Path Dependence and Resistance to it in Public Policies: The Case of Charter School Policies in the United States

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Abstract

Policies are assumed to rarely change after enactment. Punctuated equilibrium theory argues this is because lawmakers shift attention away from policies after enactment, letting them run on autopilot. I argue that the periods between punctuations deserves study, and that what lawmakers do is design institutions to make policies path dependent so they can only change within limited parameters (if at all). It may also be that interest groups opposing new policies are still able to shape the way they evolve, pushing against intended paths. In this paper I test the influence of path dependence versus group opposition in state charter school policies. I find some evidence of path dependence, but I also find that, to some extent, opposing interests can still change these laws after enactment. Furthermore, I find these policies became increasingly similar over time, partially because of path dependence, but also because of the influence of opposing interests.

Keywords: Public policy, path dependence, punctuated equilibrium, interest groups, advocacy, lobbying, education policy, charter schools

Prevailing theory on public policy change concludes that it rarely occurs, but when it does it happens as big bursts, or "punctuations," where the interests, beliefs, and structures undergirding an old, longstanding policy are swept away and abruptly replaced by new policy serving new interests through new institutional structures (Baumgartner and Jones, 1993). Understandably, most policy scholars prefer to focus their research on these exciting periods of big change, often assuming that in the years after a punctuation that little is worth studying because little of interest is happening. Lawmakers, it is presumed, have turned their attention to other problems and other policies. At best there are minor, incremental adjustments by regulators to improve the administrative efficiency of the policy as they implement it.

Yet is the absence of major change between punctuations due to a lack of effort by advocates, such as those for interest groups opposing a new policy, or because policies quickly become highly resistant to counter-advocacy? Is it even true that policies do not tend to change in the years after enactment? Patashnik (2008) actually finds evidence of several policies changing significantly after enactment in ways unintended by the lawmakers authoring them, often due to interest group influence. Holyoke and Brown (2019) and Brown (2019) find similar changes in education policies. Indeed, it would be surprising if interest groups opposed to a new policy were not trying to undermine it, for no advocacy organization can afford to lay low just because a policy it long supported has been supplanted (Gray and Lowery, 1997). To rebuild their legitimacy with their members and supporters they must regroup and try to counter-attack to make the new policy less detrimental to these supporters' interests. Why then might we still not see any significant policy change? Is there a reason other than just a lack of attention from policymakers? One possibility is that lawmakers quickly structure new policies to become "path dependent" in that they create institutions to administer and guide them so that they serve the "legitimate" interests

of lawmakers' supporters while marginalizing opposing interests, thus keeping the policy on a consistent path. Yet even if this happens, and policies start to become path dependent, can opposing interests still push back against the paths and, to some degree, influence new policies?

In this paper I study the evolution of laws in the US states regarding charter schooling in K-12 education. Using an interval measure capturing the structure of these laws from 1996 to 2018, not only is it possible to see if any change occurred, but to test for path dependent effects, such as initial conditions where early decisions regarding policy structures might prevent any meaningful change as time goes by. I find that while the initial structures of charter school laws did matter, this influence diminished over time, making it possible for these laws to change due to lobbying by interest groups opposed to charter schooling. Yet this countervailing advocacy did not negate all path dependent-like effects, and there appeared to be limits to how much and in what ways these policies could change. Specifically, path dependence in these policies appeared to be partially responsible for a long-run convergence where laws of many states become increasingly similar over time, though opposing interest groups may also have played a role in this convergence as they sought to mitigate its impact on those they represent. In the big picture, these results suggest that what happens to policies between punctuations is important and thus deserving of more study.

Public Policy and Path Dependence

Between the Punctuations

It has been nearly an article of faith since the 1960s that, once enacted, public policies tend to only change at the margins, if they change at all (Lindblom, 1959; Wildavsky, 1964). On the rare occasions when big changes do occur it is in the wake of big political battles, leaving lawmakers and advocates so exhausted that they are hardly inclined to revisit those policies again

in the near future. Research in the 1980s and 90s on policy evolution largely reinforced this view of change being rare, but set it in a framework of "punctuations," or occasional bursts of intense political activity ending with the overthrow of long enduring policies in favor of radically different alternatives. Kingdon (1984) found that only when intractable problems link with advocates persistently pushing new solutions to those problems is such change likely to occur, just as Baumgartner and Jones (1993) found that public perceptions of problems must significantly shift before advocates pushing new policy solutions can grab the levers of influence to bring about big change. While these links and shifts are relatively rare, they appear to occur in cycles (Jones et al., 2009), which means punctuations are bracketed by long stretches of quiescence where a policy's fundamental assumptions and processes are seemingly left unchallenged so there is no change.

Understandably, most policy scholars tend to study the punctuations because this is when well-entrenched social and economic interests are uprooted and shoved aside in favor of new interests with new ideas. It also, unfortunately, means there is little research on the long stretches of time between punctuations, perhaps because scholars assume that nothing is happening. While most lawmakers may indeed have shifted their limited attention to other policies, administrators are presumably still making the changes needed for efficient implementation. More importantly, while interest groups benefitting from the new policy work to solidify their gains, advocates representing older, now displaced interests do not fade away. Interest groups rarely cease to exist just because they lost a policy battle, even a big one. Instead, to firm-up their now shaky legitimacy with the people they represent, they have to prove that their organizations are still worth supporting (Gray and Lowery, 1997). This is done by re-mobilizing for counter-attacks, often with some success even if they cannot re-establish the old policy (Patashnik, 2008; Holyoke et al., 2009). Indeed, interest group scholars routinely find evidence of organizations advocating for and against

most policies year after year (e.g., Baumgartner et al., 2009). Why, then, do we not regularly see change in policies, even in the years right after a punction? Is it because we are just not looking, or because there is something else going on making new policy highly resistant to opposing interest group influence?

One explanation for why policies rarely change significantly after punctuations is that they quickly become path dependent and thus highly resistant to pressure. Mahoney (2000) argues that many social phenomena exhibit path dependence, where early decisions limit future changes, and it has emerged as an answer to research problems in many fields of science (Vergne and Durand, 2010). This includes why animal species evolve along certain lines (e.g., Ereshefsky, 2014), why inferior technologies come to dominate markets (e.g., Arthur, 1994), why some businesses build networks with some investors rather than others (Milanov and Shepherd, 2013), and how gender equity on corporate boards became mandated in some nations (Terjesen, Aguilera, and Lorenz, 2015). Pierson (2000) argues that we should also expect path dependence to manifest in political outcomes, so perhaps this is why new policies turn out to be highly resistant to pressures from interest groups opposed to it - because the decisions made at enactment create an inertia setting a policy on a course that quickly becomes very difficult to alter.

