Policy Change After the Punctuation:
A Study of Change in Charter School Laws

Thomas T. Holyoke
Department of Political Science
California State University, Fresno
2225 East San Ramon, M/S MF19
Fresno, California 93740-8029
tholyoke@csufresno.edu

Heath Brown
John Jay School of Criminal Justice
City University of New York
hrbrown@jjay.cuny.edu

March, 2016

1

Abstract

What happens after a punctuated equilibrium when a long standing policy is abruptly thrown out and replaced by something radically new and different? Does the new policy then remain static and unchanging for years with those organized interests supporting the old status quo relegated to the political dustbin while the new, victorious interests enjoy the spoils of victory? Or does the new policy continue to change in explainable and predictable ways, perhaps because older interests have reasserted themselves and are undermining it, or perhaps because policymakers in an attempt to cope with underlying issue problem are paying a lot of attention to how neighboring states are implementing similar policies? In this paper we develop a model of post-punctuation policy change grounded in the assumption that lawmakers are highly uncertain about policy outcomes, allowing us to use the boundedly rational Prospect Theory as a foundation for predicted further policy change. We test our predictions with the ways in which laws authorizing and regulating public charter schools change over time in the American states.

Policy-punctuation refers to dramatic change in policy where once prevailing interests are suddenly pushed aside by newly mobilized interests with very different desires coupled with very different framings of what the problem is that is in need of solving with public policy. It is a process that has been intensely studied by scholars because it means the organization of political power has itself radically changed within the domain of actor and beliefs defining and maintaining the status quo. But the question that has been neglected in this scholarship is - what happens next, after the punctuation? The structure of power in the policy domain has significantly shifted, but have the displaced interests supporting the old status quo been destroyed, or have they merely been temporarily marginalized, effectively lying in wait for a counter-attack as soon as the attention of most lawmakers and the public has moved on to another issue? If so, they would presumably try to undermine the new policy, pushing it to more closely resemble the old, overthrown status quo. Yet perhaps the new, prevailing interests are able to defend the new policy and even push it further in a direction benefiting them. Or perhaps post-punctuation policy changes for entirely different reasons unconnected to group competition, such as explanations advanced by scholars studying policy diffusion across the states.

In this paper we study post-punctuation policy change by investigating how state charter school laws evolved and changed after they were enacted. Interestingly, in many states we find that charter school laws become increasingly similar over time, a type of convergence suggesting some pattern to policy change that needs to be studied and understood. We develop a rational for how lawmakers approach policy change based in a theory of decision making under conditions of uncertainty often referred to as Prospect Theory. Using this, we define a circumstance when policy proponents should be influential of policymakers and push charter school policy in directions increasingly favorable to this special form of public-private education, as well as a

circumstance when interests opposed to charter schooling are more likely to be influential and hamstring charter school policy. Finally, we hypothesize a circumstance when neither interests is likely to be influential and lawmakers look to how the policy is changing in neighboring states, a type of policy diffusion, for clues on what they should do.

Post-Punctuation Policy Change

Public policy is rarely static, a fact that nearly every scholar acknowledges but few explore beyond big, status-quo changing events. Intense scholarly interest in major, even radical change in policy is easy to understand since it means something dramatic has happened in the structure of the political arena with potentially profound consequences. Deploying metaphors of windows and garbage cans, Kingdon (1984) described policy change as occurring when the right proposal met the right political opportunity. Baumgartner and Jones (1993) showed that such changes only occur periodically, possibly in cycles as the way old policies are perceived by lawmakers, interest group lobbyists, and the public erode allowing radically different alternatives to be framed as the better solution to the problem the original policies were supposed to solve. Such shifts lead to punctuated equilibrium. Studying state, national, and international trends in public budgeting, Jones et al. (2009) go on to show that most budgets in democratic societies are fairly constant from year to year but are punctuated by bursts of dramatic change, while Baumgartner and colleagues (2009) show that major policy change only clears the U.S. Congress under overwhelming pressure from interest groups, legislators, and presidents.

While not always acknowledging it, the study of state policy diffusion also means studying punctuated equilibrium. Given the diversities and similarities among the states, this is arguably a better approach to empirically studying major change. Walker (1969) argued that

state policy adoption occurred regionally. So a lot of attention was subsequently paid to how policy diffusion across state borders occurs. Attention was paid to mimicking (citation), roving policy entrepreneurs (Mintrom 2000), and interest groups pushing similar policies across the states (Balla 2001), with Gray (1973) finding a temporal pattern underlying policy adoptions, essentially an *S*-curve where a few states lead, then suddenly more states adopt the same or similar policies, and then there are a few stragglers. Arguably, the study of this *S*-curve is linking the study of state policy adoption to punctuated equilibrium work since the probability of punctuation also tends to follow an *S*-curve. Bushey (2006; 2010) explores the links between punctuation research and policy adoption research, noting that most of what was happening in the states was the passage of major legislation in one state, then another until many punctuations abruptly cascade across states in response to internal and external political stimuli like interest group lobbying and national mandates or interest groups linking lawmaker across states.

Fine and well, but then what happens? Do these radical new policies then become static and unchanging post-punctuation? Are state lawmakers and lobbyists locked in to new, unchanging policy regimes, even potentially inefficient ones, because political attention has turned elsewhere?[1] If change *is* still occurring, even if it is incremental, does it change in any kind of identifiable pattern or is it random? Are there patterns to these incremental tweaks, whether in response to factors internal to a state or cross-state influences that we can pinpoint and use to explain future post-punctuation policy change?

There are good reasons to believe that new policy hardly remains uncontested and unchanged until the next punctuation in some distant future. One reason is political, that the organized interests benefitting from the old status quo are unlikely to have simply vanished into the night when the old policy status-quo was swept aside. Had they been so weak, the overthrow

of the status-quo would have been undramatic and hardly qualify as a punctuated equilibrium. It is more likely that these interests are still there and marshalling the resources at their disposal for some kind of counter-attack, even if restoring the exact old policy is unrealistic. Another reason is a response to the uncertainty which is always rife in the political system. Lawmakers enact policies to solve public problems, and presumably the old status quo is overthrown when advocates convince lawmakers that the new policy is a failure and something new should be tried. But crafting new policy means new and significant uncertainty regarding how it will unfold, and uncertainty is the enemy of perpetually paranoid politicians. The desire to tweak the policy may therefore be irresistible, especially when competing interests are urging them to do it.

A third reason is simply administrative. Regulators charged with implementing a new policy are, like lawmakers, going to be terrible uncertain, but in this case their uncertainty is over how exactly to implement a new policy with which they have no practical experience. They are also going to be inclined to tweak it as they implement it, causing various degrees of small but systematic policy change. Unfortunately, what we know about the fate of policy beyond punctuation remains right where scholars like Lindblom (1959) and Pressman and Wildavsky (1973) left it decades ago, as experiencing minor, incremental changes if it changes at all.

