

Educational Solutions for Financial Troubles:
Policy Diffusion in Personal Finance Education Policy

By

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Submitted to the graduate degree program in Political Science at the
University of Kansas and the Graduate Faculty of the University of Kansas
in partial fulfillment of the requirements for the degree of Master of Arts.

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Date Defended: May 1, 2013

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Date Accepted: May 1, 2013

Abstract

Recently many states have begun to adopt policies that require public schools to provide personal finance education (PFE) in their curriculum. However, it's not clear whether states are responding to perceived problems with young adults or that they are simply following fashionable policy trends. For example, in 1998 only 1 state required high school students to take a personal finance course, by 2009, 13 states had adopted this policy. I utilize a general model of state diffusion of innovative policies to understand state adoption of PFE policies. Analyzing state adoption of PFE polices from 2000-2010, I explore whether states are adopting PFE policies due to an internal problem environment, or as a result of neighboring and regional influences. I utilize cross-sectional time-series methodology to test specific hypothesis. My research builds on three related bodies of scholarship; the literature on policy innovation and diffusion, education policy literature, and the literature analyzing personal finance education policies.

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Introduction

Concern for the financial wellbeing of the population continues to escalate as bankruptcy filings in the U.S. rise (Fox, Bartholomae, and Lee 2005; Dick and Lehnert 2010). Especially poignant, is the reality that many young adults (aged 18-25) are faced with the challenge of managing their finances for the first time when they graduate from high school, and sadly, studies reveal that they are ill-prepared to do so (NCEE 2005; Mandell 2004). The average undergraduate student loan debt continues to rise, and increased from \$9,250 to \$19,200 between 1997 and 2007, a 58% increase after accounting for inflation (Reed 2008). Credit card debt among students is also on the rise; median credit card debt among college students grew from \$946 in 2004 to \$1,645 in 2009, a 74% increase (Sallie Mae 2009). Increasing cost of tuition, credit availability, and widespread financial illiteracy all point to financial disaster among young adults. In 2002 Congress reported that the fastest-growing group of bankruptcy filers were those aged 25 and younger (US Congress Senate Committee on Banking, Housing, and Urban Affairs 2002).

The past decade has witnessed a significant increase in policies passed by state legislators mandating public schools to incorporate personal finance education into their curriculum. For example, in 1998 only 1 state required high school students to take a personal finance course, by

Table 1: Policy Diffusion of Personal Finance Education for the Years 2000 - 2010

Policies	2000	2002	2004	2006	2008	2010
Include personal finance in their standards	40	31	34	40	44	46
Standards required to be implemented	16	17	20	28	34	36
High School course required to be offered	7	4	7	9	15	14
High School course required to be taken	4	4	6	7	13	13
Student testing of personal finance concepts required	6	8	8	9	9	5

Notes: Taken from the Council for Economic Education Survey of the States (2011)

2009, 13 states had adopted this policy (CEE Survey, 2009). States across the country are adopting PFE policies at a growing rate (see Table 1). Despite the proliferation of these policies there is a dearth of research analyzing the adoption and effectiveness of PFE policies.

Understanding why an increasing number of states are adopting PFE policies will allow for a more thorough analysis of the effectiveness of these policies. My research addresses this gap in the literature by utilizing cross-sectional time-series methodology to analyze state adoption of PFE standards and required courses from 2000-2010.

Personal Finance Education

The research focused on PFE policies is limited to a handful of studies that analyze the effects of PFE policies. The National Jump\$tart Coalition has been conducting a biannual survey of high school student's financial literacy rates since 1997. While these reports do not analyze students' financial behavior, they do test students' financial knowledge, comparing students who have been exposed to personal finance courses and those who have not. These studies have found mixed results, and as a whole do not support a correlation between personal finance education and higher financial literacy rates (Lewis Mandell, 2008). However, the Jump\$tart Coalition surveys do not account for curriculum and course duration. Their mixed finding could possibly indicate a significant difference in personal finance courses offered by high schools. Additional research, evaluating a specific curriculum rather than a random sampling of high schools, has found evidence to suggest that students do in fact show an improvement in financial behavior and knowledge after taking a semester long course (Danes, Huddleston-Casas, and Boyce 1999; Varcoe, Martin, Devitto, and Go 2005; Watts 2006).

