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Paul Manna and Timothy Harwood

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What is This?

Governance and Educational Expectations in the U.S. States

Paul Manna[1] and Timothy Harwood[2]

Abstract

This article analyzes the relationship between U.S. state governance and policies designed to enhance educational expectations. It examines three policy areas: state participation in voluntary National Assessment of Educational Progress testing, state testing requirements for new teachers, and state high school graduation requirements in math and science. In general, it identifies associations between state institutional and political characteristics and the state policies under study. In particular, state policies that impose higher demands on local school districts are more likely to be present in states with more centralized control of their K–12 systems. Furthermore, state partisanship appears to suggest that Republicans favor policies that push power to lower levels of the U.S. intergovernmental system.

Keywords

governance, institutions, partisanship, education policy

Since the 1970s, three trends have helped shape elementary and secondary (K–12) education policy in the U.S. states. First, reformers inside and outside government have supported increasing expectations for students, teachers, and schools. These concerns have flowed from evidence of persistent achievement gaps between student groups (Jencks and Phillips 1998) and intense pressures to compete economically on a global stage (National Commission on Excellence in Education 1983). Second, state leaders have attempted to increase their control over education policy. Whereas school districts historically have wielded much discretion over funding, testing, and

[1]College of William & Mary, Williamsburg, VA
[2]Editorial Projects in Education, Bethesda, MD

Corresponding Author:
Paul Manna, College of William & Mary, Department of Government,
Thomas Jefferson Program in Public Policy, PO Box 8795, Williamsburg, VA 23187
Email: pmanna@wm.edu

curriculum, states have expanded their influence over local practices, moving some scholars to wonder if school districts themselves are becoming an obsolete institutional form (Howell 2005). Federal power also has increased and has magnified state influence given that federal education policy usually delegates crucial implementation choices to state governments (Manna 2006). Finally, governors have become more visible and aggressive in developing state education policy agendas. Generally speaking, state politics scholars now see governors as "innovators" (Beyle 1988, 131) and "potent political figures" (Dometrius 1999, 52). Such descriptions are especially apt in education (Henig 2009).

These three trends all accelerated after 1983. In that year, the National Commission on Excellence in Education published its famous report, *A Nation at Risk*. Warning that lower student achievement jeopardized the nation's economy and security, among other things the commission encouraged states to improve their graduation rates, strengthen math and science requirements, and make teacher preparation programs more rigorous. Three years after *A Nation at Risk*'s release, in 1986 education policy was the main focus of the annual meeting of the National Governors' Association. From that gathering the governors produced their own report that expressed concerns about economic competitiveness and the need to increase educational expectations (National Governors' Association 1986). A wave of state reforms ensued (Murphy 1990), and subsequently governors emerged as key educational leaders at the 1989 National Education Summit with President George H. W. Bush (Manna 2006). Such state-level initiatives for education reform, led primarily by state chief executives, have continued to the present day.

Still, state policy changes have moved at different speeds. Cross-state differences motivate our research question: What explains variation in state policies designed to increase educational expectations? This article addresses that question by examining the relationship between state education governance and state policies in three areas: participation in voluntary National Assessment of Educational Progress (NAEP) tests, which are federally sponsored tests in reading and math that allow for cross-state comparisons of achievement; testing for new teachers in four key areas; and high school graduation requirements in math and science. Each policy approaches expectations from a slightly different angle, focusing on transparency of overall state performance (NAEP), training prospective educators (teacher exams), or encouraging individual students to take rigorous courses (graduation requirements). Each policy also has different implications for the relationships between principals in state government and their agents in local school districts. By considering those diverse policy levers across many years of time, we provide a robust analysis of institutional and partisan elements of governance that scholars have studied in other contexts (Heinrich and Lynn 2000).

Interestingly, prior research examining state governance and education policy has been limited, despite calls to consider these matters more deeply (Masters, Salisbury, and Eliot 1964). Instead, much work has addressed how federal and state governance has affected the development and implementation of federal policy (Manna 2006; McGuinn 2006). Local governance has received much attention, too,

including mayoral control of schools (Henig and Rich 2004; Wong, Shen, Anagnastopoulos, and Rutledge 2007), the use of markets and school choice (Chubb and Moe 1990), and even electoral dynamics in school districts (Marschall, Ruhil, and Shah 2010). Furthermore, the relationship between state governance and policy outputs or outcomes in higher education has received more sustained attention (Hicklin and Meier 2008; Knott and Payne 2004; Lowry 2001; Nicholson-Crotty and Meier 2003). Work on state governance of K–12 education does exist, yet most has been descriptive and has not engaged broader theoretical discussions about institutions, politics, and policy (Campbell and Mazzoni 1976; Epstein 2004).

We begin our analysis by offering a theoretical perspective that considers why institutional and partisan dimensions of state education governance should be associated with NAEP participation, teacher exam policies, and graduation requirements. Ensuing sections describe our data and methods, present our results, and discuss overall implications. In general, we find associations between state institutional and political characteristics and the state policies under study. In particular, state policies that impose higher demands on local school districts are more likely to be present in states with more centralized control of their K–12 systems. In short, states that are more empowered tend to demand more of their local agents. Furthermore, our partisanship measures suggest that Republicans tend to favor education policies that push power down to lower levels of the U.S. intergovernmental system.

U.S. State Principals, Local Agents, and Education Policy

Education remains a formal state responsibility despite its present status as a growing national concern and its history as a primarily local function. The federal constitution fails to mention education in any of its articles or amendments, while state constitutions commonly address it in detail. Essentially, local districts are administrative agents of the states that help state leaders fulfill their responsibilities to provide free public education (Briffault 2005). Certainly, local school districts can serve multiple principals, including federal government officials and voters who elect school board members. Still, given that states can create, destroy, or combine school districts, they retain ultimate authority over districts' existence. Thus principal–agent theory, as it is commonly used to study federal–state relations, provides a useful lens to understand the state and local dynamics of education governance.

Conflicts between state principals and local district agents can emerge when the constitutional powers that state policy makers possess clash with traditions and citizen preferences for local control of schools. Residents in local communities often resent and even resist state efforts to advance particular visions of educational excellence or high expectations (Howell 2005). Complaints frequently emerge from a Jeffersonian desire for local autonomy to make substantive decisions about how to organize schools, define the curriculum, and teach children. They also emerge from concerns that state policies will create unanticipated consequences and overbearing bureaucratic demands

that sap local resources but fail to improve student learning. Next we identify three state institutional features likely to influence state leaders' abilities to be coherent and assertive principals over their local school district agents.

Gubernatorial Appointment Powers

The degree to which governors are empowered to select the leaders of state education agencies and members of state education boards can influence the relationship between state principals and local agents, thus affecting the development and implementation of education policy. State education agencies exist in all states with leaders commonly known as chief state school officers or state superintendents. These officials are responsible for many things including interacting with federal administrators in Washington, crafting regulations to guide implementation of state and federal policy, distributing funds to school districts, providing technical assistance to districts and schools, and monitoring or auditing local activities. In some states, governors may appoint state chiefs. In others, state chiefs are independently elected or appointed by state education boards, much as local school boards name district superintendents.