Advocacy and Uncertainty

Fear of uncertainty regarding the outcomes of policy choices among lawmakers and regulators gives reason to suspect that continuing, post-punctuation policy change is neither static nor random. Kingdon, as well as Baumgartner and Jones, identify uncertainty over policy effects on key constituencies, largely due to information overload and conflicting framings of policy alternatives by competing interests, as the reason why major policy change is infrequent.

Since punctuation creates enormous uncertainty, any explanation for post-punctuation policy change ought to be fundamentally grounded in behavior aimed at reducing it. This also means recognizing the fact that advocates for policies new and old are likely to exploit lawmakers' discomfort over uncertainty in their lobbying strategies.

Assuming uncertainty means assuming that lawmakers are boundedly rational individuals pursuing policy goals in a world made complicated by the structures and folkways of governing institutions and the complexities of the larger network of political actors around them concerned with the same policies (Jones 2001). Although they are goal directed in behavior, and often opportunistic, policymakers are fundamentally risk-averse in that they are reluctant to take dramatic action without learning as much as they can about the consequences of their decisions. Indeed, often it is the structure of institutions and the complexity of the larger community that makes elites risk-averse because it means there are too many things they cannot control, too many things that may unexpectedly go wrong with severe electoral consequences.

Prospect Theory and Punctuated Equilibrium

In her explanation of why interest groups lobbying against policy change in the U.S. Congress have such an advantage, McKay (2012) argues that the status-quo often endures because opponents of change only have to appeal to lawmaker's fears of the unknown. Significantly, she grounds her explanation in a powerful theory of boundedly rational decision-making developed by Daniel Kahneman and Amos Tversky (1979). Called Prospect Theory, Kahneman and Tversky start by making several assumptions regarding humans make choices. First, individuals evaluate options in a choice situation, such as choosing between policy alternatives, visa vie subjective reference points, typically their own personal circumstances,

including the evaluation of a policy status-quo. Second, they decompose decision-making into two stages, one where options are framed and understood, including the status-quo reference point, and the second where all alternatives are evaluated relative to the each other and the reference point based on this framing. Finally, they assume that humans are more sensitive to the prospect of personal losses relative to the status-quo than they are to gains; they care more about losing what they have than gaining something more. This makes them typically risk-averse, but also quite risk-accepting when it comes to taking action to avoid losses.

It is not hard to apply Prospect Theory to the concept of punctuated equilibrium. During a period of policy monopoly, advocates advantaged by the status-quo control the way that policy, and all of the alternatives, are framed and thus understood. Even if lawmakers do not believe they are advantaged by the status-quo, alternatives are all framed as even worse for them. Using the notation of Prospect Theory, if the status-quo reference point is set at 0, a policy alternative can be framed as either a gain, *a*, or a loss, *-a*, and lawmakers subjectively weight the probabilities that the alternative is a gain, $\pi(p)$, or loss, $\pi(-p)$. Since there is only a low-degree of uncertainty in a policy monopoly, the weighted probabilities that alternatives are losses is close to 1. Moreover, lawmakers do not value gains and losses equally, but are risk-averse and thus weight losses more heavily than gains, so if the absolute values of *a* and *–a* are equal, then *v(a) <* *v(-a)*. Thus risk-aversion and near-certainty that alternatives bring losses are powerful biases favoring the status-quo (Quattrone and Tversky 1989).

The key to change in Prospect Theory starts with the assumption that none of these evaluations are fixed (Tversky and Kahneman 1991). As interest groups hostile to the status-quo mobilize and gain more access and influence in a policy domain, they sell lawmakers on a new framing that casts their preferred alternative as a gain instead of a loss; their challenge is to

reverse the inequality *v(a)π(p) < v(-a)π(-p)*. Assume for convenience that the distance of *a* and – *a* from the status-quo reference point are equal, so the focus is on the weighted probability that gains will result from adopting *a* instead of losses. Challengers try to undermine the status-quo by arguing that the high weighted probability that the alternative will result in losses is wrong, usually with policy research and constituent information (Wright 1996; Nownes and Newmark 2016). At first this simply injects a level of uncertainty into the policy monopoly regarding the alternative and the status-quo reference point. If enough political weight is brought to bear, uncertainty begins to diminish again (a curvilinear effect) as the weighted probability that the alternative will produce gains instead of losses grows. This is not just a matter of *π(p) > π(-p)*, but also compensation for the fact that lawmakers still fear losses more than gains. Proponents also face an up-hill battle because in Prospect Theory weighted probability never reaches 1 because lawmakers under-weight it at high levels (Kahneman and Tversky 1979), so achieving certainty as to the policy alternative's benefits is impossible. Some uncertainty always remains.

For these reasons, overthrowing the status-quo is not likely to be achieved by just getting enough lawmakers to believe that *v(a)π(p) > v(-a)π(-p)*. Instead, something else more dramatic must also happen. During Kahneman and Tversky's "editing stage" when deciders re-frame the values of policies, alternative proponents actually convince enough lawmakers to *change their reference point*, replacing the status-quo with the preferred alternative. This means supporting the status-quo rather than the alternative is now seen as incurring a loss, and since losses are feared more than gains, lawmakers suddenly become very risk-accepting of supporting the new alternative (Tversky and Fox 1995). They rapidly switch their support to the new policy, creating the bandwagoning effect observed by Baumgartner and Jones, the *S*-curve of changing support often seen by scholars in many aspects of policy change (see Gray 1973; Boushey 2010).

Policy Change Post-Punctuation

Policy change post-punctuation must be driven by the same dynamics as the initial punctuation. It must also embrace the concept of feedback so central to the argument of Baumgartner and Jones for policy punctuations, which in this case is the evaluation of the new policy's performance by lawmakers. To keep it simple, assume that policy punctuation occurs in time period t, probably an annual legislative session, and is thus evaluated by lawmakers at the next legislative session, time $t + 1$. Change in some performance measure of how well a policy solves the underlying issue-problem is the feedback loop. Here success is measured by how close the results are to what lawmakers wanted them to be, which is called their aspiration point. Also assume that opponents of the new policy claimed it would yield worse results than the now overthrown status-quo. In other words, both proponent and opponent organized interests made claims as to what the new policy would achieve which lawmakers take into consideration when evaluating the new policy's success and what tweaks, if any, should be made in time $t + 1$.

