Partisanship, Political Polarization, and State Budget Outcomes: The Case of Higher Education*

Luciana Dar  
Assistant Professor of Higher Education  
Graduate School of Education  
University of California, Riverside  
luciana.dar@ucr.edu  

Dong-Wook Lee  
Doctoral Student  
Department of Politics and Policy  
Claremont Graduate University  
dong-wook.lee@cgu.edu  

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Abstract

We explore the impact of partisanship in state governments on policy expenditures and priorities in a public policy area where the distribution of policy preferences does not fall clearly on the standard left-right political spectrum. We begin with the assumptions that (1) partisanship affects policy issues differently, due to variability in their substance and dimensionality; (2) party coalitions are heterogeneous, change over time, and are influenced by a variety of policy-demanding groups; and (3) policy preferences and policy priorities differ depending on a variety of factors (i.e., issue salience, economic cycles, and political polarization). We argue that, under these assumptions, parties matter, but the relevance and size of the effects are conditional on political polarization and economic conditions. We focus our analysis on higher education due to its complex policy space by providing both collective and particularized benefits and by presenting a growing mismatch between constituency preferences and policy outcomes. We find evidence that Democratic Party strength has a positive impact on state funding for higher education, but this positive effect diminishes as political polarization or unemployment rates increase.
I. Introduction

Trends in higher education financing policy in the United States for the past 30 years are puzzling for political scientists. Higher education has systematically lost status in the policy priorities of most U.S states and recent state financing trends have systematically shifted a larger share of college costs to students and their families, despite a substantial increase in the federal government’s expenditures in student financial aid (Zumeta et al 2012). Conversely, demand for higher education and support for open access continue to grow, along with widespread recognition of the importance of education for economic growth, economic opportunity, global competitiveness and democratic stability (Acemoglu and Robinson 2005; Duncan and Murnane 2011; Goldin and Katz 2008). In the higher education context, state governments have shown lack of responsiveness to the majority of public opinion but also to pressing sub-national and national economic needs (Carnevale and Rose 2010; Carnevale, Smith, and Strohl 2010; Immerwahr and Johnson 2010).

Although these trends are occurring across the nation, there are significant cross-state differences in policy representation, levels of public subsidies to higher education and cost-sharing arrangements between the public (federal, state, and local governments) and the private sector (Delta Cost Project 2011; Fryar 2012; Rigby and Wright 2011). What explains this variation in state financing policies for higher education? We argue that the most persuasive explanation can be found in the nature of higher education as a policy-issue, relevant voting coalitions that support particular spending/regulatory choices, (mis)alignments between representatives’ policy preferences and priorities, and policy polarization (Author, 2012; Doyle 2012; Jochim and Jones 2012; Jones, Larsen-Price and Wilkerson 2009, Lax and Phillips 2012; Schneider and Jacoby 2011).

Prior research on the determinants of state higher education spending patterns is extensive and focused on sorting out the relative importance of various state economic, social and political indicator, as well as higher education governance characteristics that may explain the observed variation (see McLendon, Hearn and Mokher 2009 and Tandberg 2010 for comprehensive reviews).
Research focusing on economic business cycles and demographic characteristics has yielded the most robust and consistent findings (Kane, Orszag and Apostolov 2005, Delaney and Doyle 2011). This has not been true for political variables, partly due to comparability issues among dependent variables, model specifications, and empirical strategies, but also due to a long-standing assumption that higher education is an issue that enjoys bipartisan support due to the long-held belief that, if they worked hard enough, Americans from various economic backgrounds would have the opportunity to attend higher education and be upwardly mobile (Author 2012; Mettler 2012).

Despite the extensive literature in political science on whether and how political parties shape public policy outcomes in response to constituents’ preferences and to voters’ unequal ability to influence the political process, work that focuses exclusively on the role of political parties on higher education policy expenditures is rare (Flavin 2012; Lowry 2007; Wright 2010). This is surprising, given the substantial amount of public funds spent on higher education at the federal and state levels, the growing salience of postsecondary education in American politics, and the fundamental role that political parties play in organizing interest group conflicts and shaping distributive outcomes (Hacker and Pierson 2010; Kelly and Schneider 2012).

In this paper, we contribute to the robust literature on the mechanisms that link political parties and policy outcomes. We examine a policy area—higher education financing—where the distribution of policy preferences do not fall clearly along the left-right political spectrum, characterized by cross-cutting policy dimensions with shifting dimensional salience and heterogeneous party coalitions (Bawn et al. 2012; Besley and Case 2003; Schneider and Jacoby 2011; Wright 2010). This approach is different from much of the available scholarship on the role of parties in the policy process, which is disproportionately focused on taxation, spending patterns and state government provision of particularized benefits (e.g., welfare, health care for low income constituents).
This paper provides a theoretical grounding for our expectation of conditional partisan effects in policy areas such as higher education, that for a very long time, have been characterized by complex partnerships between the public and private sector, where party-based coalitions often shift or split across different issues (Jochim and Jones 2012; Karol 2009), parties are less responsive to voters’ preferences (Bawn et al 2012), which tend to be more moderate than those of their representatives (Ansolabehere, Rodden, and Snyder Jr. 2006), and policies produce a combination of collective and particularized benefits which often occur jointly and, favor constituents across a variety of socioeconomic levels (Jacoby and Schneider 2009). In policy expenditures of this type, legislators consider collective and particularized benefits simultaneously, based on their changing priorities.

In the first two sections of the paper, we lay out the substantive and theoretical foundations of our argument linking state partisanship and higher education spending as mediated by political polarization and state economic conditions (business-cycles). We find that partisanship, or having more Democrats in the state’s legislature, has a robust positive effect on state funding for higher education, but the effects are indeed conditional and mitigated by economic and political conditions, responsible for shifting the perceived benefits public subsidization of higher education. In section four, we lay out our empirical strategy, main variables and present ours results. We conclude by arguing that the looming crisis in American (higher) education stem from a variety of public policy choices and policy-drift in which politics has played a fundamental role (Viteritti 2011).

II. Background: Partisanship and Higher Education

Political scientists rarely focus on higher education policy issues (Lowry 2007). However, the study of such issues has great potential as a testing ground for theories and to contribute to the development of more nuanced explanations for the complex relationships between political processes and policy outcomes. Higher education involves the provision of various combinations of
collective and particularized benefits, serves a very diverse set of constituencies, and uses both public and private sources of financial support. It is also unique in the sense that the type and amount of the public provision of higher education vary considerably across states and that there are barriers to entry based on merit and price (Doyle 2007; Lowry and Fryar 2012).

Some scholars posit that the downward trend in states’ commitments to higher education is due to a “conservative shift” in state legislatures with a growing Republican presence, but this decrease in states’ commitment to higher education funding is often attributed by other scholars to changes in average legislative ideological preferences instead of the political parties themselves. In any case, Republican- and Democratic-controlled states can and often do differ on their willingness to support higher education (Fischer 2007; Schmidt 2005).

