

**The College Enrollment Behavior of Class of 2001 Graduates  
from the Boston Public Schools: A Multivariate Statistical  
Analysis of Findings of the Winter 2002 Follow-Up Survey and  
Comparisons with Those for Previous Years**

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## **Introduction**

Since the mid-1980s, the Boston Private Industry Council (PIC) has conducted an annual follow-up survey of the graduates of Boston's public high schools from the preceding calendar year. The coverage and comprehensiveness of the annual follow-up survey is a unique one in the nation. It tracks each graduate's schooling and labor market activities approximately 9 to 10 months after their graduation from high school. Very few high schools across the nation collect any systematic data on the college and employment status of their graduates other than brief exit surveys asking graduates to describe their college and job plans. The main objective of the follow-up survey is to obtain information on each high school graduate's transition from high school to college and the world of work. Information is collected on graduates' college enrollment and employment status, the types of colleges or post-secondary training schools that they attended at the time of the survey, their college majors, their financial aid status, and key characteristics of their jobs, such as hours of work, hourly wages, occupations and industries of their employers, and their job related training activities. Such information helps the Boston public schools, the Boston PIC, and the Massachusetts Board of Education to better understand college enrollment and employment trends over the years and assist them in formulating and implementing programs to enhance the college enrollment and employment status of Boston public high school graduates.

During the winter of 2002, the Boston PIC staff made a comprehensive effort to interview each of the nearly 3,200 graduates of Boston public high schools from the Class of 2001. Follow-up interviews were completed with slightly more than 82 percent of the graduates, the highest interview completion rate achieved by the PIC since the late 1980's.<sup>1</sup>

This research paper is devoted to an analysis of the findings of the winter 2002 follow-up survey with respect to the college enrollment and post-secondary training

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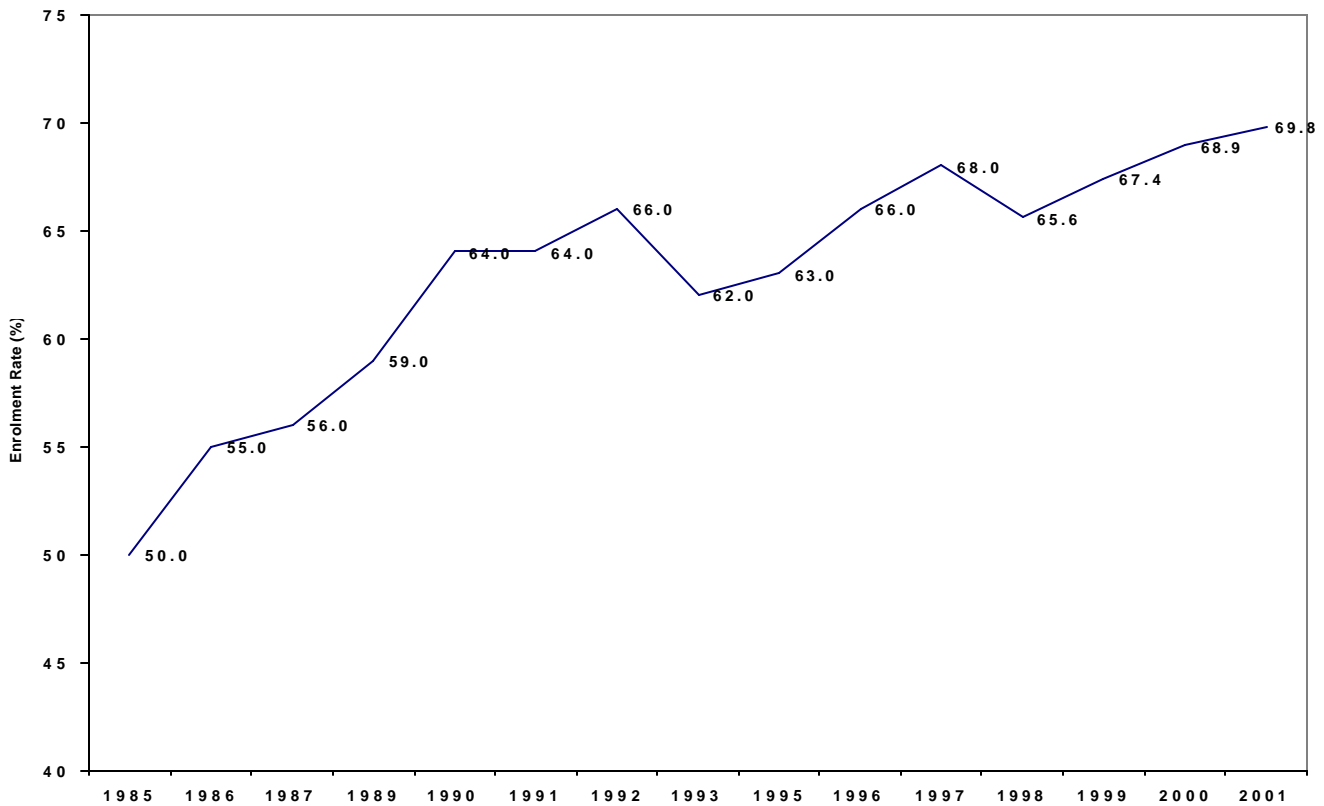
<sup>1</sup> Follow-up information is also obtained from the parents of the graduates or another responsible adult household member.