Figure 1 serves as a visual aid to predicting what happens next based on this evaluation. In the upper portion of Figure 1 is a policy outcome continuum representing the extent to which the new policy is perceived by lawmakers as solving the original issue-problem. On the right end is lawmakers' collective aspiration point A representing the policy result they ideally want, and the one they were persuaded by proponents would result when they switched their reference point from the old status quo to their aspiration point. The outcome under the old policy status quo is also marked at point Q. I assume that proponents of the new policy claimed it would match lawmakers' aspiration point, so their claim is also at A. Opponent interests, though, claimed that the new policy would make the performance outcome worse than the old status quo,

not better. So opponent's claim is marked at *O* on the left side of *Q*, further away from *A* than the status quo. Finally, the actual performance outcome is located at point *P*.

The policy evaluation process at time *t* + 1 unfolds as follows. Lawmakers evaluate performance success relative to their reference point, which is their aspiration point *A*. If, as demonstrated in Figure 1, performance outcome *P* is between *Q* and *A*, then the difference between *Q* and *P* is seen as a gain for policymakers, and the distance between *P* and *A* as a loss. As I will explain in a moment, proponent's credibility is evaluated based on the ratio of gains to losses. Evaluating opponents is a little different and involves actual performance losses versus predicted losses. Specifically, opponents claimed the new policy would make the performance outcome even worse than the old status quo so their prediction is the difference between *O* and *A*. Lawmakers compare that to the actual loss, the difference between *P* and *A*. Consequently, lawmakers evaluate opponents' credibility as the ratio of predicted policy losses to actual losses. This means, and it is important to understand, that the evaluation of opponents is not just the inverse of lawmakers' evaluation of the claims of proponents.

How these evaluations feedback on the credibility of these competing interests is shown in the center portion of Figure 1. Again, in Prospect Theory *π(p)* is the weighted probability that gains or losses will occur, which I interpret to reflect the credibility of organized interests in the eyes of lawmakers. The greater the weighted probability a gain will occur from the new policy, the greater the faith lawmakers have in the lobbyists promoting that policy, and vice versa. The horizontal axis here represents greater losses in terms of the new policy's performance, which is taken to mean the mix of gains to losses as lawmakers evaluate proponents, as well as losses to claimed losses as lawmakers evaluate opponents with large, actual losses being on the right end

of the axis. The vertical axes represent the credibility, $\pi(p)$, of proponents (left side) and opponents (right side) as losses increase, with the actual change in credibility for both shown by the winding and crossing curves.

Because lawmakers are risk-averse and willing to cut proponents a little slack for minor losses (and thus big gains), credibility actually rises a little at first, but then begins a gradual slide down. Because of risk-aversion and the overweighting of losses, the curve gets rapidly steeper before evening out at near (but never actually at) 0. For the same reason, the rise in the credibility of opponents as losses mount rises only slowly at first, but then rises dramatically before leveling off near (but never actually at) 1. Consequently, the main arcs of both curves, and therefore the point where they intersect, are right-shifted instead of occurring in the middle. This defines the bottom portion of Figure 1. Up until the point, near the middle, the new policy has more or less provided the gains to lawmakers that proponents promised, so their credibility remains high. Consequently, if proponents argue that tweaks are needed to the policy moving it in a direction even further from the old status-quo, then this is likely what lawmakers will do with little regard for other factors and evidence. On the other end, proponents have lost almost all credibility and lawmakers, perhaps in a panic, start paying attention again to opponents and are likely to change the policy so that it moves in a direction back towards the old status quo, again with little regard for other factors and evidence.

What is arguably most interesting to think about is what happens when neither side has any credibility left on the issue. The inflection points where the arcs of both credibility curves start turning up and down more steeply is where lawmakers lose faith in proponents but are still not convinced they should listen to opponents. Instead, they look for alternatives not clearly linked to either proponents or opponents, and this may well end up being a kind of "policy

learning" where they pay attention to what is happening in other political systems, like other states and consider mimicking what they see as policy successes there. When these factors external to the political system become paramount, the policy is tweaked in a way to more closely resemble that of another state or states. Intriguingly, if many states do this, what we would see if many state policy converging and looking increasingly similar over time.

All of this discussion supports the following four hypotheses:

1.) The stronger are proponents of the new policy, the more likely it is that in time $t + 1$ lawmakers will amend the policy to push it further in the new direction, given that the policy enacted in time t achieved significantly improved performance;

2.) The stronger are opponents of the new policy, the more likely it is that in time $t + 1$ lawmakers will amend the policy to push it back toward the old status quo, given that the policy enacted in time t failed to achieve significantly improved performance;

3.) The likelihood that proponents' arguments will outweigh those of opponents' is greater than the reverse, and it is more likely that policy will move further in the new direction than revert.

4.) When the policy performance outcome supports the claims of neither proponents nor opponents, any policy change will be driven by factors outside of the political system, such as the structure of similar policies in neighboring states or other states in the region.

Research Design

Arguably one reason that the evolution of public policy over time has not received the attention it deserves is that, apart from public budgeting which is nicely measured in dollars, change is hard to operationalize, especially when potentially incremental change is the subject of interest. Very few policies come finely measured as interval variables, but we are fortunate to

have one that does - state charter school laws. Charter schools are public-private hybrids promoted by advocates of solving long standing problems in traditional public K-12 education by injecting more market-oriented choice by parents into education, forcing schools to compete for students and, consequently, funding (Henig 1994; Nathan 1996). Minnesota was the first state to adopt a charter school law in 1991, but as of 2016 forty-five states and the District of Columbia have adopted such laws.

Because charter schooling allows parents to choose the schools their students will attend, and because the schools that are largely free of most state and local regulation regarding operations and curriculum even though they are publicly funded, enacting a charter school law is radical change in policy and hence constitutes a punctuated equilibrium (Kirst 2007; Holyoke et al. 2009). Governors and legislators hoping to improve K-12 education in their states, reduce state spending, and, in some cases, burnish conservative pro-market credentials as they sought higher office aggressively pushed these policies, often over the fierce resistance of teachers' unions and school board associations (Henig 1994; Kirst 2007; Bulman and Kirp 1999; Vergari 2002; Bulkley 2005). In some states today they are now widely accepted while in others the laws and the schools themselves remain controversial.

CER Scores and Trends in State Policy Change

Since 1996, an interest group promoting charter schooling in the states, the Center for Education Reform, has measured various aspects of state laws to create a composite index of how pro-charter school each state's law is. The laws are coded by a team of experts, largely compromised of academic specialists to create an interval measure of state charter school policy. While there has been some criticism generally of using scales to study education policy (e.g.,

Scott and Barber 2002; Bulkley and Fisher 2002; Chi and Welner 2008), the Center's scores, commonly called CER scores, have been widely accepted and used (e.g., Wong and Shen 2002; 2006; Stoddard and Corcoran 2007). After Shober et al. (2006) raised concerns that some of the internal elements of this index were contradictory, Holyoke et al. (2009) analyzed its components and created a new index using only those elements that consistently indicated how permissive a state's law is when it comes to making it easy to open and run a charter school. Since the Center has published these scores almost every year since 1996, we thus have a measure of state charter school policy that is consistent from state to state and year to year.

