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Partisanship, Political Polarization, and State Higher Education Budget Outcomes

In this article, we explore how partisanship affects state higher education policy priorities and expenditures. We assume that party coalitions are heterogeneous and policy preferences/priorities differ via mediating factors. We find that Democratic Party strength positively affects state funding for higher education but that the effect diminishes as political polarization or unemployment increases.

Trends in higher education financing policy in the U.S. for the past 30 years have puzzled social scientists. Despite a substantial increase in the federal government's expenditures in student financial aid, higher education has lost status in the policy priorities of most states, and recent state financing trends have shifted a larger share of college costs to students and their families (Zumeta, Breneman, Callan, & Finney, 2012). Conversely, demand for higher education and for open access continues to grow, as does recognition of the importance of education for economic growth and opportunity, global competitiveness, and democratic stability (Duncan & Murnane, 2011; Goldin & Katz, 2008). Nevertheless, state governments have shown a lack of responsiveness to

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public opinion about higher education and to pressing subnational and national economic needs (Carnevale, Smith, & Strohl, 2010; Immerwahr & Johnson, 2010).

There are many causes for this downward shift in higher education funding. States' budgetary pressures have grown exponentially, and expenditures on entitlement programs such as health care, K–12 education, and welfare have diminished discretionary spending ability across all states (Kane, Orszag, & Apostolov, 2005; Rizzo, 2006; Toutkoushian, 2009). As described by Hovey (1999) and empirically tested by Delaney and Doyle (2011), due to higher education's share of states' budgets and its discretionary status, it has become the "balance-wheel" of states' budgets. This 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). Moreover, there are significant cross-state differences in policy responsiveness, levels of public subsidies to higher education, and cost-sharing arrangements between the public (federal, state, and local governments) and private sectors (Delta Cost Project, 2011; Fryar, 2012; Rigby & Wright, 2011).

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 indicators as well as higher education governance characteristics that may explain the observed variation (see Tandberg & Griffith, 2013 for a comprehensive review). Research on economic business cycles and demographic characteristics has yielded the most robust and consistent findings (Delaney & Doyle, 2011; Kane et al., 2005). This has not been true for political variables, partly due to comparability issues among dependent variables, model specifications, and empirical strategies but also to the assumption that higher education enjoys bipartisan support.

This growing body of work on the determinants of higher education expenditures is more commonly characterized by a *causes-of-effects* approach, that is, the use of "wide-ranging, encompassing all the systematic (i.e., nonstochastic) causal factors presumed to contribute to a particular outcome" (Gerring, 2012, p. 333). In this article, we use a different strategy, an *effects-of-causes* approach; that is, we focus on the mechanisms that link one particular variable, partisanship, and state higher education budget outcomes. By doing so, we can explore, in detail, specific hypotheses, mechanisms, and interaction terms. Moreover, this approach provides the opportunity to focus on theory development,

using a more parsimonious model, and offers specific implications for research, policy, and practice.

Despite the extensive political science literature on how political parties shape public policy outcomes in response to constituents' preferences and voters' unequal ability to influence the political process, work that focuses exclusively on the influence 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 (Kelly & Schneider 2012).

This article uses recent developments in the political science literature to provide grounding for our expectation of conditional partisan effects in "hybrid" policy areas such as higher education. These areas are characterized by complex partnerships between the public and private sector and by party-based coalitions that often shift or split across different issues (Jochim & Jones, 2013; Karol, 2009). In these types of policy issues, parties are less responsive to voters' preferences (Bawn et al., 2012), which tend to be more moderate than those of their representatives (Ansolabehere, Rodden, & Snyder, 2006), and policies produce a combination of collective and particularized benefits that often occur jointly and that favor constituents across a variety of socioeconomic levels (Jacoby & Schneider, 2009). In policy expenditures of this complex type, legislators consider collective and particularized benefits simultaneously, based on their changing priorities.

We argue in this article that one of the most persuasive explanations for these differences is political and concern the nature of higher education as a policy issue, unstable voting coalitions that support particular spending/regulatory choices, (mis) alignments between representatives' policy preferences and priorities, and political polarization (Doyle, 2012; Jochim & Jones, 2013; Jones, Larsen-Price, & Wilkerson, 2009; Lax & Phillips, 2012; Schneider & Jacoby, 2011). We make a contribution not only to the literature on the determinants of state higher education spending but also to the literature on the mechanisms that link political parties and policy outcomes. We examine a policy area with unique characteristics, higher education, where the distribution of policy preferences does not fall clearly along the left-right political spectrum and that is characterized by crosscutting policy dimensions with shifting dimensional salience and heterogeneous party coalitions.

Partisanship and Higher Education as Policy Area

Higher education involves the provision of various combinations of collective and particularized benefits, serves a diverse set of constituencies, and uses both public and private sources of financial support. Further, the type and amount of the public provision of higher education vary considerably across states, and there are barriers to entry based on merit or price (Doyle, 2007; Lowry & Fryar, 2012). However, political scientists rarely focus their work on higher education policy (Lowry, 2007) despite its great potential to contribute to the development of more nuanced explanations for the complex relationships between political processes and policy outcomes.

Inconsistent results as they pertain to the link between political parties and higher education policy choices are to be expected, given the variety of constituencies served, the ongoing debate over the need for governments to support higher education, and growing higher education costs (McMahon, 2009; Vedder, 2007). For example, one can argue that Democrats favor more redistribution, and thus spend more, on average, than do Republicans (Alt & Lowry, 1994). One also could argue, however, that, because higher education competes 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 under certain conditions.

On the other hand, Democrats and Republicans often support funding for community colleges, but for different reasons. Democrats think of community colleges as an access point for low-income students and an instrument for social mobility. Republicans, however, consider community colleges to be cost-effective alternatives to four-year institutions, particularly research universities (Dowd & Shieh, 2013). Likewise, both parties tend to support spending on community colleges due to the perceived collective economic benefits to their state. Conversely, Republicans may not choose to support policies that favor community colleges due to inefficiencies and low student success rates. Democrats also may do the same because they consider higher education in general as a regressive transfer of resources from the general population to the middle/upper-middle classes (Doyle, 2007).

