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The Adoption of Prepaid Tuition and Savings Plans in the American States: An Event History Analysis

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Abstract The past two decades have been a period of far-reaching policy experimentation in state financing of higher education. Between 1986 and 1999, 21 states adopted prepaid college tuition plans. Thirty-one states adopted some form of college savings plan. Both kinds of policies were designed to enhance the affordability of higher education during a time of growing concern about college costs. Using event history analysis, we explore various factors leading to the programs' adoption, paying particular to the role of policy privatization, electoral competition and timing, and certain system characteristics of higher education. We find that more liberal governments were more likely to adopt prepaid tuition plans, that states with more competitive elections were less likely to adopt any type of prepaid or savings plan, and that states with decentralized governance were more likely to adopt one of these kinds of policies.

Keywords Event history analysis · Prepaid tuition · Savings plan · Policy · Politics

Introduction

The past 25 years have witnessed a period of notable policy experimentation in state financing of higher education. For example, many states, responding to long-standing concerns about rising college costs, established new policies designed to aid individuals in saving for college. *Prepaid tuition plans* guarantee college tuition at some point in the future in return for a current payment from families; essentially, one "locks in" by purchasing future credits at today's prices, which provides a hedge against tuition inflation. Michigan and Florida established the nation's first prepaid programs in 1988. *Savings plans* offer tax incentives as a reward for placing funds in some form of savings plans that

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is professionally managed. In most states that offer these programs, annual contributions to the programs are tax-deferred. Ohio adopted the nation's first college savings program, in 1989, followed soon after by Kentucky (Lehman, 1990; Olivas 2003).

The number of states that adopted one or both of these policies accelerated throughout the 1980s and 1990s until, in 1999, the popularity of savings plans exploded as a result of Congress' codification of these plans in section 529 of the Internal Revenue Code.[1] Yet, not all states followed similar trajectories of policy reform. States varied notably in the timing of their adoption of the policies. What is more, some adopters of one of the programs chose not to adopt the other program. During the 12-year time period from 1986, when the first plan was created, until 1999, when the 529 legislation at the federal level took effect, 21 states adopted prepaid tuition plans, while 33 states adopted savings plans. What factors led states to adopt these innovations in higher-education finance at the times at which they did?

This article reports the results of an empirical analysis of the rise and spread of prepaid tuition and savings plans from 1986 to 1999. We posit four plausible explanations why states adopted these programs. First, state may have pursued these policies as part of a policy-privatization movement in higher education. Second, states may have pursued the programs in an effort for elected officials to win re-election. Third, states may have adopted prepaid tuition and college savings programs because of certain factors internal to state systems of higher education, making these states more prone than others to enact this particular form of policy innovation. Finally, states may have adopted the programs because of the pressures of interstate competition and emulation—i.e., policy diffusion.

To investigate empirically these alternate explanations, we make use of a competing risks formulation of the Cox proportional hazards model, a form of event history analysis. Originating in biostatistics, Cox proportional modeling lately has gained prominence in the field of comparative-state politics and policy (e.g., Box-Steffensmeier and Zorn 2001; Doyle 2006; Hearn et al. 2008; Kalbfleisch and Prentice 2002).

In the remainder of this article, we first describe the rise of prepaid tuition and college savings plans in the states during the 1980s and the 1990s. We next review relevant literature from the field of state policy studies that helps frame conceptually our empirical analysis. Following the description of our data and research methods, we present our empirical results. Finally, we then discuss some of the conceptual and empirical implications of these findings.

Prior Research

Few empirical studies of prepaid tuition and college savings programs exist. Most of what has been written about the topic is descriptive, outlining for example the relative advantages for consumers of different types of programs (e.g., Hurley 2003; Olivas 2003). Olivas (2003), for instance, notes that the programs create for states a set of unresolved policy dilemmas. Among the most critical of these is the question of equity—what types of students will benefit from these plans—both directly, as a result of the transfer of wealth, and indirectly, as a result of the tax benefits associated with the programs.

[1] Within a short period of time following this change in the federal tax code advantaging contributions to the programs, all 50 states and the District of Columbia had created their own version of a prepaid tuition or savings program.

A much smaller group of studies has examined empirically several important impacts of the prepaid tuition and college savings programs (e.g., Dynarski 2004; Lehman 1990). For instance, Lehman (1990) analyzed the equity implications of one plan: Michigan's prepaid tuition plan, the Michigan Education Trust (MET). In part, Lehman investigated whether the MET "gives aid to the poor or gives comfort to the rich" (Lehman 1990, p. 1111). Lehman tracked longitudinally the distribution of benefits from the program by income level. His analysis found that, "MET's beneficiaries are drawn disproportionately from the upper reaches of the income distribution" (Lehman 1990, p. 1113). Lehman reflected on one other possible unintended consequence of these programs: the possibility that less-than-hoped-for-gains in the program's trust fund would place pressure on institutions of higher education to "cap" increases in costs so as not to make higher education unaffordable for those who have participated in the plan.

The most sophisticated analytic undertaking of this kind is Dynarski's (2004) analysis of the distributional impacts of savings plans. Using a series of tax simulations to analyze how families at different income levels might benefit differently from these plans, she concludes that it is the wealthy who are most likely to benefit from the tax incentives put in place for most savings plans. This is so because for most middle and low income families, there is a substantial implied tax on increased savings for colleges—as a family saves more for college, the result is a higher expected family contribution (EFC) under the current federal financial-aid methodology. Higher income families are not subject to this tax, since they are ineligible for federal aid in any case.

As noted, these studies share a focus on the policy *impacts* of prepaid tuition and college savings programs. By contrast, no study to date has empirically assayed the *determinants* of state adoption of the programs, although several close observers have speculated on the conditions that may have prompted states to adopt them. Olivas, for example, suggests declining state funding effort for higher education as one plausible precondition; states where funding effort had decreased the most, he reasons, are ones most likely to have experimented with these market-oriented approaches to higher education financing. For her part, Dynarski (2004) points mainly to factors within the higher-education system of the states, noting that the original plan in Michigan was tied to rapid increases in tuition at 4-year colleges and universities. No study, however, has systematically investigated the factors driving states to adopt these reforms in postsecondary financing.

Interest in the determinants of new state policies for higher education has recently attained a high degree of intensity (e.g., Doyle 2006; Hearn and Griswold 1994; Hearn et al. 2008; McLendon et al. 2005, 2006, 2007). The pioneering study in this area is Hearn and Griswold's (1994) analysis of the correlates of eight different state policy "innovations" in the 1980s. The authors demonstrated a link between governance mechanisms and the adoption of certain forms of policy innovation in the states. Building on that earlier work, McLendon et al. (2005) used time-series cross-section data and a binary outcomes model to examine the factors associated with several different financing and academic innovations in state postsecondary-education policy during the 1980s and 1990s. They found statistically significant relationships between Republican control of state legislatures and state adoption of certain postsecondary policies. These authors also documented one of the first "diffusion" effects in the study of state policy for higher education: as the proportion of a given state's neighbors adopting certain new financing policies increased, so, too, did the likelihood of that state adopting a like policy. Doyle's (2006) recent event history analysis of the factors associated with the spread of state broad-based merit-aid (so-called HOPE scholarship) programs—the first event history study of the rise of state postsecondary financing policies—likewise demonstrated the importance of factors both

internal (i.e., income, educational attainment levels) and external (i.e., diffusion pressures) to states.

In a recent series of studies, McLendon et al. (2006, 2007) using event history analysis, shifted focus to the rise and spread of accountability reforms in state governance of higher education. In these studies, the authors again found distinctive partisan effects; as the proportion of legislators that are Republican rises, so too does the probability of a state adopting more rigorous, performance-based accountability mandates or new statewide governance regimes for higher education, respectively. They also found that the particular kind of governance arrangement for postsecondary education that a state practices influences state adoptions of certain new accountability policies for public higher educational institutions.

