The Impact of Charter School Laws Strength on School Closures

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With 6,500 schools to date, charter schools are a growing force in the education system. They are incredibly controversial, however, with studies measuring their impact on student academic outcomes inconclusive. Charter schools closing rates are an important factor in determining success that has not been studied in detail yet.

1 Introduction:

Charter schools are independent public schools that are government-funded and privately run. The first charter school was founded in 1991 in Minnesota, and these schools now exist in 43 states as well as the District of Columbia. From 2003 to 2013 the percentage of public schools that are charters grew from 3.1 to 6.6.[1] This massive growth in the number of charter schools across the country has been accompanied by a heated debate. Opponents argue that charter schools take resources away from non-charter public schools without improving students' scores. Proponents advocate for flexibility of the charter school's operation, which they argue results in test score improvement. Until recently, existing economics literature has been inconclusive about the aggregate effect charter schools have on student achievement. Recent evidence, however, has been successful comparing charter school effectiveness within a city. It has shown that charter school success is associated with the No Excuses model that includes high expectations, longer school days, and frequent teacher feedback.[2][3] While these studies have helped explain the different quality of schools within a state, questions remains as to why charter school effectiveness varies so much across states.

Variation in laws governing charter schools can help explain different school quality across states. Studies have looked at how charter school laws impact student outcomes. Research has not been done, however, into how charter school laws impact charter school closure rates, an important and novel outcome measure. One of the merits of charter schools is that they are held to greater accountability than traditional public schools. Revoking a charter can easily and swiftly close a poor performing school. Proponents of charter schools argue that closures are due to increased competition and accountability. While this may be true in some cases, they are overlooking other reasons that charter schools are closed, such as mismanagement and financial problems. A strict

Fast Facts: Charter School,"NCES, www.nces. ed.gov/fastfacts/display.asp?id=30,
[2] Will Dobby and Roland G. Fryer Jr. "Getting beneath the veil of effective schools: Evidence from New York City," American AEJ in   5.4 (2013): 28-60.
[3] Joshua D. Angrist, Parag A. Pathak, and Christopher R. Walters. "Explaining charter school effectiveness." American AEJ in   5.4 (2013): 1-27.

policy could perhaps weed out those unfit applications and a state would thereafter experience less charter school closings.

I researched

A prominent law limits the number of charter schools per state and per district through a charter school cap. For example, Illinois has a strict and well-defined charter school cap, only allowing for 120 charter schools in the state, with a maximum of 70 in the city of Chicago. On the other end of the spectrum, Indiana has no cap, only a law vaguely limiting virtual school growth.

Another important law governs how charter schools hire teachers. A state can requires its charter school teachers to remain under their collective bargaining agreement or a state can allow charter school teachers to negotiate as a separate unit or independently. Teachers under the district collective bargaining agreement have to be in the teacher union. Allowing charter schools to negotiate with its teachers separately gives charter schools the freedom to require different qualifications for teachers and give teachers different hours and salary.

The fourth main law component separates charter schools from other public schools by autonomy. Charter schools can receive a blanket waiver from rules and regulations. Some states give this wavier automatically, some allow charter schools to request it, and some mandate charter schools follow most of the same rules and regulations as traditional public school.

Lastly, funding laws vary by state. The most relaxed laws gives the charter school operator full freedom of public funds while still allocating the same amount to charters as they would to traditional public schools. Other states, such as Maryland, give the district the discretion to allocate and monitor funds to charter schools. Ohio increased the strictness of their funding law recently, increasing the categories for reporting expenses from 4 to 100.[4]

financial, making up 40 percent of closures, and mismanagement, 24 percent. Schools close for financial reasons because of insufficient funds or lack of enrollment. The lack of budget management or lack of planning can create these financial problems. Schools close from mismanagement due to wrongful actions of the charter school's administrators. A troubling example is the Ohio management company White Hat. They opened 32 schools in Ohio, using falsified documents. They then proceeded to steal funds from the schools that they had started.[5] Academic school closures consist of schools that fail to meet state

students and students who have always been educated in the charter system. This creates problems when generalizing studies to the whole charter student body.[9]

There has been disparity of results within research methods as well, in part because of the desire to compare studies across different locations. Results are either unable to be replicated in another area or when researching more than one area, studies rarely control for the policy implications that impact a charter school's success.

