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Abstract

The extent to which special student populations (ELL, Special Education and Economically Disadvantaged) gain access to, or segregated within, charter schools is understudied. This manuscript examines the segregation and access of special populations in all charter schools across the state of Texas. State dissimilarity analyses show only modest disparities in segregation and access of special populations within the Texas charter system compared to traditional public schools. However, our local-level geospatial analysis of all charters in a large metropolitan area shows that there were large disparities in the enrollment of special populations.

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Charter schools, which are public schools of choice operated under contract with an authorizing agency (districts, management organizations, non-profits, or universities), have grown rapidly since the enactment of the first charter school law in Minnesota in 1991. Today, there are more than 5,200 charters operating across 42 states and the District of Columbia, enrolling more than 1.7 million students (National Alliance for Public Charter Schools (NAPCS), 2012; NCES, 2012).

The rise in charters has been particularly rapid in the past five years (NAPCS, 2012). Many states have lifted caps on the number of charter schools contained within the original state legislation, owing in part to financial incentives created by federal grant programs such as Race to the Top (Frankenberg & Siegel-Hawley, 2011). Charter growth has also been encouraged by federal and state grant programs for charter planning and implementation (see, e.g., US Department of Education, 2011). As a result of this support, charters are now, according to one report, "the fastest growing sector of American public education" (NAPCS, 2011, p.2). As of the 2011-12 academic year, 25 districts in the U.S. (nearly all of them urban) had at least 20% of their student enrollment in charter schools (NAPCS, 2012).

The rapid growth in charter schools has occurred alongside significant and equally rapid demographic changes in U.S. schools, particularly in urban areas where charters are most common (Frankenberg, Siegel-Hawley, & Wang, 2011). According to Frey's (2011) analysis of 2010 Census data, central cities have experienced a dramatic increase in the proportion of Hispanics and African Americans in the past decade. As of the 2010 Census, 58 of the 100 central cities in the U.S. largest metro areas were predominately African American and Latino/a, up from 25 in 1990 at the creation of the charter school movement (Frey, 2011). Poverty rates have also risen among these groups. (US Census, 2011). The number of non-native English

speakers also increased 80% between the 1990 and 2010 Census (Pandya, Batalova & McHugh, 2011). A large proportion of the students who are classified as English Language Learners also reside within central cities (NCES, 2012).

The rapid rise in charter school numbers and enrollment, and the concurrent demographic shifts in the contexts in which charters are most likely to open, lead us to question how charters interact with these demographic patterns. The extent to which charters, particularly in central cities, are serving the highest need populations in those contexts (English Language Learners, low-income students, and special education students) has been relatively under-examined within the research literature.

In this analysis, therefore, we examine the extent to which charters in the state of Texas are serving high needs populations (ELLs, Special education students, and students eligible for Free and Reduced Price Lunch) at the same rates as traditional public schools. We first conduct a state-wide analysis to compare levels of segregation of those populations between traditional public schools and charters. We then examine local patterns of access in one large urban district to evaluate the extent to which students with greater than average instructional needs are served by charter schools in equal proportion to the neighboring public schools.

Background

Since the inception of the charter school movement, concerns have been raised about access and equity, particularly for high needs students (identifying reference). These concerns are linked directly to the incentives embedded in markets: under conditions of competition, organizations (such as charters) may seek to maximize their profits, or their market position, by targeting relatively easier to serve clientele (see Lacireno-Paquet et al., 2002). Consistent with this theory,

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charters have been accused by many of strategically recruiting relatively advantaged, or "easier-to serve," students from nearby traditional public schools (see, e.g. Ravitch, 2012).

Others contend that competition, instead of leading to stratification, reduce market barriers by un-linking residence from schooling opportunity (see e.g., Nathan, 1998; Viteritti, 1999),)
Charter advocates, in support of this theory, point to national data showing that, in the aggregate, charter schools serve higher percentages of low income students, and higher proportions of African Americans and Latino/a students, than traditional public schools (see, e.g., California Charter Schools Association, n.d; NACPS, 2012). Indeed, the most recent report by charter advocacy organization National Alliance for Public Charter schools notes that "public charter schools across the nation enroll, on average, a greater percentage of low-income students (46 versus 41 percent), Black and Latino students (27 percent versus 15 percent and 26 percent versus 22 percent, respectively), and students who perform lower on standardized assessments before transferring to charter schools" (NAPCS, 2012b, p. 1).

Researchers analyzing data at the local district level, however, have found that the illusion of diversity tends to disappear when charters are compared to their home districts. Several researchers have found, using district demographics as the point of reference, that charters are in fact quite segregated, enrolling either disproportionately more white students, or disproportionately high concentrations of students of color (see Cobb & Glass,1999; Frankenberg et al., 2011; Miron et al., 2010; Miron & Nelson 2002; Renzulli & Evans, 2005; though for an opposite conclusion, see NAPCS, 2012b). Studies examining individual student transfer data between traditional public schools and charters have similarly found that students tend to transfer into charter schools in which students from their own background are more

represented (see e.g. Bifulco & Ladd, 2006; Booker, Zimmer & Buddin, 2005; Garcia, 2008; Ni, 2012).

