Drivers and Limiters of Policy Change:
Interest Group Competition and Path Dependence in State Charter School Policies

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Abstract

Public policies have been found to change slowly and incrementally after enactment, if, in fact, they change at all. Notions of path dependence hold that the increasing influence of early decisions and institutional designs hold over policy and those who benefit from it largely prevent policy from seriously changing. Early decision lock-in ways in which benefitting interests interact with political institutions regarding the policy, as well as frame how these benefits are publicly perceived. Policies are therefore highly resistant to efforts of interest groups, lawmakers, and even the public to change their trajectories, and this resistance only grows stronger over time. I test the influence of path dependent inertia versus ongoing efforts of interest groups and lawmakers regarding the shape of charter school policies in the American states from 1996 to 2016. I find that strict notions of path dependence do not manifest in charter school policies, and that pressure from competing interest groups starts to emerge a number of years after the big enactment, influence that can slowly start to change the arc of a policy's development despite the influence of institutions and expectations set at the time of its enactment.

Why public policies change is understandably a topic of considerable interest to scholars. Given the difficulties known to exist with bringing about significant change beyond the merely incremental, when it does occur it often means that long-entrenched political interests have been pushed aside in favor of newly organized interests. Interest groups and their lobbyists, along with elected and appointed policymakers, are therefore important players in big policy change, and, for the same reason, presumably any and all ongoing change. At the same time, scholars note a variety of pressures at least appear to prevent policy from changing much at all between very occasional bursts of dramatic change. Indeed, some argue that they either simply do not change after enactment, or at least do so within very tight limits, because they are fundamentally path dependent, meaning that political conditions at enactment (referred to as "initial conditions") pre-determine, or lock-in, later states. If true, then the efforts of interest groups and lawmakers should be largely ineffectual at bringing about further changes to policy after enactment. But is it true?

In this paper I study the ongoing post-enactment evolution of laws in the US states regarding charter schools in K-12 education. I do this with an interval measure of state charter school laws capturing the states of these policies from 1996 to 2016 so that changes in scores from one year to the next constitute policy change. Focusing on the twenty-one states enacting their laws on or near to 1996, the first year for which there is data, I track the influence of initial and early conditions likely defining path dependence on charter school policy, as well as the influence of competing influences from interest groups. I find that while the initial structures of charter school laws matter significantly when it comes to determining subsequent change, it does not fulfill the strict definitions of path dependence laid out by Page (2006), Freeman (2011), and Jackson and Kollman (2010; 2012). Nonetheless, I find that it does influence future policy structures, but its influence fades and after about ten years as influence from interest groups opposed to these

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policies starts to grow. This arguably shows that an important dynamic is going on with public policies in the years after punctuation, dynamics often missed by scholars who consider stretches of time between punctuations to be quiescent and thus uninteresting.

Perspectives on Policy Change

Incrementalism and Path Dependence

It has been an article of faith since the 1960s that, once enacted, public policies only tend to change on 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 exhausted and hardly inclined to do it again in the near future. Research in the 1980s and 90s on policy evolution largely reinforced this incremental-to-static view, but set it in a framework of "punctuations," or occasional bursts of intense political activity where longstanding policies are abruptly overthrown in favor of radically different alternatives. Kingdon (1984) described the right mix of problems, ideas, and advocacy leading to big change, and Baumgartner and Jones (1993) found that it is when public sentiments shift that emerging new advocates can exert enough pressure to initiate dramatic change. Punctuations, it turns out, also occur in cycles, big bursts of change bracketed by very long stretches of quiescence where a policy's fundamental assumptions and institutions are left largely unchallenged (Jones et al. 2009).

Understandably, most scholars studying policy evolution focus on punctuations. After all, punctuations mean well entrenched social and economic interests were uprooted and shoved aside in favor of new interests with new ideas. Unfortunately, it also means that there is little work on the long stretches of quiescence between punctuations, perhaps because scholars assume that nothing is happening. Yet while lawmakers may indeed have shifted their limited attention to

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other policies in need of review, interest groups benefitting from the new policy are solidifying their hold. Just because there is little evidence of post-punctuation change does not mean everything is quiet and organizations representing the older, displaced interests are not trying to fight back. Baumgartner et al. (2009) find evidence of organized advocacy against current policies in many domains, just with enough power and influence to change them. What is not clear, though, is why big new policies quickly become so resistant to counter-advocacy and further change.

One possibility is that new policies quickly become path dependent, a concept that Pierson (2000) argues underlies many political phenomenon and needs to be taken seriously in research that incorporates time. It may exert so strong an influence that interest groups trying to undermine a new policy simply cannot make any headway, at least not in the near-term. There is no agreed on definition of path dependence (Freeman and Jackson 2012), but, in general, choices made at a phenomenon's beginning create rules and structures grounded in a system of assumptions and beliefs that everyone must accept to be considered legitimate players in that domain of policymaking. As long as key players and constituencies benefit, and facts more or less appear to line-up with beliefs (positive feedback), these structures quickly institutionalize and become very difficult to change (North 1990). Early history matters, creating an inertia that locks policy (or any phenomenon) into a path. Different combinations or sequences of early decisions could set the same policy on different paths (say if history was re-run), but once on a path it is very hard to alter its trajectory (Page 2006). Even when disadvantaged interest groups want to.

