THE POLITICAL ECONOMY OF SCHOOL CHOICE:
SUPPORT FOR CHARTER SCHOOLS ACROSS STATES AND SCHOOL DISTRICTS*

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ABSTRACT:

Public charter schools are one of the fastest growing education reforms in the U.S., currently serving more than a million students. Though the movement for greater school choice is widespread, its implementation has been uneven. State laws differ greatly in the degree of latitude granted charter schools, and—holding constant state support—states and localities vary widely in the availability of and enrollment in these schools. In this paper, we use a panel of demographic, financial, and school performance data to examine the support for charters at the state and local levels. Results suggest that growing population heterogeneity and income inequality—in addition to persistently low student outcomes—are associated with greater support for charter schools. Teachers unions have been particularly effective in slowing or preventing liberal state charter legislation; however, conditional on law passage and strength, local participation in charter schools rises with the share of unionized teachers.

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I. Introduction

Among education reforms currently underway in the United States, the class of "market-based" reforms—those encouraging competition outside of traditional public schools, such as vouchers and charter schools—are perhaps the most contentious. Reflecting both the short-run demands of families for immediate alternatives and the long-run hopes among a number of policymakers that the injection of competitive forces into public education will yield sustained improvement in student outcomes, market-based reforms have been closely watched and hotly contested.

Market-oriented reforms—in particular, public charter schools—are also among the fastest growing education reforms at the state and local levels. Though state accountability measures involving sanctions or rewards tied to student performance emerged well before charter laws (and have garnered much public attention), the growth in charter school authorizations has been much more rapid (Figure 1).[1] Since the first law authorizing charter schools was passed in Minnesota in 1991, 39 other states, the District of Columbia, and Puerto Rico have all adopted legislation supporting public charters. As of 2003-04, more than 3,000 charter schools were in operation, serving over 825,000 students.[2]

While the movement for greater school choice has been widespread, its implementation has been uneven. In the case of charter schools, state governments must first provide the legal foundation upon which charter schools can form and operate. The implementation of these laws, in turn, takes place at the local level, through parental demand, willing and able suppliers of charter schools and sufficient cooperation on the part of state and local officials who authorize

[1] Of course, the sweeping federal No Child Left Behind Act (2001) effectively superseded most existing state accountability measures. Figure 1 shows the growth in state accountability reforms prior to this act.

proposed schools. State laws differ greatly in the degree of latitude granted charter schools, and—holding constant the level of state support—states and localities vary widely in the level of actual participation in these schools.

What explains these differences in support for and participation in charter schools across states and districts, and why did this form of school choice grow so rapidly during the 1990s? Voters, elected officials and families who have endorsed charter schools may have had a range of underlying motivations for their support: dissatisfaction with the performance of traditional public schools (perhaps the most popular explanation), a desire for greater parental involvement or control, frustration with stringent state regulations or inefficient local bureaucracies, increased heterogeneity in local district populations accompanied by divergent preferences for education, or other unmet demands for sorting across schools or districts.

Using a panel of demographic, financial, political, and school performance data covering the 1980-2004 period, we examine the various forces associated with the support (or lack of support) for charter schools. We take a dual approach to our analysis, examining the support for charter schools at both the state and local levels. First, we consider the political economy of charter school authorizations at the state level—why do some states support strong charter school legislation while others do not? What forces are instrumental to the passage of state laws enabling charter schools, and what forces work against such passage? Second, conditional on a state permitting public charters, we look at the local conditions that yield support for—and subsequent enrollment in—charter schools. Which districts within a state are likely to see the most growth in charter school enrollment, and why? Why do charter schools emerge in some districts but not in others? Of course, these two approaches will not be mutually exclusive—the

[2] Authors' calculations, using the 2003-04 Common Core of Data School Universe, and Allen and Cooper (2004). The Center for Education Reform calculates that in the 2004-05 school year, about a million students were served in

forces that produce support for charter schools within localities will frequently, but not always, be the same forces that yield favor for charter legislation at the state level.

While an improved understanding of the forces driving the growth in charter schools is interesting in its own right, this investigation may also help to shed light on recent conflicting evidence over the effectiveness of charter schools in raising student performance.[3] It may be that this form of school choice has very different effects in areas where parents support charter schools on the basis of public school performance than in areas where households simply desire more diverse sorting options. We discuss this issue further in section two.

Our paper proceeds as follows. In the following section, we consider the various supply and demand forces that may have affected the support for school choice at the state and local levels. We review the existing literature on the politics and economics of charter schools, and briefly discuss recent evidence on the effectiveness of charter schools. In section three we lay out our empirical framework for studying the growth of charter schools at both the state and district levels. Section four describes the data we use our analysis, section five presents our findings, and section six concludes.

II. Evidence on the Politics, Economics, and Effectiveness of Charter Schools

Broadly defined, charter schools are independently managed public schools that operate under a contract (or "charter") with an authorizing body such as a local school district, state education agency, or university. They are entitled to public funds, yet are free (to varying degrees) from traditional district policies and state laws, including policies on hiring and firing, collective bargaining, curricula, and resource allocation. Like private schools, charters can

about 3,600 charter schools.

[3] See Bettinger (2005), Bifulco and Ladd (forthcoming) and Hoxby and Rockoff (2004) for contrasting examples.

typically draw students from throughout a school district or state (i.e. they are not subject to neighborhood school boundaries), but unlike private schools they are unable to charge tuition or set restrictive admissions criteria, and they must adhere to state accountability standards or face revocation of their charter.[4]

The supply of charter schools begins at the state level, where legislators authorize the creation of charter schools and define the parameters for their continued operation. Such legislation is anything but uniform.[5] The Center for Education Reform (CER)—an advocacy organization and proponent of charter schools—has compiled an annual ranking or "scorecard" of state charter laws since 1997, based on the "strength," or permissiveness, of the laws' various provisions.[6] Table 1 overviews the ten criteria used by the CER in the calculation of these measures (each criterion is scored on a 1-5 scale, with a total possible score of 50). These criteria include, for example, whether or not the state grants charter schools an exemption from collective bargaining, and whether or not the state restricts the types of groups or individuals who may apply for charters. Figure 2 illustrates variation in the strength of charter law legislation across the states, based on the 2004 CER scorecard.[7] Appendix Table 1 provides the detailed CER scores for each state's charter provisions in 2003-04.

As Figure 2 shows, states such as Arizona, Michigan and Minnesota have enacted relatively "strong" legislation—that is, legislation that provides considerable latitude to charter schools. These states' laws may allow for multiple chartering authorities (beyond local school boards who may show resistance to new schools competing for students or resources), permit

[4] See Hill, Lake, and Celio (2002) on the subject of accountability requirements in state charter laws.
[5] See Geske, Davis, and Hingle (1997) for a description of differences in early state charter legislation.
[6] http://edreform.com [Access date: January 26, 2006]. The Education Commission of the States also provides detailed summaries of charter school policies in each state (http://mb2.ecs.org/reports/Report.aspx?id=65 [Access date: February 1, 2006]).

unlimited numbers of new schools, or provide automatic waivers from state and local education laws. Other states, such as Kansas, Tennessee and Virginia, have adopted much more restrictive chartering provisions. Ten states continue to provide no legal authorization for charter schools at all; in fact, the state of Washington has soundly rejected charter school proposals in repeated statewide referenda attempts.[8]

A few authors have sought to explain this variation across states in charter school legislation in terms of differences in state politics and demographics. These studies have largely been cross sectional in nature and have primarily compared differences in mean characteristics of states. Hassel (1999), Alvarez (2003), and Wong and Shen (2004) all found that Republican control and population or urbanization are associated with the passage of strong laws. Hassel (1999) and Alvarez (2003) found little evidence that school quality is associated with law strength, using as measures of quality state National Assessment of Educational Progress (NAEP) scores (Hassel (1999)) and teachers-student ratios (Alvarez (2003)). The role of teachers unions in the success or failure of charter legislation at the state level was found to be mixed: Alvarez (2003) found that unions impeded passage of a law, but neither Hassel (1999) nor Alvarez (2003) found union presence to be associated with law strength.

State governments, however, provide only the groundwork upon which charter schools are formed and operated. The actual implementation of these laws takes place at the local level, where parental demand for charter schools, combined with a willingness and ability of citizens, non-profits, or other education management organizations to supply such schools, results in

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[7] Center for Education Reform (2004). While the CER is a proponent of charter schools, their scores have been used in a number of recent analyses. While such an advocacy organization may have an incentive to understate the strength of these laws, it is unlikely that the potential bias varies across states.

[8] Most recently Washington in November 2004 rejected by a healthy margin a statewide initiative that would have authorized public charter schools (the text of this ballot measure can be found at http://www.secstate.wa.gov/elections/initiatives/text/r055.pdf [Access date: January 26, 2006]). In ongoing work (Corcoran and Stoddard (2006)) we are conducting a more detailed analysis of the referenda attempts in that state.

operating charter schools. As such, even when conditioning on the permissiveness granted charter schools by the state, there is likely to be considerable variation across states and districts in the actual number of charter schools created and enrollment in those schools (this is visible in Figure 2, which also displays the location of most charter schools in 2003-04). As an illustration, Arizona and Minnesota were early leaders in the charter school movement, both passing legislation highly favorable to charter schools. By 2003-04, nearly 44 percent of Arizona districts had charter schools within their boundaries, while fewer than 10 percent of districts in Minnesota contained charters. At the other end of the spectrum, North and South Carolina both enacted laws in 1996 that were much less favorable to charter schools. Yet within seven years, 31 percent of North Carolina's districts had charter schools, and only 13 percent of South Carolina districts had charters.

In one of the few papers to date on the supply responses within states to charter laws, Glomm, Harris and Lo (2005) examine differences in the number of charter schools across school districts in Michigan.[9] They find that—controlling for district enrollment—districts with greater heterogeneity in race and educational background in 1992 (one year prior to Michigan's charter school law) tended to have more charter schools in 2001-02. In addition, districts with more private schools and greater public spending on special education also had more charters; those with higher 4th grade math scores tended to have fewer (though the latter result is not robust across regression specifications). They interpret their results on the dominant role of district heterogeneity as evidence that sorting by preferences for education was incomplete in Michigan prior to the authorization of charter schools.

[9] See also Renzulli (2005) and Henig and McDonald (2002). Renzulli relates data on charter school applications in 29 states to various state and district characteristics; Henig and McDonald examine the locational decisions of charter schools within the District of Columbia.

Like these authors, we recognize that there are likely to be a number of possible explanations for the steady, but uneven, growth of public charter schools during the 1990s. Certainly the most oft-cited explanation is poor public school performance, particularly in urban areas.[10] The hope among many charter school advocates has been that students attending these schools—and perhaps students remaining in traditional public schools—will benefit from the operation of public charters, either through the infusion of additional competition into the local market for education, or through the innovative practices of charter schools, or both. Indeed, there has been some evidence that charter schools—at least in some areas—have raised student achievement. But this evidence has been far from conclusive. Where some authors have found that students attending public charter schools fare better on standardized tests than their peers, others find no effect or even a negative impact of charters on student outcomes.[11] Along the same lines, the introduction of charter school competition into local districts has been found to have both a positive effect on *non*-charter public schools in some states, and no effect in others.[12]

School performance is not likely to be the sole explanation for the proliferation of charter schools at the state and local level, however. Rather, growing heterogeneity in local school populations may also have fueled demand for greater school choice, independent of school performance. Corcoran and Evans (2004) show that school districts became much more heterogeneous during this period of growth in charter schools, and find that increases in racial heterogeneity were associated with increased private school enrollment and reduced per-pupil spending on public education. Of course, the classic Tiebout (1956) model argues that

[10] See Ladd (2002) and the references therein.
[11] See Hoxby and Rockoff (2004), who evaluate charter schools in Chicago, and Bettinger (2005) who examines the impact of charter schools in Michigan. See also Zimmer et al (2003) for evidence on charter school performance in California. Hanushek, Kain, Rivkin and Branch (2005) perform an analysis of charter schools in Texas, and Sass (2004) and Bifulco and Ladd (forthcoming) do the same for Florida and North Carolina, respectively.

households will sort themselves into local jurisdictions based on their preferences for education. However, there are numerous barriers to mobility between districts that limit the extent to which households can perfectly sort across districts, and the formation of new jurisdictions is likely to be quite slow.[13]

To the extent that local school districts have become more diverse along race, ethnic, income, or other dimensions correlated with educational preferences, these demographic shifts may have spurred support for charter schools, which can provide an additional means for families to sort themselves across schools. This increased demand for sorting avenues may arise for a variety of reasons. First, dissimilar households may simply demand different curricular approaches (e.g. "back to basics," bilingual, technical, or vocational curricula, arts- or culturally-oriented programs, unique programs for gifted or at-risk students). Many charter school founders, in fact, explicitly state the goal of satisfying diverse preferences and attracting a target student population as central to their mission.[14] Nearly one in three charter schools in Arizona, for example, explicitly designate in their charter a specific population they intend to serve, with "at risk" and "college bound" the most frequently cited.[15] Second, changes in the demographic composition of local districts may (again holding existing public and private educational choices constant) increase the desire for sorting on the basis of peers. Hanushek, Rivkin, Kain and Branch (2005), for example, find evidence that black students in Texas tend to leave their local schools for charters with a higher fraction of white students. In contrast, they find white students

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[12] See Holmes, DeSimone and Rupp (2003), Hoxby (2002), and Bettinger (2005) who test for such effects in North Carolina, Milwaukee, and Michigan respectively. Bifulco and Ladd (2004) provide additional evidence from North Carolina.

[13] See Rhode and Strumpf (2004) for evidence on the decline in between-district sorting and rise in within-district population heterogeneity in local jurisdictions.

[14] Geske, Davis, and Hingle (1997) provide some specific examples.

