.17	26	−0.15	29	−0.08	23	0.26	22	34	29	23
ME	41	−0.87	8	0.93	29	−0.11	48	−1.64	32	−0.23	34	−0.53	21	35	47	22
RI	42	−1.07	35	−0.64	45	−1.44	47	−1.48	47	−1.52	44	−1.26	14	28	43	5
DE	43	−1.08	42	−0.79	34	−0.29	25	−0.15	17	0.48	26	0.13	17	36	23	19
MT	44	−1.18	17	0.45	49	−1.85	41	−1.00	16	0.55	40	−0.74	16	36	40	3
NE	45	−1.21	50	−2.58	46	−1.47	30	−0.20	43	−1.27	38	−0.72	15	36	18	26
MA	46	−1.24	38	−0.72	41	−1.01	44	−1.34	34	−0.35	46	−1.52	3	23	38	21
MN	47	−1.35	40	−0.74	43	−1.05	49	−1.65	45	−1.44	33	−0.51	13	36	44	14
AK	48	−1.39	28	−0.27	48	−1.48	38	−0.77	15	0.60	43	−1.22	11	36	34	15
HI	49	−1.45	48	−1.49	38	−0.83	39	−0.90	37	−0.67	45	−1.32	10	36	35	1
NJ	50	−1.51	49	−1.84	24	−0.04	40	−0.97	44	−1.31	9	0.87	1	24	14	7

Notes. The states in column 1 are ordered by the magnitude of the difference between school choice advocate resource strength and teachers' union resource strength, with stronger school choice advocate states listed first. The SD difference columns represents the standard deviation unit difference in resource strength between a given opposition group and teachers' unions. A positive difference entails that the opposition group is stronger. A negative difference entails that the teachers' union is stronger.

10th strongest and its business groups as the 16th strongest. I would expect teachers' unions in Minnesota to be much more successful in obtaining their state-level policy priorities than teachers' unions in Georgia, and quite possibly, even New York.

Other Independent Variables

I control for several other variables that may make the proposal, passage, and failure of state teacher legislation more likely. Using data from the National Conference of State Legislatures, I account for partisan control of the legislature and the governor's office. Indicators for a Republican-controlled state (the legislature and governor's office are Republican controlled) and a split legislature (the legislature and/or governor's office are split across parties) are placed in the models with Democrat-controlled legislatures (the legislature and governor's office are Democrat controlled) as the reference category. Additionally, I control for citizen ideology using the Berry, Ringquist, Fording, and Hanson (1998) measure. This measure ranges from 0 to 100, with 100 representing the most liberal electorate.[9]

Governments in financial trouble may also exert more pressure to alter teachers' unions' collective bargaining rights, teacher salaries, pension plans, and other policies that tie up state dollars. Consequently, using data from the state financial census, I generate a measure of the debt-to-service ratio (the amount of state debt relative to the amount of state revenue), which provides some indication of the ability of a state to cover their outstanding debts. I also control for the economic health of a state by including a measure of the state unemployment rate.

State legislatures striving to improve education performance may also be more likely to tackle teachers' unions' rights and implement new education reforms. I control for the average National Assessment of Educational Progress (NAEP) math score for each state in the models. Because the exam is only administered every 2 years, I replace the missing year scores with the midpoint score between the year prior and after. Using data from the National Council for Education Statistics, I also control for the size of the K-12 student population in the state (natural logged). States with larger K-12 student constituencies might be more or less reform-oriented in their new policy proposals.

Finally, I include a few controls to account for the unique dynamics of certain state legislatures. First, I control for differences in state legislative session lengths as longer sessions allow for more time to propose and enact legislation. I also include a control for if the state proposed any relevant law in a given year. Because the outcome variables are proportional to the number of laws proposed, states that do not propose any legislation in a year would be missing on all outcome variables. To include these states in the models, I recode these missing states to equal zero and include a dichotomous variable in the model that equals one if the state did not propose any relevant legislation.[10] As Table 2 indicates, this ranges between 0 percent and 12 percent (six states) of states in any given year. Finally, the extant literature has long documented policy spillover effects across states, particularly from states that proximally located (e.g., Berry & Berry, 1990; Nicholson-Crotty & Carley, 2016).

To account for policy spillover, I include controls for the proposal and adoption of teacher policies in neighboring states. These measures are created by taking the average of the outcome variable for all bordering states (i.e., the value for California on the failure rate spillover variable is the average of the failure rate on unfavorable laws in Oregon, Nevada, and Arizona).

Analytic Strategy

To identify the relationship between policy proposals and outcomes and interest group resources over time, I employ a within-state fixed effects model. This model has the advantage of controlling for time-invariant unobserved heterogeneity between states that may shape policy or union strength. The model is estimated as shown in equation (5).

$$Y_{st} = \beta_0 + \beta_1 X_{st-1} + S_{st-1}\beta_2 + \delta_j + \tau_t + \varepsilon_{st} \quad (5)$$

The outcome variable Y_{st} reflects the proportion of teacher policies proposed in a given year or the policy success/failure rate. β_1 is the estimate of the relationship between interest group relative resources, indicated by X_{st-1}, in year $t-1$, on Y_{st}, conditional on S_{st-1}, a vector of time-varying state characteristics in year $t-1$, δ_j, a state fixed effect, and τ_t, a year fixed effect.[11] If conditional on S_{st-1}, δ_j, and τ_t, X_{st-1} is independent from ε_{st}, then β_1 will identify the causal effect of interest—the effect of relative resources on state policy proposals and outcomes. It's important to note, however, that this assumption may not hold. There may be other unobserved time-varying variables that are related to state policy and interest group relative influence that are not accounted for in this model. Consequently, I do not draw causal inferences from the results presented in the next section though I do show a series of robustness checks that strengthen my conclusions.