Although not explored within the punctuated equilibrium framework, policy scholars have not ignored path dependence. Arthur's (1989) theory of increasing returns, for example, has been used to show how the costs of changing long-standing policies, even inefficient ones, quickly become so high as to make the efforts impractical (e.g., Aklin and Urpelainen, 2013), as seen in the way American state education systems developed (Ansell and Lindvall, 2013). They have also found path dependence perpetuating determinations of who gains and retains the right to speak for certain constituencies (Jensenius, 2015), resisting changes in child poverty programs (Sedgwick

and Jensen, 2021), limiting the ability of Brazilian economic policies to adapt (De Souza Leao, 2013), and entrenching institutional standards legitimizing some sources of information in policy decisions while branding others as "illegitimate" (e.g., Bednar, Jones-Rooy, and Page, 2015; Barnett et al., 2015; Bednar and Page, 2018; Kotilainen, et al., 2019). Weaver (2010) even argued that path dependence is likely why several nations trying to provide social security benefits to their people ended-up with nearly the same policies. Path dependence may therefore also be the reason little policy change occurs in the years between punctuations even when there is pressure to do so from the social or economic interests it disadvantages.

Setting a Path

A big problem with proposing path dependence as an explanation for the lack of change in public policies (or in anything else) is that there is no agreed-on definition of it (Page, 2006; Freeman and Jackson, 2012) or clear explanation as to how and why it would emerge in new policies. I develop a possible answer by starting with what we already know, that the dramatic shifts in how the public perceives issue-problems during punctuations create opportunities for new assumptions and beliefs regarding the right solutions to these problems to become the foundations of new laws. The choices lawmakers and advocates then make regarding how new policies are to be structured, whom they should serve, and what they intend to eventually achieve sets them on paths towards long-run equilibrium states. As long as there are lawmakers and interest groups invested in a policy because their constituencies benefit from its largess, and facts about policy performance appear to line-up with beliefs (positive feedback), administrative structures quickly institutionalize and keep it going on a kind of autopilot (Skocpol, 1992; Mettler, 2002). Different

sequences of decisions early in a policy's history might have set it on a different path (if history was re-run), but, once set, its trajectory is hard to change (Page, 2006).

To develop this, I draw on North's (1990) theory of institutionalism, which holds that people create institutional structures, meaning the enduring rules of the game, based on shared assumptions and goals to reduce uncertainty regarding future outcomes.[1] For policies, this means institutions are intentionally structured during or soon after enactment to ensure that benefits are regularly distributed to constituencies deemed deserving, to set rules of engagement between lawmakers and organizations representing these constituencies, and to establish feedback systems through which the latter can report problems in policy administration to lawmakers. Once structured, new lawmakers and interest group advocates entering the policy system have an incentive to accept these rules and norms, including the common understanding of the problem the policy is supposed to solve, because doing so legitimizes their voices and allows them to share in the policy's benefits. This structure also limits the degree to which change can even be acknowledged as needed, potentially locking the policy into a single path towards an intended long-run goal.[2] Refusal to accept these beliefs and rules deprives nonconforming lawmakers and advocates of legitimacy, shutting them out of the policy system and denying them influence.

Fleckenstein (2013) and Hicks (2013) similarly argue that even if institutions cannot firmly lock policies into one rigid path, by creating structures to determine if change is needed, and by defining what sources of information may legitimately contribute to deliberations about change, these rules and norms at least set acceptable parameters for future change. Shared beliefs and senses of investment in a policy largely limit the degree of change to little more than administrative adjustments. If several political jurisdictions share the same assumptions and beliefs as they deal

with the same issue-problem, they might even end-up enacting similar policies (as Weaver 2010 found), or at least policies that become similar over time.

If it is true that initial political decisions can determine future states of a policy, then path dependence is a phenomenon lawmakers and advocates supporting it create, structuring new institutions so that changes are small, aimed at more efficient administration, and largely attributable to feedback effects. Moreover, since any further changes are made by public administrators to make policies more efficient at delivering benefits to intended constituencies when there is negative feedback, these adjustments should decrease in frequency over time as kinks get worked out and policies settle more firmly into their intended paths towards long-run equilibrium states. No changes should occur because of countervailing pressures from opposing interest groups or other exogenous influences. This suggests a way to look for path dependence, that in a multivariate statistical analysis, only independent variables measuring initial and long-term policy states, which define a policy's path (and are detailed below), will exert significant influence over variation in policies, variations which become smaller over time.

Pushing Against the Path

Path dependence (assuming it exists) should make it very difficult for anyone opposed to a policy to significantly change it, yet, as argued above, interest groups defeated during the punctuation when lawmakers pushed aside the old policy in favor of the new tend to regroup and at least give it a try. If the policy is really path dependent, this countervailing advocacy should fail because the new institutional structures are strong enough to resist it. Yet North (1997) argues that institutional change, when it does happen, is often driven by competition between organizations. If lawmakers and advocates supporting a new policy are trying to structure institutions to make

policy path dependent, under what circumstances might we still expect to see opposing interest group advocates successfully push back against the path and bring about change in a policy?

As noted earlier, the prevailing wisdom in public policy theory is that there is no meaningful change between punctuations, so even if opposing interests are still making efforts at counter-advocacy, they are not meeting with much success. If path dependence is the reason why, then the phenomenon must emerge quickly as a result of the efforts of lawmakers and interest groups supportive of the new policy to institutionalize it. Yet there is some research pushing back against this belief. Patashnik (2008) shows that new policies sometimes fail because they cannot attract enough support from the interest groups lawmakers responsible for designing and enacting the new policy hoped to serve. Without the support of these new interest groups, or if those supporters are resource-weak, the policy may be vulnerable to countervailing pressures from opponents. Furthermore, Holyoke and Brown (2019) and Brown (2019) find that while lawmakers supporting the new policy will structure it on beliefs that should delegitimize the arguments of these older interests, when political support for the policy is weak, it is possible for interest group advocates opposing it to manipulate the feedback loops and argue convincingly that it is failing, or that the problem, it was designed to solve was actually not a problem in the first place. Opponents may not be able to overthrow the new policy entirely, but if they have the resources for a sustained advocacy struggle against weaker proponents of the policy, they might alter its trajectory and make it less harmful to the interests of those they represent. Thus even if lawmakers and proponent interests are able to set a policy on a path towards a long-range goal, opponent interests can still trip it up and alter its course towards a goal of their own.