Advocates counter these data by arguing that, to the degree that segregation exists within the charter system, it a byproduct of both the geographic location of charters, and the explicit goal of many charters to serve the most disadvantaged student populations (see Weber, 2011). Some "ethno-centric" charters have, in fact, been founded with an explicit goal of serving students from a particular cultural background, who have often been marginalized in traditional public school settings (identifying reference.)

There has been criticism, however, about the failure of even these (often intentionally) ethnically and racially isolated schools to serve sub-populations with greater instructional needs. Several studies that have compared charters to the districts in which they are located have found that charters under-enroll English Language Learner (ELL) students (see, e.g., Frankenberg & Siegel-Hawley, 2011, Miron et al., 2010), special education students (Finnigan et al., 2004, GAO 2012), and students eligible for free and reduced price lunch (Frankenberg & Siegel-Hawley, 2011.)¹

While the existing research literature is suggestive of problems with access to charters, particularly vis-à-vis special populations, the existing studies rely on comparisons between charter demographic data and the aggregate demographics of the district in which the charters are located (see e.g. Miron et al., 2010.) Such charter-to-district comparisons, however are limited by the size, boundaries, and demographics of school district of reference. These charter vs. district analyses furthermore miss important spatial dimensions of access in charters. Consider, for example, a charter school with a poverty rate of 35%: if the charter is located in a district with a 35% rate of poverty, the charter would be considered reflective of the context in which the

school was located, and thus a conclusion would be reached that this particular school was "not skimming" students. However, if this 35%-poverty charter school was located in a high poverty neighborhood *within* that district, and was proximal to several schools with poverty levels of 70% or greater, a key dimension of inequity would be missed by the first analysis; the local "differential" between the school and the local neighborhood schools would be much higher, at 45%--a clear indication that the school is not serving low income students at equal rates. This is particularly relevant point given that many charters indeed are intentionally located in such neighborhoods (Henig & MacDonald, 2002).

Prior studies, therefore, have largely yet to consider the *spatial* dimensions of access to charter schools, by understanding how charters compare with the schools in their immediate (and often highly segregated) neighborhoods. One study that has considered the spatial dimensions of access in charter is a study conducted by Cobb and Glass (1999), which focused on racial and ethnic segregation in Arizona charter schools. This study illustrated that at the aggregate charters were reflective of the state's demographics; yet when compared with schools that were geographically nearby, they found charters were highly segregated. This present analysis seeks to extend the Cobb and Glass analysis by examining the extent to which charters are serving special populations (ELL, FRL, and Special Ed) at the same rates as nearby traditional public schools in Texas.

The Texas Charter School Context

The Texas law authorizing charter schools was passed in 1995, and approved the creation of three different classes of charter schools: campus charters (conversions of traditional public schools, or in-district charters established by districts); open enrollment charters (brand new schools created by non-profits, governmental agencies, or institutions of higher education), and

"home rule" charters which allows an entire school district to convert to charter status (Penning & Slate 2011; TASB, 2009; TCER, 2007; identifying reference).

When the law was originally passed, a cap was set on the number of open enrollment charter schools, with a limit of 20 (Penning & Slate, 2011). In 1997, state legislation increased the cap to 120, and instituted the "75%" rule, allowing an unlimited number of charters to be created (above the cap) as long as their student population consisted of at least 75% "at risk" students (Penning & Slate, 2011; TCER, 2007). This provision resulted in a significant increase in the number of charters, many of which were perceived to be low quality. As a result, in 2001 the 75% rule was eliminated and the number of charters was capped at 215 total (Taylor et al., 2011; TCER, 2007), although these charters can (and do) operate multiple campuses. There are no limits on the number of charters schools sponsored by colleges and universities (TCER, 2007, Taylor et al., 2011). The legislation also gave the commissioner increased oversight over charters and charter application approvals, and as a result the number of new charters approved each year was reduced (TCER, 2007).

The state of Texas currently has the second largest number of charter schools in the U.S. (561 charters) and the second largest number of students enrolled in charter schools (148,000 students) (NCES, 2012). The overall proportion of students enrolled in charter schools in Texas, however, remains relatively low: in 2009/10, just 3.1% of the state's students attended a charter school in the state, which is about average nationally (NCES, 2012).

The vast majority of the state's charter schools (nearly two-thirds) are "open enrollment" charters, with 436 campuses operated by 204 open-enrollment charter schools in 2008-09, serving 102,249 students (Taylor et al., 2011). Relatively fewer charters are "in-district" charters: in 2008/09, there were a total of 61 in-district charters in Texas, serving 24,737 students (Taylor

et al., 2011). More than half of these in-district charters are located in the Houston area (Taylor et al., 2011).