Results

Table 6 shows the results from equation (5) predicting the proportion of unfavorable laws (columns 1, 3, 5, 7, 9, and 11) and favorable laws (columns 2, 4, 6, 8, 10, and 12) proposed. I first present the results for the measure capturing overall, election, and lobbying relative resource strength for school choice advocacy groups versus teachers' unions (columns 1 through 6) and then I show the same results for business groups versus teachers' unions (columns 7 through 12). Because of the repeated state observations over time, standard errors are clustered at the state level.

Consistent with expectations, Table 6 demonstrates that school choice advocacy groups experience more success in state legislative proposals where they exert more influence relative to teachers' unions. In particular, columns (1) and (2) show that a one standard deviation increase in school choice group resource strength relative to teachers' unions is associated with a 4 percentage point increase in the proportion of unfavorable laws proposed ($p < 0.10$) and a 4 percentage point decrease in the proportion of favorable laws proposed ($p < 0.05$). These effects are slightly larger

Table 6. OLS Regressions of Group Relative Resources on State-Level Policy Proposals (2011–15)

	Prop. Unfav. Laws (1)	Prop. Fav. Laws (2)	Prop. Unfav. Laws (3)	Prop. Fav. Laws (4)	Prop. Unfav. Laws (5)	Prop. Fav. Laws (6)	Prop. Unfav. Laws (7)	Prop. Fav. Laws (8)	Prop. Unfav. Laws (9)	Prop. Fav. Laws (10)	Prop. Unfav. Laws (11)	Prop. Fav. Laws (12)
School choice overall relative resources	4.245+ (2.140)	−4.369* (2.068)										
School choice election relative resources			4.996+ (2.713)	−5.260+ (2.966)								
School choice lobbying relative resources					0.362 (1.751)	−0.595 (1.809)						
Business group overall relative resources							5.529 (7.071)	−5.538 (8.994)				
Business group election relative resources									5.560 (5.671)	−7.107 (6.134)		
Business group lobbying relative resources											0.839 (1.600)	−1.459 (1.777)
Republican control (ref = Democrat control)	−2.780 (6.694)	2.328 (6.589)	−3.095 (6.716)	2.692 (6.679)	1.574 (6.685)	−3.342 (7.114)	−1.299 (6.344)	0.815 (6.257)	−1.330 (6.290)	0.706 (6.216)	1.795 (6.706)	−3.667 (7.095)
Split control (ref = Democrat control)	−1.374 (5.357)	−1.089 (5.900)	−1.179 (5.500)	−1.294 (6.039)	−1.255 (5.339)	−1.189 (5.899)	−0.601 (5.343)	−1.869 (5.856)	−0.054 (5.495)	−2.759 (6.033)	−1.129 (5.290)	−1.393 (5.843)
Citizen ideology	0.127 (0.450)	−0.500 (0.528)	0.172 (0.449)	−0.545 (0.527)	0.193 (0.418)	−0.584 (0.499)	0.216 (0.441)	−0.591 (0.519)	0.248 (0.442)	−0.636 (0.529)	0.204 (0.415)	−0.604 (0.492)

(Continued)

Table 6. (Continued)

	Prop. Unfav. Laws (1)	Prop. Fav. Laws (2)	Prop. Unfav. Laws (3)	Prop. Fav. Laws (4)	Prop. Unfav. Laws (5)	Prop. Fav. Laws (6)	Prop. Unfav. Laws (7)	Prop. Fav. Laws (8)	Prop. Unfav. Laws (9)	Prop. Fav. Laws (10)	Prop. Unfav. Laws (11)	Prop. Fav. Laws (12)
Debt-to-service ratio	−0.270 (0.286)	0.156 (0.318)	−0.285 (0.286)	0.174 (0.321)	−0.175 (0.304)	0.039 (0.338)	−0.263 (0.295)	0.148 (0.324)	−0.261 (0.296)	0.152 (0.330)	−0.175 (0.306)	0.037 (0.341)
Unemployment rate	−0.184 (1.846)	0.462 (1.891)	−0.105 (1.806)	0.380 (1.861)	−0.070 (1.851)	0.360 (1.865)	−0.347 (1.872)	0.626 (1.878)	−0.175 (1.813)	0.421 (1.815)	−0.153 (1.847)	0.515 (1.850)
NAEP math score	−1.470 (1.044)	1.970 (1.298)	−1.316 (1.016)	1.813 (1.260)	−1.205 (1.030)	1.698 (1.319)	−1.233 (1.037)	1.725 (1.292)	−1.013 (1.070)	1.443 (1.325)	−1.111 (1.054)	1.546 (1.294)
Student enrollment (ln)	−122.703 (91.799)	140.305 (98.148)	−155.063+ (85.979)	174.479+ (92.217)	−113.229 (94.350)	124.597 (101.287)	−124.033 (96.573)	141.888 (102.723)	−158.483 (98.925)	188.679+ (104.211)	−123.111 (89.514)	140.008 (96.038)
Session calendar days (ln)	0.924 (2.207)	−0.596 (2.082)	0.589 (2.210)	−0.225 (2.139)	1.239 (2.207)	−0.972 (2.072)	1.065 (2.201)	−0.738 (2.073)	0.755 (2.181)	−0.302 (2.115)	1.265 (2.215)	−1.052 (2.096)
Policy spillover from neighboring states	0.068 (0.119)	−0.059 (0.105)	0.062 (0.118)	−0.062 (0.105)	0.054 (0.120)	−0.033 (0.106)	0.067 (0.121)	−0.062 (0.106)	0.059 (0.120)	−0.068 (0.107)	0.060 (0.120)	−0.017 (0.111)
Control for no laws proposed	X	X	X	X	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X	X	X	X	X
State FE	X	X	X	X	X	X	X	X	X	X	X	X
R-squared	62.21	58.62	62.53	59.00	61.70	58.02	62.07	58.45	62.28	58.87	61.74	58.13
N	248	248	248	248	250	250	248	248	248	248	250	250