school enrollment behavior of Class of 2001 graduates at the time of the survey. The first section of the paper will present historical trends in college enrollment rates for all graduates of Boston public high schools and compare findings for Boston with those for the nation as a whole. The second part of the paper will describe college and post-secondary training enrollment rates for male and female graduates within different race-ethnic groups. The third section of the paper will present key findings of multivariate statistical analyses of the college enrollment behavior of Class of 2001 Boston public high school graduates, employing a statistical technique known as logistic regression. The model will be used to identify how the college enrollment behavior of Class of 2001 graduates was associated with their gender, race-ethnicity, types of high schools attended (exam and non-exam schools), their participation in school-to-career programs, and their senior year and summer job experiences. This prediction model is used for graduates from all Boston public high schools, for exam schools, and for non-exam schools separately. The last section of the paper will summarize the main findings and present recommendations for future research.

## **Historical Trends in College Enrollment Rates of Graduates of Boston Public High Schools**

The trend in college enrollment rates among graduates of Boston public high schools clearly has been upward over the past 16 years. In 1985, only 50 percent of Boston public school graduates attended a college or post-secondary training program in the fall immediately following graduation. By 2001, however, the college enrollment rate had risen to just under 70 percent. The college enrollment rate for Class of 2001 Boston public high school graduates represented a new historical high. Over the past fifteen years, the college enrollment rate of graduates from Boston public high schools has increased by nearly 20 percentage points from 50 percent to 69.8 percent, a relative increase of nearly 40 percent over the 1985-2001 period. (Chart 1).

Chart 1: Historical Trends in College Enrollment Rates<sup>2</sup> of Boston Public High School Graduates, Classes of 1985 to 2001



The college enrollment rate for Boston public high school graduates has typically been higher than that for the U.S. since the beginning of the 1990s. (Table 1). This finding is even more positive when one takes into account the much higher share of Black and Hispanic graduates in Boston. Even though the estimated college enrollment rate for the U.S. does not include graduates enrolled in post-secondary training institutions, the college enrollment rate of Boston public school graduates still exceeded that of the U.S. in recent years, when the Boston data are adjusted to conform to the U.S. Census Bureau definition of a college student.

<sup>2</sup> The college enrollment rate for Boston public high schools includes two-year colleges, four-year colleges and universities and post-secondary training institutions. The college enrollment rates for the U.S. exclude post-secondary training enrollments. Excluding those Boston graduates from the Class of 2001 who were attending post-secondary training institutions from the total yields a 2 to 3 percentage point advantage for Boston public school graduates.

Table 1: Comparisons of College Enrollment Rates for Graduates from Boston Public High Schools and the U.S., Classes of 1990-2001

Year	Boston	U.S. <sup>3</sup>	Boston- U.S.
1990	64.0	59.8	4.2
1991	64.0	62.3	1.7
1992	66.0	61.6	4.4
1993	62.0	62.6	-0.6
1995	63.0	61.9	1.1
1996	66.0	61.9	4.1
1997	68.0	67.0	1.0
1998	65.6	65.6	0.0
1999	67.4	62.8	4.6
2000	68.9	63.3	5.6
2001	69.8	61.7	8.1

While the overall trend has been toward higher college enrollment rates among graduates from the Boston public high schools, there has been a growing gap between the college enrollment rates of female and male graduates. Male graduates from Boston public high schools are less likely to enroll in college than their female counterparts. Similar patterns prevail nationally although the gender gaps are smaller across the nation. These larger gender gaps in college enrollment rates have existed since the mid-1990s. (Chart 2). In 1987, the college enrollment rates of male and female graduates of Boston public high schools varied by a modest one-percentage point in favor of women; however, the gender enrollment gap has widened considerably in favor of women in the 1990s, reaching an all time high in 2000 (12.5 percentage points) before declining slightly to 11.8 percentage points in 2001. As noted above, these existing gender gaps are not unique to the Boston public high schools. They are prevalent throughout the nation as a whole. (Table 2). However, the gender gaps in college attendance rates for Boston’s public high schools are higher than those of the U.S. Our findings show that gender gaps are modestly converging for the U.S. whereas these gaps are widening for the Boston public high schools.

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<sup>3</sup> The data source for U.S. college enrollments is the October Current Population Surveys (CPS). See: “College Attendance of New High School Graduates,” Classes of 1990 to 2001, U.S. Bureau of Labor Statistics, selected publications.