The path dependence concept has been used to explain a variety of phenomena, from the evolution of animal species (e.g., Ereshefsky 2014), to why inferior technologies come to dominate markets (e.g., Arthur 1994), to why some businesses end up building networks with some investors rather than others (Milanov and Shepherd 2013), and to how gender equity on corporate boards

becomes mandated in different nations (Terjesen, Aguilera, and Lorenz 2015). Mahoney (2000) argues that since many political processes are sensitive to early decisions, and the order in which those decisions are made, but afterwards appear unchanging over time as if driven by a kind of inertia, path dependence may be a common feature that scholars should be able to recognize.

Policy scholars have hardly ignored it, as seen in applications of Arthur's (1989; 1994) notion of "increasing returns" (akin to positive feedback) driving the costs of any major policy change up so high as to make change impractical (e.g., Patashnick 2008; Aklin and Urpelainen 2013). Path dependence has been found in the way education systems developed in the American states (Ansell and Lindvall 2013), how institutions determine who has the right to represent constituencies (Jensenius 2015), and shape the ways information is legitimized when making decisions, thereby eliminating alternative choices as unacceptable (e.g., Bednar, Jones-Rooy, and Page 2015; Barnett et al. 2015; Bednar and Page 2018; Kotilainen, et al. 2019).

Yet sometimes changes in fairly recently enacted policies do happen, and may not be just non-political adjustments by regulators. Scholars of path dependence may dismiss this as little more than a gradual pull towards some global equilibrium, though some admit that path dependence is often not as powerful a long run influence as many believe (Jackson and Kollman 2012). Many new policies may actually be slowly undermined by opposing interests, who manipulate the feedback lawmakers receive in order to cast the policies in an increasingly negative light (Patashnick 2008). Research by Holyoke et al. (2009), Holyoke and Brown (2018), and Brown (2019) not only find consistent interest group conflict in educational policy, including the manipulation of feedback loops, but find opponents consistently making small changes favoring their interests over time. It may be that newly enacted policies exhibit some path dependent characteristics, but these are not enough to resist interest group influence over the long haul.

Path Dependence and Advocacy

A couple of ideas from research on path dependence suggest an explanation for what may be happening to many policies after enactment. First, even if differences in initial conditions, and the order in which early decisions are made, start phenomena like public policy off on different paths, a few who study policy evolution doubt that these paths are really unchanging. Instead, path dependence may be merely constraining the range of options within which change can occur. Studying the Brazilian economy, for instance, De Souza Leao (2013) found that despite the restraining influence of longstanding institutions and norms, economic policies are not so locked-in as to be unchanging. Parameters are instead found within which economic policy change occurs that is accepted as legitimate by most of the political actors involved. Similarly, Weaver (2010) found that policies aimed at solving the same issue-problem, in this case social security, in different but structurally similar political jurisdictions tend to resemble each other and collectively change within a set of parameters. In other words, policy change is taking place, and the focus of research should be on the parameters of that change.

The second idea comes from North (1997). Lawmakers and political advocates create institutions (by which he means the rules of the game) to reduce uncertainty regarding outcomes now and in the future, all based on shared sets of assumptions and beliefs. For policies, it means institutions are structured soon after enactment to distribute benefits to constituencies deemed deserving, to set rules of engagement between lawmakers and organizations representing these constituencies, and to establish feedback systems by which these organizations report problems in policy administration to lawmakers. Lawmakers and organizations representing these constituencies (interest groups) accept the policy system's beliefs, rules, and norms because they are all invested in the foundational assumptions undergirding the policy, including the underlying

issue-problem the policy is meant to solve. They share a common frame of reference regarding the policy, and this limits the degree to which change could occur or even be acknowledged as needed.[1]

Merging the two points, Fleckenstein (2013) and Hicks (2013) argue that it is the influence of institutions that set the acceptable parameters of policy change by defining what knowledge and sources of information are legitimate. In turn, this at least initially regulates the information lawmakers received through the feedback loops built into policies to monitor its functions and ensure that the right constituencies are being served (Baumgartner and Jones 1993; Patashnick 2008). The influence of initial and early decisions over a policy's future status thus rests on three conditions. First, most of the lawmakers and organizations involved accept the foundational beliefs and assumptions undergirding the policy, which marginalizes organized interests opposed to it. Second, even if inefficiencies in policy administration start to appear in the feedback, the costs of significant change are still perceived as greater than the cost of doing nothing (the influence of "sunk costs"). Finally, the policy is believed, based on the feedback received, to be solving the underlying issue-problem. What happens if one or more of these conditions are not met?

Since North (1997) also argues that organizational competition is the driver of institutional change, any influence likely to undermine these three conditions, and thus start to bring about enough instability to initiate policy change, even if it is within limiting parameters, is likely to come from interest group competition. Again, enacting big new policies tend to create losers as well as winners, but the losers are often still organized enough to continue lobbying against the policy (Holyoke et al. 2009). It takes time, but opposing interests may be strong enough and persistent enough to manipulate the feedback loops, providing lawmakers with increasingly negative information about the policy's performance. After enough time with growing negative feedback has passed, lawmakers' exasperation with the apparently under-performing policy might

make it possible for opposing interest groups to finally start having greater influence over the policy's future. On the other hand, the inertia of path dependence, or something akin to it, may still restrict the range of change these groups can achieve.

