Prospects for Equity in Boston Public Schools' School Assignment Plans

Summary

The disadvantages of attending concentrated poverty and racially segregated schools have been well-documented, yet the Boston Public School District (BPS,) now 87% minority and 76% low-income, struggles to design student assignment policies which provide the benefits of economically and racially integrated schools and also minimize transportation costs. This brief explores the roots of this problem in a regional context, analyzes patterns of segregation and exposure to high-poverty schools in BPS under both the current 3 zone and previously proposed 5 zone assignment system, and contrasts the extremely different composition of BPS schools with those nearby schools which lie just outside BPS district boundaries. It finds that the structure of schools in metropolitan Boston is exceedingly fragmented which, combined with high levels of residential segregation, lead to high levels of school segregation and disproportionate exposure of black and Hispanic students to concentrated-poverty schools. Within BPS itself, the demographic characteristics of schools display a distinct geographic pattern, despite the elements of choice in school assignment that do exist. These patterns of inequality would likely be exacerbated if the District were to implement a previously proposed five zone assignment plan. Nevertheless, the demographic characteristics of the BPS student population put an upper limit on the amount of possible economic and racial integration possible even under the current plan. Given the extremely different economic and demographic profiles of schools located within a short distance of the BPS border, exploring and enhancing options which allow students to cross district borders would be a positive step in achieving the benefits of economically and racially-integrated education.

Metro Boston School Systems Are Very Fragmented

The challenges of the Boston Public Schools cannot be viewed outside a metropolitan context. Unlike some metro areas which combine students in districts spanning a fairly large geographic area, the structure of schools in metropolitan Boston is highly fragmented. With 162 separate districts, metro Boston has about one district for every 3,500 students. In contrast, the similarly-sized Seattle metro has about one district for every 10,000 students. In the 25 largest metro areas in the U.S., there exists about one district for every 7,200 students. While fragmentation is not inherently negative and may enhance factors often considered to be beneficial, such as local control, it is also associated with increased segregation and inequality.

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1 Data provided by The Civil Rights Project, Derechos Civiles, UCLA. Tabulations of the U.S. Department of Education, National Center for Education Statistics, Common Core of Data, 2006-07.
Metro Boston has a high degree of residential segregation, in part due to the historical remnants of past discrimination. Continuing discriminatory housing practices, attitudes, preferences, fears, and lack of information about certain communities perpetuate racial/ethnic segregation. Furthermore, differentially high housing costs in certain communities reinforce economic segregation. These high costs are often exacerbated by zoning and other regulations that limit the amount of more affordable multi-family or higher density housing. Because school assignment is so closely linked to place of residence, this residential segregation inevitably leads to school segregation.

Public, Primary Schools Are Highly Segregated, Especially for Latinos

Based on a commonly used measure of segregation, the dissimilarity index \( (D_{ij}) \) public, primary schools\(^2\) in metro Boston are highly segregated, especially for Latinos\(^3\). The dissimilarity index ranges from 0 (no segregation) to 100 (complete segregation) and can be interpreted as the percent of minority or white students that would have to move to another school so that each school in the metro area has the same relative proportion of minority and white students as exists in the metro area overall. In general, indices above 60 are considered to be high.

Of the 100 largest metros in the US during the 2008-09 school year, Metro Boston was the:
- 4\(^{th}\) most segregated for Latino primary school students (\(D=70.2\))
- 13\(^{th}\) most segregated for Asian primary school students (\(D=51.6\))
- 28\(^{th}\) most segregated for black primary school students (\(D=70.2\))

Minority Students Much More Likely to Attend Concentrated-Poverty Schools

This racial/ethnic segregation is not benign and is linked to the much greater likelihood of minority students attending concentrated-poverty schools. Using eligibility for free or reduced lunch as a proxy for poverty\(^4\), on average:
- Hispanic students in metro Boston attend public, primary schools with poverty rates of 65%—3.8 times that of non-Hispanic white students—the 3\(^{rd}\) highest disparity among the 100 largest metro areas.
- Black students attend public, primary schools with poverty rates of 61%—3.5 times that of white students—the 6\(^{th}\) highest disparity among large metros.
- Asian students attend public, primary schools with poverty rates of 34%—2.0 times that of white students—the 4\(^{th}\) highest disparity among large metros.

Concentrated poverty is powerfully related to both school opportunities and achievement levels. Past research has shown that concentrated-poverty schools tend to have more rapid turnover of teachers and students, lower involvement by parents, less experienced teachers, lower per student expenditures, high dropout rates and lower test scores. Students attending these schools tend to have higher levels of untreated health problems, weaker networks to college and jobs, and lower likelihood of graduating.