Consistent with previous national studies of charter demographics, state aggregate data shows that charters in the state of Texas serve a highly diverse student population, although demographics vary somewhat by charter type. The open enrollment charters in Texas serve a larger proportion of Latina/o and African American students than traditional public schools, and a higher proportions of students eligible for free and reduced price lunch (Taylor et al., 2011). Indistrict charters serve *even* higher proportions of these populations compared with traditional public school students (Taylor et al., 2011). Both types of charters, however, serve substantially fewer students receiving special education services (Taylor et al., 2011). The proportions of ELL student served is roughly equivalent between traditional public schools and open enrolment charters; in-district charters, however, serve higher proportions of ELL students (Taylor et al., 20110).

In Texas, most charters are located within the state's major metropolitan areas. According to Taylor et al., in 2008/09 more than half of all open enrollment charters were located in the Houston, San Antonio, and Dallas metropolitan areas (Taylor et al., 2011). The largest numbers of charters were in the Houston metro (with 109 charters, enrolling 2.4% of students in the area); the Dallas metro (with 87 charters, 3.5% of overall enrollment in the area); the San Antonio metro (55 charter schools enrolling 3.1% of the metro's students); and the Austin metro (35 charters, enrolling 1.9% of the metro's students) (Taylor et al., 2011). As stated previously, 90% of the district charters were located in the Houston, Dallas or San Antonio metropolitan areas that year (Taylor et al., 2011).

It is important to note that the growth of charters in Texas has coincided with a rapid increase in the diversity of the overall Texas student population. Between the 2000-01 and 2009-10 academic years, ELL enrollment has grown by more than 200%, from 569,000 to 708,000 students (NCES, 2012). The proportion of students designated by the state as "economically disadvantaged" --those eligible for free lunch (income at 130% of the federal poverty line); or reduced price lunch (185% of poverty) and other federal assistance-- also grew, though at a somewhat slower rate, from 52% in 2003 to 59% in 2011 (TEA, 2012). These populations rose most substantially in the very metropolitan areas housing the greatest number of the state's charter schools (Petersen & Assante, 2005).

Given the rapid growth in charters alongside rapid demographic change in Texas public schools, we seek examine levels of charter school access and segregation for students from different backgrounds. We specifically seek in this analysis to examine the extent to which students with relatively higher learning needs (ELLs, Special Education Students, and students Eligible for Free and Reduced Price Lunch) represented in Texas charter schools.

Data/Methodology

To examine access and segregation of ELL, Special Education (SPED) and low-SES students in Texas charter schools, we first examine patterns of segregation for each of the previously mentioned groups in charter schools at the state level. We then conduct a more specific analysis of charters compared with the different school options within their immediate proximity in the Houston metropolitan area.

State analysis. For the state analysis, we utilized the 2011 school-level PEIMS school-level data. We conducted ANOVA analyses using SPSS to consider levels of access and segregation for Special Education, SES and ELL status in Texas charter schools. We compared

access and segregation in charters schools compared to traditional public schools by locality (Urban, Suburban Rural etc).

To examine segregation between students in our special populations (ELL, Special Education, and Economically Disadvantaged students) compared with the overall student population, we conducted a Dissimilarity Index (DI) Analysis. A dissimilarity index indicates the percentage of a group's population that would have to change schools in order to have each school equal the overall population in the state. The specification of the DI is:

$$\frac{1}{2} \sum_{i=1}^{N} \left| \frac{h_i}{H} - \frac{s_i}{S} \right|$$

where:

 s_i = the high needs (ELL, FRL, and Special Ed) population of the i^{th} locality

S = the total high needs population of students in Texas

 h_i = the non-high needs student population of the ith locality

H = the total non-high needs student population in Texas

Houston analysis. As a school district, Houston is an informative case, as it is the largest public school district in the state, and there are numerous choice options within the district. Within the HISD school district boundaries, there are more than 100 charter schools are in operation, some of which are "campus charters" operated by HISD, others under the umbrella of HISD but externally managed, and still many more operating independently of the school district entirely. The school district is also home to an extensive number of magnet programs in both primary and secondary schools, many of which are schools of choice. There are also a large number of "traditional public schools" in the district without any magnet or charter affiliation. This mixture of schooling types in the area is representative of school choice options playing out in the broader national context.

As stated previously, prior studies of charter demographics that compare characteristics of charter schools to state or national aggregates tend to mask significant local variations in patterns of segregation in charter schools vis-à-vis the contexts in which they are located. The few studies that have attempted to provide a more nuanced understanding about how charter schools compare to nearby public schools have largely compared local charter demographics to that of their home district (see e.g. Miron et al, 2010). This type of analysis as stated previously is limited in that districts vary widely in terms of levels of school segregation, and thus comparing charters to aggregate district level populations we believe is not always appropriate.