Similarly, Watral studied potential causal relationships between charter laws and student achievement. She used Center for Education Reform's rankings for her measure of law strength and the outcome variable is the Northwest Evaluation Association (NWEA) database, which has achievement tests comparable from state to state. To avoid multicollinearity, however, she only includes one of her three variables: multiple authorizers, autonomy, and third party approval. This suggests that states that have multiple authorizers tend to also have similar

There is a dangerous lack of understanding as to the factors influencing school closures. The most common reasons charter schools close are financial and mismanagement, not academic, as many often assume.[16] School closures are an important measure

CMD's state-by-state list of charter school closures.[20] The number of charter school closings in every state, from years 2001 until 2013, was obtained by sorting this list by state and year. Using NACPS data for total number of charter schools by state and year, the charter school closure rate was obtained.[21] There are on average 170 total school closures per year. States' average school closure rate is shown in graph 4. There is no trend in the states' average rate of school closures.

races of charter students. These controls were included because some states require or gives preference to charter schools that serve student of low socioeconomic status or minorities.

5 Empirical Models:

I used a fixed effects model in order to limit unobservable characteristics of the different states and different years. Robust standard errors were also included because of potential multicollinearity.

Regression Equation 1:

$$Y_{st} = \beta_0 + \beta_1 W_{st} + \beta_2 A_{st} + \beta_3 TH_{st} + \beta_4 SC_{st} + \beta_5 F_{st} + \Pi X_{st} + \alpha_s + \delta_t + \varepsilon_{st}$$

I regress the two outcomes measures, percentage of schools that close and average years open. Controlling for all law components and control variables. The coefficients of interest are $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$. β_1 is the impact of the law W, giving charter schools a wavier from regulations, on school closures and average years a charter school is open. β_2 measures the impact of a more relaxed authorizer law (A) on school closures and average years open. β_3 is the impact of a more relaxed law regarding teacher hiring (TH) on school closures and average years open. β_4 quantifies the effect of having a looser charter school cap (SC) on the outcomes measures. And β_5 tests the impact of the state's charter funding laws (F) on both school closures and average years open. I control for X_{st}, the charter school characteristics, which are the percent of charter students that are black and the percent of charter students eligible for a free lunch. I use these controls because of legislation in some states that require or give priority to charter schools

components. Some have relatively high correlations, so in order to test my model's robustness, I also measures the impact of an individual law component, without controlling for the others.

Regression Equation 2: $Y_{st} = !_0 + !_1 L_{st} + X_{st}" + \#_s + \$_t + \%_{st}$

The coefficient of interest is $!_1$, which measures the impact of each separate law component on the outcomes measures.

In addition to initial effects, I added two lag models, one year and five year. This captures the results if the law takes longer to have an effect on the school closures and years open.

Regression Equation 3:

$Y_{st} = !_0 + !_1 BW_{s(t-1)} + !_2 A_{s(t-1)} + !_3 TH_{s(t-1)} + !_4 SC_{s(t-1)} + !_5 F_{s(t-1)} + "X_{st} + \#_s + \$_t + \%_{st}$

Regression Equation 4:

$Y_{st} = !_0 + !_1 BW_{s(t-5)} + !_2 A_{s(t-5)} + !_3 TH_{s(t-5)} + !_4 SC_{s(t-5)} + !_5 F_{s(t-5)} + "X_{st} + \#_s + \$_t + \%_{st}$

Regression Equation 5: $Y_{st} = "L_{s(t-1)} + X_{st}! + \#_s + \$_t + \%_{st}$

Regression Equation 6: $Y_{st} = "L_{s(t-5)} + X_{st}! + \#_s + \$_t + \%_{st}$

To further expand on my results I test a more specific measure of school closures: reasons for school closures. The six reasons are financial, mismanagement, district, facility, academic, and other or unknown. The outcome measure is the raw number of schools closed due to each reason.