Research Design

Analyzing policy trends to assess the influences of path dependence and interest group competition requires a finely measured, interval level variable. Most policy studies focus on outputs as measures of policies, like government spending, the number of degrees awarded, or scores on standardized tests; they do not focus on the characteristics of policies themselves. In education policy, however, there is a relatively well accepted interval-level measure of charter school policies in the American states. It is derived from scores published every two years, starting in 1996, by the Center for Education Reform (CER) for every state that has adopted a law authorizing and regulating charter schools, and has been used in many analyses of education policy (e.g., Wong and Shen 2002; Stoddard and Corcoran 2007; Holyoke and Brown 2019).[2] Because there has been some criticism of these scores in their raw form (e.g., Scott and Barber 2002; Chi and Welner 2008), scholars have refined and improved their validity and reliability. The version here was developed by Holyoke et al. (2009), based on the work of Shober et al. (2008) and Wong and Shen (2006). It measures state permissiveness of charter schools by using just those indicators from each state capturing minimal oversight of school operations.[3] The final scores range from 0 (most restrictive) to 30 (most permissive) and is the dependent variable in the analyses below.

Exploring the Evolution of State Charter School Policy

There are two principal tasks to perform. First is to try to get a sense as to whether there is path dependency in state charter school policies by examining trends over time to see whether they individually or collectively change much after enactment. As Jackson and Kollman (2012) argue, running a process that is, or is very nearly, path dependent multiple times with some (perhaps very subtle) variation in initial conditions, and perhaps the sequence of early decisions, should produce an "ensemble" of trends that may start at different points but all evolve in more or less the same nearly unchanging way. This might be seen by graphing the same policies (addressing the same issue-problem) in several political jurisdictions that begin more or less at the same time to see if just initial conditions cause differences. If the policies do change, but within some kind of limiting parameter, then something less restrictive than true path dependence might be influencing their future states. It might be an influence that gradually becomes weaker over time, less resistant to destabilization from interest group competition.

---- Figure 1 ----

I therefore identify the bi-annual CER scores of the twenty-one states enacting charter school policies between 1994 and 1996 so that the earliest score in the data set for each state is its enactment year, or first year after, so that the entire history of each state's policy is examined. Time series trends, especially those that turn out to be nonlinear, are hard to analyze and understand using typical regression tables (see Kiel and Elliott 1997), so for much of this analysis I rely on graphical plots, such as Figure 1 where I plot the average CER score for these states from 1996 to 2016 along with the standard deviation. As early as 2000 the average appears to more or less settle down to minor variation around scores of 15 or 14. What is more interesting is that the standard deviation of these states' policies is not stable, but slowly becomes tighter (converging closer to

the mean) over time, though the rate of convergence also diminishes over time. This suggests that state charter school policies do not reflect true path dependence so much as what Jackson and Kollman call a "sticky process" where later states of the policies may also exhibit influence over the final state (the 2016 version), just not necessarily as much as each policy's initial condition. What is not shown in Figure 1, though, is that nearly every state's policy changes within the parameters of the mean and standard deviation.[4]

Independent Variables

In addition to initial and early states of the dependent variable, it is necessary to test a set of other variables exogenous to any recursive feedback system that may also influence charter school policy at various points in time. In regards to interest group competition, the major proponents of charter schooling have been advocates of market-driven education, such as the educational management organizations (EMOs) operating charter (and other private) schools. I therefore identified the number of EMOs operating in each state from annual reports compiled by Alex Molnar.[5] I also use the number of operating charter schools in each state, 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 of these 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 have often been teachers unions, such as state chapters of the National Education Association. 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 unions often support each other, I measure overall state union strength with 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. The pro-charter measure is subtracted from the pro-teacher union variable so that higher values of the resulting measure capture the competitive advantage of steachers unions, the policy's opponents.

I also use several control variables. Democrats in state legislatures have been generally less supportive of charter schooling than Republicans (though there have been exceptions), so I calculate the percentage by when Democrats exceed Republicans in each state legislature with data from annual editions of the *Book of the States*. Also, whether a legislative election is occurring in the observed year may also matter, so I identify and code 1 the states having legislative elections that year. Whether neighbor states appear to have better versions of policies addressing the same issue-problem may also influence observed policy development (Grossback, Nicholson-Crotty, and Peterson 2004; Nicholson-Crotty and Carley 2016), so I develop a diffusion variable by measuring the average of the CER scores of the states that geographically border the observed state for that year. Higher neighbor state scores perhaps have positive effects on observed states. Finally, overall state student K-12 enrollment and graduation rates are arguably the feedback that lawmakers use to evaluate policy success (or lack thereof) (Holyoke and Brown 2018), so I obtain this data and use it as a control variable.[9] All variables are summarized in Table 1.

---- Table 1 ----

Multivariate Analysis

To see whether a system of similar policies exhibit path dependence due to initial conditions and early decisions requires an analysis that estimates the effects of earlier versions of

policies on later versions to see if the magnitude of the year-to-year effect diminishes over time. Exogenous variables representing countering influences will have to be carefully interpreted within the scope of such a recursive analysis, but presumably they should not have much influence at any time if there is true path dependence in charter school policies.