In this analysis, we compare charters not to state or district averages but to schools that are geographically nearby. We build on the work of Cobb and Glass (1999) who analyzed how charters in Arizona compared to nearby public schools utilizing a geographic mapping analysis. This type of geographic analysis is required to understand the relationship between charters and segregation, they argue, to deal with the insufficiency of existing statistical measures of segregation vis-à-vis small-enrollment charter schools. They note:

Attempts to depict the magnitude of differences among schools' ethnic compositions while holding constant size and grade level through various statistical measures prove problematic. Popular measures of level of segregation, such as the Dissimilarity Index, and measures of equity, such as the Gini coefficient or Lorenz Curve, are highly sensitive to numbers of students in schools. The relative smallness of charter schools makes comparisons via these types of measures questionable. Moreover, within this context, these indices are simply powerless to detect between-school segregation. No statistical technique can aptly discern differences among urban schools as completely as maps (Cobb & Glass, 1999, p. 8).

Although Cobb and Glass' (1999) geographic analysis of charters improved on previous

studies with its focus on nearby schools, it suffered from several limitations, which they themselves acknowledged: First, their analysis lacked information regarding segregation of ELL students, as well as other special populations (including students eligible for special education and students eligible for free or reduced price lunch), focusing instead on racial segregation (specifically on white/non-white segregation) exclusively. Second, operationally their analysis was limited first by the lack of specificity about how they defined "nearby": while they used maps to identify nearby schools, they provided no explicit definition of "nearby" (i.e. a particular radius around a school, for example) which limits replicability.

To deal with these limitations, in this analysis, we build upon and extend Cobb and Glass' (1999) analysis, as well as the Miron et al. (2009) analysis in several ways. We capitalize upon new mapping technology and examine how charter schools in Houston compare to nearby local schools on three demographic measures: segregation of ELL, special education, and students eligible for free and reduced price lunch. We also set explicit, replicable, procedures for our mapping analysis.

Procedures. We first identified all charter schools that were located physically within the boundaries of Houston Independent School District (HISD). Because the state does not provide an aggregate list of charters operating within school districts, we first utilized the National Center for Educational Statistics' (NCES) School District Demographic System (SDDS) mapping software, which contains data on all public school districts and most local school attendance boundaries within districts as of 2010. Once the charter schools that lay within the defined boundary were identified, we compared each school's location on the map with the physical address location provided by each school's website. The address was then placed into Google Maps and verified with each of the two maps.³ Based on this procedure, we identified

113 charter schools operating within the Houston ISD boundary. We then eliminated from this data set those schools that were classified as juvenile detention centers, residential treatment centers, virtual schools, foreign language schools or otherwise similarly catered to a unique population due to their highly unique student populations. A total of 11 schools were found to meet at least one of the descriptors, and thus we were left with 102 charter schools in operation during the time pertinent to our analysis.

We then further analyzed this list to identify schools that were labeled as "charters" but were not operating as schools of choice. Thus, we pulled out the 6 HISD campus charters that had a designated attendance boundary, given that they were not technically schools of choice (and adding them instead to the HISD public school list.) We also eliminated 1 additional school (HISD's MC Williams Elementary) which was classified both a charter and a magnet school in the data set. Because it is a school with a dedicated attendance boundary, we designated it as a magnet school within our analysis.

This procedure left us with 95 charter schools within the HISD boundaries operating as schools of choice, without a dedicated attendance zone. Each of these 95 schools was then analyzed to verify whether or not that school was actually operating under a charter, and whether or not that charter relied on a partnership with HISD or was functioning independently (operated by an external agency). The list of schools was verified via five main sources: the NCES SDDS Map, The HISD Website, 2011-2012 AEIS Reports, a Texas state Senate List, and a 2011-2012 HISD Charter School document. Of the 95 external charters, 26 had a relationship with HISD, and 69 were independent of the district altogether. These 95 schools serve as the basis of our core analysis, and which we directly compared to the schools in their immediate proximity. Once all charters were verified by location, operation type, relationship to the Houston

Independent School District and correspondence with pertinent years of operation under that designation, we proceeded to compare the charters to nearby local school populations. (See Table 1a and Table 1b for list of schools and classifications.)

Charters vs. Attendance Zone Schools within a 1-Mile Radius. In our analysis, we compared charters to the schools whose attendance zones were located within a one-mile geographic radius. This analysis is important because charters draw students from more than the local school attendance zone in which they are located. We therefore used the NCES SDDS mapping software and inclusive radial tool to draw a one-mile radius around each of the 95 charter schools to identify all attendance boundaries of schools that lay within that one-mile radius. We then compared the charter demographics to the demographics of any schools with attendance boundaries in the one-mile radius (See Figure 1). In our mapping analysis we found two different types of schools with which to compare the charter schools: traditional public schools and magnet schools (the majority of which had a dedicated attendance boundary.)⁵

Further, we found that many charter schools served grade levels that were not perfectly comparable to the traditional public and magnet schools. Where many of the TPS and magnets follow a traditional elementary, middle, and high school breakdown within their respective buildings, a number of charter schools serve grades K-12 and numerous variations thereof. In such instances, the school was compared with the K-12 aggregate within that mile radius.