To help explain differences in the nature and size of partisan effects on higher education budget outcomes, we explore the mechanisms whereby shifts in the perceived goals of higher education take place under certain conditions. For example, if the collective good is perceived as the main benefit of higher education, then there will be a higher probability of convergence of political preferences, and par-

tisanship should matter less. If the redistribution of resources, with the goal of promoting access and reducing social inequalities, however, is the perceived outcome of higher education, then a higher proportion of Democrats in state legislatures should lead to more spending. This leads to our first hypothesis:

Hypothesis 1. In states where Democrats hold a larger proportion of legislative seats, funding for higher education will increase.

Theoretical Framework

Theory of Political Parties

We develop an account for the mechanisms by which political parties shape legislative behavior and, hence, public policy outcomes in higher education. Legislators' preferences and issue salience vary across policy areas and over time. In this regard, Bawn et al. (2012) have proposed a theory of political parties in which they are coalitions of well-organized, policy-demanding groups and activists that are often unresponsive to voters' preferences, which leads to particular groups' disproportionate influence on public policy. In this theory, party coalitions are much more heterogeneous than is usually assumed, which leads to further instability and multidimensionality in the policy space.

Most importantly, for our purposes, this theory offers a powerful rationale for the misalignment among higher education financing trends, constituency preferences, and states' economic needs. Political parties often produce more polarized policy outcomes relative to constituents' preferences in the process of actively responding to particular groups. This shapes the nonresponsiveness of state policy to the average constituent expectations. Although political parties offer solutions to collective action problems, more often than not, they are out of sync with the preferences of the majority of the electorate (Aldrich, 2011).¹

Scholars have studied the increasing political polarization of American politics over the past three decades (McCarty, Poole, & Rosenthal, 2006). Jochim and Jones (2013) have argued that common explanations for trends in political polarization fail to consider "the nature of policy issues and their respective voting coalitions" (p. 1). They showed that most policy issues have a left-right ideological dimension that captures preferences over government intervention in the economy but that many present crosscutting dimensions that may not be partisan or that share a similar distribution of ideological preferences in the economic dimension. Jochim and Jones found that, from 1965 to 2004, political polar-

ization evolved on an issue-by-issue basis in the U.S. Congress and that, as polarization increased, there was a simplification in the policy space (i.e., lower dimensionality) of particular issue areas and a resulting increase in the partisan nature of political competition.

Jones et al. (2009) also showed that policy substance matters for legislative politics and political representation. Legislators' priorities and policy preferences often differ, which raises questions about the representativeness of public policy under particular political and economic conditions. The differences between priorities and preferences are central to the argument and hypotheses of this article. In the case of higher education, there has been a simplification of the policy space, in which issues that previously enjoyed bipartisan support are now at the center of a contentious ideological battle within the boundaries of more traditional redistributive politics.

Policy Dimensions of Higher Education

Based on the assumption that policy substance matters to understanding political dynamics, one can argue that political competition over higher education issues can be described in a two-dimensional policy space. The first is the traditional left-right political dimension, in which preferences are placed over the role of government in the economy. The second is a crosscutting dimension that places preferences over whether higher education is a public or private good and, hence, identifies those who support public subsidization but also those who 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 (Dar, 2012; Kelly & Schneider, 2012; McMahon, 2009).

Because it is difficult to make a causal connection and measure the collective benefits of government subsidization of higher education, the contentiousness of the debate over the second dimension has increased over time. Further, political scientists have started to acknowledge that the redistributive implications of higher education subsidies are not as clear-cut as those of other policy areas. This creates a challenge for scholars of the comparative political dynamics of higher education (Bailey, Rom, & Taylor, 2004; Busemeyer & Trampusch, 2011).

Mettler (2009) also has offered a policy-centered explanation for the shifts in government ideology from higher education as a public to a private good over the past 30 years. 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. Growing ideological distance between the two main

political parties, resulting partly from an increasing conservatism in the Republican Party, and the ideological overlap between the two parties have enabled the gradual shift in majoritarian political coalitions toward support for bigger involvement of the private sector. This makes private actors bigger beneficiaries of public higher education funding and more significant providers of services (Fethke & Policano, 2012; McCarty et al., 2006).

Partisanship, State Spending, and State Priorities

Higher education has been identified as the “balance-wheel” of states’ budgets (Delaney & Doyle, 2011). As the largest discretionary item, 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.

Political parties play a pivotal role in the lack of states’ accountability in maintaining the physical and fiscal capacity of state higher education systems in response to changing economic conditions, demographic shifts, and commitments to keep postsecondary education affordable to all eligible students. As fiscal pressures mount, state leaders favor the establishment of more market-based mechanisms in the funding of higher education (i.e., targeted student aid, higher tuition, and resources directed to the for-profit sector). Scholars who explore the determinants of state higher education funding have found that other state contextual characteristics (e.g., term limits, tax and expenditures limitations, enrollment patterns, tuition/aid policies) matter but that partisanship (more Democrats) and citizen ideology (liberal) are even more important (McLendon & Mokher, 2009).

While, indeed, there has been a shift in the average partisan composition of state legislatures in favor of Republicans, we claim that shifts in state political parties’ preferences are a result not only of incremental changes in voting coalitions around specific policy issues but also of changes in the distribution of ideological preferences within and outside the party. 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 trends in state financing of higher education (Bawn et al., 2012; Lowry, 2001; Noel, 2010).

Given the susceptibility of higher education spending to political and business cycles, we argue that the effect of partisanship on higher education spending is contingent upon the degree of polarization between the two parties and state economic conditions.