The National Endowment for Financial Education conducted a survey among high school students from 1997-1998, evaluating students' knowledge and behavior both immediately following the completion of the personal finance course and after a three months laps (Danes et al.1999). Over 4,000 students participated in the survey, which was administered through mail. Participants took a pretest and two posttests, one immediately following the course and one three months later (for which the response rate dropped to around 400). The study found that students reported an increase in savings and knowledge regarding credit and investments (Danes et al. 1999). A similar study found that participation in college-level PFE courses positively impacted student's investment knowledge (Peng, Bartholomue, Fox & Cravener 2007). Some of the strongest evidence in support of personal finance education is from an article by Bernheim, Garrett, and Maki (2001). Through a random representative cross-sectional household survey, the authors conducted phone interviews to assess the effects of personal finance courses taken during high school. The study's findings show a statistically significant increase in personal savings and income among those adults who were exposed to personal finance education (Bernheim et al. 2001). This research insinuates that PFE policies have long-term positive effects on the economy.

A review of the literature indicates that PFE policies have had a positive effect on individual's finances and financial knowledge (Todd 2002). However, there is currently no research analyzing the factors influencing state adoption of PFE policies. States vary greatly in their adoption of PFE policies. Some states have passed legislation implementing PFE standards in their educational guidelines, while others have gone as far as to mandate that all students take a personal finance course as a prerequisite for graduation. As Michael Watts points out in his analysis of PFE, there are "high costs associated with developing and implementing instructional

materials or new course requirements. Financial costs are substantial [...] Costs of teacher training are also serious considerations.” (Watts 2006, 9). While the financial cost associated with legislation that adds PFE goals to state education standards is miniscule, passing legislation mandating that all students take a PFE course is quite costly. There is currently no research analyzing the motivating factors behind a state’s choice to adopt PFE policies. Why certain states opted to pass only PFE standards, while others have mandates PFE courses is of particular interest. It is not clear whether states are responding to a perceived problem with young adults or whether they are simply following fashionable policy trends. In this paper I attempt to address this gap in the literature by utilizing theories of policy innovation and diffusion to determine whether states are adopting PFE policies due to an internal problem environment, or as a result of neighboring or regional influences.

State Policy Innovation and Diffusion

An important element in understanding the policy process is determining why governments choose to adopt certain policies and not others. Scholars of policy Innovation and diffusion have developed predictive models that help to explain policy adoption. Jack Walker was among the first scholars to research the affects of policy diffusion among the American states. In his pivotal study (1969) he found that certain states, especially those with higher income, education, and urbanization, were more likely to act as leaders in the adoption of new policies. He also found that in all cases “the likelihood of a state adopting a new program is higher if other states have already adopted the idea.” (Walker 1969, 897). His findings, however, were challenged by Virginia Gray (1973); who argued that this was too simple a view of diffusion. While her research on policy innovations in education, welfare, and civil rights, did

demonstrate some amount of diffusion, her graphical analysis suggested that diffusion patterns varied depending on the issue and the level of federal involvement (Gray 1973). She concluded that innovation among states was not pervasive and that it was issue-and time-specific at best (Gray 1973, 1185).

Berry and Berry attempted to reconcile the work of Gray and Walker in their 1990 study on state lottery policies. Observing that the previous models of state policy adoption had been largely focused into two separate groups, those who emphasized internal determinants and those who espoused regional influences, they proposed combining the two theories (Berry and Berry 1990). The internal determinants models suggested that “the factors leading a jurisdiction to innovate are political , economic, or social characteristics internal to the state.” (Berry and Berry 2007, 224). Contrastingly, diffusion models are “inherently intergovernmental; they view state adoptions of policies as emulations of previous adoptions by other states.” (Berry and Berry 2007, 224). Berry and Berry’s (1990) innovative approach allowed for the analysis of both internal determinants and diffusion models simultaneously and set off a flurry of scholarly work on policy innovation. Scholars who study comparative state policy have found evidence for diffusion in anti smoking laws, individual income tax, and abortion policies, to name a few (Shipan and Volden 2006; Berry and Berry 1992; Mooney and Lee 1995).

The literature on internal determinants suggests that states may be responding to a problem environment and adopting PFE policies in response to internal social, political, or economic factors. Therefor, I hypothesize that states may be adopting PFE education policies in an effort to combat an internal problem.

H₁: State adoption of PFE policies will be related to an internal social, economic, or political factor.