\(^2\) Primary schools defined as those with lowest grade of "Pre-K" through 3 and highest grade of "Pre-K" through 8. Based on analysis of National Center for Education Statistics, Common Core of Data, Public Elementary/Secondary School Universe Survey.

\(^3\) Data on segregation and exposure to school poverty calculated by DiversityData.org based on data from the National Center for Education Statistics, Common Core of Data. For more data and information, see www.diversitydata.org

\(^4\) Students whose family income is at or below 130 percent of the federal poverty level qualify to receive free lunch, and students whose family income is between 130 percent and 185 percent of the poverty level qualify to receive reduced-price lunch.
college than students in predominantly middle-class schools. Furthermore, racially isolated schools are associated with higher teacher turnover, limited access to peers who can positively influence academic learning, and lower educational outcomes while racial integration has been shown to improve critical academic achievement and critical thinking skills, reduce racial prejudice, and better prepare students for a diverse workplace.

Researchers at the Thomas B. Fordham Institute have analyzed these disparate exposures to high poverty schools in a slightly different way, developing the concept of “private” public schools. These are schools in which less than 5% of primary school students and 3% of middle/high school students are eligible for free/reduced lunch. In metro Boston, 20% of white and 16% of Asian students attend these “private” public schools, but only 3% of black students and 2% of Hispanic students do. Of course, these schools are not “private” in the technical sense, but because they are disproportionately located in communities with high housing costs, many households are essentially purchasing school access on the basis of their ability to buy or rent homes in these communities. These are technically public schools, but with a decidedly different profile than many schools in poorer communities.

### Inequality Within the Boston Public School System

As in metro Boston overall, the characteristics of students attending BPS schools display a distinct geographic pattern, despite the elements of choice in school assignment that do exist.

Maps 1-3 show characteristics of BPS schools that contained a 4th grade as of the 2008-09 school year. Map 1 shows the share of students eligible for free/reduced lunch in each school, with lower poverty schools shown in yellow and higher poverty schools shown in darker colors. Schools are divided into 4 groups or quartiles, with an equal number of schools in each group. Map 2 shows student performance on the 4th grade MCAS math exam in terms of the CPI (Comprehensive Performance Index.) The Composite Performance Index (CPI) is a measure of the extent to which students are progressing toward proficiency. A CPI of 100 in a given content area means that all students have reached proficiency. In this map, higher scores are presented in yellow and lower scores in darker colors. Map 3 shows the share of students who are black or Latino in each school, with lighter colors indicating lower shares and darker colors indicating higher shares.

Although these maps are not identical, they show a similar pattern: schools with higher shares of lower-scoring, lower-income, and higher black/Latino schools are clustered in the central area.

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8 Overall 27% of primary public school students in metro Boston are eligible for free/reduced lunch.

9 Under the current BPS school assignment plan, the city is divided into three geographic zones (East, West, and North) for elementary and middle schools. Students may apply for school in the zone where they live, schools within their “walk zone,” and certain citywide schools. Assignment is then made by a computer program which tries to assign students based on their highest listed choice for which they have highest priority. Priorities are generally based on schools attended by siblings and walk zones, although certain exceptions apply.

10 Schools with 4th grades were chosen because free and reduced lunch eligibility has been shown to be less accurate in upper-level grades, MCAS is administered in 4th grade (as opposed to some lower grades,) and 4th grade students are not split between primary and middle schools, as 6th grades may be, for example.
Maps 1-3

Characteristics of BPS Schools with 4th Grades Overlaid on Current Assignment Zones: 2008-09

Percent Eligible for Free/Reduced Lunch

Math 4th Grade MCAS CPI

Percent Black or Latino

Note: Excludes Horace Mann School for the Deaf, McKinley School, and charter schools.
Source: MA Department of Education and BPS
encompassing parts of Roxbury, Jamaica Plain, and Dorchester. A number of lower-scoring and higher black/Latino schools are also located in Mattapan and Hyde Park as well. The central area of the maps roughly corresponds with the area defined by BPS in their new “Circle of Promise” initiative. This place-based plan encompasses a five square mile area, including 10 of the 14 Boston Public Schools identified as underperforming by the BPS. It seeks to connect families with comprehensive resources to provide an integrated network aimed at boosting achievement and breaking the cycle of poverty.\footnote{For a brief description of the Circle of Promise, see http://www.bostonpublicschools.org/node/3874}

Increasing and Redrawing Assignment Zones May Further Concentrated Poverty

In high-poverty, high-minority public school districts such as Boston, the ability to achieve economic and racial integration is limited by the relatively low number of white and upper-income students, but the way school assignment boundaries are drawn can make a difference, for better or worse. Map 4 presents schools according to the share of students eligible for free/reduced overlaid on BPS’s current 3 zone assignment plan. Schools with the highest poverty shares tend to be concentrated in Jamaica Plain, Roxbury, North Dorchester and East Boston, with lower poverty schools generally located around the outside edges of the city. Under the current assignment system, each of the 3 zones has a mix of schools from this inner, higher-poverty area as well as schools from the other, lower-poverty areas.