Notes. Standard errors are shown in parentheses and are clustered at the state level. The relative resource measures are standardized within year.
$^{+}p < 0.10$; $^{*}p < 0.05$.

when looking specifically at election resources (columns [3] and [4]). A1 standard deviation increase in relative election resources is associated with a 5 percentage point increase in the proportion of unfavorable laws proposed ($p < 0.10$) and a 5 percentage point decrease in the proportion of favorable laws proposed ($p < 0.10$). The effects are smaller for lobbying influence and not statistically significant, but the signs on the coefficients are in the same direction (columns [5] and [6[). Additionally, the results are similar in direction and magnitude when using the business group relative resource measures (columns [7] through [12]), but the coefficients are less precisely estimated and do not reach conventional levels of statistical significance. This may be for the reasons mentioned above. While business group resources are often expended in opposition to union causes, in some cases, their group interests align, leading business groups to support union-endorsed candidates and legislation. In short, measures of business group resources may not provide adequate signal of their stances toward teacher policy.

Table 7 shows the results from equation (5) predicting unfavorable law failure rates (columns 1, 3, 5, 7, 9, and 11), and favorable law success rates (columns 2, 4, 6, 8, and 10). Column (1) shows that a one standard deviation increase in school choice group relative resource influence is associated with a 14 percentage point decrease in the failure rate of unfavorable teacher policies ($p < 0.01$). The effect of school choice group relative resources on the success rate of favorable legislation is not statistically significant but is also negative in direction. I do find that school choice group relative election resources are significantly and negatively related to the failure rate of unfavorable legislation and the success rate of favorable legislation (a change of 9 percentage points [$p < 0.01$] and 6 percentage points [$p < 0.10$], respectively, for a 1 standard deviation increase in relative election resource strength). I also find that the effects are smaller for school choice group relative lobbying resources and not statistically significant, but the signs on the coefficients are in the same direction as the overall and election relative resource effects (columns 5 and 6). Again, the results are similar when using the business group relative resource measures (columns 7 through 12) though the coefficients are less precisely estimated and do not reach conventional levels of significance except for when using the business group election relative resource measure.

Interestingly, I find very few consistent predictors of the proposal or outcome of state legislation among the other state control variables.[12] In short, the only variable that seems to consistently matter is the degree of policy-setting activity in neighboring states, but only with regard to the failure rate of unfavorable legislation. It appears that as the failure rate of legislation in bordering states increases, the less likely a state is to reject unfavorable legislation. This finding runs contrary to the notion that states mimic the policy responses of their neighbors (e.g., Berry & Berry, 1990; Nicholson-Crotty & Carley, 2016). Instead, it appears that unfavorable legislation has a stronger push in states bordering other locales where unfavorable policies have been less successful. This may be because those championing policies that run contrary to union interests are taking cues from the failure of reforms in neighboring states and may adjust their effort and strategies accordingly to ensure that their policy reforms succeed.

Table 7. OLS Regressions of Group Relative Resources on State-Level Policy Success and Failure Rates (2011–15)

	Unfav. FR (1)	Fav. SR (2)	Unfav. FR (3)	Fav. SR (4)	Unfav. FR (5)	Fav. SR (6)	Unfav. FR (7)	Fav. SR (8)	Unfav. FR (9)	Fav. SR (10)	Unfav. FR (11)	Fav. SR (12)
School choice overall relative resources	−13.777** (4.249)	−3.804 (3.226)										
School choice election relative resources			−8.880** (3.025)	−5.885+ (3.224)								
School choice lobbying relative resources					−3.936 (2.423)	−0.446 (2.528)						
Business group overall relative resources							−6.110 (8.773)	−9.600 (10.754)				
Business group election relative resources									−5.936+ (3.438)	−14.355* (5.782)		
Business group lobbying relative resources											−0.325 (2.614)	−1.107 (1.430)
Republican control (ref = Democrat control)	−0.512 (11.776)	18.615+ (10.721)	−1.111 (10.873)	19.274+ (10.921)	1.588 (11.259)	6.611 (12.118)	−3.771 (11.337)	16.813 (10.821)	−3.733 (11.214)	16.461 (11.123)	2.195 (10.724)	6.304 (12.063)
Split control	10.451 (7.214)	−8.386 (6.790)	9.900 (6.734)	−8.561 (6.779)	9.796 (7.427)	−8.493 (7.194)	9.245 (6.955)	−9.670 (7.266)	8.684 (6.843)	−11.616 (7.362)	9.930 (7.003)	−8.678 (7.263)
Citizen ideology	−0.517 (0.427)	0.697+ (0.395)	−0.697 (0.433)	0.664+ (0.395)	−0.793+ (0.454)	0.571 (0.387)	−0.758 (0.482)	0.596 (0.391)	−0.792+ (0.454)	0.494 (0.376)	−0.769 (0.474)	0.556 (0.388)
Debt-to-service ratio	0.883* (0.366)	−0.113 (0.338)	0.877* (0.365)	−0.088 (0.349)	0.941* (0.377)	−0.333 (0.344)	0.824* (0.386)	−0.105 (0.334)	0.823* (0.375)	−0.092 (0.352)	0.927* (0.380)	−0.333 (0.343)
Unemployment rate	−2.661 (1.673)	−3.125 (2.041)	−2.585 (1.701)	−3.263 (2.076)	−1.822 (1.941)	−3.543+ (2.053)	−2.142 (1.882)	−2.909 (1.939)	−2.335 (1.875)	−3.309+ (1.900)	−1.809 (1.934)	−3.429 (2.080)