Research Design

Testing for path dependence and potential resistance to it requires a finely measured, interval variable capturing consistent aspects of a policy over time. Most studies use policy outputs, like government spending, the number of degrees awarded, or scores on standardized tests rather than the characteristics of policies themselves. There is, however, a policy in the education field with an accepted interval-level measure – charter schooling in the American states. Charter schools are publicly funded schools but not subject to most state and local laws regarding curriculum, operations, and staffing, and thus able to use competition for students as an incentive to improve public education systems (Chubb and Moe, 1990; Nathan, 1996; Henig, 2008). Beginning in the late 1980s, states began enacting charter school laws over the resistance of traditional educational interests, usually in political battles so intense and involving such significant shifts in how people thought education problems might be solved (market competition rather than more public support) that enactment is considered a policy punctuation (Kirst, 2007).

The measure used here captures the extent to which a state's law supports a healthy community of charter schools. It is derived from scores published every two years since 1996 by the Center for Education Reform for every American state that has adopted a charter school law and has been used in several analyses (e.g., Wong and Shen, 2002; Stoddard and Corcoran, 2007).[3] Because there has been criticism of these scores in their raw form, including concerns about the purpose behind their development by a pro-charter interest group (e.g., Scott and Barber, 2002; Chi and Welner, 2008), scholars have refined and improved their validity and reliability. The version used here was developed, cleaned, and analyzed by Holyoke et al. (2009), based on extensive work by Shober et al. (2008) and Wong and Shen (2002). It combines just the elements of the original scores that measure state support for charter schooling, such as greater funding, ease

of approval, freedom from regulatory oversight, and freedom from curricular requirements. It is also consistent from state to state and over time.[4] The scores on this charter school law index range from 0 (most restrictive) to 30 (most permissive) and form the dependent variable (all variables are summarized in Table 1).

Policy Trends Over Time

Time series trends that may be nonlinear are hard to analyze using ordinary regression analysis (see Kiel and Elliott, 1997), so my first task is to see if there is any visual evidence of path dependence in state charter school policies, which I do with Figure 1. Jackson and Kollman (2012, 170) claim that running a process that is path dependent multiple times with some (perhaps very subtle) variation in initial conditions, and perhaps in the sequence of early decisions, will likely produce an "ensemble" of trends that start at different points but quickly become locked into similar courses, which appears to be what De Souza Leao (2013) and Weaver (2010) found in their studies. If state charter school laws are path dependent, then multiple state policies might form such an ensemble, each starting at a different point on the charter law index, change in the first few years as institutions emerge and solidify, but then, if they change at all, become somewhat similar as administrators strive for efficient implementation.

---- Figure 1 and Table 1 ----

I therefore identify twenty-one states enacting charter school laws between 1994 and 1996 and examine their two-year cycle index scores through 2020. In turns out that these twenty-one trend lines do change somewhat over the twenty-four years, which not only makes them too hard to all plot in one graph, but also suggests there may be no path dependence. Yet when averaging each year's scores and calculating their standard deviations, plotted in Figure 1, a converging

ensemble effect is apparent. As early as 2000 the mean of the twenty-one scores settles down to 13.1 with only very small variations. The standard deviations also become tighter, though the rate of convergence around the mean diminishes to almost nothing by 2020. This shows the ensemble of policies changing over time, but doing so in a structured manner under some limiting influence, settling into a long-run state by 2016 or 2018. Holyoke and Brown (2019) studied the same phenomenon on charter school laws but attribute it to boundedly rational decision making rather than path dependence. Here the converging ensemble, with a gradual reduction in the rate of convergence, suggests possible path dependence. On the other hand, a long-run global average of 13.1 means that some policies which were initially very pro-charter became less so over time, which might indicate the influence of interest groups opposed to those policies rather than path dependence. Disentangling this requires multivariate analyses.

Dependent and Independent Variables

The dependent variable in the analysis is the index score of each state's law observed once every two years from 1996 but only to 2016 due to limits in some of my independent variable data. As for the independent variables, Jackson and Kollman (2010) note that while there is no agreed on statistical model, they argue (2012, 170-171) that in whatever model is used, there are three measures that need to be operationalized in order to test for path dependence. The first captures the influence of a policy's "initial conditions" at the time of enactment, meaning a policy's structure when first enacted on all future states of the policy. I operationalize this as the influence of each state's 1996 index score on all scores of the same state in subsequent time periods. It is a policy's past potentially binding its future and is predicted with this hypothesis:

H1: The larger a state's 1996 index score, the larger its score will be at all subsequent points

in time (the coefficient will be positive and significant).

The second of the three measures attempts to capture any diminishing of the initial conditions effect by measuring a policy's divergence later in time from its initial score. While the most intuitive approach to this would be multiplying each state's 1996 score by the passage of time, time is perfectly linear so this would only magnify the values of the initial conditions variable. Instead, I use the absolute value of the deviation of each state's subsequent scores from 1996. If the initial conditions effect still holds, then deviations from it later in time should be small and without lasting effect. It means that, if there is path dependence, this variable's influence should be statistically *insignificant*, or at least its coefficient should be smaller than the 1996 index score used for *H1*. Therefore the second empirical hypothesis:

H2: Higher values of the deviations of state index scores at observed points in time from its 1996 score should *not* exhibit a statistically significant effect, or only a small effect.

Finally, the third measure captures what Jackson and Kollman refer to as each policy's long-term equilibrium state, meaning the final value each policy settles down to after a number of years. It is essentially the "target" which lawmakers enacting the policy were aiming for by embedding definitions, procedures, and feedback mechanisms into the law, designing it to almost inexorably reach this long-run point. I operationalize this as each state's 2018 index score and test it with the following hypothesis:

H3: The larger a state's 2018 index score, the larger the score will be at any earlier point in time (the coefficient will be positive and significant).

Together *H1* and *H3* capture both ends of the hypothesized policy path.