When examining the evolution of state policies starting right after their adoption, the punctuation, we are limited because some states enacted their laws well before 1996. We also cannot use states that have very recently adopted charter school laws because not enough time has gone by post-punctuation for us to study the after effects, and in any case our analysis would benefit from using a standard number of years rather than having states suddenly appear in the data set years after other states. Therefore, to examine trends in how the law changed, we focus our analysis only on the 21 states (including the District of Columbia) adopting charter school laws from 1994 to 1997. Also, CER scores did not come out at strictly annual intervals, so we only use them in even numbered years from 1996 to 2014 producing ten years of panel observations for these 21 states over 18 years.

---- Insert Figure 2 about here ----

In five of these states (Alaska, Hawaii, Kansas, Rhode Island, and Wyoming) there was almost no policy change at all over the 18 year period, and all five had very low scores (indicating very anti-charter school laws) that changed less than 5 points on the thirty point scale. In other words, the five states with the weakest policy punctuation continued to be weak. What

15

is arguably more interesting is what happened with the other sixteen states. As Figure 2 shows, policy convergence is taking place. In 1996 these states range all of the way from scores of 30 (Arizona and the District of Columbia) down to 2.5 (Arkansas), but by 2014 all sixteen were 23.5 and 10.17. Indeed, fourteen of them are within the ten-point margin of 10 to 20, and eleven are between just 14 and 18. Not only is policy change clearly continuing to take place after punctuation, but it appears to be changing in a way that is far from being random. Perhaps because policymakers respond to uncertainty over outcomes by imitating other states.

Operationalizing Variables

To get a sense as to why these laws are changing, and using Prospect Theory and the predictions deduced in the prior section, a series of variables need to be constructed for a multivariate analysis. The dependent variable in the analysis is change in CER scores in all of the states that have such laws from 1996 to 2014. Scores are not available for all years, so we observe every other year with a single exception so that the years used are 1996, 1998, 2001, 2002, 2004, 2006, 2008, 2010, 2012, and 2014. Every state that has a charter school law at some point before or during this time period is included, though they only enter the data set in the two year period after they adopt a law so that some change has taken place. This means that we have forty-two states in our data set (we cannot include the District of Columbia because we were not able to find data on it for all of our independent variables). The dependent variable itself is the change in CER score from observed year to observed year, meaning the first panel of state observations is the change from 1996 to 1998 and the last is from 2012 to 2014. Thus we have nine panels of states over a period of time, making our data set cross-sectional time-series.

We start by operationalizing the hypotheses deduced above from our application of Prospect Theory. In the case of charter school policy, proponents of the original punctuating charter school policy, and presumably on-going proponents of a strong (high CER value) policy are the organized interests benefitting from it, namely charter schools and the constituencies they serve. So we develop three indicators. The first is the sheer number of charter schools in a state in each observed year, which comes from the same reports published by the Center for Education Reform from which we obtained our charter school law scores. The more schools there are, the more education entrepreneurs and their staff are advocating for a strong law giving them autonomy from state and local regulations. The second indicator is the number of students enrolled in a charter school, which is a proxy for the number of parents with kids enrolled in charter schools. Since nobody is required to attend a charter school, we assume that these parents want their children there and are thus supportive of them, and might well advocate for pro-charter laws with lawmakers and regulators. Data on the number of students enrolled in charter schools comes from the National Center for Education Statistics at the U.S. Department of Education, though we actually obtained this data in a more accessible format from a national advocacy organization called the National Alliance for Public Charter Schools.[2]

Our third indicator is the number of educational management organizations (EMOs) operating in each state. These are essentially for-profits or not-for-profits operating charter schools, usually many charter schools, as opposed to charters that operate purely on their own. These corporations and nonprofts would also, we assume, lobby for pro-charter laws. The researcher Alex Molnar has for many years collected data on the number of EMOs operating in each state and consistently published reports. We obtain the data for each state for the correct year from these reports for our third measure of pro-charter forces. To streamline our model, we

average these three indicators, though we do so by first converting them into *z*-scores since they are all measured on different scales. Once they are converted, we average the three *z*-scored measures into a single measure of charter school proponent strength.

It is a little harder to identify a clear anti-charter school actor. While Democrats have been skeptical in many states about charter schooling, just as Republicans have often been supporters, in many cases Democrats have still voted for charter school laws and continue to support them (Bulman and Kirp 1999), so this cannot be a measure. The clearest and most consistent opponents of charter schools have been K-12 teachers unions, namely the National Education Association (NEA) and the American Federation of Teachers. We are not able to obtain any data on membership in the latter, but the NEA has made available the number of members it has in each state in their annual *Handbooks.* We obtain this data and use it as our sole indicator of opposition, expecting that more teachers in a state are NEA members, the weaker that state's charter law will be (a lower value CER score).

In the theoretical section, of course, we predicted that the influence of each side in this policy debate depended on how successful each state's charter school law was. While K-12 student grades and SAT scores might be used as indicators, the former are dependent on too many factors and the latter are not consistently measured in the same manner across the time span of our study. We therefore use rates of graduation from high school, obtaining data on the rates from the National Center for Education Statistics, and assume that a successful charter school policy will increase graduation rates.[3] Since graduation rates were not hypothesized to have a direct effect, but simply be the condition of influence for proponents and opponents, in the main statistical model below I multiply state graduation rates by the proponent and opponent

measures, though following convention I include all of the original variables in the model along with these two interactive terms.

The final variable operationalizing our theoretical predictions captured diffusion of policy ideas from surrounding states, which may influence lawmakers in addition to the arguments of proponents and opponents, especially when it is not clear whether the policy is working (though we do not interact our diffusion measure with graduation rates). There is little consistency in the literature as to whether state-to-state diffusion should be measured by all states in a region or simply the neighboring states, but since regions as defined by the U.S. Census Bureau seem rather ad hoc, we opt for the simpler measure of just considering the neighboring states. Specifically, and because we think state officials will look at what other states have done in the prior couple of years, for each observed state we find the CER scores for all bordering states for the prior two year cycle and average those.[4] It is worth noting that while we predict this variable to have a statistically significant effect on changes in state laws, we do not here predict whether the change is positive or negative (unlike our predictions regarding advocates). We simply do not know enough about how state officials ought to react to what is happening with their neighbors. We do suspect that the policy convergence observed in Figure 2 is more likely to be due to the influence of neighbors than the advocacy effort of proponents or opponents, but we cannot specifically test whether diffusion influences lead to policy convergence.