Inconsistent results in regard to the direct effects of political parties on higher education policy choices are to be expected, given the aforementioned variety of constituencies served, the contentious nature of the debate over the need for government to support higher education, and the growing costs of running a higher education institution (McMahon 2009; Vedder 2007; Weertz and Ronca 2012). For example, one can argue that Democrats are more likely to support higher education because they spend more, on average, than do Republicans (Alt and Lowry 1994), favor more redistribution (Besley and Case 2003), or are more likely to support the public provision of higher education. However, it is plausible to assume that, because higher education competes directly with other policy areas favored by Democrats (i.e., K-12 education, welfare, and healthcare), Republicans may be, on average, more supportive of higher education. Coupled with balanced budget requirements in the U.S. states, spending on higher education means spending less in other policy areas, putting increasing pressure on states’ budgets in recessionary periods (Kane et al. 2005). The aforementioned diversity in priorities often complicates analyses of the links between political parties and spending on higher education.
It is commonly observed that Democrats and Republicans support the same policies but for different reasons. For example, government support for community colleges tends to be bipartisan. Democrats think of community colleges as an access point for low-income students and an instrument for social mobility. Republicans also consider community colleges a priority but usually because they are more cost-effective and efficient alternatives to four-year institutions, particularly research universities. Likewise, both parties tend to support spending on research universities due to the perceived collective economic benefits (e.g., economic growth and development) to their state. However, they may argue the opposite, either because research universities are too expensive (Republicans) or because spending on higher education is a regressive transfer of resources from the general population to the middle and upper middle classes (Democrats).

One strategy to explain differences in policy preferences is to consider shifts in the perceived goals of higher education under certain conditions. That is, if the collective good is the key perceived goal of higher education, then there will be a higher probability of convergence of political preferences and parties should matter less. If the redistribution of resources, with the goal of promoting access and reducing social inequalities, is the main perceived outcome/priority of higher education spending, then a higher proportion of Democrats in state legislatures should lead to more spending. This will lead to our first testable hypothesis:

*Hypothesis 1:* States will increase funding for higher education, when there is a large proportion of Democrats in the state legislature.

### III. Partisanship, Polarization, Public Policy and Higher Education

*Theory of Political Parties*

We develop a richer account for the mechanisms by which political parties shape legislative behavior and, hence, public policy outcomes. Legislators’ preferences and issue salience vary across different policy areas and both vary over time (Smith 2007). Bawn et al. (2012) proposed a new theory of political parties that reflects this view, a theory in which political parties are coalitions of
well-organized, policy-demanding groups and activists that are often unresponsive to voters’ preferences, which leads to a disproportionate influence by particular groups in public policy (Hacker and Pierson 2010; Mettler 2012). In this theoretical framework, party coalitions are much more heterogeneous than usually assumed, which leads to more instability and multidimensionality in the policy space. Most importantly, for our purposes, this theory/framework offers a powerful rationale that helps us explain the aforementioned misalignment between higher education financing trends and constituency preferences and states’ economic needs.

Following a similar line of reasoning, Wright (2010) reminds us of available evidence that “political parties, when in play as alternative governing teams, lead to the bundling of issues and reduce the dimensionality of conflict as evidenced in roll-call voting” (p. 418), which makes policy outcomes more likely to be unrepresentative of the median voter preferences. Lax and Phillips (2012) have more recently confirmed this claim. They find that policy-specific public opinion is often translated into representative public policy but only about “half the time.” Political parties, often producing more polarized policy outcomes relative to constituents’ preferences, particularly influence the non-responsiveness of state policy. Political parties do offer solutions to collective action problems, but more often than not, they do so out of sync with the majorities in the electorate (Aldrich 2011).

**Political Polarization**

Scholars have studied at length the increasing political polarization observed in American politics in the past three decades (McCarty, Poole, and Rosenthal 2006). Jochim and Jones (2012) argue that common explanations for the causes and consequences of trends in political polarization fail to consider “the nature of policy issues and their respective voting coalitions” (p.1). They show that, indeed, most policy issues have a left-right ideological dimension that captures preferences over government intervention in the economy, but many present cross-cutting dimensions that may or may not be partisan or share similar distribution of ideological preferences as observed in the
economic dimension. Jochim and Jones’ analysis offers that political polarization has evolved on an issue-by-issue basis in the U.S Congress from 1965 to 2004. Moreover, as polarization increased, their data increasingly show a simplification in the policy space of particular issue areas and, as a result, an increase in the partisan nature of political competition.

Jones, et al. (2009) also present evidence to support the argument that policy substance matters for legislative politics and political representation. Legislators’ priorities and policy preferences often differ, which raises a new set of questions about the representativeness of public policy under particular political and economic conditions. This particular insight over the differences between priorities and preferences is central to the argument that we make and the hypotheses that we test in the following sections of this paper. In the case of higher education, there has been a simplification of the policy space, where valence issues (Stokes 1963) that previously enjoyed bipartisan support, are now at the center of a contentious ideological battle within the boundaries of more traditional redistributive politics.

Public Policy and Higher Education

Based on the assumption that policy substance matters for understanding political dynamics and carrying out a comprehensive exploration of recent trends in higher education financing and policy trends, Author (2012) argues that political competition over higher education issues can be best described in a two-dimensional policy space. The first can be described as the traditional left-right political dimension in which preferences are placed over the role of government in the economy and redistribution are placed. The second is a cross-cutting dimension that places preferences over whether higher education is a public or private good and, hence, distinguishes those that support public subsidization, but also those that favor different mechanisms for public spending to take place, such as direct student support versus appropriations to institutions or funding tied to performance and completion measures (Institute of Higher Education Policy 1998; Kelly and Schneider 2012; McMahon 2009).
The contentiousness of the debate over the second dimension has increased over time. This is because it is very difficult to measure the collective/social benefits provided by government subsidization of higher education, such as economic development/growth, decreased inequality, increased democratic participation, lower levels of unemployment, higher tax revenues, lower crime rates, family stability, and better parenting, among many others. More recently, political scientists have started to acknowledge that the redistributive implications of higher education subsidies are not as clear cut as in many other policy areas, which creates a challenge for scholars interested in the comparative political dynamics of this particular policy issue (Bailey, Rom and Taylor 2004; Busemeyer and Trampusch 2011).

Conversely, the increasing wage-gap between college and non-college-educated individuals, combined with increased stratification of opportunities in higher education has strengthened the case for the argument that higher education provides mostly private benefits and, hence, should be privately funded (Biggs 2012). Nonetheless, the argument for public subsidization of higher education on the grounds that it provides collective goods through economic externalities, minimizes market failures created by individuals’ sub-optimal investments in their education and promotes distributional equity, continues to drive much of the political discourse on the issue in American politics (Loss 2011).