Partisanship, Political Polarization, and Higher Education

When there is low political polarization in the state legislature, 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. A large volume of empirical work in political science provides 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 & Jones, 2013; McCarty et al., 2006). 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.

For low levels of polarization, 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 then 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 electoral success 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' fiscal support for higher education.

Hypothesis 2. The impact of Democratic Party strength in the state legislature on state funding for higher education will be moderated by the degree of polarization in the state's legislature.

Partisanship, Business Cycles, and Higher Education

As noted, Democrats may not wholeheartedly support higher education due to its regressive nature, that is, middle- and upper-middle-income students are overrepresented in public higher education systems (Doyle, 2007), and prefer to support K–12 education and other forms of redistribution that go directly to their base voters. Thus, when the economy declines and unemployment rises, we expect that Democrats will reduce support for higher education. The public finance and political economy literatures provide empirical evidence that the economy matters a great deal for government expenditure choices, and they show that business cycles mediate the impact of political institutions on policy

outcomes (Alt & Lowry, 1994, 2000; Besley & Case, 2003; Persson & Tabellini, 2002; Rubin, 2009).

Indeed, extensive work by higher education scholars has established a robust link between states' economic fortunes and higher education policy expenditures (Zumeta et al., 2012). For example, McLendon, Hearn, and Mokher's (2009) analysis of 49 states from 1984 to 2004 presents evidence that state unemployment rates are strongly and negatively correlated with state appropriations per \$1,000 of personal income. This finding supports the state economic cycle as closely related to higher education funding levels (e.g., Hovey, 1999). Therefore, in economic recessions, we should expect crowding-out effects on higher education for the sake of other budget categories.

Hypothesis 3. The impact of Democratic Party strength in the state legislature on state funding for higher education will be moderated by state economic conditions.

In summary, 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.

Research Design

This research examines how partisan strength interacted with institutional conditions (political/economic) to affect variations in state appropriations for higher education from 1977 to 2004. To this end, we used fixed-effects regression models, in which the unit of analysis is state-year. This analysis includes 44 states, and the states omitted from the analysis have a one-party dominant congressional delegation (Alaska, Delaware, North Dakota, Vermont, and Wyoming) or a unique nonpartisan unicameral legislature (Nebraska).

Variables and Measures

Dependent Variables

Following common measurement strategies in the comparative higher education finance literature, we first used *state higher education appropriations per \$1,000 of personal income*² (Consumer Price Index [CPI] adjusted for 2004 dollars). This variable represents states' effort to support higher education as a share of states' wealth (Archibald &

Feldman, 2006; McLendon et al., 2009; Tandberg & Griffith, 2013). However, a drawback of this state-effort level measure is that the value may fluctuate, depending on how fast or slow state appropriations for higher education change, subject to the event that a state grows richer or poorer. Our alternative dependent variable is the total amount of state appropriations for higher education in CPI-adjusted 2004 dollars (1,000s). We used *the natural log of state funding for higher education* to improve the normality of the skewed distribution. A major pitfall of this logged value, however, is that it does not take into account a state's ability to fund higher education nor the financial needs of higher education institutions. Table 1 presents variables descriptions, sources, global averages, local averages, and percent changes during the time period covered in the analysis.

Independent Variables

Democratic Party strength is our measure of partisanship, which captures the overall strength of the Democratic Party in the state legislature (Bernick & Myers, 2012). We calculated a share of the total two-party seats held by Democrats in the states' lower and upper chambers. We expect Democratic Party control of the state legislatures to be positively and significantly correlated with state funding for higher education, whose goals can be highlighted by promoting access and reducing social inequalities (Hypothesis 1).

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.³ We used DW-NOMINATE as a proxy for the level of political polarization in the state legislature and are aware of differences in the distribution of political preferences between congressional delegations and state legislators, with the former's being less polarized than the latter. The effects of polarization alone on state higher education appropriations could lead to a mixed result because even in highly polarized legislatures, weak partisan strength will make it difficult to shape policy.

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 to develop polarization measures for state legislatures' and individual legislators' DW-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, Berry, & McCarty, 2010). Unfortunately, the data cover a much shorter time period than the one that we sought to

TABLE 1
Variable Descriptions and Sources in the 44 States in the Analysis, late 1980s and early 2000s (Standard Deviation in Parentheses)

Variables	Description	Source	Global Mean		Local Means		% Change Local Mean Difference
			1977–2004	1985–1989	2000–2004		
Democratic Party strength	Democratic Party strength as a share of the total two party seats held by Democrats in the state's lower and upper chambers.	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" (http://academic.udayton.edu/SPPQ-TPR/klarner_datapage.html).	0.59 (0.18)	0.61	0.52	-14.75%	
State appropriations per US \$1,000 of personal income	Total appropriations per US \$1,000 of personal income.	Grapevine / Center for the Study of Education Policy, Illinois State University (http://grapevine.illinoisstate.edu). Data are also available online at http://www.postsecondary.org (Report only sums appropriated for annual operating expenses). CPI adjusted for 2004 dollars.	9.35 (2.82)	9.87	7.94	-19.55%	
Natural Log of State appropriations in \$1,000	Total appropriations in \$1,000 (Logged).		13.14 (1.96)	13.05	13.70	4.98%	
Polarization	Policy distance between Democrats and Republicans.	Absolute difference between the average of DW-NOMINATE scores for Democrats and Republicans in the congressional delegations (http://www.voteview.com).	0.65 (0.18)	0.60	0.80	33.33%	
Unemployment	State unemployment rate as a percentage of labor force (Annual).	Bureau of Labor Statistics (http://www.bls.gov/data/).	6.06 (2.05)	6.38	4.83	-24.29%	

(continued)

TABLE 1 (Continued)

Variable Descriptions and Sources in the 44 States in the Analysis, late 1980s and early 2000s (Standard Deviation in Parentheses)