Looking for Path Dependence

As yet there is no statistical model for uncovering path dependence in political and social phenomenon, or an exact sense as to what result would clearly reveal it (Freeman and Jackson 2012). Existing models must therefore be carefully employed, using a variety of variable combinations to try to identify patterns that might be evidence of it. Arguably the simplest approach is to estimate a model where the key variable is each state's 1996 CER score, meaning its initial condition score, which should be the sole determinant of later states of charter school policies. The statistical method employed to estimate these effects is the panel-corrected standard errors model of Beck and Katz (1995) where first-order auto-regressive standard errors are used within each state panel to help correct for other time distortions. In the first results column of Table 2 are the estimates of a simple model using all of the 21 states 1996 CER scores along with the exogenous variables. As expected, the initial conditions variable is positive and statistically significant and, more importantly, it is the only variable that shows an influence over charter school policies at any point in time. Initial conditions matter.

---- Table 2 ----

Since the concept of path dependence emphasizes the influence of initial, or at least early, conditions, presumably conditions of the policy at other points in time should not exhibit an effect. I therefore re-estimate the model with the same exogenous independent variables, but replace the

initial conditions variable with a one cycle (two-year) lag of each state's CER score; the results are in the second column of Table 2. Not only does the one cycle lag turn out to be significant, showing that immediately prior states of a policy matter at least as much as initial conditions, but so too now does interest group competition and the degree to which Democrats dominate state legislatures. This is not what we would expect to see if state charter school policies are truly path dependent. To try to get a better sense of this, the model is re-estimated several times with the initial conditions CER score *and* each year's score (one at a time, though the 1996 score is always included) to see which has the greater influence. Figure 2 shows that the coefficients for each bi-annual CER score on the status of the policy overall grows over time, though it is not a strictly monotonic influence. While the influence of initial conditions also grows (more or less) as other points in time are tested, its effect is not as great. The past matters, but each observed condition of the policy exerts an increasing influence over future states, and even pulls prior states of the policy towards it. Rather than path dependence, state charter school policies instead appears to reflect what Page calls "phat dependence," what Freeman (2011) calls "equilibrium independence," and what Jackson and Kollman call a "sticky process."

---- Figure 2 ----

Jackson and Kollman also argue (2012, 171) that an exploration of path dependence might benefit from examining the extent to which policies at certain points in time deviate from their final states and whether deviations grow or converge from long run means. Figure 1 shows the 21 state policies slowly converging over time, suggesting that each is either being drawn to its long run mean or the overall 2016 mean is acting as a kind of attractor. In the final two columns in Table 2, I present the results of the estimations of the draw of both individual policy means and the overall 2016 mean, both including the initial 1996 CER score as a control. In column three,

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the initial conditions variable is positive and significant, but so too is the draw of each policy's 2016 score, and in fact the coefficients are nearly equal (0.69 and 0.61 respectively). What is also interesting is that none of the other exogenous variables are significant except for the policy diffusion variable, though this is the only model where that is true. What these results suggest is that there is still inertia from the initial enactment that constrains a policy to a particular path, but each is also being pulled into a kind of steady state later in time, which actually may be another sign of path dependence. It is just not clear whether it is the initial score or the final score that is setting the policy into a particular path. The influence of other states with similar policies and similar problems also appears to be an influence, which may well be contributing to a pressure driving states to its 2016 status.

That the overall 2016 mean is pulling states toward it is seen in the fourth column of Table 2, where this variable is positive and significant. Unsurprisingly, the policy diffusion variable is now insignificant, presumably because its influence in column three is washed out by the mean score variable for all states. The initial conditions variable, however, is still significant, its coefficient exhibiting a greater magnitude (0.70) than the overall mean (0.56). What is also interesting is that the interest group competition variable, which was not significant in column three, is once again when the overall 2016 policy mean variable is used. It is a stretch, but to some extent anti-charter school interest groups may also be pushing states towards an overall mean, which is not a terribly high charter school score (13 out of 30). Nonetheless, there does appear to be some evidence of path dependence, or at least influences that are path dependent-like. Initial conditions matter, and policies are getting pulled towards a long run equilibrium. It is not clear, though, whether the two are part of the same, overall influence.

Interest Group Competition

  The analysis above already shows some indication of interest group influence, as well as some from Democratic legislative dominance and policy diffusion. What is actually somewhat surprising is the lack of influence of graduation rates, which most closely captures the concept of policy feedback. In the analysis for Figure 2, where each cycle's CER score is included along with the 1996 score, another finding emerged. When later states of the policy were included in the model, beginning in 2008, the anti-charter school (teachers unions) group competitive advantage variable became statistically significant and remained so for all subsequent years. I plot this in Figure 3 using the variable's point estimates and standard errors when each bi-annual CER score across all eleven years is used in the model. Interestingly, from 2008 to 2012, the variable became increasingly significant, though this starts to decrease (but remain statistically significant) in 2014 and 2016. It turns out that this also reflects the influence of the variable as shown by its coefficient, which I plot for every year in Figure 4 along with the initial conditions variable (meaning a model is estimated ten times, once to include every bi-annual CER score except one for 1996 since that score is included in every model). As later points in time are entered in the model, the influence of the interest group competition variable grows, but diminishes a little in 2014 and 2016.