Mettler (2009) also offers a policy-centered explanation, which incorporates the theoretical insights discussed here, for the observed shifts in government priorities from higher education as public good to more market-friendly policy choices over the past 30 years. According to Mettler, incremental policy feedback effects have led to the growing influence of interest groups in higher education policy (e.g., student loan providers, campaign contributions to conservative legislators) and the lack of political organization by family and student groups. Growing ideological distance between the two main political parties, growing conservatism in the Republican party, and ideological overlap between the two parties have enabled the gradual shift in majoritarian political
coalitions towards the support for bigger involvement of the private sector, which made private actors bigger beneficiaries of public higher education funding and more significant providers of services (Fethke and Policano 2012; McCarty et al. 2006).

Political scientists have presented extensive evidence that the partisan composition of state governments matter for state policies (Alt and Lowry 1994; Ansolabehere and Snyder Jr. 2006; Erickson, Wright and McIver 1993) but much less consistency of findings can be found for education policy and higher education in particular. We are left with our original question: how would partisanship in state government shape state funding for higher education? In the next section we present our expectations for the links between partisanship and state funding for higher education based on the policy-centered theoretical perspectives discussed above.

IV. Explaining State Spending and State Priorities

Higher education has often been identified as the “balance-wheel” of states’ budgets (Delaney and Doyle 2011). As the largest discretionary item in states’ budgets, higher education expenditures in absolute and relative terms have followed a pattern, well into the early 2000s, in which budgets have suffered disproportionate cuts compared to other policy areas during recessionary periods and disproportionate increases during recovery times. States have relied on the ability of higher education institutions to seek revenues through increases in tuition and to take advantage of federal student aid resources. As a result, there has been a fundamental shift in the relationship between states and their public institutions of higher education, with much less focus by the states on oversight and coordination, which has affected states’ ability to fulfill their role as a partner with the federal government in pursuing a national higher education policy (Zumeta et al. 2012).

We believe that political parties have played a pivotal role in the aforementioned lack of states’ accountability to maintain the physical and fiscal capacity of state higher education systems,
in response to changing economic conditions/demands, demographic shifts, and previous commitments to keep postsecondary education affordable to all eligible students, independent of socioeconomic status. As fiscal pressures have mounted, state leaders have favored the establishment of more market-based mechanisms in the funding of higher education (i.e., more targeted student aid, increases in tuition, and more resources directed to the for-profit sector). Scholars who have studied the determinants of declines in state higher education funding have, indeed, found that other state contextual characteristics (e.g., term limits, tax and expenditures limitations, enrollment patterns, tuition/aid policies) matter, but partisanship (more Democrats) and citizen ideology (Liberals) have been linked to better fortunes for higher education (McLendon and Mokher 2009).

While, indeed, there has been a shift in the average partisan composition of state legislatures in favor of Republicans, with consequences for state governments’ policy priorities, we claim that shifts in both state political parties’ preferences are a result of not only incremental changes in voting coalitions around specific policy issues but also changes in the distribution of ideological preferences within and outside the party (relevant organized groups). More importantly, the weakening of the electoral connection and the growing misalignment between states and public universities’ preferences have played a key role in shaping the observed trends in state financing of higher education (Bawn et al. 2012; Lowry 2001; Noel 2010). Given the susceptibility of higher education spending to political-business cycles, we argue that the effect of partisanship on higher education spending is conditional upon and variable according to the degree of polarization between the two parties and local economic conditions. We focus on polarization and business cycles to test our expectations for reasons associated with the three areas below:

(a) Polarization and Higher Education

A considerably large volume of empirical works in the political science literature provides ample evidence that increases in polarization are associated with shifting policy priorities,
instability in voting coalitions, potential policy gridlock, and, hence, decreases in the dimensionality of the policy space (Jochim and Jones 2012; McCarty et al. 2006). All these effects can help us provide a robust explanation for the observed mismatch between public opinion, states’ economic needs, and government policy.

(b) Economic Conditions and Higher Education

The public finance literature and rich political economy literature have provided robust empirical evidence that the economy matters a great deal for government expenditure choices, and that business cycles mediate the impact of political institutions on policy outcomes (Alt and Lowry 1994; 2000; Besley and Case 2003; Persson and Tabellini 2002; Rubin 2009). In these bodies of literature, the links between states’ economic fortunes and higher education policy expenditures have been firmly established (Zumeta et al. 2012).

(c) Higher Education as a Policy Issue

The nature and evolution of higher education as a policy issue in the American states over the past 30 years has been characterized by a few common characteristics but still present great variability across states. Higher education finance scholars have systematically perceived a state disinvestment, given the growing share of costs now transferred to students and their families (Delta Cost Project 2011). Demographic trends and the increasingly accepted notion that a college degree is necessary for economic success have led to a growing demand by the public for affordable higher education (Zumeta et al. 2012) and the broadening of the constituency that benefits from higher education subsidies. Finally, the aforementioned lack of clarity in the distribution of costs and benefits of government spending and regulation, in the partisan ideological preferences on higher education policy issues, and in the perceived shifts in public opinion about the public good value of higher education makes political polarization and economic conditions strong candidate variables to test our argument (Author 2012; Delta Cost Project 2011; Fryar 2012; Zumeta et al. 2012).

Partisanship, Political Polarization, and Higher Education
When there is low political polarization in the state legislature, with all else being equal, we expect that the collective-benefit dimension of higher education will take precedence and that both Democrats and Republicans will be more likely to support higher education spending. We expect that, with increasing degrees of polarization, the collective-benefit nature of higher education will become less salient and that partisan differences will emerge. We expect that Democrats will be more likely to support higher education because they find both the collective and more targeted benefits of public higher education in line with their platform; however, as partisan polarization becomes too high, political gridlock will likely take place, and higher education will lose its priority. Democrats are more likely to shift their focus to other policy areas that provide more targeted benefits to their more traditional constituencies (i.e., welfare, K-12 education, and healthcare), and Republicans are more likely to pursue policies that increase their chances of differentiating themselves but that avoid clearly redistributive expenditures such as need-based student financial aid programs. In short, an increasing degree of partisan polarization will dampen Democrats’ support for state higher education fiscal support. The conditional hypothesis based on this expectation is presented below:

*Hypothesis 2:* The positive effect of Democratic Party strength in the state legislature on state funding for higher education becomes weaker when state partisan polarization increases.

At very high levels of partisan polarization that leads to policy gridlock, having an additional Democratic legislator does not lead to significant changes in state higher education funding.

*Partisanship, Business Cycles, and Higher Education*

As noted above, it is possible that Democrats do not wholeheartedly support higher education due to its regressive nature, i.e., middle and upper-middle income students are over-represented in public higher education systems (Doyle 2007); they prefer to support K-12 education and other forms of redistribution that go directly to their base voters. Thus, when the economy turns
sour and unemployment rises, we expect that Democrats will abandon support for higher education. In bad economic times, we should expect a crowding-out effect on higher education for the sake of other budget categories. This suggests a testable conditional hypothesis as follows:

**Hypothesis 3:** The positive effect of Democratic Party strength in the state legislature on state funding for higher education becomes weaker when unemployment rate increases.