[15] Authors' calculations, using Arizona state data at http://www.ade.state.az.us/charterschools [Access date: January 30, 2006].

tend to leave schools that have a higher fraction of non-white students for schools that have lower proportions of non-white students.[16]

In any case, the extent to which local forces—whether dissatisfaction with existing school performance or diverging preferences and demographics—are likely to be manifest in support for charter schools will in turn depend on a number of other factors, including the presence of existing educational alternatives (such as private schools, neighboring public school districts, magnet schools, and the like), the state system of school finance, and the political power of opponents to charter schools (the most prominent example being teachers unions).[17] Existing educational alternatives may be important in that demand for public charters within a district or region during a period of growing taste heterogeneity or public dissatisfaction with schools is likely to be higher when other sorting options are limited. State school finance policies (such as the degree of within-state finance equalization or tax limitations) and teacher unionization may influence the demand for charters to the extent they limit education programs or curricula, or impose rigid demands on traditional public schools.

An improved understanding of the driving forces behind the emergence of and enrollment in charter schools may aid in resolving the seemingly contradictory research on the effectiveness of these schools. To the extent that charter school growth is merely a response to local bureaucracies, a desire to sort on peers, or a quest for greater parental control, there may be little—if any—evidence of improved test scores in areas with charter schools. On the other hand, where enrollment in charter schools is a response to especially dysfunctional schools, a

[16] For additional evidence on the impact of school choice programs on student sorting, see Teske and Scheider (2001), Ladd and Fiske (2001), Weiher and Tedin (2002), Cullen, Jacob and Levitt (2000), and Scott (2005).
[17] The American Federation of Teachers has not explicitly come out in opposition to charter schools, though they often cast a skeptical eye, as this recent quote suggests: "In general, these schools are a diversion from reforms' and policymakers' efforts to improve education in America…the AFT concludes that policymakers should not expand charter school activities until more convincing evidence of their effectiveness and viability is presented" (AFT (2002)).

positive impact on achievement might be more likely. Our empirical framework for exploring the forces behind the growth of charter schools is outlined in section three.

III. Empirical Framework

Our empirical analysis weighs the relative importance of various demand, supply and institutional forces on the support for charter schools at the state and local level. In particular, we test two competing (but not necessarily mutually exclusive) hypotheses: (1) the support for charter schools is driven by poor public school performance, and (2) this support is fueled by rising within-district population heterogeneity. As discussed in section two, community heterogeneity—aside from its possible compositional effects on student outcomes—may produce demand for school choice for a variety of reasons, ranging from unique preferences for curricula to a desire to sort based on peers. In practice, it is difficult to distinguish empirically between these influences. For example, as the number of Hispanic students increases in a district, a charter school that focuses on Spanish instruction may open. Even with explicit knowledge of the founding mission of the school, it would be difficult to determine whether subsequent support of (and enrollment in) this school can be attributed to demand for a unique curriculum or a desire to sort based on demographic characteristics.

Our empirical analysis that follows seeks to explain variation in the support for charter schools across states and districts using variation in population composition and heterogeneity, student achievement, the degree of existing public and private school choice, as well as other variables that may affect the support for charter schools. In general, we estimate reduced form models like the following (where *i* represents a state or local school district):

(1) $$charter\ support_i = \delta_1 + \delta_2\, heterogeneity_i + \delta_3\, achievement_i + \delta_4\, choice_i + \delta_5 X_i + \xi_i$$

At the state level, *charter support* is measured as the successful passage of legislation authorizing charter schools by 1999 (a binary variable), the year such a law—if any—was passed (through 2004), or a measure of law strength in 2004.[18] In our district analysis, we also measure *support* by whether or not the district has at least one operating charter school. Finally, at both the state and district levels, we measure the level of support for charter schools using the fraction of students in the jurisdiction enrolled in charter schools during the 2003-04 school year.

Heterogeneity is a vector of population demographic characteristics believed to correlate with preferences for education, including the population black and Hispanic share, the fraction of adults who are college educated, measures of household income and poverty, and a Gini coefficient of household income (we assume income to be correlated with tastes for education, such that an increase in income inequality may generate diverging preferences for educational quality, spending, or curricula; see Corcoran and Evans (2004)). *Achievement* is measured as either the statewide mean SAT score or as the mean high school dropout rate (statewide, or at the district level), with an adjustment discussed in the next section. *Choice* is a vector of variables that describe existing opportunities for school choice and sorting, including the fraction of state or district students enrolled in private schools and a Herfindahl index measuring the level of competition between local public school districts. Other included covariates (X) include the fraction of teachers unionized (in all specifications) and the year a charter law was passed and its strength index (in the state-level participation regressions only). District regressions also include indicators for the level of district urbanization, the level of the district (elementary, secondary, or

unified) and state or MSA fixed effects. These fixed effects capture permanent differences across states or MSAs, including differences in state finance rules, charter law strength, the extent of inter-district competition, and tastes for schooling or school choice.

A. Distinguishing Demographics and School Performance

The role of population demographics (such as race or income) as independent influences on the demand for charter schools can be somewhat difficult to discern, to the extent that these demographics also influence average achievement in a jurisdiction. As an admittedly crude attempt to disentangle these two forces, we first predict student achievement (either state mean SAT scores or high school dropout rates) using a simple education production function approach, based upon demographic characteristics that are likely to affect achievement levels (student inputs) and school resources:

$$(2) \qquad achievement_i = \beta_0 + \beta_1 Household\ Inputs_i + \beta_2 School\ Inputs_i + \omega_i$$

Household inputs include the black and Hispanic population share, the fraction of adults who are college educated, and median household income. School inputs include per-pupil expenditure (for the individual district in our district regressions, or an statewide average in our state analyses).

The residuals from this regression, $\hat{w}_i$, can be interpreted as the performance of a state or school district relative to that expected given its demographic composition and school expenditure. When SAT scores are used as *achievement*, we also include the percentage of

[18] We use 1999 as a break point to compare the characteristics of relatively "early adopters" (the 37 states, including

seniors who take the SAT test and its square as covariates. States with large positive residuals in this SAT regression are thus high performers given student characteristics and school resources. Areas with higher dropout rates than predicted would be under-performing, given our parsimonious selection of observable inputs. The results for these achievement regressions are reported for states in Appendix Table 2 and for districts in Appendix Table 3.

We then use the residuals from estimating equation (2) in our baseline regressions as an "adjusted" achievement measure:

$$(3) \qquad charter\ support_i = \gamma_1 + \gamma_2\, heterogeneity_i + \gamma_3\, \hat{w}_i + \gamma_4\, choice_i + \gamma_5 X_i + \nu_i$$

Note that the use of achievement residuals in the baseline regression suggests that it is the deviation from expected student performance that influences the support for charter schools, rather than the absolute level of student performance. We have also conducted the analysis using alternative specifications that include the level of achievement directly, with qualitatively similar results.

B. Issues of Timing

Our estimates of equation (3) will initially use a cross-section of data from states and school districts. That is, we will seek to explain variation in charter support across states or districts using variation in population characteristics, student performance and other jurisdictional features (such as the degree of unionization or existing public or private school choice). There are a few shortcomings to such a cross-sectional analysis. First, a number of

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DC, who had passed charter laws by 1999) and relatively "late" or non-adopters. Four additional states passed

authors have suggested that the existence (or threat) of charter schools may itself affect student achievement (in charter schools and possibly in regular public schools), as well as residential sorting. If true, measuring population composition and achievement contemporaneously with charter school participation or laws will conflate the degree to which these variables are causes or consequences of charter school participation. To mitigate this problem, we measure all state and district characteristics in 1989-90, several years before the first charter laws take effect.

Our cross-sectional estimates will provide evidence of the degree to which certain characteristics of states and districts are related to support for charter schools. We may observe, for example, that enrollment in charter schools is greater in districts with lower-than-average student performance or a greater racial mix of students. It would be somewhat problematic, however, to attribute the emergence of charter schools to either or both of these factors using cross-sectional estimates alone. To the extent that student performance or composition is correlated with other unobserved characteristics related to charter school support, the importance of these forces in explaining the growth of charter schools in the 1990s may be over- or understated. For example, areas with little or no competition between public school districts may have lower student performance (if existing school choice is important for the level of students performance, à la Hoxby (2000)) or more diverse student populations (due to a lack of sorting opportunities); if we are unable to adequately control for the competitive structure of the local district, we may improperly attribute the role of competition (i.e. the lack of public school choices) to student performance.

The classic method for dealing with permanent unobservable differences in cross sectional units is to include fixed effects or use first-differenced data to control for these other factors. Because charter schools do not emerge until 1991, in some sense the passage of a

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charter laws between 1999 and 2003-04.

charter law and subsequent enrollment in charter schools represents a change from the years preceding 1991 to the present (2003-04) in support for this form of school choice. We therefore estimate an alternative form of equation (3) using a "quasi" first-difference approach, replacing state or district characteristics with the *changes* in those characteristics between 1980 and 1990:

$$(4) \qquad charter\ support_i = \phi_1 + \phi_2\, \Delta heterogeneity_i + \phi_3\, \Delta \hat{w}_i + \phi_4\, \Delta choice_i + \phi_5\, \Delta X_i + u_i$$

Specifications such as (4) will further isolate the role of population characteristics or student performance in the growth of charter schools, as they hold constant features of the local market for public education (public and private alternatives, the productive efficiency of the local district, etc) and make use of within-district or within-state variation in population or student outcomes. While this approach is not exactly the same as including fixed effects in a regression model, the interpretation is somewhat similar: to explain the growth of charter schools during the 1990s, we need to look not only at the level of student performance and population composition, but the changes in those characteristics over time. In any case, these first-difference specifications are likely to be interesting in their own right: they may help to explain why the charter school movement gained momentum during the 1990s.

IV. Data

An analysis of charter school support at the state and district level requires data on charter school legislation and participation as well as information about household demographics, public school finances and performance, school district competition, and other forces that might influence charter support. The measures of the strength (permissiveness) of

state charter school legislation—the annual CER rankings—and their years of passage were described in section two (and are provided in Appendix Table 1). The remaining data come from a wide range of sources, briefly discussed below.[19]

A. Charter Schools: Counts, Enrollment, and District Assignment

The annual Common Core of Data (CCD) Public Elementary – Secondary School Universe file has long been the primary source of enrollment, demographic, and staffing data for public schools in the U.S. Beginning with the 1998-99 school year, the CCD has sought to include and identify public charter schools. To compile a national list of charter schools for 2003-04, we began by consulting the CCD for that school year. From our experience, the CCD has not always properly identified charter schools—for example, in 1999 no school in New Jersey was identified as a charter (there were actually 47). We therefore cross-checked our CCD list to the independent Center for Education Reform directory of charter schools (Allen and Cooper (2004)). This cross-check uncovered an additional 89 CCD schools not flagged as charters in the CCD.[20] Altogether, our master list of charter schools in 2003-04 includes 3,066 schools.

Charter school counts and enrollment totals by state are widely available, and we were able to easily compute our own for 2003-04 given the list of schools compiled above. We then computed the total number of (and total enrollment in) charter schools in each *school district* by attaching each charter school to a public school district. This exercise was not entirely straightforward. For schools that have been chartered by a public school district, the CCD

[19] A more detailed description of the data assembled for this paper is available in the data appendix.
[20] A number of schools were listed in the 2004 Center for Education Reform directory but were missing from the the CCD was a necessary condition for inclusion in our dataset. Schools in Puerto Rico were excluded from our master list of charter schools.

provides a unique identifier of that district. In many cases, however, the charter school or chartering body has no formal affiliation with a local school district, and is assigned its *own* district ID, making it difficult to attach the school to a "true" local school district—that is, to the district to which the school *would* belong based upon its geographic location. In addition, it is possible that some public school districts issue charters to schools that lie outside their own geographic boundaries. We therefore used the spatial coordinates of each charter school from the CCD along with Census 2000 boundary files for unified, elementary and secondary school districts to assign charter schools to districts. In all, 1,014 school districts (of the approximately 14,000 districts in the U.S.) were found to contain at least one charter school.

The total number of charter schools in 2003-04, and enrollment in these schools by state are summarized in Table 2. We also include the count of unique districts in each state containing charter schools, and the fraction of total state enrollment in charter schools.

B. Demographic, Financial, and School Competition Data for States and School Districts

Population and housing characteristics for states and school districts are largely taken from the 1980 and 1990 decennial censuses. Financial data and information on membership in teachers' organizations come from the 1977 and 1987 Census of Governments; per-pupil expenditures by state are obtained from the 1995 Digest of Education Statistics. For our district-level data, we build upon a panel of matched demographic and financial data originally compiled by Corcoran and Evans (2004).[21] This balanced panel of over 14,000 districts includes data on a variety of demographics thought to be correlated with preferences for school quality, such as median income, household educational attainment, racial and ethnic diversity, and private school

[21] Earlier versions of this panel were compiled by Murray, Evans, and Schwab (1998) and Harris, Evans, and Schwab (2001). A similar panel was used in Hoxby (1996 and 2001).

enrollment, as well as per-pupil revenue and expenditure data from the Census of Governments and annual (F-33) surveys of school district finance. Also included in this panel are measures of within-district income inequality (the Gini coefficient) for each school district.[22]

Using data from the 1989-90 CCD for local education agencies we are also able to compute for each district measures of local public school district competition. Our competition measure is a Herfindahl index of public enrollment concentration, calculated for district *i* as:

$$(4) \qquad enrlherf_i = \sum_{j=1}^{J} s_{ij}^{\,2}$$

where s_{ij} is the share of total public enrollment within a 10 mile radius of district *i* contained in district *j* (where *j* is a district that is located 10 miles or less from district *i*, and *J* is the total number of districts located within this radius). The closer this index is to one, the more concentrated is enrollment and thus the less "competitive" is the area around district *i*. At the state level, we calculate an "average" competition measure as a weighted average of these Herfindahl indices over all districts in the state, where the weights are total enrollment in each district (this measure can be viewed as the degree of public school district competition available to the "average" student in the state). This enrollment Herfindahl index was computed for 1979-80 for districts located within MSAs, using the ELSEGIS (predecessor to the CCD). In unreported results, we have also experimented with other commonly used measures of competition (for example, number of districts per student) with qualitatively similar results.