We also construct four control variables. Establishing charter schools has sometimes been held up as a way to help control public education costs as demand from K-12 students rises, and as state deficits increase (Henig 2008). Therefore one control variable is the percentage increase in K-12 overall enrollment from 1996 to the observed year. We simply divide enrollment in the observed year by enrollment in 1996 for our indicator.[5] We calculate state

budget deficit by subtracting annual state expenditures from annual state revenues, the difference being the annual deficit.[6]   While politicians of different ideological stripes have supported charter schools, in the public charter schools tend to be somewhat more preferred by ideological conservatives to liberals (Bulman and Kirp 1999), so we include the citizen ideology measure for each state developed by William Berry and his colleagues (see Berry et al. 1998; Berry et al. 2010).[7] States with older charter school laws may be less likely to change them, so we subtract the year each state enacted its law from 2014 and use the resulting law age as a control. Finally, state laws are probably path-dependent in that what they change to is, to a considerable extent, influenced by what they have been in the past; that too great of change from the prior year is unlikely to happen in a post-punctuation environment. Thus out last control is a two-year cycle lag of each state's CER score, which means our analysis is a dynamic time-series panel model.

Analysis and Discussion

Our data is organized in panels for each observed year, albeit unbalanced panels because each panel only contains those states with charter school laws that year and two years earlier because the actual value entered for the dependent variable is policy change from the prior time period. We also need to deal with the problem of unobserved state-level effects that might contribute to policy change (or lack thereof) that we have not controlled for. To accommodate this complexity, we use a multi-level (sometimes called a hierarchical) model incorporating fixed-effects for estimating the influences of our independent variables and random-effects to control for unobserved state-level influences by estimating a separate slope for each state (what is specifically called a random-slope model, see Ahn and Schmidt 1995; Clark and Linzer 2014). The results of our estimation are presented in Table 1.

20

While the model itself produces a superior estimate to random results (seen in the statistically significant Wald χ^2 statistic), and the likelihood-ratio test shows that employing a random-slope model is superior to ordinary regression (seen in the statistically significant χ^2 statistic for this test), only three of the eleven independent variables exhibit a statistically significant effect. Specifically, the variable for membership in the NEA (conditioned on graduation rates) exhibits the expected negative effect. Surprisingly, the pro-charter school advocate variable exhibits no statistically significant effect. The lagged diffusion variable, as predicted, exhibits a positive effect, meaning that as neighboring states increase the degree to which their own laws are pro-charter, so too does the observed state in the following two-year cycle (and the reverse is also true for weakening the charter law). Finally, there is a path-dependent quality to charter laws as the state of the law in the prior two-year cycle has a, rather surprising, negative effect on the degree to which the law is pro-charter in the observed year.

We suspect that this single analysis may be masking important variation in independent variable effects by graduation rates. Specifically, it is worth looking at the effect of these variables in states with low, average, and high graduation rates to see whether the pro and anti-charter school advocate variables have clearer effects there, at least when graduation rates (our measure of how well the policy meets lawmaker aspirations in Prospect Theory) are low and high but not when they are middling. We therefore divide our data into three groups. One contains observation where graduation rates are more than one standard deviation below average, another where they are one standard deviation greater than the mean, and the third where graduation rates are within one standard deviation of the mean (both lower and higher). Since we are dividing the data by graduation rates, we no longer need to use our interactive terms, and

our graduation rate independent variable is also removed, as is the age of the law variable which shows multi-collinear effects in the new models with other variables (and had not performed in a significant manner anyway in the full model). The results of our three models are in Table 2.

---- Insert Table 2 about here ----

The results are a peculiar mixed bag, offering only some tentative support for our hypotheses. As expected, when graduation rates are significantly lower than average, the NEA membership variable is statistically significant and the charter school advocates variable is not, suggesting that anti-charter advocates have more credibility with lawmakers at this point than proponents. Yet the sign of the variable is in the wrong direction, being positive rather than negative, suggesting that in states with low graduation rates great NEA strength actually leads to a more pro-charter school state law. Similarly, in states where graduation rates are significantly higher than average, the NEA variable is not statistically significant and the pro-charter school advocates variable is, which was expected, but the latter is negative where we expected it to be positive. What might the explanation for these counter-intuitive findings be? It may well be nothing more than the fact that the variables do not capture where state laws began in the first place, that if a law starts the legislative cycle in a very pro-charter state, and graduation rates are high in both charter and traditional K-12 education (which is what the graduation rates variable captures), charter proponents are somewhat willing to increase similarities between charter schools and traditional schools and thus are supportive of small modifications to the law. Perhaps. More nuanced analysis here is clearly needed.

It is also interesting to note that not only did the lagged diffusion variable turn out to be statistically significant when graduation rates are neither high nor low, which is what we predicted (and were neither pro nor anti charter school advocates were influential), but also when

graduation rates are just plain low. It appears that when graduation rates are low, not only do lawmakers ignore pro-charter advocates, whose promises have been proven false, and give credence to anti-charter advocates, they also look to other states to see how they are coping with their severe education problems. Only when graduation rates are high do lawmakers feel comfortable ignoring the neighboring states and just listening to pro-charter advocates, who in this circumstance have a high degree of credibility.

Conclusion

Policy change after major punctuations has received very little attention in the scholarly literature, certainly very little in comparison to the vast literature now emerging on why dramatic policy change occurs and how new policies spread over state lines. Yet after the dust from intense political combat has settled and a new policy is in place, what happens next? Do the defeated interests retire from the field and go home dejected? Do the winning interests just enjoy the spoils of victory? Does the new policy remain static until the next punctuation? There is no reason to believe that any of these things happen. And, as this research at least shows in the case of state charter school policy, state laws post-punctuation are anything but static. They change, and perhaps even change in ways that are understandable and predictable.

Some scholars have speculated that some sort of feedback loop may drive policy change, both leading up to and right after punctuation. Yet how and why lawmakers would react to policy feedback is unclear. In this paper we draw on Prospect Theory, developed by Khaneman and Tversky, and argue that lawmakers are driven by uncertainty over whether the new policy will actually solve the issue problem at hand. They do not themselves know exactly how to solve the issue problem and are looking to others for advice, which will, in turn, be reflected in

the post-punctuation policy changes. As long as the new policy more or less achieves the goals that proponent interests claim it will achieve, lawmakers give them the benefit of the doubt and continue to maintain the policy as proponents desire. If the new policy produces results that are arguably disastrous, then lawmakers will listen to the interest opposing it in the first place. If the new results are lukewarm, giving credibility to neither proponents nor opponents, then lawmakers will look to other sources of information on how to tweak the policy, including changes made by their neighboring states, which may lead to state policies looking increasingly similar over time, a type of policy convergence.

