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Race and the Metropolitan Origins of Postsecondary Access to Four Year Colleges: The Case of Greater Boston

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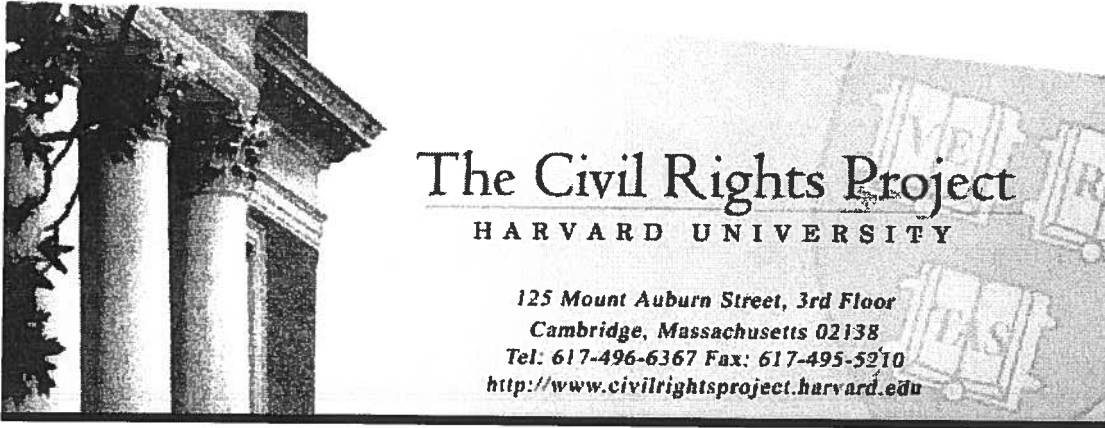
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Race and the Metropolitan Origins
Of Postsecondary Access to Four Year
Colleges:
The Case of Greater Boston

By

Joseph B. Berger, Suzanne M. Smith and Stephen P. Coelen
University of Massachusetts Amherst

April 2004

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EXECUTIVE SUMMARY

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The inequities of residential segregation and their impact on educational opportunity are a national problem, but greater metropolitan Boston has a particularly problematic history in terms of the extent to which racial segregation has deeply divided the city into separate and unequal systems of opportunity. Despite decades of policy efforts to desegregate Boston, racial segregation has persistently dominated residential patterns in the Boston metropolitan area (McArdle, 2003), and, because it is so linked to inequality of schools and communities, minority children tend to be particularly disadvantaged by the persistence of this form of social stratification (Logan et al., 2003).

Given existing research that has already established inequities in K-12 education, the purpose of this study is to examine the potential impact of geographic origin within the Boston metropolitan area on postsecondary access-oriented outcomes such as SAT scores and number and types of applications to postsecondary institutions. More directly, this study provides a descriptive picture of how students from different types of geographic environments in the greater Boston metropolitan area and of different racial and ethnic backgrounds experience opportunities for postsecondary educational access. We find that pathways to college are strongly related to residential segregation even after other factors such as income are taken into account.

The sample for this study comes from 29,742 postsecondary student applicants who come from the greater Boston metropolitan area and who took the SAT between 1996 and 1999. Each of the access outcomes (SAT scores and number and types of applications to postsecondary institutions) described above will be examined vis-à-vis their relationship to students' race/ethnicity and their geographic origin type within the greater Boston metropolitan area. A combination of descriptive summaries, including cross-tabulations, t-tests, and multiple regression are used for data analysis. Racial/ethnic categories include African/American, Hispanic/Latino (used as a separate category from the other racial categories), Native American, Asian American and White.

Geographic origin categories include urban Boston, other urban (other cities with high population densities), and suburban regions. The City of Boston itself is the major urban center for the region and is therefore identified as its own type of residential region. The other urban areas are identified as cities that have high population densities, that are also quite urbanized and share common problems of high poverty, scarce resources and are inhabited by high percentages of individuals from racial and ethnic groups that have traditionally been under-served by formal education systems. The remaining suburban communities are wealthier and more predominantly white than either of the urbanized regions.

Findings from this study demonstrate that high school graduation is just one hurdle to higher education and the social and economic benefits it brings to individual students and to larger society. There is a very unequal level of high school graduation in the segregated schools of metropolitan Boston. Black and Latino students who do graduate, particularly those residing in urbanized areas of Metro Boston, face additional barriers to postsecondary access such as lower likelihood of taking the SAT, lower SAT scores, and fewer applications to college. Lower SAT scores persist even after taking into account a student's income, gender, class rank, high school grades and whether they would be among the first generation of their family to attend college. More specifically, key findings from this study show that:

- Both the City of Boston and the other urbanized satellite cities, which educate many blacks and the largest shares of Latinos, have very different patterns of college access than do the suburbs.
- African American and Hispanic/Latino(a) students are more likely to be under-represented in the pool of students who take the SAT than are white or Asian students. This pattern of inequity exists across all three types of residential regions – urban Boston, other urban cities and suburban neighborhoods. Other research has shown that such patterns may be linked to differential levels of information about the need to take examinations, different peer groups, varying accessibility to the exam site, the cost of taking exams, and other reasons.
- African American and Hispanic/Latino(a) students tend to have much lower SAT scores than do white students in all three types of regions. Other research shows that test scores are linked to different levels of parent involvement, different peer groups, and different exposure to qualified, experienced teachers and demanding curriculum.
- Taken together, the previous two findings indicate that the SAT serves as a potentially significant barrier for African American and Hispanic/Latino(a) students because they are less likely to take the exam and less likely to perform well even when they do take the SAT. Policy discussions that do not take racial inequalities into account may unduly limit college opportunity.
- Suburban students from all racial groups perform better on the SAT compared to their urban peers. The suburban-urban gap is smallest for white students and largest for Asians, but African American and Hispanic/Latino(a) students also face significant urban-based achievement gaps on this standardized test. Suburban opportunities do not end achievement gaps but are related to significantly higher scores of minority students.
- These differences cannot be fully explained by differences in income. The performance gap on SAT scores between students from the suburbs compared with students from urban settings is greater for students from low income backgrounds than for students at the higher end of the socio-economic spectrum.
- Lower SAT scores persist for students from Boston and other urban areas even after taking into account a student's income, gender, race, class rank, high school grades and whether they would be among the first generation of their family to attend college.
- Overall, suburban students tend to apply to slightly more colleges than do students who live in urban settings; giving suburban students a wider range of choices for college and perhaps a better chance to be accepted into college.

- There are also differences in types of colleges students apply to as part of the college choice process. Suburban students are 50% more likely to apply out-of-state than are students from urban regions.
- Suburban students are also more likely to apply to private institutions, highly selective colleges, and flagship universities than are students from urban areas. More specifically, students from low poverty/low minority areas are more likely to apply to a greater number of institutions in general while also applying more heavily to out-of-state, highly selective and flagship institutions. The differences are particularly acute in terms of out-of-state applications where low poverty/low income students apply to almost five times as many out-of-state colleges as do their peers from high poverty/high minority areas.

**Race and the Metropolitan Origins of Postsecondary Access to Four Year Colleges:
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Forty years after America launched numerous public policy initiatives aimed at developing a “Great Society” of equal opportunity and prosperity, socioeconomic gaps continue to grow among the fragmented societies that are increasingly estranged from each other by a myriad of institutionalized inequities. The widening divide increasingly separates established wealth from the larger number of citizens who continue to live with insufficient access to food, shelter, money, education and other essential resources. In particular, educational inequities can be traced to these persistent societal injustices. Despite a growing ethnic and racially diverse middle class, American society remains segregated with real consequences for educational quality and outcomes experienced by many historically underrepresented students of color. Douglass Massey and Nancy Denton (1998), in their book, *American Apartheid*, argue that the fundamental cause of poverty among African Americans and by extension other historically underrepresented groups is segregation. Neighborhood integration has remained a goal of public policy and popular opinion because it is seen as proof of the American ideal of equal opportunity. Unfortunately the 2000 Census shows that growing ethnic diversity in the nation is accompanied by a high degree of residential separation. Those who can afford to do so live increasingly in the affluence of suburbs that are geographically and culturally isolated from the more urban areas at the core of major cities or in the fringes of industrial towns and areas whose days of better fortune have passed them by. The geographic isolation of such settlement patterns has further institutionalized inequities regarding access to material and cultural resources. Additionally, middle and upper class whites remain and are becoming increasingly over-represented in wealthier suburbs, while people of color – African Americans, Hispanic/Latino(a)s and many Asian American groups - continue to be over-represented in poverty-stricken urban areas.