[22] Corcoran and Evans (2004) calculated within-school district Gini coefficients of income inequality for every district in the United States from grouped income data by assuming a flexible form distribution for income (the four-

C. Student Achievement Measures

We measure student achievement at the state and district levels in two ways. The first—at the state level only—is the average SAT score for each state for the 1983-84 and 1989-90 school years from the Digest of Education Statistics; we also make use of the percent of graduates who wrote the SAT in these years[23]. The second is via a state or district high school dropout rate. Because district-reported dropout rates are not reported consistently for many districts in the CCD in the early 1990s, we use as a proxy the fraction of individuals aged 16-19 residing in the state or district who were not high school graduates and were not attending school in the 1980 and 1990 decennial Census. These two achievement measures—SAT scores and dropout rates—have the benefit of capturing performance at two different ends of the ability distribution and of being consistently measured across all states and districts.[24] A disadvantage, however, is that these two achievement measures are much more closely aligned to secondary school performance than primary school performance. By our calculation, only 20-25 percent of charter school students were enrolled in a secondary grade in 2003-04. While this is an obvious limitation of the choice of achievement measures (unfortunately, few other consistent measures exist), it is plausible that high school graduation rates and mean SAT scores—as very public indicators of "ultimate" educational outcomes in a state or district—are of broad interest to the parents and policymakers making decisions regarding charter schools.

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parameter Dagum distribution) and using a maximum likelihood procedure to estimate the parameters of this distribution for every district.

[23] U.S. Department of Education (1988, 1991). The percentage of graduates writing the SAT is "based on the number of high school graduates in 1990/1982 as projected by the Western Interstate Commission for Higher Education and the number of 1990/1982 seniors who took the SAT." SAT scores and the percent of graduates writing the SAT each originate from College Board reports.

[24] This is contrast to the National Assessment of Educational Progress, which is not representative of districts and was taken by a smaller set of states in the early 1990s.

Means and standard deviations for the variables described in this section are presented in Tables 3 and 4. State characteristics by charter law status in 1999 are summarized in Table 3.[25] Likewise, summary statistics for school districts conditional on having at least one open charter school in 2003-04 are provided in Table 4. All summary statistics in these tables are computed for 1990, except where noted; that is, they describe states and districts one year prior to the passage of the first charter law.

On average, states that had passed charter laws by 1999—and districts that opened at least one charter school by 2003-04—tended to have a significantly higher black and Hispanic populations as a share of the total, and higher fractions of adults with college degrees. States and districts that opened charter schools had higher median incomes, greater poverty, and higher income inequality (the difference is especially pronounced at the district level, where income inequality was nearly 7 percent higher in districts with charter schools). Also noteworthy is the difference in educational outcomes between states and districts with charter schools, prior to the opening of these schools. The mean SAT score in states passing charter laws was nearly 39 points below that of states that did not, although this can be party attributed to geography—many of the states without charter laws are in the Midwest, where writing the SAT is less prevalent. The mean high school dropout rate in 1990 was 12.5 percent higher in states that adopted charter laws as against non-charter states, and 23.7 percent higher in districts who later saw the emergence of charter schools versus those that did not. Also notable is the difference in existing school choice facing those districts with charters and those without. Despite a greater likelihood of residing in urban areas, districts with charter schools had significantly *greater* enrollment

[25] Note the mean enrollment and fraction of students enrolled in charter schools are for 2003-04, not 1999. Again we use 1999 as the break point in this table to compare the characteristics of relatively "early adopters" (the 37 states, including DC, who had passed charter laws by 1999) and relatively "late" or non-adopters. Four additional states passed charter laws between 1999 and 2003-04.

concentration (that is, *less* competition from other public school districts) than non-charter districts. A more systematic analysis of the differences in support for charter schools across states and districts is provided in section five.

V. Results

A. Support for Charter Schools across States

Our analysis at the state level asks three primary questions: (1) what state characteristics are associated with the adoption of charter laws and the *timing* of charter law adoption (i.e. do early adopters differ systematically from late or non-adopters?), (2) what characteristics are associated with the *strength* of charter laws (as measured using the Center for Education Reform index in 2003-04), and (3) what characteristics are associated with the overall fraction of students in a state who choose to enroll in charter schools? Table 5 presents results from our cross-sectional analysis of these questions, while Table 6 relates our measures of charter school support to 1980-1990 *changes* in state characteristics.

In Table 5, we present four pairs of regression results. Each pair represents one estimated model, with separate results given using each of our two measures of achievement discussed in section four (SAT scores and dropout rates). The first two columns are the results of a linear probability model for the likelihood of a state passing a law authorizing charter schools by 1999.[26] For those 41 states that did pass a charter law by the 2003-04 school year, columns 3 and 4 present results from an OLS regression for the year the law was passed (the dependent variable here ranges from 1991 (Minnesota) to 2003 (Maryland)). Columns 5 and 6 are the results of a Tobit regression where the dependent variable is the Center for Education Reform index of law strength; the Tobit model is used in order to include all non-adopters in the

estimation (non-adopters have a law strength equal to zero). Finally, the last two columns are the results of a Tobit model for the fraction of public school students in the state enrolled in charter schools (again, we use the Tobit specification to account for states truncated at zero).

Table 5 suggests that population demographics, teachers' union participation, and student performance have all been important determinants of state charter legislation and participation. Controlling for student performance, states with greater Hispanic populations tended to pass laws supporting charter schools earlier and—conditional on passing a law—were likely to pass more permissive legislation. These states also saw a greater proportion of students enrolled in charter schools in 2003-04, though our estimates of this effect are less precise. Interestingly, the fraction of a state population that is black has no statistically significant relationship with the passage, timing, or strength of charter laws, but does have a strong relationship with *participation*. Controlling for (among other things) law strength and school outcomes, we find a 12 percentage point (one standard deviation) increase in the fraction black to be associated with roughly a 2 percentage point higher charter school enrollment rate. Strong charter laws also appeared earlier in states with more educated populations—that is, where the fraction of adults with at least a college education was high. This finding—and the related finding that participation in charter schools is higher in states with more educated populations—may indicate a greater willingness on the part of these populations to experiment with new ideas; it may also be a "supply side" phenomenon if higher educational attainment leads to a greater pool of charter suppliers.

We find that a state's mean SAT score—or more precisely, the residual SAT score once a limited number of population characteristics, per-pupil spending and the fraction writing the SAT are controlled for—has a fairly consistent relationship with charter law passage and strength. States with higher-than-predicted SAT scores were less likely to pass charter school

[26] Due to the very limited number of observations, probit and logit models were inconclusive.

legislation, tended to adopt such legislation later if at all, and passed weaker laws. There appears to be little relationship between state SAT performance and actual *participation* in charter schools (the relationship is negative, but imprecisely estimated). Our proxy for the state dropout rate has no clear relationship to the passage or strength of charter legislation, but does, interestingly, have a quite strong (and statistically significant) relationship with charter school participation. States with higher than predicted dropout rates had significantly higher enrollment in charters—a two percentage point increase in the dropout rate residual (one standard deviation) is associated with a roughly one percentage point increase in charter school participation. The reason for this observed difference in the effects of achievement is not immediately clear. It may be that SAT scores as a very public measure of school performance lead to agitation for charter laws, but that charters themselves are more likely to target students at risk of dropping out, and therefore participation is more closely associated with dropout rates.

Finally, membership in teachers unions appears to be a particularly strong indicator of the legal status of charter schools. States where a greater fraction of teachers were covered by a union contract in 1987 were much *less likely* to pass a charter law by 1999, were more likely to pass a law later (if at all), and more likely to pass a weaker law. We find that a one standard deviation increase in the fraction of teachers who are unionized is associated with a twenty percentage point reduction in the likelihood that a law will pass. Interestingly, conditional on the successful passage of a charter law—and controlling for law strength—the fraction of students *enrolled* in charter schools appears to *increase* with the fraction of teachers unionized, though this effect is much less precise (p=0.3 and 0.2 in the two specifications). We find little evidence that the average level of public school competition in a state (as measured using a weighted average of district Herfindahl indices) is related to charter school legislation and participation at

the state level, nor do we find a relationship between income (or income inequality) and the support for charter schools. We also find that the fraction of student enrolled in private schools is positively related to law passage and its strength. This may be due to private school parents advocating charter schools as a substitute for private schools, or it may be related to overall area dissatisfaction with public schools and a higher demand in the area for school choice. (Recall we measure private school enrollment prior to the passage of charter laws, thus this coefficient does not measure the degree to which private school enrollment may be affected by charter schools.)

Our "quasi" first-difference estimates in Table 6 support the cross-sectional results in Table 5 in several ways, and they build upon them in others (mean changes in state characteristics are reported in Appendix Table 4). In particular, states that experienced greater increases in their Hispanic populations between 1980 and 1990 were more likely to pass charter school legislation in the 1990s, and were much more likely to pass stronger charter laws. States with a growing share of college-educated adults were more likely to pass laws, and pass stronger laws, while states with greater increases in unionization were less supportive of charter legislation (each of these latter results are less precisely estimated in Table 6 versus Table 5, though their signs are consistent).

Two findings in particular stand out in Table 6. First, there appears to be no statistically significant relationship between the 1980-1990 *changes*, or trends, in state SAT score residuals and support for charter schools at the state level. In only one of our estimated models do changes in dropout rate residuals bear any significant relationship with charter legislation, and this effect has an unexpected sign—states with greater than average increases in predicted dropout rates (i.e. an unfavorable trend in student performance) appear to be less likely to have passed charter legislation. These findings may not be terribly surprising, if charter schools are

viewed (as they often are publicized to be) as solutions to *systemic* deficiencies in school performance; such permanent differences across states in performance are more likely to be visible in our cross-sectional results than our first-difference estimates. Second, there appears to be a fairly consistent relationship between trends in income inequality and the support for charter schools. States with greater 1980-1990 increases in income inequality were more likely to pass charter laws, and to pass stronger legislation. They may also have experienced greater enrollment in charter schools, though this relationship only appears to hold when using our dropout measure of performance and the estimate is less precise (p=0.2).

In sum, our state-level analysis appears to give support to the idea that the demand for greater school choice (at least in the form of charter schools) is related to the performance of public schools, in particular the performance of students at the bottom of the achievement distribution. They also suggest that greater population heterogeneity, particularly rising income inequality and an increasing fraction of Hispanics, may have fueled charter law passages and led to stronger charter laws. The results also indicate that strong teachers unions substantially reduced the probability that a charter law took effect.

Our small number of observations on states required us to limit the number of interesting covariates we could study in this analysis. Our first difference results allow us to some extent to control for many of these other omitted variables. However, the results are also robust to a number of other alternative specifications. In general—and in contrast to earlier studies (e.g. Hassell (1999) and Wong and Shen (2004))—we have not reported results including measures of political party affiliation of the governorship or legislature in our regressions. We consider these political measures (in a representative government) to be reflective of the underlying preferences and demographics of the electorate, and therefore incidental to our analysis. However,

specifications which include the fraction of the 1989-1999 period in which Republicans occupied the state governorship indicate that this variable never has a statistically significant effect above and beyond our existing list of covariates. Coefficient estimates for other variables are similar to those reported here. We also experimented with alternative measures of public school choice, including Herfindahl indices using a 5 or 20 mile radius or the number of districts per student. Again, the results were similar to those reported here. Finally, we tried state average eighth grade math test scores on the 1990 NAEP as an alternative achievement measure, which were only available for 37 states. Lower NAEP scores were associated a higher probability that a charter law passed, stronger laws, and a higher fraction of students enrolled in charter schools. However, none of the coefficient estimates were significant at conventional levels, with *p* values ranging from .14 to .17.[27]

B. Support for Charter Schools across School Districts

Our results presented in Tables 5 and 6 are suggestive of the kinds of forces at the state level that produce support for charter school legislation—a growing Hispanic population share, widening income inequality, higher adult educational attainment, a less dominant union presence, and lower-than-predicted SAT scores, for example. It is perhaps not too surprising that we find few consistent correlates between state attributes and *participation* in charter schools, as most decisions about charter school attendance are made at the local level, based on attributes of the local market for education, which can vary widely within a state. The second part of our analysis is therefore based on district-level data. Results from cross-sectional estimates are

[27] Results available from the authors upon request.

presented in Table 7; our "quasi" first difference results are given in Table 8 (mean changes in district characteristics are reported in Appendix Table 5).[28]

Table 7 provides estimates from two pairs of models. The first and third columns are the estimated marginal effects from a probit model of the likelihood of a district having at least one charter school in 2003-04. The second and fourth columns are the results of a Tobit model for the fraction of public school students enrolled in charter schools in that year (here again we use a Tobit model to account for the large number of districts clustered at zero). In order to control for differences in state charter laws (and other unobserved differences in state preferences, demographics, and educational markets), we include state fixed effects in the first two columns; we replace these with MSA fixed effects in the latter two columns.[29] Also included in these models are dummy variables for the modal school locale in each district (a control for urbanicity), and dummy variables indicating the school district level (elementary, secondary, or unified).