Variables	Description	Source	Global Mean		Local Means		% Change
			1977-2004	1985-1989	2000-2004	Local Mean Difference	
State policy priority scores	Using Jacoby and Schneider's (2009) code, we calculate the same variable based on a space proximity model, but we keep K-12 and Higher-Education separate.	U.S. Bureau of the Census, Annual Survey of State and Local Government Finances, multiple years. Jacoby and Schneider (2009).	-0.001 (0.02)	0.01	-0.01	-200%	
State revenue per capita	Total state revenues (2006 US \$1,000).		8.28 (0.28)	8.18	8.49	3.79%	
Tuition (lagged)	Average in-state tuition at public flag-ship 4-year institutions. CPI adjusted for 2004 dollars (1,000s).	State of Washington Higher Education Coordinating Board-data provided by Kathy Raudenbush.	3.46 (1.56)	2.87	4.99	73.87%	
Private enrollment	Proportion of total FTE enrollment in private institutions of higher education.	National Center for Education Statistics Digest of Education Statistics (various years).	0.23 (0.12)	0.23	0.25	8.70%	
Age 18-24	Age of 18-24 years old as a percentage of total population.	Census Bureau Population Estimates (http://www.census.gov/popest/).	11.05 (1.65)	11.38	9.99	-12.21%	
Inequality (P90/P10)	Ratio of the 90 th percentile of total annual family income to the 10 th	State-level data on income inequality (http://inequalitydata.org/).	6.64 (0.89)	6.54	7.32	10.55%	
Public enrollment in the 2-year HE Institutions	FTE Fall Enrollment Public 2 year/ FTE Fall Enrollment Total	National Center for Education Statistics (http://nces.ed.gov/pubs98/98018/).	32.80 (12.54)	29.86	34.35	15.03%	

Note: This polarization limits our data use for the following states: Nebraska, Alaska, Delaware, North Dakota, Vermont, and Wyoming. Nebraska has a single nonpartisan state legislature. The remaining five states are not available for calculating polarization due to single-party delegation in Congress. As a result, our analysis relies on 44 states. We attempt to capture the earliest period of economic booms after the 1990-1991 economic crisis. In addition, public enrollment in the 2-year higher education is viable from 1987 by states.

analyze in this article, making the data insufficient to capture the evolution of higher education and the resulting changes in voting coalitions over time.

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 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 reelection should attempt to roll-call vote in line with their constituents' preferences, there are good reasons to believe that state-level and congressional DW-NOMINATE scores are correlated. In any case, the congressional DW-NOMINATE data have a longer time span, for our case, 1977 to 2004, compared to Shor et al.'s (2010) starting year, which is necessary for capturing trends in political and business cycles.

Another state legislative-based alternative to proxy state legislators' ideological differences is drawn from Berry, Fording, Ringquist, Hanson, and Klarner's (2013) research. These authors used data from Shor et al. (2010) to modify their original congressional-delegation-based measure of state government ideology and to test "old and new" measures for convergent and construct validity (Berry, Ringquist, Fording, Hanson, & Klarner, 2010; Berry et al., 2013). Berry et al. (2013) found that both are valid and yield similar effects of government ideology across various replicated studies. They concluded that, while the state-based measure is superior, the congressional-delegation-based measures also are valid and are recommended for analyses, such as ours, that cover longer time periods.

Unemployment rate is a countercyclical variable. In other words, the rate increases during economic recessions but decreases during booms. Thus, discretionary spending, such as state higher education appropriations, becomes increasingly less competitive with other key policy items. Therefore, we expect state unemployment rates to be negatively correlated with state higher education funding.

Interaction variables are essential to testing our conditional hypotheses (2 and 3). The expected positive effect of Democratic Party strength on state higher education spending should dampen as polarization or unemployment rates increase. These conditional effects of partisanship were tested through two interaction variables: (a) Democratic Party strength \times Polarization, and (b) Democratic Party strength \times Unemployment. When there is high polarization or an economic downturn, Democrats are expected to shift priorities to other areas that provide clear, targeted benefits.

Controls

To isolate the effects of other relevant state characteristics on state funding for higher education, we considered several control variables. First, we used the *private share of FTE enrollment* in a state's post-secondary sector to account for current demand for government support for public universities. States with smaller public higher education systems allocate fewer resources to their universities and colleges. Second, *state revenues per capita* controls for the amount of resources that states have available to spend on various policy areas. Third, the larger the *share of the population 18–25 years old*, the greater the amount of demand for higher education is anticipated. Fourth, we expect decreases in state appropriations for higher education as increases in lagged tuition (CPI adjusted for 2004 dollars), which is the average resident tuition and fees for full-time undergraduate students at 4-year institutions. We lagged tuition because legislators look to prior tuition levels when determining additional funding allocations for higher education (Doyle, 2012). Finally, our regression models also account for the state-level income inequality to control for constituent demands for higher education spending. We are interested in controlling for the level of income disparity between the poor and the rich, so we used the ratio of the 90th percentile to the 10th percentile of income distribution. All these variables affect the amount of resources available for policy expenditures and the demand for higher education (see Table 1 for further data descriptions and sources).

As a robustness check, we included a statistical control for *state spending priorities* in our full models. This variable is meant to capture, in one indicator, the effects of competing policy areas known to affect state higher education expenditures (Kane et al., 2005; Tandberg, 2010). Using state policy expenditures data, Jacoby and Schneider (2009) developed a spatial proximity model to produce a comparable indicator across states and over time of state spending priorities. The indicator places states in a one-dimensional space that represents the distribution of preferences between policy expenditures that deliver more or less collective/particularized benefits. Higher scores indicate a state's relative preference for policy expenditures that deliver more collective benefits. In other words, this could mean a relative policy emphasis on the collective benefit side of higher education. State appropriations for higher education are expected to increase accordingly.