In summary, a spate of recent event-history analyses have shown the predictive and the explanatory power of incorporating into studies of state policy adoption for higher education a diverse array of indicators of state demographic, economic, political and organizational characteristics. The study that follows, on the emergence of prepaid tuition programs and college savings plans, builds on these perspectives in several ways. First, our framework makes use of a number of competing hypotheses, which we believe illuminates contemporary debates over the relative importance of state politics, institutional structures, and state demographic and economic conditions as factors driving the policy behavior of state governments (McLendon 2003a). Second, our empirical approach incorporates a flexible model for analyzing the underlying processes of policy adoption. This more flexible framework has been shown to provide a better fit to observed data in other applications (Box-Steffensmeier and Zorn 2001).

Conceptual Framework

We build on several sets of rival hypotheses with which to explain the rise of prepaid tuition and college savings plans on the policy landscapes of the American states. The first set of hypotheses centers on the idea of *policy privatization* mentioned earlier in the discussion of Olivas (2003). This conception views the plans as a shift in responsibility for financing higher education away from the state and toward individual students and families. In American politics, these ideas (ones emphasizing personal responsibility, consumerism, and markets) are most closely associated with conservatives in general and the Republican Party in general (Hacker 2004). A second set of hypotheses suggests that legislative adoption of prepaid tuition and savings plans is a function of electoral timing. Because of their popularity with middle income families, we believe the programs are more likely to be adopted shortly before an election, so as to maximize incumbency advantages, and in states where electoral competition (i.e., two-party competitiveness) is fiercer. A third framework draws on the postsecondary organizations and governance literature in surmising that certain policy conditions of the states, including postsecondary governance structures, enrollment patterns and tuition and financial aid patterns, are the likely influences of governmental behavior. Our final framework suggests that the spread of prepaid tuition and savings plans in the American states may have occurred as a result of the diffusion of policy from one state to another.

Policy Privatization

The first conceptual lens builds on the notion of policy privatization in the American states (Ehrenberg 2005; McLendon and Mokher 2009). This framework contends that college-savings and prepaid-tuition policies may represent an effort in some states to shift the policy paradigm in higher education from one of state subsidy of public bureaucracy (the welfare state) to one of rewarding individuals who prepare financially for college (an ownership society). This privatization explanation provides us with our study's first two hypotheses:

Hypothesis 1 States where Republican legislative strength is greater will be more likely to adopt college savings plans and prepaid tuition plans.

A persistent puzzle in the state politics and policy literature is the extent to which partisanship influences the policy behavior of state governments. Theoretically, party control of government should help shape the policy directions of the states because there are notable differences between the parties on some fundamental questions, such as the proper role of government in the marketplace or in ensuring social well-being (Barrilleaux et al. 2002; Garand 1985; Berry et al. 1998). Much of the early empirical work found Republican and Democratic party strength statistically unrelated to state policy (e.g., Dawson and Robinson 1963; Dye 1966a, b). On the other hand, some more recent analyses, using various time-series techniques, have documented strong partisanship effects. For example, Stream (1999) documented a relationship between Republican control of government and state adoption of certain health reforms viewed as insurance-industry friendly. In the domain of criminal justice, Yates and Fording (2005) found higher levels of Republican legislative strength associated with higher incarceration rates. Shipan and Volden (2004) found that states where the legislative and executive branches are under unified Republican control are less likely to adopt certain anti-smoking laws. Barrilleaux et al. (2002) found a positive relationship between Democratic strength in state legislatures and state spending on welfare benefits.

In higher-education studies, scholars until recently largely ignored party control of governmental institutions as a prospective explanation for interstate variations in policy outcomes. A series of recent studies by McLendon and colleagues (McLendon et al. 2005, 2006, 2007; Mokher and McLendon 2009) and others (e.g., Archibald and Feldman 2006; Tandberg 2006) provide some initial empirical evidence of partisanship influences. Notably, McLendon et al. (2005) found that states where the legislative branch was controlled by Republicans are more likely to adopt one of several innovative postsecondary financing policies, including the two policies (college-savings and prepaid tuition) that are the subject of our present investigation. The authors speculate that the relationship may owe to differences between the two parties in their views on the marketplace. They argue that the policies, which encourage private savings for college, may be associated more with Republican-held legislatures than with Democratic-held ones because Republicans often favor market mechanisms, instead of the redistributive lever of state taxation, as a means for furthering public policy ends. When cast against the backdrop of Republican gains in state legislatures during the 1980s and the 1990s, and declining state effort in funding for public higher education (Archibald and Feldman 2006), might the adoption of college-savings and prepaid-tuition policies indicate that a privatization movement is underway in state finance of higher education? Our initial hypothesis tests this proposition.

Importantly, however, partisanship might be a proxy for the varying politico-ideological propensities of state citizenries and government officials. Partisanship and ideology are not

always highly correlated (Erikson et al. 1989), and some previous studies, including the one cited above, did not control for governmental ideology as a potential influence on the policy behaviors of states. The privatization explanation, therefore, leads us to a second hypothesis for state adoption of college-savings and prepaid-tuition plans:

Hypothesis 2 States that are more conservative ideologically will be more likely to adopt college savings plans and prepaid tuition plans.

Researchers traditionally have studied political ideology by measuring the general level of a state's liberalism (defined as government activism), and then determining the relationship between that value and state policy behavior. An impressive body of research now suggests that states vary considerably from one another in their ideological positions (Berry et al. 1998), and that these differences seem to play an important role in shaping the policy postures of the states (Elazar 1966; Erikson et al. 1989, 1993; Klingman and Lammers 1984). A number of studies, for example, have found more liberal states historically favoring more generous welfare benefits (Rom 1999; Soss et al. 2001). Likewise, a substantial literature exists on the connections between ideological conservatism and state corrections policies; namely, more conservative states tend to be positively related to higher incarceration rates (Smith 2004; Yates and Fording 2005). But such relationships are not always clear cut. While states that are more ideologically liberal tend toward greater interventionism in the redistributive and regulatory policy spheres, states that are more conservative tend to intervene more in the arena of social-morality policies—i.e., policies involving the regulation of alcohol, gambling, drugs, sex, and abortion, which involve the redistribution of values rather than material benefits (Meier 1994).

A reasonable case can be made for the adoption of college-savings and prepaid-tuition policies as a product of the ideological propensities of the states. Clearly, the adoption of these programs demands a considerable investment of capital, time, and analytic resources on the part of policy-makers, and much of the literature on policy innovation in the American states argues that such investments are more likely to be made by states with more ideologically liberal leanings (e.g., Dawson and Robinson 1963; Walker 1969). However, if in fact a privatization movement is now underway in state financing of higher education, and if the adoption of college-savings and prepaid-tuition programs are one manifestation of that larger policy redirection, then we might expect conservative state governments to be more likely to adopt the programs because of their adherence traditionally to the values of individual responsibility, consumer choice, and reliance on private market mechanisms to achieve public ends. Thus our second hypothesis examines the ideological (rather than partisanship) underpinnings of policy choice in the postsecondary arena.

Electoral Competition and Timing of Votes

A third, rival explanation draws on the political economy tradition, extending forward in time from Downs' (1957) original formulation, and focuses on rational calculation of electoral advantage. We propose two hypotheses that build on this tradition:

Hypothesis 3 States with a more competitive electoral environment will be less likely to adopt either a prepaid tuition or savings plan.

The political science literature has long suggested that the competitiveness of elections may affect elections in ways that are not related to partisanship or ideology, alone. In his classic work, V.O. Key suggested that in the south, where electoral competition was

minimal, the lack of competitiveness resulted in policies that benefited the well-off as opposed to the have-nots (Key 1949). Subsequent work has formalized and tested this claim, with mixed results. While several authors have found that electoral competition increased funding for programs that would primarily benefit the poor, the results from others are mixed (Besley and Case 2002).

We propose that electoral competition will matter for the adoption of these types of programs. We hypothesize that since this is a policy intervention that will primarily benefit the middle and upper income citizens of any given state, it should be more likely to occur in states where there is less competition for elective office. In essence, governors and legislators who feel secure in their office will not push to enact programs for the less well-off, but will use their power to reward their most important constituency (Barrilleaux 1997; Barrilleaux et al. 2002).