Consistent with our state-level results on participation, we find that while the fraction of a school district's population that is black is strongly and positively related to charter school presence and enrollment, the fraction Hispanic bears little relationship with charter school participation at the district level. We find a ten percentage point increase in the fraction black (one standard deviation) increases participation in charters by about six percentage points. Given that the average fraction enrolled in charter schools in districts with a charter school is only about 10 percent, this is a considerably large effect. We also find that the fraction of adults that are

[28] Unfortunately, consistent district-level test scores are not available for all states in the 1990s, so we are unable to include such measures in our current analysis.Glomm, Harris, and Lo (2005) consider 4th grade MAEP math scores in their study of charter school growth across Michigan districts.

[29] MSAs are defined based upon their 1999 Census definitions. Our model in column (1) with state fixed effects clearly requires some within-state variation in charter school presence; thus, we lose a number of districts in states with no charter laws (10 states), in states with charter laws but no schools (2) and in states where all districts have

college-educated continues to be positively related to the presence of a charter school and the fraction of students enrolled in charters, and the magnitude of the effect is similar to the effect of the fraction black. As in our state-level estimates, districts that already had high fractions of students enrolled in private schools (controlling for urbanicity) had a greater likelihood of having a charter school open in their district by 2003-04, and saw a higher fraction of public school students enrolled in these schools in that year. This latter result may be indicative of receptiveness on the part of these districts toward alternatives to public schools, or of a long-run response to systemic problems in these schools; it certainly suggests that existing private schools did not serve as a hindrance to the later start-up of public charters.[30] Our measure of existing *public* school choice—the public enrollment Herfindahl index—appears to have no statistically significant relationship with charter school support at the district level, though the point estimates continue to be positive in sign. Estimated coefficients for the district locale and level dummy variables are not reported, but in general, secondary and unified districts were more likely to have a charter school in 2003-04 than elementary districts, and districts whose modal school locale was a large (or central) city, mid-size city, or large town were more likely to have a charter school than districts whose modal locale was the urban fringe of a large or mid-sized city, or rural area.[31]

We also find, consistent with our state-level results, that higher-than-predicted rates of high school dropouts are positively related to the presence of—and enrollment in—charter schools. A one standard deviation increase in the dropout rate is associated with about a two

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charters (1—DC). Likewise, our model in column (3) requires within-MSA variation in charter school presence (this explains the smaller sample size in that column).

[30] Whether new public charter schools became a *substitute* for existing private schools is a question that we do not address in this paper, and defer to later research.

[31] Modal school locales are derived from the CCD School Universe 2003-04. We omit the enrollment Herfindahl index from our regression specifications in columns (3) and (4) of Table 7, because the MSA fixed effect will account for the degree of public school district competition facing at the MSA level facing each district.

percentage point increase in the fraction of student enrolled in charters. In addition, within-district income inequality tends to be associated with higher rates of charter schooling in 2003-04 (though this result is not quite statistically significant at conventional levels). Districts whose spending was below their state average were more likely to have charter schools open in their district, though relative expenditure is not related to student enrollment in these schools.

Interestingly, even when we control for (among other things) district demographics, dropout rates, district locale and state law strength (via state fixed effects), we find that the extent of teachers' unionization is positively and statistically significantly related to the emergence of charter schools. Districts with a greater union presence were more likely to have a charter school in 2003-04, and saw a greater fraction of public school students enrolled in charter schools in that year. A one standard deviation increase in the fraction of teachers unionized is associated with about a 2 percentage point increase in the fraction of students enrolled in charters.

Moving from the cross-sectional estimates of Table 7 to the "quasi" first-difference estimates of Table 8 yields some additional insights.[32] Contrary to our first-difference estimates at the state level, we find that school districts that experienced larger increases in the black share of the population were more likely to have charter schools in 2003-04 and see greater fractions of public school students enrolled in those schools. For example, a district with a three percentage point increase in the fraction black (one standard deviation above the mean increase) is predicted to have about three percentage points higher enrollment in charters than a district with the mean increase. Districts with a growing fraction of college educated adults also experienced large increases in charter school enrollment. A district with a 10 percentage point increase in the

[32] The Common Core of Data—upon which we relied to compute our Herfindahl measures of public school district enrollment concentration (using that data's zip codes and/or spatial coordinates for each district)—did not begin until 1986. Thus, for our 1980 competition measures we used the Elementary and Secondary Education General

fraction of college educated adults (one standard deviation above the mean increase) is predicted to have about ten percentage points more students enrolled in charter schools than a district with mean characteristics. Given that the average district with at least one charter school has only ten percent of students enrolled in the charter, these are sizable effects. Similarly, districts with growing Hispanic shares saw greater support for charter schools, in both the opening of schools and enrollment, although these estimates are not always statistically significant. As in our state-level results, we find that—holding constant median household income and the district poverty rate—increases in income inequality (in this case, within-district income inequality) are associated with increased support for charter schools. Districts one standard deviation above the mean in the measure of the change in inequality have about a three percentage points more students enrolled in charters.

In Table 8 we again find that greater unionization at the district level is associated with *higher* participation in charter schools (though less significantly than in Table 7). 1980 to 1990 changes in the high school dropout rate residual again (as in our state-level estimates) do not have a consistently signed relationship with charter school support at the district level, and is often statistically insignificant. One finding that appears somewhat contrary to expectations is that associated with relative spending: districts whose per-pupil spending increased relative to the state average over the 1980-1990 period were more likely to have charter schools open in those districts, and see greater enrollment in charter schools. One possible explanation for this seemingly anomalous result (which runs counter to the cross-sectional estimates in Table 7) is that the districts whose spending increased the most relative to the state average were low-spending, low-performing districts that benefited from large spending infusions and finance

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Information Survey (ELSEGIS) for 1979-80 and computed Herfindahl indices for districts located in MSAs only, matching county numbers from that survey to 1999 Census MSA definitions for consistency.

equalization reforms during the 1980s. Thus, the observed positive relationship between relative spending gains and charter school participation may be picking up systemic, unobserved quality differences between districts.

Here again, we experimented with a number of alternative specifications to ensure that our results were robust. We used CCD measures of demographic characteristics (percent black and Hispanic, percent receiving free or reduced price lunches, overall district racial segregation, percent students in special education.) Many of the coefficient estimates revealed a similar pattern of district heterogeneity associated with greater charter school enrollment. However, many districts in the early years has missing data or appeared to have discrepancies in the data, and so we choose to use Census measures instead. As in the state analysis, we also used alternative measures of public school competition (e.g., number of districts per student), with similar results.

VI. Conclusions

School choice plans increased dramatically over the 1990s, expanding at a more rapid rate than many other types of school reforms, including those tied to testing and accountability. While there is a large and growing body of research studying the effects of school choice, there is less known about the driving forces behind the school choice movement. Understanding under what conditions states pass laws favorable to charters and under what conditions charter school participation is likely to be high will help to identify locations where school choice plans are likely to present a meaningful alternative to traditional public schools and where they are likely to remain small. It may also be the case that achievement in charter schools and the effect of charters on achievement in traditional public schools may depend in part on the motivations of

parents who choose these schools. A better understanding of these influences may help to shed light on the current state of research on the effectiveness of charter schools.

Our results indicate that there are several sources for the expanding charter school movement. One sizable contributor is the increase in population heterogeneity, both within states and within districts. States with growing income inequality and a rising fraction of Hispanics were more likely to pass charter laws and to pass stronger laws. At the local level, districts with a high or increasing percentage of blacks, a high or increasing percentage of college educated adults, and with growing income inequality also had a substantially larger fraction of students in charter schools than more homogenous districts or districts that experienced smaller changes. These effects explain a large portion of the changes in charter school enrollment. Second, we found some evidence that systemically low student achievement also fuels the growth of charters. States with poor performance on the SAT were more likely to pass charter laws and to pass stronger laws. States and districts with higher dropout rates also had significantly higher participation in charter schools. Finally, we found that a highly unionized teaching force tends to reduce the likelihood that a charter law passes at the state level, but conditional on passing (and law strength), districts with a highly unionized teaching force are more likely to have charter schools emerge within their boundaries and experience a larger fraction of students enrolling in charter schools.

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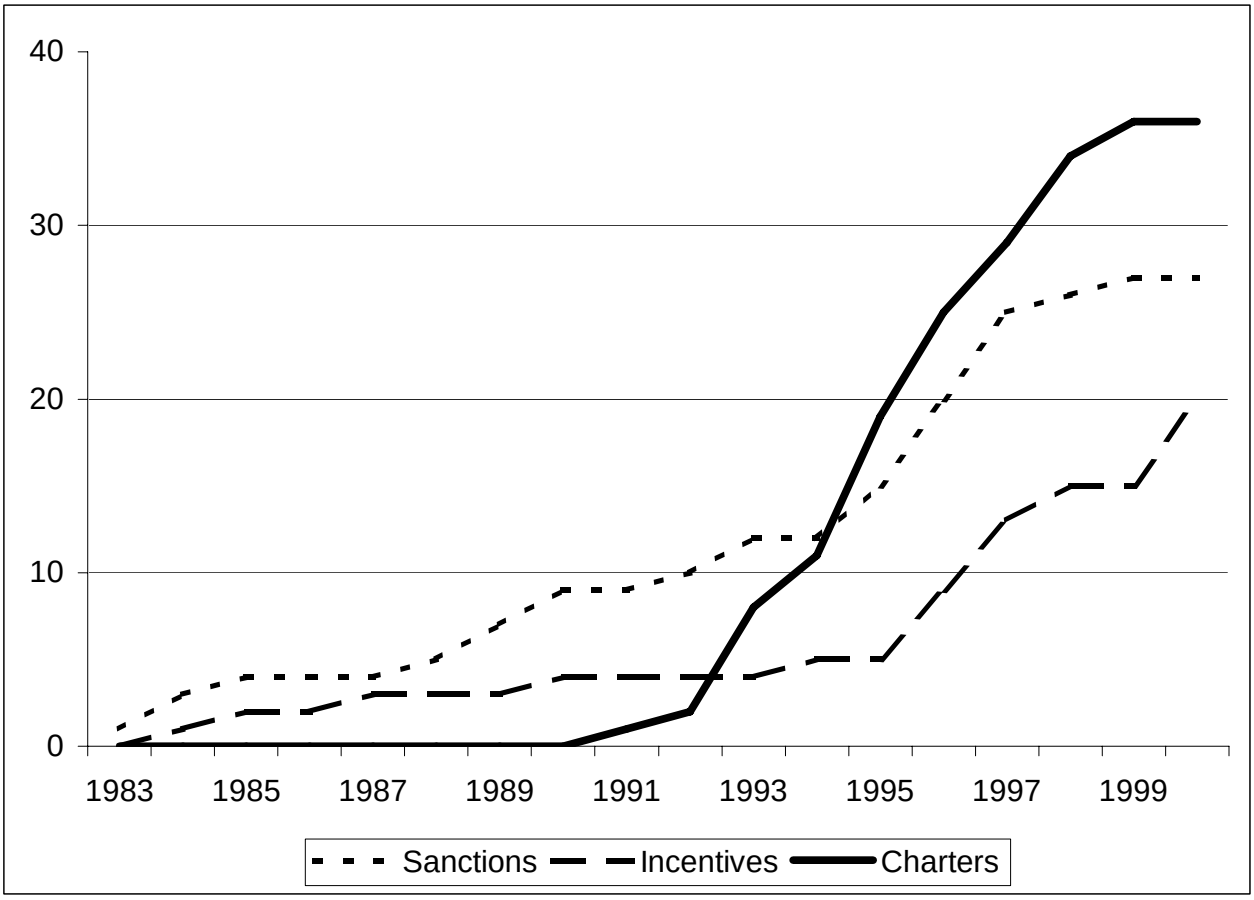
Figure 1: Number of States with Accountability Reforms and Charter School Authorizations, 1983-2000



Notes: Incentives are laws providing monetary incentives based on student performance. Sanctions are laws reducing aid, restructuring, reconstituting or taking over poor performing schools or districts. Source: Stoddard and Kuhn (2006).