Additionally, diffusion studies indicate that a states likelihood of adopting a policy should increase as the number of neighboring states adopting similar policies rise. While very few diffusion studies have explored the relationship between diffusion and the cost of implementation, I expect that when a policy requires very little cost to implement, diffusion will be more likely. It seems less likely that states would implement costly legislation as a result of neighboring or regional influences in the absence of a perceived social, economic, or political problem. In the case of PFE policies, I expect to find evidence of regional and neighboring diffusion when the cost associated with implementation is relatively low, as is the case with policies on PFE standards. Alternatively, when looking at the adoption of legislation mandating personal finance courses in high school, I do not expect to find evidence of diffusion because the cost of implementation is quite high.

H₂: State adoption of PFE standards (low cost policies) will be related to regional and neighboring diffusion of similar policies.

H₃: State adoption of mandated PFE courses (high cost policies) will not be related to regional and neighboring diffusion of similar policies.

Methodology

Compiling an original state-level data set between 2000-2010, I utilize cross-sectional time-series methodology to develop a predictive model of state adoption of PFE policies. The Council for Economic Education conducts a biennial survey of PFE policies in the 50 states. The survey breaks down PFE policies into five categories of policy innovation; 1) The state include personal finance in their education standards, 2) The state required personal finance standards to be implemented, 3) The state required a high school course to be offered, 4) The state mandated that all high school students must take a course in personal finance to graduate and 5) The state required that all students be tested on personal finance concepts. For the purpose of this analysis,

I have chosen to focus on the first and fourth policy categories. The most common PFE policies to be adopted are policies surrounding PFE standards. As mentioned above, the costs of passing legislation to add PFE standards to existing educational standards is minimal, making it an ideal policy to test diffusion theories. Mandating that students take a course in personal finance, is the least common PFE policy to be adopted and, consequentially the most expensive to implement. Both PFE policies for standards and courses are coded one when a policy is present and zero when no policy has been adopted.¹

Independent Variables

A handful of scholars have applied models of policy innovation to education policy (Mintrom 1997; Levin 1998; Cohen-Vogel and Ingle 2007; Ingle, Cohen-Vogel, and Hughes 2007; McLendon, Heller, and Young 2005). In 1997, Mintrom published his work on school choice and policy diffusion. Using event history analysis he attempted to predict the likelihood of school choice consideration in a particular state. McLendon, Heller, and Young (2005) applied a similar model in their study of higher education. They used a pooled, cross-sectional time-series analysis to identify a “strong positive relationship between the number of neighboring states that had previously adopted an innovation and the probability that a state will innovate in a given year” (382). Like Mintrom (1997) the authors incorporate the internal determinants model into their research, measuring various variables to account for social, economic and political factors.

Social Factors. Recognizing that high school personal finance courses and curriculum are designed to increase students’ knowledge on finances and how to manage money (Mandell

¹ This data does not reflect the year a state first adopted a policy. It is a record of the type and number of policies each state had adopted in the given year of the survey. Because the survey is only conducted biannually, odd numbered years received the same value as even numbered years. For example, the score a state received in the 2000 survey is the same score assigned to the state in 2001.

2008), I expect that states with a higher percentage of residents who are struggling financially, will have greater motivation for adopting PFE policies. This logic would suggest that states are adopting PFE policies due to a specific social problem and that the goal of PFE policies is to alleviate the problem. Although certainly not always the case, bankruptcy can be an indicator of poor financial management. Legislatures in states with high rates of bankruptcy filings may perceive that there is a problem with poor financial management among the population. The fastest-growing group of bankruptcy filers in the U.S. are those aged 25 and younger (US Congress Senate Committee on Banking, Housing, and Urban Affairs 2002). Thus it seems reasonable that states with higher rates of bankruptcy filings will be more likely to adopt policies requiring students to take a course in personal finance or add PFE goals to their state educational standards. State bankruptcy filings (per 1000 population) serve as my indicator for measuring the population's financial management skills or lack thereof. The measure for bankruptcy filings was obtained from the U.S. Administrative Office of the Courts².