At very large rates of unemployment that will shift policy priorities to counter-cyclical spending such as welfare, unemployment insurance, and health care for lower-income constituents, having an additional Democratic legislator will not have a significant effect on state higher education funding.

We expect that both partisan polarization and economic conditions will shift the dynamics of political competition in higher education policy expenditures, with changes in priorities from the collective good to the private good, making the traditional left-right economic dimension of political competition the most salient.

**V. The Empirical Strategy**

*Dependent Variables*

To test our hypotheses on the links between political parties and state higher education spending decisions, we follow common measurement strategies in the comparative higher education finance literature. First, we use **total state appropriations per $1,000 of personal income** as a proxy for the level of a state’s commitment to higher education as a share of available wealth. Second, we use the **states’ share of general fund expenditures appropriated to higher education** as a proxy for a state’s priorities relative to other policy areas. By doing so, we seek to capture decision making both related to variations in states’ commitment to higher education when facing budgetary constraints and when there is a pressing need to prioritize under competition with other policy areas (Kane et al. 2005; Wilson 1974). Our goal is to capture the mechanisms that link partisanship and willingness to commit resources to higher education and, when constrained by
competing priorities, to understand how partisanship in state governments have shaped the cyclical and unpredictable nature of state funding to the postsecondary sector (Delaney and Doyle 2011).

State higher education funding levels vary a great deal across states and over time. Total state spending per $1,000 of personal income has dropped over 30% since the 1970s, and higher education’s share of states’ budgets has dropped consistently for the past 30 years. Despite the fact that states’ expenditures in real terms have grown, the average share of public universities’ costs covered by public funds has dropped from 78% in 1974 to 43% in 2000 (Rizzo 2006). In 2009, state and local appropriations dropped from 49% to 34% of public research universities’ revenues from various sources (College Board 2011). Trends and differences across states for our dependent variables are presented in Figure 1.

[Insert Figure 1 about here.]

There are many causes for this shift in higher education’s functions. States’ budgetary pressures have grown exponentially. Expenditures on entitlement programs such as health care, K-12 education, and welfare have diminished discretionary spending ability across all states (Kane et al. 2005; Rizzo 2006; Toutkoushian 2009). As described by Hovey (1999) and empirically tested by Doyle and Delaney (2011), due to higher education’s share of states’ budgets and its discretionary status, it has become the “balance-wheel” of states’ budgets. The fact that higher education has both public and private alternative sources of funding (i.e., federal student aid, tuition, research grants, and private donations) means that states can shirk financial responsibility and prioritize spending in other policy areas. Indeed, between 2001 and 2011, average in-state tuition and fees at public four-year colleges and universities increased an average of 5.6% per year above inflation (College Board 2011).

Scholars in the field of higher education also argue that this continuous shift away from a mainly publicly funded higher education system has been a result of growing support for the idea that the private provision and privately borne costs of higher education are more efficient and
equitable (Pusser 2002). Global economic trends and the growing earnings gap between college and non-college graduates also have contributed to the shift away from public funding (Marginson and Considine 2000). One important consequence of this change in policy position is a drop in the political benefits of spending on higher education, an effect that is amplified by rising levels of social inequality (Bartels 2008; Quigley and Rubinfeld 1993).

Independent Variables

**Democratic Party strength** is our measure for partisanship. We calculated a share of the total two-party seats held by Democrats in the states’ lower and upper chambers. This measure captures the overall strength of the Democratic Party in the state legislatures. We have an expectation that this variable is positively and significantly correlated with state funding for higher education.

**Polarization** is a measure of the absolute distance between the average DW-NOMINATE scores for Democrats and Republicans in the congressional delegation for a particular state. We use this as a proxy for the level of political polarization in the state legislature. We are keenly aware that that there are differences in the distribution of political preferences between congressional delegations and state legislators, with the former’s being less polarized than the latter. The expected mismatch probability, for example, can be high in the corresponding values for DW-NOMINATE as well as in the comparability across states and over time (Shor, Berry, and McCarty 2010; Shor and McCarty 2011). Given the fact that the American states are characterized by more complex dimensionality in the political competition across different issue areas, measuring polarization using the first-dimension DW-NOMINATE scores for the congressional delegation may not be an ideal proxy.\(^1\)

Ideally, we would like to have measures of individual state legislator ideologies that are comparable across many states and over a longer period. Yet only recently have scholars been able

\(^1\) We thank an anonymous reviewer for raising this conceptual issue in an earlier version of this manuscript.
to develop polarization measures for state legislatures’ and individual legislators’ NOMINATE scores (i.e., estimated ideal points of state legislators by using roll-call votes) that are comparable across state legislatures and the U.S Congress. Shor et al. (2010) estimate state legislators’ ideology scores in a common dimension with those of Congress by using information on “bridge actors” whose career paths as state legislators have been extended to periods of service in Congress.2 Unfortunately, the data cover a much shorter time period than the one we sought to analyze in this paper, making it insufficient to capture the evolution of higher education and the resulting changes in voting coalitions over time (Carmines and Stimson 1989).

We acknowledge that our chosen polarization variable—the absolute distance between the congressional delegations’ average DW-NOMINATE scores for each party—is an imperfect proxy, yet we maintain that our chosen measure of polarization is a reasonable substitute in the context of our goals. Because the same constituencies vote for both state and national representatives, and representatives who seek re-election should attempt to vote in line with their constituents’ preferences, there are good reasons to believe that state-level and congressional DW-NOMINATE scores would be meaningfully correlated. For example, the linear correlation between our polarization measure and Shor et al.’s (2010) is 0.49 for 50 states from 1993 to 2009.3 In any case, the congressional DW-NOMINATE data have a longer time span, for our case 1977 to 2006 compared Shor’s 1993 starting year, which is necessary for capturing trends in political and business cycles. Finally, it is one of few alternatives to proxy state legislator’ ideological differences, independent of partisanship. Berry et al.’s (1998) groundbreaking measure of state legislator ideology, for example, includes the distribution of state legislative seats between parties as part of the composite measure. For this analysis, we needed to proxy ideology separately from

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2 This assumes that these bridging actors’ ideological profiles do not change significantly.
3 The correlation is calculated based on all the valid points from the two variables, namely, using the pairwise deletion of missing data in the correlation matrix. Testing the significance of this correlation shows the significance level (alpha = .05).
partisanship, which led to our decision to adopt DW-NOMINATE, despite the well-known limitations of this strategy (Noel 2010).

Finally, the variable of unemployment rates is our proxy for cyclical economic conditions. Changes in the unemployment rate have implications for states’ revenues, demand for social policy expenditures, and constituency policy preferences.