Presently, all but two states (Minnesota and Wisconsin) have state education boards. These policy-making bodies commonly have power to design state standards for teaching and learning, adopt standardized tests and set cut scores defining different levels of achievement, certify test results that evaluate overall school performance, and craft policies that oversee the teaching profession. Like state chiefs, in some states governors may appoint state education board members, while in other states voters elect them. A handful of states use different approaches, as in New York where the state legislature selects the board.

In considering the implications of chief and board selection methods on state policy, it is useful to remember that governors are chief executives whom voters elect as the singular leaders of government. As such, the demands facing governors parallel those of presidents and mayors because governors are the only state officials responsible for administering the affairs of the entire political unit (the state) they represent (Beyle 1988; Dometrius 1999). In contrast, state legislators, like legislators generally, are more narrowly interested in serving their districts, which limits the range of policy areas they engage (Fenno 1978; Rosenthal 1998). State supreme court justices may have consequential responsibilities in entire states, yet citizens look to judges to answer specific questions about which laws are permissible, not whether government bureaucracies are likely to implement them well (Wilson 1989).

The recognition that voters will hold chief executives accountable for policy results has moved presidents, mayors, and governors to crave increased control of the administrative agencies of government (Lewis 2007; Wattenberg, McAllister, and Salvanto 2000; Wilson 1989). In education policy, mayors and governors (and to some degree presidents) have made strikingly similar arguments in that regard (Henig 2009). In theory at least, a governor empowered to appoint the state education agency leader and board members is likely to enhance accountability by providing a single point for

citizens and administrative agents in local school districts to focus their concerns. Governors with such powers have greater chances to build coalitions to develop a coordinated set of policy priorities for the state education agency and for the board to advance. These arguments parallel the claims of urban mayors who have argued for greater control over city school systems by abolishing or curtailing the power of local boards and allowing mayors to name the local superintendent (Henig and Rich 2004; Wong et al. 2007).

States that enable governors to select the education chief and board members create the potential for state leaders to speak and make policy with a more unified voice and thus attenuate the problems that multiple principals can create for local bureaucracies (Wilson 1989). Greater coherence at the top minimizes the potential for local districts to receive mixed signals about policy expectations. Such confusion can stoke animosity from hostile district leaders or even undermine the ability of more cooperative local districts to carry out the state's policy program. The existence of multiple principals also enhances the chance that savvy local officials will play state leaders off each other to block or derail policies that local officials dislike.

Institutionally, governors with strong hands to name state education chiefs and board members can enable state governments to be assertive and coherent principals in relation to their local agents. Thus, the roles of state chiefs and board members, governors' general desires to manage states' educational affairs, and increasing gubernatorial interest in promoting educational rigor suggest our first hypothesis:

> *Hypothesis 1:* States where governors can appoint state chiefs and state board members will be more likely to have education policies promoting high expectations.

Education Finance

Another institutional factor that influences states' ability to be assertive principals is the amount of funding they contribute to K–12 education. In some places, state appropriations provide the largest part of school district budgets. In others, school districts themselves, and therefore local property taxes, play a bigger role. In the 2006-2007 school year, 30 states provided between 40% and 60% of the revenues for their public schools. At the high end were Vermont and Hawaii, which provided 85.9% and 89.7%, respectively; Nevada and Illinois were at the other extreme at 26.9% and 30.5%, respectively (U.S. Department of Education 2009). Since the 1970s, legislatures and governors have adopted numerous financing reforms often responding to state supreme court decisions that ordered a more equitable distribution of funds. As a result, states increasingly have assumed a larger funding role compared to local communities (Hanushek and Lindseth 2009). Still, state and local contributions vary across the states.

Because states vary in the amount of K–12 education revenues they supply, states wielding greater financial power provide their leaders with more leverage in the

principal–agent relationship that exists between them and their school districts. All governments require funding to enact programs that their constituents desire. State leaders that bear more of the financial burden for education are better positioned to advance their priorities than are those in states in which local revenues dominate. Policy makers at all levels of government frequently refer to this dynamic as the golden rule: namely, he who has the gold gets to make the rules. It is more difficult for local communities to make autonomous decisions about education policy when state dollars provide the bulk of their school budgets. Agents that lack the financial freedom to operate independently will likely be more responsive to demands from their principals on whom they depend. Essentially all grant programs are based on this premise (Beam and Conlan 2002).

In contrast, where local communities supply most school funding, state elected officials would face much criticism—and, likely, challenges at the ballot box—were they to issue demands that seem disproportionate to their financial contributions. As a result, due to resentments and an interest in focusing on local educational priorities, local agents would have many reasons to resist state leaders' desires for high expectations as state officials have defined them. Certainly, some local communities might embrace the state's view. But those sentiments would not necessarily be evenly distributed across a state, especially where state funding is low and local communities prefer to fund other initiatives rather than increase graduation requirements in math and science, for example. Even where local communities generally support state views, they may still resent having the state impose those ideas through laws or administrative rules. The nature of education funding arrangements in the states leads to the following hypothesis:

> *Hypothesis 2:* States with greater responsibility for education finance will be more likely to have education policies promoting high expectations.

Administrative Fragmentation

A final institutional feature influencing the relationship between state principals and local agents is the degree to which the administration of schooling is centralized or decentralized. This is different than the funding question because a state could provide all of the revenues for its schools and yet support either a centralized or fragmented network of organizations to teach its students. Because school districts administer state education policies, the number of districts could influence state leaders as they consider whether to uniformly increase expectations across all districts. In short, for political, administrative, and even cognitive reasons, fragmentation can make it difficult to design and impose more uniform, rigorous standards (Jones 2001).

By the mid-1900s, a wave of centralizing reforms had substantially reduced the number of school districts in the United States, and after that period some states continued to consolidate many smaller districts into fewer larger ones. Considering the 2006-2007 school year again, nearly 14,000 school districts were operating nationwide. Among the states, California (989) and Texas (1,033) operated the most, although state

totals were not necessarily strongly associated with state size. For example, Illinois operated 873, Oklahoma had 540, Iowa possessed 365, and another large state, Florida, operated only 67 (U.S. Department of Education 2009).

The presence of many districts would suggest that a state values local judgments, policy customization for diverse environments, and deference to authorities close to the ground. Adoption of uniform state demands would seem to undermine such values and stoke political resistance. Furthermore, maintaining many school districts in the field would also complicate implementation of state policies to demand higher expectations. In states with more districts, answering local questions and offering regulatory guidance would become a potentially time-consuming activity for already stretched state education agencies (Lusi 1997). Also, state legislators' offices would have to burn valuable time to perform constituency service or offer technical assistance as districts complain or pose questions (McCubbins and Schwartz 1984). Thus, state leaders might be persuaded to maintain lower expectations—which districts would likely support anyway and some would probably exceed—to avoid implementation challenges.