The other independent variables are exogenous to this system and measure other possible influences. While I focus on the influence of interest group opposition, remember that if a path

dependent system exists, then no exogenous variables should exhibit statistically significant effects. I operationalize interest group opposition as the relative strength of organized opponents versus proponents of charter schooling because the influence of opponents can be significantly blunted by proponents. The major proponents in the American states have been advocates of market-driven education, such as the educational management organizations (EMOs) operating charter (and other private) schools (Holyoke et al. 2007). The stronger and more permissive is a state's law, the more schools these companies can operate with more students. I therefore identified the number of EMOs operating in each state for each two-year cycle from annual reports compiled by Alex Molnar.[5] I also use the number of actual operating charter schools in each state for each year, as well as the number of students enrolled in those schools. More charter schools enrolling more students means a larger political constituency in each state advocating for stronger charter school laws.[6] All three indicators are converted into *z*-scores to make them comparable and then averaged for a single index of pro-charter school advocacy strength.

Opponents of charter schools (and thus defenders of traditional public education) have been teachers unions, including state chapters of the National Education Association (NEA). I therefore gathered data on the total number of NEA members in each state from annual editions of the *NEA Handbook,* as well as the total campaign contributions made by teachers unions in each state from the National Institute for Money in State Politics.[7] Finally, since public sector unions often support each other, I also use data on the percentage of public unionization in each state compiled by Hirsch and Macpherson (2003).[8] These three indicators are also converted into *z*-scores and averaged, and then subtracted it from the corresponding state average for proponents to create a relative opposition strength measure.

Interest group opposition, however, should be observed most intensely when policies are especially threatening to these interests, such as when a state has a high index score indicating substantial support for, and little oversight of, charter schools. Why would opponents need to fight if the state already has a weak (low index score) law? I therefore operationalize the hypothesis by interacting the relative opposition strength variable with each state's 1996 index score since it is the initial policy that would focus the attention of opponents as they re-mobilized for advocacy. Thus the final hypothesis:

> *H4:* Higher values of opponent interest group strength relative to proponents, given larger state 1996 index scores, should exhibit a significant but negative effect on those states' scores.

Potential influences to control for are divided into two groups: the politics of state lawmaking and other factors in the larger domain of education policy. Starting with the former, liberal Democrats (but not always moderate Democrats) in state legislatures have been generally hostile to charter schooling while Republicans have often advocated for it, but this most likely matters when liberal Democrats are in the legislative majority. I therefore use Shor and McCarty's (2011) median legislator scores for the majority party of the lower legislative chamber, which is increasingly negative when liberal Democrats are in control.[9] States are also influenced by neighbor states, especially if neighbors are perceived to have more efficient policies (Grossback et al., 2004; Nicholson-Crotty and Carley, 2016), so I develop a policy diffusion variable by averaging the CER scores of the states surrounding the observed state for each year.

The other set of controls regard influence from the larger domain of education policy that may draw legislator, regulator, and advocate attention away from charter school policy. First, Holyoke and Brown (2019) find rates of graduating students to be the main feedback indicator for

lawmakers concerned with how well education policies are solving issue-problems, so I include a state's K-12 graduation rates for the observed year.[10] Changes to policy may also be the result of rising demand, so I include data on each state's K-12 enrollment.[11] State spending on education each year may also be influential, so I obtain spending data for each state each year and divide it by state population for a per capita measure.[12] Also, whether a state has a voucher program (another form of school choice) might matter, so I code a binary variable 1 if the state has such a policy that year.[13] Finally, the District of Columbia is an observed "state," but since there may be unobserved differences, I control for it with a dummy variable.[14]

Multivariate Analysis

The analysis uses a statistical model where the dependent variable is each state's annual charter law index score for eleven two-year cycles through 2016 (N = 231). That is, the data are arranged in panels over time (1996 to 2016). Each panel contains an observation for each of the twenty-one states with that state's charter law index score as the dependent variable. The method employed is the panel-corrected standard errors model of Beck and Katz (1995) where there is first-order auto correlation within the state data panels.[15] The results are in Table 2.

---- Table 2 ----

Testing the Path Dependence Hypotheses

At first glance, path dependence appears to be present, but this is not quite true when looking at the results of the three empirical hypotheses. As predicted by *H1*, the initial conditions score for 1996 is positive and significant, and so is the 2018 score for *H3*. Decisions made at enactment focus policies in particular directions, captured by *H1*, with *H3* capturing the point

lawmakers presumably intended to reach by channeling the policy into a path. However, *H2* predicted that deviations from the path would have no lasting effect, or at least such effects would be minimal. Neither version of this hypothesis is supported. The absolute value of the deviations from 1996 is statistically significant (and negative) and the magnitude of the coefficient is larger than for the variables operationalizing *H1* and *H3*.

---- Figure 2 ----

Figure 2 provides a visual. If a state's initial conditions score in 1996 completely binds a policy so that no change occurs at all, then each state's score would be the same over time. That is not true of the states here, and whereas the charter school law average score in 1996 was 17.16, in 2018 it was down to 13.1. Also, the deviations from the 1996 score are almost entirely negative (reflecting the negative sign on the coefficient), so while the straight black line in Figure 2 represents a predicted state charter school law if initial conditions prevailed (using the statistical model with all variables set at mean or modal values), the solid gray line is the predicted score for each two-year cycle using the averages of all independent variables for that cycle including the deviation score for *H2*. More importantly, the two dashed gray lines in Figure 2 are the predicted state scores when the deviation-from-1996 variable is set one standard deviation below, and then above, its mean for each two-year cycle. These are not random fluctuations, but sustained (if gradual) policy changes. The cause of this deviation is not clear, and even though it means the path dependence conditions set by Jackson and Kollman are not met, the changes and convergence are also not random. They could be intentional, with charter laws structured to move in this direction in response to feedback, which is arguably a type of path dependence. Then again, it might be due to other, exogenous influences.

The Effect of Interest Group Opposition

The existence of path dependence means no exogenous variables should be significant, yet three are. I discuss the others later to focus now on interest group opposition (*H4*). In a sense, the important finding is that there is an effect at all, but the surprise is that the variable interacting relative opposition strength with a state's 1996 initial score is positive and significant when it was expected to be negative. The independent opposition variable without the interaction, however, is negative and significant. This suggests that, all things being equal, interest groups opposed to charter schooling, like teachers unions, will lobby to weaken those laws regardless of its strength. Yet if the initial law is strong (a high index score), then opposition groups may lobby to strengthen it.