Figure 2: Strength of Charter Laws in 2004, and School Locations 2003-04
(Source: Common Core of Data Schools Universe 2003-04 and Center for Education Reform (2004))

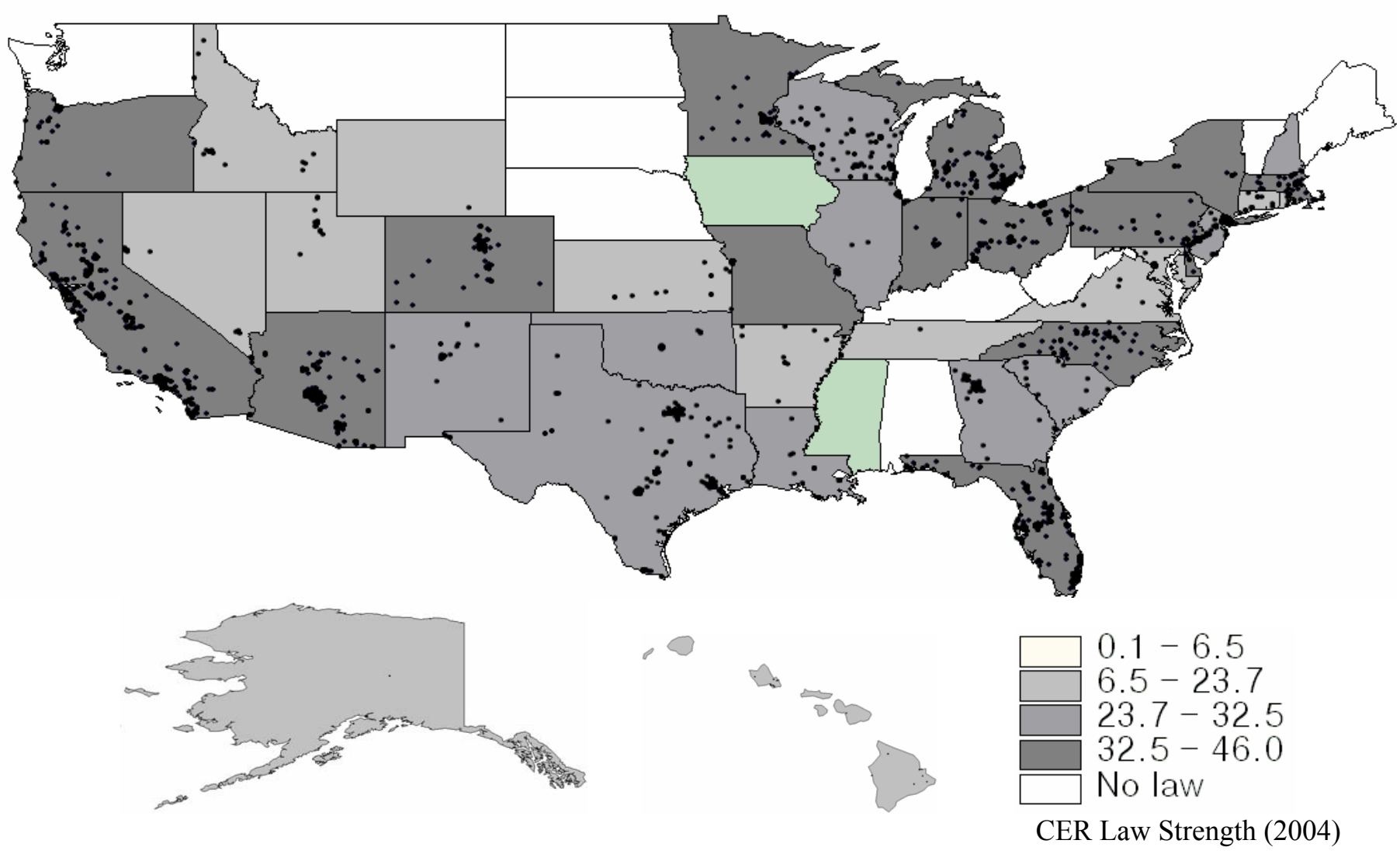


Table 1: Center for Education Reform Criteria for a "Strong" State Charter Law

1) number of schools—states with stronger charter laws place fewer restrictions on the number of charter schools in operation

2) multiple chartering authorities—states with stronger charter laws allow entities other than local school boards to authorize new charters, or provide appeals processes to schools whose charter application has been denied

3) types of applicants—states with stronger charter laws place fewer restrictions on the types of groups or individuals that can form charter schools

4) new starts vs. conversions—states with stronger charter laws allow for the formation of new schools, not simply conversions of existing public schools

5) evidence of local support—states with stronger charter laws do not require upstart schools to demonstrate a threshold level of local support for the school

6) waiver from laws and regulations—states with stronger charter laws automatically waive most state and local education laws for charter schools

7) legal autonomy—states with stronger charter laws permit charter schools to operate as independent legal entities, rather than operating under district jurisdiction (includes autonomy from enrollment restrictions)

8) full funding—states with stronger charter laws provide the same level of per-pupil funding to charter schools that the student would have received in a regular public school

9) fiscal autonomy—states with stronger charter laws give charter schools full authority over their own budgets

10) exemption from collective bargaining—states with stronger charter laws provide charter schools with complete control over their personnel decisions

Source: Center for Education Reform (2004)

Table 2: Charter Schools, Charter Enrollment, and Districts Containing Charter Schools, by State, 2003-04

	Count of charter schools	Total enrollment in charter schools	Count of districts containing at least one charter school	Percent of enrollment in charter schools	Percent of districts with at least one charter
AK	19	3,476	10	2.60	18.9
AR	13	2,719	12	0.60	3.9
AZ	507	82,091	95	8.01	43.6
CA	467	181,184	196	2.88	20.0
CO	96	31,529	43	4.17	24.4
CT	13	2,427	10	0.42	6.0
DC	37	12,958	1	16.64	100.0
DE	13	6,241	8	5.30	50.0
FL	258	67,574	39	2.61	58.2
GA	53	29,178	15	1.91	8.3
HI	26	4,502	1	2.45	100.0
ID	17	4,811	12	1.91	10.7
IL	28	11,750	6	0.56	0.7
IN	17	2,908	10	0.29	3.4
KS	19	1,493	15	0.32	5.0
LA	16	4,585	8	0.63	12.1
MA	51	17,971	28	1.83	9.4
MD	1	196	1	0.02	4.2
MI	222	73,829	100	4.23	18.1
MN	105	14,256	32	1.69	9.3
MO	26	10,304	2	1.12	0.4
MS	1	338	1	0.07	0.7
NC	93	21,955	36	1.60	30.8
NJ	51	12,806	22	0.93	3.9
NM	34	6,225	13	1.87	14.6
NV	15	3,917	3	1.02	17.6
NY	50	14,572	12	0.51	1.7
OH	165	46,130	43	2.51	7.0
OK	12	3,491	2	0.56	0.4
OR	38	3,376	25	0.62	12.6
PA	102	41,114	30	2.26	6.0
RI	10	1,728	6	1.09	16.7
SC	19	3,239	11	0.46	12.9
TN	4	324	2	0.04	1.5
TX	301	73,107	80	1.69	7.7
UT	19	3,253	10	0.66	25.0
VA	7	786	7	0.07	5.2
WI	140	22,902	66	2.60	15.5
WY	1	132	1	0.15	2.1
Total (39)	3,066	825,377	1,014	1.71	7.2

Source: Authors' calculations, using data from the 2003-2004 Common Core of Data Public Elementary – Secondary School Universe, and Allen and Cooper (2004).

Notes: charter schools were mapped to public school districts according to the spatial coordinates of their school's location, using 2003-04 CCD school coordinates and Census 2000 school district boundary files (see data appendix for more information).

Table 3: Mean Characteristics of States in 1990, All States and by Charter Law Status

	No charter law by 1999	Charter Law in 1999
Fraction black	0.067	0.121
	(0.089)	(0.129)
Fraction Hispanic	0.013	0.067
	(0.011)	(0.082)
Fraction of adults with college+	0.426	0.464
	(0.073)	(0.062)
Gini coefficient of household income, 1989	0.421	0.432
	(0.023)	(0.023)
Median household income (in thousands), 1989	26.407	30.167
	(4.842)	(5.450)
State average SAT score, 1989-90	973.929	934.730
	(72.489)	(59.183)
Percent taking SAT, 1989-90	26.429	36.514
	(23.399)	(24.053)
High School dropout rate (fraction of the civilian population age 16-19 not in school, not HS graduate)	0.096	0.108
	(0.027)	(0.023)
Expenditures per student (in thousands)	5.210	5.733
	(1.000)	(1.656)
Fraction of instructional employees organized, 1987	0.467	0.428
	(0.178)	(0.203)
Fraction K-12 students enrolled in private school	0.075	0.094
	(0.024)	(0.042)
Weighted average enrollment Herfindahl index, 10 mile radius (based on 1989-90 enrollment patterns)	0.321	0.377
	(0.205)	(0.327)
Charter law strength in 1999 (CER, from Appendix Table 1)	--	29.691
		(11.535)
Enrollment in charter schools in 2003-04 (thousands)	--	20.131
		(34.109)
Fraction students enrolled in charter schools, 2003-04	--	0.019
		(0.029)
N	14	37

Standard deviations in parentheses. Sources: 1990 Census, 1995 and 1991 Digest of Education Statistics (expenditures and SAT scores), 1987 Census of Governments (for fraction of instructional employees organized), 1989-90 and 2003-04 Common Core of Data (for enrollment Herfindahl index and charter school enrollment), and author's calculations. Average enrollment Herfindahl index is calculated as the weighted average of district enrollment Herfindahl indices (using a 10-mile radius to define local market areas), where weights are K-12 student enrollment. Expenditure per student is "current expenditures per pupil in average daily attendance." See data appendix for more information.

Notes: the following 14 states did *not* have charter laws as of 1999: Alabama, Iowa, Indiana, Kentucky, Maryland, Maine, Montana, North Dakota, Nebraska, South Dakota, Tennessee, Vermont, Washington, and West Virginia. Four of these—Iowa, Indiana, Maryland, and Tennessee—had passed laws by 2003-04. While 37 states had charter laws in 1999, only 32 of these had open schools as of 1999-2000 (Arkansas, New Hampshire, Oklahoma, Virginia, and Wyoming had none). In 2003-04, two of the 41 states with charter laws had no schools or charter enrollment (Iowa and New Hampshire). Hawaii (a charter state) is missing from the "instructional employees organized" mean.

Table 4: Mean Characteristics of School Districts in 1990,
All Districts and by Presence of Charter Schools in 2003-04

	No charter in district in 2003-04	At least one charter in district in 2003-04
Fraction black	0.040	0.094
	(0.104)	(0.151)
Fraction Hispanic	0.044	0.099
	(0.116)	(0.149)
Fraction of adults with college+	0.160	0.202
	(0.119)	(0.112)
Gini coefficient of family income, 1989	0.349	0.372
	(0.087)	(0.050)
Median household income (in thousands), 1989	28.186	29.526
	(11.748)	(9.000)
Fraction of population below poverty, 1989	0.137	0.141
	(0.098)	(0.093)
District per-pupil expenditure as a fraction of the state average per-pupil expenditure	1.003	0.958
	(0.329)	(0.221)
High school dropout rate (fraction of the civilian population age 16-19 not in school, not HS graduate)	0.093	0.115
	(0.087)	(0.065)
Fraction of district instructional employees organized, 1987	0.385	0.412
	(0.386)	(0.372)
Fraction K-12 students enrolled in private school	0.072	0.092
	(0.087)	(0.064)
Enrollment Herfindahl index, 10 mile radius (based on 1989-90 enrollment patterns)	0.276	0.363
	(0.295)	(0.351)
Enrollment in charter schools in 2003-04		827.117
	--	(2203.247)
Fraction students enrolled in charter schools, 2003-04	--	0.097
		(0.301)
N	13,033	973

Standard deviations in parentheses. Sources: 1990 Census, 1992 Census of Governments (per-pupil expenditures), 1987 Census of Governments (instructional employees organized), 1989-90 and 2003-04 Common Core of Data (for enrollment Herfindahl index and charter school enrollment, respectively), Corcoran and Evans (2004) for district Gini coefficients, and author's calculations. Districts are defined based on their 2000-01 boundaries (that is, if districts consolidated between 1989-90 and 2000-01, they are combined and treated as one district for purposes of this analysis). Refer to data appendix for more information.

Table 5: Effect of State Characteristics on Legal Status of Charters and Participation in Charters

	Charter law in 1999	Charter law in 1999	Year Passed	Year Passed	2003 Law Strength	2003 Law Strength	% in Charter in 2003-04	% in Charter in 2003-04
Fraction black	-0.528	-0.745	-1.840	0.378	16.855	21.263	0.164	0.188
	(0.869)	(0.917)	(5.570)	(5.941)	(33.509)	(37.36)	(0.043)**	(0.042)**
Fraction Hispanic	0.653	-0.039	-17.474	-11.680	93.122	84.482	0.040	0.068
	(0.952)	(1.023)	(7.312)*	(7.032)	(44.489)*	(49.301)†	(0.058)	(0.055)
Fraction of adults	3.349	2.672	-20.417	-17.223	89.603	68.246	0.184	0.186
with college +	(1.372)*	(1.435)†	(11.037)†	(10.429)	(55.707)	(58.904)*	(0.071)*	(0.066)**
Gini coefficient of	4.494	8.719	39.408	7.885	-124.500	-62.048	-0.121	-0.306
household income	(5.309)	(5.453)	(41.504)	(43.845)	(195.814)	(221.367)	(0.266)	(0.264)
Median household	-0.003	0.017	0.168	0.056	-0.250	0.230	-0.001	-0.002
income (in thousands)	(0.174)	(0.016)	(0.129)	(0.120)	(0.680)	(0.722)	(0.001)	(0.001)*
SAT (residual)	-0.010		0.065		-0.396		-0.0001	
	(0.003)**		(0.026)*		(0.141)**		(0.0002)	
Dropout rate		-0.882		8.933		144.357		0.374
(residual)		(3.489)		(30.646)		(152.229)		(0.171)*
Fraction of instructional	-1.027	-1.091	2.780	2.980	-18.785	-19.406	0.025	0.027
employees organized	(0.381)**	(0.423)*	(4.077)	(4.310)	(16.107)	(17.199)	(0.020)	(0.019)
Fraction K-12 enrolled	8.322	5.396	-33.063	-14.501	348.892	248.833	0.042	0.059
in private school	(2.575)**	(3.080)†	(23.392)	(26.934)	(121.23)**	(121.05)*	(0.156)	(0.136)
Average enrollment	0.212	0.384	3.458	2.153	-0.568	0.859	-0.002	-0.009
Herfindahl index	(0.337)	(0.382)	(2.820)	(2.837)	(11.833)	(13.226)	(0.015)	(0.014)
Years law in place							0.002	0.002
(zero if no law)							(0.001)	(0.001)**
Strength of law in							0.001	0.0009
2003 (zero if no law)							(0.0002)**	(0.0002)**
Observations	50	50	40	40	50	50	50	50
R-squared (pseudo)	0.477	0.359	0.367	0.228	0.081	0.063		

Robust standard errors in parentheses. † significant at 10% * significant at 5%, ** significant at 1%

Notes: "Year Passed" ranges from 1991 (Minnesota) to 2003 (Maryland); note that we extend our definition of charter states in this regression to include the four states that passed charter laws between 1999 and 2003. See notes to Table 3 for data sources, and Appendix Table 2 for estimates of "predicted" SAT scores and dropout rates. Hawaii is excluded from all regressions in this table (due to missing unionization data). See data appendix for more information.