Regression Equation 7:

$R_{st} = !_0 + !_1 BW_{st} + !_2 A_{st} + !_3 TH_{st} + !_4 SC_{st} + !_5 F_{st} + "X_{st} + \#_s + \$_t + \%_{st}$

Regression Equation 8:

$R_{st} = !_0 + !_1 BW_{s(t-1)} + !_2 A_{s(t-1)} + !_3 TH_{s(t-1)} + !_4 SC_{s(t-1)} + !_5 F_{s(t-1)} + "X_{st} + \#_s + \$_t + \%_{st}$

With these new outcome variables, I also include a one year lagged model. I did not include five year lag because there were only a few years of observation. I also regressed without controlling for the other law components, but the values were unchanged.

Another potential problem for my model is endogeneity or reverse causality concerns. This would be a concern if the state government's laws because depend on concerns for charter school outcomes, such as closings. The logic follows that if charter schools are doing badly, states would make laws stricter, leading to more closures. As I will discuss later, my results found the opposite, as laws get stricter there are less school closures. Additionally other literature provides evidence against these concerns. Research argues that a state's charter laws reflect the state's government ideology rather then school's performance.[25] I tested this conclusion using data on the majority political party of the state's legislative houses.[26] Table 6 shows this results, overall the state's political party does not have a statistically significant impact on charter laws. Although, if state's party is more republican, the state charter laws are more likely to be flexible. My results are consistent with the previous literate, that republican legislatures having more relaxed charter laws because of their ideology. And although it is not statistically significant, the p value is fairly low, at 0.18.

6 Results:

closure rate and the average years open. Table 8 also includes results for the one and five year lags of law components.[27]

States that keep a charter school's teachers under the district's collective bargaining agreement have 3 percent less closures than states that allow charter teachers to negotiate as a separate entity or independently. If charter laws on teacher hiring are stricter the average years a school is open increases by .184 year. For example, comparing a teacher hiring law score of 5, allowing charter schools to hire teachers outside of the district CBA, to a law score of 0, mandating all charter schools hire teacher that negotiated in the district's CBA, the average years a charter school is open increases by almost one year. This effect of this stricter law continues in the following year, with an increase of about one year.

Similarly, a stricter law on charter funding, keeping charter schools more accountable, decreases school closings by 0.8 percent. For example, states like Maryland, where funds pass through state and district (3 score), have on average 2% less charter schools closings versus states with laws like Indiana where funds pass through district but are allocated equally (3.3).

Regression equation 3, five-year law lag, have similar results. There are less school closures five years after a stricter law. States that do not exempt charter schools from regulations (0) have charter schools that are open on average almost one year longer than states that automatically give an exemption wavier from all regulations (5).[28]

Next, I tested the same model using only individual law components. This was done to test the robustness of the results, given the possible mutlicollinearity. I found mostly the same results whether or not I controlled for the all law components. Stricter laws decrease school closures, shown in tables 9 to 14. With or without controls for other law components, results show stricter funding laws decrease school closure rate by 0.8 percent. States that require charter teachers to be in the district CBA, have lower

Holyoke, Thomas et al. "Policy dynamics and the evolution of state charter school laws," *Policy Sci*, 42 (2009): 33.

Hoxby, Caroline and Murkara, Sonali. "Charter Schools in New York City: Who enrolls and how they affect their students' achievement." *Cambridge: MA: National Bureau of Economic Research.* (2007).