We tested these propositions with changes in charter school policy as a way of tacking problems in K-12 education and found some evidence of this policy convergence. We also found that policy diffusion, or carefully taking cues from other states, is a significant driver of this policy change, though that turned out to be the case when creating charter schools failed to improve graduation rates as well as when there was only modest improvement in those rates. We also found opponents and proponents to be influential in incremental changes to charter school policy, though the directions of those changes were surprising and not entirely what we had expected. To further investigate patterns of change post-punctuation in charter school policy we are going to need more refined measures and, arguably, finding more nuances as to under exactly what circumstances policy change favors proponents, favors opponents, or favors neither but responds to types of policy diffusion.
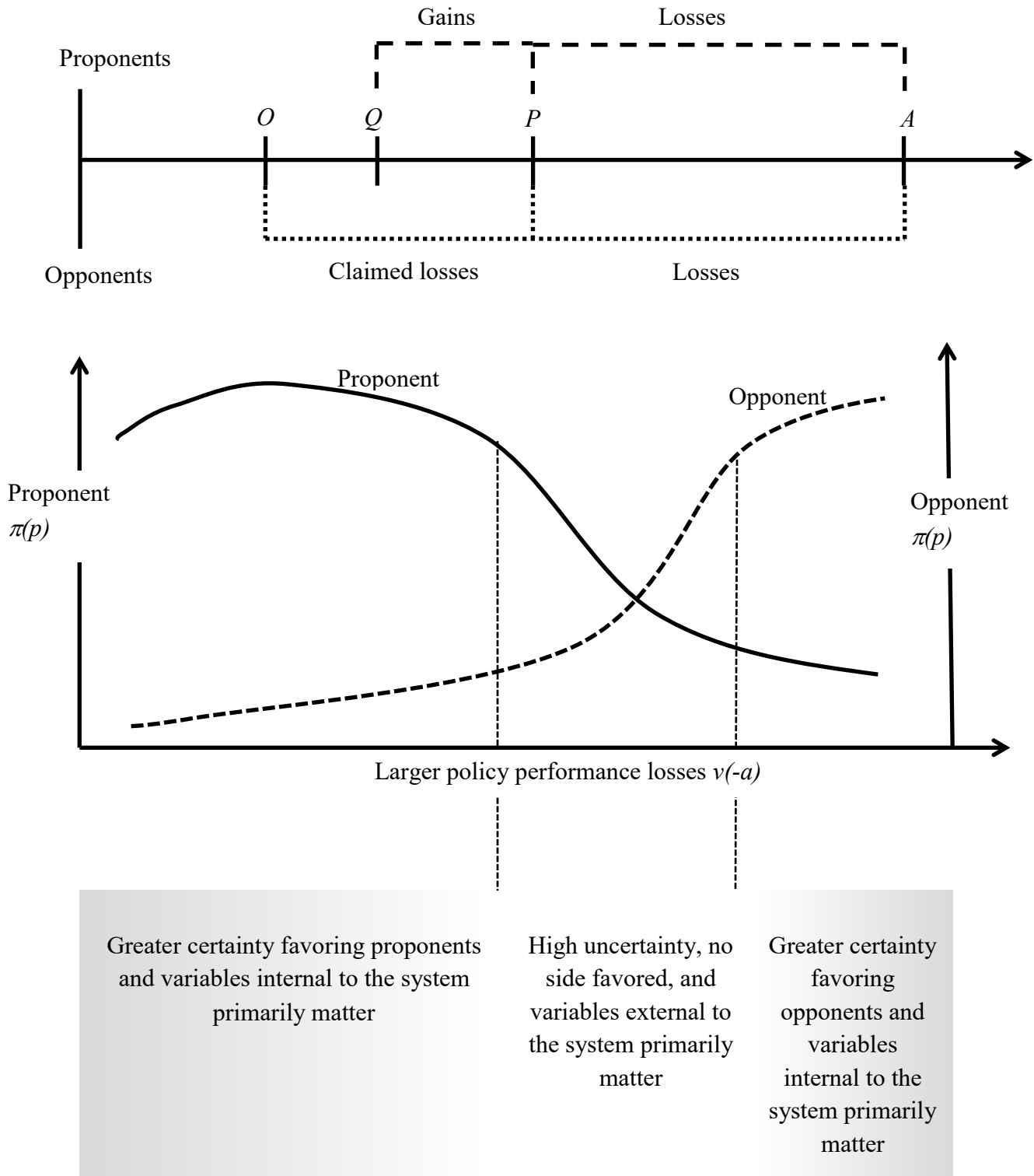
Figure 1: Changes in Policy Post-Punctuation

Gains   Losses

Proponents

O   *Q*   *P*   *A*

Opponents   Claimed losses   Losses

Proponent

Opponent

Proponent $\pi(p)$

Opponent $\pi(p)$

Larger policy performance losses *v(-a)*

| Greater certainty favoring proponents and variables internal to the system primarily matter | High uncertainty, no side favored, and variables external to the system primarily matter | Greater certainty favoring opponents and variables internal to the system primarily matter |