Within our comparisons the numerator was between 1 and 10. Typically, charter elementary schools were compared with a greater number of schools than those at the high school level.

This is the case due to the differences in capacity between elementary schools and their secondary counterparts. On average, we found 4 (3.77) comparable schools with which to compare each HISD area charter school.

Calculations of Demographic Difference: For each set of comparisons, we calculated the weighted percentage point differential between the charter's enrollment of special populations (ELLs, students identified as special education, and students designated as "Economically Disadvantaged" to that of the weighted average of all schools within their one-mile radius (either Traditional Public School "TPS", Magnet Schools).

Once we calculated the differential for each comparison group, we set a threshold for identifying different levels of existing segregation within schools and area. These numbers are related to the cutoffs established by Cobb and Glass and were tailored to the type of population being compared. As special education populations are a much smaller share of a school's total population, segregation was established at a much smaller differential than was socioeconomic status (Free and Reduced Prices Lunch), which makes up a much larger portion of a school's population. The cutoffs were as follows:

English Language Learners (ELLs): Segregative = +/- 10%, Extreme Segregative = +/- 20% Special Education (SPED): Segregative = +/- 6%, Extreme Segregative = +/- 10% Free & Reduced Price Lunch (FRL) Segregative = +/- 10%, Extreme Segregative = +/- 20% Beyond these individual comparison calculations, we identified all of the public schools operating within the HISD boundary, save for those previously excluded unique campuses, and calculated the area aggregate. Here, we calculated 332 schools operating within the area. These numbers were then broken down and compared by type. In operation we found 122 HISD TPS campuses (included are the 6 HISD charter campuses with attendance boundaries), 115 HISD

Magnets and our 95 external charters.

Findings

Descriptive and ANOVA Analyses

English Language Learners. The student enrollment of ELL students in charters is about 14% on average across the state. The average composition of charter schools is about 9% less than urban schools, 3% less than suburban schools and 7% more than rural schools. Not only are charter schools serving a substantially lower proportion of ELLs than urban schools, but also they are also enrolling less than suburban schools. Each of the ELL enrollment gaps tested significant (p<.000) in the ANOVA analyses when you compare charters to each locality.

Economically Disadvantaged students. The student enrollment of Asian American students in charters is about 72% on average across the state. The average composition of charter schools is about 1% more than urban schools, 18% more than suburban schools and 12% more than rural schools. The gap in Economically Disadvantaged student enrollment at charters compared to rural and suburban schools tested significant (p<.000) in the ANOVA analyses. The Economically Disadvantaged student enrollment gap between charters and urban schools was not significant.

Special Education students. The student enrollment of Special Education students in charters is about 2% more on average across the state. The average composition of charter schools is about 1% more than urban schools, 2% more than suburban schools and .2% less than rural schools. The gaps in the enrollment of Economically Disadvantaged student at charters compared to urban, rural, and suburban schools did not test significant in the ANOVA analysis.

Dissimilarity Index Analysis

English Language Learners. The dissimilarity index shows that rural schools had the lowest DI at .06. The calculated DI for charters was 0.08, which was less than urban (.10) and

suburban schools (.12). Notably, suburban schools had the highest DI for English Language Learners.

Texas English Language Learner Dissimilarity Index by Locality (2011)

Charter	.08
Urban	.10
Suburban	.12
Rural	.06

Table 4

Special Education. The DIs for all localities are all below 2% for Special Education students. This means that, relative to state proportions, very few Special Education students would need to move in order for the Special Education and Non-Special Education populations to have the same distribution as the total group in the state of Texas.

Table 5

Texas Special Education Dissimilarity Index by Locality (2011)

Charter	.01
Urban	.00
Suburban	.02
Rural	.01

Economically Disadvantaged. The dissimilarity index shows that urban public schools are the most segregated by SES. In the state of Texas, charters had the lowest DI at 4%. Rural and suburban schools had similar DIs at 9% and 8%, respectively.

Table 6

Texas Economically Disadvantaged Dissimilarity Index by Locality (2011)

Charter	.04
Urban	.13
Suburban	.08
Rural	.09

Access at the Local Level: An Analysis of Charters in Houston ISD

In our analysis of "skimming" in charters, we conduct two separate analyses. We first compare charters, as a group, to district averages in terms of enrollment of high needs students (ELLs, economically disadvantaged, and special education students.) We then take a more "local" look at the question of skimming through a comparison of charters with nearby non-charter schools.

Charters vs. HISD schools: Aggregate analysis of access. In our first analysis, we compared how charter schools as a group compared with the overall district demographics. Like our state analysis, we found at the aggregate that there were few differences between charters and HISD schools with respect to the proportion of ELL students and economically disadvantaged students served. The proportion of special education students is somewhat lower in eternally managed charters, however, when compared with HISD schools as a whole.