To

9 Appendix:

Table 1: IN and MD Charter Policies

Policy	Maryland	Indiana
Types of chartering authorities	Local School Boards	State and Local School Boards, public universities, nonprofit colleges, mayor of Indianapolis, and Indiana Charter School Board
Number of Schools Allowed	No state cap, districts have caps	No cap
Teacher Freedom	Teachers remain under the district's CBA	Teachers may negotiate as a separate unit or independently
Autonomy	Must request wavier from state and district rules and regulations	Blanket wavier from State and Disct from most rules and regulations
Funding	Funds pass through district, but State law states funds must be equal	

Table 3: Summary Statistics, outcomes variables

Variable	Mean	Std. Dev.	Min	Max
Average Years Charter School Open	6.303256	2.171154	1.2	13.111
Percent of Charter Schools that Closed	0.0395023 (4%)	0.0638449		

Graph 2: Component Strictness Over Time
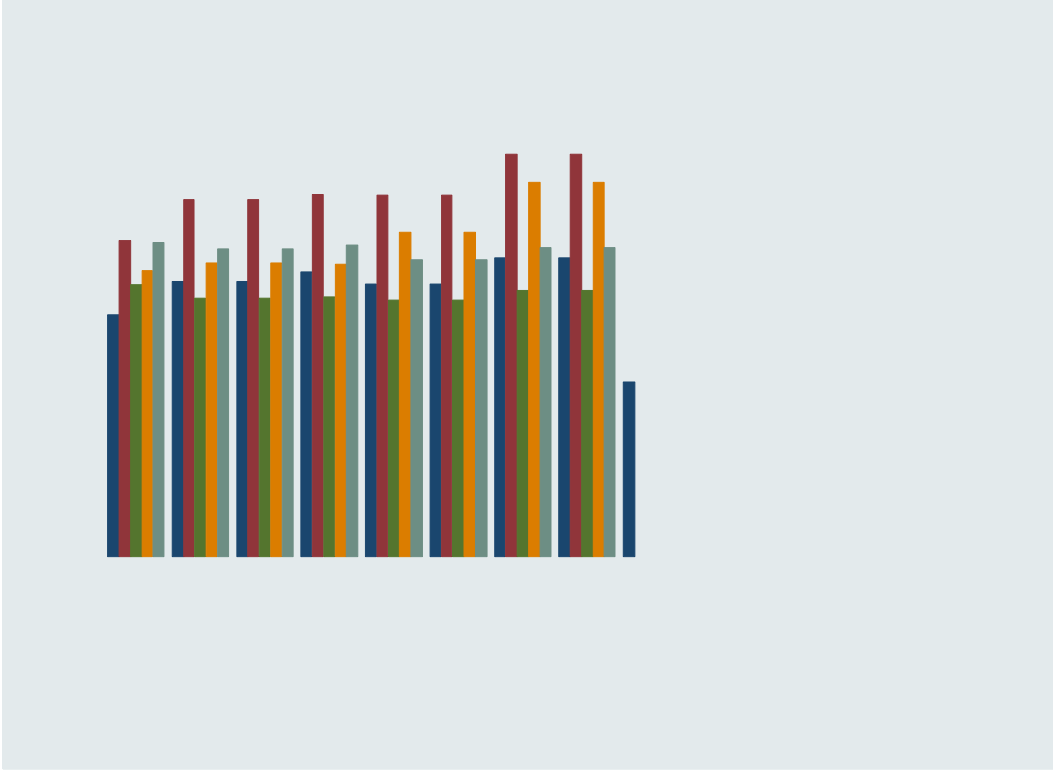
Graph 3: Percentage of Charter Closures