---- Figures 3 and 4 ----

  It appears that interest group influences appears to matter, though only later in time and the further away the temporal observation is from enactment. This, however, is not true of any of the other exogenous independent variables. At least as far as state charter school policy is concerned, and again only in 21 of the 46 states (including the District of Columbia) that have charter school policies, the initial choices made early in each policy's history matter, as does the draw of its long term equilibrium state of policies individually and collectively. All of this suggests an influence

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that, rather than force policies almost immediately into a steady state (which would be true path dependence), policies are being compressed into individual paths, but also a more global path around an overall mean, the first glimpses of which could be seen in Figure 1. The only other variable exogenous to the recursive system that appears to show any sustained influence over the policy is interest group competition, and that influence is muted in the early years of the policy histories. In other words, the inertia from enactment appears to fade by around 2006 and 2008 and pressure from competing interest groups starts to have an effect. Whether initial conditions of the policy suppressed interest group influence, or whether opposing interest groups took time to amass enough resources to launch counter-attacks, cannot be deduced from these results, but it does suggest that group competition remains a powerful, long term force in policy evolution. The research also suggests that true path dependence is probably not here, at least not in charter school policy, but other, similar influences are.

Conclusion

What happens to public policies between punctuations is still unknown to a significant degree. A little research, though, has focused on these apparent periods of quiescence, including this paper, and the results suggest that it might be wrong to conclude that nothing is happening. At least this paper finds some evidence of the inertia from the decisions at the time of the policy's enactment regarding the design of institutions, expectations, and feedback influence the way the policy unfolds over time, at least to some degree locking it into a particular path. At least this appears to be true with state charter school policies. Yet there are other influences at work as well, mudding the results of the analysis, for it appears that the final observed status of each policy is also exerting a pull. Moreover, it also appears that the overall mean of the 21 policies is causing

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them to collectively converge to points closer together by 2016. A significant amount of additional work needs to be done, both on charter school policies to learn what forces are pushing and pulling these policies over time, as well as more generally on methods to analyze path dependence so it can be detected without the high level of ambiguity found in this paper. It is doubtful that there is true path dependence in state charter school policies, but initial conditions do exert an influence. It is just that the influence is not long lasting, and that there may be a pull from the other end of the time period examined.

What was also found, and not consistent with notions of path dependence, is evidence of the growing influence of interest group competition over state charter school policies. North (1997) may be right that efforts by organizations not accepting the prevailing policy, and its fundamental beliefs and assumptions, may ultimately start to wear and tear at the policy. While it is, again, difficult to tease out the influences of any exogenous variable on the charter school policies, there is some evidence that later in the twenty-year period interest groups opposed to charter schooling (teachers unions) also became influential over policy trajectories. Just how they did this, and really how influential they were, is not clear. What is interesting, however, is that their influence appears to emerge later in time. In other words, after the dramatic enactment of charter school policies, a true policy punctuation, defeated interest groups needed time to gather their strength and look for ways to start undermining all of the assumptions on which charter schooling was founded. In many states, they were ultimately successful, though it is not possible to tell from this analysis just how much they contributed to the pattern uncovered in Figure 1, where policies appear to be converging around an overall mean. What does appear to be true is that, rather than push lawmakers towards another punctuation, they may be slowly undoing the last one.

Figure 1: Changes in the CER scores of states adopting laws before 1998
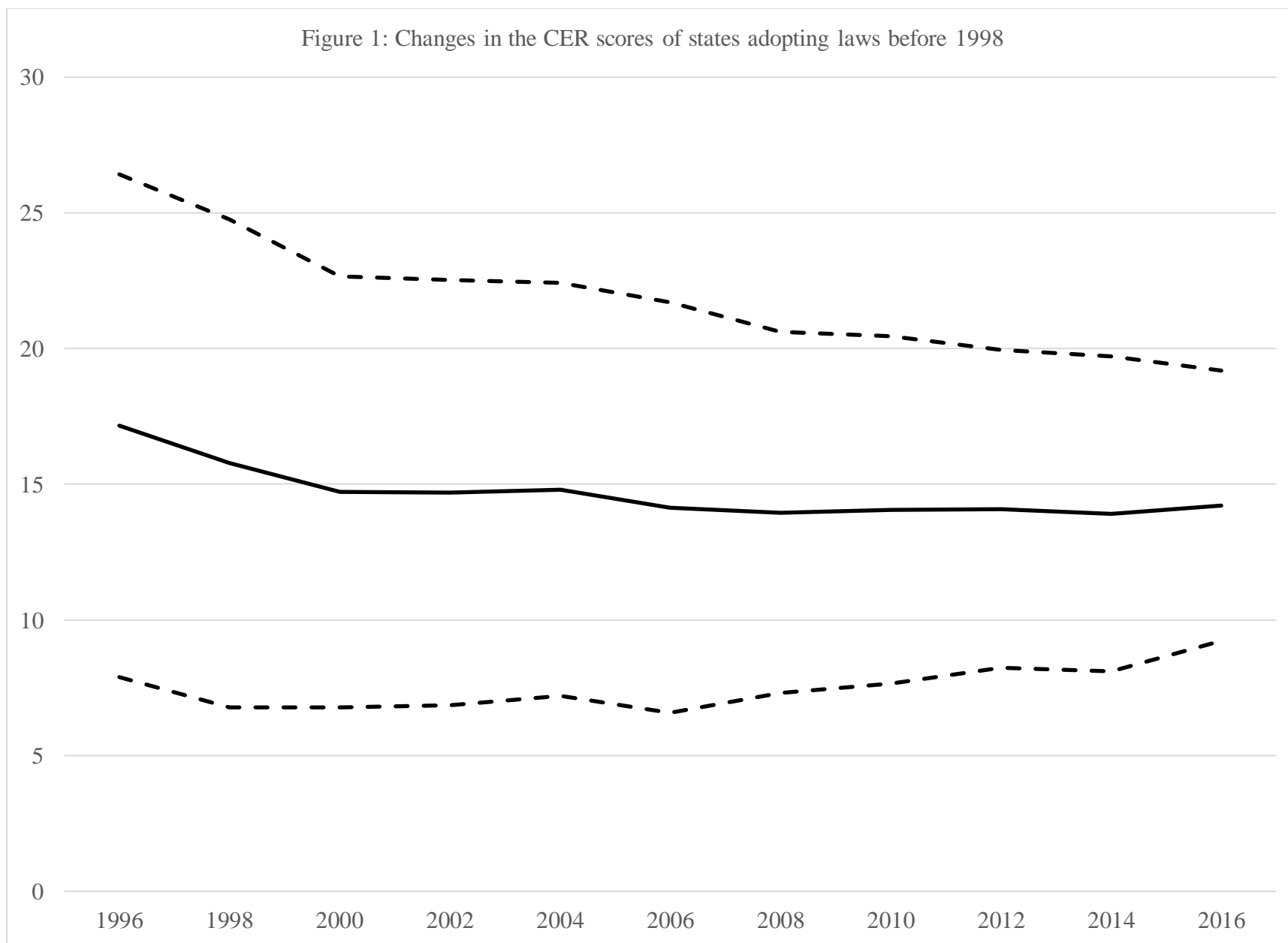
Table 1: Summary statistics of all variables