Chart 2: Trends in College Enrollment Rates of Boston Public High School Graduates, by Gender, Selected Time Periods, 1987-2000

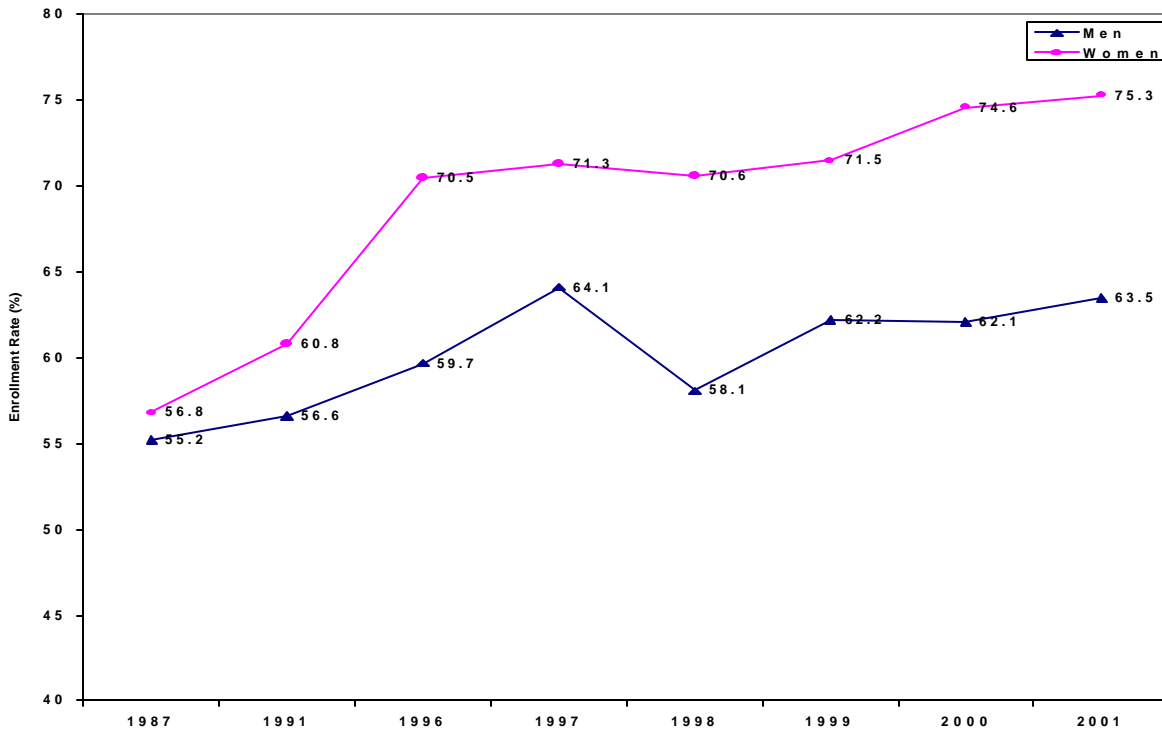


Chart 3: Percentage Points Gap Between the College Enrollment Rates of Female and Male Graduates of Boston Public Schools, Selected Years, Classes of 1987-2001