It is also plausible that states with low student achievement rates, in comparison to the national average, would adopt PFE policies as a way of combating poor achievement by incorporating applied learning and life skills into the curriculum. Personal finance courses and curriculum may engage the student who is less focused on traditional education. While student performance is difficult to measure, the Scholastic Aptitude Test (SAT) and the American College Testing (ACT) programs, provide a fairly consistent measure within and across states. Smith and Meier (1995) report these scores as a standardized education index (SEI). I have followed their method and taken the average state ACT score³ and divided it by the total possible score to create a measure of average performance by state. I repeated this process with SAT

² This is a measure of total bankruptcy filings in the state, both chapter 7 and chapter 13 combined.

³ The data for average ACT scores was taken from the ACT website database.

scores. Both ACT and SAT measures were added together and then divided by two, to create a final measure for the quality of education within each state.

A number of economic studies have demonstrated that higher levels of education are directly related to increases in wages (Becker 1962; Barro and Lee 1993). On average, individuals with lower levels of educational attainment earn less than similar individuals with higher levels of education. Personal finance courses attempt to teach students how to manage money, a skill that could be especially helpful to individuals living on low-income wages. Legislatures in states with lower levels of educational attainment may be passing PFE policies as a preventative measure. Those individuals who do not graduate from high school are especially susceptible to low wage jobs, suggesting that high school graduation rates are a better measure than percentage of the population with a college degree⁴. I use high school graduation rates to measure educational attainment in a state. The variable for average freshman graduation rate is an estimate of the percentage of an entering freshman class graduating in 4 years⁵. This data was obtained from the U.S. Department of Education.

Economic Factors. Wealthier states, in general, are more likely to be policy innovators (Walker 1969). Wealthy states possess the resources to have larger and more sophisticated departments of education and can afford to oversee and fund expansive new policies. While less wealthy states have fewer resources to allocate to education. I expect wealthier states to be more likely to adopt policies requiring PFE courses. Due to the low costs associated with adopting PFE standards, I

⁴ Percentage of the population 25 years and older with a college degree was also measured, but did not significantly improve the model.

⁵ For the school year 2006–07, it equals the total number of diploma recipients in 2006–07 divided by the average membership of the 8th-grade class in 2002–03, the 9th-grade class in 2003–04, and the 10th-grade class in 2004–05.

do not expect income to affect state likelihood of adopting PFE standards. I measure state wealth as average state income per capita⁶.

Conceivably, a weak economy could be driving state adoption of PFE policies. States experiencing economic difficulties may include PFE policies as a way of preparing students for a rough job market. I use average state unemployment levels to measure the state of the economy. My indicator for state unemployment rates comes from The Local Area Unemployment Statistics (LAUS) program (Bureau of Labor Statistics 2007), a Federal-State cooperative effort that creates monthly estimates of total employment and unemployment⁷ and is a key indicator of economic conditions.

Political Characteristics. Many of the studies analyzing education policy diffusion and internal determinants account for the political environment of the state (Mintron 1997; McLendon, Heller, Young 2005). PFE policies have not been associated with one party more than another. However, previous research indicates that democratic legislatures are more likely to act as policy innovators than republican legislatures. To measure partisan affiliation I include a dummy variable to measure democratic control of the legislature.⁸

Whenever analyzing education reforms, it is important to consider the role that teachers' unions play in the conflict. Teachers' unions have been known to oppose state reforms that limit their authority (McDermott 2007) and are second only to business groups in their state lobbying power (Nownes, Thomas, and Hrebenar 2008). Previous research indicates that states are more likely to oppose increased federal oversight when key interest groups oppose it (Krane 2007;

⁶ This data was obtained from the U.S. Bureau of Economic Analysis of State Annual Personal Income

⁷ The concepts and definitions underlying LAUS data come from the Current Population Survey (CPS), the household survey that is the official measure of the labor force for the nation.

⁸ Data is from Carl Klarner's (Indiana State University) State Partisan Balance data set.

Posner 2007). The National Education Association (NEA) is the nations largest teachers' union and I use the number of NEA teacher members per state as a measure of the strength of unions in each state.

Diffusion of Innovation

To account for the diffusion of PFE policies, I include a variable to measure the percentage of neighboring states that have adopted PFE policies. I follow Chamberlain and Haider-Markel (2005) and define neighboring states as any state with which the subject state shares a border⁹. The diffusion score is thus a percentage and ranges from zero to 100. I expect that the diffusion score should be positively related to the adoption of PFE standards, but not a significant predictor of the adoption of PFE courses due to the high cost of implementation.