(Continued)

Table 7. (Continued)

	Unfav. FR (1)	Fav. SR (2)	Unfav. FR (3)	Fav. SR (4)	Unfav. FR (5)	Fav. SR (6)	Unfav. FR (7)	Fav. SR (8)	Unfav. FR (9)	Fav. SR (10)	Unfav. FR (11)	Fav. SR (12)
NAEP math score	0.178 (1.236)	1.210 (1.170)	−0.452 (1.223)	1.096 (1.146)	−0.168 (1.539)	0.756 (1.233)	−0.613 (1.626)	1.006 (1.126)	−0.847 (1.644)	0.445 (1.135)	−0.554 (1.580)	0.636 (1.177)
Student enrollment (ln)	28.623 (99.282)	4.628 (100.316)	72.958 (104.563)	46.738 (94.746)	4.693 (103.009)	−5.327 (98.514)	12.960 (100.452)	15.366 (94.599)	48.545 (113.410)	115.457 (85.953)	10.229 (94.499)	7.616 (98.934)
Session calendar days (ln)	1.226 (2.105)	−0.632 (1.879)	1.725 (1.999)	−0.168 (1.779)	0.822 (2.217)	−1.022 (1.937)	0.934 (2.037)	−0.623 (2.002)	1.293 (2.023)	0.254 (2.142)	1.011 (2.089)	−1.064 (1.910)
Policy spillover from neighboring states	−0.308* (0.126)	−0.053 (0.104)	−0.309* (0.128)	−0.066 (0.102)	−0.308* (0.125)	−0.037 (0.103)	−0.297* (0.132)	−0.052 (0.105)	−0.304* (0.131)	−0.077 (0.102)	−0.311* (0.127)	−0.030 (0.104)
Control for no laws proposed	X	X	X	X	X	X	X	X	X	X	X	X
Year FE	X	X	X	X	X	X	X	X	X	X	X	X
State FE	X	X	X	X	X	X	X	X	X	X	X	X
R-squared	75.66	59.42	75.31	59.89	74.39	57.75	74.44	59.48	74.57	60.90	74.03	57.80
N	248	248	248	248	250	250	248	248	248	248	250	250

Notes. Standard errors are shown in parentheses and are clustered at the state level. The relative resource measures are standardized within year.
$^{+}p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$.

Robustness Checks

Absolute influence measures. To explore whether the results are unique to the method used to capture relative interest group resource power, I run the same regressions but use the school choice and business group, overall, election, and lobbying group absolute resource measures in the models, conditioning on teachers' union absolute resources (versus creating a difference score between opposition group and union absolute resources). Table 8, Panel A shows the results from these models. Each cell presents the coefficient on the opposition group absolute resource measure from a separate regression that includes a control for teachers' union absolute resources. Table 8, Panel A suggests that the results are robust to whether I create a relative measure using a difference score or whether I enter the absolute resource measures for opposition groups and teachers' unions directly in the models.

Top loading variables. To see if the results are robust to using PCA versus single indicators of the different dimensions of relative strength, I run the analysis again, this time using the top loading variable for each dimension of interest group resources from PCA. These results are shown in Panel B of Table 8. The results from this analysis are substantively similar to those obtained when using the measures derived from PCA. I find that the school choice advocacy group relative candidate win rate (the difference between the proportion of school choice group-supported candidates and the proportion of teachers' union-supported candidates who won public office) is positively associated with the proportion of unfavorable laws proposed and negatively associated with the proportion of favorable laws proposed (columns 1 and 2). Similarly, I find that the relative candidate win rate is negatively associated with the failure and success rates of unfavorable and favorable legislation (columns 3 and 4). The results are similar when using the relative business group candidate win rate (columns 5 through 8). I still find no significant effect of lobbying influence on the proposal or enactment of teacher legislation.

Pooled OLS specification. In Table 8, Panel C, I estimate the relationships between relative resources and policy proposals and outcomes in a pooled OLS model that stacks the data and treats each state-year observation as independent. These models test whether similar results are observed in a cross-sectional model that is not identified from change over time. In most cases, the direction of the effects is consistent with the results in Tables 6 and 7; however, these pooled cross-sectional estimates are smaller in magnitude than the fixed effect estimates and are not statistically significant. Thus, employing a modeling strategy that is identified from the year-to-year variation in interest group strength and that takes into account fixed unobserved state characteristics matters when explaining teacher policy proposals and outcomes.