The inequitable stratification of residential areas in metropolitan areas is a particularly acute problem when one considers the extent to which educational opportunities are unevenly distributed between urban and suburban areas. Educational opportunity and attainment is widely believed to be a key vehicle for upward social and economic mobility. Yet, it is well documented that the structure of educational opportunities has continually contributed to the reproduction of deeply embedded on-going inequities throughout American society (Bowles & Gintis, 1977; McDonough, 1997). Such inequities occur at all levels of education, and much of the empirical analyses that have been conducted on these phenomena have understandably focused on the structural inequities in public schools and throughout the K-12 educational system. However, less attention has been paid to the ways in which postsecondary educational access and attainment is affected by residential origin.

It is clear that postsecondary opportunity and attainment is determined in large part by the social and educational backgrounds of potential college students. For example, students from poorer schools, such as those found in inner-city urban settings, are much less likely to aspire to attend

college, graduate from high school, actually enroll in a postsecondary institution, (Hambrick and Stage, 2003) and, even when they do attend a college or university, they more often attend community colleges and are less likely to earn an undergraduate degree than are their peers from suburban settings. The severity of this problem makes it surprising that more attention has not been paid to examining the relationship between residential origin (defined in this study as inner-city, urban and suburban) of college aspirants and postsecondary access outcomes.

The inequities of residential segregation and their impact on educational opportunity are a national problem, but greater metropolitan Boston has a particularly problematic history in terms of the extent to which racial segregation has deeply divided the city into separate and unequal bastions of inequity. Despite decades of policy efforts to desegregate Boston, racial segregation has persistently dominated residential patterns in the Boston metropolitan area (McArdle, 2003), and as a result, minority children tend to be particularly disadvantaged by the persistence of this form of social stratification (Logan, Oakley & Stowell, 2003).

The well-documented inequities in the K-12 educational system contribute to even larger gaps in postsecondary education; gaps that further reinforce socioeconomic inequity. Almost three-quarters of high school graduates in Massachusetts who attend college are enrolled in four-year rather than two-year institutions, yet African American and Hispanic/Latino(a) students are less likely to be enrolled in those four-year institutions. For example, white students in Massachusetts are just as likely to attend two-year colleges as are African Americans and twice as likely as Hispanic/Latino(a)s to enroll in community colleges. Yet, white students are almost twice as likely to attend four-year institutions than are African Americans and two-and-one-half times more likely than Hispanic/Latino(a) students to attend four-year institutions (Coelen, Berger, Forest, Smith & Mendoza, forthcoming). These numbers are quite significant when one considers that the average wages of workers in Massachusetts without a college degree were just over \$32,000 per year in 2000, while workers with an associate's degree earned \$42,600 per year and employees with a bachelor's degree had an annual income of \$53,600 (Coelen, Berger, Forest & Smith, 2002).

Given existing research that has established inequities in K-12 education, and given the important role that access to four-year postsecondary educational institutions plays in future socio-economic opportunities, the purpose of this study is to examine the potential impact of geographic origin within the Boston metropolitan area on four-year postsecondary access-oriented outcomes such as SAT scores and number and types of applications to postsecondary institutions. More directly, this study provides a descriptive picture of how students from different type of geographic environments in the greater Boston metropolitan area and of different race/ethnic backgrounds experience opportunities for postsecondary educational access.

Data Source

The sample for this study comes from 29,742 students who resided in the greater Boston metropolitan area, took the SAT between 1996 and 1999, and are considered by the College Board to be part of the 1999 cohort of graduating seniors.

Patterns of SAT scoring were investigated using data from the College Board's Student Descriptive Questionnaire (SDQ). The SDQ is given to students when they register to take the SAT. The response rate of the SDQ for the period between 1996 and 1999 is around 90-percent.

Certain questions in the survey are required, such as name, address, and high school, while others are optional. Such questions include students' race, parental income, gender, as well as courses taken in high school, participation in student activities and athletics, parental education, honors, and awards. Students also indicate those schools to which they would like a score report sent. Once students take the SAT, their scores are recorded with their SDQ responses. This data set is also utilized to examine the number and types of postsecondary institutions to which students apply.

Data Analyses

Each of the access outcomes (SAT scores and number and types of applications to postsecondary institutions) described above will be examined vis-à-vis their relationship to students' race/ethnicity and their geographic origin type within the greater Boston metropolitan area. A combination of descriptive summaries, including cross-tabulations, t-tests, and multiple regression are used for data analysis. Racial/ethnic categories include African/American, Hispanic/Latino (used as a separate category from the other racial categories), Native American, Asian American and White.

Geographic origin categories are based on previous work developed by McArdle (2003) for the Harvard Civil Rights Project and will include urban Boston, other urban (other cities¹ with high populations densities), and suburban. The Greater Boston metropolitan area has a population in excess of 5 million people and consists of a seven-county area around Boston. The City of Boston itself is the major urban center for the region and is therefore identified as its own type of residential region. The other cities identified in footnote 1 as having high population densities are also quite urbanized and spread throughout the greater metropolitan area, but share common problems of high poverty, scarce resources and are inhabited by high percentages of individuals from racial and ethnic groups that have traditionally been under-served by formal education systems. The remaining suburban communities are wealthier and more predominantly white than either of the urbanized regions.

Key Findings

Two types of postsecondary access-oriented outcomes are included in this study – SAT scores and college applications. SAT scores were chosen as one indicator of access because they are the most commonly used norm-referenced standardized college admissions test used by admissions at colleges and universities in New England (and, along with the ACT, the most frequently used test in postsecondary admissions nationwide). While state-wide high school exit exams such as MCAS can be thought of as “bottom up” gates that play a key role in controlling access to the postsecondary segment of the educational pipeline, SAT provides more of a “top down” access filter as SAT scores are among the standardized tests most commonly used by college and university admissions offices at the front end of the postsecondary portion of the educational pipeline. Although widely used, SAT scores are quite controversial given concerns about potential bias in the test that may put some types of students – particularly racial and

¹ Attleboro, Brockton, Cambridge, Chelsea, Everett, Fall River, Fitchburg, Gloucester, Lawrence, Leominster, Lowell, Lynn, Malden, New Bedford, Somerville, Waltham and Worcester. These are places defined as “central cities” by the Office of Management and Budget as of 1999 plus other cities with population densities over 10,000 people per square mile.

ethnic minorities and English-as-a-Second-Language (ESL) students – at a disadvantage in the college admissions process. Yet, they remain the single strongest predictor of admissions across all types of four-year institutions in New England, even after controlling for a variety of other types of admissions criteria (Berger, Coelen, Wilson, Smith, Forest & Mendoza, 2003).

College and University Application Patterns provide another indicator of postsecondary access. It is well documented that students from different backgrounds apply to different numbers and types of postsecondary institutions (Hossler, Schmit & Vesper, 1999). Therefore, this study examines patterns of college applications to see how students from different backgrounds engage in the college application process in terms of (a) how many and (b) what types of postsecondary institutions they apply to for undergraduate education.

The general pattern of findings across the types of postsecondary access outcomes examined in this study shows that students living in suburban Boston have significant advantages in terms of postsecondary access when compared with their peers in Boston and other urbanized areas within the greater metropolitan area. Furthermore, the differences between students from the suburbs and the other two more urban regions are typically even greater once race and ethnicity are taken into account, as postsecondary access inequities are even larger for students of color in urbanized settings than they are in the suburbs. The details of such inequities are presented throughout the remainder of this report.