When comparing charters to traditional public schools (or "neighborhood" schools) in HISD (those that are *not* schools of choice) some differences become apparent with respect to ELL enrollment: although traditional public schools serve 45.4% ELL students, externally managed charters enroll just 30.2% as a whole (See Table 7). Charters as a whole also enroll fewer special education students compared with traditional public schools (4.9% vs. 7.2%.) The proportion of Economically Disadvantaged students enrolled in charter schools, however, is comparable to the proportion enrolled in traditional public schools. Charters are, furthermore, enrolling slightly *more* economically disadvantaged and ELL students than HISD magnet schools.

[Insert Table 7 about here]

Charters vs. neighborhood schools: Spatial analysis of access. In this second part of our analysis, we compare charters physically located within HISD district boundaries to several

different groupings of HISD schools. As with the prior comparison, our analysis of charter schools includes *both* charters that are open enrollment charters operated by an external agency (non profit, university, etc.) and those that are run by HISD but which have no attendance boundary.¹

First, we compare charters with no attendance boundaries to *all schools* within HISD that have an attendance boundary (including magnets (with boundaries) and "campus charters.") This set of analyses was aimed at understanding the degree to which charters physically located within HISD were serving students that were similar to, or different from, HISD students as a whole (see Table 8 and Figure 2).

Second, we compared charters with no attendance boundaries to *traditional public schools*-schools that are not charters or magnet schools; these are simply schools that serve local neighborhoods. This set of analyses was intended to understand the degree to which charters located in certain communities were "skimming" students from traditional neighborhood public schools (see Table 8).

In our third set of analyses, we compare charters to magnet schools operated by HISD. The goal of these analyses, as noted earlier, is to compare how district run schools of choice (magnet schools with no attendance boundaries) compare with charters in terms of the population served. This set of analyses compares two sets of schools each have reasons that they may serve fewer special populations: magnet schools can set admissions criteria (though they do provide transportation); charters can require parents and students to commit to codes of conduct and involvement requirements (and not all provide transit). Thus this set of analyses is aimed at understanding how within-district choice compares to "out of district" choice (see Table 8).

¹ We felt that we would combine both types of charters as we did not believe there was a justifiable reason to distinguish between the types of charter "providers"-in other words, we felt that distinguishing between HISD as a provider and other non profits was arbitrary.

We present our findings with respect to the three sub-groups of interest (ELL students, economically disadvantaged students, and special education students) below.

Charter schools and ELL students. Our local analyses find that charter schools are, as a whole, serving significantly fewer ELL students compared with nearby schools in each category of comparison (compared to all schools, traditional public schools, and magnet schools). The most significant differences emerge when comparing charters to nearby traditional public schools: more than half of the charters we analyzed (56.9%, or 29 schools) fall into a "segregative" category (serving at least 10 percentage points fewer ELL students than nearby traditional public schools.) Of these 29 schools, 23 are in the "Extreme" category, meaning that they serve at least 20 percentage points fewer ELL students than the nearby traditional public schools. The pattern of segregation for ELL students is still present, but less severe, when comparing charters to HISD schools as a whole (as opposed to the nearby public schools)--which illustrates some of the problems with prior analyses comparing charters only to district averages. Comparing charters to HISD magnets, we find relatively fewer differences. This is a somewhat expected pattern, given that both types of schools are, as schools of choice, have some barriers to enrollment.

Charter schools and Economically Disadvantaged students. Our comparisons of the proportions of economically disadvantaged students in charters finds similar patterns of underenrollment, though the depth of this under-enrollment is more dependent upon the comparison group. As with ELL students, we find problems of under-enrollment emerging most strongly when we compare charters to traditional public schools that are nearby -- one fourth of the charters we analyzed (25.5% of charters) we found are "segregative," under enrolling economically disadvantaged students by at least 10 percentage points compared to nearby public

schools. When compared with magnet schools, charters are doing relatively better in terms of serving economically disadvantaged students, however: on balance charters are enrolling *more* economically disadvantaged students than close-by magnet schools in HISD.

Charter schools and students eligible for special education services. Comparing charters to nearby schools yields a very clear portrait under-enrollment of special education students, in each category of comparison (Houston aggregate, nearby traditional public schools, and magnet schools). The under-enrollment problem, however, is most severe when comparing charters to magnet schools: 42% of charters within a one-mile of an HISD magnet are under-enrolling students eligible for special education services, and nearly half of these levels are "extreme."

Exemplar schools. To illustrate some of the nuances within our analysis, we picked several "exemplar" schools, to illustrate some of the trends within our data (see Table 9).

Charter segregation at the local level. A number of schools in our data, per the prior national studies of charters, appear to be "not segregative" when compared to overall district demographic averages, but when compared to local schools significantly under-enrolled special student population groups. The Yes Prep West charter campus was illustrative of this phenomenon: According to our data, the school served significantly more Economically Disadvantaged students compared to Houston ISD as a whole; yet, when comparing the school to nearby public schools, the data shows that the school significantly under-enrolls ELL students, and enrolling about the same proportion of economically disadvantaged students, vis-à-vis the nearby public schools. The two campuses (on one campus) received "Exemplary" accountability ratings in 2010/11, compared with nearby traditional schools: Long Middle school with an "Acceptable" rating; and Lee high school with an "Acceptable" rating.