Interaction variables are essential to testing our conditional hypotheses. The positive effect of Democratic Party strength on state higher education spending should dampen as polarization or unemployment rates increase. These conditional effects of partisanship are tested through two interaction variables: (1) We interact Democratic Party strength with levels of polarization (Democratic Party strength × Polarization), (2) We also interact Democratic Party strength with unemployment rates (Democratic Party strength × Unemployment). Democrats are expected to shift priorities to other areas that provide clear, targeted benefits when there is high polarization or an economic downturn.

Controls

To isolate the effects of other relevant state characteristics on state funding for higher education, we consider several control variables. First, we use the private share of full-time equivalent enrollment in a state’s post-secondary sector. States with smaller public higher education systems allocate fewer resources to their universities and colleges. A state’s history of public higher education greatly influences current enrollment patterns; thus, by including a control for private enrollment, we hope to account for these histories and current demand for government support for public universities. Second, state revenues per capita controls for the amount of resources that states have available to spend on various policy areas. Third, the share of the population 18-25 years old is used to control the amount of demand for higher education in a particular state. Fourth, we include lagged tuition, which is the average tuition and fees for full-time undergraduate students at 4-year institutions. We lag tuition because legislators look to prior
tuition levels when determining funding allocations for higher education (Doyle 2012). Previous year’s tuition fee can be an indicator of higher education institutions’ ability to self-finance. All of these variables affect both the amount of resources available for policy expenditures and the demand for higher education. See for detail descriptions of each measure and data sources in Appendix.

Contrary to common thinking, we found that a governor’s party identification had no effect on either of our spending measures. Moreover, including a governor’s party as a control had no effect on the other coefficients in our model. We dropped this variable for brevity’s sake (the results are available from the authors upon request). Additionally, we ran several models with controls for a state’s income inequality, although we did not have any strong *a priori* expectations about how inequality might influence overall higher education spending. We found that inequality is negatively associated with both measures of higher education spending. In the end, we decided to present models that omit inequality, but our results do not change much if we keep it in (these results also are available from the authors).

Finally, a statistical control for *state spending priorities* is included in the regression analysis. These scores summarize how states choose to spend their money or their priorities in a clear uni-dimensional distribution of preferences between collective and more particularistic benefits. This gives us the ability to control for a state’s profile as well as for relative preference for redistribution over time. We provide further details on this measure below.

Given the fact that higher education is often in competition with other policy areas, we found that adding this particular control was important and more robust than the amounts spent on each of the other relevant state budget items (Kane et al. 2005). We lag the variable such that last year’s policy priority score is assumed to shape to this year’s budget decisions. As Schneider and Jacoby (2011) noted, the political dynamics of public policy-making involve establishing priorities.
across various competing policy categories. We also believe that last year’s priorities are the best proxy for capturing the baseline priorities of states’ policy makers (Wildavsky 1984).

Using state policy expenditures data and the spatial proximity model, Jacoby and Schneider (2001; 2009) lay out the methodological foundations for an empirically grounded typology of public policy. Their method helps us produce a robust measure of states’ spending priorities across areas in a continuum of policies that favor a broader segment of the population (collective benefits) or more selective groups (targeted benefits). Their measure offers a proxy for states’ revealed policy preferences between favoring broader constituencies and redistributing resources to particular groups in a particular year.

Jacoby and Schneider’s (2001, 2009) measure uses nine distinct policy areas, including a single category for education, to create their policy priority scores that lie on a continuum that ranges from preference for the provision of particularized benefits to preference for the provision of collective benefits. Unlike most political scientists and public policy scholars who work with education data, we consider that K-12 education and higher education have substantively different political dynamics and, hence, should not be treated as a single policy category. The two areas present differences in organizational structures, funding patterns, levels of bureaucratic autonomy, and relevant constituencies.

A proper understanding of these differences requires the careful use of a public policy typology that captures the spectrum of priorities between collective and particularized benefits. To support our claim, we expanded the original nine policy categories used by Jacoby and Schneider to ten distinct policy areas, with higher education as a separate category. In the particularized-collective benefits spectrum, an average score for higher education policy (across all 50 states from 1997 to 2006) is placed closer to policy areas characterized by the provision of more collective/broader constituency benefits such as law enforcement, highways, and government administration. However, our modified version shows many meaningful differences. Figure 2 shows
how the two policy priority scores vary over time in four randomly selected states. Although both state priority scores (Jacoby and Schneider’s and ours) have very similar means over time and by state, the Jacoby and Schneider score shows much larger variation and instability over time. We suspect that higher education spending has a disproportionately larger impact on the distribution of the Jacoby and Schneider scores, as they are combined with the K-12 education category. However, if the education category is divided up, then the effect becomes less disproportional. This suggests that our modified policy priority scores are more stable, valid, and reliable for our purposes (Delaney and Doyle 2011; Gerring 2012).

[Insert Figure 2 about here.]

Figure 3 depicts the distribution of our modified score by state and over time. As seen in the figure, states have clear differences in their profiles and average relative preferences over the trade-offs in the provisions of more particularized or collective benefits through direct government expenditures. Figure 3.(1) shows that states varied at different rates on their (modified) policy priority scores, which indicates that short-term fluctuations in political and economic conditions also play a role. Figure 3.(2) depicts the shifts in average (modified) state priority scores over 30 years, indicating a shift on the average 50-state preferences toward the provision of more particularized benefits. This pattern may reflect recent trends observed in federal and state government policy toward increasing subsidization of the private sector as providers of social services, increasing tax expenditures (not included in the measure), and providing alternative policy instruments such as means tested vouchers in K-12 education (Faricy 2011, Labaree 2012).

[Insert Figure 3 about here.]

*Estimation Models*

Because we seek to test partisan effects on higher education appropriations across states and over time, our model has a panel data structure. We estimate several regression models to examine
partisan effects on state higher education appropriations between 1977 and 2006 for 44 states. We chose not to include a lagged dependent variable in the model because it absorbs the effects of other independent variables, which creates a significant downward bias (Achen 2000; Plümper, Troger, and Manow 2005). We also adjusted for serially correlated errors by using AR(1) to estimate our parameters. The full model to be tested requires the identification of fixed-effects estimators that give the expected change in funding for higher education within each state, but also controls for difference across states. This fixed-effects model is written as follows:

\[
\text{State funding for higher education }_{i,t} = \beta_1 \text{ Democratic Party strength }_{i,t} + \beta_2 \text{ Polarization }_{i,t} + \beta_3 \text{ Unemployment }_{i,t} + \beta_4 \text{ Private enrollment }_{i,t} + \beta_5 \text{ State revenue per capita }_{i,t} + \beta_6 \text{ Previous year tuition }_{i,t} + \beta_7 \text{ Age }_{i,t} + \beta_8 \text{ Democratic Party strength } \times \text{ Polarization }_{i,t} + \beta_9 \text{ Democratic Party strength } \times \text{ Unemployment }_{i,t} + \beta_{10} \text{ Previous year state policy priority score }_{i,t} + \alpha_{i,t} + \mu_{i,t},
\]

with AR(1) error \( \mu_{i,t} = \rho \mu_{i,t-1} + \varepsilon_{i,t} \).