Figure 2: States Adopting Laws from 1994 to 1997 Experiencing More than Five Points of Change
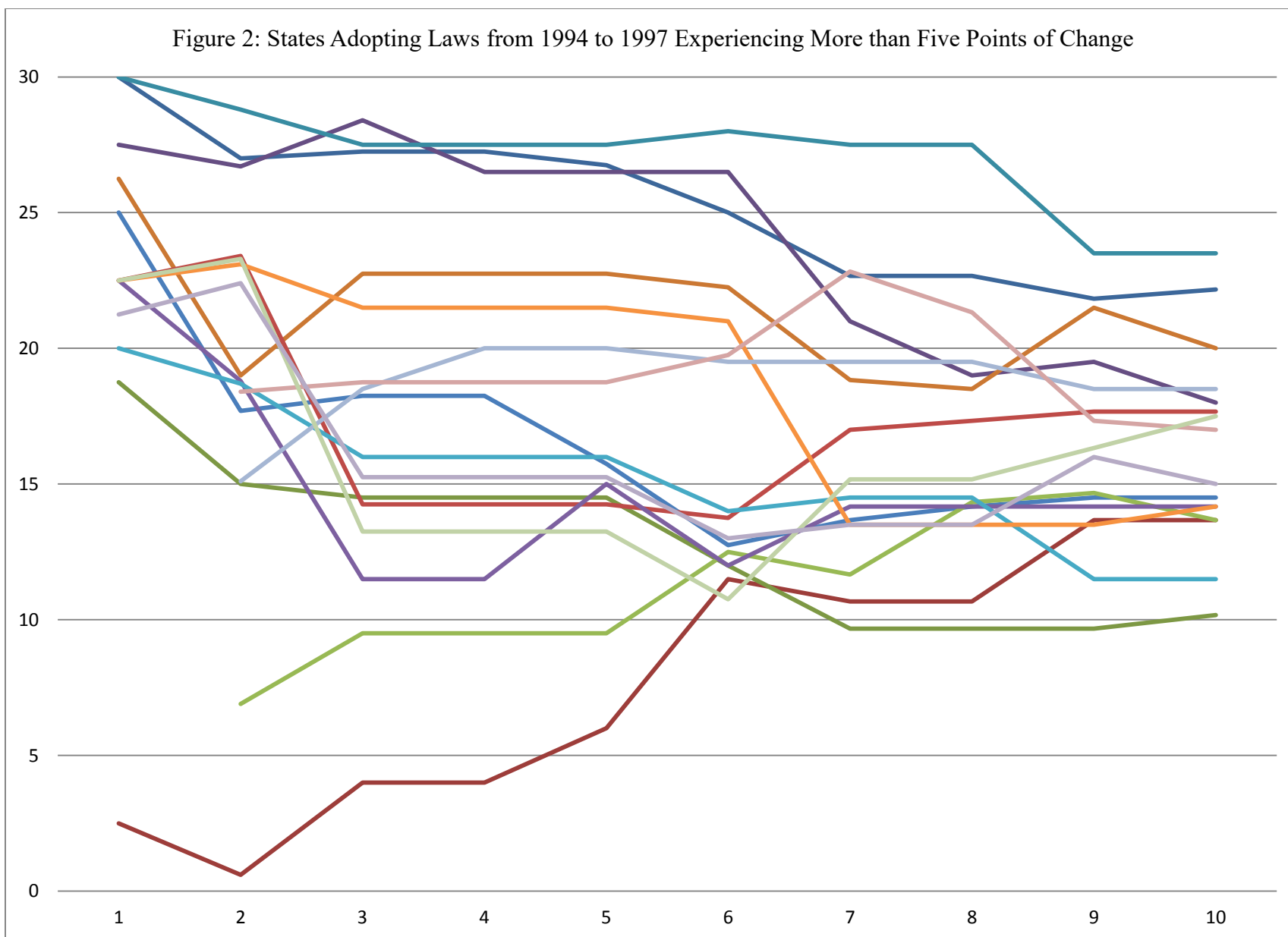
Table 1: Estimates of Full Policy Change Model

Explanatory variable	ML Estimate (Robust Standard Error)
Lagged CER score from prior cycle	−0.12***
	(0.02)
Charter school advocates *x* graduation rates	−1.79
	(2.45)
NEA membership *x* graduation rates	−0.01*
	(0.01)
Lagged average of neighboring states' CER scores	0.08**
	(0.03)
Citizen ideology in the state	−0.01
	(0.01)
Size of state budget deficit	−0.01
	(0.01)
Age of the charter school law	0.03
	(0.04)
Percentage increase in student enrollment from 1996	−0.78
	(1.45)
Graduation rates	2.90
	(2.29)
Charter school advocates	1.41
	(1.85)
NEA membership	0.01
	(0.01)
Constant	−1.54
	(1.97)
Standard deviation of random-effects slope parameters	0.62
Wald χ^2	42.11***
Likelihood-ratio test χ^2	2.08*
N	335

* $p < 0.10$
** $p < 0.05$
*** $p < 0.01$

Table 2: ML Estimates of Policy Change Models by Graduation Rate Levels

Explanatory variable	Low graduation rate	Medium graduation rate	High graduation rate
Lagged CER score from prior cycle	−0.28**	−0.08***	0.06
	(0.12)	(0.03)	(0.04)
Charter school advocates	−0.25	0.10	−0.97***
	(0.08)	(0.18)	(0.10)
NEA membership	0.01*	−0.01	−0.01
	(0.01)	(0.01)	(0.01)
Lagged average of neighboring states' CER scores	0.22***	0.03*	0.13
	(0.08)	(0.02)	(0.10)
Size of state budget deficit	0.01	−0.01	−0.01
	(0.01)	(0.01)	(0.01)
Percentage increase in student enrollment from 1996	−2.64	−1.59**	5.49
	(2.70)	(0.77)	(5.58)
Citizen ideology in the state	0.04	−0.01	−0.01
	(0.04)	(0.01)	(0.01)
Constant	−1.47	1.30*	−1.21
	(1.50)	(0.72)	(0.90)
Wald χ^2	244,008***	30.26***	1213.83***
N	65	221	49

*$p < 0.10$
**$p < 0.05$
***$p < 0.01$

References

Ahn, Seung C. and Peter Schmidt. 1995. "Efficient Estimation of Models for Dynamic Panel Data." *Journal of Econometrics* 68(----): 5-27.

Arthur, W. Brian. 1994. *Increasing Returns and Path Dependence in the Economy*. Ann Arbor: University of Michigan Press.

Balla, Steven J. 2001. "Interstate Professional Associations and the Diffusion of Policy Innovations." *American Politics Research* 29(May): 221-245.

Baumgartner, Frank R., Jeffrey M. Berry, Marie Hojnacki, David C. Kimball, and Beth L. Leech. 2009. *Lobbying and Policy Change*. Chicago: University of Chicago Press.

Baumgartner, Frank R. and Bryan D. Jones. 1993. *Agendas and Instability in American Politics*. Chicago: University of Chicago Press.

Berry, William D., Evan J. Ringquist, Richard C. Fording, and Russell L. Hanson. 1998. "Measuring Citizen and Government Ideology in the American States." *American Journal of Political Science* 42(January): 327 – 348.

Berry, William D., Richard C. Fording, Evan J. Ringquist, Russell L. Hanson, and Carl E. Klarner. 2010. "Measuring Citizen and Government Ideology in the U.S. States: A Re-appraisal." *State Politics and Policy Quarterly* 10(Summer): 117-135.

Bulkley, Katrina. 2005. "Understanding the Charter School Concept in Legislation: The Cases of Arizona, Michigan, and Georgia." *International Journal of Qualitative Studies in Education* 18(----): 527-554.

Bulkley, Katrina and Jennifer Fisler. 2002. "A Decade of Charter Schools: From Theory to Practice." Working paper, Graduate School of Education, University of Pennsylvania.

Bulman, Robert C. and David L. Kirp. 1999. "The Shifting Politics of School Choice." In *School Choice and Social Controversy: Politics, Policy, and Law,* eds. Stephen D. Sugarman and Frank R. Kemerer, pp. 36-67. Washington, DC: Brookings Institution Press.

Bushey, Graeme. 2010. *Policy Diffusion Dynamics in America*. New York: Cambridge University Press.

Bushey, Graeme. 2012. "Punctuated Equilibrium Theory and the Diffusion of Innovations." *Policy Studies Journal* 40(1): 127-146.