The original Jacoby and Schneider (2009) measure used nine distinct policy areas,⁴ including a single category for education. We modified the measure by breaking down education expenditures between K–12

and higher education. This allowed us to expand the original nine policy categories used by Jacoby and Schneider to ten distinct policy areas. K–12 education and higher education have substantively different political dynamics and, hence, should not be treated as single policy category. The two areas present differences in organizational structures, funding patterns, levels of bureaucratic autonomy, and relevant constituencies. We lagged the variable such that last year’s policy priority score was assumed to shape to this year’s budget decisions.

Analytic Methods

Because we sought to test conditional partisan effects across states over two decades, our model has a panel data structure. We assured that the two dependent variables (as well as the estimated residuals) are stationary by checking each passing a panel unit-root test according to the Harris-Tzavalis method suitable to a short panel (States = 44 > Year = 28). In addition, the Woodridge test for autocorrelation in this panel data presents strong evidence of the presence of the first-order autocorrelation ($F = 493.356$, $p < 0.01$). We adjusted for it by applying AR(1) to the parameter estimation.⁵ Moreover, the full model to be tested requires the identification of state fixed-effects (within-unit variance) estimators that give the expected change in funding for higher education within each state but that also control for differences across states. Indeed, the Hausman test of fixed effect results strongly rejected the null hypothesis that there is no panel effect. Additionally, we determined low multicollinearity in our models, excluding interaction terms. None of the variables included in the model with unconditional predictors shows the score of variance inflation factor (VIF) approaching the standard threshold of 10. In fact, the average VIF is 2.27, and all tolerances are above 0.1. This means that multicollinearity is not a concern.⁶ Moreover, our independent variables are not correlated with each other on an absolute level of higher than 0.6. Having supporting evidence from these diagnostics, we built the following fixed-effects models:

$$\begin{aligned}
 & \text{State funding for higher education}_{i,t} \\
 & = \alpha + \beta 1 \text{ Democratic party strength}_{i,t} + \beta 2 \text{ Polarization}_{i,t} + \beta 3 \text{ Unemployment}_{i,t} \\
 & + \beta 4 \text{ Private enrollment}_{i,t} + \beta 5 \text{ State revenue per capita}_{i,t} + \beta 6 \text{ Previous year} \\
 & \quad \text{tuition}_{i,t} \\
 & + \beta 7 \text{ Age 18–24}_{i,t} + \beta 8 \text{ Income Inequality}_{i,t} + \beta 9 \text{ Previous year state policy} \\
 & \quad \text{priority score}_{i,t} \\
 & + \beta 10 \text{ Democratic Party strength} \times \text{Polarization}_{i,t} \\
 & + \beta 11 \text{ Democratic Party strength} \times \text{Unemployment}_{i,t} + \gamma_i + \mu_{i,t}
 \end{aligned}$$

As noted, our main dependent variables are the amount of state higher education appropriations per \$1,000 of personal income and the log of state appropriations in constant dollars (1,000s). The subscripts i and t represent the state and year of the observations, respectively. α is the intercept coefficient and β s are the slope coefficients. The model treats γ_i as a state fixed effect that controls for the unmeasured state-specific effects. $\mu_{i,t} = \rho\mu_{i,t-1} + \mathcal{E}_{i,t}$ is a better way to model errors (where ρ estimates the first-order autocorrelation coefficient) than is the identically independently distributed error model, assuming $\mu_{i,t} = \mathcal{E}_{i,t}$.

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 variable (state funding for higher education) varies, depending on the context (in our case, levels of political polarization and economic conditions). We captured the substantive significance of this relationship by estimating the marginal effects of our interaction variables. To do so, we used the following estimation equations:

$$\begin{aligned} & \text{Equation} && (a) \\ & (\partial \text{ State funding for higher education}_{i,t}) / (\partial \text{ Democratic party strength}_{i,t}) \\ & = \beta 1 + \beta 10 * \text{Polarization}_{i,t} + \beta 11 * (\text{Fixed at the average of unemployment}_{i,t}) \end{aligned}$$

$$\begin{aligned} & \text{Equation} && (b) \\ & (\partial \text{ State funding for higher education}_{i,t}) / (\partial \text{ Democratic party strength}_{i,t}) \\ & = \beta 1 + \beta 10 * (\text{fixed at the average of polarization}_{i,t}) + \beta 11 * \text{Unemployment}_{i,t} \end{aligned}$$

Equation (a) denotes the marginal effects of Democratic Party strength, subject to varying levels of polarization, whereas Equation (b) captures the 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 that we identified earlier, we held unemployment rate constant at the sample mean for Equation (a), whereas we held polarization constant at the sample mean for Equation (b). The advantage of this method is that it allows us to capture how marginal effects may change over the range of the two conditional variables and whether these effects are statistically significant.

TABLE 2

Panel Regression Results for Conditional Effects of Partisanship on State Appropriations for Higher Education