---- Figure 3 ----

Figure 3 provides a more nuanced look at this, even if it cannot fully explain the odd result. The figure plots the marginal effect of opposition groups on state charter school laws as the strength of the initial 1996 state index score increases along the horizontal axis. What it shows is that when a state's law is initially fairly weak (across the first third of the horizontal axis), the estimated opposition effect is negative, though decreasingly so. That is, charter school opponents are having a significant negative effect on the state laws. However, from point 11.74 to about 25.45 across the horizontal axis, opposing interest groups have no effect at all because the confidence interval bands around the estimate include zero through that space. Only in last sixth of Figure 3's horizontal axis, when the state law is initially very strong, do opposing groups have a positive effect on the state's law, and it is weaker than the negative effect on the figure's left side. This result may simply represent accommodation by opposing groups. State lawmakers enacted a very pro-charter school law so opposing groups may have felt there was too much resistance to

overcome and thus accepted the reality and tried to live with it, perhaps because they feared the alternative might be school voucher policies (Henig, 2008). Some state teachers unions have even found ways to recruit charter school teachers into their ranks.[16] Given that opponents may make strong laws a bit stronger, weak laws significantly weaker, and have no effect on mid-range policies, they are unlikely to be responsible for the converge seen in Figure 1.

Long-Run Path

These results suggest it would be useful to take a look at why state policies appear in Figure 1 to convergence to an overall global mean. So far it appears that each state's initial and final charter law index scores do influence how a policy progresses, suggesting path dependence, yet the initial conditions effect declines over time, making the convergence possible. It also turns out that opposing interest groups, although defeated in the policy punctation leading to the enactment of charter school laws, remains efficacious, perhaps bending policy paths. Although this may have contributed to the decline in the influence of initial conditions, it does not seem to explain the convergence. Perhaps other variables do. I therefore conduct an analysis where the dependent variable is the absolute value of the difference of each state's score at each point in time from the overall, long-run mean of 13.1 in 2018. I again include the 1996 initial conditions score and the 2018 score, the former at least should be positive and significant, indicating it is producing larger deviations away from the global mean, trying to keep state policies on their own original paths. I also include the measure of deviations from the initial 1996 score (the *H2* variable), which, in light of the prior analysis, should produce a negative effect on deviations from 2018 overall mean. Otherwise, I use the same exogenous independent variables, though I do not interact interest group

opposition with the 1996 scores because this time there is no reason why strong or weak original laws influence lobbying towards, or away from, the overall mean.

---- Table 3 ----

As in Table 3, the initial conditions variable is positive and significant, indicating that this resists the pull to the overall mean, but its influence fades as seen with the significant and negative effect on the deviations-from-1996 variable. The 2018 individual state index score variable is negative but not statistically significant, meaning it is neither helping hold a state on its original path (which would have been positive and significant) or pushing states towards 13.1 (negative and significant). It is another indication that strong path dependence is not in these policies. As expected, the stronger opposing interest groups like teachers unions are, the smaller are the deviations from the 2018 overall mean, meaning opposition advocacy may actually be contributing to pushing state charter school policies out of their individual paths and towards a more moderate, if not weak, state law score. Teachers unions and other opponents are not trying to overthrow charter school laws and undo policy punctuations, but are moderating these laws, perhaps making it easier for charter teachers to unionize and incorporate more public accountability.

K-12 student enrollment is again significant and negative. While growing state enrollments were often touted as reasons to adopt charter schools (Nathan, 1996), it turns out that more children needing an education does not produce laws supportive of large numbers of lightly regulated schools. With more children in charter school, parents are wanting more accountability of them and how they teach, resulting in moderate laws increasingly similar to each other across the states. It is interesting that demand for education is what matters, not graduation rates, education spending, and whether a state has a competing school voucher policy. The District of Columbia is also significant here and in Table 2, which is not surprising since it is a small jurisdiction in unique

circumstances. It is also interesting to consider the independent variables that were never significant, such as legislative Democrats. Whatever role they and Republicans may have played in the punctuation creating charter school laws, consistent with punctuated equilibrium theory they do not appear to be overly involved in the years after, letting advocacy for further change be driven by interest groups. If lawmakers had been more involved, then the graduation rate and voucher law variables might have been significant too since they are more politically sensitive than enrollment. Finally, it is particularly surprising that the diffusion variable was not significant since ideas crossing state lines would have been a logical answer to why state policies become closer to each other over time. Instead, when it comes to evidence of a driver of state law change pushing against the path, it is opposing interest groups; perhaps it is they who are bringing their ideas across state lines.

Conclusion

What do these results tell us about the evolution of public policies? The main takeaway is that scholars using the theoretical framework of punctuated equilibrium theory should pay more attention to what happens between big policy changing events and not assume that nothing is happening, or that any observed change is just administrative adjustment. Part of the reason policies may not change much during these time periods is because lawmakers are trying to structure them with new institutions to become locked into particular directions to resist ongoing interest group advocacy. That is, they are trying to make the policies they favor path dependent. I found some evidence of this, even if the results did not check all of Jackson and Kollman's (2012) boxes, and they too (and Pierson 2000) note that even if it does not fully exist in policy, path dependent-like effects may still be found. Charter school laws at enactment reflected sets of beliefs

and decisions by lawmakers and proponent interest groups that exerted some influence over the future directions of those laws, just as their long-run states of these policies, the "target goals" lawmakers perhaps hoped to reach, exerted a pull. Together they apparently constrained the degree to which these policies could change, though change within limited parameters can also be a feature of path dependence. Likely the convergence of policies seen in Figure 1 was at least partially due to the way these policies were structured to change within set limits.

In a larger sense, Mahoney (2000) and Pierson (2000) are right, and scholars should recognize that path dependence can manifest in many political phenomena, including public policy, though, as Kay (2005) argues, scholars should also not jump too quickly to conclusions that path dependence exists just because we see little change. What appeared here were not policies lawmakers largely ignored until the next big punctuation, so charter school policy does not fit the traditional punctuated equilibrium model. Nor is it an example of "policy drift" (Galvin and Hacker, 2020) or the policy regime "decay" (Sheingate, 2022). State charter school policies clearly evolved in particular directions, becoming increasingly similar to each other over time, changing as an ensemble reflecting structure and purpose, even if the rate of change diminished. I explained this by drawing on North's (1990) theory of institutionalism, where lawmakers and proponent interest group advocates structure policies on foundations of beliefs to provide benefits targeted at specific constituencies and establish feedback mechanisms to learn about inefficiencies in delivery. They set parameters for determining when change is warranted and which interests have the legitimacy to advocate for such change using feedback loops. This intentionally directed change created a form of path dependence, which is different from Arthur's (1989; 1994) lock-in version of it where path dependence is an emergent phenomenon.