Who Takes the SAT

Beginning with a descriptive look at the population of students from Greater Boston who take the SAT, it is clear that suburban students are more likely to take the SAT, and therefore be much more likely to attend a four-year postsecondary institution than are their peers in Boston and other urban areas. Students from the suburbs are more likely than students from Boston or from other Urban Metro areas to report high levels of postsecondary aspirations and to act on those aspirations by taking the PSAT and the SAT. Although the suburban region accounts for just about 70.7% of the high school senior population in metropolitan Boston, suburban students comprise 73.2% of the high school students who take the PSAT and 74.4% of the SATs taken in the metropolitan area. Quite simply, suburban students are more heavily represented in the sample of SAT-takers under examination in this study than are students from Boston and other urban areas. This pattern provides evidence that residential origin is closely related to a key step involved in the college access process and that students in suburbs are much more likely than others to be positioned for attendance at four-year colleges and universities.

Table 1 displays the number of students in the sample who took the SAT between 1996 and 1999, while Table 2 shows the total number of high school seniors in the Greater Boston metropolitan region (these data are taken from the 1999 reports of the Massachusetts Department of Education). These numbers are used to determine the measures presented in subsequent analysis throughout the remainder of this report.

Table 1 - Number of Students Taking the SAT by Region and Race (1996-99)

	City of Boston	Other Urban	Suburban	Total Metro Area
White	1,043	3,840	18,612	23,495
African American	690	430	483	1,603
Asian	382	635	1,033	2,060
Hispanic/Latino	429	499	492	1,420
Total	2,554	5,404	20,620	28,578

Table 2 - Number of High School Seniors by Region and Race (1999)

	City of Boston	Other Urban	Suburban	Total Metro Area
White	1,287	7,627	33,789	43,703
African American	1682	1,482	1,163	4,327
Asian	459	910	1,333	2,702
Hispanic/Latino	913	1,177	1,207	3,297
Total	4,334	11,196	37,492	53,022

Tables 3 and 4 summarize the racial composition of students who take the SAT within each geographic region and the racial composition of the total high school senior population across the three residential areas within the Greater Boston metropolitan area. A comparison of the two tables shows that white students comprise a larger proportion of SAT-takers (40.8%) in Boston compared to the overall white composition (29.7%) within Boston schools. In the other urban and suburban areas, the proportion of white students who take the SAT more closely resembles their numbers in the broader population. Asian students are over-represented as SAT-takers in all three regions. However, the story is quite different for African-American and Hispanic/Latino students who are consistently under-represented within the SAT-taking population in all three of the different types of residential areas. The gap is particularly large in the City of Boston for African Americans. This pattern is even more troubling when one recalls that African Americans are most heavily represented within the City of Boston. More directly, African Americans are least likely to take the SAT in the areas where they are most likely to reside. The representation gaps are less severe for Hispanic/Latino(a) students, but inequities clearly exist across all three types of residential regions.

Table 3 - Racial Composition of SAT-takers, Percent Within Each Geographic Area

	City of Boston	Other Urban	Suburban	Total Metro Area
White	40.8	71.1	90.3	82.2
African American	27.0	8.0	2.3	5.6
Asian	15.0	11.8	5.0	7.2
Hispanic/Latino	16.8	9.2	2.4	5.0
Total	100.0	100.0	100.0	100.0

Table 4 - Racial Composition of Seniors, Percent Within Each Geographic Area

	City of Boston	Other Urban	Suburban	Total Metro Area
White	29.7	68.7	90.1	82.4
African American	38.8	13.2	3.1	8.2
Asian	10.6	8.1	3.6	7.2
Hispanic/Latino	21.1	10.5	3.2	6.2
Total	100.0	100.0	100.0	100.0

SAT Performance

Students in the City of Boston perform less well than do the students from the other two residential regions, as demonstrated by the findings summarized in Table 5. Suburban students enjoy a significant advantage in SAT scores compared to the other two groups, with students in other urban areas performing better than Boston students. White students have the highest scores in both the City of Boston and in the other urban areas, but are generally out-performed by Asian students in the suburbs. The gap between Asian students from the suburbs and their Asian peers in the two more urban areas are quite large – 206 points better in the suburbs than in Boston and 234 points better in the suburbs than in other urban areas. Hispanic/Latino students also do much better in the suburbs than do their counterparts in the urban areas, although they are closer to the white averages in the suburbs, but farther behind Asian students in suburban settings than in urban settings.

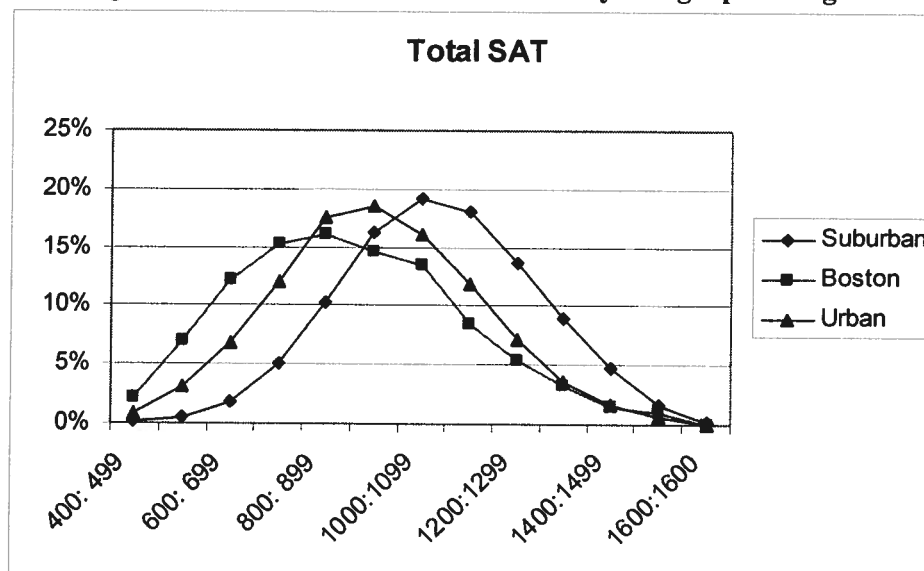
Table 5 - Average SAT Score by Race and Region

	City of Boston	Other Urban	Suburban	Total Metro Area
White	1035	1005	1079	1067
African American	823	834	943	854
Asian	928	897	1134	1028
Hispanic/Latino	827	824	1008	887
Total	896	953	1083	1044

The mean total score for students from suburban areas is 1083 with a standard deviation of 200. In contrast, the mean SAT score among other urban residents is 954 with a standard deviation of 210. Boston students scored only 896 on the SAT with a standard deviation of 231. Students from the suburbs clearly score higher on the SATs than do their peers in other urban areas, who, in turn, fare better on these standardized tests than do Boston students. Suburban SAT scores are not only higher than those in the other regions, but they are also more homogenous (as indicated by the smaller standard deviation) than the scores from other urban areas, which again are more homogenous than the scores from Boston students. The higher levels of homogeneity indicate that suburban students are more tightly bunched in a uniform manner. They are not only more likely to score well on the SAT, but are also less likely to do poorly at the other end of the spectrum than are their urban peers. This same trend holds true when comparing the better average performance and greater levels of similarity within students from the other urban areas as compared to students in Boston.

The shape of the distribution as shown in Figure 1 further demonstrates that students from other urban areas tend to be more normally distributed than Boston students in terms of SAT performance, with Boston students tending to be more densely clustered at the lower end of the continuum. Figure 1 shows that the distributions for the two urban regions are positively skewed in shape, indicating that the majority of students in these regions tend to score lower on the SAT. In contrast, the suburban distribution is negatively skewed indicating that students from the suburban areas are more likely to score well on the SAT. The strong shift of the distributions to the right--from Boston-- to other urban areas--to suburban settings exemplifies the extent to which residential region is related to performance on the SAT.

