



# The effect of charter competition on unionized district revenues and resource allocation

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## ARTICLE INFO

### Keywords:

Charter competition  
Resource allocation  
Measurement error  
School finance  
Teachers' unions

### JEL classification:

C18  
H52  
H75  
I21  
I22  
I28  
J31  
J52

## ABSTRACT

This study examines the impact of competition due to charter school entry on the level of revenues and the composition of expenditures within traditional public school districts (TPSDs). I leverage a policy change affecting the location and timing of charter entry to account for endogenous charter competition. TPSDs respond to competition by allocating resources away from instructional and other expenditures toward new capital construction. Using teacher contracts, I show that collectively bargained salaries are largely unresponsive to competition and that declines in instructional spending are primarily due to decreases in the number of employed teachers. Competition depresses appraised housing valuations, in turn causing TPSDs to lose property tax revenues resulting in a decline in overall spending.

## 1. Introduction

The charter school movement is rapidly expanding across the United States. Charters are designed to be innovative laboratories for educational practices and to compete with traditional public school districts (TPSD) over student enrollment. Proponents argue that these market forces cause TPSDs to improve student achievement, but the empirical evidence is mixed (Epple et al., 2015). Conversely, critics of the charter movement argue that charter competition puts fiscal stress on traditional schools making the remaining students worse off. This literature has focused directly on student outcomes instead of the mechanisms underlying how districts respond to charter competition. Without understanding how TPSDs respond, it is difficult to disentangle why competition improves student outcomes in some contexts and reduces outcomes in others.

A primary mechanism by which charter competition may operate is through its influence on the allocation of district resources. Moreover, changes to resource allocation decisions provide insight into which

dimension of school quality competition affects. For example, districts competing over achievement ratings may allocate resources toward instruction or pupil services, while districts competing over school facility quality may allocate expenditures toward new capital projects. However, we understand little about the extent to which charters influence TPSD expenditure decisions.<sup>1</sup>

Charter competition may also impact the level of overall revenues available to the district. Empirical evidence confirms that charters place fiscal stress on TPSDs (Bifulco and Reback, 2014) and, in general, decrease the revenues available to districts (Arsen and Ni, 2012b; Dee and Fu, 2004). Yet, we have an incomplete understanding of why TPSD revenues fall in the presence of charter competition. Some of the decline is mechanical: TPSDs directly lose state per-pupil funding as students transfer to charter schools and federal per-pupil funding as vulnerable student populations transfer. However, other mechanisms may be more nuanced. For example, if charter presence is capitalized into housing values (see Imberman et al., 2017), then charter entry would indirectly affect the TPSD local revenues raised through property taxes.

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<sup>1</sup> The only other evidence on within-district resource allocation comes from Arsen and Ni (2012b) who find that charter schools have a negligible effect on TPSD resource reallocation in Michigan. Due to data limitations, Arsen and Ni (2012b) impute charter competition levels for roughly 75 % of their sample. This can introduce potentially serious attenuation bias into their results and highlights the value of analyzing this question in a setting with a more accurate measure of charter competition.

This study addresses these gaps in the literature by exploring potential mechanisms underlying how charter competition affects TPSD funding and whether districts respond by adjusting the composition of their expenditures. A core problem this literature has faced is that charter entry is not exogenous with respect to underlying trends in overall TPSD resource levels and allocation decisions. I exploit the fact that Ohio charter entry policies create geographic and time constraints to isolate plausibly exogenous charter entry variation in a panel instrumental variables framework. I document that charter competition directly reduces state and federal revenues through the expected channels. A key finding of this study is that charter competition also decreases the TPSD revenues raised through property taxes by depressing appraised district-level residential property values. I also find that charter competition causes districts to spend less on instructional and other current expenditures and spend more on new construction capital outlays, though this latter effect only occurs during the early years of charter exposure and does not persist. This is consistent with qualitative evidence that administrators in Washington D.C. believe the physical appearance of their school has the greatest impact on preventing enrollment loss to charters (Sullivan et al., 2008). I provide evidence that these findings are not driven by the passage of the No Child Left Behind Act nor the Great Recession.

I also examine the effect of charter competition on collectively bargained teacher salaries. Most studies of the effect of charter competition on teacher salaries occur in settings where collective bargaining is prohibited by law, such as Texas (Taylor, 2006, 2010) and North Carolina (Jackson, 2012).<sup>2</sup> Thus, I address a gap in the teacher labor market literature by assessing how unionized markets respond to largely non-unionized charter school competition. A challenge in studying the effect of charter competition on collectively bargained teacher salaries is that contracts are negotiated intermittently and can only adjust to charter competition during negotiation years. Ignoring this problem generates a type of attenuation bias.