Placebo test. We still may be concerned that the relative resource measures are confounded with the time-varying political conditions of states not accounted for in the models. If true, then the models fail to capture the independent effect of changes to the relative balance of resource power between interest groups on policy change. To explore this further, I replaced my policy outcome measures with the Caughey and Warshaw (2016) Policy Liberalism Score. This measure relies

Table 8. OLS Regressions of Group Influence on State-Level Policy Proposals, Success Rates, and Failure Rates (2011–15)

	Prop. Unfav. Laws (1)	Prop. Fav. Laws (2)	Unfav. FR (3)	Fav. SR (4)	Prop. Unfav. Laws (5)	Prop. Fav. Laws (6)	Unfav. FR (7)	Fav. SR (8)
A. Controlling for Union Absolute Group Resources	School Choice Absolute Resources				Business Group Absolute Resources			
Overall	3.586+ (1.789)	−4.061* (1.793)	−9.370** (3.216)	−3.134 (2.225)	13.158 (7.955)	−15.233 (9.159)	1.901 (7.410)	−9.033 (7.004)
Election	4.132* (1.761)	−4.680* (1.946)	−6.772* (2.975)	−2.716 (2.282)	18.467* (9.032)	−24.040* (10.483)	3.537 (8.394)	−12.572 (8.541)
Lobbying	0.372 (1.835)	−0.962 (1.912)	−4.153 (3.165)	−0.573 (2.902)	0.959 (1.738)	−1.916 (1.981)	1.010 (2.515)	−0.897 (1.420)
B. Relative Resources with Highest Loading Variables	School Choice Groups Relative to Teachers' Unions				Business Groups Relative to Teachers' Unions			
Relative proportion of open seats won by allies	0.258* (0.105)	−0.228+ (0.114)	−0.238+ (0.131)	−0.229+ (0.121)	0.500* (0.188)	−0.385+ (0.198)	−0.205 (0.163)	−0.572* (0.233)
Relative lobbyist per lawmaker	9.562 (24.031)	1.027 (24.280)	−44.384* (21.002)	1.628 (27.103)	−1.278 (1.251)	1.339 (1.548)	1.345 (1.053)	−0.702 (0.866)
C. Pooled OLS Specification	School Choice Groups Relative to Teachers' Unions				Business Groups Relative to Teachers' Unions			
Overall	0.882 (2.263)	−0.509 (1.911)	−0.365 (2.115)	−2.020 (1.964)	−0.274 (2.796)	0.832 (2.737)	−1.159 (2.359)	−2.421 (2.068)
Election	1.012 (1.940)	−1.239 (1.672)	−0.036 (1.669)	−2.387 (1.580)	−0.113 (2.054)	−0.209 (1.876)	−1.444 (1.839)	−3.257* (1.482)
Lobbying	−0.839 (1.691)	1.347 (1.269)	−0.160 (1.792)	−2.086 (1.841)	−1.063 (1.568)	1.418 (1.471)	0.476 (1.470)	−0.314 (1.419)
D. Predicting Caughey & Warshaw Policy Liberalism Score	School Choice Groups Relative to Teachers' Unions				Business Groups Relative to Teachers' Unions			
Overall	0.008 (0.023)				−0.051 (0.064)			
Election		−0.012 (0.025)				−0.102+ (0.051)		
Lobbying			−0.003 (0.015)				−0.000 (0.010)	
Relative proportion of open seats won by allies				0.000 (0.001)				0.000 (0.001)

Notes. Standard errors are shown in parentheses and are clustered at the state level. Each cell is derived from a separate regression model. The resource measures presented in Panels (A), (C), and (D) are standardized within year so that the presented coefficients can be interpreted in terms of standard deviation units.
$^{+}p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$.

on information from 148 state policies to capture the latent liberalism of state policies by year. While this measure does include specific education and labor policies, it also includes policies from other areas (e.g., gun rights, environment, and criminal justice). If my measures of relative resource strength are capturing something about unobserved political conditions, we would expect the measures to be significantly predictive of policy liberalism. The results from these models are shown in Table 8, Panel C. You will note that the estimates are null and close to zero, with the exception of business group relative election resources. This test provides some suggestive evidence that the business group election resource measure could be capturing something beyond the relative election resource strength of state business groups. However, the rest of the measures perform well on this test and further strengthen confidence in the results presented in Tables 6 and 7.

Conclusion

Policy scholars have theorized that shifts in the balance of resources between competing interest groups can lead to changes in the policy status quo (e.g., Baumgartner & Jones, 1991; Sabatier & Weible, 2007), but very few studies have explored how changing power dynamics between interest groups are associated with policy outcomes. Recent shifts in the jurisdictional authority of education policymaking coupled with the rise of new interest groups to challenge teachers' unions provide new opportunities to investigate how changes to interest group resources shape education policymaking (Cibulka, 2001; Galey, 2015; Henig, 2013; McDonnell, 2013). Drawing on a unique self-collected database of proposed and enacted teacher policies linked to novel measures of teachers' union membership, electoral, and lobbying resources, this study estimates the relationship between interest group resources and the proposal and enactment of state legislation across five legislative sessions.