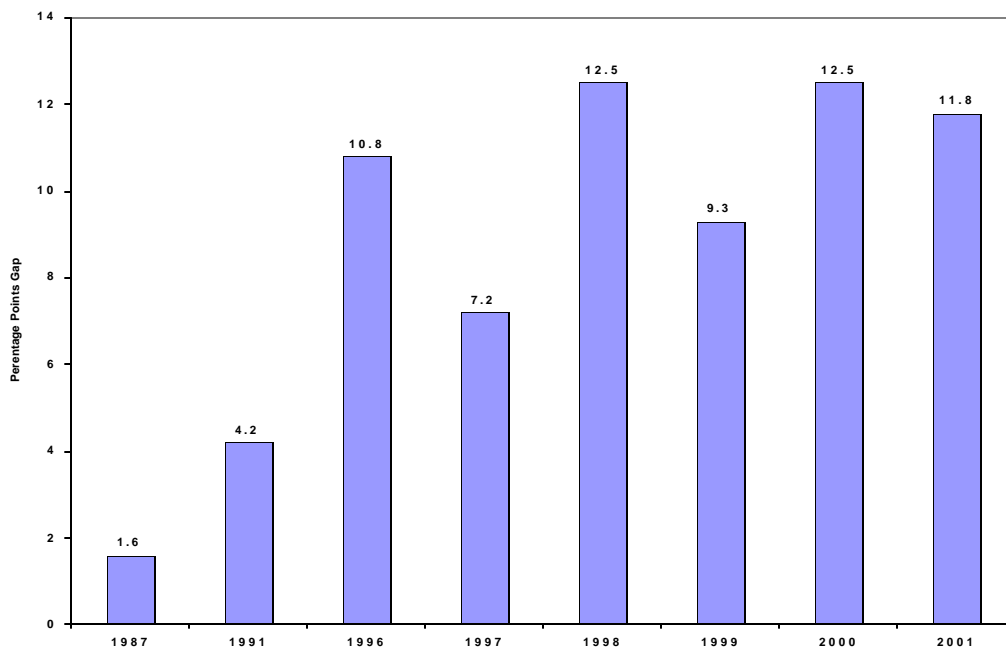


Table 2: Gender Gaps Between the College Attendance Rates of Women and Men in the Boston Public High Schools and the U.S., Selected Years, 1991-2001

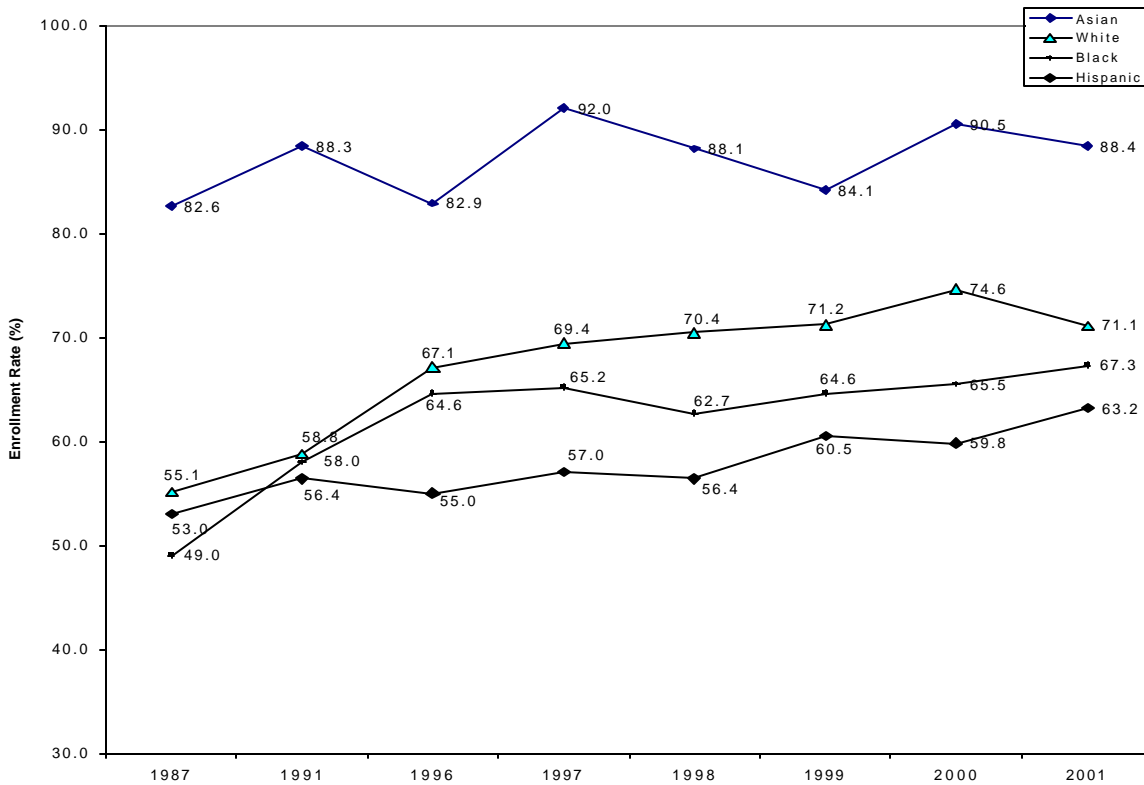
	Boston	U.S.
1991	4.2	9.6
1996	10.8	9.7
1997	7.2	6.8
1998	9.3	3.0
1999	12.5	6.7
2000	12.5	6.4
2001	11.8	3.8

Our findings have shown that female high school graduates are more likely to enroll in college than their male counterparts in both Boston public high schools and the nation’s high schools. To further understand college enrollment trends among race-ethnic sub-groups of Boston public school graduates, we have identified college enrollment trends for each of the following four race-ethnic groups of graduates: Asian, Black, Hispanic, and White.<sup>4</sup> The college enrollment rate of Asian graduates from Boston public high schools has always been the highest, and it stood at 88.4 percent for the Class of 2001. For graduates from the Class of 2001, the second highest college enrollment rate was observed among White non-Hispanic youth (71 percent), followed by Blacks (67 percent), and Hispanics (63 percent). The findings of the PIC annual follow-up surveys for the last 16 years have revealed that the college enrollment rate of Asian youth has always stood above 80 percent, and, for Class of 2001 graduates, the enrollment rate among Asians was slightly above eighty-eight percent. For the other three race-ethnic groups, college enrollment rates increased between 10 and 15 percentage points over the 1987-2001 period. Even though Hispanic graduates experienced substantial gains in their college enrollment rates over the 1987-2001 period, their college enrollment rate has always remained the lowest of the four race-ethnic groups. However, the college enrollment rate of Hispanic youth in Boston was considerably higher than that of their national counterparts for the Classes of 1999, 2000 and 2001.