In contrast, Map 5 overlays this same map with a previously proposed 5 assignment zone plan. This plan was proposed by BPS in the Spring of 2009 and subject to a series of community meetings but not enacted. Note that this is not an actual simulation of the school characteristics that would emerge if such a plan was implemented, which would necessitate accessing the BPS database of student characteristics and assignment algorithms. It shows the current characteristics of schools overlaid on the 5 zone boundaries. If school characteristics approximate those under the current plan, the 5 zone plan would effectively break off the lower-poverty schools in West Roxbury, Roslindale, Hyde Park, and Allston/Brighton into new zones, leaving the higher poverty schools more concentrated in the remaining zones. A 2009 simulation by the BPS Capital and Strategic Planning department showing the racial/ethnic comparison of the 3 zone and 5 zone assignment plans for elementary and middle schools, shows increased concentration of students by race under the 5 zone plan.

While the demographic characteristics of the BPS student population put an upper limit on the amount of possible economic and racial integration, it is possible to exacerbate segregation. The current 3 Zone Plan groups together schools with more diverse characteristics, while the 5 zone plan leads to more homogeneity within zones and more difference between zones, increasing inequality.

Crossing District Boundaries Can Dramatically Alter Poverty Rates of Potential School Choices

High degrees of residential segregation, fragmentation of the Boston metro area into many small school districts, and little opportunity for students to attend schools outside their district make it very difficult for public school students in Boston to attend predominantly middle-class schools.

Massachusetts does have an Inter-District Choice program, but it is voluntary on the part of receiving school districts, and very few districts in the Boston area participate. Further, free transportation is not
Maps 4-5

Percent of Students Eligible for Free/Reduced Lunch
BPS Schools with 4th Grades
Overlaid on 3 and 5 Zone Plans: 2008-09

Current 3 Zone Plan

Proposed 5 Zone Plan

PERCENT  ZONE3
- 29 - 73  East
- 74 - 85  North
- 86 - 89  West
- 90 - 97

PERCENT  ZONE5
- 29 - 73  Zone 1
- 74 - 85  Zone 2
- 86 - 89  Zone 3
- 90 - 97  Zone 4
- 90 - 97  Zone 5

Note: Excludes Horace Mann School for the Deaf, McKinley School, and charter schools.
Source: MA Department of Education and BPS
provided for transferring students, so this responsibility and cost falls to the parents. Thus, as of 2007, only 47 BPS students were using this program to attend schools in another district\(^\text{12}\).

Additionally, the voluntary, racial desegregation program, METCO (Metropolitan Council for Educational Opportunity) allows students to attend schools in other districts, subject to district approval, if those transfers help to reduce racial/ethnic isolation. The vast majority of participating students are minorities residing in Boston who are then able to attend suburban schools. In existence since 1966, METCO is a grant program funded by the state intended to expand educational opportunities, increase diversity, and reduce racial isolation. The METCO program allows approximately 3,300 minority students, mostly from BPS, to attend schools in 33 suburban school districts in metro Boston and at four school districts outside Springfield, MA; yet this constitutes less than 6% of BPS students. Over 10,000 students are on the METCO waiting list. The state provides transportation costs and reimburses receiving districts $3,132 per student,\(^\text{13}\) significantly less than the average cost per student incurred by the receiving districts.

The inability of students to cross district boundaries is particularly unfortunate because of the dramatically different poverty status, racial composition and academic achievement profiles of many schools just over the BPS border. For example, the boxplots in Figure 1 show the 2008-09 school year distributions (maximum, 75th percentile, median, 25th percentile, and minimum) of four characteristics of public elementary schools that contain a 4th grade in the Boston Public Schools and in the neighboring communities of Newton\(^\text{14}\) (a primarily white suburb) and Cambridge (a racially diverse city that is part of the central-city portion of the Boston metropolitan area). Characteristics include school’s combined black and Latino percent of enrollment; percent of enrollment that is eligible for free or reduced lunch; and 4th grade Massachusetts Comprehensive Assessment System (MCAS) Composite Performance Indices (CPI), which measure the extent to which students are progressing toward proficiency in English Language Arts and Mathematics.