To measure electoral competition, we propose a variable based on electoral results. We do not think that the proportion of seats held by different parties in the legislature is an appropriate measure of competitiveness, since it is possible (although not likely) that one party could dominate the legislature even when every single seat in the legislature was decided by a very close election. As Holbrook and van Dunk (1993) point out, the electoral competition hypothesis has to do with competition in elections, not the level of control of state government. This measure differs from more traditional ones like the Ranney index in that it looks only at electoral results, and posits that the level of divergence from perfect competition is the key concept to be measured. Our measure is based on the absolute deviation of results from a perfect 50–50 electoral split.

Hypothesis 4 The adoption of a prepaid tuition or savings plan will be more likely as an election draws nearer.

Political scientists and economists have provided several rationales for a possible "political business cycle" like the one observed in the private sector. As elections draw near, politicians may be likely to enact some popular programs in order to garner further electoral support. Once elections are over, those politicians who have won office may be most likely to enact their least popular programs by claiming a mandate for action. This also provides a "buffer" of sorts before the next election, so that public attention will drift from any possibly unpopular policy enactments (Berry and Berry 1990, 1992; Besley and Case 1995; de Figueiredo 2001; Nelson 2000; Nordhaus 1975; Rogoff 1990).

In one of the first theoretical treatments of this phenomenon, Nordhaus (1975) suggested the policymakers will cycle between macroeconomic policies for reducing inflation and policies for reducing unemployment depending on the timing of the election. Policies to reduce unemployment will be utilized most heavily at the end of an electoral term, while policies to reduce inflation will be utilized most heavily at the beginning of an electoral term.

In an empirical treatment of this hypothesis, Nelson (2000) looked at how tax policy might vary according to the proximity of elections. While Nelson finds little support for the idea that tax cuts occur in proximity to elections, he does find strong support for the idea that tax increases are most likely in the period immediately following a governor's election. His results are consonant with the overall framework proposed by Nordhaus, in which more "painful" policy changes are most likely to occur when the next election is quite far off.

Berry and Berry's (1990, 1992) work also is notable in this regard. These authors' early event history studies found some evidence that states do appear to enact politically popular

lotteries in the run-up to a statewide election, while they then to adopt unpopular tax increases in the years immediately following an election.

Besley and Case (1995) add a compelling dimension to this line of research by suggesting that the process of political business cycles may also be affected by the policy choices of decision makers in neighboring states. They provide a theoretical model that suggests that voters make decisions on politician's actions based on both their own past experience and what they observe occurring in nearby areas. They therefore suggest that voting decisions may be based on a "yardstick" that is different from state to state. For instance, a governor may not necessarily have to not raise taxes in order to succeed, the governor only needs to not raise taxes as much as they are raised in neighboring states.

The two hypotheses suggested in this framework each also depend on the relative distribution of voters in states. If a state has a large middle class, then it is likely that elections may be more competitive, which we propose should decrease the likelihood of adopting either type of plan. Paradoxically, the prevalence of this middle class may lead policymakers to be more likely to adopt such a plan as an election draws near (Fernandez and Rogerson 1995). However, if a state has a small middle class, then elections may be less competitive, but the size of this middle class may not lead policymakers to utilize such plans in the political-business cycle. In either case, these two state factors may work against one another in the process of adoption.

In our current framework, we have posited that prepaid tuition and college saving plans are quite popular among middle- and upper-income citizens. These policies would therefore seem to be an ideal policy intervention to take place later in a statewide election cycle, when incumbents have the most politically to gain.

Institutional Structure of the Higher Education System

Still another explanation, one deriving from a robust body of empirical work in the field of higher-education studies, holds that the postsecondary educational context of a given state may be the most important factor in determining whether the state adopts a prepaid tuition or savings program. Here, we suggest four hypotheses.

Hypothesis 5 States with more highly centralized higher-education governance structures will be less likely to adopt prepaid tuition and savings plans.

An important aspect of educational structure is the nature of postsecondary governance arrangements in a state. All states have adopted some form of governance arrangements over which they monitor, direct and/or regulate postsecondary education. States vary in the degree of centralization of their postsecondary system governance, with some featuring powerful consolidated governing boards with substantial academic and budgetary authority, while others on the opposite extreme featuring a structurally weak planning agency. Between the two extremes lie coordinating boards with varying levels of authority over academic and fiscal directions in public higher education. Such entities are less powerful and less fully staffed than consolidated boards, but clearly hold more authority than the weak planning agencies present in Nebraska and a handful of other states. Many analysts (Berdahl 1971; Hearn and Griswold 1994; Hearn et al. 1996; McGuinness et al. 1997; McLendon 2003b; Zumeta 1996) have hypothesized that centralization is likely to be associated with greater knowledgeability and analytic resources at the state level, and may therefore lead to higher rates of innovation in postsecondary policy. Several studies have found evidence for this hypothesis (Doyle 2006; Hearn and Griswold 1994; McLendon et al. 2006).

At the same time, different innovations have different implications for differing interests in postsecondary systems. The evidence on the effects of various governance structures on financing policies is complex. Notably, a tendency to innovate in one domain may be unrelated or even negatively related to a tendency to innovate in another. The notion that centralization always prompts innovation is far from clear cut. In fact, our hypothesis for this study is that states with more centralized governance arrangements will be less, not more, likely to adopt new prepaid tuition and savings policies. Hearn and Griswold (1994), in a study of the factors contributing to the adoption of prepaid tuition and savings plans and other postsecondary innovations, found that governance arrangements appeared to be influential in the adoption of some academic reforms, but were not systematically associated with innovations in the financing of postsecondary education. Interpreting these results in light of the writings of such political theorists as Ripley (1985) and Lowi (1964), they concluded that financing innovations are distinct from more purely "educational" reforms in states, and may fall more within the relatively separate domain of populist, redistributional politics. That is, unlike the case of academic policy, there is unlikely to be any generic tendency among centralized systems to reform postsecondary financing.

In a later analysis, Hearn et al. (1996) found that centralization was indeed connected to financing policy, but in a way unanticipated by their initial hypothesis: the non-centralized states were the most likely to adopt the "rationalist" approach of higher tuition in the public sector. More centralized states were somewhat more likely to take the traditional choice of keeping tuition levels relatively low. Similarly, in recent work using time-series analysis, McLendon et al. (2006) found that centralization was associated with the adoption of one kind of finance-related policy, performance-based budgeting, but not with the adoption of another policy, performance-based funding. Because performance funding arguably represents a more aggressive reform than performance-based budgeting, this finding suggests again that the centralization-reform connection is complex as it relates to financing.

To better understand these results, McLendon et al. (2006) turned to the work of Lowry (2001), concluding that *interests* rather than analytic capabilities, may explain the curious divergence observed in the effects of differing governance arrangements. Centralized boards, they argue, may represent a somewhat different constellation of interests from that of other governing arrangements, and thus may in fact seek to *protect* academic institutions from certain reform initiatives at the state level, such as tuition rationalization or performance funding.

In the present case, we hypothesize that a more centralized board system will most likely reduce the likelihood of adopting a prepaid tuition or savings program, because with a more centralized system, policymakers can directly push the system to hold costs down, instead of indirectly attempting to do so via a prepaid tuition or savings plan. Board leaders will prefer their traditionally clear line of authority on pricing over the indirect, more-complex pricing control processes likely to arise under the terms of prepaid tuition and savings plans (Lowry 2001).

Hypothesis 6 States with more students in private institutions will be more likely to adopt prepaid tuition and savings plans.

Hypothesis 7 States with more students in 2-year colleges will be less likely to adopt prepaid tuition and savings plans.

The "enrollment ecology" of states' postsecondary education contexts seems quite relevant to their likelihood of adopting state-funded savings and tuition plans. Two

hypotheses stem from this observation. First, to the extent a state has high proportions of students in private institutions, states may be more likely to initiate programs to help families and students cope with the high costs of these types of institutions. Second, to the extent that a state has high proportions of students in 2-year institutions, states may be less likely to evince concerns over college costs and design programs tailored to meeting those costs, such as prepaid tuition and savings plans. In effect, a state's choice to invest in 2-year systems may represent an alternative approach to containing the college costs faced by citizens in the state.