The other finding here, of course, is that interest groups marginalized by the new policy (charter schooling) were able to reorganize and fight back, pushing against the path set by lawmakers and proponent interest groups. Clearly they had influence, especially in the second analysis where they were seemingly able to change these laws, making them less unconditionally supportive of the schools, even if they could not eliminate charter schooling. Since the opposition variable was a measure of the strength of opposing interest groups relative to supporters, it means, as North (1997) argued, that group competition is an important key to significant change in policy and policy institutions and a force that may knock policies off their intended paths. Competition between mobilized interest groups matters.

This is only a case study of one policy, state charter schooling, so the results cannot be generalized, not even to the entire domain of education policy. So, can these results tell us anything about what might be seen in other policies? Proponents of punctuated equilibrium theory, most notably Baumgartner and Jones (1993), argue with evidence that many policies do not change meaningfully between punctuations. However, Patashnik (2008), Galvin and Hacker (2020), Sheingate (2020), and Brown (2019) all find evidence of policies continuing to shift, change, and decay in the years after enactment, suggesting that we cannot assume that policies are stable between the big bursts of change. Perhaps the real question is why does change sometimes continue to happen while other times it does not. This paper suggests it depends at least partly on the strength of the institutions lawmakers create to set the policy into a path, creating something like path dependence, as well as the strength of organized opposition to the new policy. Certainly this should be a topic for future research.

Figure 1: Changes in the CER scores of states adopting laws from 1994 to 1996

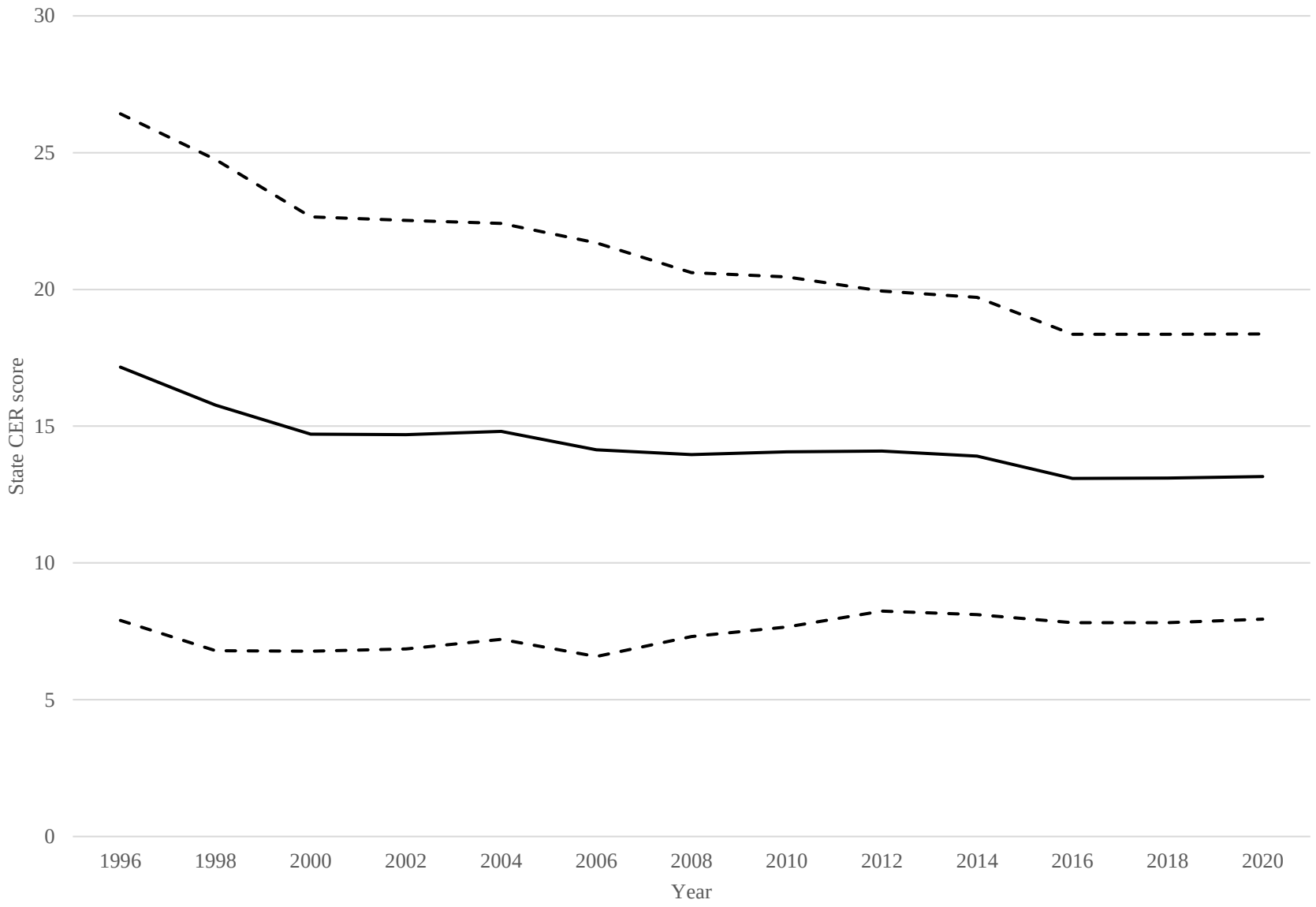

Table 1: Summary statistics of all variables

Variable	Mean	Standard error	Minimum	Maximum
State charter law index scores (dependent variable)	14.58	7.22	0	30
Initial state law index score in 1996	17.16	9.06	2.5	30
Deviation of each state's score at each point in time from 1996 score	4.34	3.50	0	14.26
State law index score in 2018	13.09	5.15	1.43	24.79
Deviation of scores from the global 2018 mean (second dependent variable)	5.96	4.32	0.09	16.91
Interest group opposition relative to supporters	0.32	1.06	–4.11	1.97
Lower legislative chamber majority party median score	0.03	0.77	–1.15	1.31
Average state law index score of all surrounding states	13.01	3.89	0	22.67
K-12 graduation rates	0.75	0.09	0.48	0.90
K-12 enrollment (multiplied by 1 million)	0.99	1.08	0.07	5.30
K-12 state spending percapita (2018 values multiplied by 100)	1.27	0.55	0.22	3.33
State has a school voucher law that year	Mode is 0			
District of Columbia	Mode is 0			