Charters under-enrolling ELL students. One of our exemplar schools was KIPP Liberation College prep, which we selected given that KIPP is a national model. While the school was categorized as "not segregative" for economically disadvantaged students- enrolling roughly the same proportion when compared wither to Houston averages or nearby traditional public schools-we found that the school was significantly under-enrolling ELL students in both comparisons (by -26.8% and -36.2% respectively). This school received an "Acceptable" accountability rating in 2010/11, which is comparable to nearby traditional public schools (with both Acceptable and Recognized ratings.)

Charters under-enrolling multiple high needs student populations. Some schools underenrolled special populations, on each dimension of comparison. Harmony School of Fine Arts,
for example, under-enrolled economically disadvantaged students when compared to Houston
averages. This picture was significantly worse when compared to nearby public schools: the
school enrolled 26.5% fewer ELL, and 38.6% fewer Economically Disadvantaged students when
compared to traditional public schools. Another school in this category was the Victory Prep
school, which also under-enrolled ELLs and economically disadvantaged students vis-à-vis
district averages; this under-enrollment was significantly worse when the school was compared
to nearby traditional public schools, suggesting strongly that the school was skimming easier-toserve students. The school received a "Recognized" accountability rating in 2010/11, although
nearby traditional public schools did as well or better (Hobby Elementary with an "Exemplary"
rating; and Shearn Elementary which also received a "Recognized" rating.)

Charters serving high needs populations at the same rates. We did find some schools that were doing well in how they served high needs students: Raul Yzaguirre, we found, was in that

category: the school was "not segregative" on any measure for any of the special populations. It received an "Acceptable" rating in 2010/11.

Discussion and Conclusions

Our analysis, which looked at charter schools and access from three different perspectives (state, district, and local), illustrates that the claims by many charter school providers that they are serving disadvantaged students at rates equal to or greater than public schools is misleading. While aggregate data at the state level indeed show little evidence of skimming, our local analyses illustrated that, when looking spatially at the problem of access, significant problems exist.

Our data illustrate significant skimming in charter schools, particularly with ELL students and special education students, particularly when compared to "traditional" public schools (neighborhood schools.) These data contradict many claims by charter advocates that charters are serving high concentrations of at-risk youth. Charters are, by our analyses, clearly underenrolling at-risk students.

These findings also suggest that charter schools may be having an adverse impact on traditional public schools. Those traditional public schools, often in highly disadvantaged contexts, appear to be "left behind" by choice --as charters attract the easier to serve students, traditional schools are left with even higher concentrations of the most difficult to serve students. This concentration of disadvantage may make it organizationally difficult for such schools to improve, and lead to further disadvantage for the students left in those schools (identifying reference).

We find a somewhat more complicated picture when comparing charters to HISD magnet schools. We find charters in some instances are, in many cases, enrolling both lower and higher

proportions of ELL students and economically disadvantaged students compared with HISD magnets. The opposite is true with respect to special education students—charters appear to be significantly under-enrolling special education students vis-à-vis HISD magnets.

In sum, our data suggest that understanding the picture of skimming with charters requires a nuanced, local level analysis. Future research is needed that compares enrollment in traditional public schools vs. nearby charter schools longitudinally to understand the dynamics of stratification in the charter system. Future research should also examine the relationship between special population exclusion and accountability ratings over time, to discern whether charters obtain a ratings advantage by excluding more difficult to serve students.

The policy implications that emerge from this work are significant: our data suggest that claims by charter operators of high levels of enrollment of high needs students should be regarded with much more suspicion. These findings also indicate that policymakers should find ways to hold charters accountable for serving high-needs students at the same rates as nearby schools so that charters don't become an engine of stratification, draining the "easier to serve" students off a strained public school system.

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Appendix I: Charter Schools Excluded from Analysis due to Unique Populations

- 1. University of Texas-University Charter School: Helping Hand Home for Children: Charter run by the University of Texas serving as a foster care facility for emotionally disturbed children in K-5. (www.utexas.edu/ce/ucs/our-campuses/detail/helping-hand-home/)
- 2. University of Texas-University Charter School: Texas Neurorehabilitation Center: The charter, housed on the Texas NeuroRehab site, is specifically for children 8-17 whose IQs fall roughly between 40 and 90. The school focuses on pre-vocational training of its students. (www.texasneurorehab.com/behavioral-services/residential-neurobehavioral/education/education.stml)
- 3. University of Texas- University Charter School: The Oaks Treatment Center is a school, in partnership with The Oaks Psychiatric Residential Treatment Center, that caters to students with severe emotional, behavioral and developmental issues. The charter school aspect of this treatment center was discontinued after the 2008-2009 School year. (www.caring4youth.org/1025.html)
- 4. University of Texas- University Charter School: Settlement Home. This is a residential treatment center for female students between the ages of 7 and 18. There is a major focus on 24-hour therapy for each of its students (www.utexas.edu/ce/ucs/our-campuses/detail/settlement-home/).
- 5. University of Texas-University Charter School: George M. Kozmetsky Serving families residing at the Kozmetsky Shelter. A confidential shelter for families of sexual and domestic violence. (www.utexas.edu/ce/ucs/our-campuses/detail/kozmetsky/)
- 6. University of Texas-National Elite Gymnastics Charter School: *Program for students who are participating at the elite level in competitive gymnastics.*(http://www.utexas.edu/ce/ucs/our-campuses/detail/national-elite-gymnastics/)