I characterize this bias within my context and use Monte Carlo simulations to demonstrate that the bias is avoided by restricting the analysis sample to years when the outcome can vary (i.e., negotiation years). Using this approach and the universe of Ohio teachers' union contracts, I estimate that charter competition causes entry-level negotiated salaries to slightly fall, but that in general, contracts are largely unresponsive across the payscale. However, I find that charter competition causes TPSDs to hire fewer new teachers, which reduces the size of the teacher labor force to maintain pupil-teacher ratios.

The remainder of the paper is organized as follows. Section 2 overviews Ohio charter school institutional details, Section 3 describes the data, Section 4 presents the research design and evaluates its validity, and Sections 5 through 8 provide the main results for district revenues and expenditure allocation emphasizing collectively bargained teacher salaries. Section 9 concludes.

## 2. Institutional details

Charter schools are independently run educational organizations that sign a “charter” declaring their structure and outlining detailed plans for achieving student success. Charter schools in Ohio differ from traditional public schools in the following ways. While students may only attend a traditional public school based on the geographic location of their residence, students across the state are able to attend any charter they desire.<sup>3</sup> When a student transfers to a charter from a public school their per-pupil state funding transfers as well. Any charter failing to attract the number of students needed to at least fund operating costs

will eventually close.

In Ohio, there is an important distinction between a *conversion* and *start-up* charter school (ODE, 2014). The conversion schools are created by “converting” all or a portion of an existing public school into a charter school. These schools must obtain a majority vote at the school board to convert. Public schools can convert at any time across the state, conditional on receiving the necessary votes. These schools operate independently from their school district sponsor. Conversion charter schools are free to decide if they want to remain unionized.

Start-up schools on the other hand are new educational institutions and differ from conversion schools in a variety of ways. First, start-up charters can be sponsored by a larger set of entities. Sponsors for start-ups can include teachers, parents, communities, private organizations, Ohio universities, and even the Ohio Department of Education (ODE). Start-ups must privately fund a majority of the charter's expenses including the large entry costs. As a result, they often try to renovate and locate in closed-down schools or shopping centers (Imberman, 2011) instead of constructing new buildings. Unlike conversion schools, start-ups are not able to open freely across the state. There is a complicated legislative history (see Section 4.2) that dictates in which districts start-up charters are permitted to open during any given year.

Ohio charter schools can be further categorized as either a traditional “brick-and-mortar” or a “digital” charter. Digital charter schools face the same legislation and requirements as traditional “brick-and-mortar” charters; however, all instruction occurs online, and schools are required to provide each student with a laptop.<sup>4</sup> Ohio has the second-largest (second to Arizona) online charter presence in the nation, with over 30,000 students enrolled in a digital school in 2011–12. This represents rapid growth considering the first digital charter school opened in the 2000–01 school year. While there are a handful of digital charter schools that limit enrollment to district residents only, most digital charters allow students from across the state to enroll.

Finally, Ohio is an ideal setting to explore charter effects due to several state policies that directly impact the location and timing of charter entry. In 1997, Ohio legislators passed a bill that, in addition to piloting a new start-up charter program in Lucas county, allowed new start-ups to open in the “Big 8” urban districts (Ohio HB 55).<sup>5</sup> This bill also allowed conversion charter schools the option to open across the state. In 1999, Ohio HB 282 allowed start-up charters to open in the twenty-one largest urban districts. Further, starting in the 2000 school year, start-ups across the state could open in any district rated as “Academic Emergency” (AE) in the previous school year based on Ohio's performance index rating system.<sup>6</sup> In 2003, legislation passed that allowed start-up charters to open in any districts rated as “Academic Watch” (AW) or AE in the previous school year, but the bill again limited new start-up charters to open in the “Big 8” districts (down from 21 eligible districts) without regard to the previous year's performance rating (Ohio HB 364 and HB 3). These designations only affect whether charters are permitted to enter a particular district. Once opened, charters are allowed to persist without regard to their district's current eligibility status.

Table 1 provides the number of districts eligible for new charter entry in the given year based on “Urban 8/21” policies in column 1 and district academic watch/emergency ratings during the previous school year for non-“Urban 8/21” districts in columns 2/3. Column 4 presents the total number of districts eligible for new charters to begin the

<sup>4</sup> Digital charters must set up a central base of operation and maintain a representative within fifty miles to provide monitoring and assistance. Further, teachers must visit students in person throughout the year as specified in the charter contract. As a result, many digital charters limit enrollment to students living nearby (e.g., within 50 miles) of the base of operation. The initial eligibility of a digital charter is determined by the eligibility where the base of operation will be located.

<sup>5</sup> The “Big 8” urban districts include: Akron, Canton, Cincinnati, Cleveland, Columbus, Dayton, Toledo, and Youngstown.

<sup>6</sup> See Online Appendix A for a detailed explanation of the ratings designation system in Ohio.

<sup>2</sup> Notable exceptions include Arsen and Ni (2012b) and Hoxby (2002).

<sup>3</sup> Local school districts are required to provide transportation to any student living more than two miles away from their desired charter school as long as the charter is no further than 30 min away from the school of residence.

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