Hypothesis 8 States with greater investments in student aid will be less likely to adopt prepaid tuition and savings plans.

It is possible to construct contrasting arguments regarding the relationship between a state's investment in student-aid programs and its investment in prepaid tuition and savings plans. On one side, it seems plausible to suggest that states committed philosophically to increasing access to postsecondary education would pursue several approaches toward that end, ranging from direct student aid through to tax-advantaged financial assistance to families planning and saving for college. On balance, however, it seems more plausible to suggest that the current, constrained fiscal environments will lower the likelihood that states providing substantial direct student aid (whether via merit or need-based grants) will also invest significantly in tuition and savings plans. One might even argue that investment in tuition and savings plans deflects the political pressures to expand access via student aid in the shorter term. As such, the plans may represent an alternative, rather than complementary, approach to containing college costs.

Policy Diffusion

Our final explanation for the growth of prepaid tuition and college savings policies over the past 20 years looks beyond the context of a single state to consider the impact of states' policy behaviors on one another. A key concept in the study over the past 40 years is that of diffusion—the notion that states emulate the previous policy behaviors of their neighbors or peers. While many studies have pursued a fairly straightforward spatial conception of diffusion (e.g., ones in which policies migrate between contiguous neighbors or among states within set geographical regions), others have approached the study of diffusion from the perspective of policy networks or other similarities among states.

Walker's (1969) pathbreaking work used a correlational analysis to investigate regional patterns of policy diffusion among the states. Other studies since Walker have built heavily on Walker's regional or temporal concept to show that, within the fixed community of American states, states may influence one another's policy activity. The advent of event history analysis, a family of time-series techniques that permits the analyst to study duration and timing of complex political processes, has allowed for a better understanding of possible modes of policy diffusion among the states (e.g., Berry and Berry 1990; Box-Steffensmeier and Jones 1997; DesJardins 2003). Among the very first studies to analyze patterns of diffusion in the American states using event history analysis were Berry and Berry's (1990, 1992) studies of the adoption of state lotteries and tax changes, respectively. Their work found strong empirical evidence of the influence on policy adoption both of certain internal characteristics of the states (e.g., electoral timing, economic conditions) and of the prior policy decisions of a state's neighbors. More recent work employing this method, such as Mintrom's (1997) analysis of the origins and spread of charter school

legislation in the states, also found empirical evidence of a diffusion effect, although overall about only one-half of the empirical studies published in the core peer-reviewed outlets of political science have found a statistically significant coefficient for the diffusion variable (Mooney 2001).

Relatively few studies have examined systematically the impact of diffusion on the adoption of new higher-education policies in the states, and the evidence that exists provides a mixed picture. Neither McLendon et al. (2005) event history analysis on the emergence of performance-based accountability regimes for higher education nor Doyle's (2006) event-history study of state adoption of broad-based, merit scholarship programs found any evidence that interstate diffusion pressures were at work in the creation of these policies.

Although the evidence for policy diffusion in the arena of postsecondary education is not conclusive, we hypothesize that regional diffusion may be at work in the adoption of prepaid tuition and college savings plans. Our reading of the anecdotal and the case-study literature on these programs seems to indicate that officials in many states did look to their neighbors when formulating their own programs (Olivas 2003). In particular, we posit that states with more neighbors with either type of plan (prepaid tuition or savings) will be more likely themselves to adopt that specific type of plan.

Hypothesis 9 States with more neighbors that have either type of program (prepaid tuition or a savings plan) will themselves be more likely to adopt such a program

Data and Methods

Our study deploys event history analysis in determining the factors associated with state adoption of prepaid tuition and college savings policies from 1986 to 1999. Thus, our data set consisted of aggregate data for the 50 states for the 14-year period, 1986–1999. In 1986, Michigan adopted the first prepaid tuition, making this year a natural starting point for our study. In 1999, changes in federal legislation made it much more appealing for states to adopt a college savings plan, something that all 50 states had done by the time of writing.

Event history analysis is ideally suited for investigating both whether and when a particular event occurs. The strength of this type of analysis is in describing how covariates of interest may affect the duration of time prior to an event's occurrence. In event history analysis, issues of both left-censoring and right-censoring of the data are quite important. Left-censoring would mean that important information about individuals in the study was left out because the study began after the period of interest (Allison 1984). Our study does not involve left-censoring, as it begins with the specific time period of interest—when states began to observe the effects of having some form of college payment plan. Right censoring would indicate that important information was excluded because the study ended before all possible event times had been observed. Again, right-censoring does not affect our data set because the underlying circumstances for these types of policies changed dramatically in 1999 with the adoption of federal legislation, effectively ending the time period of interest by this date.

We limit the data set to include only information on the 48 contiguous states. This is done both because Hawaii and Alaska differ on a number of important economic and political variables that make them less directly comparable than their counterparts. This

Table 1 Descriptive statistics for variables in analysis

	1986	1999
Prepaid tuition	0.02	0.42
	(0.14)	(0.50)
Savings plan	0.00	0.62
	0.00	(0.49)
Legislative ideology	53.94	45.65
	(20.21)	(26.79)
Proportion voting republican	0.46	0.51
	(0.11)	(0.13)
Electoral competition	−0.09	−0.1
	(0.06)	(0.08)
Years until next election	3.42	1.68
	(0.99)	(1.11)
Board: planning board	0.06	0.06
	(0.24)	(0.24)
Board: weak board	0.18	0.10
	(0.39)	(0.30)
Board: strong board	0.34	0.40
	(0.48)	(0.49)
Board: governing board, 4 years	0.20	0.22
	(0.40)	(0.42)
Board: governing board, all institutions	0.22	0.22
	(0.42)	(0.42)
Proportion in privates	0.22	0.24
	(0.13)	(0.13)
Proportion in community colleges	0.24	0.25
	(0.12)	(0.12)
Log total financial aid (inflation adjusted)	4.64	4.99
	(1.03)	(1.54)
Proportion 18–24	0.12	0.10
	(0.01)	(0.01)
Log gross state product per capita (inflation adjusted)	10.18	10.36
	(0.23)	(0.19)
Prepaid diffusion: neighbors	0.06	3.58
	(0.24)	(1.75)
Savings diffusion: neighbors	0.00	1.80
	0.00	(1.23)
Prepaid diffusion: distance	0.15	2.10
	(0.03)	(0.06)
Saving diffusion: distance	0.00	2.96
	0.00	(0.08)

was also done as the variables for diffusion would make less sense for states that do not share a border with any other states (Holmes 1998). Descriptive summaries of all variables in the analysis in the first and last years of the study are shown in Table 1.

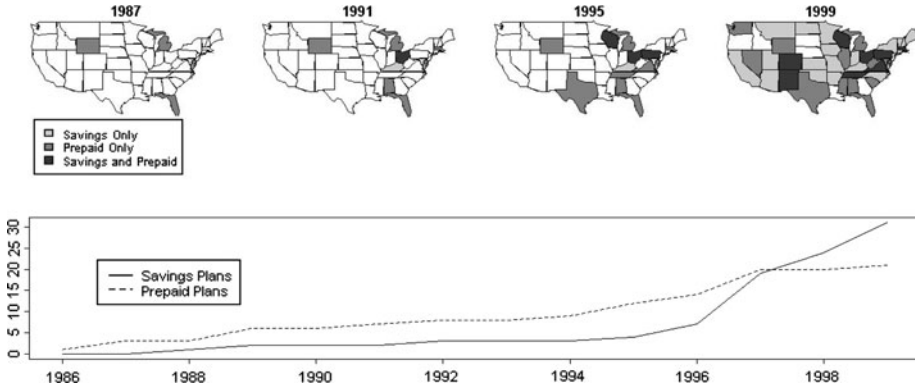

Fig. 1 Adoption of prepaid tuition and savings plans, by state

Dependent Variables

The study utilizes two dependent variables. The first, adoption of a prepaid tuition plan, is an indicator variable for the year in which a state adopted a prepaid tuition plan. A prepaid tuition plan is defined for the purposes of this study as a plan where the family's contribution to the plan guarantees a certain level of tuition at an institution or institutions in the state. The second, adoption of a savings plan, is likewise an indicator variable for the year in which a given state adopted a savings plan. A savings plan is defined as a plan where tax exemption or other incentive is offered for families as a reward for investment in a plan specifically concerned with higher education expenses. The construction of these variable indicators is based on the authors' analysis of state legislative histories.[2] Figure 1 displays the regional trends in adoption of these policies, along with the number of states adopting in each year.