The existence of many districts also tends to produce more heterogeneous preferences across districts for state leaders to address. States that have created school district boundaries coterminous with county lines, for example, will likely face more consistent demands than states where districts can be more varied. More districts can increase diversity of opinions across district lines while making it more homogeneous within any given district and, therefore, easier for individual districts to present a more united front in defending their autonomy against potential state intrusions (Olson 1965). Considering the degree of administrative fragmentation in a state generates our next hypothesis.

> *Hypothesis 3:* States with fewer school districts will be more likely to have education policies promoting high expectations.

Party Governance and Education Policy

In addition to the principal–agent relationships between state governments and local school districts, we also expect that the partisan composition of state governments may influence the presence of the state policies we are studying. Several scholars have documented the relationship between state partisanship and the content of numerous state policies across time (Bali and Silver 2006; Erikson, Wright, and McIver 1993; Jacoby and Schneider 2001). Still, the relationship between party control and state policies to promote high educational expectations is not immediately obvious. The reason is that prior state research examining education and partisanship tends to focus on party differences over education spending (Berkman and Plutzer 2005; Erikson et al. 1993; Jacoby and Schneider 2001). On that specific issue, research has consistently found that Democrats tend to favor more education funding than do Republicans. However, it is unclear how partisanship will influence state decisions

to adopt policies regarding educational expectations. Scholars have uncovered similar dynamics in other reform areas, such as school choice or national education standards, in which members of both major parties have supported varying forms of these ideas (Mintrom and Vergari 1998; Ravitch 1995). With no clear perspective seeming to dominate, we see three plausible competing views about the relationship between partisanship and state policies for high expectations.

The first view holds that Republican leaders would be less likely to advance policies to promote high expectations across an entire state. Deciding to adopt uniform expectations would, in practice, decrease local control while increasing state-level administrative costs needed to craft and monitor local implementation of state requirements. Both ideas would tend to cut against the Republican Party's philosophical affinity for limited government, a desire to empower local communities to decide how to educate their children, and a preference for market-oriented rather than system-oriented solutions to educational challenges (Spring 2002). In principle, Republicans would not necessarily oppose advancing high expectations, but in this view they would simply resist having the state mandate dictate what those expectations should be.

In contrast, one might also imagine that Republican leaders would be more likely to advance state policies to promote high expectations. This second view emerges when one considers how the reformist energies of the 1980s have played out during the past three decades, in which education has become an increasingly important item on the political and policy agenda (Manna 2006). Education reform before the 1980s largely focused on funding and civil rights questions—areas where Democrats held large advantages (Petrocik 1996) in part due to the legacy of Lyndon Johnson's leadership and advocacy from the National Education Association, a powerful Democratic supporter. However, the general push for higher expectations following *A Nation at Risk* allowed Republicans to challenge Democratic advantages in education by strategically aligning state-level policy making with the interests of a traditional Republican ally, the business community, whose concerns about economic competitiveness have come to weigh heavily in education policy discussions. Embracing an agenda to increase demands on students and teachers would have enabled Republicans to introduce education policies to meet the concerns of business, prompting greater transparency via NAEP testing, emphasis in math and science in high school, and more demanding standards to ensure teacher quality. Politically, Republicans also may have seen virtues in using these policies to challenge entrenched traditional power centers in education—namely, the policy subsystems controlled by teachers' unions, Democratic politicians, and state education agencies (Baumgartner and Jones 1993).

Finally, Republicans and Democrats may be equally likely to promote state policies embracing higher educational expectations. This third view seems plausible when one considers the important leadership role in education that governors began taking in the 1980s. That movement among governors was generally bipartisan, as illustrated by the governors' unified advocacy at the national education summit with President Bush in 1989; their leadership of the National Education Goals Panel (a body created in the wake of the summit); and their development of other organizations such as Achieve, a

nonpartisan group that business leaders and governors of both major parties formed in the 1990s to advance the cause of high standards and educational accountability. Some have argued that the passage of the federal No Child Left Behind Act of 2001 illustrates and solidly affirms the national bipartisan consensus for increased expectations that had been emerging given that George W. Bush, a conservative Republican president, as well as liberal and Democratic stalwarts Senator Edward Kennedy and Representative George Miller were such strong advocates of the act, which embraced notions of transparency of educational performance, high expectations for all students, and teacher quality (McGuinn 2006).

Alternative Explanations

Our examination of governance focusing on principal–agent relationships and state partisanship provides two ways to understand state adoption of policies to promote higher educational expectations. Other potential approaches to examining this issue, which we do not pursue here, are possible and worth noting in light of other literature on state institutions, policy leadership, and the spread of policy innovations.

Our hypothesis about the institutional power of governors focuses on the ability of governors to name the chief state school officer and members of the state education board. Whereas those powers may be important, it is possible that the specific laws and administrative rulings that define the boundaries of state agency and state board powers, vis-à-vis the governor, are equally or more crucial than a governor's appointment powers. Prior state policy research on gubernatorial powers, in particular on the relative strength or weakness of governors in other areas, suggests as much (Beyle 1988). In education, a governor's appointment of an agency chief who is constrained by prior laws or administrative procedures may put a governor in a weaker position than a governor who cannot name the chief but who nevertheless wields much power over agency behavior. Despite that potential reality, our focus on gubernatorial appointment powers was driven by three interests. First, because the effect of gubernatorial appointments on the state policies we identified has not been studied empirically, we believe that our approach helps establish a meaningful baseline measure of the potential relationships upon which other research might build. Second, governors frequently argue that these appointment powers matter, so we wanted to examine that claim directly. Finally, our ability to examine more nuanced relationships between governors, chiefs, and board members was limited given our desire to study policy changes across all 50 states and many years. Getting accurate and comparable measures of those relationships was simply too difficult given our scope.

Another angle we leave unexplored emerges from the literature on mayoral control of local schools (Henig and Rich 2004; Wong et al. 2007). Theoretically, enhancing mayors' institutional control over education may help them promote higher expectations and school performance, just as we noted for governors. But authors in this literature recognize that those outcomes depend not only on the array of institutions that mayors control but also on their interest in education and their competence to make smart policy decisions. By analogy, one could make identical claims about governors who enjoy the

power to appoint state chiefs and board members or about legislatures in states that rely heavily on state funding for their schools. Promoting higher educational expectations may depend on institutional or partisan dimensions of governance, as we maintain, but it also may require smart and motivated policy entrepreneurs in the governors' mansions and in key state legislative committees. Again, due to the challenges associated with studying policy changes across all states and several years as well as the difficulty of getting good measures of state leaders' policy interest or skills, we have not accounted for such issues.

Finally, our study focuses on internal state conditions that may influence policy. Given the literature on policy diffusion and innovation we recognize that cross-state dynamics may affect states' decisions to adopt education policies promoting high expectations (Gray 1973; Karch 2007; Mintrom and Vergari 1998). Our prior discussion of the influence of the National Governors' Association, for example, suggests that cross-state communications have played a role in how governors have developed their education policy agendas. As noted earlier, given the dearth of literature on the relationship between state education governance and policy outputs in K–12 education, we thought that a focus on the potential links between internal state conditions and state policy was a reasonable place to start.