	State Appropriations per \$1,000 of Personal Income (State's Effort in Supporting Higher Education Relative to its Available Tax Base or Wealth)				The Natural Log of State Appropriations for Higher Education in Constant Dollars (1,000s)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Baseline	Baseline + Interaction	Baseline + Interaction	Full	Baseline	Baseline + Interaction	Baseline + Interaction	Full
Democratic Party Strength	1.06** (0.42)	2.66*** (0.92)	2.44*** (0.68)	4.10*** (1.07)	0.23*** (0.09)	0.96*** (0.19)	0.74*** (0.13)	1.42*** (0.21)
Polarization	-0.33 (0.24)	0.97 (0.71)	-0.36 (0.24)	0.98 (0.71)	0.09* (0.05)	0.67*** (0.14)	0.07 (0.05)	0.64*** (0.14)
Unemployment	-0.14*** (0.02)	-0.14*** (0.02)	-0.01 (0.06)	-0.00 (0.06)	-0.00 (0.00)	-0.00 (0.00)	0.05*** (0.01)	0.05*** (0.01)
Private Enrollment	-3.38** (1.38)	-3.45** (1.37)	-3.27** (1.37)	-3.34** (1.37)	0.18 (0.32)	0.11 (0.31)	0.22 (0.31)	0.15 (0.31)
State Revenue Per Capita	0.95*** (0.13)	0.88*** (0.13)	0.87*** (0.13)	0.79*** (0.13)	0.95*** (0.03)	0.92*** (0.03)	0.93*** (0.03)	0.90*** (0.03)
Previous Year Tuition (in US \$1,000)	-0.58*** (0.06)	-0.58*** (0.06)	-0.58*** (0.06)	-0.58*** (0.06)	-0.06*** (0.01)	-0.06*** (0.01)	-0.05*** (0.01)	-0.06*** (0.01)
Age 18-24 (Percentage of Total Population)	0.32*** (0.05)	0.30*** (0.05)	0.31*** (0.05)	0.29*** (0.05)	0.21*** (0.01)	0.20*** (0.01)	0.20*** (0.01)	0.20*** (0.01)
Inequality (P90/P10)	0.08 (0.09)	0.07 (0.09)	0.07 (0.09)	0.07 (0.09)	0.13*** (0.02)	0.13*** (0.02)	0.13*** (0.02)	0.12*** (0.02)
Previous Year State Policy Priority Scores	9.00** (4.20)	7.91* (4.23)	8.67** (4.19)	7.55* (4.22)	0.55 (0.87)	-0.00 (0.87)	0.49 (0.86)	-0.04 (0.86)

(continued)

TABLE 2 (Continued)
 Panel Regression Results for Conditional Effects of Partisanship on State Appropriations for Higher Education

	State Appropriations per \$1,000 of Personal Income (State's Effort in Supporting Higher Education Relative to its Available Tax Base or Wealth)				The Natural Log of State Appropriations for Higher Education in Constant Dollars (1,000s)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Baseline	Baseline + Interaction	Baseline + Interaction	Full	Baseline	Baseline + Interaction	Baseline + Interaction	Full
Democratic Party Strength x Polarization		-2.45* (1.25)	-0.23** (0.09)	-2.51** (1.25)		-1.11*** (0.25)	-0.08*** (0.02)	-1.06*** (0.25)
Democratic Party Strength x Unemployment				-0.23*** (0.09)			-0.08*** (0.02)	-0.08*** (0.02)
Constant	0.66*** (0.11)	0.57*** (0.11)	0.60*** (0.11)	0.51*** (0.11)	3.10*** (0.02)	3.04*** (0.02)	3.03*** (0.02)	2.97*** (0.02)
Observations (years from 1977–2004)	940(28)	940(28)	940(28)	940(28)	940(28)	940(28)	940(28)	940(28)
Number of States	44	44	44	44	44	44	44	44
Model Chi-square	65.54***	59.57***	59.49***	54.64***	479.09***	440.49***	445.31***	413.19***
Test for Autocorrelation†	0.83	0.84	0.84	0.84	0.62	0.62	0.62	0.62

Note: Two-tailed significance levels at * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. †This is based on the value of the modified Durbin-Watson statistic, or the Baltagi-Wu-Li-Bai statistic, of 2, indicating no autocorrelation (the value can be taken between 0 and 4). Because the values indicate less than 1, there is a positive autocorrelation. To correct for this positive autocorrelation, all models are estimated for the fixed-effects that follow the first-order autoregressive process in error terms (Stata command: xtregar, fe lbi).

Results

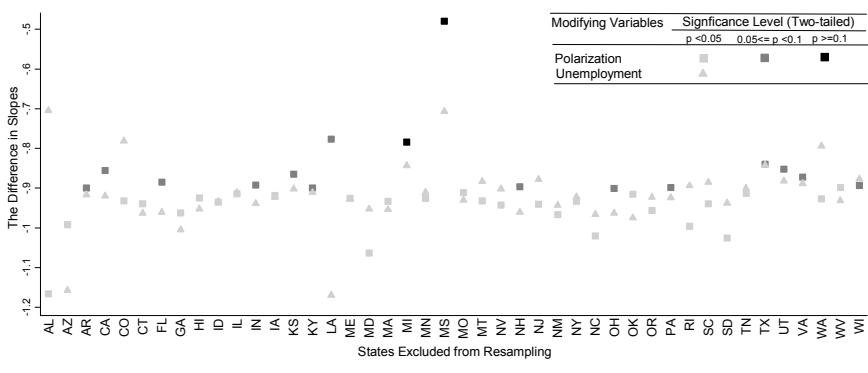
As supporting evidence for Hypothesis 1, the partisanship variable highlights our main finding that Democratic Party strength is positively and significantly associated with both dependent variables (Table 2). This positive relationship becomes insignificant, however, as partisan polarization or unemployment rates increase. Model estimates show significant dampening effects, holding other variables constant, especially robust to the appropriations effect of Democratic Party strength with the rise of unemployment rates.

As seen in Table 2, an additional one percentage increase in Democratic Party's share of seats in the legislature leads to an overall increase in state appropriations for higher education by approximately \$4.1 per \$1,000 of personal income, or almost 1.4 times (roughly $142\% = 100 * 1.42$) more spending in dollars. The interaction variables show that the positive effect of Democratic Party strength diminishes significantly as political polarization or unemployment increases.

Figure 1 presents how the 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 confirmed 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 1. 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 (the lower bound of the 95% confidence intervals, dotted lines on the graph, collides with the zero horizontal line). This result matches our initial expectations (Hypotheses 2 and 3).

While the estimates of most control variables reported in Table 2 presented predicted outcomes⁷, we focused on the results of modified policy priority scores. We found that they are positively and significantly associated with a state's efforts to support higher education but insignificant with state funding simply in constant dollar terms. Substantively, a unit increase in policy priority scores is expected to create almost 10 times more than a full swing effect (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 an additional \$0.755 in appropriations for higher education per \$1,000 of personal income (Model 4).