Figure 1 – Distribution of SAT Scores by Geographic Region



Divergence in SAT test performance also exists by race within each geographic region. Figures 2-3 show that suburban students score consistently higher than do their Boston and other urban peers across every racial/ethnic group on SAT scores – verbal, math and total. Many of the gaps are quite large. More specifically, these three figures show that students in the suburbs perform better overall and on both portions of the SAT than do any other group, regardless of

racial/ethnic background. Asian and White students have the highest scores across all three regions. Figure 2 shows that, in the suburbs, African American students are least likely to perform well on the verbal portion of the SAT when compared with their peers from other racial and ethnic groups. African Americans fare slightly better on verbal performance in other urban settings than in Boston; but overall students of color perform less well on this portion of the SAT than do their White counterparts. Suburban Asians are the one exception to this pattern; they perform as well as white suburban students. However, the gaps in verbal performance between Asians in the suburbs versus the two urbanized regions are quite substantial. In contrast, the gaps among white students across the three residential regions are quite small.

Figure 3 demonstrates that patterns of SAT Math performance are similar to the verbal score results across racial and ethnic groups within the three regions. There are some subtle differences. For example, the gap between scores for white students from the suburbs and the urban regions is slightly larger than on the verbal section of the SAT. Additionally, Asian students from Boston perform slightly better in math than do their other urban peers. But the same trends in inequity persist, demonstrating that African American and Latino(a) perform less well than their white peers. Just as importantly, suburban students consistently out-perform students from more urbanized areas, even after controlling for racial and ethnic differences.

Figure 2 – Average Verbal SAT Score by Race in Geographic Regions

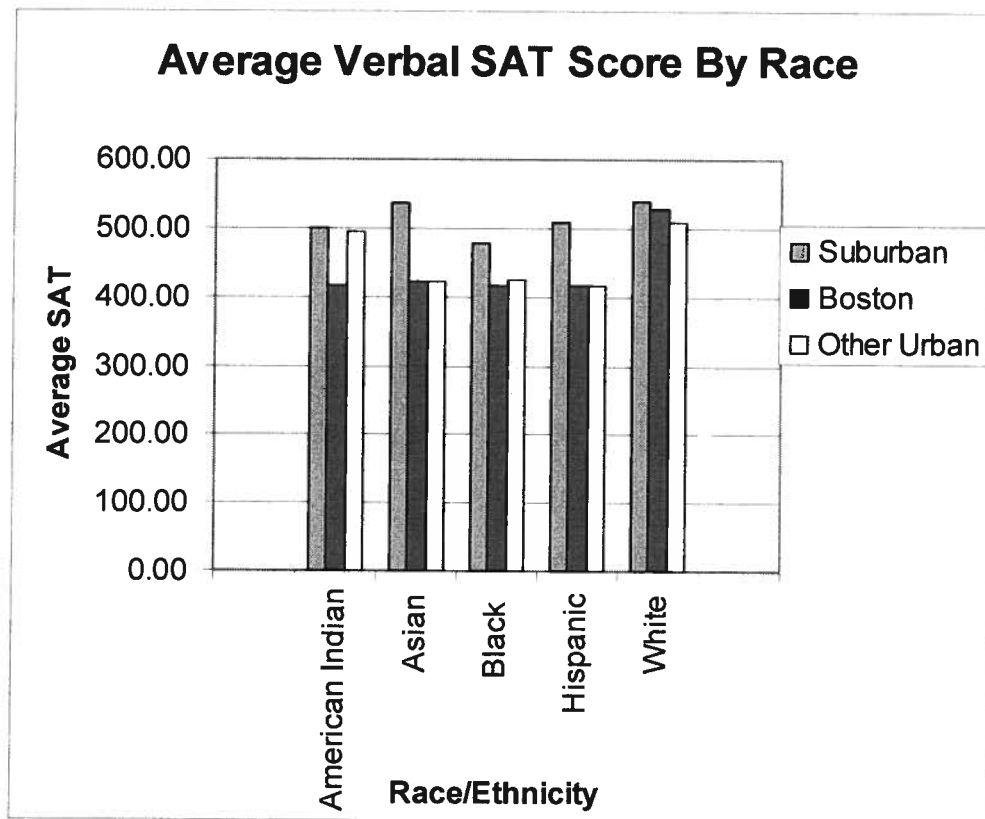


Figure 3 – Average Math SAT Score by Race in Geographic Regions

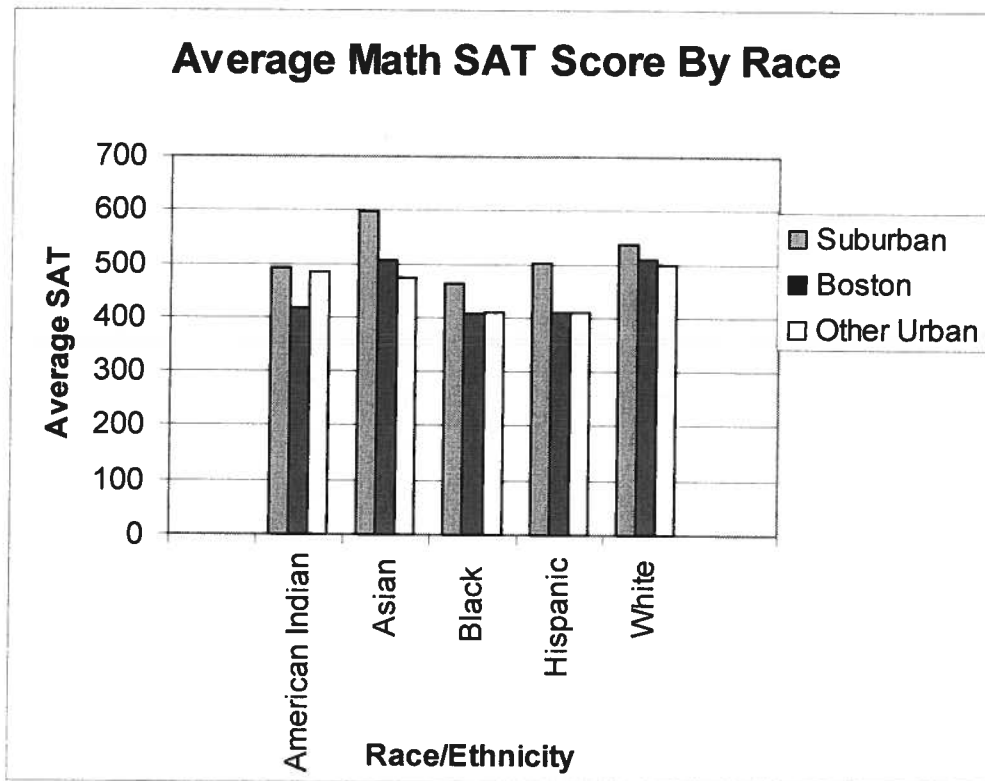
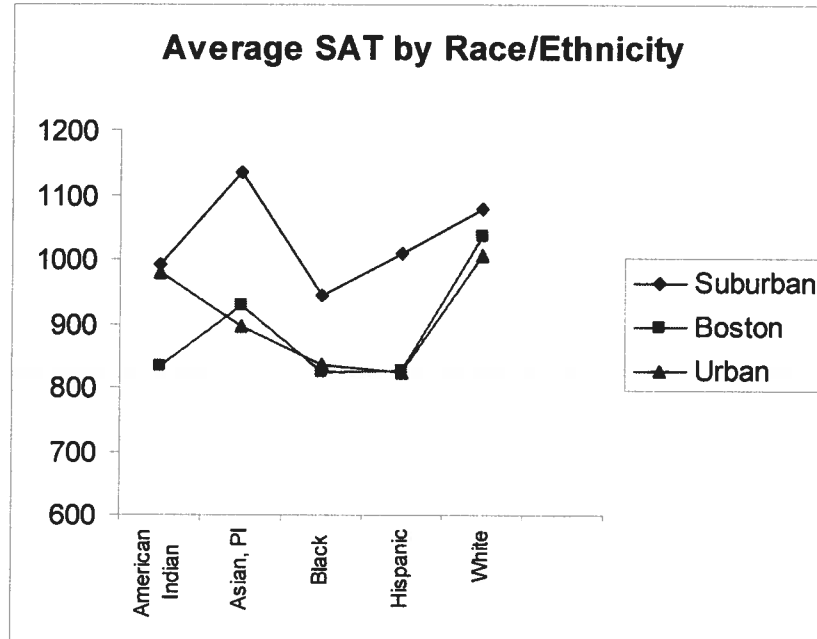