Chi, Wendy C. and Kevin G. Welner. 2008. "Charter Ranking Roulette: An Analysis of Reports that Grade States' Charter School Laws." *American Journal of Education* 114(February): 273-298.

Clark, Tom S. and Drew A. Linzer. 2014. "Should I Use Fixed or Random Effects?" *Political Science Research and Methods* 3(May): 399-408.

Fox, Craig R. and Amos Tversky. 1995. "Ambiguity Aversion and Comparative Ignorance." *Quarterly Journal of Economics* 110(August): 585-603.

Gray, Virginia. 1973. "Innovation in the States: A Diffusion Study." *American Political Science Review* 67(December): 1174-1185.

Henig, Jeffrey R. 1994. *Rethinking School Choice: Limits of the Market Metaphor*. Princeton: Princeton University Press.

Henig, Jeffrey R. 2008. *Spin Cycle: How Research is Used in Policy Debates*. New York: Russell Sage Foundation.

Holyoke, Thomas T., Jeffrey R. Henig, Heath Brown, and Natalie Lacireno-Paquet. 2009. "Policy Dynamics and the Evolution of State Charter School Laws." *Policy Sciences* 42(February): 33-55.

Jones, Bryan D. 2001. *Politics and the Architecture of Choice*. Chicago: University of Chicago Press.

Jones, Bryan D., Frank R. Baumgartner, Christian Breunig, Christopher Wlezien, Stuart Soroka, Martial Foucault, Abel Francois, Christoffer Green-Pedersen, Chris Koski, Peter John, Peter B. Mortensen, Frederic Varone, and Stefan Walgrave. 2009. "A General Empirical Law of Public Budgets: A Comparative Analysis." *American Journal of Political Science* 53(October): 855 – 873.

Kahneman, Daniel and Amos Tversky. 1979. "Prospect Theory: An Analysis of Decision Under Risk." *Econometrica* 47(March): 263-292.

Kingdon, John W. 1984. *Agendas, Alternatives, and Public Policies,* 2nd edition. Boston: Little, Brown.

Kirst, Michael W. 2007. "Politics of Charter Schools: Competing National Advocacy Coalitions Meet Local Politics." *Peabody Journal of Education* 82(2/3): 184-203.

Lindblom, Charles E. 1959. "The Science of Muddling Through." *Public Administration Review* 19(Spring): 79-88.

McFarland, Andrew S. 2004. *Neopluralism.* Lawrence: University Press of Kansas.

McKay, Amy. 2012. "Negative Lobbying and Policy Outcomes." *American Politics Research* 40(January): 116-146.

Mintrom, Michael. 2000. *Policy Entrepreneurs and School Choice.* Washington, DC: Georgetown University Press.

Nathan, Joseph. 1996. *Charter Schools: Creating Hope and Opportunity for American Education*. San Francisco: Jossey-Bass Publishers.

Nownes, Anthony J. and Adam J. Newmark. 2016. "The Information Portfolios of Interest Groups: An Exploratory Analysis." *Interest Groups & Advocacy* forthcoming.

Pressman, Jeffrey L. and Aaron Wildavsky. 1973. *Implementation*. Berkeley: University of California Press.

Quattrone, George A. and Amos Tversky. 1988. "Contrasting Rational and Psychological Analyses of Political Choice." *American Political Science Review* 82(September): 719-736.

Scott, Janelle T. and Margaret E. Barber. 2002. "Charter Schools in California, Michigan, and Arizona: An Alternative Framework for Policy Analysis." Occasional Paper #40, National Center for the Study of Privatization in Education, Teachers College, Columbia University.

Shen, Francis X. and Kenneth K. Wong. 2006. "Beyond Weak Law, Strong Law: Political Compromise and Legal Constraints on Charter School Laws." Paper presented at the Annual Meeting of the American Political Science Association, Philadelphia, Pennsylvania.

Shober, A.F., Paul Manna, and John F. Witte. 2006. "Flexibility Meets Accountability: State Charter School Laws and Their Influence on the Formation of Charter Schools in the United States." *Policy Studies Journal* 34(December): 563-587.

Stoddard, Christina and Sean P. Corcoran. 2007. "The Political Economy of School Choice: Support for Charter Schools Across States and School Districts." *Journal of Urban Economics* 62(July): 27-54.

Tversky, Amos and Craig R. Fox. 1995. "Weighing Risk and Uncertainty." *Psychological Review* 102(2): 269-283.

Tversky, Amos and Daniel Kahneman. 1991. "Loss Aversion in Riskless Choice: A Reference-Dependent Model." *Quarterly Journal of Economics* 106(November): 1039-1061.

Vergari, Sandra (ed). 2002. *The Charter School Landscape.* Pittsburgh: University of Pittsburgh Press.

Vieux, Andrea. 2014. "Do Not Count Them Out Just Yet: Assessing the Impact of Religious Conservatives on Charter School Regulation." *Social Science Quarterly* 95(June): 411-424.

Walker, Jack L. Jr. 1969. "The Diffusion of Innovation among the American States." *American Political Science Review* 63(September): 880-899.

Wright, John R. 1996. *Interest Groups and Congress.* Boston: Allyn and Bacon.

Wong, Kenneth K. and Francis X. Shen. 2002. "Politics of State-led Reform in Education: Market Competition and Electoral Dynamics." *Educational Policy* 16(January): 161-192.

Wong, Kenneth K. and Francis X. Shen. 2006. "Charter Law and Charter Outcomes: Re-Examining the Charter School Marketplace." Paper presented at the National Conference on Charter School Research, Vanderbilt University.

---

[1] While it may be stretching the idea a little far, locked into inefficient policy regimes just because nobody wants to revisit such a competitive and destabilized time again is something like path-dependence in inefficient technology studying by economists like Brian Arthur (1994).

[2] Specifically from their website on state charter school data at

http://dashboard.publiccharters.org/dashboard/students/page/overview/state/ .

[3] Unfortunately, NCES did not have 2014 data, so we simply repeated the data for 2013. The data for each state and each year can be obtained at

http://nces.ed.gov/ccd/elsi/default.aspx?agree=0.

[4] It is worth noting that when averaging, we include in the denominator states who do not have charter school laws because we feel that even the choices of these states not to have a law is weighted by state officials.

[5] This data is also available from the National Center for Education Statistics at the above link.

[6] All of this data comes from the annual publications *Fiscal Survey of the States* published by the National Association of State Budget Officers.

[7] The data itself can be obtained at https://rcfording.wordpress.com/state-ideology-data/ . It is also worth noting that some scholars feel that measuring the number or percent of people identifying as Evangelical Christians in a state might also be useful (see Vieux 2014). Yet many charter schools have any religious affiliation, and generally speaking evangelicals have preferred private schools to public charter schools (see Henig 1994).