For all four characteristics, the distributions of school districts are markedly different, with Newton exhibiting much lower shares of black/Latino and low-income students and much higher MCAS scores than Boston schools, and Cambridge falling in between. In fact, the Newton school with the highest black/Latino and low-income percentages is still substantially less black/Latino and less poor than the Cambridge and BPS schools with the lowest black/Latino share and low-income percentages, and there is fairly little overlap in CPI scores as well. While there is some overlap between Cambridge and BPS characteristics, the interquartile range (the percentages or scores that make up the middle 50% of the distribution) overlaps for Cambridge and BPS schools only for the English CPI. These comparisons show that, not only do schools in these neighboring districts differ on average, almost the entire choice set of schools open to students in BPS differs from the other districts.

Newton and Cambridge are just two of the several communities which border Boston and, while they are quite close to some BPS schools, they are more distant from others. A additional analysis compares the share of students eligible for free/reduced lunch in BPS schools that include a 4th grade with those within the school’s 3 zone and 5 zone catchment area and with schools outside BPS but still within a 5


\(^{14}\) Newton is also currently the largest receiver of METCO students, hosting 429 students in 2009, over four times the average number of students hosted by participating school districts.
Figure 1

Distribution of Schools With 4th Grades: Percent Black or Hispanic, Percent Low-Income, English and Math MCAS Composite Performance Indices: 2008-09

Note: Low-Income refers to free/reduced lunch eligibility. A Composite Performance Index (CPI) of 100 means that all students have reached proficiency. Excludes charter and private schools. Boxplots show maximum, 75th, 50th and 25th percentiles, and minimum values for each municipality.

Source: Tabulations by DiversityData.org of data from Boston Public Schools and Mass. Dept. of Education.
mile radius of the selected school. On average, BPS schools with 4th grades have roughly 30 schools within a 5 miles radius of their location but outside BPS boundaries.

The differences between the poverty rates of other BPS within each selected school’s current assignment zone and those schools outside BPS but within 5 miles of the selected school are dramatic. Overall, the average difference in the median poverty rates is 55 percentage points (median difference is 60 percentage points.) These differences range from over 70 percentage points for several schools in the southwest Boston neighborhood of Hyde Park to 18-19 percentage points for schools located in the far northeastern corner of East Boston, which borders the lower-income communities of Revere and Chelsea.

| Table 1 |
| Percent of Students Eligible for Free/Reduced Lunch in Public Schools with 4th Grades |
| 2008-09, Percent |

<table>
<thead>
<tr>
<th>School</th>
<th>Neighborhood</th>
<th>School %</th>
<th>5 Zone Median</th>
<th>3 Zone Median</th>
<th>Within 5 Miles Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kilmer</td>
<td>W. Roxbury</td>
<td>29.0</td>
<td>72.5</td>
<td>75.8</td>
<td>8.1</td>
</tr>
<tr>
<td>Conley</td>
<td>Roslindale</td>
<td>74.1</td>
<td>72.5</td>
<td>75.8</td>
<td>8.5</td>
</tr>
<tr>
<td>Winship</td>
<td>Brighton</td>
<td>80.4</td>
<td>81.2</td>
<td>85.6</td>
<td>22.0</td>
</tr>
<tr>
<td>Mather</td>
<td>Dorchester</td>
<td>85.1</td>
<td>84.9</td>
<td>82.7</td>
<td>22.1</td>
</tr>
<tr>
<td>Mendell</td>
<td>Roxbury</td>
<td>87.1</td>
<td>85.9</td>
<td>75.8</td>
<td>30.8</td>
</tr>
<tr>
<td>Eliot</td>
<td>Central (N. End)</td>
<td>58.0</td>
<td>85.9</td>
<td>85.6</td>
<td>59.9</td>
</tr>
<tr>
<td>Otis</td>
<td>East Boston</td>
<td>92.9</td>
<td>87.4</td>
<td>85.6</td>
<td>61.9</td>
</tr>
</tbody>
</table>

Source: Diversitydata.org analysis of MA Dept. of Education and BPS data.