Variable	Mean	Standard error	Minimum	Maximum
State CER score	14.58	7.22	0	30
Lagged CER score	14.73	7.38	0	30
Deviation from state's 2016 CER score	3.32	3.14	0	15.16
Deviation from overall 2016 mean	5.96	4.32	.09	16.91
Teacher's union group advantage	0.32	1.06	−4.11	1.97
Democratic domination of legislature	0.05	0.40	−0.73	1
Average of surrounding states' CER scores	14.04	6.50	0	25.3
State graduation rates	0.75	0.09	0.48	0.9
K-12 student enrollment	988,103	1,082,181	69,433	5,301,477

Table 2: Estimation of State Charter School Policies Model

Explanatory variable	Initial conditions	One cycle lag	State 2016 mean	Overall 2016 mean
Initial CER score / lagged score (in one cycle lag column)	0.75*** (0.08)	0.85*** (0.03)	0.69*** (0.07)	0.70*** (0.06)
Deviation of state score from mean (individual state or overall mean)	–	–	0.61*** (0.07)	0.56*** (0.06)
Advantage of anti-charter school interest groups	0.33 (0.33)	−0.44*** (0.12)	−0.08 (0.25)	0.46* (0.18)
Democratic dominance of the state legislature	−0.22 (1.01)	1.11*** (0.28)	0.47 (0.98)	0.38 (0.89)
K-12 graduation rates	−7.37 (4.01)	−0.53 (1.71)	−1.31 (2.67)	−1.17 (2.34)
Average of neighbor state scores	−0.06 (0.07)	0.02 (0.02)	−0.13* (0.05)	−0.03 (0.06)
K-12 enrollment	−0.01 (0.01)	−0.01 (0.01)	−0.01 (0.01)	0.01*** (0.01)
Constant	7.58* (3.45)	1.93 (1.31)	3.14 (2.71)	−0.97 (2.33)
R^2	0.86	0.92	0.82	0.91
Wald χ^2	450.58***	5139.19***	354.45***	735.61***
N	231	210	231	231