Dependent Variables

We test our three principal–agent hypotheses and examine our competing views on partisanship using dependent variables measuring the presence of state policy in three areas, all measured as dummy variables coded 1 if a state possessed the policy in a particular year and 0 if not. The first, state participation in voluntary NAEP testing, focuses on the willingness of states to make their students' relative educational performance more transparent. States subjecting themselves to such measurement would facilitate comparisons with other states and thus provide information to help gauge whether expectations were high enough. Voluntary state NAEP testing existed every other year from 1990 to 2002, which provides seven time periods for us to consider, and has focused primarily on 4th and 8th grade reading and math. After that time, the No Child Left Behind Act made state participation in NAEP a required condition for receiving key federal education aid. NAEP is jointly administered and funded by the U.S. Department of Education and the states. Its results are based on the performance of representative samples of students within each state. NAEP's content and sampling design make it the only test for which results are comparable across states and across time. Our data on state participation come from the NAEP website.[1] As Part A of Figure 1 shows, a majority of states has always participated, yet the numbers did increase during the years we consider.

Our second category of dependent variables examines state requirements for new teacher testing. We analyze four types of exams that states have required prospective teachers to take: basic skills; specific subject-matter knowledge relevant to what a teacher teaches; general knowledge; and knowledge of teaching, which addresses the practice of teaching itself. Our data come from a publication of the National Association
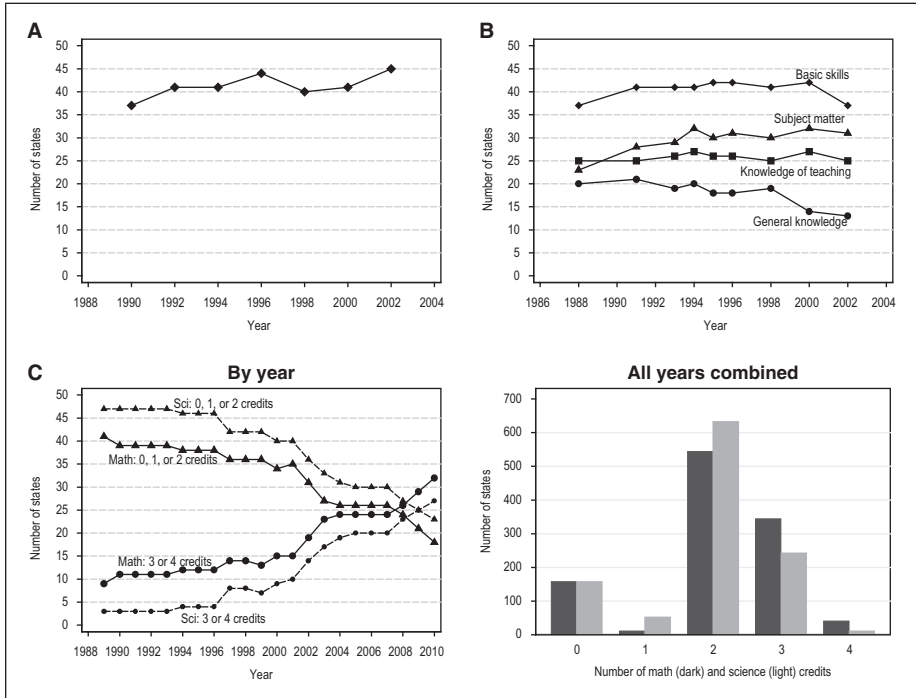
Figure 1. U.S. state education policies in three areas. A. Voluntary NAEP testing, 1990 to 2002. B. State exams for new teachers, 1988 to 2002. C. Math and science credits required by states for high school graduation, 1989 to 2010.

Source: Part A: Authors' coding using data from the National Assessment of Educational Progress, last accessed April 2010 from http://nces.ed.gov/nationsreportcard/about/statehistorypublic.asp. Part B: Authors' coding of data from the *NASDTEC Manual* (various years). Part C: Authors' coding of data from the U.S. Department of Education's *Digest of Education Statistics* (various years), state policy documents, and press reports.

Note: Additional information on these patterns of change is available on the corresponding author's website and at the *State Politics & Policy Quarterly* website.

of State Directors of Teacher Education and Certification (NASDTEC) known as the *NASDTEC Manual* (n.d.), which provides summary information about each state and has appeared at irregular intervals since the 1980s. We focus on available years from 1988 to 2002, which yields nine time periods in all. We stopped at 2002 because of new teacher quality requirements in the No Child Left Behind Act that affect state teacher testing. We were interested in studying state policy absent this federal influence. Part B of Figure 1 describes changes in the number of states requiring each test for prospective teachers. Basic skills exams have been the most popular, followed by exams focusing on subject matter knowledge, knowledge of teaching, and general knowledge. We examined each type of test individually by creating four dummy variables, coded 1 in each year a state required a specific test and 0 otherwise.

Our final category of dependent variables focuses on state high school graduation requirements in math and science, measured in Carnegie Units. We examine these requirements for 22 years during the period 1989 to 2010. Our primary data sources are the annual editions of the *Digest of Education Statistics*, published by the U.S. Department of Education, official state documents, media coverage of state policy changes, and a few e-mail contacts with state education agency staff.[2] We examine 1989 to 2010 for a couple of reasons. As a practical matter, it is difficult to find requirements for all states and years before 1989. More substantively, there is typically at least a 4-year lag between when states change graduation requirements and when the requirements take effect. Thus, by starting with the high school graduating class of 1989, we begin our series when students would have begun experiencing requirements adopted after *A Nation at Risk* and related reports were published.

Part C of Figure 1 summarizes changes in state expectations for math and science courses in two different ways. The line graph shows that states increased requirements in both areas, although math expectations accelerated sooner and have been higher across all years. Combining all states and years, the bar graph of Figure 1, Part C reveals a pattern that guides our subsequent analysis. A break appears to exist between requiring two or fewer versus three or more credits in math and science. Only recently have a majority of states required more than two credits. Given that substantive discontinuity, we analyze state math and science requirements as dummy variables. For math, we coded states as 1 in each year they required more than two credits for graduation, and 0 if they required fewer. We coded science requirements the same way.

Finally, although we describe our dependent variables as measures of "high expectations," actual implementation can influence how much rigor state policies promote. That is particularly true regarding teacher exams and graduation requirements. A state can require more math, for example, but that policy change will merely serve symbolic ends if local districts can use easy course offerings to satisfy the state's mandate. Our measures do not explore those possibilities, but they are still worth acknowledging.

Independent Variables

We employ three categories of independent variables in our analysis. One category tests our principal–agent hypotheses, another considers partisanship, and the last controls for other factors likely to contribute to the adoption of the policies described in Figure 1.

Among our category of principal–agent variables, we test Hypothesis 1 by including two dummy variables focusing on gubernatorial appointment powers. The first variable captures whether the governor can appoint the state chief and the second addresses whether the governor can appoint members of the state education board. Each variable is coded 1 if the governor possesses the power and 0 if not.[3] We expect that states empowering governors to make these appointments will be more likely to support high expectations and, therefore, would be more likely to participate in NAEP testing, require more teacher exams, and have higher math and science requirements.