(A). Change in effects of Partisanship on DV1 as a modifying variable shifting from one standard deviation below to above the mean



(B). Change in effects of partisanship on DV2 as a modifying variable shifts from one standard deviation below to above the mean.

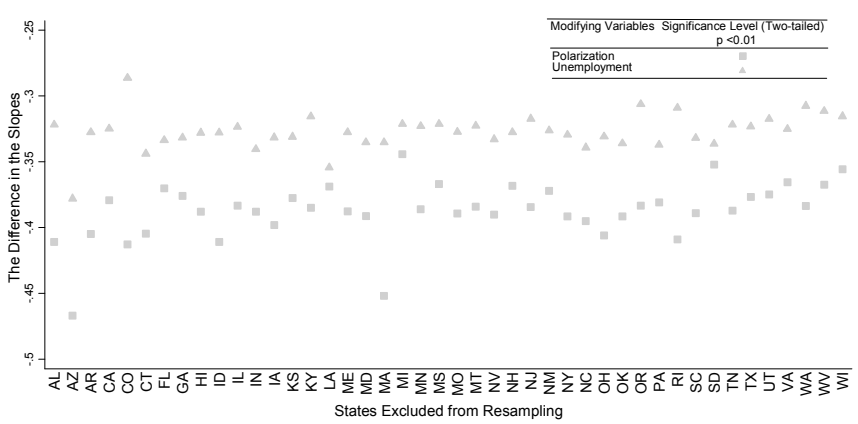


FIGURE 2. Panel Jackknife Analysis (Full Models, Table 2)

on state appropriations as a modifying variable (either polarization or unemployment) moves from one standard deviation below to above the mean. We found that the difference in the slopes remains robustly negative and statistically significant. However, these effects are robust only to the pair of Democratic Party strength’s interaction with unemployment rates. The case for polarization shows that the result is affected by samples from particular sets of states. In contrast, the case for unemployment rates does not depend on a particular set of states for sampling used in the panel analysis.

TABLE 3
Alternative Fixed-Effect Model Estimates

	State Appropriations for Higher Education per \$1,000 of Personal Income		The Natural Log of State Appropriations for Higher Education in Constant Dollars (1,000s)	
	(1)	(2)	(3)	(4)
	One Way + Robust <i>SE</i>	Two Way + Robust <i>SE</i>	One Way + Robust <i>SE</i>	Two Way + Robust <i>SE</i>
Lagged Dependent Variable	0.63*** (0.07)	0.64*** (0.07)	0.85*** (0.03)	0.70*** (0.05)
Democratic Party Strength	2.42* (1.45)	1.65 (1.45)	0.07 (0.11)	0.12 (0.13)
Polarization	-0.57 (0.75)	-0.70 (0.74)	0.02 (0.07)	-0.02 (0.07)
Unemployment	0.05 (0.05)	0.08 (0.06)	-0.01** (0.01)	0.00 (0.01)
Private Enrollment	-1.51 (1.06)	-0.51 (1.08)	-0.01 (0.10)	-0.03 (0.10)
State Revenue Per Capita	-0.10 (0.25)	0.47 (0.31)	-0.00 (0.04)	0.03 (0.04)
Previous Year Tuition (in US \$1,000)	-0.10** (0.04)	0.01 (0.05)	0.00 (0.00)	-0.01* (0.01)
Age 18–24 (Percentage of Total Population)	-0.04 (0.03)	0.00 (0.06)	0.00 (0.00)	0.01 (0.01)
Inequality (P90/P10)	-0.04 (0.06)	0.02 (0.06)	0.01 (0.01)	0.00 (0.01)
Previous Year State Policy Priority Scores	16.97*** (4.15)	9.37** (4.52)	-0.46 (0.40)	0.12 (0.42)
Democratic Party Strength x Polarization	-0.13 (1.46)	0.60 (1.44)	-0.01 (0.11)	-0.01 (0.13)
Democratic Party Strength x Unemployment	-0.34*** (0.08)	-0.34*** (0.10)	-0.02** (0.01)	-0.03** (0.01)
Public Enrollment in the 2-Year Institutions for Higher Education (available starting from 1987)	-0.01 (0.01)	-0.00 (0.01)	-0.00 (0.00)	-0.00 (0.00)
Constant	5.76** (2.30)	-0.49 (2.76)	2.15*** (0.40)	3.76*** (0.72)

TABLE 3 (Continued)
Alternative Fixed-Effect Model Estimates

	State Appropriations for Higher Education per \$1,000 of Personal Income		The Natural Log of State Appropriations for Higher Education in Constant Dollars (1,000s)	
	(1)	(2)	(3)	(4)
	One Way + Robust SE	Two Way + Robust SE	One Way + Robust SE	Two Way + Robust SE
Observations	647†	647†	647†	647†
Year Coverage	1987–2004	1987–2004	1987–2004	1987–2004
Number of States	44	44	44	44
Country Fixed Effect	Yes	Yes	Yes	Yes
Year Fixed Effect	No	Yes	No	Yes
Adjusted <i>R-squared</i>	0.92	0.94	0.98	0.97
Marginal Effects of Democratic Party strength given changes in the following variables†:				
(1) Polarization	-0.04	0.20	-0.00	-0.00
(2) Unemployment	-1.00***	-1.01***	-0.06**	-0.81**

Note: Two-tailed significance level tests at * $p < 0.1$. ** $p < 0.05$. *** $p < 0.01$. † Changes are made from 1 standard deviation below the mean to 1 standard deviation above the mean.

We ran several alternative regression models with fixed-effects and heteroskedasticity-robust standard errors. Table 3 shows the regression results with either one-way (state) fixed effects or two-way (state and year) fixed effects. In addition, in Models (1)–(4), Table 3, the lagged dependent variable was used in the right-hand side of the model equation to control for autocorrelation. These model estimates are also derived with robust standard errors in order to capture heteroskedasticity biases.⁸ Moreover, all models additionally control for the effect of public enrollment in two-year higher education institutions (e.g, community colleges) reflecting the possible funding contribution by local governments.