This study provides new evidence for what scholars have theoretically suggested (e.g., Baumgartner & Jones, 2009; Sabatier, 1988; Sabatier & Jenkins-Smith, 1993; Sabatier & Weible, 2007) but for which mixed empirical evidence exists (e.g., Burstein & Linton, 2002; Grossman, 2012; Lowery, 2013)—that interest group resources matter for explaining policy change. I find that more unfavorable teacher policies and fewer favorable teacher policies are proposed and enacted in states where opposition groups are expending more resources relative to teachers' unions over time. The evidence presented in this paper highlights the importance of investigating interest group resource dynamics and policy over multiple legislative cycles, a finding which squares with existing theory. Status quo policies are held into place by dominant interest groups until opposing groups generate sufficient resources and influence to overcome prevailing policy ideas (Baumgartner & Jones, 2009; Sabatier, 1988; Sabatier & Jenkins-Smith, 1993). These dynamics can only be captured by examining *changes* in interest group resources and influence relative to one another and over time.

This study also suggests that the election resources matter more than the lobbying resources, at least in terms of effectuating policy introductions and outcomes. I find no significant effect of lobbying resources on policy proposals or adoptions, even when estimating the relationship over time. This is not to suggest that lobbying has

no influence on policy. Instead, the benefits of lobbying may be much more about marginal changes in the content of policies, which is largely unobserved in this study, versus shaping bill introductions and final policy outcomes. In contrast, election resources have a more direct path of influence. They are designed to secure a body of allied lawmakers who will effectively represent special interests in their policy votes.

Finally, this study has implications for state education policymaking. Long seen as beholden to the special interests of teachers' unions (e.g., Moe, 2011), this study provides some evidence that status quo policies are shifting away from traditional union positions. The rise of new challengers to teachers' unions with specific legislative agendas (e.g., school choice) may unseat teachers' unions' position as defenders of status quo policy in education (Cibulka, 2001; Galey, 2015; Henig, 2013; McDonnell, 2013; Moe, 2011). Instead, teachers' unions may have to go on the offensive by working to elect lawmakers that will secure new and more robust legal protections for their organizations and their membership. The wave of teachers that ran for elected office in the 2018 elections may be symptomatic of this effort (Will, 2018). Alternatively, legal cases like *Janus vs. AFSCME*, which prohibited the practice of agency fee collection from nonunion members, may make it increasingly difficult for teachers' unions to marshal enough resources to defend against opposition interest groups (Marianno & Strunk, 2018). It is entirely possible that a new wave of education policymaking is underway, one that is less beholden to union interests and more representative of new and rapidly expanding interest groups. Future research should continue to investigate the changing role of teachers' unions and other political interests in education politics.

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Notes

1. One primary difference between this database and the one maintained by ECS is that this database includes information on proposed and enacted teacher policies. However, this is not the first database to focus on policy proposals (though it is the first to do so over several teacher policy topics). For example, in his study of policy entrepreneurship, Mintrom (2000) tracked proposed and enacted school choice policies from 1987 through 2002.
2. Duplicate laws were mainly derived from some legislatures that employ the practice of introducing identical bills in two chambers in the same year or by assigning revised legislation a new bill number. In order to avoid double-counting laws, bills that were identical or nearly identical in wording in the same year were removed from the database for the final analysis. In total, 511 duplicate bills were removed from the database.
3. There are other methodological reasons to use the proportional variables versus the count variables. The count variables can be modeled using a Poisson or negative binomial model (because of the presence of overdispersion), both of which rely on maximum likelihood estimation (MLE). MLE performs best in large sample situations. With only 50 states per year across 5 years, the MLE estimates may be biased. A proportional variable transforms the count outcome so that it follows a standard normal distribution, in which case I can estimate the models using ordinary least squares (OLS). The estimates on the relative resource variables from a series of negative binomial models predicting counts of unfavorable and favorable laws proposed, failed, and enacted tend not to reach conventional levels

of statistical significance. Because we would generally anticipate the standard errors derived from MLE to be inflated at smaller samples sizes (Hart & Clark, 1999), the test statistics from the negative binomial model could be artificially low, leading to this result. In most cases, the results from the negative binomial and OLS regressions lead to directionally similar results (available upon request).

4. Adding the proportion of unfavorable laws and the proportion of favorable laws within a given year in Table 2 does not yield 100 percent because of the presence of neutral laws. Laws were categorized as "neutral" if they pertained to the rights of teachers' unions or the scope of collective bargaining agreements but made no substantive changes.
5. For example, Moe (2015) suggests that in order to see that a bill is enacted, policy reformers must ensure that their bills pass multiple phases of the policy process, which includes several committee meetings and votes in both legislative chambers. In contrast, a single committee or floor vote can stifle a bill—interest groups looking to block unfavorable legislation must simply sway one vote.
6. Additionally, we might consider groups' independent expenditures on election campaigns. Unfortunately, reliable data on interest group independent expenditures are difficult to find. The National Institute on Money in State Politics collects some data but has only processed about half of the expenditure reports filed by teachers' unions in some years. For that reason, I exclude independent expenditures from my measures of interest group resources.
7. While an important indicator of interest group power, the proportion of interest group-supported candidates elected to office is also likely endogenous with voter political preferences. I take additional steps to limit this concern. First, I control for citizen ideology in the models using the Berry et al. (1998) yearly measure. Second, I estimate a series of models predicting Caughey and Warshaw's (2016) Policy Liberalism Score. If the proportion of supported candidates elected to public office is confounded with the general state political climate, then we would likely detect a significant effect on policy liberalism. I show that this is not the case in Table 8, which mitigates concerns regarding endogeneity in the measure.
8. Appendix Table A2 presents the unrotated solutions. Given the strong patterns demonstrated in the unrotated solutions, the rotated solutions did not add additional clarity. Appendix Table A5 shows the correlations between the nine union strength variables over time.
9. This measure is an average of elected policymakers' ideology score weighted by the proportion of vote share garnered during their election (i.e., liberal politicians who received a significant portion of the vote share in their district signal a more liberal voting populace).
10. There are 14 state observations in the database with no proposed laws in a given year. Because the zeros from 13 of these observations result from characteristics of state legislative calendars (e.g., biennial legislative sessions, biennial budget sessions, 2-year legislative cycles) versus a lack of legislative activity around teacher policy, creating an indicator for "no laws proposed" controls for this variation. Dropping the no laws proposed indicator from the model or coding these observations as missing yields substantively similar results (available upon request).
11. Variables are lagged 1 year under the assumption that policymakers in year t are likely responding to conditions in $t-1$ when considering new legislation. Results using contemporaneous controls are substantively similar and are available upon request.
12. This may be because of the state fixed effects. The fixed effects account for a large share of the variation in the models. The time-varying variables may simply not change enough over the panel, and therefore, they are being absorbed by the state fixed effects.