To test Hypothesis 2 regarding funding, we use a variable measuring the percent of state revenues that finance K–12 education in each state. Higher values on this measure should be associated with policies that promote high expectations. To account for decreasing marginal impacts of state funding, we incorporate state funding using a linear and a quadratic term. States footing more of the education bill should be more likely to participate in NAEP testing, have more teacher exams, and require more math and science credits.

We use a measure of the number of school districts in each state to test Hypothesis 3, that more fragmented states would be less likely to possess policies stressing high expectations. Due to skewness in the distribution of this measure, we enter the logged number of school districts in our models. We expect that as the values of this variable increase, meaning there are more school districts and thus there is more administrative fragmentation, states will be less likely to participate in NAEP testing, they will require fewer teacher exams, and they will have lower math and science requirements.

Our second category of independent variables focuses on the three competing views about the influence of state partisanship on policy. We account for different configurations of state party control by using a series of dummy variables adapted from the approach of Alt and Lowry (1994), each coded 1 if a particular partisan arrangement was present and 0 if not. Our variables are as follows: Republican governor and Republican legislature, Republican governor and split or Democratic legislature, Democratic governor and split or Republican legislature.[4]

A third category of variables controls for other factors that could be associated with the state policies we consider. The principal–agent relationships between state governments and local school districts along with partisanship are our primary substantive interests. We also recognize that competing demands for educational policies may influence whether a state adopts a particular course of action (Gray and Lowery 1996). Thus, two of our control variables capture the presence of key groups—the business community and teacher unions—who have much power over state education policy (Rosenthal 2001).

Neither of these factors is easily measured across the years we consider, so we settled on two reasonably good proxies. To measure the presence of business groups we consider the percentage of gross state product from business sectors either that depend on highly educated workers or have advocated for increased educational expectations via groups such as the Business Roundtable and Achieve (e.g., white collar professions as well as manufacturing). We expected that higher percentages on this variable would be associated with an increased probability of states possessing policies to promote high expectations.[5]

The other interest group we account for is teacher unions. Ideally, we would have preferred to use an explicit measure of teacher union strength in each state, but unfortunately accurate union membership statistics for the nation's two major teacher unions, the National Education Association and the American Federation of Teachers, are unavailable for all the years we consider. As a reasonable substitute, we measure union

influence as the percentage of state workers who are members of public sector unions, given that teachers represent a solid fraction of public sector union members.[6] We were unsure whether higher percentages would influence state participation in NAEP. We did anticipate that states with more union influence would be less likely to support teacher testing, given arguments from the National Education Association and American Federation of Teachers that prospective teachers should not face high-stakes consequences based on a single test. Similarly, we expected that more union influence would be associated with fewer state requirements for math and science. That is because, to promote solidarity among local educators, unions traditionally have not favored one set of teachers over another, as policies singling out math and science requirements would do.

Perceptions about the link between state economic conditions and education also led us to incorporate an additional control variable concerning potential educational demands. This variable measures annual growth in real gross state product.[7] Due to the connection between economic prosperity and education, as articulated in *A Nation at Risk*, for example, states experiencing economic stagnation or decline may be more likely to pass policies to increase educational expectations.

Three additional control variables account for various conditions that might affect a state's ability or willingness to adopt policies to promote high expectations.[8] Two variables capture demographic characteristics of state populations: the percentage of state residents in poverty and the percentage of state residents who are white. We expected that higher poverty would make it difficult for states to adopt the policies described in Figure 1 given the resource constraints that impoverished states frequently experience. States with larger percentages of white residents may be more likely to adopt the policies in Figure 1. The reason is that more diverse states (e.g., those with lower percentages of whites) face additional challenges that could make it more difficult to uniformly expect more from their teachers and students. We emphasize that we are not arguing that states with more poor citizens or fewer whites necessarily care less about education. Rather, our views here flow from the likely effects of resource constraints or the administrative challenges associated with educating diverse populations of learners.

The last control variable is a logged measure of state residents per square mile of land area, which captures state population density. We expected greater population density to be associated with an increased probability of states possessing the policies in Figure 1. The reason is that rural states tend to have fewer administrative capacities at the state and local levels (Government Accountability Office 2005). Those limits make it difficult to enact policies that would add substantive demands to the state education agency or increase requirements for local districts. More urban states would likely have additional capacity that could make it easier to adopt state policies that advance high expectations.

Estimation Methods

We tested our hypotheses using seven time-series cross-section regression models, each with a random-effects logit specification.[9] All models were also tested for duration

dependence by including a series of temporal dummy variables, generated by Tucker's (1999) Stata utility and described by Beck, Katz, and Tucker (1998). Each temporal dummy variable tracks the number of periods since an event occurrence. (In our models, an *event* is the presence of a specific policy.) For each model we conducted post-estimation tests of the joint null hypothesis that all of the temporal dummies were 0. In models where we rejected the null, the temporal dummies were retained to account for duration dependence; where we failed to reject the null we omitted the temporal dummies from our final models (Beck et al. 1998).

We chose this estimation technique for a few reasons. All of our dependent measures are dummy variables, which means that some limited dependent variable specification is required. We chose a random-effects specification rather than incorporating state fixed effects because during the years we study very few states changed the methods by which state education chiefs and state education board members attain their positions. Under those conditions, state fixed-effects would be inappropriate because they are perfectly collinear with those institutional features. Other scholars have found the random-effects specification effective for similar reasons (Koch and Gartner 2005).[10]

Also, our dependent variables measure the presence or absence of state policies in any given year. Yet states adopted these policies amidst conditions in prior years. In other words, states do not simply change graduation requirements in a year and then require that year's graduates to meet them. There is a lag between policy adoption and when policies take effect, although determining that lag period requires careful thought, especially because we examine three different kinds of policies. An ideal situation to account for the presence of each policy would be to have data on state institutions and conditions when each policy became law or was ensconced in state regulations. Unfortunately, the policies and the sweep of time we consider made it impossible to determine the precise years of policy adoption.

We resolved the challenge of determining appropriate lags as follows. In the NAEP model, we lagged the independent variables by 1 year. Our decision was based on communications with a staff member at the U.S. Department of Education, referred to us by a former federal official who helped oversee NAEP implementation. The staff member indicated that states would have needed to give the department roughly 1 year of lead time in order to participate in voluntary state NAEP testing.

In the four teacher exam models, we lagged the independent measures by 2 years. That decision was based on a few things. New state teacher exams tend to take effect more quickly than do graduation requirements, which means lags of fewer than 4 or 5 years seemed appropriate. The faster timeframe typically occurs because states commonly use standardized teacher exams from national vendors, which cuts the startup time. Also, we inspected adoption decisions of a handful of states from the 1980s and found that most had between a 1- and 3-year lag between adoption and when the tests took effect. We split the difference at 2 years.

Finally, we lagged the independent variables by 4 years in the two high school graduation requirements models. That logic was based on the common practice that states typically exempt current 9th through 12th graders from new requirements. Such exemptions also give local school districts time to alter course offerings and adjust

their staffing. Assuming those constraints, conditions 4 years in the past would approximate the environment in which graduation requirements were changed or allowed to persist.