Table 6: Effect of Changes in State Characteristics on Legal Status of Charters and Participation in Charters

	Charter law in 1999	Charter law in 1999	Year Passed	Year Passed	2003 Law Strength	2003 Law Strength	% in Charter in 2003-04	% in Charter in 2003-04
Change fraction	0.036	-5.618	18,325.9	-3,308.2	58.548	-231.980	0.052	-1.786
black	(14.963)	(5.502)	(18,768.9)	(8,327.9)	(491.396)	(272.605)	(0.401)	(0.287)**
Change fraction	3.426	3.073	4,458.8	3,640.1	148.078	140.055	0.083	-0.016
Hispanic	(1.370)*	(1.333)*	(2,462.0)†	(2,432.0)	(70.114)*	(68.502)*	(0.061)	(0.080)
Change fraction of	3.648	4.023	9,984.4	10,008.4	283.678	269.140	0.043	-0.067
adults w/college+	(5.528)	(5.426)	(11,114.8)	(11,061.2)	(194.536)	(191.951)	(0.179)	(0.231)
Change Gini coefficient	8.426	8.657	17,576.4	19,887.9	493.440	543.951	-0.103	0.479
of household income	(5.220)	(3.882)*	(10,782.2)	(8,218.9)*	(235.603)*	(223.435)*	(0.226)	(0.321)
Change median	0.014	0.028	18.342	45.917	0.261	0.414	-0.001	0.001
household income (in thousands)	(0.020)	(0.019)	(39.662)	(34.654)	(0.827)	(0.814)	(0.001)	(0.001)
Change in SAT	-0.001		-2.024		0.004		0.0000	
residual	(0.004)		(7.651)		(0.183)		(0.0001)	
Change in dropout		-7.458		-9,679.4		17.630		-0.280
rate residual		(4.141)†		(8,256.4)		(159.987)		(0.222)
Change fraction of	-0.429	-0.276	-1,134.63	-787.67	-16.846	-13.978	-0.002	0.021
instructional employees organized	(0.372)	(0.360)	(748.92)	(672.54)	(15.694)	(15.131)	(0.013)	(0.017)
Change fraction K-12	0.378	2.637	-1,089.2	5,858.5	364.177	440.671	0.118	0.541
in private school	(7.262)	(6.144)	(13,311.7)	(11,554.8)	(265.945)	(238.259)†	(0.240)	(0.291)†
Years law in place							0.002	0.002
(zero if no law)							(0.001)*	(0.001)
Strength of law in 2003							0.0008	0.0010
(zero if no law)							(0.0002)**	(0.0003)**
Observations	49	50	49	50	49	50	49	50
R-squared (pseudo)	0.230	0.289	0.281	0.296	0.057	0.060		

Robust standard errors in parentheses. † significant at 10% * significant at 5%, ** significant at 1%

Notes: all regressors measured as 1980 to 1990 changes from the decennial Census except teacher unionization (1987-1977) and SAT scores (1982-83 to 1989-90). "Year Passed" ranges from 1991 (Minnesota) to 2003 (Maryland). See notes to Table 3 for data sources, and Appendix Table 2 for estimates of "predicted" SAT scores and dropout rates. Hawaii and DC are excluded from all regressions in this table (due to missing unionization and SAT data, respectively). See data appendix for more information.

Table 7: Effect of District Characteristics on the Presence of and Enrollment in Charter Schools

	Have at least one charter in 2003-04	% in charter in 2003-04	Have at least one charter in 2003-04	% in charter in 2003-04
Fraction black	0.123	0.596	0.249	0.651
	(0.015)**	(0.075)**	(0.034)**	(0.103)**
Fraction Hispanic	0.001	-0.056	-0.029	-0.178
	(0.013)	(0.068)	(0.038)	(0.126)
Fraction of adults	0.165	0.678	0.294	0.610
with college+	(0.021)**	(0.104)**	(0.045)**	(0.146)**
Gini coefficient of	0.031	0.098	0.082	0.189
family income, 1989	(0.024)	(0.149)	(0.058)	(0.217)
Median household income	-0.000	-0.000	-0.000	-0.000
(in thousands), 1989	(0.000)**	(0.000)**	(0.000)**	(0.000)**
Fraction of population	-0.024	0.083	0.039	0.410
below poverty, 1989	(0.041)	(0.142)	(0.096)	(0.210)†
District PPE/State PPE	-0.034	-0.035	-0.070	-0.007
	(0.008)**	(0.035)	(0.018)**	(0.048)
HS Dropout rate (residual)	0.055	0.203	0.084	0.207
	(0.018)**	(0.109)†	(0.052)†	(0.178)
Fraction of district instructional	0.006	0.048	0.012	0.066
employees organized (1987)	(0.003)†	(0.020)*	(0.009)	(0.030)*
Fraction K-12	0.063	0.281	0.100	0.252
in private school	(0.018)**	(0.112)*	(0.041)*	(0.162)
Enrollment Herfindahl index,	0.004	0.001		
10 mile radius	(0.007)	(0.038)		
Dummies for modal school locale	Yes	Yes	Yes	Yes
Dummies for school district level	Yes	Yes	Yes	Yes
Regional fixed effect	state	state	MSA	MSA
Observations	10,440	13,258	4,923	6,157
R-squared (pseudo)	0.320	0.380	0.350	0.396

Robust standard errors in parentheses. † significant at 10% * significant at 5%, ** significant at 1%

Notes: columns one and three report the marginal effects (computed at the mean of each regressor) from a probit model; columns two and four report the marginal effects from a Tobit model. Seven dummy variables are included in each specification that indicated the modal school locale for each district (large city/central city of an MSA, mid-size city, urban fringe of a large city, urban fringe of a mid-size city, large town, small town, rural and outside MSA, rural and inside MSA). Dummy variables are included that indicate the type of school district (elementary, secondary or unified). See notes to Table 5 for data sources, and the data appendix for more information.

In column 1, all districts in states with no charter laws (AL, KY, ME, MT, ND, NE, SD, VT, WA, and WV), states with charter laws but no schools (IA, NH) and states with only one district or states with charters in every district (DC) are dropped from the regression when state fixed effects are included. In column 3, districts in 145 MSAs where no districts contained charter schools are dropped (districts in 182 MSAs remain).

Table 8: Effect of Changes in District Characteristics on Presence of and Enrollment in Charter Schools

	Have at least one charter in 2003-04	% in charter in 2003-04	Have at least one charter in 2003-04	% in charter in 2003-04	Have at least one charter in 2003-04	% in charter in 2003-04
Change fraction black	0.180	0.843	0.351	0.944	0.275	0.709
	(0.050)**	(0.249)**	(0.098)**	(0.305)**	(0.100)**	(0.311)*
Change fraction Hispanic	0.060	0.206	0.168	0.362	0.155	0.373
	(0.041)	(0.203)	(0.093)†	(0.268)	(0.096)	(0.282)
Change fraction of adults w/college+	0.221	0.998	0.472	1.351	0.510	1.400
	(0.040)**	(0.193)**	(0.086)**	(0.268)**	(0.085)**	(0.265)**
Change Gini coefficient of family income	0.063	0.284	0.139	0.369	0.128	0.356
	(0.024)**	(0.158)†	(0.065)*	(0.251)	(0.064)*	(0.235)
Change median household income	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
(in thousands)	(0.000)**	(0.000)**	(0.000)**	(0.000)**	(0.000)**	(0.000)**
Change in fraction of population	0.008	0.085	0.025	0.208	0.045	0.302
below poverty	(0.057)	(0.181)	(0.174)	(0.273)	(0.143)	(0.265)
Change in district PPE/state PPE ratio	0.009	0.075	0.021	0.172	0.012	0.101
	(0.004)*	(0.033)*	(0.010)*	(0.052)**	(0.009)	(0.046)*
Change in dropout rate residual	-0.008	-0.185	0.056	-0.081	0.005	-0.260
	(0.018)	(0.101)†	(0.049)	(0.165)	(0.050)	(0.160)
Change fraction of instructional employees	0.001	0.022	0.005	0.038	0.002	0.035
organized	(0.003)	(0.016)	(0.006)	(0.024)	(0.007)	(0.024)
Change fraction K-12 in private school	-0.024	-0.235	-0.074	-0.443	-0.086	-0.397
	(0.027)	(0.174)	(0.064)	(0.262)†	(0.061)	(0.248)
Change enrollment Herfindahl index			0.043	0.141		
(for districts in MSAs only)			(0.048)	(0.166)		
Dummies for modal school locale	Yes	Yes	Yes	Yes	Yes	Yes
Dummy for school district level	Yes	Yes	Yes	Yes	Yes	Yes
Regional fixed effect	state	state	state	state	MSA	MSA
Observations	10,445	13,159	4,864	5,282	4,896	6,119
R-squared (pseudo)	0.295	0.358	0.299	0.307	0.317	0.375

Robust standard errors in parentheses. † significant at 10% * significant at 5%, ** significant at 1%

Notes: see notes to Table 5 and Appendix Table 5, and the data appendix for data sources.

Appendix Table 1: Center for Education Reform Rankings of State Charter Legislation, 2004 ("Strongest" to "Weakest")

State	Year Charter Law Passed	CER Overall Law Strength (2004)	2004 CER Individual Criteria Scores (Each on a 1-5 Scale)									
			Number of Schools	Multiple Chartering Authorities	Types of Applicants	New Starts vs. Conversions	Evidence of Local Support	Waiver from Laws and Regulations	Legal Autonomy	Full Funding	Fiscal Autonomy	Exempt from Collective Bargaining
Arizona	1994	46.00	4.50	4.00	5.00	4.75	5.00	4.50	5.00	3.50	5.00	4.80
Minnesota	1991	45.25	5.00	4.50	5.00	4.75	3.50	5.00	4.50	3.50	5.00	4.50
D.C.	1996	44.75	4.50	4.00	5.00	4.75	3.00	5.00	4.50	4.50	4.50	5.00
Delaware	1995	44.50	5.00	4.00	5.00	4.50	3.50	3.50	4.00	5.00	5.00	5.00
Michigan	1993	44.45	4.50	4.50	5.00	4.75	5.00	2.70	5.00	5.00	5.00	3.00
Massachusetts	1993	40.30	3.30	3.50	4.30	4.50	4.00	3.00	4.70	5.00	5.00	3.00
Florida	1996	39.25	4.00	1.75	5.00	4.50	3.00	3.00	3.50	5.00	5.00	4.50
Indiana	2001	39.25	4.00	4.50	4.00	4.75	3.00	5.00	3.00	3.00	5.00	3.00
Colorado	1993	39.00	4.50	3.00	5.00	4.50	3.00	3.25	2.75	4.00	4.50	4.50
New York	1998	38.30	2.30	4.00	4.00	4.50	4.00	5.00	5.00	2.50	4.00	3.00
Ohio	1997	37.50	3.00	4.50	5.00	4.50	5.00	3.00	3.00	3.50	3.00	3.00
North Carolina	1996	37.25	3.00	3.00	5.00	4.75	3.00	4.00	3.00	4.50	4.00	3.00
Pennsylvania	1997	36.75	5.00	1.75	5.00	4.50	3.50	3.00	3.00	3.00	3.50	4.50
Missouri	1998	36.00	2.00	3.50	4.00	3.00	4.00	4.00	3.50	4.00	4.00	4.00
California	1992	35.75	5.00	4.00	5.00	4.75	3.00	2.00	2.00	3.00	3.00	4.00
Oregon	1999	34.75	5.00	1.50	5.00	3.50	5.00	2.50	3.00	2.50	2.50	4.25
New Jersey	1996	32.50	5.00	3.00	4.00	4.50	3.00	1.00	2.00	2.00	5.00	3.00
Wisconsin	1993	32.05	5.00	3.50	5.00	4.75	2.50	2.50	2.50	2.00	1.80	2.50
Texas	1995	30.75	3.00	3.25	4.25	4.75	3.50	0.00	2.00	3.00	3.00	4.00
New Mexico	1993	30.00	3.50	1.75	5.00	4.50	3.00	2.00	2.75	3.00	2.00	2.50
Oklahoma	1999	29.00	2.00	1.00	4.00	4.50	5.00	2.50	1.00	2.00	3.00	4.00
South Carolina	1996	28.75	5.00	1.75	4.00	4.50	2.00	2.50	2.00	2.00	2.00	3.00
New Hampshire	1995	28.00	5.00	4.00	3.00	2.00	3.00	4.00	2.00	0.00	0.00	5.00
Illinois	1996	27.00	1.75	1.75	4.00	4.50	1.00	3.00	2.00	3.00	3.50	2.50
Louisiana	1995	26.25	2.00	1.75	3.50	4.50	2.00	2.50	1.00	3.00	4.50	1.50
Georgia	1993	25.00	5.00	1.50	5.00	4.50	2.50	0.00	1.00	2.00	2.00	1.50
Idaho	1998	23.70	2.60	1.30	5.00	4.50	1.00	4.30	0.00	3.00	1.00	1.00
Connecticut	1996	23.00	1.50	2.50	1.50	4.50	1.00	2.50	0.5.	3.50	3.00	2.50
Nevada	1997	23.00	2.00	1.00	2.00	4.50	5.00	2.50	1.50	3.50	1.00	0.00
Utah	1998	23.00	1.50	3.00	4.00	4.50	2.50	0.60	1.60	0.30	1.00	4.00
Wyoming	1995	21.75	5.00	1.75	5.00	4.50	2.50	0.50	0.00	1.50	1.00	0.00

Tennessee	2002	20.75	2.00	1.75	4.00	4.00	2.00	0.00	0.00	3.00	1.00	3.00
Hawaii	1994	20.00	2.00	1.00	3.00	4.50	2.00	4.50	0.50	1.50	1.00	0.00
Alaska	1995	18.80	2.30	1.00	5.00	5.00	1.00	0.00	0.00	3.50	1.00	0.00
Arkansas	1995	17.00	2.00	2.50	2.00	4.50	2.50	0.00	2.00	1.50	0.00	0.00
Rhode Island	1995	15.00	1.00	1.00	2.50	4.50	0.00	0.50	0.50	3.50	1.50	0.00
Maryland	2003	14.50	1.00	1.50	4.00	4.00	1.00	0.00	0.00	2.00	1.00	0.00
Virginia	1998	13.10	1.60	1.00	2.00	4.50	2.50	0.50	0.50	0.50	0.00	0.00
Kansas	1994	13.00	1.00	1.00	4.50	4.50	1.00	0.50	0.00	0.50	0.00	0.00
Iowa	2002	6.50	1.00	1.00	0.00	0.00	1.50	3.00	0.00	0.00	0.00	0.00
Mississippi	1997	2.30	0.00	1.00	0.00	0.00	0.00	1.30	0.00	0.00	0.00	0.00
AVERAGE		28.87										

Notes: states with no charter law in 2004 include Alabama, Kentucky, Maine, Montana, Nebraska, North Dakota, South Dakota, Vermont, Washington and West Virginia. In 2003-04, two of the 41 states with charter laws had no schools or charter enrollment (Iowa and New Hampshire).