Graph 4: States' Rate of School Closing Over Time
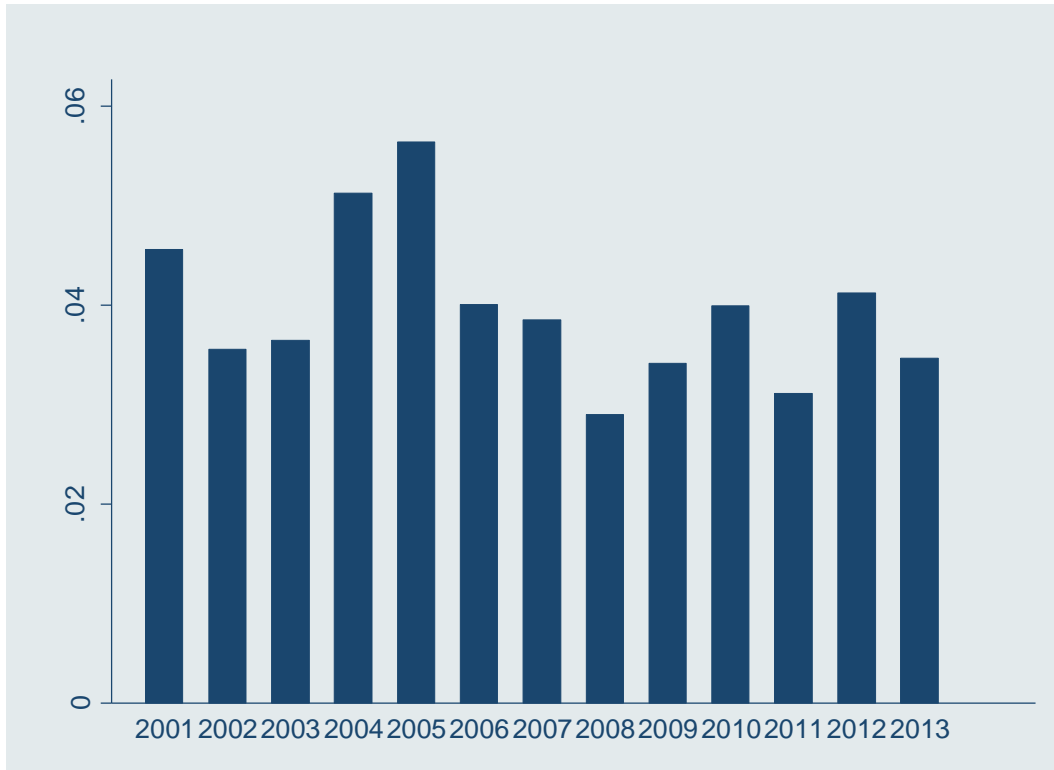
Graph 5: Average Number of Closings for Each Reason

Table 4:Law Description for 5 point (Most Relaxed)

Policy	Max Score Law Description	Max Score
Authorizers	Multiple, independent authorizers including entities that	

Table 5: Correlation Matrix Law Components

	Authorizers	School Cap	Wavier	Teacher Hiring	Funding
Authorizers	1.0000				
School Cap	0.2522	1.0000			
Wavier	0.5793	0.2966	1.0000		
Teacher Hiring	0.4674	0.3363	0.6468	1.0000	
Funding	0.6915	0.1861	0.6378	0.5279	1.0000

Table 6: Impact of Majority Par61cm B5(p0424 0 0 024479e f 52 re4804942 5917361 09805re f 45373

Table 8: Impact of Law Components on School Closures and Average Years Open, controlling for the all law components

VARIABLES	(1) Charter Closure(%)	(2) Average Years Open	(3) Charter Closure(%)	(4) Average Years Open	(5) Charter Closure(%)	(6) Average Years Open
Teacher Hiring	0.00642**	-0.184***				
	(0.00250)	(0.0884)				
Authorizers	-0.00460	0.0755				
	(0.00567)	(0.0910)				
School Cap	0.00394	0.0858				
	(0.00594)	(0.0735)				
Funding	0.00844*	-0.101				
	(0.00475)	(0.114)				
Wavier	-0.00668	0.00415				
	(0.00473)	(0.135)				
Authorizers(t-1)			0.00438	0.112		
			(0.00559)	(0.0987)		
School Cap(t-1)			0.00580	0.0247		
			(0.00723)	(0.0801)		
Wavier(t-1)			-0.00416	-0.0425		
			(0.00612)	(0.149)		
Teacher Hiring(t-1)			0.00508	-0.196**		
			(0.00311)	(0.0902)		
Funding(t-1)			-0.00155	-0.0901		
			(0.00591)	(0.120)		
Authorizers(t-5)					-0.00793	-0.0131
					(0.00568)	(0

Table 9: Impact of Law Strength on Percent of a States Charter Schools that Close