Variables for Electoral Competition Hypotheses

Two variables are used to capture the concept of electoral competition and policy cycles. First, we use a simple competition index for the most recent gubernatorial election based on voting patterns. Second, to measure policy cycles, we use a measure of time until the next election.

Our competition index is based on the degree to which the governor from either party won the previous election. The formula for determining this variable is as follows:

$$competition = -|.5 - proportion\ republican|$$

where *competition* is our variable for electoral competition and *proportion republican* is the percent of the population that voted for the Republican candidate for governor in the previous election. The opposite of the absolute value of the difference of this percentage from 0.5 forms the basis for this measure. In short, as the election grows more competitive,

[2] We collected information on the programs from a variety of extant sources, including Roth (1999) and Baird (2006). We then used Lexis–Nexis to search, within each state's statues, for the year of program adoption and for various other program characteristics to ensure consistency with our operationalized definitions for the policies described elsewhere in the manuscript.

the difference between the vote share and a perfect 50–50 split will grow smaller, with a maximum value of 0.

Our measure for electoral timing is simply the number of years until the next gubernatorial election. This variable follows the logic laid out by Nordhaus and others in that executives should seek to implement policies that are maximally pleasing to their electorates as the next election draws near (Nordhaus 1975). Therefore, as this number grows smaller, we expect that the likelihood of adoption of a savings or prepaid plan will grow larger.

Variables for Policy Privatization Hypotheses

We make use of two types of variables to test the policy privatization hypothesis. First, we look at how liberal or conservative the state government may be depending on the characteristics of its elected representatives. Second, we look at the percent of the population voting for the Republican candidate for governor in the last election.

To capture the concept of ideology, we utilize the index of state government liberalism developed by Berry et al. in their study. Berry's index is based on patterns of Congressional roll call voting in each state and the proportional representation of each party in the branches of government in the state. A state is considered more liberal in this index based on the degree to which its congressional delegation from each party votes for liberal causes, and the degree to which representatives from that party dominate state government, including the upper and lower houses of the legislature and the governor's office (Berry et al. 1998). This variable is entered separately in the competing risks model, to allow for separate estimates of its effect on the hazard rate of adoption of either a prepaid tuition or a savings plan.

To capture the concept of party dominance, we include the proportion of the population that voted for the Republican candidate for governor in the previous election (Klarner 2003).

Variables for Institutional Structure Hypotheses

Four variables are included in order to test our hypotheses regarding the institutional structure of higher education in the state. First, we include a measure of the type of governing board; second, we include a measure of financial aid awarded in the state, next we include two measures of enrollment, one for the percent of full time equivalent (FTE) students in privates, another for percent of FTE enrollment in community colleges.

The measure for governing board makes heavy use of the typology defined by McGuinness et al. (1997) in a series of reports for the Education Commission of the States. Governing board type in this study is defined in the following way, ordered roughly from the least centralized to most centralized forms:

- Planning board: No coordination functions, but some statewide planning entity
- Weak coordinating board: Coordination functions may include things such as course articulation and some program input, but no budgetary review power
- Strong coordinating board: Coordination functions include budgetary review
- Governing board 4 years only: A single governing board exists for all public 4-year institutions in the state
- Governing board for all institutions: A single governing board exists for all public institutions in the state.

In all of our results, we use the planning board designation as the excluded category for the purposes of analysis.

The next variable is the total amount of financial aid awarded in the state. This variable is defined as total state financial aid divided by the number of FTE students. This information is available from the National Association of State Student Grant and Aid Programs for all years. Because of the highly skewed nature of this variable, we enter it into the equation as the log of financial aid, plus a single dollar to allow for the log of states with no financial aid awards.

The last two variables included as part of the institutional structure hypotheses are the percent of FTE in private institutions and the percent of FTE in community colleges. Both of these variables are derived from information reported in the Digest of Education Statistics, which draws this data from the Integrated Postsecondary Education Data System.

Variables for Diffusion

We include two variables for diffusion, each of which estimates a separate effect: one for prepaid tuition and one for savings plans. The first variable, defined as diffusion across neighboring states, is based on the number of contiguous states that have adopted either a prepaid tuition or a savings plan. For every state in every year, a count is made of bordering states with the type of policy in question. Borders are land borders only; we use the same definitions of borders as utilized in Holmes (1998).

The second variable is based on the geographic distribution of states that have adopted either a prepaid tuition or a savings plan. The distance measure is defined as the log of the sum of distances from a given state's capita to the capitals of states that have adopted either a savings or a prepaid tuition plan divided by the total number of adopting states. This variable is defined specifically as:

$$\text{distance}_{it} = \frac{J}{\log\left(\sum_{jt=1}^{JT} miles_i\right)}$$

where distance is the distance measure for state i in year t, $j = 1 \ldots J$ indexes states with a particular policy, and miles indicates the distance, in miles from state i's capital to state js capital. This measure is higher for states where many geographically close capitals have adopted a plan, and lower for states that are far away from adopting states. Distances are based on the great circle distance from one state capital to another.

Control Variables

Finally, our study includes two control variables, one for demographic characteristics of the state and one for economic characteristics of the state. For demographics, we control for the percent of the state population aged 18–24. This data is drawn from the Census Bureau's Current Population Survey. For state economic characteristics, we control for gross state product per capita. This data is drawn from the Bureau of Economic Analysis. This data is adjusted for inflation using the Consumer Price Index for all urban consumers, which is produced by the Bureau of Labor Statistics.

Methods

As with other standard event history models, we posit that the hazard function for any individual at time t is:

$$\lambda[t; X(t)] = \lim_{h \to 0} h^{-1} P[t \leq T, t + h | T \geq t, X(t)] \quad (1)$$

where T is the continuous set of times for any event, t is a member of the set of times, X represents a set of time varying covariates for all units, h represents an arbitrarily small increment of time, and λ represents the hazard rate for adopting a policy at time t (Kalbfleisch and Prentice 2002).

Our model differs from many standard event history models in that we incorporate competing risks. The primary difference here is that we model the hazard rate for the possibility of more than one type of event occurring. In our case, we model the hazard rate for both the adoption of a prepaid tuition program and a savings plan in the states, based on covariates X.

$$\lambda_j[t; X(t)] = \lim_{h \to 0} h^{-1} P[t \leq T, t + h, J = j | T \geq t, X(t)] \quad (2)$$

where Eq. 2 is identical to Eq. 1 with the exception of the subscript j to λ, indicating that there are multiple hazard rates to be estimated, as opposed to the single hazard rate in Eq. 1 (Kalbfleisch and Prentice 2002).

Our specific method of estimation relies on a Cox proportional hazards model (Cox 1972). Unlike other models for survival data, the Cox model does not rely on a specific parametric form for the underlying hazard rate λ. Instead, the model looks at how the covariates X proportionally increase or decrease the hazard rate relative to an underlying baseline hazard rate λ_0, which is estimated non-parametrically from the data. The specific form of the estimating equation for a competing risks model is:

$$\lambda_j[t; X(t)] = \lambda_{0j}(t) \exp[Z(t)' \beta_j], j = 1, \ldots m \quad (3)$$

where Z is a vector of covariates derived from X, and β_j is a vector of possibly cause specific covariates. As Eq. 3 shows, the covariates and coefficients in this model can be allowed to vary according to the cause. That is, specific covariates can be specified as only affecting the hazard rate of adoption of one of the types of policies in questions, or, if desired, both of the types of policies (Kalbfleisch and Prentice 2002; Therneau and Grambsch 2000).