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Appendix

Table A1. Coded Legislation Topics

Topic	Describes the substantive topic of the law (categories are not mutually exclusive).
Collective bargaining negotiations	Laws pertaining to the legality of the collective bargaining and the scope, and applicability of collective bargaining agreements for teachers.
Union certification/Management	Laws focused on the rights of teachers to join teachers' unions and the ability of local teachers to organize new employee organizations.
Membership/Right-to-work	Laws relating requirements that employees join unions as a condition of employment.
Strikes	Laws relating to public sector employee strikes or other concerted activities.
Political contributions	Laws relating to financial contributions from public employee unions for political purposes.
Union employee rights	Laws pertaining to specific rights of teachers' union members, including binding arbitration for the resolution of disputes.
Membership dues	Laws relating to the payment and use of union dues.
Teacher/District CBA law	Laws focused explicitly on state legal protections for provisions found in teacher CBAs.
Class size	Laws relating to student/teacher ratios, class size reduction, class size reduction funding.
Evaluation	Laws relating to the implementation or revision of teacher evaluation systems.
Grievances	Laws pertaining to the teacher grievance process.
Layoff/Discipline/Dismissal	Laws relating to layoff, discipline, and dismissal procedures for teachers.
Leave	Laws relating to the amount of job leave given to teachers (i.e., bereavement, sabbatical, personal, etc.).
Non-teaching duties	Laws pertaining to adjunct and other non-teaching duties of full-time teachers, including preparation and collaboration time.
Retirement	Laws relating to teacher retirement systems, retirement benefit amounts, and early retirement incentives.
Salary and benefits	Laws relating to teacher salaries and health benefits, including the implementation of new pay plans.
Performance pay	Laws relating to performance incentives and merit pay plans that link teacher performance with teacher compensation. (A subset of salary and benefit laws.)
School days and hours	Laws relating to the length of the school day, school year, and the number of instructional minutes in the school day/year.
Tenure	Laws governing teacher tenure including the revocation of tenure/lengthening or requiring additional probationary periods.
Transfer and vacancies	Laws relating to hiring, teacher assignments, and the filling of vacancies including voluntary and involuntary teacher transfers.
Working conditions	Laws pertaining to teacher safety and classroom conditions.

Table A2. Eigenvalues and Component Loading on Components from Principal Component Analysis on Teachers' Union Resource Measures (Year = 2011)

	Eigenvalue	Difference	Proportion Variance Explained	Cumulative Variance Explained
Panel A. Overall Teachers' Union Resources Measure				
Factor 1	3.865	1.897	0.430	0.430
Factor 2	1.969	0.706	0.219	0.648
Factor 3	1.262	0.367	0.140	0.789
	Factor 1	Factor 2	Factor 3	Uniqueness
Dues per teacher (ln)	0.931	−0.183	−0.114	0.087
Spending per student (ln)	0.894	−0.342	−0.167	0.055
NEA membership rate	0.894	−0.282	0.021	0.120
Proportion covered by collective bargaining agreement	0.835	−0.317	0.108	0.192
Proportion of open seats won by allies	0.559	0.637	0.006	0.281
Contributions per candidate (ln)	0.316	0.869	−0.185	0.111
Proportion of contributions from	0.388	0.592	−0.388	0.350
Lobby organization density	0.140	0.169	0.702	0.460
# Lobbyist per lawmaker	0.348	0.314	0.730	0.248
Panel B. Election (Year = 2011)				
Factor 1	2.124	1.490	0.708	0.708
	Factor 1			Uniqueness
Proportion of open seats won by allies	0.824			0.321
Contributions per candidate (ln)	0.770			0.147
Proportion of contributions from	0.923			0.408
Panel C. Lobbying (Year = 2011)				
Factor 1	1.324	0.647	0.662	0.662
	Factor 1			Uniqueness
Lobby organization density	0.814			0.338
# Lobbyist per lawmaker	0.814			0.338

Notes. Results from PCA for each component in 2011 are shown in this table. All measures are created by predicting the score for each state in each year on component one. Only factors with eigenvalues over 1.000 are shown in the table. I did not employ any factor rotation. Given the strong loadings onto factor one for each component, the rotated solutions did not add clarity on patterns in the data.