Figure 4 provides a clear visual representation of the gaps among racial/ethnic groups across the three geographic areas. There is very little difference among White students regardless of where they live, but substantially larger gaps among other groups. African American students have the lowest scores in the suburbs, and, along with Hispanic/Latinos, also have the lowest scores in the two more urbanized areas. There is a large gap between Asian/Pacific Islanders in the suburbs and the Asian/Pacific Islanders in the more urban areas – this may be an artifact of the diversity within this population. It is important to remember that the category of “Asian/Pacific Islanders” is comprised of individuals from a wide variety of cultural and linguistic backgrounds and that there are differences in the number of generations of each group that have lived in American society. It is likely that the Asian/Pacific Islanders who live in the suburbs come from different ethnic groups, come from families that have been settled in this country for a longer period of time, and have access to higher levels of financial resources than do the Asian/Pacific Islanders in Boston and the other urban areas.

Figure 4 – Average Total SAT Score Plotted by Race in Geographic Regions



Similar patterns of inequity exist when examining differences within geographic regions in terms of income distribution and type of high school attended by the student. Figure 5 provides a summary of differences among regions for students from different self-reported income categories. The greatest inequities in SAT scores occur for students from the lower end of the socio-economic spectrum; which represents higher percentages of minority students and larger portions of students living in Boston or other areas.

Figure 5 – Average Total SAT Score by Income in Geographic Regions

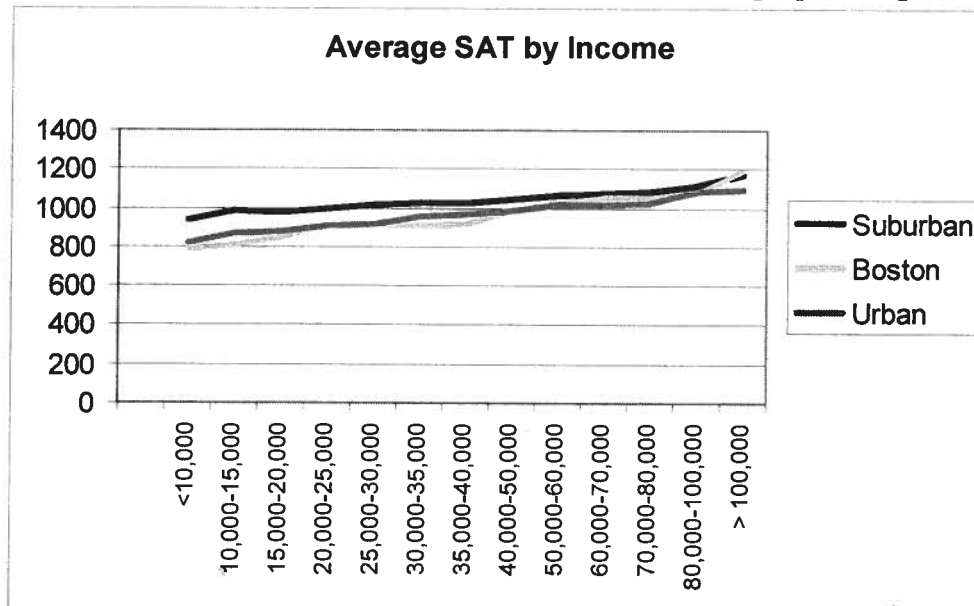
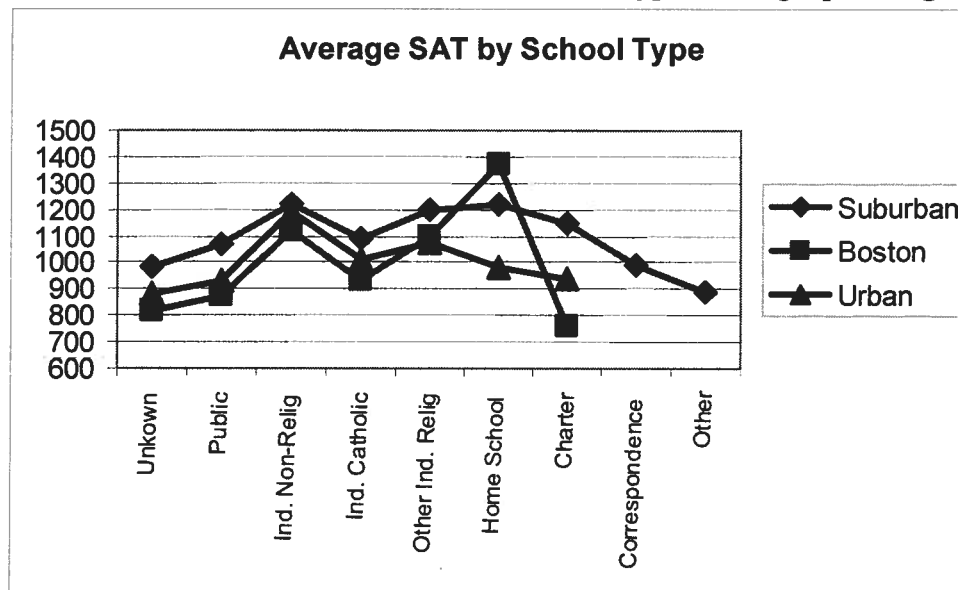


Figure 6 displays differences in SAT performance among students attending different types of high schools within each of the three geographic regions. Once again, students in the suburbs generally tend to score better on the SAT exam, but not as consistently once type of school is taken into consideration. The SAT scores at private, non-religious schools are nearly identical across the three regions, and there are relatively small differences among other types of independent schools. The biggest gaps occur among home schooled students, and the pattern shifts such that home-schooled students in Boston score even better on the SAT than do their suburban peers. Students in the other urban areas do not seem to benefit as much from home schooling when measured by SAT scores.

Figure 6 – Average Total SAT Score by School Type in Geographic Regions



Multiple regression was also used to examine the ways in which geographic region of origin affected SAT performance after controlling for other key sources of influence on educational access and attainment. Table 6 provides the regression results. The dependent variable is average total SAT score. The regression predicting SAT scores included the following variables: gender, four measures of race (white, African-American, Hispanic/Latino(a) and Asian), family income (as reported on the SDQ²), first-generation college status, class rank, high school grade point average and dichotomous variables representing the Boston and other urban regions (the suburban region serving as the excluded reference measure).

The results of the regression analysis clearly show that area of residential origin impacts SAT performance independently of other individual factors. The standardized regression coefficients (also called betas) of $-.03^*$ and $-.10^*$, respectively, indicate that students from Boston and other urban areas generally have lower SAT scores than do students from the suburbs, even after controlling for a number of other individual characteristics. It is not surprising, given findings

² Income is coded as 1<\$10,000, 2=\$10,-15,000, 3=\$15-20,000, 4=\$20-25,000, 5=\$25-30,000, 6=\$30-35,000, 7=\$35-40,000, 8=\$40-50,000, 9=\$50-60,000, 10=\$60-70,000, 11=\$70-80,000, 12=\$80-100,000, 13>\$100,000.

from multitudes of previous studies, that males and first-generation students do not fare as well in terms of SAT performance as do females and students who come from families with college-educated parents. The regression analysis also confirms that African-American (beta = $-.08^*$) and Hispanic/Latino(a) (beta = $-.06^*$) students do less well on the SAT than do students from other racial and ethnic categories. On the other hand, the beta for the income variable is $.18^*$, which suggests that students from wealthier families tend to have higher SAT scores than do students from economically disadvantaged backgrounds. It is worth reiterating that even after considering these other sources of influence, residential origin is a significant source of impact on SAT performance – urban students are clearly at a disadvantage.