Our methods add two new elements to the literature on the adoption of higher education policy. First, the competing risks framework provides a flexible method for investigating the degree to which similar state characteristics may simultaneously influence the adoption of multiple polices. Second, the Cox proportional hazards model with cause-specific hazard functions allows us to model the proportional increase or decrease in hazard rates for multiple types of policies without reliance on a specific parametric form for the hazard rate. This facilitates better use of the existing data to understand how state characteristics may affect their likelihood of adopting a particular policy option at a given point in time.

Results

Results for the Cox Proportional Hazards competing risks model can be found in Table 2. In all, we estimated coefficients for seven model specifications. We estimated three separate models for the conceptual frameworks of electoral competition, privatization, and institutional structures (models 1–3, Table 2), as well as two models for the separate definitions of diffusion (models 4 and 5, Table 2). Last, we estimated separately two

Table 2 Results of Cox proportional hazards model (competing risks = adoption of prepaid plan, adoption of savings plan—standard errors in parentheses)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Coeff.	Hazard ratio (95% CI)	Coeff.	Hazard ratio (95% CI)	Coeff.	Hazard ratio (95% CI)	Coeff.	Hazard ratio (95% CI)	Coeff.	Hazard ratio (95% CI)	Coeff.	Hazard ratio (95% CI)	Coeff.	Hazard ratio (95% CI)
Electoral competition	−2.07 (1.35)	[0.01,1.77]									−3.87 (1.89)	[0, 0.84]	−3.91 (1.79)	[0,0.67]
Years until next election	0.07 (0.12)	[0.86,1.35]									0.05 (0.11)	[0.84,1.3]	0.07 (0.11)	[0.87,1.32]
Legislative ideology (prepaid adoption)			0.24 (0.09)	[1.07,1.52]							0.27 (0.11)	[1.06,1.63]	0.26 (0.10)	[1.07,1.59]
Legislative ideology (savings adoption)			0.01 (0.07)	[0.88,1.15]							-0.004 (0.07)	[0.87,1.13]	0.01 (0.07)	[0.89,1.15]
Proportion voting republican			0.67 (1.21)	[0.18,20.96]						1.07	[0.27,30.79] (1.20)	1.01	[0.24,31.27] (1.24)	
Board: weak board					0.76 (0.45)	[0.89,5.19]					1.01 (0.50)	[1.03,7.33]	1.21 (0.51)	[1.23,9.16]
Board: strong board					0.06 (0.30)	[0.58,1.91]					0.07 (0.35)	[0.54,2.11]	0.22 (0.39)	[0.58,2.68]
Board: governing board, 4 years					0.4 (0.34)	[0.77,2.88]					0.53 (0.36)	[0.83,3.44]	0.54 (0.38)	[0.82,3.58]
Board: Governing Board, All Institutions					-0.33 (0.43)	[0.31,1.67]					-0.37 (0.46)	[0.28,1.71]	-0.15 (0.57)	[0.28,2.61]
Ln Total Financial Aid per FTE+ 1					0.1 (0.11)	[0.9,1.37]					0.08 (0.10)	[0.9,1.3]	0.03 (0.13)	[0.8,1.34]
Proportion in Privates					1.34 (0.78)	[0.83,17.49]				0.7	[0.21,19.02] (1.15)	0.74	[0.22,19.88] (1.15)	
Proportion in Community Colleges					-0.3 (0.97)	[0.11,4.93]					0.23 (1.30)	[0.1,16.13]	0.39 (1.77)	[0.05,47.04]
Prepaid Diffusion–Neighbors							-0.17 (0.28)	[0.48,1.47]		-0.11	[0.46,1.75] (0.34)			
Savings Diffusion–Neighbors							0.23 (0.13)	[0.98,1.62]		0.26	[0.99,1.7] (0.14)			

Table 2 continued

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Coeff.	Hazard ratio (95% CI)	Coeff.	Hazard ratio (95% CI)	Coeff.	Hazard ratio (95% CI)	Coeff.	Hazard ratio (95% CI)	Coeff.	Hazard ratio (95% CI)	Coeff.	Hazard ratio (95% CI)	Coeff.	Hazard ratio (95% CI)
Prepaid Diffusion–Distance									3.24 (8.28)	[0,2.8e7]		4.5	[0,1.2e9] (8.38)	
Savings Diffusion–Distance									5.95 (6.65)	[0,1.7e7]		4.36	[0,1.66E11] (10.96)	
Proportion 18-24											-17.22 (24.28)	[0,1.54e13]	-19.11 (24.70)	[0,5.27 E12]
Gross State Product Per Capita											-0.44 (0.60)	[0.2,2.07]	-0.48 (0.64)	[0.18,2.19]
Obs		1165		1165		1165		1165		1165		1165		1165
Events		50		50		50		50		50		50		50
Model L.R.		1.43		6.28		9.08		3.27		2.56		22.15		20.18

models with all of the variables included, but with separate definitions for the diffusion variables. These models also included, controls for the states' economic and demographic characteristics (models 6 and 7).

The data for this study were collected in a panel data format, with two separate datasets, one for prepaid tuition and one for college savings plans. The covariates in each dataset were identical with the exception of the diffusion variables—diffusion is measured for each type of policy and not across policies. These resulted in two datasets with 700 state-year observations (50 states across 14 years). We next excluded Alaska and Hawaii from the dataset for reasons outlined above. To convert this panel data into an event-history dataset, state-year observations for states that had already experienced each type of event were dropped from the dataset. This, along with the exclusion of Alaska and Hawaii, resulted in a dataset containing 563 state-year observations for prepaid tuition, and 602 observations for savings plans (savings plans were adopted much later in many states, see Fig. 1). Finally, the two datasets were combined into a single dataset with two strata, one for prepaid tuition and one for savings plans. Government liberalism and diffusion were both estimated as stratum-specific covariates, while the impact of all other covariates was estimated jointly. Thus, Table 2 shows a dataset containing 1,165 observations (563 prepaid, 602 savings) and 50 events (20 prepaid tuition adoptions, 30 savings plans adoptions).

As Table 2 shows, the joint significance of the variables in models 1 and 2 does not exceed 0.1, indicating that these variables by themselves provide a poor fit to the data, which is statistically indistinguishable from the null model with no covariates. We conclude from these results that the models for ideology and partisanship or electoral competition do not fit the data well when not conditioned on other variables. On the other hand, the likelihood ratio test for both models 3 and 4 are significant, with p-values less than 0.1. Both of these models do provide a fit to the observed data that is better than could be achieved without any covariates. Last, the p-value for the likelihood ratio test for the full model is 0.02, indicating a good fit with the data. The fully specified model with the "distance" measure of diffusion does not fit the data as well as the model with the neighboring measure of diffusion based on the Bayesian Information Criterion. Because of this finding, we restrict the rest of our discussion to the estimates obtained under model 6.

Of the nine hypotheses suggested in our conceptual framework, we find support for three, and partial support for a fourth in our analysis. We find that states with a more competitive electoral environment were less likely to adopt prepaid tuition or college savings plans. The results also show that states with a more liberal government are more likely to adopt a prepaid tuition plan. We also find that states with a weak coordinating board are more likely to adopt these types of plans. This finding in particular merits attention as it speaks to a growing body of research on the importance of state governance of higher education as a determinant of policy adoption. We also find a modest effect of diffusion on the hazard rate of adopting a savings plan.

No other statistically significant relationships were found. While we can not conclude that no relationship exists on the basis of this lack of statistical significance, we do discuss some possible reasons why we do not observe the patterns we hypothesized in each area. In the implications section we provide some possible alternative specifications of key relationships that may help to guide further research into the antecedents of state higher education policy. We are particularly alert to the possibility that the lack of statistical significance may be driven by the small size of the dataset and the relatively few events. The dataset is large enough for accurate estimation, yet as with other state-level studies, we are bound by a relatively small number of underlying units.

Results for Ideology and Partisanship

We hypothesized that states that are more conservative and those with higher levels of Republican control will have higher hazard rates for adoption of a prepaid tuition or savings plan. In model 6 in Table 2 we report results testing these two hypotheses. The coefficient for proportion of the population voting for the Republican candidate for governor is not significant in any specification. However, government liberalism is positively associated with an increased hazard rate for the adoption of prepaid tuition plans only. Government liberalism is not associated with the adoption of savings plans.