Table A3. Eigenvalues and Component Loading on Components from Principal Component Analysis on Business Group Resource Variables (Year = 2011)

	Eigenvalue	Difference	Proportion Variance Explained	Cumulative Variance Explained
Panel A. Overall Opposition Group Resources Measure				
Factor 1	2.233	1.179	0.447	0.447
Factor 2	1.054	0.210	0.211	0.657
	Factor 1	Factor 2	Uniqueness	
Proportion of open seats won by allies	0.733	−0.254	0.398	
Contributions per candidate (ln)	0.931	−0.001	0.134	
Proportion of contributions from	0.743	0.027	0.447	
Lobby organization density	−0.042	0.914	0.164	
Lobbyist per lawmaker	0.525	0.393	0.571	
Panel B. Election (Year = 2011)				
Factor 1	2.059	1.388	0.686	0.686
	Factor 1		Uniqueness	
Proportion of open seats won by allies	0.775		0.399	
Contributions per candidate (ln)	0.916		0.160	
Proportion of contributions from	0.786		0.382	
Panel C. Lobbying (Year = 2011)				
Factor 1	1.630	1.260	0.815	0.815
	Factor 1		Uniqueness	
Lobby organization density	0.903		0.185	
Lobbyist per lawmaker	0.903		0.185	

Notes. Results from PCA for each component in 2011 are shown in this table. All measures are created by predicting the score for each state in each year on component one. Only factors with eigenvalues over 1.000 are shown in the table. I did not employ any factor rotation. Given the strong loadings onto factor one for each component, the rotated solutions did not add clarity on patterns in the data.

Table A4. Eigenvalues and Component Loading on Components from Principal Component Analysis on School Choice Advocacy Group Resource Variables (Year = 2011)

	Eigenvalue	Difference	Proportion Variance Explained	Cumulative Variance Explained
Panel A. Overall Opposition Group Resources Measure				
Factor 1	2.537	1.390	0.508	0.508
Factor 2	1.147	0.485	0.229	0.737
	Factor 1	Factor 2	Uniqueness	
Proportion of open seats won by allies	0.835	−0.315	0.204	
Contributions per candidate (ln)	0.908	−0.057	0.172	
Proportion of contributions from	0.704	−0.478	0.276	
Lobby organization density	0.482	0.629	0.372	
Lobbyist per lawmaker	0.538	0.648	0.291	
Panel B. Election (Year = 2011)				
Factor 1	2.241	1.742	0.747	0.747
	Factor 1		Uniqueness	
Proportion of open seats won by allies	0.897		0.196	
Contributions per candidate (ln)	0.890		0.208	
Proportion of contributions from	0.803		0.355	
Panel C. Lobbying (Year = 2011)				
Factor 1	1.366	0.733	0.683	0.683
	Factor 1		Uniqueness	
Lobby organization density	0.827		0.317	
Lobbyist per lawmaker	0.827		0.317	

Notes. Results from PCA for each component in 2011 are shown in this table. All measures are created by predicting the score for each state in each year on component one. Only factors with eigenvalues over 1.000 are shown in the table. I did not employ any factor rotation. Given the strong loadings onto factor one for each component, the rotated solutions did not add clarity on patterns in the data.

Table A5. Bivariate Correlations between Nine Union Resource Variables (2010 and 2011)

	2010									2011								
	Membership				Election			Lobbying		Membership				Elections			Lobbying	
	Dues	Spend	Mem	Cov	Win	Per	Prop	Den	Per	Dues	Spend	Mem	Cov	Win	Per	Prop	Den	Per
Dues per teacher (ln)	1.00																	
Spending per student (ln)	0.95	1.00																
Member rate	0.84	0.87	1.00															
CBA coverage	0.74	0.77	0.80	1.00														
Win rate	0.33	0.22	0.27	0.28	1.00													
Contrib per candidate (ln)	0.22	0.13	0.25	0.20	0.48	1.00												
Prop. contrib teachers' union	0.28	0.25	0.19	0.03	0.39	0.64	1.00											
Lobby density	0.15	0.17	0.26	0.27	0.08	−0.13	0.00	1.00										
Lobbyist per lawmaker	0.23	0.13	0.32	0.29	0.46	0.17	0.09	0.45	1.00									
Dues per teacher (ln)	0.99	0.95	0.84	0.75	0.35	0.22	0.27	0.15	0.22	1.00								
Spending per student (ln)	0.94	0.98	0.85	0.79	0.21	0.18	0.24	0.15	0.11	0.95	1.00							
Member rate	0.84	0.87	0.99	0.82	0.26	0.24	0.15	0.27	0.31	0.84	0.86	1.00						
CBA coverage	0.73	0.75	0.78	0.98	0.31	0.19	0.02	0.24	0.29	0.74	0.77	0.80	1.00					
Win rate	0.34	0.24	0.28	0.29	0.97	0.48	0.40	0.03	0.46	0.36	0.24	0.27	0.31	1.00				
Contrib per candidate (ln)	0.19	0.11	0.24	0.18	0.48	0.99	0.64	−0.14	0.17	0.19	0.15	0.23	0.18	0.45	1.00			
Prop. contrib teachers' union	0.31	0.27	0.21	0.06	0.37	0.64	0.99	−0.01	0.10	0.29	0.26	0.18	0.04	0.41	0.62	1.00		
Lobby density	0.07	0.02	0.10	0.09	0.06	−0.10	0.13	0.76	0.28	0.06	0.02	0.09	0.06	0.03	−0.11	0.12	1.00	
Lobbyist per lawmaker	0.17	0.08	0.24	0.28	0.38	0.09	−0.02	0.33	0.84	0.17	0.07	0.24	0.27	0.38	0.10	−0.01	0.32	1.00