	(1)	(2)	(3)	(4)	(5)

Table 10: Impact of Law Strength on Average Years Open

VARIABLES	(1) Average Years Open	(2) Average Years Open	(3) Average Years Open	(4) Average Years Open	(5) Average Years Open
Authorizers	0.0730				
	(0.106)				
School Cap		0.0776			
		(0.0784)			
Wavier			-0.0575		
			(0.130)		
Teacher Hiring				-0.175**	
				(0.0832)	

Table 11: Impact of Law Strength the Previous Year on Percent Closure

VARIABLES	(1) Percent Closure	(2) Percent Closure	(3) Percent	(4)	(5)

Table 12: Impact of Law Strength the Previous Year on Average Years Open

VARIABLES	(1) Years Open	(2) Years Open	(3) Years Open	(4) Years Open	(5) Year Open
Authorizer (t-1)	0.0860				
	(0.106)				
School Cap (t-1)		0.0225			
		(0.0838)			
Wavier (t-1)			-0.0976		
			(0.144)		
Teacher Hiring (t-1)				-0.199**	
				(0.0841)	
Funding (t-1)					-0.0933
					(0.101)
State and Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Charter Controls	Yes	Yes	Yes	Yes	Yes
Observations	360	360	360	360	360

Robust standard errors in parentheses

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

Note: All 40 states years 2006-2014. Each charter law, authorizers funding, wavier, teacher hiring and school cap is scored from 0 to 5, 0 being the strictest. Each law component is from the previous year. Average year open are the average years a charter is open for each state, in each given year.

Table 13: Impact of Law Strength Five Years Ago to Percent Closures

VARIABLES	(1) Percent Closed	(2) Percent Closed	(3) Percent Closed	(4) Percent Closed	(5) Percent Closed
Wavier$_{(t-5)}$	0.00410 (0.00450)				
Authorizers$_{(t-5)}$		-0.00599 (0.00547)			
Teacher Hiring$_{(t-5)}$			-0.00395 (0.00318)		

Table 14: Impact of Law Strength Five Years Ago to Average Years Open

VARIABLES	(1) Average Years Open	(2) Average Years Open	(3) Average Years Open	(4) Average Years Open	(5) Average Years Open
Authorizers(t-5)	-0.00457 (0.0648)				
School Cap(t-5)		0.00559 (0.0864)			

Table 16: Impact of Strength of Law Components in the Previous Year on Number of Each Closure Reason

VARIABLES	(1) Financial	(2) Mismanagement	(3) District	(4) Facility	(5) Other/Unknown	(6) Academic
Authorizers(t-1)	0.115	0.0162	-0.0137	0.0189	-0.0409	0.0503
	(0.0892)	(0.119)	(0.0324)	(0.0216)	(0.0467)	(0.124)
School Cap(t-1)	0.0151	-0.0548	0.00826	0.0131	0.0104	-0.0545
	(0.0746)	(0.0521)	(0.0160)	(0.0197)	(0.0280)	(0.0666)
Wavier(t-1)	-0.0937	0.0322	-0.0345	-0.00306	-0.0505	-0.0119
	(0.133)	(0.0775)	(0.0458)	(0.0142)	(0.0304)	(0.0768)
Teacher Hiring(t-1)	0.00888	0.0527	-0.0164	-0.0142	0.0142	0.0192
	(0.0705)	(0.0337)	(0.0409)	(0.0115)	(0.0255)	(0.0454)
Funding(t-1)	0.261**	0.0353	-0.0559	0.00626	0.0425	-0.00850
	(0.0977)	(0.0691)	(0.0434)	(0.0330)	(0.0282)	(0.0603)
State and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Charter Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	400	400	400	400	400	400

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: All 40 states; years 2001-2011. Each charter law, authorizers funding, wavier, teacher hiring and school cap is scored from 0 to 5, 0 being the strictest. Each law component is from the previous year. The outcome variables are the number of school closings for each reason, financial, mismanagement, district, facility, other/unknown, and academic.