Table 6 – Multiple Regression (with Standardized Coefficients) Predicting SAT Scores

Gender (Male)	-.13*
Race: African American	-.08*
Race: Hispanic/Latino(a)	-.06*
Race: Asian	.00
Income	.18*
First Generation	-.15*
Class Rank	.32*
HSGPA	.23*
Boston	-.03*
Urban	-.10*
R ²	.47*

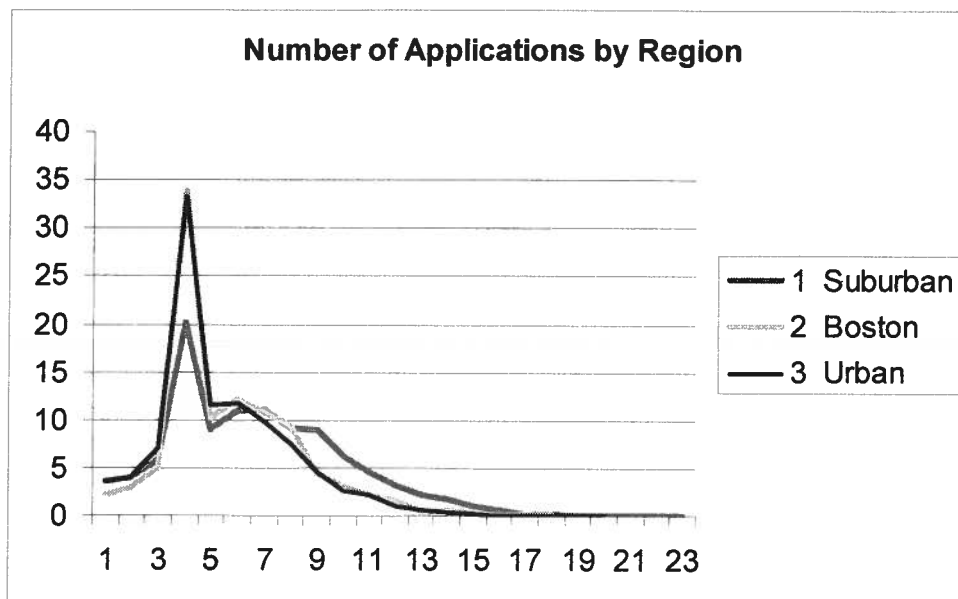
* = statistically significant at $p \leq .001$

N = 17,631

Number of Applications to College

Geographic and racial differences also exist among students in terms of applying to college, applying to numerous colleges, and applying to the most highly selective colleges and universities. Figure 7 displays percentages of students in each of the residential regions that send out specific numbers of applications. There are similar numbers of students in each of the three regions who send out four or less applications to colleges. However, students from Boston and other urban areas are, far and away, more likely to send out exactly five applications than are suburban students. The numbers are fairly even through eight applications per student and then students who send out nine or more applications are much more likely to be suburban. This pattern clearly indicates that students from the suburbs are engaging in more intentional strategies to increase their range of options for college attendance and to increase their chances for being accepted somewhere. It may also be that suburban students, who are more likely to come from affluent families, are more likely to be able to afford submitting applications to a greater number of four-year colleges and universities than are students from the more urbanized areas who typically have less financial resources to invest in the college application process.

Figure 7 –Average College Applications per Student in Geographic Regions



Tables 7 through 9 display patterns of college application by race and region. Overall, suburban students tend to apply to slightly more colleges than do students who live in urban settings; giving suburban students a wider range of choices for college and perhaps a better chance to be accepted into college. Table 7 shows that suburban students apply on average to more schools than do students from Boston, who are, in turn, more likely to apply to a higher number of colleges and universities than are the students in other urban regions. In terms of race and ethnicity, Asian students have the highest average number of applications overall and in both the other urban and suburban regions. In Boston, however, white students tend to submit slightly more applications than do Asians. Hispanic/Latino students consistently submit the fewest number of applications.

Table 7 - Number of Applications to Four-Year Colleges and Universities by Race and Region

	City of Boston	Other Urban	Suburban	Total Metro Area
White	6.31	5.51	6.03	5.97
African American	5.73	5.67	6.09	5.79
Asian	6.26	5.85	7.49	6.78
Hispanic/Latino	5.41	5.06	5.90	5.42
Total	5.94	5.54	6.10	5.98

Applications by Type of Institution

Differences across region and racial/ethnic groups are more pronounced when examining applications to different types of institutions. Table 8 shows that Asian students are much more likely to apply to the most elite and prestigious private institutions that have the highest levels of selectivity. This is true in all three regions. Interestingly, students from Boston are more likely than suburban students to apply more heavily to these prestigious institutions, with students from the other urban regions lagging behind.

Table 8 - Number of Applications to Highly Selective Private Four-Year Colleges and Universities by Race and Region

	City of Boston	Other Urban	Suburban	Total Metro Area
White	1.53	0.91	1.07	1.06
African American	0.92	0.79	1.19	0.91
Asian	1.88	1.31	2.27	1.91
Hispanic/Latino	1.25	0.77	1.19	1.04
Total	1.24	0.91	1.17	1.15

Table 9 indicates that white students and students from the suburbs apply to more out-of-state institutions than do their urban counterparts in Boston and the other urban areas. Overall, students from urban Boston are less likely to apply out-of-state than are other college-bound high school graduates. It is interesting that Asian students from Boston are least likely to apply out-of-state.

Table 9 - Number of Applications to Out-of-State Four-Year Colleges and Universities by Race and Region

	City of Boston	Other Urban	Suburban	Total Metro Area
White	0.95	0.96	1.32	1.25
African American	0.38	0.46	0.69	0.54
Asian	0.15	0.32	0.73	0.51
Hispanic/Latino	0.32	0.39	0.82	0.50
Total	0.50	0.74	1.25	1.07

Figures 8-10 summarize the types of colleges and universities that students from each of the three residential regions are most likely to apply to within the six New England states. Figure 8 indicates that students from the two urbanized regions are much more likely to apply within their home state of Massachusetts than are students from the suburbs. Figure 9 shows that suburban students are more likely to apply to private institutions than are students from the other urban residential areas, who in turn are more likely than Boston students to apply to private colleges

and universities. Similarly, suburban students are more likely than their urban peers to apply to more highly selective or “elite” private institutions.