---

4 We have excluded Alaska, Delaware, North Dakota, Vermont, Wyoming, and Nebraska in the analysis. The first five states only had Republican representatives during several periods of our data, so the measures of partisan polarization are not meaningful. In the case of Nebraska, as it is customary in comparative state politics analyses, we dropped the case due its unicameral and non-partisan legislature.

5 Other panel analysis data methods, for example, using feasible generalized least square (FGLS) errors or panel corrected standard errors (PCSE). Our panel data are unbalanced, which makes it inefficient to use the FGLS technique. Besides, FGSL estimator generates artificially smaller estimated standard errors of the coefficients, causing incorrect inference (See, Beck and Katz 1995). On the other hand, the PCSE estimator performs efficiently to deal with the data that have panel heteroskedastic and contemporaneously cross-sectionally correlated errors, but not serial autocorrelation. However, the finite sample properties of the PCSE estimator are expect to perform poorly “when the panel’s cross-sectional dimension N is large compared to the time dimension T” (Hoechel 2007: 286). This problem applies to our dataset with the panel’s cross-sectional dimension (N=44, T=30).
As noted, our main dependent variables are the amount of state higher education appropriations per $1,000 of state personal income and appropriations as a share of states’ budgets. The subscripts \( i \) and \( t \) represent the state and year of the observations, respectively. The model treats \( \alpha_i \) as a country fixed effect, controlling for the unmeasured state specific effects (e.g., a state’s unique characteristics). \( \mu_{i,t} = \rho \mu_{i,t-1} + \epsilon_{i,t} \) is a better way to model error (where \( \rho \) estimates the first-ordered autocorrelation coefficient) than the identically independently distributed error model assuming \( \mu_{i,t} = \epsilon_{i,t} \).

We also examined interaction effects as our main explanatory variables. As noted by Brambor, Clark, and Golder (2006), the relationship between our key independent variable (partisanship) and dependent variables (state funding for higher education) varies depending on the context (in our case, levels of political polarization and economic conditions). We capture the substantive significance of this relationship by estimating the marginal effects of our interaction variables. To do so, we used the following estimation equations:

Equation (a):

\[
\frac{\partial \text{State funding for higher education}_{i,t}}{\partial \text{Democratic Party strength}_{i,t}} = \beta_1 + \beta_8 \text{Polarization}_{i,t} + \beta_9 \text{Unemployment}_{i,t}
\]

Equation (b):

\[
\frac{\partial \text{State funding for higher education}_{i,t}}{\partial \text{Democratic Party strength}_{i,t}} = \beta_1 + \beta_8 \text{Polarization}_{i,t} + \beta_9 \text{Unemployment}_{i,t}
\]

Equation (a) denotes the marginal effects of Democratic Party strength, subject to varying levels of polarization, whereas Equation (b) captures marginal effects of Democratic Party strength, subject to varying levels of unemployment rates. With all else equal, the marginal effects of an increase in Democratic Party strength on state higher education appropriations are expected to abate as political polarization increases (or unemployment increases). To verify this expectation from the
full model we identified earlier, we hold unemployment rate constant at the sample mean for Equation (a), whereas we hold polarization at the sample mean for Equation (b). The advantage of this method is to allow us to capture how marginal effects may change over the range of the two conditional variables and whether these effects are statistically significant.

**Empirical Findings**

We find that partisanship (measured as the share of Democrats in the state’s legislature) plays a positive role in state higher education spending. This positive relationship becomes less significant, however, as partisan polarization or unemployment rates increase. This relationship remained robust when we included other potentially relevant controls. While most controls met our expectations for the direction and significance of the relationship, the partisanship variable in Table 1 highlights our main finding: Democratic Party strength is positively and significantly associated with both dependent variables.

[Insert Table 1 about here.]

In full models (5) and (10), our findings consistently show that Democratic Party strength’s direct effect on state funding for higher education is positive and significant, while this partisan effect coefficient assumes low levels of partisan polarization and unemployment rates in the interaction terms. For an added one standard deviation in Democratic Party strength (0.18 share of total seats held by Democrats in the legislature), the predicted effect size is an increase of 0.27 standard deviation in state appropriations per $1,000 of personal income.\(^6\) In comparison, an increase of one standard deviation in Democratic Party strength is related to an increase of 0.28 standard deviation in state appropriations as a percentage of states’ budgets.\(^7\) The magnitude differs by a slight margin, suggesting that the substantive partisanship effect on the basis of relative spending may be as important as the effect on the basis of absolute spending. However, if we were

---

\(^6\) The impact size: \((0.18) \times \text{coefficient (4.20) / 2.84. Measures of standard deviation are shown in Appendix.}\)

\(^7\) The impact size: \((0.18) \times \text{coefficient (3.09) / 1.96. Measures of standard deviation are shown in Appendix.}\)
to calculate the actual magnitude of the effects in dollar terms, it is likely that the changes in the higher education share of states’ budgets would lead to a greater amount of resources, especially in wealthier states. Nonetheless, our finding indicates that, all else equal, partisanship has a direct effect on states’ priorities for higher education.

The interaction variables show that the positive effect of Democratic Party strength diminishes significantly as political polarization or unemployment increases. We find this dampening effect statistically significant for both our measures of state funding for higher education. In one exception, we find no evidence that Democratic Party strength interacts with unemployment rates to significantly affect state funding for higher education as a share of states’ budgets. We suspect that an increase in unemployment rates may be responsible for a rapid shift in Democrats’ spending priorities toward more immediate counter-cyclical expenditures, such as welfare and healthcare.

In Figure 4, we present how marginal effects of Democratic Party strength on state funding for higher education change over the sample range of partisan polarization and unemployment rates. By varying the range of these two intervening variables, we confirm that partisan effects are still positive when there are low levels of polarization or unemployment. This is shown by the positive coordinate at the starting point in Figure 4. This coordinate is significantly different from having no effect (denoted as the zero horizontal line on each graph). However, as polarization or unemployment increases, the partisan effect shows a downward slope and becomes insignificant. This result matches our initial expectations (conditional hypotheses 2 and 3). More importantly, we find that the dampening effects produced by increases in polarization or unemployment rates appear to occur more quickly in the case of state higher education appropriation as share of states’ budgets, compared to appropriations per $1,000 of state personal income.

[Insert Figure 4 about here.]
Table 1 also shows that our modified policy priority scores are positively and significantly associated with our dependent variable appropriations for higher education as a share of states’ budgets. The regression analysis shows a large coefficient (10.93) if policy priority scores increase by one unit, which actually means 10 times more than a full swing (given that our data range from -0.05 to 0.05). Therefore, if a state’s policy priority moves in the actual data range from particularized goods to collective goods (0.1), then we anticipate that the average state would allocate additional 1.093% of states’ budget share to higher education. This is equivalent to our estimate for higher education policy expenditures when Massachusetts assimilates Wyoming’s policy priority in reference to Figure 3.(1).