It is also conceivable that diffusion is occurring at the regional level. Advances in communication through the internet and increases in technology allow states to easily observe policy innovation in states throughout the country. Due to demographic and political differences, it seems unlikely that southern states, for example, are looking to eastern states for policy inspiration. However, it is certainly plausible that states consider and look at state policy within a geographic region. To account for a regional model of diffusion, the United States must be divided into distinct regions. I define those regions as the West, the Midwest, the Southeast, and the Northeast, as they are outlined in the U.S. census. Like the neighboring diffusion score, my measure of regional diffusion ranges from zero to 100 and is the percentage of states in each

⁹ Rather than count Alaska and Hawaii as missing, Washington and Oregon were counted as neighboring states for Alaska, and Washington, Oregon, and California were counted as neighboring states for Hawaii.

region that had adopted PFE policies. I expect regional adoption to be positively related to the adoption of PFE standards, but negatively related to the adoption of PFE courses.

Analysis

A simple cross-sectional analysis is unable to capture trends over time and would not allow for a thorough analysis of PFE policies. Using cross-sectional time-series analysis allows for the analysis of trends over time, increased precision of estimates, and increased ability to make causal inference. However, there are problematic issues that arise when pooling multiple years of data together and these issues must be accounted for to achieve reliable estimates. One of the assumptions of ordinary least squares (OLS) regression is that there is no autocorrelation of error terms, in other words, errors are not correlated with each other. This assumption is violated when observations are combined across time; we cannot assume that any year is unrelated to the next year. For example, it would be naïve to presume that this year's income is unrelated to last year's income. Due to this correlation, the observations are not independent; they are related and therefore violate the assumptions of OLS regression. Fixed effects models are the easiest way of dealing with this, however, they do not allow for random variation across units. It seems likely that there should be variation across states' likelihood of adopting PFE policies, ruling out a fixed effects model. Unlike the fixed effects model, with a random effects model the variation across units is assumed to be random and uncorrelated with the predictor or independent variables included within the model. Because I suspect that differences across states have some influence on states' likelihood of adopting PFE policies, a random effects model is a better fit for the data than a fixed effects model. Additionally, random effects models have the

added advantage of allowing for the inclusion of time invariant variables (i.e. region). As the dependent variables are dichotomous, I use a logistic random effects regression for the analysis.

Findings

Table 1 presents the results from the regression model for the dependent variable for PFE standards. Model 1 displays the full model without accounting for diffusion. As hypothesized, bankruptcy filings are positively related to the adoption PFE standards. Even while controlling for the economy, political party, state wealth, political opposition, and poor education quality,

Table 2: Diffusion of PFE Standards

	Model 1	Model 2	Model 3
Bankruptcy	0.140* (0.0623)	0.149* (0.0636)	0.0813 (0.0601)
Education Quality	4.557 (6.446)	4.192 (6.517)	11.25 (6.981)
State Wealth	-0.328 (0.268)	-0.398 (0.272)	-0.332 (0.234)
Graduation Rates	0.0260 (0.0196)	0.0243 (0.0197)	-0.00653 (0.0198)
Democrat	0.0207 (0.294)	-0.0134 (0.295)	0.233 (0.308)
Unions	-0.0455+ (0.0269)	-0.0394 (0.0276)	-0.0321 (0.0269)
Unemployment	-0.0678 (0.118)	-0.0855 (0.120)	-0.0425 (0.0780)
Neighbor Diffusion		-0.823 (0.590)	
Regional Diffusion			7.869** (0.955)
Constant	-2.456 (3.904)	-1.218 (4.067)	-9.931* (4.059)
Log likelihood	-251.082	-250.075	-214.05
N	539	539	539

Notes: Standard are errors in parentheses.

** p<0.01, * p<0.05, + p<0.1

bankruptcy filings seem to be the driving cause behind state legislatures' decision to adopt PFE standards. It appears that states are adopting PFE policies to address the problem environment of poor financial management. This is an interesting find as it is uncommon to find policies being adopted in direct response to the problem environment.