Figure 8

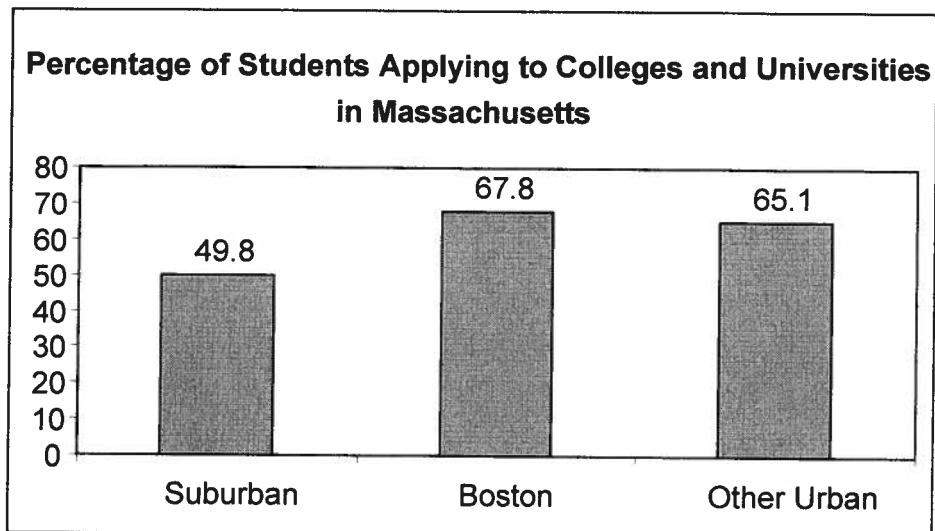


Figure 9

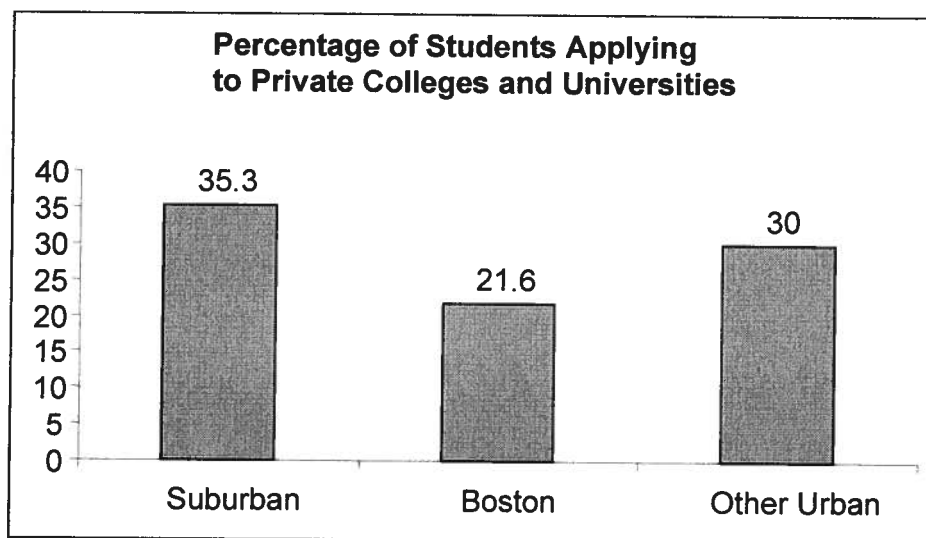
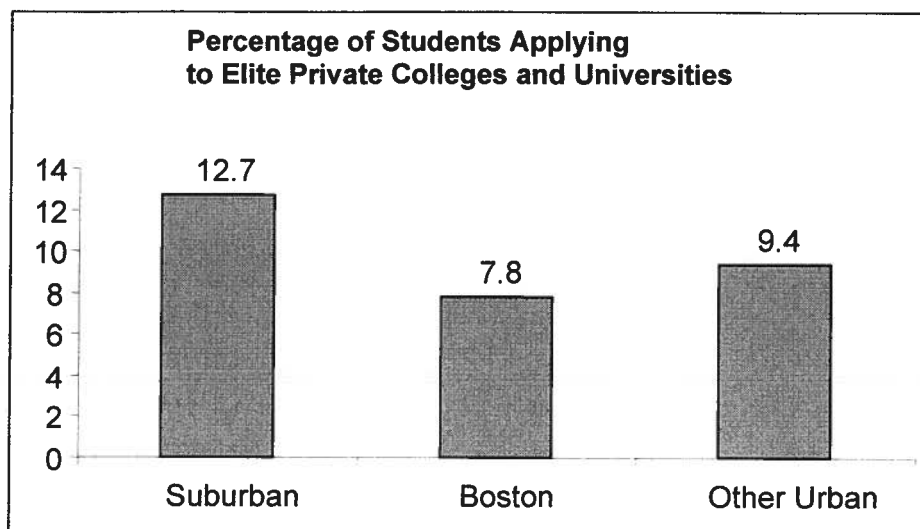


Figure 10



Tables 10 through 12 show that the specific type of neighborhood of residence, in terms of racial composition and poverty, influences college application patterns among students. Table 10 indicates that students from neighborhoods with higher shares of African Americans and Hispanics are less likely to apply to out-of-state colleges. Additionally, neighborhoods in which African Americans and Hispanics comprise less than 30% of the population tend to have a higher rate of students who apply to a flagship university than do neighborhoods in which over 30% of the residents are African Americans and Hispanic. The patterns are less clear regarding total number of applications or number of applications to highly selective institutions.

Table 10 – Percentage of Applications to College for Students From Neighborhoods with Different Racial Concentrations

Share of Neighborhood that is African-American or Hispanic	Share of Applications to Out-of-State Schools	Share of Applications to Highly Selective Schools	Share of Applications to Flagship Schools	Applications per Student
0 to 10%	20.7	19.1	10.7	6.1
11 to 20%	14.0	18.8	9.0	5.4
21 to 30%	11.1	17.2	10.4	6.4
31 to 50%	8.6	19.6	7.5	5.2
Over 50%	7.8	17.1	7.4	5.4

The college application patterns to out-of-state and flagship institutions in neighborhoods that are defined in terms of poverty are similar to the applications patterns to these two types of postsecondary institutions described above in terms of racial/ethnic composition. Table 11 demonstrates that students who reside in neighborhoods with higher concentrations of poverty tend to apply to fewer out-of-state and flagship institutions. However, total number of applications appears to be more heavily influenced by the level of poverty in a neighborhood

than by racial/ethnic composition. There is an inverse relationship between level of neighborhood poverty and number of college applications. In fact, students from neighborhoods where poverty accounts for less than five percent of the population typically apply to more than two-and-a-half more colleges than do students who live in areas where the poverty level exceeds thirty percent.

Table 11 – Percentage of Applications to College for Students From Neighborhoods with Different Concentrations of Poverty

Share of Population in Poverty	Share of Applications to Out-of-State	Share of Applications to Highly Selective	Share of Applications to Flagship	Applications per Student
0 to 5%	21.5	19.8	10.7	6.4
6 to 10%	17.9	17.3	10.5	5.7
11 to 20%	11.5	18.0	9.0	5.8
21 to 30%	8.5	18.4	7.6	4.9
Over 30%	5.7	19.6	6.5	2.4

Given the extent to which poverty and racial/ethnic background are related in American society, it is also necessary to examine the interaction between these two important factors. Table 12 illuminates the college application differences between low poverty/low minority and high poverty/high minority residential areas³. Students from low poverty/low minority areas are more likely to apply to a greater number of institutions in general while also applying more heavily to out-of-state, highly selective and flagship institutions. The differences are particularly acute in terms of out-of-state applications where low poverty/low income students apply to almost five times as many out-of-state colleges as do their peers from high poverty/high minority areas.

Table 12 – Percentage of Applications to College for Students From Neighborhoods with Different Racial and Poverty Concentrations

Share of Population in Poverty	Share of Applications to Out-of-State	Share of Applications to Highly Selective	Share of Applications to Flagship	Applications per Student
Low Poverty/Low Minority**	21.7	19.8	10.8	6.4
High Poverty/High Minority	4.5	17.6	6.6	5.1

Moving to an even greater level of specificity, Table 13 lists those areas (as determined by the zip codes of applicants) that have the highest share of students applying to institutions of varying types.

**Note: Low Poverty Neighborhoods include zip codes with poverty rates of 5% or less; High Poverty Neighborhoods include zip codes with poverty rates over 30%. Low Minority Neighborhoods have combined black/Hispanic share of population of 10% or less. High Minority Neighborhoods have combined black/Hispanic share of population over 50%. Source: The College Board.

Table 13 - Areas with Highest Shares of Applications to Schools by Type

<u>Highly Selective</u>		<u>Flagship</u>		<u>Out of State</u>	
<u>Area</u>	<u>Share (%)</u>	<u>Area</u>	<u>Share</u>	<u>Area</u>	<u>Share</u>
Boston (Beacon Hill)	50.0	Royalston	100.0	N. Oxford	33.3
Newton	39.6	Carver	20.0	Duxbury	33.2
Lexington	37.9	Boston	18.8	Rowley	32.1
Belmont	35.8	Rowley	18.7	S. Carver	32.0
Petersham	35.5	Ashby	18.6	Walpole	31.3

Note: Areas identify the communities that contain the zip codes with highest share of students applying to each type of institution.

Finally, we examined the ways in which geographic region of origin affected the college application patterns after controlling for other relevant individual factors. Table 14 provides the results of two multiple regression equations. The two dependent variables are total number of college applications and number of applications to out-of-state postsecondary institutions. The regression equations included the following variables: gender, four measures of race (white, African-American, Hispanic/Latino(a) and Asian), family income, first-generation college status, class rank, high school grade point average, SAT score, and dichotomous variables representing Boston and other urban regions (the suburban region serving as the excluded reference measure).