Robustness Checks

We ran fixed-effects estimation, requesting within OLS-estimator of the fixed state effects model, with an assumption that error terms are serially correlated. We tested for the validity of this assumption based on LBI-statistics, that is, Baltagi-Wu’s (1999) locally best invariant test statistics from the AR(1) model, $H_0: \rho = 0$. The value of 2 for LBI statistics indicates no autocorrelation, given a possible range between 0 and 4. As a rule of thumb, a value below 1.5 indicates that one should correct serial autocorrelation. Our regression estimates regarding model (5) and model (10), respectively, show LBI statistics are 0.80 and 0.69. These values are smaller than 1, which means that we have positive serial autocorrelation. Thus, our control for AR (1) errors combining with the fixed effects are a valid estimation method.

We also take a further step to explore how our modeling approach could theoretically lead to endogeneity, as state funding for higher education is included in the calculation of the state policy priority scores. In practice, however, several factors ameliorate these concerns. First, higher education spending often does not vary in tandem with other policy areas: Shifts in spending in other policies, especially those involving entitlement programs (i.e., healthcare, welfare, and K-12 education) often balance out or overwhelm higher education, known to be one of the biggest
discretionary items in states’ budgets (Hovey 1999). Our dependent variables are appropriations per $1,000 of personal income or state appropriations as a share of states’ budgets, while the state policy priority scores (modified) use raw spending data. Indeed, the Hausman test for endogeneity provides no evidence that our (modified) state policy priority scores are significantly correlated with the residuals of our two dependent variables when we carry out regression diagnostics. We find low $t$-statistics on the residuals’ coefficient of relationship with state policy priority scores.

We took several steps, as follows, to reach this finding. First, by regressing all the exogenous variables except state policy priority scores, as described in model (4) and model (9) in Table 1, we took the fitted value as a new exogenous variable. The residuals, when we created this new exogenous variable, are added as a regressor to a model in which state policy priority scores are the dependent variable. We ran a regression to see whether the coefficient of the residuals is statistically significant. If the residuals’ coefficient shows a high $t$-statistic, then we can conclude that state higher education appropriations and state policy priority scores are endogenously correlated, which makes our statistical inference biased. The critical $p$-value for the residuals’ coefficient is greater than 0.238 (or 0.428) in the case of state appropriations per $1,000 (or as a share of states’ budgets). These findings provide counterevidence to the suspicion that state appropriations as a share of states’ budgets may be endogenously correlated with our state policy priority scores.

Second, we ran all of our regression models while excluding state policy priority scores, and our main results on other coefficients remain intact in magnitude and statistical significance. Finally, we ran several models that included controls for absolute spending on entitlements, corrections, and K-12 education instead of state priority scores, and our results also remained the same (these results are available from the authors upon request).

**Discussion**
The available scholarship on political parties and state budget outcomes has presented a robust set of results for fiscal policy, health policy, and, especially, welfare policy expenditures. Our study seeks to contribute to this literature by looking at a much less explored policy area such as the state higher education funding characterized by holding a “hybrid” status that provides combinations of particularized and collective benefits (Schneider and Jacoby 2011). Moreover, given there is widespread agreement over the important role of higher education spending on states’ economic growth and society in general, our empirical study offers a generalizable partisan effect model to be tested on an area for which policy position do not fall clearly on the standard left-right political spectrum (Carnevale and Rose 2010).

We show not only that partisanship matters in the higher education spending policy area, focusing on Democratic legislators’ support for state funding for higher education. Our study also detects partisan support for higher education as conditional on the levels of partisan polarization and unemployment. One of the most visible costs incurred by this policy shift may include an increase of responsibility placed on individuals and their families for the costs of higher education, and the so-called “privatization” of American public higher education (Faricy 2011; Fryar 2012; Zumeta et al. 2012).

If higher education indeed distributes collective benefits more often than not (as based on our findings using the modified Jacoby and Schneider score distribution), then future research should investigate the relationships between specific constituencies, legislative preferences, and types of higher education spending. Unlike welfare programs, benefits in higher education can benefit a broad range of socioeconomic groups. Moreover, higher education institutions also redistribute resources internally, not only towards the poor but also benefiting the middle and upper middle classes. They also carry out a lot of redistribution through the cross-subsidization by full tuition-paying students to low-income students (Author, 2012b).
Our findings have substantive implications as well. Given the importance of an educated workforce for state and national economic development, growth, and competitiveness, it is important to understand the political-economic causes of the current trend, whereby governments have moved away from the provision of higher education services and financial support for institutions and low-income students, a key strategy that had made higher education affordable for two generations of Americans (Mettler 2007). As a result of this trend, the responsibility for financing a college education has shifted disproportionately to individuals and their families. These new cost-sharing arrangements have affected the amount and type of demand for higher education. They also have contributed to increasing inequalities within the higher education sector and, hence, inequalities of educational outcomes.

In this paper, we sought to explain the variation in states’ funding levels and priorities for higher education. Our argument was that partisanship plays a key role, with effects conditional on economic and political constraints, shaping policy expenditures differently across states and over time. Our findings have also broader significance because we have shown that partisanship also matter for policy areas where the distribution of political preferences is not clear on the left-right traditional political spectrum. By laying out specific characteristics of this particular policy area and the mechanisms that link political parties and state spending, we make a contribution that we hope can be generalizable to other policy areas. Many have become increasingly more alike to higher education in the use of public-private partnerships, alternative sources of funding, indirect government expenditures, broader constituencies and growing inequality of access, and public subsidization across socio-economic/racial-ethnic groups - e.g., healthcare, K-12 education (Faricy 2011; Hacker and Pierson 2010).
References


Figure 1. Boxplot of Dependent Variables (1977-2006)
Figure 2. Comparative Policy Priority Scores
(Higher Education Combined vs. Higher Education Separated)
Figure 3. Overview of (Modified) State Spending Priority Scores
Figure 4. Marginal Effects of Partisanship on State Expenditure on Higher Education Conditional on Polarization and Unemployment

(a) Polarization, Democratic Party Strength, and State Appropriations per US$1,000 of Personal Income

(b) Unemployment, Democratic Party Strength, and State Appropriations per US$1,000 of Personal Income

(c) Polarization, Democratic Party Strength, and State Appropriations as percentage of State Budget

(d) Unemployment, Democratic Party Strength, and State Appropriations as percentage of State Budget
Table 1. Fixed-Effects Models Predicting Impacts of Partisanship on State Appropriations on Higher Education