Statistical Results

Our regression results appear in Table 1. We also use those results to generate predicted probabilities of states possessing the policies in each model. In those simulations we held other variables at their means (unless otherwise noted), temporal dummy variables accounting for duration dependence at 0, and then varied our independent variable of interest. Overall, the results suggest two primary findings. First, principal–agent relationships between states and their local districts appear to matter most for policies that impose specific requirements on local districts (e.g., the graduation requirements models). Second, partisanship has a consistent effect across all policy areas and suggests that Republican state leaders are reluctant to support requirements in which higher levels of government attempt to assert influence over lower levels of government. The rest of this section elaborates those general findings and comments on additional results.

Consider first the evidence regarding Hypothesis 1, which anticipates that states in which governors appoint state chiefs and board members will be more likely to possess policies stressing high expectations. The most consistent statistical associations supporting this hypothesis are with the chief measure. In six of the seven models, the coefficients for that variable have positive signs. Furthermore, those coefficients are positive and statistically significant in the general knowledge teacher exam model and the math and science graduation requirements models.

Our simulated predicted probabilities show that gubernatorial power to appoint the chief has no substantive effect in the teacher exam model; the probabilities hover around 1.00 regardless of whether the governor can appoint the chief. In contrast, the substantive associations with graduation requirements are strong. Shifting from being a governor with no power to appoint the chief to having the power to do so increases the probability of requiring two or more math credits from 0.00 to 0.98 and of requiring two or more science credits from 0.09 to 0.39. Although the governor-appoints-board measure is statistically significant in three of the seven models, the signs vary and do not suggest a consistent relationship.

Hypothesis 2 predicts that states with greater responsibility for education finance would be more likely to have policies promoting high expectations. That hypothesis enjoyed solid statistical support in the graduation requirements models. The linear and squared term measuring state revenues both were statistically significant for math and jointly (although not individually) statistically significant for science. As with the chief measure, we examine predicted probabilities to assess substantive relationships. Those results appear in Figure 2, Part A. The results from the math credits model are not substantively significant, given that the predicted probability remains around 0.00 across all simulated values. In contrast, as state revenues vary from the 5th to 95th

Table 1. Random-Effects Logit Models Predicting U.S. State Policy in Three Areas

	(1) NAEP	(2) New Teacher Exam Requirements				(3) High School Graduation Requirements	
	State Participates	Basic Skills	Subject Matter	General Knowledge	Knowledge of Teaching	>2 Math Credits	>2 Science Credits
Governor appoints chief	−0.24	0.10	1.24	**2.52*****	1.38	**18.08*****	**1.87****
	(0.46)	(0.95)	(1.59)	**(1.06)**	(1.16)	**(8.14)**	**(0.97)**
Governor appoints board	0.05	0.21	2.88	**−1.98****	**−3.00*****	**4.63*****	0.29
	(0.37)	(1.03)	(1.82)	**(1.07)**	**(1.14)**	**(1.98)**	(0.73)
% state revenues	0.0003	0.02	0.20	0.11	0.15	**1.84*****	**0.28**
	(0.06)	(0.15)	(0.16)	(0.16)	(0.17)	**(0.45)**	**(0.21)**
(% state revenues)^2	0.0003	0.0001	0.002	0.0009	0.002	**−0.01*****	**0.002**
	(0.0007)	(0.002)	(0.002)	(0.002)	(0.002)	**(0.004)**	**(0.002)**
# of school districts	−0.11	−0.45	0.98	0.18	−0.20	−4.02	**−0.70****
	(0.20)	(0.50)	(0.79)	(0.42)	(0.45)	(2.49)	**(0.41)**
Republican governor and legislature	**−1.02****	**−2.07*****	**−1.84***	−0.89	**−2.66*****	−1.18	−1.20
	(0.58)	**(0.81)**	**(1.13)**	(0.92)	**(1.03)**	(1.26)	(0.94)
Republican governor and split or Democratic legislature	0.21	−1.02	**−1.94*****	−0.78	−0.84	−0.32	**−1.41****
	(0.59)	(0.66)	**(0.88)**	(0.61)	(0.62)	(0.62)	**(0.78)**
Democratic governor and split or Republican legislature	−0.82	0.53	−1.02	−0.58	−1.05	−0.91	−1.08
	(0.58)	(0.78)	(0.98)	(0.79)	(0.81)	(1.11)	(0.88)
Business influence	0.01	0.02	**−0.21****	−0.10	−0.05	0.04	**−0.21*****
	(0.04)	(0.08)	**(0.12)**	(0.09)	(0.09)	(0.16)	**(0.08)**
Union influence	−0.07	−0.22	−0.28	0.05	−0.21	−0.52	**−0.95*****
	(0.06)	(0.15)	(0.25)	(0.16)	(0.16)	(0.35)	**(0.28)**
% yearly growth in gross state product	0.02	0.02	−0.06	**0.15*****	0.11	−0.04	**−0.21****
	(0.06)	(0.05)	(0.07)	**(0.07)**	(0.07)	(0.09)	**(0.12)**
% in poverty	0.02	0.05	0.10	0.14	0.04	**−0.37*****	**−0.18****
	(0.06)	(0.09)	(0.11)	(0.09)	(0.10)	**(0.13)**	**(0.10)**

Table 1. (continued)

	(1) NAEP	(2) New Teacher Exam Requirements				(3) High School Graduation Requirements	
	State Participates	Basic Skills	Subject Matter	General Knowledge	Knowledge of Teaching	>2 Math Credits	>2 Science Credits
% white	−0.004	−0.003	**−0.26***	0.01	−0.04	**−1.34***	−0.01
	(0.02)	(0.04)	**(0.09)**	(0.04)	(0.04)	**(0.21)**	(0.03)
Population density	0.24	0.54	**3.02***	**0.94***	0.05	**11.11***	**2.27***
	(0.23)	(0.52)	**(0.94)**	**(0.58)**	(0.56)	**(2.27)**	**(0.77)**
Model chi-square	112.84***	19.14	21.60**	44.96***	43.96***	69.78***	85.27***
N (years)	350 (7)	449 (9)	449 (9)	449 (9)	449 (9)	1,097 (22)	1,097 (22)