Results for Electoral Competition

As we describe in the earlier section, electoral competition may affect the adoption of one of these programs in two ways: first state policymakers may be more likely to adopt one of the programs under consideration as an election draws near; second, state policymakers where elections are less competitive may be more likely to adopt such a prepaid tuition or savings plan.

We do not find strong support for the idea that electoral *timing* plays a role in states' adoption of a prepaid tuition or savings plan. As model 6 in Table 2 shows, the coefficient for years until election is 0.05, with a standard error of 0.11.

On the other hand, we do find support for our hypothesis that electoral *competition* negatively affects the hazard rate for adopting a prepaid tuition or savings plan. The coefficient for the variable on electoral competition is −3.87 with a 95% confidence interval bounded by [−7.6, −0.17]. At the 95% confidence level, the interval for the reduction in proportional hazards is bounded by [0.02, 0.84] with a maximum likelihood estimate of 0.12. In terms of the range of outcomes found in the data, the most competitive election was essentially even, with a value of 0. The least competitive was 0.37 away from 0.5. Over this range of outcomes, the proportional hazard goes from 1 (no change in hazard rate from baseline) to 1.6, meaning the state has a hazard rate that is proportionally 1.6 times more than average. This finding confirms our original hypothesis that these types of programs are more likely to be adopted in states that have a less competitive electoral environment.

These results are summarized in Fig. 2. As the figures in the first row show, for both types of risks being modeled, the proportional hazard increases as electoral competition decreases, but the substantive impact is small.

Results for Intra-State Education Factors

We hypothesized the educational characteristics of states as likely to affect the hazard rate of adoption of a prepaid tuition or savings plan in a number of ways. First, we posited that states with a more highly centralized governing board will be less likely to adopt a prepaid tuition or savings plan, as they are among the states that will be more likely to adopt a low tuition, low aid strategy. This hypothesis finds support in our analysis. The categorical variable for board structure is included in model 6, Table 2, with five levels: planning board, weak coordinating board, strong coordinating board, governing board for 4 year institutions, and centralized governing board. In the model, planning board is excluded to avoid a singularity. The results show that states with a weak coordinating board are distinct from all other states—they have a higher hazard rate for adopting a prepaid tuition or savings plan. The coefficient for this variable is 1.01, with a 95% confidence interval

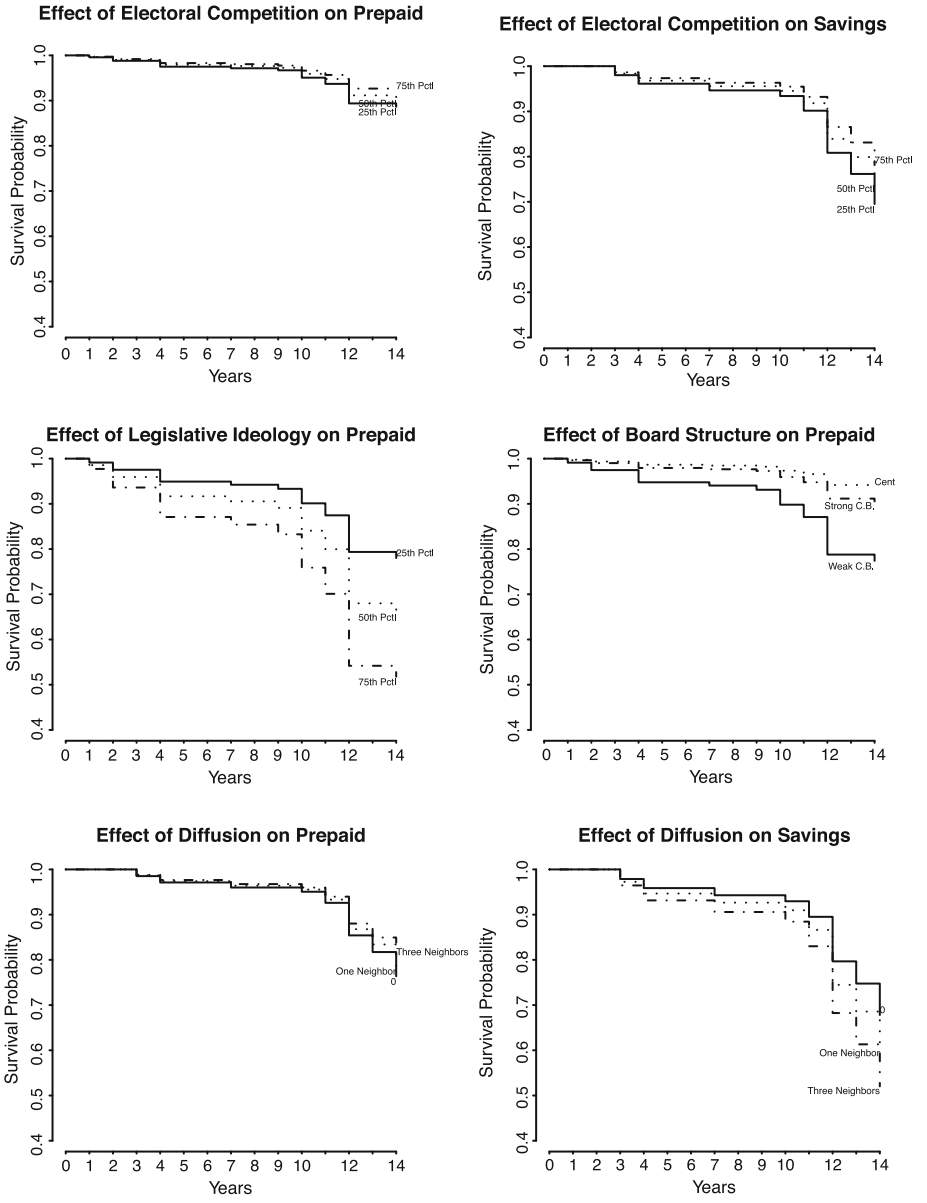

Fig. 2 Effects of selected covariates on survival rates

bounded by [0.03, 1.99]. This result indicates that states with a weak coordinating board have a hazard rate for adopting either of the types of programs under study that is 2.7 times the average rate.

Figure 2 provides a graphical representation of this result. As the second row of the figures show, states with a weak coordinating board—meaning that authority over public higher education is less centralized, residing more with local campuses than with a central state agency—are much more likely to adopt either kind of plan than are states with a

centralized governing board. This result provides strong support for the hypothesized relationship.

The remaining variables in the educational characteristics of the state were not found to have a statistically significant relationship with the hazard rate for adopting a prepaid tuition or savings plan. These variables include student financial aid and variables for the enrollment ecology of the state.

Results for Diffusion

We posited that the diffusion of policy would mean that having neighboring states with a particular type of policy would increase the hazard rate for adoption of that same policy. We operationalized this variable in two ways. The first, the "neighbors" variable, is defined as the total number of contiguous states with a policy. The second is the distance-weighted total of states with a given type of policy. As model 6 in Table 2 shows, the number of neighboring states is positively associated with an increased hazard rate for adoption of a savings program. This finding has a 95% confidence interval that crosses 0, but the 90% confidence interval does not include 0. For each additional neighboring state, the hazard rate for adopting a savings plan is increased by 1.3 times above the average rate.

Finally, model 6 in Table 2 includes two control variables: percent of population aged 18–24 and gross state product per capita. Neither of these two variables are statistically significant at any level in any of the model specifications.

Implications

In this concluding section, we discuss the implications of our findings associated with each of the four frameworks we pursued in our analysis.

Partisanship and Ideology

Our findings with respect to partisanship and ideology seem intriguing and important on a number of levels. Empirical research in virtually every other policy domain (e.g., K-12 education, corrections, welfare, tax policy) has yielded evidence of connections between party control of governmental institutions and the policy postures of the states. We only find evidence that more liberal states were more likely to adopt a prepaid tuition program. In many way, this is a surprising finding. Prepaid tuition programs, as mentioned earlier in this paper, have been associated with a general shift in public policy at the state level away from the state and toward the individual. Instead of the state ensuring low tuition, families can take responsibility for "locking in" tuition rates early. This shift has been broadly associated with the conservative movement in the states.