The results of the regression analyses presented in Table 14 clearly show that area of residential origin impacts college applications independently of other individual factors. For example, the negative regression coefficients (-.04* and -.05*, respectively) indicate that students from Boston and other urban areas are generally less likely to apply out-of-state to college than are students from the suburbs. The results of the regression equation suggest that this is true even after other relevant sources of influence have been accounted for in the analysis. However, students from Boston are more likely to send out more applications in general (regression coefficient = .05*) than are students from the suburbs or other urban areas. As expected, the results of the regression also indicate that other variables influence college application patterns. Higher levels of academic performance (in terms of grade point average and class rank), SAT scores and income all increase the likelihood that students will apply to more colleges and send more applications to out-of-state institutions. In contrast, first-generation college applicants and male students are less likely to send out higher number of applications overall and to out-of-state institutions. Interesting patterns of applying to college among different racial and ethnic groups emerge from the results of the regression equations. The positive and statistically significant regression coefficients indicate that African American, Hispanic/Latino(a) and Asian students are all more likely to send out more applications in general than are white students who serve as the comparison groups for this analysis, after other relevant characteristics such as income are taken into account. However, these same three groups are all less likely (as indicated by the negative regression coefficients -- -.05*, -.04* and -.09*, respectively) to send applications to out-of-state institutions than are whites.

Table 14 – Multiple Regression (with Standardized Coefficients) Predicting College Applications

	# of Applications	Out-of-State Colleges
Gender (Male)	-.04*	-.06*
Race: African American	.06*	-.05*
Race: Hispanic/Latino(a)	.03*	-.04*
Race: Asian	.09*	-.09*
Income	.09*	.15*
First Generation	-.08*	-.07*
Class Rank	.04*	-.02
HSGPA	.02	.03
SAT	.21*	.04*
Boston	.05*	-.04*
Urban	-.02	-.05*
R ²	.10*	.08*

* = statistically significant at $p \leq .001$ N = 17,631

Conclusion

This descriptive study paints a picture of the ways in which residential geographic origin is related to SAT performance and patterns of college application; two vital steps in the college admissions process. It is clear that important differences do exist in terms of opportunities for postsecondary access among different geographic regions within the Boston metropolitan region.

Area of residence matters for all these outcome measures, regardless of race, and these differences persist even once income and a number of other factors are taken into consideration. Findings from this study demonstrate that high school graduation is just one hurdle to higher education and the social and economic benefits it brings to individual students and to larger society. Black and Latino students, particularly those residing in urbanized areas of Metro Boston, face additional barriers to postsecondary access such as lower likelihood of taking the SAT, lower SAT scores, and fewer applications to college. More specifically, key findings from this study illuminate the powerful negative effects on educational equity that continue to arise from the inequalities that are aligned with the segregated nature of residential patterns in metropolitan Boston.

African American and Hispanic/Latino(a) students are more likely to be under-represented in the pool of students who take the SAT than are white or Asian students. This pattern of inequity exists across all three types of residential regions – urban Boston, other urban cities and suburban neighborhoods. African American and Hispanic/Latino(a) students tend to have much lower SAT scores than do white students in all three types of regions.

Taken together, the previous two findings indicate that the SAT serves as a potentially significant barrier for African American and Hispanic/Latino(a) students because they are less likely to take the exam and less likely to perform well even when they do take the SAT.

Suburban students from all racial groups perform better on the SAT compared to their urban peers. The suburban-urban gap is smallest for white students and largest for Asians, but African American and Hispanic/Latino(a) students also face significant urban-based achievement gaps on this standardized test. The performance gap on SAT scores between students from the suburbs compared with students from urban settings is greater for students from low income backgrounds than for students at the higher end of the socio-economic spectrum. Lower SAT scores persist for students from Boston and other urban areas even after taking into account a student's income, gender, race, class rank, high school grades and whether they would be among the first generation of their family to attend college.

Overall, suburban students tend to apply to slightly more colleges than do students who live in urban settings; giving suburban students a wider range of choices for college and perhaps a better chance to be accepted into college. There are also differences in types of colleges students apply to as part of the college choice process. Suburban students are 50% more likely to apply out-of-state than are students from urban regions. Suburban students are also more likely to apply to private institutions, highly selective colleges, and flagship universities than are students from urban areas.

More specifically, students from low poverty/low minority areas are more likely to apply to a greater number of institutions, in general, while also applying more heavily to out-of-state, highly selective and flagship institutions. The differences are particularly acute in terms of out-of-state applications where low poverty/low income students apply to almost five times as many out-of-state colleges as do their peers from high poverty/high minority areas. Students from Boston and other urban areas tend to apply to fewer highly selective colleges and to fewer out-of-state colleges than do suburban students. Residential origin clearly plays a significant role in educational inequity above and beyond what can be accounted for by individual differences.

The continuing impact of residential origin on access to higher education suggests that existing efforts to equalize resources across different types of schools and to close the achievement gaps between urban and suburban schools have not yet met the challenge of improving college access for those groups of students who have traditionally been least well served by the educational establishment. More resources are clearly needed in urban schools to eradicate or at least help close the SAT performance and college application gaps. The fact that urban students are still disadvantaged on these indicators of access suggests that more resources and energy are needed to focus on improving urban learning environments that disadvantage students above and beyond individual factors. Colleges and universities should also seriously consider the role that standardized test scores play in the admissions process. Moreover, admissions officers and campus leaders need to increase efforts to recruit in urban areas so that urban students can have the opportunity to apply to more and a wider range of postsecondary institutions.

The general pattern of findings also indicates that there are important racial and ethnic differences. White students are more likely to reside in suburban neighborhoods and therefore having better access to educational advantages that aid in making a successful transition into higher education. The recent study by Logan et al. (2003) of the impact of residential segregation on educational opportunities for children in the greater Boston metropolitan area demonstrates that white students are more likely to attend better schools in Boston as well as in the suburbs, while African American and Hispanic/Latino(a) students are more likely to attend highly-segregated schools that have far fewer educational resources invested in them. The

interactive effect of residential region and racial/ethnic group status is particularly troubling. Even after controlling for race and income, this study identified clear differences in SAT performance and number of colleges applied to by students. These patterns suggest that residential region contributes to inequitable educational opportunities above and beyond the disadvantages for racial and ethnic minorities that are already deeply embedded in the American educational system. Education will remain an institution that contributes to the reproduction of social stratification, and therefore not be a path to social mobility, so long as residential origin remains a means for segregating individuals along racial and ethnic lines as well as socioeconomic status. The discrepancies in SAT performance and college application numbers between suburban Asian/Pacific Islanders and their counterparts in the two urbanized regions indicate cause for concern. This group of students is often portrayed as the “model minority,” and it is clear that the picture is more complicated. Suburban Asian/Pacific Islanders appear to enjoy significant advantages over their peers in Boston and the other urban areas. This is clearly an area that requires further study and investigation.

This study focused only on SAT scores and number of applications to college as indicators of potential college access. This research does not address the important issues that follow in the postsecondary education pipeline. Given the inequities documented in this study, research is now needed on how residential origin affects acceptance, enrollment, academic achievement and persistence in college. Even if we are successful in promoting greater access, these efforts will be in vain if postsecondary access does not lead to postsecondary achievement.

Most of the differences found among the three residential areas in this study are modest; but the accumulation of such differences is significant. It is important to remember that this study focused on students who have already self-selected themselves as college aspirants. The negative effects of residential segregation and inequities among the residential regions that have been documented for younger students in other studies (e.g. Logan et al., 2003) compound the issues raised by this study. Moreover, given the higher SAT scores and larger number of college applications submitted by suburban students, the chances to attend college and have opportunities to attend more prestigious institutions widens the divide even further. The evidence presented in this study should be a call to action – we can no longer afford to let residential segregation dictate the educational opportunities of thousands of children who represent the future of skilled workers and community leadership in American society.

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