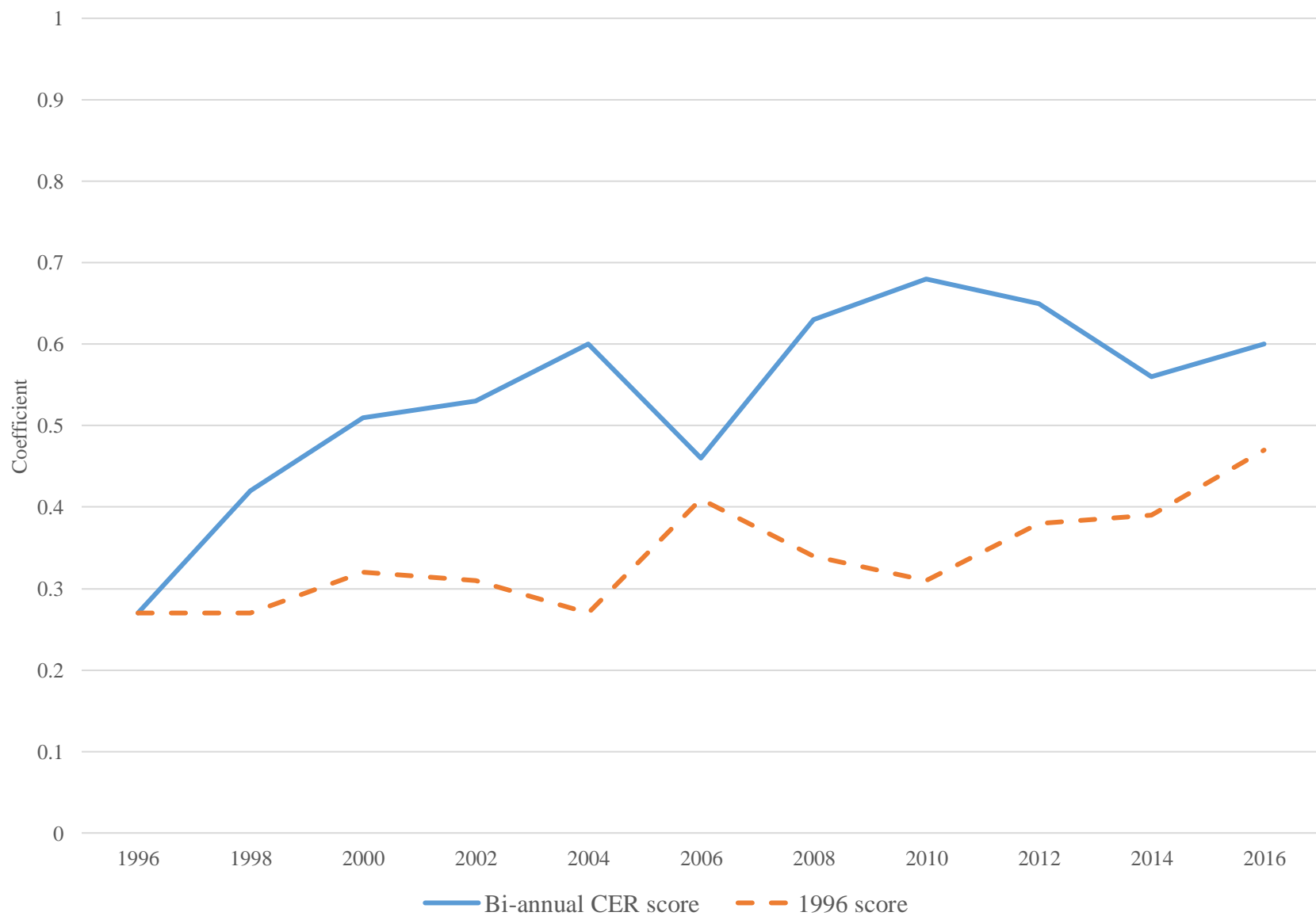Figure 2: Influence of bi-annual CER score and 1996 (initial) CER score, 1996-2016