Table 2: Estimation of Change in State Charter School Laws

Explanatory variable	Coefficient (Robust standard error)
Initial state law index score in 1996 (*H1*)	0.49*** (0.11)
Absolute value of the deviation of each state's score at each point in time from the 1996 score (*H2*)	–0.70*** (0.06)
State law index score in 2018 (*H3*)	0.65*** (0.16)
Strength of opposing interest groups relative to supporters *x* the deviations of scores from 1996 (*H4*)	0.13** (0.05)
Strength of opposing interest groups relative to supporters	–2.76* (1.18)
Lower legislative chamber majority party median ideology score	–0.25 (0.25)
Average state law index score of all surrounding states	–0.05 (0.04)
K-12 annual graduation rates	1.19 (2.35)
K-12 annual enrollment per capita	–0.53** (0.19)
K-12 annual state spending (set to 2018 values)	–0.11 (0.37)
State has a school voucher law	0.38 (0.56)
District of Columbia	–4.44*** (1.52)
Constant	0.26 (2.55)
Wald χ^2	4686.60***
N	231

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.005$

Figure 2: Estimates of state charter school law index scores for set values of score deviations from initial year of 1996

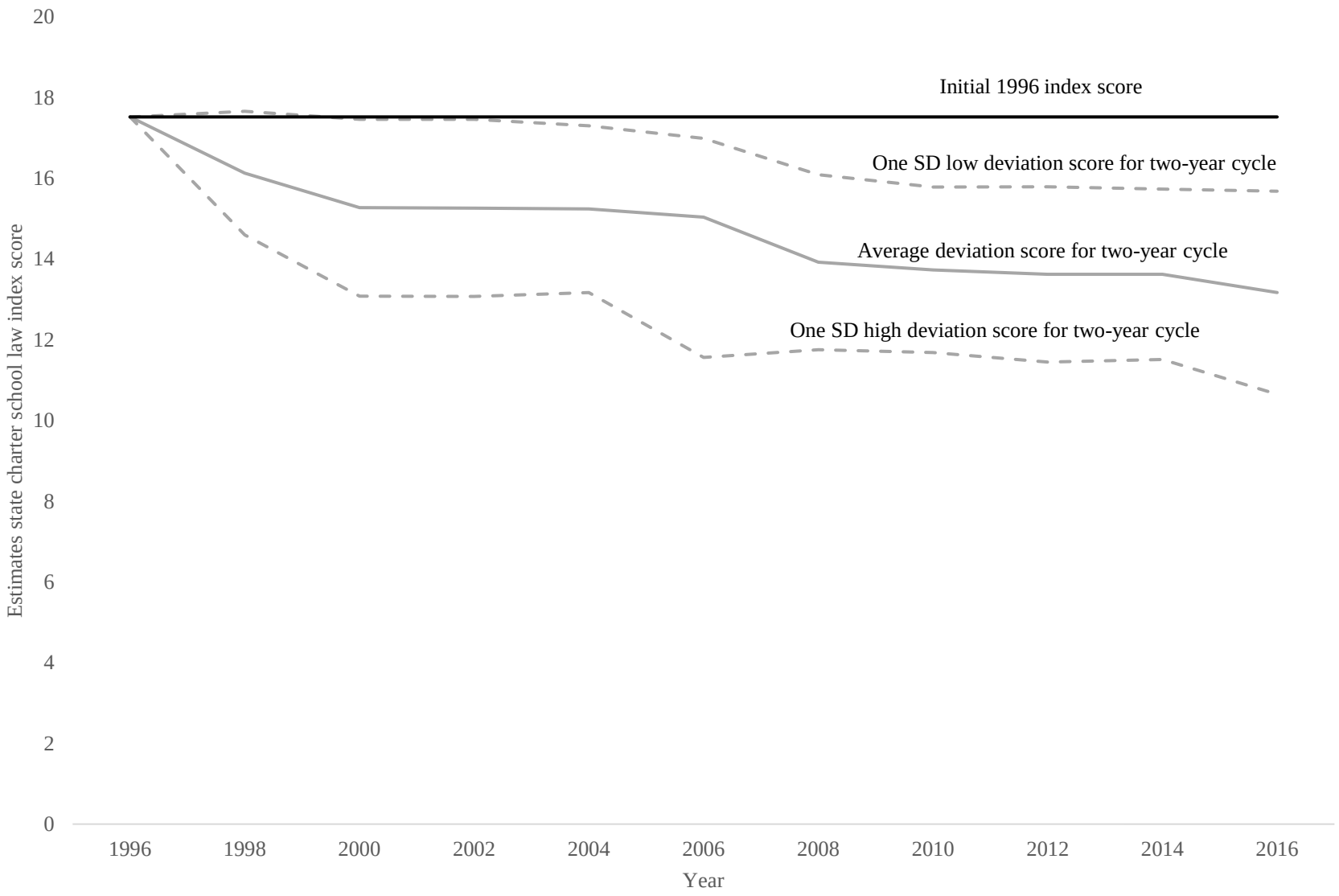

Figure 3: Estimated state charter school law scores for increasing values of relative interest group opposition strength and the initial 1996 state law index score