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<sup>4</sup> Hispanic can be members of any race. They are excluded from the counts of Asians, Blacks, and Whites.

Chart 4: Trends in the College Enrollment Rates of Boston Public High School Graduates  
in Four Race-Ethnic Groups, Selected Years, 1987-2001



College enrollment gaps between male and female graduates of Boston public high schools have prevailed for each race-ethnic group and for exam schools and district schools separately. To update this analysis, we have compared the college enrollment rates of male and female graduates within each race-ethnic group and for exam schools and district schools for the Classes of 2000 and 2001. (Table 3). In both years, the college enrollment rate of female graduates surpassed the college enrollment rates of male graduates for each race-ethnic group. The gender gap in the college enrollment rate for Asian men and women has increased by several percentage points to more than five percentage points, over the past two years. In contrast, the college enrollment rate differences between male and female graduates of Black and Hispanic origin have decreased between 2000 and 2001. The highest gender gap in college enrollment rates was observed for White youth from the Class of 2001. Among graduates from the Class of 2001, the enrollment rate for White women from Boston public high schools was 13

percentage points higher than that of their male counterparts, up by 6 percentage points from the preceding year's graduating class. Overall, however, the college enrollment gap between men and women was found to be modestly converging for the Class 2001. For example, there was a 12.5 percentage point difference between the college enrollment rates of women and men for graduates from the Class of 2000, but it had declined slightly to 11.8 percentage points for the Class of 2001.

Table 3: College Enrollment Rates of Men and Women Among Class of 2000 and 2001 Boston Public High School Graduates, Total and by Race/Ethnic Group and Type of High School Attended

	Class of 2000			Class of 2001		
	Men	Women	Women-Men	Men	Women	Women-Men
All	62.1	74.6	12.5	63.5	75.3	11.8
Asian	88.8	92.1	3.3	85.6	90.8	5.2
Black	57.5	72.3	14.8	61.1	72.4	11.3
Hispanic	46.7	68.5	21.8	53.0	70.9	17.9
White	71.1	77.9	6.8	65.1	78.3	13.2
Exam School	88.2	93.7	5.5	85.5	92.4	6.9
Non-Exam School	54.3	68.0	13.7	57.1	70.2	13.1

As noted in the preceding section, gender gaps in college enrollment rates have been more substantial in the district high schools than in the exam schools. The gender gaps in college enrollment rates are smaller for the city's three exam schools combined. For the Class of 2000, women from the three exam schools were 5.5 percentage points more likely than their male counterparts to enroll in college, and this difference increased to nearly seven full percentage points in 2001. The gender gaps in college enrollment rates among the graduates from the district schools for the Class of 2000 and 2001 were twice as large in both years. The gender gap in college enrollment rates among graduates from the district schools for the Class of 2000 was 14 percentage points and for the Class of 2001, female graduates from the district schools were 13 percentage points more likely than their male counterparts to enroll in college.

Differences in college enrollment rates among the city’s individual high schools were quite substantial. Graduates from each of the three exam schools had very high college enrollment rates, ranging from 80 to 93 percent. (Table 4). Nine out of ten graduates from Boston Latin High School and Boston Latin Academy reported that they were enrolled in college at the time of the winter 2002 follow-up survey as were 80 percent of the graduates from O’Bryant Technical High School. For the first time in the past four years, the college enrollment rate of graduates from O’Bryant Technical High School lagged slightly behind those of several magnet schools. Among the district and other magnet schools, college enrollment rates for graduates were highest in New Mission School (85.2%) and the Boston Arts Academy (82%) and lowest in Dorchester High School (56%) and Boston Adult Academy (51%). The difference in college enrollment rates between the high school with the highest college enrollment rate and the lowest enrollment rate was 42 percentage points for the Class of 2001.