Appendix II

Definitions (Source: http://ritter.tea.state.tx.us/perfreport/aeis/2011/glossary.html)

Limited English Proficient (LEP): These are students identified as limited English proficient by the Language Proficiency Assessment Committee (LPAC) according to criteria established in the Texas Administrative Code. Not all students identified as LEP receive bilingual or English as a second language instruction, although most do. In the Profile section of the reports, the percent of LEP students is calculated by dividing the number of LEP students by the total number of students in the school or district.

Special Education: This refers to the population served by programs for students with disabilities. Assessment decisions for students in Special Education programs are made by their Admission, Review, and Dismissal (ARD) committee.

Economically Disadvantaged: The percent of economically disadvantaged students is calculated as the sum of the students coded as eligible for free or reduced-price lunch or eligible for other public assistance. divided by the total number of students.

¹ Researchers have posed a number of reasons for these trends. Some speculate that this local under-enrollment is attributable to special restrictions on enrollment that charters are able to implement, such as admissions criteria and parent involvement requirements, which can deter enrollment of the most high need student populations (see Frankenberg et al., 2011; Lacireno-Paquet, Holyoke, Moser & Henig, 2002; Miron et al., 2010). The under-enrollment of the most high-needs students, others contend, may also be due to intentional recruitment and marketing efforts aimed at students who are relatively less costly (Lacireno-Paquet et al., 2002; Miron et al., 2010). Such incentives, as Lacireno-Paquet et al. (2002) argue, may be particularly strong for for-profit charters. The lack of a requirement to provide transportation in some states, or to provide transportation over longer distances, also may contribute to under-enrollment of the most at-risk students (Frankenberg & Siegel-Hawley, 2011).

² http://ritter.tea.state.tx.us/perfreport/aeis/hist/state.html

³ For some schools, this was a daunting task, as their individual school name of the campus had changed. Though messy and a bit more work, schools that changed their names and/or consolidated on a shared campus posed little difficulty for the analysis, as their addresses had stayed the same.

⁴ There were a number of barriers to discovering the status of charters (in partnership with HISD, or independently operated). Schools operating in HISD were the most difficult to track, because at this time there is no single exhaustive list of external charter partnerships with the Houston Independent School District available. Instead, as stated in the main text, the schools had to be verified via five main sources: the NCES SDDS Map, The HISD Website, 2011-2012 AEIS Reports, A Texas state Senate List, and a 2011-2012 HISD Charter School document. Each list displays a different set of schools.. Once we had a name for a school, using the state level PEIMS data through the Academic Excellence Indicator System (AEIS), which clearly identifies

the operating entity for each school under "District Name, we were able to verify the chartering entity. The AEIS report for each school from the various lists found was retrieved. Once the AEIS report was acquired for each campus, the partnership listed on the official state report for the most recent academic school year (2011-2012) was evidence of a verified relationship and operation/management structure. Unfortunately, the identification of categories was further complicated by the lack of school type identification on state reports.

Though each of the reports listed the district within which the school was operating, charter schools in Texas under public school district designation are not listed as charters. For charter schools operating out of the traditional public school district the words "This is a Charter School" are prominently displayed on the cover sheet for each school. This is not the case for charter schools operating under the umbrella of a major school district. Further verification was needed to properly identify which type of school was being operated and when, at this point a phone call to the campus was necessary. Our particular interest, making certain that the school had been operating as a charter in academic years 2010-2011 and 2011-2012, and had not been converted from a traditional public school or vices versa during that time period, which would have given a less accurate analysis of impact on our chosen population groups.

For example, when one finds the Dominion Academy Charter on the NCES map and then attempts to verify that this particular school is in fact under HISD's umbrella, it is not listed on the official school district lists (website, documents, etc) however, it is listed on a Texas state Senate document, and Houston Independent School District will be listed as its district during both the 2010-2011 and 2011-2012 school years on the school's AEIS report issued by the state. The case with the Dominion Academy Charter was not an isolated incident for HISD.

⁵ Of the 95 charter schools in operation, 40 of them were housed at a site that was home to one or more schools with separate PEIMS codes. In each of these cases, a total of 18 sites, the population totals were weighted and compared to each of the individual HISD campus attendance zones that fell within that one-mile radius.

⁶ Students designated as Economically Disadvantaged by the Texas Education Agency are those students who are eligible for free or reduced price lunch or other public assistance.