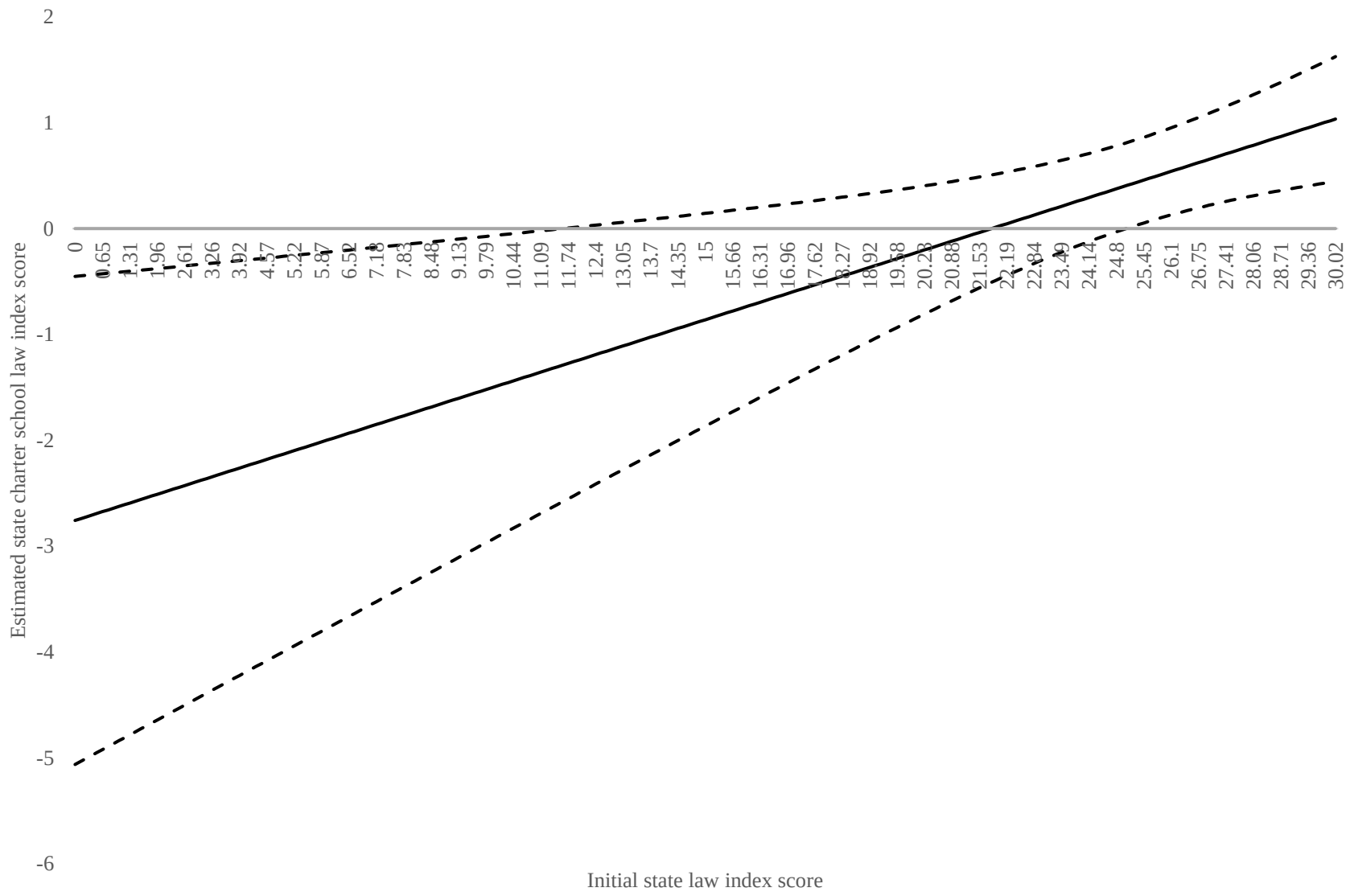

Table 3: Estimates of the deviation of state scores from the 2018 global mean

Explanatory variable	Coefficient (Robust standard error)
Initial state law index score in 1996 (*H1*)	0.16*** (0.04)
Absolute value of the deviation of each state's score at each point in time from its 1996 score (*H2*)	–0.75*** (0.05)
State law index score in 2018 (*H3*)	–0.07 (0.08)
Advantage of interest group opposition relative to supporters	–0.74* (0.33)
Lower chamber majority party median ideology score	0.16 (0.24)
Average of neighbor state' charter law index scores	0.02 (0.03)
K-12 graduation rates	–0.30 (2.39)
K-12 enrollment	–0.82*** (0.20)
K-12 annual spending	0.92 (0.62)
State has a school voucher law	–0.56 (0.51)
District of Columbia	4.57** (1.61)
Constant	6.95** (2.67)
Wald χ^2	1028.11***
N	231

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.005$

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[1] By using North's theory, I assume a more purposeful design undergirding policies and path dependence, as opposed to what some feel is path dependence due to habit (see Sarigil 2015).

[2] As Denzau and North (1994) explain it, everyone involved shares the same mental models of how the institution works and why it was needed in the first place.

[3] More information can be found at https://edreform.com/issues/choice-charter-schools/laws-legislation/. Please note that many members of the Center's team creating and verifying the scores have been academics specializing in education policy.

[4] The components of each state's policy in Holyoke et al's scores capturing its "flexibility" for charter schools is levels of funding, freedom from regulation including regulation regarding curricula, ease of getting approval for a new school, and ease of student recruitment.

[5] These reports are at http://necp.colorado.edu/publications/all. Unfortunately, there was no report for 2016, but a list of EMOs in each state was obtained from the National Alliance for Public Charter Schools in their report *National Charter School Report Overview*, 2016-2017.

[6] Data on the number of charter schools came from the National Alliance for Public Charter Schools at https://www.publiccharters.org/about-charter-schools. Data on enrollments came from the National Center for Education Statistics at the U.S. Department of Education.

[7] See http://www.followthemoney.org/.

[8] See http://unionstats.com/.

[9] The District of Columbia is one of the study states, but it is not in the Shor and McCarty data. Other typically Democratic states (and DC's city council is dominated by Democrats) in the mid-Atlantic region such as Delaware, Connecticut, and New Jersey, tend to have scores either a little below or a above -1 (the most liberal Democrats are at -1.637 in Arizona, though its legislature is controlled by Republicans), so I assign -1 to DC.

[10] National Center for Education Statistics, 2018 Digest.

[11] Also from the National Center for Education Statistics, 2018 Digest. The enrollment data is multiplied by 1,000,000 so the coefficients in the analyses are more meaningful.

[12] Education spending data comes from the annual publications of the *Fiscal Survey of the States* by the National Association of State Budget Officers. The data is set to 2018 values but then multiplied by 100 so the coefficients are more meaningful.

[13] This data comes from the Education Commission of the States at https://reports.ecs.org/comparisons/vouchers-all, though I had to search myself for the year of enactment at each state by looking up the authorizing statute.

[14] I checked for multicollinearity in these independent variables. With one exception, there is no collinearity greater than 0.5. The exception is the measure of the state charter school laws in 1996, and the measure of these laws in 2018. Unsurprisingly, there is greater correlation here (r = 0.72). However, since the theory from Jackson and Kollman strongly directs that these two measures be used to uncover the presence of path dependence, I use them. It is worth noting that their performance in terms of statistical significance remains the same when the analyses are re-run using just one of them and not the other.

[15] I used Stata software to estimate the panel-corrected standard errors model for time series using the "xtpcse" command. Since autocorrelation was found to be present within the state panels using the Wooldridge test for Stata designed by Drukker (2003), this was accounted for with the "correlation(ar1)" command.

[16] See https://www.cta.org/educator/posts/union-renaissance.