Table 4: Rankings of Boston Public High Schools by Their College Enrollment Rates, Class of 2001

Rank	School	Enrollment Rate
1	Boston Latin	93.4
2	Boston Latin Academy	91.4
3	New Mission High School	85.2
4	Boston Arts Academy	82.0
5	O’Bryant High School	80.5
6	Fenway High School	76.7
7	Health Careers	76.3
8	ACC	75.9
9	Snowden International	74.8
10	West Roxbury High School	73.5
11	Brighton High School	69.1
12	English High School	67.4
13	Charlestown High School	65.2
14	Burke High School	64.2
15	Hyde Park High School	63.7
16	East Boston High School	62.9
17	Egleston High School	60.0
18	South Boston High School	58.2
19	Madison Park High School	58.0
20	Boston High School	57.8
21	Dorchester High School	56.2
22	Boston Adult Academy	51.4

## **The Logistic Regression Model of the College Enrollment Behavior of Class of 2001 Boston Public High School Graduates**

In recent years, college attendance rates among graduates of Boston public high schools have varied substantially by gender, race-ethnic group, and the exam and district schools.<sup>5</sup> What factors- demographic, type of highschools attended, school-to-career program participation status, high school work experience etc.- best explain the college enrollment behavior of Boston public high school graduates? To more fully understand the role of the above factors in influencing the probability of college enrollment among high school graduates from the Class of 2001, we have estimated a set of logistic regression models of college attendance. The logistic regression model is a statistical technique used for estimating the determinants of behavior in which the dependent variable is a dichotomous variable, such as the college enrollment status of a graduate, which takes on only two values, 0 and 1, where 1 represents a graduate who was enrolled in college and 0 represents a graduate who was not enrolled in college. The logistic model can also be used to help predict the probability whether or not some event will occur. For our analysis, we have estimated several logistic models of college enrollment to obtain a better understanding of the college enrollment behavior of graduates in all high schools as well as in the exam and district schools. Our analysis is designed to estimate the degree to which the probability of college enrollment is influenced by the gender and race-ethnic origin of graduates, the type of high school that they attended, their participation in school-to-career programs, and their summer and senior year work experiences during their high school years. The available follow up data base does not include information on the academic performance and behavior of high school students, including their high school curriculums, grade point averages, and their scores on academic achievement tests. Future research papers will incorporate these variables into the model as the transcript data provided by the Boston public high schools are merged with the Boston PIC follow up data base.

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<sup>5</sup> See: Ishwar Khatiwada, Andrew Sum, and Jennifer Power, Gender Differences in High School Graduation Rates and College Enrollment Rates of Graduates From Boston Public High School in Recent Years: Findings of the Follow-up Surveys for the Class of 1999 and 2000 and Future Research Issues, Center for Labor Market Studies, Northeastern University, Prepared for Boston Private Industry Council, Boston, Massachusetts, February 2002

The dependent variable in all of the logistic models is the college enrollment status of a graduate, which takes on the values 0 (not-enrolled) and 1 (enrolled). The predictor variables used in our models of college attendance are a set of dummy variables representing the gender and race/ethnicity of individual graduates, the high school that they attended, their participation in school-to-career programs, their summer job experiences, and their senior year work experience. (See Appendix A for the definitions of all dependent and predictor variables in our models).

The coefficients (Bs) derived from the logistic probability model represent the change in the estimated odds ratio for college enrollment among Class of 2001 Boston public high school graduates from a one unit change in the predictor variable. For example, the coefficient of 1.47 for Asian youth in Table 5 indicates that the odds ratio of enrolling in college would increase by 1.47 if the graduate were of Asian descent, holding all other determinants of college enrollment constant. The coefficient obtained from the logistic regression model tells us the change in the odds ratio of a graduate being enrolled in college; however, we may be more interested in estimating the marginal change in the probability of college enrollment from a change in the characteristics of a graduate. The estimated coefficients in the logistic regression also can be converted into a set of marginal effects on the probability of being enrolled in college. The estimated values of these marginal effects; however, will depend on the values of the other right hand side variables in the model. A standard practice in the literature is to calculate these marginal effects at the means of all right hand side variables. We can, thus, convert the logistic regression coefficients (Bs) into a set of marginal effects by multiplying the value of each B coefficient by  $(P)$  and  $(1-P)$ , where  $P$  is the percent of high school graduates in the sample who were attending either college or a post-secondary training program at the time of the Winter 2002 follow-up survey. The estimated marginal effects for each predictor variable are displayed in the last column for each set of regression results. For example, in the model for all high school graduates, the estimated marginal effect for attending Boston Latin High School (BLATINHS) is 0.45, indicating that graduates of this high school were 45 percentage points more likely to enroll in college than their

counterparts from the city's non-exam schools, holding all other variables at their mean values.