Figure 3: Point estimate and standard errors of anti-charter school interest group advantage for each two-year state of charter school policies
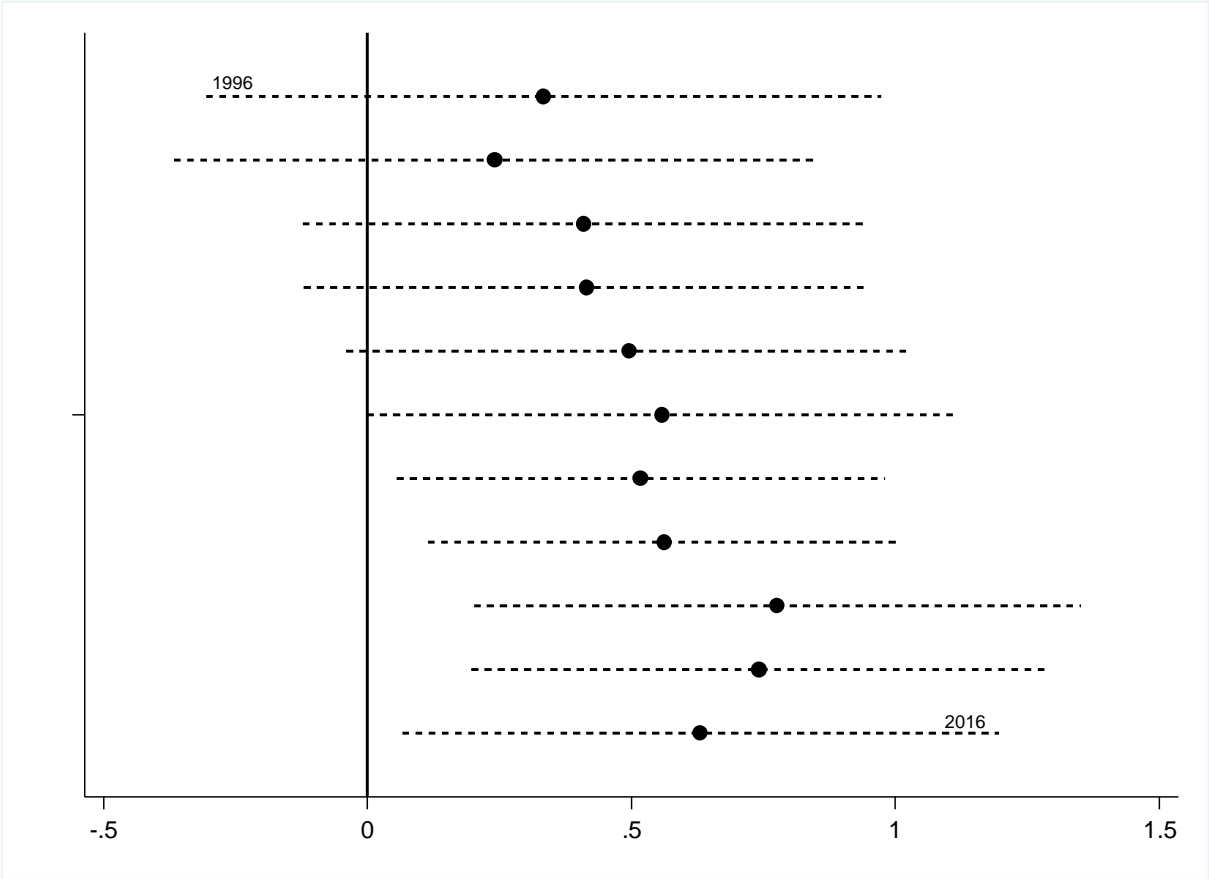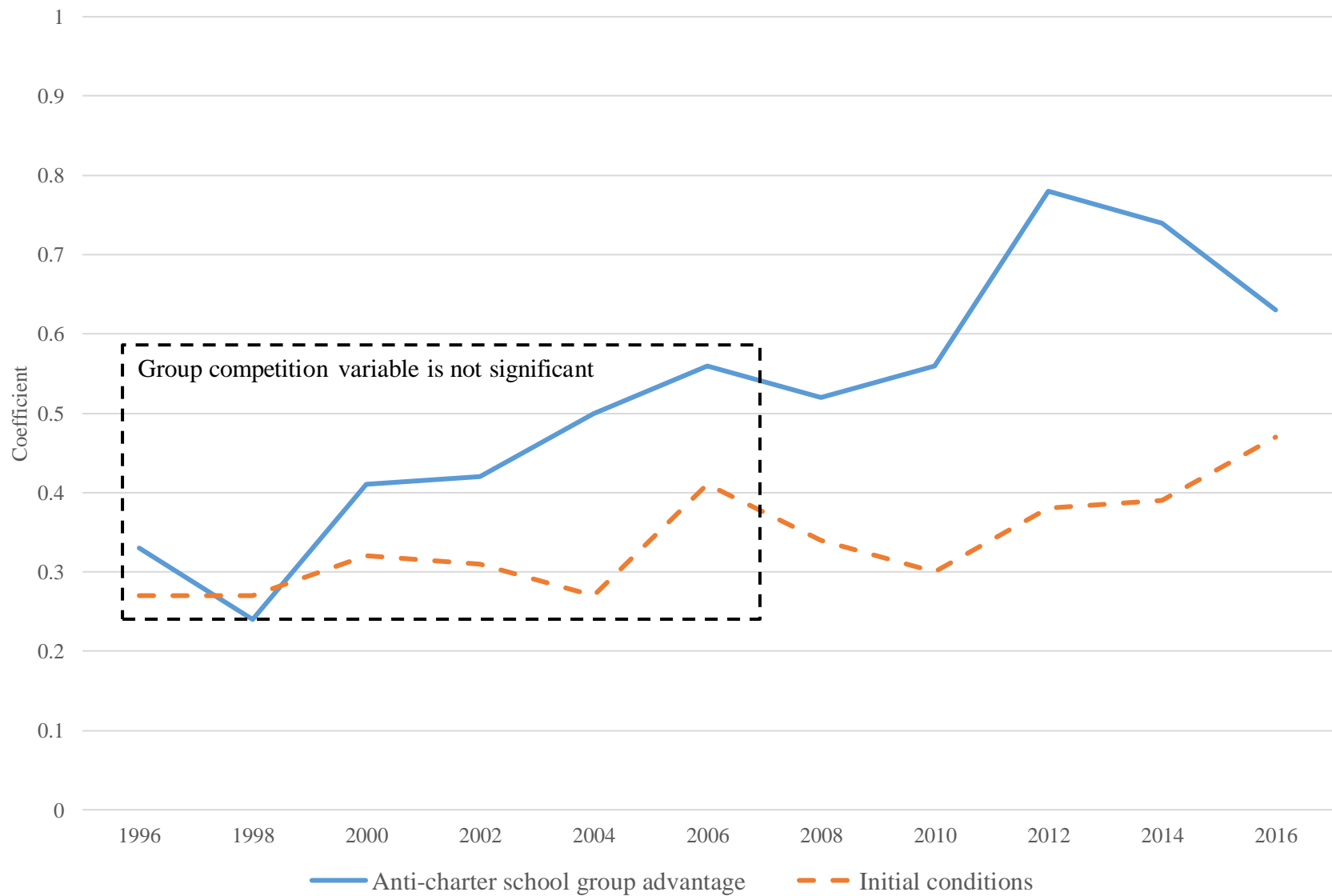
Figure 4: Influence of initial CER score and anti-charter school group advantage for each bi-annual CER score

Group competition variable is not significant

Coefficient

Anti-charter school group advantage   Initial conditions

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[1] 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.

[2] More information can be found at https://edreform.com/issues/choice-charter-schools/laws-legislation/.

[3] I am grateful to the authors for sharing their data.

[4] See Figure 1 in Holyoke and Brown (2018).

[5] These reports can be found 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] The data can be obtained at http://www.followthemoney.org/.

[8] This data can be obtained at http://unionstats.com/.

[9] In Holyoke and Brown (2018), they did not find graduation rates had an independent effect, but did have an important conditional effect when interacted with interest group influence.