Note: NAEP = National Assessment of Educational Progress. The number of school districts variable and the population density variable have been logged. Independent variables are lagged by 1 year for the NAEP model, 2 years for the teacher exam models, and 4 years for the math and science models. Results for the model constant and temporal dummy variables have been omitted. Full results are available from the corresponding author.
*p value rounds to 0.10. **$p \leq 0.10$. ***$p \leq 0.05$. Bolded but unstarred results in the science credits model were statistically significant at $p \leq .05$ for a joint hypothesis (Wald) test that both coefficients = 0.
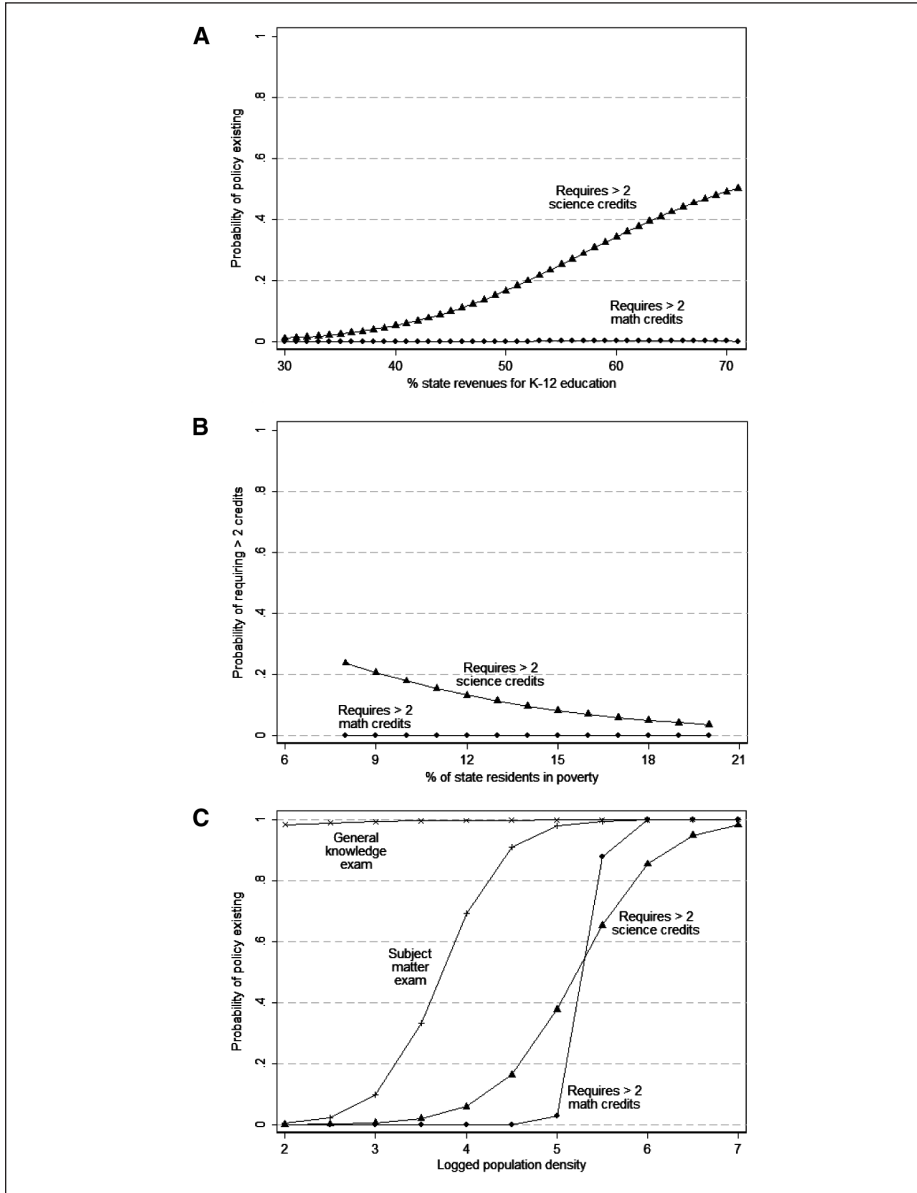
Figure 2. Probabilities of U.S. states possessing policies, varying key independent variables.
A. Percentage of state revenues for K–12 education. B. Percentage of state residents in poverty.
C. Logged population density.
Note: Results were generated based on models in Table 1 by varying each x axis variable from the 5th to 95th percentiles while holding other variables at their means. Temporal dummy variables accounting for duration dependence in the general knowledge exam and science credits models were set to 0.

percentiles, the probability that a state requires two or more science credits increases from 0.00 to 0.50. Thus, in science, where state policies have direct implications for local resource allocations given that science graduation requirements affect district course offerings and require hiring in difficult-to-staff subjects, states appear reluctant to impose added expectations unless they are providing a large chunk of funding.

Hypothesis 3 focuses on the level of administrative centralization in a state. That expectation maintains that states with fewer school districts would be more likely to enact policies promoting high expectations. The bulk of the evidence fails to support this claim, although some suggestive support exists in the graduation requirements models where these coefficients are negatively signed, as expected. Yet the variable achieves statistical significance only in the science model. Across all other models the school district variables are split between coefficients with positive and negative signs, and none are statistically significant.

Our next set of variables examines partisan governance; these reveal the most consistent relationships. Looking first at the two variables measuring the presence of a Republican governor (one variable indicating unified Republican government and the other indicating a Republican governor with a split or Democratic legislature), we find negative coefficients in 13 of 14 instances. In five of our seven models, at least one of these two variables is statistically significant. As a group, the partisan measures are the only independent variables statistically significant across the NAEP, teacher exam, and graduation requirements models. That consistent result coupled with the signs of the coefficients suggests that Republicans are less likely to favor federal involvement in education (the NAEP model results), less likely to impose state restrictions on the teachers that local districts can hire (the teacher exam models), and less likely to impose state-defined expectations for graduation (in science).

Table 2 illustrates strong substantive associations between partisanship and policy by examining a series of predicted probabilities. In the NAEP model, the presence of unified Republican government decreases the probability of a state participating in NAEP from 0.76 to 0.54. The influence of Republican leadership also is present in the teacher exam models. There the presence of a Republican governor and Republican legislature decreases the probabilities of states having basic skills exams from 0.97 to 0.84 and from 0.95 to 0.74 for subject matter exams; and although statistically significant in the knowledge of teaching exam, Table 2 shows that the result is not substantively significant. The second row of Table 2 demonstrates that the presence of Republican governors with split or Democratic legislatures decreases the probability of states requiring new teachers to take subject matter exams from 0.94 to 0.72. Finally, the second row of Table 2 shows that same partisan condition decreasing the chance of a state requiring two or more science credits from 0.26 to 0.08.

Finally, we briefly consider some interesting results from our control variables. As with the principal–agent variables, the most consistent statistical associations here are in the high school graduation requirements models. Table 1 shows that state poverty appears to constrain states wishing to have high graduation requirements. The poverty

Table 2. Partisanship and Probability of U.S. States Possessing Various Policies

| Party Control | NAEP | New Teacher Exam Requirements | | | High School Graduation Requirements |
	Participates	Basic Skills	Subject Matter	Knowledge of Teaching	>2 Science Credits
Republican governor and legislature	0.76 → 0.54	0.97 → 0.84	0.95 → 0.74	0.01 → 0.00	—
Republican governor and split or Democratic legislature	—	—	0.95 → 0.72	—	0.26 → 0.08

Note: NAEP = National Assessment of Educational Progress. Results were generated based on models in Table 1. Cells indicate the probability of a state possessing a policy when the condition of the variable in the "party control" column shifts from being absent to being present (e.g., changes from 0 → 1) while holding other party variables at 0 and the remaining independent variables at their means. Temporal dummy variables accounting for duration dependence in the NAEP, knowledge of teaching, and science credits models were set to 0. Dashes represent cells with statistically insignificant model coefficients from Table 1.

variable is statistically significant in the math and science models (Table 1), yet the substantive effect really is only present for science requirements (Part B of Figure 2). In that model, the probability of a state requiring more than two science credits declines from 0.24 to 0.04 as the percentage of state residents in poverty increases from the 5th to 95th percentiles.