## **Estimating the Likelihood of College Attendance Among the Entire Sample of Graduates from the Class of 2001**

In previous studies of the college enrollment behavior of Boston public high schools graduates from the Classes of 1999 and 2000, it was shown that the probability of attending college was significantly influenced by the high school that they attended, their gender, their race/ethnic origin, their summer job experiences, and their participation in selected types of school-to-career programs while in high school.<sup>6</sup> Our first logistic regression model analyzes the probability of college enrollment for the entire sample of Class of 2001 graduates. (Table 5). The predictor variables in the model include the gender and race-ethnic origin of the graduate, three exam school variables, a variable representing the summer job experiences of the graduate, and a variable representing his/her employment experience during the senior year of high school. Data on the academic performance and course-taking behavior of graduates during their high school year would be very helpful in predicting the college enrollment behavior of graduates; however, at this point, we do not possess data on these important variables. We have, however, recently acquired such data from the Boston public schools and will incorporate them in our future analysis. To overcome this deficiency in our model, we treat the three exam schools as proxies for the academic achievement (reading, math, writing proficiencies) of graduates and their course-taking behavior. The base group for our model is a White, non-Hispanic male who attended one of the non-exam high schools and who did not work during either the summers of his high school years or the senior year of

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<sup>6</sup> See: Ishwar Khatiwada and Andrew Sum, The College Enrollment Behavior of Class of 1999 Graduates from the Boston Public Schools: Findings of the Winter 2000 Follow-Up Survey and Comparisons with Those for Previous Years. Center for Labor Market Studies, Northeastern University, Prepared for the Boston Private Industry Council, April 2001.

<sup>6</sup> See: Ishwar Khatiwada and Andrew Sum, The College Enrollment Behavior of Class of 2000 Graduates from the Boston Public Schools: Findings of the Winter 2001 Follow-Up Survey and Comparisons with Those for Previous Years. Center for Labor Market Studies, Northeastern University, Prepared for the Boston Private Industry Council, February 2002.

high school. The estimated marginal effects of the right hand side variables on the probability of college attendance are presented in the last column of the table.

The main findings of the analysis are summarized using the estimated marginal effects of each variable. Female graduates were nearly 13 percentage points more likely to enroll in college than their male counterparts, holding all other variables constant, including type of high school attended. (Table 5). Asian graduates were 31 percentage points more likely to enroll in college than their White non-Hispanic counterparts. Similar to the findings for the previous year's graduating class, Black graduates were also significantly more likely to enroll in college than White graduates from the Class of 2001 once type of high school was controlled for. Graduates from the three exam schools were significantly more likely to enroll in college than their peers from the district schools. Graduates from Boston Latin High School, Boston Latin Academy, and O'Bryant High School were 45, 38, and 12 percentage points, respectively, more likely to attend college than their counterparts from the non-exam schools. These findings are similar to the findings for the preceding year's graduating class. Summer job experience during the high school years had significant positive impacts on the college enrollment behavior of a graduate. Those graduates who worked in the summers during the high school years were nearly 7 percentage points more likely to enroll in college than their counterparts who did not work during the summers. Work experience during the senior year, however, had no significant effect on the probability of college attendance.

Table 5: Findings of the Logistic Regression Analysis of the Probability of College Enrollment Among Class of 2001 Boston Public High School Graduates, All High Schools

	B	Wald Stat <sup>7</sup>	Mean of Enrollment (P)	1-P	B*P*(1-P)
FEMALE	0.61***	56.31	0.698	0.302	0.129
BLACK	0.38***	9.67	0.698	0.302	0.080
ASIAN	1.47***	55.19	0.698	0.302	0.309
HISPANIC	0.19	2.00	0.698	0.302	0.041
OBRYANT	0.56***	9.09	0.698	0.302	0.118
BLATINAC	1.80***	46.03	0.698	0.302	0.379
BLATINHS	2.15***	79.86	0.698	0.302	0.454
WORKSNYR	-0.04	0.53	0.698	0.302	-0.009
SUMMERHS	0.27***	13.83	0.698	0.302	0.056
Constant	-0.26**	4.32	0.698	0.302	-0.055
Log Likelihood	3569				
Degrees of Freedom	9, 2631				
Cox and Snell R-Sq	0.11				
Nagelker R-Sq	0.15				
Chi-Square	356.11				
Base Group is Non-Exam Schools Graduates					

*\*Implies significant at 10 percent level*

*\*\*Implies significant at 5 percent level*

*\*\*\*Implies significant at 1 percent level*

Our second logistic model is used to analyze the probability of college enrollment among Class of 2001 graduates from the city’s three exam schools only, treating O’Bryant Technical High School as the base high school. (Table 6). The findings for female graduates from exam schools were similar to the findings for female graduates from all schools. Female graduates from the exam schools, ceteris paribus, were 8 percentage points more likely to enroll in college than their male counterparts. The coefficients on the two variables representing attendance in Boston Latin High School (BLATINHS) and Boston Latin Academy also were positive and statistically significant, implying that graduates from Boston Latin High School and Boston Latin Academy were 13 and 11 percentage points more likely to enroll in college than their counterparts from O’Bryant Technical High School. The coefficients on these high school variable were

<sup>7</sup> The Wald statistic is used to test the significance of the individual coefficients in the logistic regression model. The value of the Chi-Square statistic is used to identify the significance of the explanatory power of the entire model.

significant at the 1 percent level. Only one of the race-ethnic variables (being Asian ) in the model was found to be statistically significant. Asian graduates were nearly 12 percentage points more likely than Whites to attend college. Graduates who worked in the summers during their high school years were 8 percentage points more likely to enroll in college than their counterparts who did not work in the summers during their high school years.