Table 1 illustrates these differences in school poverty by showing data for seven representative BPS schools that reflect varied locations across the city and varied shares of low-income enrollment. The table presents the share of each school that is eligible for free/reduced lunch (poverty rate), the median poverty rate for schools in the selected school’s 3 zone or 5 zone assignment area, and the median poverty rate for schools which contain a 4th grade and are within 5 miles of the specified BPS school but outside BPS boundaries. While there is some difference between the poverty rate of the selected school and other schools within the 3 and 5 zone areas, it is not large. In contrast, there are generally dramatic differences in the poverty rates of the selected school and those outside BPS boundaries but within 5 miles. While there is large variation in the differences between school poverty rates depending on the location of the selected school, even for those BPS schools bordering on communities with the highest poverty schools, the poverty rates in the group of bordering schools is still quite a bit below that

15 Note that this preliminary simulation takes into account physical distance, but not actual transportation times or capacity of potential receiving schools to accommodate more students. Further, it measures distance from the school a student currently attends rather from the student’s place of residence. A study of potential interdistrict choice school plans in California, Texas, and Florida which took into account drive times, school capacity, and which limited students to transferring to higher-performing schools, found that factors such as long distances to higher-achieving schools and limited capacity in such schools can sharply limit the ability of students to take advantage of interdistrict opportunities. However, given the shorter distances between districts and between schools with differing characteristics in metro Boston, a similar analysis may find quite different results. See: Dillon, Erin, “Plotting School Choice: The Challenges of Crossing District Lines,” Education Sector, August, 2008. http://www.educationsector.org/usr_doc/Interdistrict_Choice.pdf
of schools in the selected school’s 3 or 5 zone assignment area. The analysis presented here shows the differences in median poverty rates between sets of schools. Further unpublished analysis also shows that the entire distribution of poverty rates for the nearby, non-BPS schools is much lower than the distribution of rates for those BPS schools within the selected schools’ assignment zones.

Discussion

As the Boston Public School District strives to improve student achievement and provide access to a high-quality education for every student, it should carefully consider the trade-offs between reducing transportation costs and exacerbating inequality by concentrating certain students in high-poverty schools. Reconfiguring student assignment zones, particularly when these zones constrain students to schools closer to their place of residence, has the potential to lower transportation costs but also means that schools will increasingly mirror the residential segregation of children throughout the city, likely increasing the concentration of lower-income, minority students in high-poverty schools.

The demographics of the Boston Public Schools make it difficult to achieve predominantly middle-class schools throughout the system, regardless of school assignment plans. However, the close geographic proximity of many BPS students to non-BPS schools with much lower poverty concentrations makes it theoretically possible to achieve these diverse schools and also address transportation cost concerns. In a metropolitan area such as Boston, with a highly fragmented structure of school systems and substantial racial and economic segregation, this solution means facilitating the crossing of school district boundaries.

Such inter-district plans must be designed with great care, however. Some, like METCO, have provided the benefits of middle-class (and in some case upper-class) schools to inner-city minority students and brought more diversity to suburban classrooms. Others, like Massachusetts’ Inter-District Choice program (separate from METCO,) have provided very limited opportunities to students because very few surrounding districts participate. In communities where the MA Inter-District Choice program has been used more extensively, some studies have shown that minority and bi-lingual students are disproportionately less likely to participate, while white students are more likely to participate16. Because students generally transfer to higher-income, whiter districts, this may lead to increasing segregation and increasing shares of minority students left behind. Further, when considering possible inter-district programs surrounding the City of Boston, it is important to note the fact that BPS schools with lower-minority and poverty enrollments tend to border the wealthiest and whitest adjacent communities, suggesting that a program relying mainly on geographic proximity also runs the risk of increasing segregation.

Some research has suggested that simply making choice available will not “give less-affluent parents access to the same good schools that privileged parents with resources currently seek out for their children, as the most coveted schools are, from the most privileged parents’ perspectives, those schools without low-income students or students of color17.” In other words, white communities are likely to resist programs that threaten the low-minority, low-poverty status of their schools, as they use these characteristics are indicators of “good” schools.

Despite the programmatic and potentially political difficulties of expanding or developing new inter-district options, the fragmented, segregated nature of school districts in metro Boston, which concentrates black and Latino students disproportionately in high-poverty, high-minority schools, will

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likely not be adequately addressed by other policies. A recent study of the nation’s inter-district school desegregation programs has found that these programs help close black-white and Latino-white achievement gaps, improve racial attitudes and lead to long-term mobility and further education for the students of color who participate.\textsuperscript{18} With the share of white students attending very low-poverty, “private” public schools being seven to ten times the share of black and Latino students in such schools, the negative effects of attending concentrated-poverty schools increasingly documented, and minorities growing as a percentage of all students, the fact that students attending public schools have distinctly different opportunities based solely on the last few digits of their zip codes is a matter of grave importance. Boston Public Schools must be aware of these patterns and strive not to exacerbate them, but the duty to address this inequality cannot fall on the Boston Public Schools alone.

\textbf{To investigate school segregation or exposure to school poverty for metro Boston or any metro area, visit www.diversitydata.org.}