Appendix Table 2: State Achievement Regressions

	SAT total score 1989-90	SAT total score 1982-83	High School Dropout rate 1990	High School Dropout rate 1980
Percent of graduating seniors taking SAT	-6.904	-7.251		
	(0.677)**	(0.546)**		
Percent of graduating seniors taking SAT (squared)	0.061	0.073		
	(0.009)**	(0.008)**		
Fraction black	-104.826	-175.136	0.114	0.071
	(19.060)**	(39.742)**	(0.016)**	(0.028)*
Fraction Hispanic	-49.665	-130.965	0.148	0.310
	(32.303)	(59.231)*	(0.047)**	(0.097)**
Median household income (in thousands), 1989	0.120	-0.913	0.001	0.000
	(0.859)	(1.898)	(0.001)	(0.002)
Fraction of adults with college+	181.347	121.107	-0.083	-0.010
	(62.789)**	(70.501)†	(0.053)	(0.083)
Expenditures per student (in thousands)	2.708	0.004	-0.005	0.000
	(3.066)	(0.005)	(0.002)*	(0.000)
Constant	987.656	1037.890	0.122	0.194
	(24.284)**	(30.414)**	(0.020)**	(0.040)
Observations	51	50	51	51
R-squared	0.922	0.920	0.486	0.363

Robust standard errors in parentheses. † significant at 10% * significant at 5%, ** significant at 1%

Sources: SAT scores, percent of graduating seniors taking SAT, and expenditures per student from Digest of Education Statistics (U.S. Department of Education (1991, 1998)). All other variables from decennial Census. All variables measured contemporaneously with achievement measures. See data appendix for more information.

Appendix Table 3: District Achievement Regressions

	H.S. Dropout Rate 1990 (Census regressors)	H.S. Dropout Rate 1980 (Census regressors)
Fraction black	0.079	0.090
	(0.007)**	(0.008)**
Fraction Hispanic	0.120	0.168
	(0.010)**	(0.010)**
Median household income	0.000	-0.000
(in thousands)	(0.000)**	(0.000)**
Fraction in poverty or eligible	0.140	0.143
for free lunch	(0.020)**	(0.022)**
Fraction of adults with college+	-0.140	-0.239
	(0.011)**	(0.014)**
Current expenditures per pupil	-0.000	-0.000
	(0.000)*	(0.000)†
Constant	0.076	0.134
	(0.005)**	(0.006)**
Observations	13,690	13,909
R-squared	0.121	0.183

Robust standard errors in parentheses. † significant at 10 percent * significant at 5 percent, ** significant at 1 percent

Sources: all variables from the decennial Census of Population and Housing, except for current expenditures per pupil, which comes from the 1992 and 1982 Census of Governments. In 1980, the fraction in poverty is the fraction of children aged 5-18 living in poverty in the school district. See data appendix for more information.

Appendix Table 4: Mean Changes in State Characteristics 1980-1990, All States and by Charter Law Status in 1999

	All States	No charter law by 1999	Charter Law in 1999
Change fraction black	0.003	0.003	0.003
	(0.009)	(0.006)	(0.010)
Change fraction Hispanic	0.027	0.006	0.034
	(0.036)	(0.008)	(0.039)
Change fraction of adults with college+	0.130	0.126	0.131
	(0.015)	(0.018)	(0.013)
Change Gini coefficient of household income, 1979 – 1989	0.028	0.023	0.030
	(0.012)	(0.015)	(0.010)
Change median household income (in thousands), 1979 – 1989	9.643	8.051	10.245
	(3.736)	(3.468)	(3.700)
Change state average SAT score (1982-83 to 1989-90)	-0.800	-8.857	2.333
	(18.326)	(19.845)	(16.966)
Change percent taking SAT (1981-82 to 1989-90)	6.420	7.357	6.056
	(4.436)	(6.271)	(3.529)
Change dropout rate (fraction age 16-19 not in school, not HS graduate)	-0.026	-0.029	-0.024
	(0.019)	(0.019)	(0.019)
Change in SAT residual (1982-83 to 1989-90)	0.048	0.181	-0.004
	(12.738)	(9.899)	(13.811)
Change in dropout rate residual	0.000	0.003	-0.001
	(0.016)	(0.017)	(0.016)
Change real expenditures per student (in thousands)	1.465	1.399	1.490
	(0.910)	(0.819)	(0.951)
Change fraction of instructional employees organized (1977 to 1987)	-0.137	-0.110	-0.148
	(0.159)	(0.148)	(0.164)
Change fraction K-12 students enrolled in private school	0.004	0.003	0.005
	(0.011)	(0.010)	(0.011)
N	51	14	37

Standard deviations in parentheses. Sources: 1980 and 1990 Census, 1998 and 1991 Digest of Education Statistics (expenditures and SAT scores), 1977 and 1987 Census of Governments (for fraction of instructional employees organized), and author's calculations. Expenditure per student is "current expenditures per pupil in average daily attendance." See data appendix and notes to Table 3 for more information.

Hawaii (a charter state) is missing from the "instructional employees organized" and "fraction K-12 students enrolled in private school" mean; DC is missing from both SAT means.

Appendix Table 5: Mean Changes in District Characteristics 1980-1990, All Districts and by Presence of Charter Schools in 2003-04

	All districts	No charter in district in 2003-04	At least one charter in district in 2003-04
Change fraction black	0.002	0.002	0.008
	(0.026)	(0.026)	(0.031)
Change fraction Hispanic	0.010	0.009	0.022
	(0.037)	(0.037)	(0.040)
Change fraction of adults with college+	0.051	0.050	0.066
	(0.064)	(0.065)	(0.052)
Change Gini coefficient of family income	0.009	0.008	0.022
	(0.092)	(0.095)	(0.043)
Change median household income (in thousands)	12.271	12.233	12.768
	(7.511)	(7.621)	(5.845)
Change fraction of population below poverty	0.010	0.009	0.016
	(0.073)	(0.074)	(0.049)
Change in District PPE/State PPE	-0.003	-0.005	0.027
	(1.061)	(1.099)	(0.190)
Change in HS dropout rate	-0.026	-0.026	-0.025
(fraction 16-19 not in school, not HS graduate)	(0.098)	(0.100)	(0.059)
Change in HS dropout rate residual	-0.0004	-0.0004	-0.0014
	(0.0926)	(0.0948)	(0.0558)
Change in fraction of district instructional	-0.048	-0.047	-0.068
employees organized (1977-1987)	(0.451)	(0.447)	(0.500)
Change fraction K-12 students enrolled in private	0.020	0.021	0.015
school	(0.066)	(0.068)	(0.035)
Change enrollment Herfindahl index (10 mile	0.009	0.010	0.003
radius)—*districts in MSAs only*	(0.075)	(0.074)	(0.085)
N	14,006	13,033	973

Standard deviations in parentheses. Sources: 1980 and 1990 Census, 1982 and 1992 Census of Governments (per-pupil expenditures), 1977 and 1987 Census of Governments (instructional employees organized), 1989-90 and 2003-04 Common Core of Data together with ELSEGIS 1979-80 (for enrollment Herfindahl index and charter school enrollment), Corcoran and Evans (2004) for district Gini coefficients, and author's calculations. Districts are defined based on their 2000-01 boundaries (that is, if districts consolidated between 1989-90 and 2000-01, they are combined and treated as one district for purposes of this analysis.

DATA APPENDIX

I. Charter School and Enrollment Data

School and Enrollment Counts by State

Beginning with the 1998-99 school year, the annual Common Core of Data Public Elementary – Secondary School Universe datafile has identified public charter schools (using the variable 'CHARTR*xx*,' where *xx* denotes the year of data, e.g. CHARTR03). The Common Core survey defines charter schools as "a school that provides free elementary and/or secondary education to eligible students under a specific charter granted by the state legislature or other appropriate authority."

In this paper, we begin with the list of public schools in the Common Core of Data (CCD) School Universe for the 2003-04 school year. In that year, 3,097 operating schools were identified as charter schools (CHARTR03=1), out of a total of 97,502 operating schools in the CCD.[36] Counts of 2003-04 CCD charter schools, by state, are provided in the second column of Table D.1. State assignments are based on their CCD school location (LSTATE03).

We cross-checked the 2,977 non-Puerto Rico charter schools in the 2003-04 CCD to the list of charter schools in the Center for Education Reform's (CER) annual Directory of Charter Schools (Allen and Cooper (2004)). As shown in Table D.1, 274 of these schools were not successfully matched to their counterpart in the CER directory (also, Puerto Rico is not included in the CER directory). In addition, 89 operating schools in the CCD that were *not* flagged as charters (CHARTR03≠1) were in fact determined to be charter schools, based upon their inclusion in the CER directory (see column three of Table D.1). Together, our master list of charter schools in 2003-04 (the fourth column of Table D.1) includes 3,066 non-Puerto Rico charter schools.[37]

2003-04 graded enrollments for these 3,066 schools are given by TOTGRD03 ("calculated school membership: the sum of reported grade totals"). Enrollment values are missing for 20 of the schools and equal to zero for 41 schools. In all, there are 3,005 schools with nonzero and nonmissing enrollment. Total enrollment in charter schools by state was provided in Table 2 of the text, along with the percent of total state enrollment in charter schools.

[36] By "operating" we mean those schools for which the STATUS03 code is equal to 1, 3, 4, or 5 (not 2, 6, or 7). That is, "operational at the time of last report and is currently operational," "has been opened since the time of the last report," "operational at the time of the last report but was not on the CCD list at that time," and "listed on previous year's CCD school universe as being affiliated with a different education agency." (Codes 2, 6, and 7 refer to schools that have been temporarily or permanently closed."

[37] There were 161 additional schools that were listed in the CER but not successfully matched to the 2003-04 CCD (see the last column of Table D.1). Because no CCD data appeared to be available for these schools, we ignored them in our analysis. We assume that these schools are either duplicate listings of other charter schools, or schools that had not yet begun operation. In the end, inclusion in the CCD was a necessary condition for inclusion in our dataset.

School and Enrollment Counts by School District

The count of (and total enrollment in) charter schools by *school district* was calculated by first attaching each charter school to a public school district. This exercise was not entirely straightforward. For schools that have been chartered by a public school district, the CCD provides a unique identifier of that district (LEAID, the first seven digits of the NCES school identifier NCESSCH). In many cases, however, the charter school or chartering body has no formal affiliation with a local school district, and is assigned its *own* district ID, making it difficult to attach the school to a "true" local school district—that is, to the district to which the school would belong based upon its geographic location. In addition, it is possible that some public school districts charter schools that lie outside their own geographic boundaries.

We therefore used the spatial coordinates of each charter school from the CCD (LATCOD03 and LONCOD03) along with Census 2000 boundary files for unified, elementary and secondary school districts to assign charter schools to districts.[38] A summary of this mapping exercise is displayed in Table D.2.

A total of 2,797 schools were matched to specific unified, elementary, and secondary districts based on their spatial coordinates (see columns 2 – 4 in Table D.2). For various reasons—such as missing coordinate data in the CCD—the remaining schools had to be matched to school districts by other methods. For example, 123 non-Puerto Rico schools were matched to the district specified in their original LEAID listed in the CCD; 63 of these were nearly certain matches (e.g. schools in county-based districts in Florida) and 60 were somewhat certain matches. Using the NCES-CCD district locator website, the remaining 146 unmatched schools were mapped to their geographically closest district, of the appropriate level, using the schools' location zipcode (LZIP03).[39]

The results of a comparison between schools' original LEAID from the CCD and the district ID assigned from our mapping exercise are summarized in Table D.3. As Table D.3 shows, only 38 percent of the non-Puerto Rico CCD charter schools were matched to the same district listed in the CCD as their LEAID. In some states (OK, NM, and NV for example) where charter schools must obtain their charter from local school districts, the LEAID and GIS-mapped districts are always identical. In many other cases (PA, OH and NY) these IDs are never the same. In other cases (e.g. CA), the results are mixed.

After this mapping exercise, 1,014 school districts are found to contain at least one charter school (see Table 2 in the text). The twenty-five districts with the largest number of charter schools in 2003-04 are shown in Table D.4.

[38] Census school district boundary files can be found here: http://www.census.gov/geo/www/cob/bdy_files.html [Access date: January 10, 2006].

[39] The NCES district locator can be found at: http://nces.ed.gov/ccd/districtsearch/ [access date: January 10, 2006]. For those schools that were matched by this method, we also kept record of the number of miles between the school's location zipcode (LZIP03) and the geographically closest school district.