However, our findings do not support this interpretation. It may well be that public concern about rapidly rising college costs in the 1990s drove legislators to take any and all actions they could to address this problem. Similar to many of the other "third way" initiatives at the state and federal level—policies like the HOPE tax credit, which benefits the middle class—more liberal policymakers may have seen prepaid tuition as a means to address the college cost crisis without increasing taxes or cutting benefits.

In contrast to prepaid tuition, we do not find a statistically significant relationship between partisanship or ideology and the hazard rate for adopting a college savings plan. How then do we explain the absence of any statistically significant relationships between

legislative party strength and state adoption of college savings programs? One explanation of course is that these new postsecondary financing policies are so broadly popular across the political spectrum as to preclude any distinctive connections with either of the two major parties. A second interpretation—somewhat different in its causal logic—is that college savings plans lack qualities linking them to partisanship influences generally. This explanation invites consideration of a larger question: what, if any, characteristics of higher-education policies might make them sensitive to patterns of party control or strength in state legislatures?

Although perhaps highly salient to the public, college savings plans nonetheless lack the key qualities of a redistributive policy as described by Lowi (1964). Lowi suggests that both the level of public salience and the level of technical complexity associated with a policy tend to affect the politics that surround its formation. Because redistributive policies tend to be highly salient to the public but technically simple, the adoption dynamics surrounding many redistributive policies exhibit relatively higher levels of partisanship and lower levels of interest group activity. Conversely, regulatory policies tend to be of low public salience but technically complex. Thus, the adoption characteristics of many regulatory policies often exhibit lower levels of partisan conflict but higher levels of interest-group activity (see Gormley 1986; Haider-Markel and Meier 2003; Mooney and Lee 1999).

On the basis of this literature, we might expect to find partisan-based effects involving higher-education policies with clear redistributive implications, ones with potential to shift wealth, power or other material benefits from one designated group or class within society to another group or class. Other policies in higher education (e.g., the distribution of state student-aid funding through merit- and need-based approaches and so-called "Top 10-Percent" plans) clearly do posses a redistributive quality and, thus, may be more sensitive to patterns of party representation in state governmental institutions.

Electoral Competition

Our analysis provides mixed support for the idea of electoral competition driving policy adoption in this area. On the one hand, we found weak support for the idea that electoral timing is related to the likelihood of adopting a prepaid tuition plan. On the other hand, we did find support for the idea that a more competitive electoral environment is related to the hazard rate for adopting one of these types of policy initiatives. Conforming with our original hypothesis, we find that as a state's electoral environment grows more competitive, the hazard rate for adoption of either type of plan decreases. This indicates that prepaid tuition and savings plans may indeed be typical of those policies intended primarily for the middle class, and not subject to the kinds of politics that usually surround more redistributive policies.

As with other conceptual lenses applied in this study, there is not strong evidence that electoral competition is the "right" way to look at the issue of policy adoption. However, the results from this part of the analysis indicate that electoral competition may be part of the puzzle when attempting to understand why states adopt certain higher education polices.

Intra-State Education Factors

The results support the hypothesis that states with centralized educational governance will be less likely to adopt prepaid tuition and savings plans. This finding provides further

support for the findings of some recent research that the statistical relationship between centralization and state adoption of policy reforms in postsecondary education is not always a positive one (Hearn and Griswold 1994; Hearn et al. 1996; McLendon et al. 2006). Centralized systems may be more likely to reform in the purely academic arena, but less likely to adopt reforms that might dilute their financial control over systems, such as reforms favoring marketization, student choice, and helping students and families finance college attendance.

Nonetheless, the results show no connections between tuition and savings plans and student-aid investments in states. It appears that either the political and governance origins of the plans as innovations lie outside the political and governance base of student-aid programs, or the existence of both kinds of approaches to aiding students and families is not seen as duplicative or contradictory. A similar argument may be made regarding the lack of connections between the plans and the educational ecology of states (i.e., the states' proportions of private and 2-year institutions). Each of these factors might seem to be logically linked to the adoption, or non-adoption, of tuition and savings plans, but the results suggest otherwise. Veteran observers and participants in state policymaking would no doubt be unsurprised by the evidence here suggesting that states may not always pursue holistic, integrative reasoning regarding their higher-educational systems.

Diffusion

We did find some support for the diffusion hypothesis in this study. States that had more neighbors with savings plans were more likely to adopt a savings plan. This finding is only marginally significant, and the substantive effect of the diffusion variable is small. Between the two dependent variables (savings plans and prepaid tuition) prepaid tuition requires more commitment of resources from the state government, while savings plans are a relatively easy type of policy to adopt from a budgetary standpoint. In combination with our inability to find a relationship between savings plans and any partisan characteristics of states, it may be that this particular innovation was able to spread more easily through issue networks due to its lack of political saliency and low cost to states.

The lack of connection between prepaid tuition and diffusion variables echoes the finding of Doyle (2006), who also did not find a positive diffusion effect in the spread of merit-based student financial aid across states. Diffusion of policy innovation almost certainly occurs in the realm of higher education (McLendon et al. 2005). A more promising approach to modeling this diffusion may be to look at networks of policy innovators across states, along the lines followed by Mintrom (1997).

As an example of the network analysis approach, Cohen-Vogel et al. (2008) provide a qualitative description of the diffusion of ideas relating to merit-based financial across a network of legislators and legislative staff in Southern states. The next step in this research would be to utilize some form of network analysis to empirically model the process by which ideas may move from one policy community to another (Thomas 2000). Such an approach would involve first describing the set of known relationships between members of a policy community, then modeling the impact of the "density" and nature of these relationships on the likelihood of adopting a policy reform. For instance, legislators who participate in overlapping constituent groups (e.g. National Conference of State Legislators *and* the Southern Regional Educational Board) may be more likely to share policy ideas with one another.

Conclusions

Our results and their implications speak to several aspects of the policy process. First, regarding prepaid tuition plans, we find that states which are more liberal, whose elections are less competitive, and whose postsecondary governance structures for higher education are less centralized are more likely to adopt these postsecondary financing policies. For savings plans, we do not find any association with partisanship or ideology, but we do find a modest effect of diffusion—states that had neighbors with savings plans did appear to be more likely to adopt these policies as well. Otherwise our findings are similar with respect to savings plans.

We did not find support for our policy privatization hypothesis; indeed, the evidence seems to run counter to previous findings found in the literature (McLendon et al. 2005; Olivas 2003; Lyall and Sell 2006). On the other hand, we did find evidence confirming select other propositions, including those pertaining to electoral competition and governance structures for higher education (McLendon et al. 2007; Reynolds 2007).

Overall, we found little support for the multiple hypotheses we generated. In fact, only three of nine hypotheses had support from our data. One reason may be that there was not enough time and units of analysis to support the analysis. But another may be that more theoretical development is needed to understand the peculiar relationship of state government to higher education.

The next step in terms of theory development would be to begin examining the conditions under which our key explanatory variables—governmental liberalism, electoral competition, governance, and diffusion—also explain the higher-education policy behavior of governments in other areas. For instance, given the association between state liberalism and the policies we have studied in this paper, what other types of postsecondary finance innovations may be associated with more liberal states? With respect to our electoral-competition finding, to what extent might a link exist between the absence of competitiveness and the adoption of other policies that would be popular with middle or upper income voters? Our governance finding is the latest in a series confirming the importance of higher-education governance arrangements in determining state policy for higher education. Given the accumulated empirical evidence, what is now needed is the development of theory capable of explaining why governance structures may influence policy outcomes in the states. Last, diffusion influences in higher education remain poorly understood (Doyle 2006). In this literature, the effects are inconsistent and findings often appear contradictory. Future research should seek to explicate the conditions under which, and the causal mechanisms by which, higher education policies may diffuse throughout the American states.

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