The results on the population density measure also are generally consistent and support our view that capacity limits may hinder more rural states from adopting policies to promote high expectations. Table 2 shows that coefficients for that variable are positively signed in all models and statistically significant in two of the teacher testing models and both of the high school graduation requirements models. Part C of Figure 2 presents predicted probabilities that show the substantive relationships. Those results show that the probability of a state's possessing a general knowledge exam for teachers is essentially unaffected by different population densities. In contrast, the probabilities of states having teacher subject matter exams, requiring more than two math credits, and requiring more than two science credits all increase rapidly from essentially 0.00 to 1.00 as population density shifts from the 5th to 95th percentiles.

Discussion

Overall, our results suggest two findings about the relationship between state governance and the development of state education policies aiming to promote high expectations. First, principal–agent considerations appear to manifest themselves most when

the consequences of state policy are greatest on local action. State participation in voluntary NAEP testing has the fewest implications for local school districts because state NAEP exams do not provide direct information about local performance, nor does the administration of the exams impose more than trivial administrative burdens (e.g., arranging for sampled students to take the test) on local school districts. The effects of new teacher exam requirements on local districts are more detectable because they may alter the pool of applicants districts can consider when they hire teachers. Still, they do not demand that districts offer a specific educational program. New teachers feel the effects of these exam requirements most directly. State graduation requirements in math and science have the most direct effect on how local communities spend their money and set their priorities. Such requirements create the clearest implications for the principal–agent relationship between states and districts.

Collectively, our variables assessing the nature of the principal–agent relationships between states and local districts—focusing on gubernatorial appointment power, state education finance, and the number of school districts—show the strongest associations, consistent with our expectations, in the models predicting math and science graduation requirements. That finding helps clarify the conditions under which the institutional arrangements of state governance might matter most. The finding also suggests a working hypothesis that researchers might explore as they consider other state policies. Perhaps these relationships also hold in policy areas beyond education, such as local law enforcement or public health.

Our second main finding reveals a fairly consistent relationship between the partisan dimensions of education governance and state policy. The results support the view that Republicans tend to oppose requirements that potentially empower higher levels of government, either the federal government over the states or states over local school districts. These results manifest themselves across all three policy areas we considered. One might test the robustness of this finding by identifying conditions under which this partisan dynamic may not hold. For example, the policy areas we examined do not address some of the hot-button morality issues that Republicans in state government have tended to favor, such as the teaching of abstinence in sex education programs. Perhaps, on those sorts of values issues, Republican state leaders do not hesitate to impose their views on local communities.

Finally, our findings regarding state poverty and population density, although entered into our models as control variables, suggest a finding related to the principal–agent discussion noted earlier. Our interpretation of the relationship between these variables and the presence of state graduation requirements and, in the case of population density specifically, state teacher exams, suggests that future researchers attempting to understand state policy making should account for the constraints that capacity limits create. That poorer states tend to require fewer credits for graduation and more urban states require more credits (along with more exams for new teachers) illustrates how local conditions, not just state governance arrangements or partisanship, may influence the substance of state policy.

Looking toward the future, state governments likely will remain vitally important players in the development and execution of U.S. education policy. Even with increasing federal interest and involvement, federal policy has consistently relied on state institutions to make federal education policy work. Our study represents a useful step toward better understanding the relationships between state governance and education reform. Many future directions for additional research are possible, including some highlighted in this concluding section and others noted earlier in our brief summary of alternative hypotheses. Much room remains for explorations of more nuanced conceptualizations of governance and their possible relationships with other education policies beyond those considered here.

Notes

1. State National Assessment of Educational Progress participation by year and test is at http://nces.ed.gov/nationsreportcard/about/statehistorypublic.asp (accessed April 16, 2010).
2. Our data collection began by gathering all data from the *Digest of Education Statistics*. We then performed extensive cross-checking of those data against other sources. That enabled us to resolve a common inconsistency we discovered. For some issues of the *Digest*, the state requirements listed did not take effect for a few years, but the *Digest* itself did not always indicate as such.
3. Approximately 10% to 15% of states in any given year have allowed governors to appoint state chiefs and board members. We experimented with incorporating an interaction of the board and chief dummies to capture this condition but found that it induced collinearity that prevented some models from converging. Data on chief and board appointment methods come from several primary source documents that we coded. Most were published by either the Council of Chief State School Officers, the National Association of State Boards of Education, or the Education Commission of the States.
4. Unlike Alt and Lowry (1994), we did not have a strong theoretical reason to incorporate separate variables measuring divided government that distinguished between situations where the governor and legislature were of a different party from cases where a governor faced a split

legislature, nor did we incorporate a dummy variable accounting for cases where states had governors who were independents. The omitted partisan variable from our models combines states with unified Democratic government (e.g., Democratic governor and Democratic legislature) along with the very small number of years, fewer than 2% of all cases, where states had independent governors. Data on the governor's party come from the National Governors Association online directory, available at http://www.nga.org. Recent data on partisanship in legislatures come from the National Conference of State Legislatures (2005–2009 available at http://www.ncsl.org and 1999–2004 from personal communications) and editions of the Council of State Governments' *Book of the States* for other years. (Online sources last accessed in February 2010.)

5. Data on gross state product (overall and for specific economic sectors) comes from the U.S. Department of Commerce, Bureau of Economic Analysis at http://www.bea.gov/regional/gsp/ (last accessed October 2010).

6. State union membership data are from the Union Membership and Coverage database maintained by Barry Hirsch and David Macpherson at http://unionstats.gsu.edu/ (last accessed in October 2010).

7. These data come from the same source identified in Note 5.

8. Population data for these three variables come from the U.S. Census Bureau's total population estimates at http://www.census.gov/popest.estimates.html (last accessed December 2009). Total state land area data, used to compute population densities, come from the 2010 edition of the *Statistical Abstract of the United States*.

9. We ran our models in Stata 10 using the command xtlogit. We also used Stata's quadchk command to assess the stability of the parameter estimates in each model. As Stata's documentation suggests, we altered the number of integration points until the parameters remained stable within acceptable ranges.

10. We also experimented with models using a lagged dependent variable, but ultimately rejected that approach based on theoretical (Beck, Katz, and Tucker 1998) and empirical considerations. Results from those models and our explanation for rejecting them are available at the corresponding author's website and at the *State Politics & Policy Quarterly* website.

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Bios

Paul Manna is an associate professor of government and a faculty affiliate in the Thomas Jefferson Program in Public Policy at the College of William & Mary. His research and teaching focus on policymaking, implementation, federalism, bureaucracy, education policy, and applied research methods.

Timothy Harwood is a research associate with Editorial Projects in Education and a 2010 Master's in public policy graduate of the Thomas Jefferson Program in Public Policy at the College of William & Mary.