II. State Data

State Census Data

Fraction black, fraction Hispanic, fraction of adults age 25+ with at least a college degree, fraction of students kindergarten through 12th grade attending private school, median household income (1989, 1979), and the fraction of civilians age 16-19 who are not attending school and not high school graduates are all taken from the longform of the 1990 and 1980 Censuses of Population and Housing (CensusCD 1980, 1990). Gini coefficients of household income inequality for 1989 and 1979 were provided by the Census Bureau Housing and Household Economic Statistics Division.[40]

State School Finance and Employment Data and SAT Scores

Per-pupil expenditure (1989-90, 1979-80), mean SAT scores (1989-90, 1983-84) and the fraction of high school seniors writing the SAT by state (1989-90, 1981-82) were taken from the Digest of Education Statistics for 1991 and 1988 (for the SAT data, U.S. Department of Education (1991, 1988)) and 1995 (for the expenditure data, U.S. Department of Education (1995)). State-level data on teacher unionization (which we have aggregated up from the district level) is described in the following section.

III. District Data

District Census and Finance Data

Our panel of school districts for 1980-1990 is a subset of the panel constructed by Corcoran and Evans (2004) which includes data from the *1980 Census of Population and Housing Summary Tape File 3F,* the *1990 Census School District Special Tabulation* (also known as the School District Data Book), and the *1982 and 1992 Census of Governments: School Districts.* Specifically, we extract from this panel district-level variables on the fraction black, fraction Hispanic, fraction of adults age 25+ with at least a college degree, fraction of the population age 5-17 in poverty, fraction of the civilian population age 16-19 who are not attending school and are not high school graduates, fraction of students kindergarten to 12th grade attending private school, median household income, and per-pupil school expenditures. We also use the within-district Gini coefficients of family income inequality constructed by Corcoran and Evans (2004) for this panel.

District Employment Data

Following Hoxby (1996), we use the employment files of the *1977 and 1987 Census of Governments: School Districts* to calculate a "fraction of instructional employees organized" for each school district as the fraction of full- and part-time instructional employees who are "organized" or "members of an employee organization." As Hoxby (1996) notes, "organized" does not necessarily imply membership in a collective bargaining unit—in some cases they may

[40] http://www.census.gov/income/ftp/decennial/historical/state/s4.prn [Access date: February 2, 2006].

refer to non-bargaining professional organizations—but these variables are highly correlated. To calculate this variable at the state-level, we simply aggregate these counts of instructional employees and organized instructional employees by state, and divide.

District Competition Measures

As we described in section four of the text, we use the 1989-90 Common Core of Data LEA Universe to calculate Herfindahl indices of enrollment concentration for each district *i* as follows:

$$(1) \qquad enrlherf_i = \sum_{j=1}^{J} s_{ij}^{\,2}$$

where s_{ij} is the share of total public enrollment within a 10 mile radius of district *i* contained in district *j* (where *j* is a district that is located 10 miles or less from district *i*, and *J* is the total number of districts located within this radius). The closer this index is to one, the more concentrated is enrollment and thus the less "competitive" is the area around district *i*. We used the spatial coordinates of each school district's zipcode in order to define the 10-mile radii surrounding each district.

At the state level, we calculate a "representative" competition measure as a weighted average of these Herfindahl indices over all districts in the state, where the weights are total enrollment in each district (this measure can be viewed as the degree of public school district competition available to the "average" student in the state).

Because zipcode coordinates were not available for the 1979-80 school year, we were not able to repeat this exercise for school districts in 1979-80 (the Elementary and Secondary Education General Information Survey, or ELSEGIS—the predecessor to the CCD—does have location zipcodes for each district, however zipcodes have changed considerably over this period making it difficult to pinpoint the zipcode centroids for many districts). Instead, we mapped each school district's county to 1999 Census MSA definitions, and again computed our Herfindahl indices as:

$$(2) \qquad enrlherf_i = \sum_{k=1}^{K} s_{ik}^{\,2}$$

where s_{ik} is the share of total public enrollment in school *i*'s MSA contained in district *k* (where *k* is a district that is located in district *i*'s MSA, and *K* is the total number of districts in that MSA). Thus, we only have enrollment Herfindahl indices for those 1979-80 districts located in counties that were part of MSAs in 1999.

IV. Missing School Districts

Charter school and enrollment counts were then matched to the school district panel described in the previous section by district ID. A number of California districts, unfortunately, did not participate in the original 1990 School District Data Book project; we thus do not have Census data for these districts. A list school districts that were omitted from our analysis in Tables 4, 7

and 8 is provided in Table D.5 (we also show for these districts the total number of charter schools and charter enrollment in these districts in 2003-04).

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Table D.1: Counts of Charter Schools, by State 2003-04

State	Total CCD charters (chartr03==1)	CCD non-charters found in CER (chartr03==2 or M)	All Charters	Matched to CER (2004)	Not in CER (2004)	Schools in CER with no CCD match (ignored)
AK	19		**19**	19		
AR	13		**13**	11	2	
AZ	505	2	**507**	451	56	28
CA	444	23	**467**	443	24	40
CO	96		**96**	96		
CT	12	1	**13**	12	1	2
DC	37		**37**	37		5
DE	13		**13**	13		
FL	257	1	**258**	240	18	16
GA	51	2	**53**	35	18	2
HI	26		**26**	24	2	
ID	17		**17**	16	1	
IL	28		**28**	23	5	7
IN	17		**17**	17		
KS	17	2	**19**	17	2	14
LA	16		**16**	16		
MA	51		**51**	50	1	
MD	1		**1**		1	
MI	212	10	**222**	207	15	12
MN	105		**105**	96	9	1
MO	26		**26**	26		1
MS	1		**1**	1		
NC	93		**93**	90	3	1
NJ	51		**51**	51		
NM	34		**34**	34		1
NV	15		**15**	14	1	
NY	50		**50**	48	2	1
OH	165		**165**	134	31	1
OK	12		**12**	12		
OR	24	14	**38**	38		3
PA	102		**102**	100	2	1
PR	120		**120**			
RI	8	2	**10**	8	2	
SC	18	1	**19**	19		
TN	4		**4**	4		
TX	274	27	**301**	231	70	19
UT	19		**19**	17	2	
VA	6	1	**7**	7		1
WI	137	3	**140**	134	6	5
WY	1		**1**	1		
Total	3,097	89	**3,186**			**161**
Less PR	-120		**-120**			
Total	**2,977**	**89**	**3,066**	**2,792**	**274**	**161**

Table D.2: Method of Assignment, Charter Schools to School District

State	GIS (Unified)	GIS (Elementary)	GIS (Secondary)	Used Original LEA (very certain)	Used Original LEA (somewhat certain)	Zipcode distance	TOTAL
AK	10				9		19
AR	13						13
AZ	254	93	70			90	507
CA	279	114	37			37	467
CO	74				20	2	96
CT	12					1	13
DC	37						37
DE	11					2	13
FL	225			33			258
GA	51			2			53
HI				26			26
ID	16					1	17
IL	26	1				1	28
IN	16					1	17
KS	13				6		19
LA	14			2			16
MA	49	1				1	51
MD	1						1
MI	214					8	222
MN	103					2	105
MO	26						26
MS					1		1
NC	93						93
NJ	51						51
NM	28				6		34
NV	15						15
NY	50						50
OH	165						165
OK	12						12
OR	33				5		38
PA	102						102
PR				120			120
RI	10						10
SC	18				1		19
TN	4						4
TX	301						301
UT	18				1		19
VA	7						7
WI	128	1			11		140
WY	1						1
Total	**2,480**	**210**	**107**	**183**	**60**	**146**	**3,186**

Table D.3: Is the GIS-Assigned LEA the Same as the Original LEA?

State	Not the Same ID	Same ID	TOTAL
AK		19	19
AR	6	7	13
AZ	500	7	507
CA	120	347	467
CO	8	88	96
CT	12	1	13
DC	37		37
DE	13		13
FL	2	256	258
GA	3	50	53
HI		26	26
ID		17	17
IL	1	27	28
IN	17		17
KS		19	19
LA	8	8	16
MA	51		51
MD		1	1
MI	222		222
MN	105		105
MO		26	26
MS		1	1
NC	93		93
NJ	51		51
NM		34	34
NV		15	15
NY	50		50
OH	165		165
OK		12	12
OR	1	37	38
PA	102		102
PR		120	120
RI	7	3	10
SC	1	18	19
TN		4	4
TX	274	27	301
UT	18	1	19
VA	1	6	7
WI	17	123	140
WY		1	1
Total	**1,885**	**1,301**	**3,186**

Table D.4 Largest Charter School Districts by Enrollment in 2003-04

Rank	District ID	District Name	Charter Enrollment	Charter Schools	Fraction in Charters
1	7200030	Puerto Rico	50095	120	0.0856
2	622710	LOS ANGELES UNIFIED	38540	67	0.0516
3	4823640	HOUSTON INDEPENDENT SCHOOL DISTRICT	21639	59	0.1023
4	2612000	DETROIT CITY SCHOOL DISTRICT	21035	55	0.1380
5	4218990	PHILADELPHIA CITY SCHOOL DISTRICT	19553	43	0.1030
6	4816230	DALLAS INDEPENDENT SCHOOL DISTRICT	14943	42	0.0932
7	1200180	BROWARD COUNTY SCHOOL DISTRICT	13126	22	0.0483
8	1100030	DISTRICT OF COLUMBIA PUBLIC SCHOOLS	12958	37	0.1991
9	5509600	MILWAUKEE	12731	35	0.1308
10	1200390	DADE COUNTY SCHOOL DISTRICT	11994	31	0.0325
11	1709930	CITY OF CHICAGO SCHOOL DISTRICT 299	10493	22	0.0242
12	3904380	COLUMBUS CITY SCHOOL DISTRICT	9766	18	0.1548
13	634320	SAN DIEGO CITY UNIFIED	9080	21	0.0658
14	404970	MESA UNIFIED SCHOOL DISTRICT	8709	45	0.1155
15	1301290	COBB COUNTY SCHOOL DISTRICT	7662	8	0.0751
16	3904490	TOLEDO CITY SCHOOL DISTRICT	7482	21	0.2170
17	408800	TUCSON UNIFIED DISTRICT	7252	46	0.1180
18	2916400	KANSAS CITY SCHOOL DISTRICT	6669	18	0.1744
19	3904378	CLEVELAND MUNICIPAL SCHOOL DISTRICT	6653	22	0.0964
20	406330	PHOENIX UNION HIGH SCHOOL DISTRICT	6560	30	0.2735
21	641040	VICTOR ELEMENTARY	5997	7	0.6116
22	3620580	NYC-CHANCELLOR'S OFFICE	5846	24	0.0057
23	3904384	DAYTON CITY SCHOOL DISTRICT	5821	19	0.3148
24	1301740	DE KALB COUNTY SCHOOL DISTRICT	5758	9	0.0578
25	3904375	CINCINNATI CITY SCHOOL DISTRICT	5512	18	0.1376

Table D.5 School Districts Missing from Panel in 1990

District ID	District Name	State	Charter Schools, 2003-04	Charter Enrollment, 2003-04
600038	MATTOLE UNIFIED	CA	1	982
600052	EUREKA CITY UNIFIED	CA	1	216
603000	ARCATA ELEMENTARY	CA	1	37
603180	ARMONA UNION ELEMENTARY	CA	1	54
604890	BIG LAGOON UNION ELEMENTARY	CA	1	220
608370	CHICO UNIFIED	CA	2	338
609330	COLLEGE ELEMENTARY	CA	1	167
610770	DEL NORTE COUNTY UNIFIED	CA	1	980
612070	EL DORADO UNION HIGH	CA	4	1247
613000	ETNA UNION ELEMENTARY	CA	1	32
613170	EVERGREEN UNION ELEMENTARY	CA	1	32
614520	FRESHWATER ELEMENTARY	CA	1	43
615510	GOLETA UNION ELEMENTARY	CA	2	264
617160	HICKMAN ELEMENTARY	CA	3	1061
618510	ISLAND UNION ELEMENTARY	CA	1	250
618660	JACOBY CREEK ELEMENTARY	CA	1	422
619770	KINGS RIVER-HARDWICK UNION ELEMENTARY	CA	1	643
619890	KIT CARSON UNION ELEMENTARY	CA	1	23
620640	LAKE TAHOE UNIFIED	CA	1	20
621360	LEMOORE UNION ELEMENTARY	CA	1	51
622920	LOS OLIVOS ELEMENTARY	CA	1	200
623340	MADERA UNIFIED	CA	2	227
625020	MINERAL ELEMENTARY	CA	1	30
625530	MONTEREY PENINSULA UNIFIED	CA	2	278
625980	MOTHER LODE UNION ELEMENTARY	CA	2	482
626040	MT. SHASTA UNION ELEMENTARY	CA	1	177
626640	NAPA VALLEY UNIFIED	CA	5	2287
627590	NORTH MONTEREY COUNTY UNIFIED	CA	2	1012
629130	OROVILLE UNION HIGH	CA	2	668
629430	PACIFIC UNION ELEMENTARY	CA	1	40
629820	PARADISE UNIFIED	CA	4	471
630510	PIONEER UNION ELEMENTARY	CA	2	1277
632010	RED BLUFF JOINT UNION HIGH	CA	1	77
633930	SALINAS CITY ELEMENTARY	CA	2	478
635360	SANTA BARBARA ELEMENTARY	CA	2	805
643370	YOSEMITE JOINT UNION HIGH	CA	1	28
1500030	HAWAII DEPARTMENT OF EDUCATION	HI	26	4502
1600002	EAST BONNER COUNTY SCHOOL DISTRICT 84	ID	1	124
1600930	BONNEVILLE JOINT SCHOOL DISTRICT 93	ID	1	185
4100015	GERVAIS SCHOOL DISTRICT 001	OR	1	19