Table 3: Diffusion of Required PFE Courses

	Model 4	Model 5	Model 6
Bankruptcy	0.106+ (0.0577)	0.114* (0.0577)	0.0982+ (0.0538)
Education Quality	-2.721 (6.475)	-3.316 (6.645)	3.676 (6.750)
State Wealth	0.103 (0.353)	-0.103 (0.337)	0.0114 (0.238)
Graduation Rates	0.00245 (0.0197)	-0.00161 (0.0205)	0.00430 (0.0205)
Democrat	0.243 (0.275)	0.201 (0.276)	0.269 (0.285)
Unions	-0.0120 (0.110)	-0.0662 (0.121)	-3.66e-06 (0.0271)
Unemployment	-0.0185 (0.0277)	-0.0157 (0.0279)	-0.0779 (0.0657)
Neighbor Diffusion		-1.120 (0.724)	
Regional Diffusion			6.466** (1.053)
Constant	-0.670 (4.010)	1.171 (4.141)	-5.426 (3.824)
Log likelihood	-241.322	-240.143	-222.212
N	539	539	539

Notes: Standard errors in parentheses.

** p<0.01, * p<0.05, + p<0.1

Model 2 displays the full model with the addition of the neighboring state diffusion score. Contrary to my second hypothesis, states do not seem to be adopting PFE policies as a result of neighboring diffusion. Rather, states are adopting PFE standards in response to high rates of bankruptcy filings. Model 3 displays the final model when the score for regional diffusion is

added to the model. Interestingly, here the regional diffusion is positively associated with adoption of PFE standards as hypothesized. From this analysis it appears that states are adopting PFE standards in response to an internal social problem of poor financial management and regional influences. These findings are consistent with the findings of Chamberlain and Haider-Markel (2005), who suggest that previous research on policy diffusion has been too narrow in its conceptualization of regional and internal influences.

The results for the logistic regression for the adoption of PFE courses are displayed in table 3. The results tell a similar story to the adoption of PFE standards. In Model 4 only the measure of bankruptcy filings approaches statistical significance ($p = .06$). When the measure of neighboring state diffusion is included in Model 5, higher rates of bankruptcy are still driving the adoption of PFE courses. As hypothesized, neighboring diffusion is not a statistically significant predictor of adoption. Model 6 shows the final model with regional diffusion added to the logistic regression equation. The results mirror those for the adoption of PFE standards. The measure for regional diffusion is positively associated to adoption and contradicts my earlier hypothesis that increased cost of implementation would negatively affect the states likelihood of policy adoption. In this final model, the number of bankruptcy filings approaches statistical significance ($p = .06$), suggesting that both an internal social problem and regional diffusion are driving the adoption of legislation mandating PFE courses.

Conclusion

This study began as an effort to understand why states are adopting personal finance education policies. A review of the PFE literature suggests that these policies increase student's knowledge of finances and may even have long term effects on the economy through increased

savings. None of the previous research, however, explores why states are adopting PFE policies. A better understanding of the reasons for adopting PFE policies allows for a more thorough assessment of their effectiveness. This analysis also provides an excellent test case for a comparison of diffusion of policies with low and high costs of implementation. Drawing on the policy innovation theory and diffusion models, I develop and test three hypotheses regarding the adoption of PFE policies.

Using a pooled cross-sectional time-series analysis, I explore the diffusion of PFE policies across the 50 US states between 2000-2010. States with higher levels of bankruptcy filings are found to be statistically more likely to adopt PFE policies, indicating that an internal social problem is driving adoption. The quality of education, graduation rates, political opposition, state wealth, unemployment, and political party do not affect a state's decision to adopt these policies. Contrary to my hypothesis, the implementation cost associated with adoption does not appear to have an effect on the diffusion of adoption. Rather, states seem to be adopting PFE policies to counter problems of financial management within the state. While states do not look to neighboring states for policy suggestions on PFE, they do appear to be learning from other states in their region. These findings suggest that neighboring diffusion may be less relevant than scholars have historically found it to be. Further research is needed to explore the potential effects that changing technology may have on policy diffusion. Given advances in technology and communication in the last decade, states may be less inclined to look to their neighbors and more likely to seek out states with similar demographic and political characteristics.

One limitation of this study is that it only considers an eleven year time period and does not account for the year that a policy was first adopted in a given state. While event history

analysis is a common form of analysis in the diffusion literature, I was unable to find data on the year of adoption for PFE policies across states. Additionally, this study does not consider potential national influences that may have an effect on the likelihood of adoption. Although it appears that state adoption of PFE standards and required courses is being driven by an internal problem, it is possible that interests groups or policy entrepreneurs at the national level have had an influence on the adoption process.

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