<table>
<thead>
<tr>
<th>Variables</th>
<th>State Appropriations for US$1,000 of Personal Income</th>
<th>State Appropriations as a Percentage of State Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td>Baseline</td>
<td>Baseline</td>
</tr>
<tr>
<td>Democratic Party Strength</td>
<td>1.15***</td>
<td>2.99***</td>
</tr>
<tr>
<td></td>
<td>(0.39)</td>
<td>(0.90)</td>
</tr>
<tr>
<td>Polarization</td>
<td>-0.17</td>
<td>1.28*</td>
</tr>
<tr>
<td></td>
<td>(0.24)</td>
<td>(0.68)</td>
</tr>
<tr>
<td>Unemployment</td>
<td>-0.15***</td>
<td>-0.15***</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Private Enrollment</td>
<td>-4.49***</td>
<td>-4.56***</td>
</tr>
<tr>
<td></td>
<td>(1.35)</td>
<td>(1.35)</td>
</tr>
<tr>
<td>State Revenue Per Capita</td>
<td>0.89***</td>
<td>0.81***</td>
</tr>
<tr>
<td></td>
<td>(0.10)</td>
<td>(0.11)</td>
</tr>
<tr>
<td>Previous Year Tuition (in US$1,000)</td>
<td>-0.52***</td>
<td>-0.52***</td>
</tr>
<tr>
<td></td>
<td>(0.06)</td>
<td>(0.06)</td>
</tr>
<tr>
<td>Age 18-24 (Percentage of Total Population)</td>
<td>0.38***</td>
<td>0.36***</td>
</tr>
<tr>
<td></td>
<td>(0.05)</td>
<td>(0.05)</td>
</tr>
<tr>
<td>Democratic Party Strength x Polarization</td>
<td>-2.74**</td>
<td>-2.70**</td>
</tr>
<tr>
<td></td>
<td>(1.20)</td>
<td>(1.20)</td>
</tr>
<tr>
<td>Democratic Party Strength x Unemployment</td>
<td>-0.23***</td>
<td>-0.23**</td>
</tr>
<tr>
<td></td>
<td>(0.09)</td>
<td>(0.09)</td>
</tr>
<tr>
<td>Previous Year State Policy Priority Scores</td>
<td>4.19</td>
<td>4.16</td>
</tr>
<tr>
<td></td>
<td>(4.16)</td>
<td>(4.16)</td>
</tr>
<tr>
<td>Observations (years)</td>
<td>1,011(30)</td>
<td>1,011(30)</td>
</tr>
<tr>
<td>Number of States</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>Model Chi-square</td>
<td>75.89***</td>
<td>67.26***</td>
</tr>
</tbody>
</table>

Note: Five states (Alaska, Delaware, North Dakota, Vermont, and Wyoming) are omitted after listwise deletion in the panel regression analysis due to lacking in panel observations. Two-tailed significant at *p<0.01, **p<0.05, ***p<0.01. All models are estimated in state fixed effect with AR(1) option (Stata command: xtregar, fe)
# Appendix: Description of Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Description</th>
<th>Source</th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
<th>Std.Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Democratic Party strength</td>
<td>Democratic Party strength as a share of the total two party seats held by Democrats in the state’s lower and upper chambers.</td>
<td>Indicator is the average of the proportion of Democrats in both chambers. Range 0 to 100 (measure proposed by Smith (1997) and used as a proxy for political competition by Besley and Case (2003). Klarner, Carl. “State Partisan Balance 1959-2004” at <a href="http://academic.udayton.edu/SPPQ-TPR/klarner_datapage.html">http://academic.udayton.edu/SPPQ-TPR/klarner_datapage.html</a>.</td>
<td>0.59</td>
<td>0.11</td>
<td>0.99</td>
<td>0.18</td>
</tr>
<tr>
<td>State appropriations per US$1,000 of personal income</td>
<td>Total appropriations per US$1,000 of personal income.</td>
<td>State Government Finance 1900-2006 – File provided by the Census Bureau Staff (January 2006) – Source: Grapevine / Center for the Study of Education Policy – Illinois State University. <a href="http://grapevine.illinoisstate.edu">http://grapevine.illinoisstate.edu</a>. Data are also available online at <a href="http://www.postsecondary.org">http://www.postsecondary.org</a> (Report only sums appropriated for annual operating expenses).</td>
<td>9.23</td>
<td>2.47</td>
<td>17.48</td>
<td>2.84</td>
</tr>
<tr>
<td>State appropriations as a percentage of general fund expenditures</td>
<td>Total appropriations / total state general fund expenditures.</td>
<td>Source: Grapevine / Center for the Study of Education Policy – Illinois State University. <a href="http://grapevine.illinoisstate.edu">http://grapevine.illinoisstate.edu</a>. Data are also available online at <a href="http://www.postsecondary.org">http://www.postsecondary.org</a> (Report only sums appropriated for annual operating expenses).</td>
<td>7.02</td>
<td>2.25</td>
<td>14.82</td>
<td>1.96</td>
</tr>
<tr>
<td>Polarization</td>
<td>Policy distance between Democrats and Republicans.</td>
<td>Difference between the average of Poole and Rosenthal first dimension ideology (DW-NOMINATE) scores for the congressional delegation of a particular state (<a href="http://www.voteview.com">http://www.voteview.com</a>).</td>
<td>0.66</td>
<td>0.01</td>
<td>1.24</td>
<td>0.19</td>
</tr>
<tr>
<td>Unemployment</td>
<td>Unemployment rate as a percentage of labor force.</td>
<td>Bureau of Labor Statistics.</td>
<td>5.97</td>
<td>2.20</td>
<td>17.90</td>
<td>2.03</td>
</tr>
<tr>
<td>State policy priority scores*</td>
<td>Using Jacoby &amp; Schneider’s (2009) code, we calculate the same variable based on a space proximity model, but we keep K-12 and Higher-Education separate.</td>
<td>Annual State and Local Government Finance Data. Pivot tables produced by the Public Policy Institute of California. Available at <a href="http://www.ppic.org/main/dataset.asp?i=669">http://www.ppic.org/main/dataset.asp?i=669</a>. Data from U.S. Bureau of the Census, Annual Survey of State and Local Government Finances, multiple years. And Jacoby &amp; Schneider (2009).</td>
<td>-0.001</td>
<td>-0.05</td>
<td>0.05</td>
<td>0.02</td>
</tr>
<tr>
<td>State Revenue per capita</td>
<td>Total state revenues – 2006 US$1,000.</td>
<td>State of Washington Higher Education Coordinating Board-data provided by Kathy Raudenbush.</td>
<td>8.28</td>
<td>7.53</td>
<td>9.06</td>
<td>0.28</td>
</tr>
<tr>
<td>Tuition*</td>
<td>Average in state tuition at public.</td>
<td>State of Washington Higher Education Coordinating Board-data provided by Kathy Raudenbush.</td>
<td>3.63</td>
<td>0.90</td>
<td>11.59</td>
<td>1.70</td>
</tr>
<tr>
<td>Private enrollment</td>
<td>Proportion of total FTE enrollment in private institutions of higher education.</td>
<td>National Center for Education Statistics Digest of Education Statistics (various years).</td>
<td>0.23</td>
<td>0.01</td>
<td>0.62</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Note: * indicates a summary statistics of lagged values to match with regression analyses from Table 1.