While the lagged dependent variable absorbed effects of most independent variables, the results available from Table 3 still confirm that Democratic Party strength interacts with unemployment to constrain state funding for higher education. Marginal effects of Democratic Party strength are significantly dampened as unemployment rates change from low to high.

Implications and Conclusion

The scholarship on political parties and state budget outcomes presents robust results for fiscal policy, health policy, and, especially, welfare policy expenditures. Our study sought to contribute to this literature by considering a much less explored policy area, that is, state higher education funding characterized by a “hybrid” status that provides a combination of particularized and collective benefits (Schneider & Jacoby, 2011). Moreover, given the 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 effects model to be tested on an area for which policy positions do not fall clearly on the standard left-right political spectrum. Most importantly, we sought to contribute to the higher education field by further exploring the mechanisms that link an important determinant of state support for higher education and its status as a priority in states’ budgets.

We showed not only that *partisanship matters* for higher education spending but also that partisan support for higher education is conditional on levels of partisan polarization and unemployment, with the most robust finding for the interaction between partisanship and state economic conditions. One of the most visible implications that resulted from this policy shift may be the observed increase of responsibility placed on individuals and their families for the costs of higher education and the so-called “privatization” of public higher education (Faricy, 2011; Fryar, 2012; Zumeta et al., 2012).

Our analysis differs from the ones currently available in the literature that explore the links between political parties and state funding for higher education for two reasons. First, we adopt an *effects-of-causes* approach, with a narrow focus on the links between one key political variable and state funding for higher education. Our findings are aligned with some of the research carried out by higher education scholars (e.g., McLendon et al., 2009; Tandberg, 2010, 2013), with Democrats more likely to support higher education, but they show a much more robust picture of the mechanisms through which the relationship takes place. Second, we provide a more detailed conceptualization of why and how parties matter and why exploring interactions are fundamental to better understand our key relationship of interest.

Our original argument of the multidimensionality of higher education as a policy area that provides both particularized and collective benefits and faces growing competition from other policy areas provides implications for future research. First, if higher education indeed distributes individual benefits more often than not, then research should investi-

gate the relationships between specific constituencies, legislative preferences, and types of higher education spending. Unlike welfare programs, higher education can benefit a broader range of socioeconomic groups. Higher education institutions also redistribute resources internally, not only towards the poor but also toward the middle and upper-middle classes, and carry out a lot of redistribution through cross-subsidization by full tuition-paying students to low-income students (Fethke & Policano, 2012).

Second, we suggest exploring the three-way interaction between partisanship, polarization, and economic conditions. While interpreting the results can be challenging, research should explore more detailed hypotheses about how political and economic conditions interact with and shape the way coalitions form within political parties and affect spending decisions in higher education.

We sought to show that political parties play a much more important role in shaping higher education financing trends, especially over the past 30 years, than is often acknowledged in the literature. The implications for policy and practice are clear. Higher education advocates should be more attuned to the current environment in American politics, whereby political parties are the means through which well-organized groups disproportionately influence public policy, political polarization is increasing, and there is a much more contentious debate over the role and benefits of higher education.

Successful action in the policy arena demands a much more sophisticated approach and understanding of the political economy of higher education and of the mechanisms that link specific political actors and political and economic institutions to observed outcomes (e.g., policy expenditures, regulatory strategies, redistributive effects). Future research should focus on examining specific relationships between key political, economic, and higher education variables and policy outcomes in a way that involves stronger theoretical foundations, while providing parsimonious explanatory models that may expand our understanding and more clearly and easily inform policy and practice (Gerring, 2012; Tandberg, 2013).

Notes

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¹ Wright (2010) states, “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). This makes policy outcomes more likely to be unrepresentative of voter preferences. Lax and Phillips (2012) confirm this claim; they find that *policy-specific* public opinion is often translated into representative public policy but only about “half the time.”

² State personal income allows us to examine changes in preference for higher education over time, given existing fiscal constraints. Thus, by focusing on a state’s funding effort, researchers can control for economic capacity of a state (Tandberg & Griffith, 2013).

³ The potential endogeneity bias in the relationship between party strength and polarization is low. In two-stage least squares, the residuals obtained from the regression of Democratic Party strength on polarization shows an insignificant coefficient when state appropriations are regressed on Democratic Party strength, polarization, and the residuals.

⁴ State expenditures on nine policy areas: corrections, education, government administration, health, highways, hospitals, parks and natural resources, law enforcement, and welfare.

⁵ We used the STATA command, `xtregar, fe`, to estimate a fixed-effect panel model, assuming AR(1) disturbances. The lagged dependent variable is another way to control autocorrelation. However, the inclusion of a lagged dependent variable in the model can create a significant downward bias because it absorbs the effects of other independent variables (Achen, 2000; Plümpert, Troger, & Manow, 2005). See robustness for regression estimates using the lagged dependent variable in Table 3.

⁶ We used the STATA command, `collinear`, to calculate VIF scores among independent variables, only irrespective of the dependent variables or estimation functions. Collinearity problems may be endemic to studies that include interaction effects. However, collinearity does not necessarily create bias; rather, it inflates standard errors, making our result look less significant. Iteratively, moving individual predictors also does not affect our results, suggesting that our results are not dependent on specification and that estimation stability is high.

⁷ One exception was found in estimates for unemployment rates with regard to the logged value of state appropriations (See Models 7 and 8, Table 2). However, this presupposes strong Republican partisanship in the state legislature in order for the interaction effect (Democratic Party strength x Unemployment) to be zero. Increasing state funding for higher education could be important for Republicans to improve labor productivity and market efficiency.

⁸ The test for panel-heteroskedasticity rejected the null of constant variance. To get the heteroskedasticity consistent coefficients, we added a robustness option to the model estimation.

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