Table 6: Findings of the Logistic Regression Analysis of the Probability of College Enrollment Among Class of 2001 Boston Public High School Graduates, Exam Schools Only

	B	Wald Stat	P	1-P	B*P*(1-P)
FEMALE	0.86***	11.19	0.892	0.108	0.083
BLACK	0.32	0.81	0.892	0.108	0.031
ASIAN	1.29***	9.33	0.892	0.108	0.124
HISPANIC	-0.23	0.31	0.892	0.108	-0.022
BLATINAC	1.10***	9.60	0.892	0.108	0.106
BLATINHS	1.38***	15.74	0.892	0.108	0.133
WORKSNYR	-0.55**	4.08	0.892	0.108	-0.053
SUMMERHS	0.83***	8.85	0.892	0.108	0.080
Constant	0.27	0.53	0.892	0.108	0.026
Log Likelihood	446				
Degrees of Freedom	8, 621				
Cox and Snell R-Sq	0.08				
Nagelker R-Sq	0.15				
Chi-Square	57.23				
Base Group is O'Bryant High School					

*\*Implies significant at 10 percent level*

*\*\*Implies significant at 5 percent level*

*\*\*\*Implies significant at 1 percent level*

Our third model of college enrollment behavior is based on the experiences of the graduates of the city's district and magnet schools. (Table 7). East Boston High School and Madison Park High School are treated as the base group for our analysis. All other district/magnet schools are entered into the model as additional predictors. The estimated marginal effects for the right hand side variables reveal that female graduates from the district schools were 14 percentage points more likely to enroll in college than their male

counterparts. This variable was statistically significant at the 1 percent level. Two of the three race-ethnic variables had statistically significant positive coefficients, indicating that Asian and Black youth were more likely to enroll in college than their White non-Hispanic counterparts in the city's district schools. The probability of college enrollment was 39 percentage points higher among Asian youth than White youth. A Black youth's probability of college enrollment was 9 percentage points higher than that of White graduates, *ceteris paribus*. Both of the coefficients for the Asian and Black variables were statistically significant at the 1 percent level. These findings were consistent with those for the preceding year's graduates from the city's district schools.

Eight of the 21 district school variables had a coefficient that was statistically significant at the one percent or the five percent level, indicating that the probability of college enrollment for graduates attending those schools was higher than their peers from East Boston High School and Madison Park High School. Graduates from ACC, Brighton, English, Fenway Park, New Mission, South Boston, and West Roxbury High schools were significantly more likely to attend college than their counterparts from Boston High School and Madison Park High School. A few of these coefficients were quite large. For example, the marginal effects on the probability of college attendance were equal to 19 percentage points for graduates of ACC, 16 percentage points for graduates of Fenway High School, and 13 percentage points for graduates of West Roxbury High School. Those graduates who worked in the summers during their high school years were 5 percentage points more likely to enroll in college than their counterparts who did not work at all during the summers. The summer work experience variable was statistically significant at the one percent level. In contrast, the senior year employment variable was not statistically significant.

Table 7: Findings of the Logistic Regression Analysis of the Probability of College Enrollment Among Class of 2001 Boston Public High School Graduates, Non-Exam

Schools

	B	Wald Stat	P	1-P	B*P*(1-P)
FEMALE	0.60***	46.16	0.641	0.359	0.138
BLACK	0.40***	8.59	0.641	0.359	0.093
ASIAN	1.68***	51.42	0.641	0.359	0.387
HISPANIC	0.23	2.42	0.641	0.359	0.054
BOSTONHS	-0.08	0.13	0.641	0.359	-0.019
BRIGHTON	0.31*	3.05	0.641	0.359	0.071
BURKE	0.03	0.02	0.641	0.359	0.007
CHARLEST	-0.03	0.03	0.641	0.359	-0.007
DORCHEST	-0.18	0.80	0.641	0.359	-0.041
ENGLISH	0.39**	5.15	0.641	0.359	0.090
HYDEPARK	0.14	0.54	0.641	0.359	0.033
SNOWDENI	0.48	2.35	0.641	0.359	0.109
SOUTHBOS	-0.32*	3.40	0.641	0.359	-0.073
ACC	0.81***	6.24	0.641	0.359	0.187
WROXBURY	0.57***	10.00	0.641	0.359	0.131
FENWAY	0.71**	4.44	0.641	0.359	0.163
NEWMISSI	1.19**	4.60	0.641	0.359	0.274
MCKINLVO	-2.39***	7.74	0.641	0.359	-0.551
MCKINLTE	-0.16	0.04	0.641	0.359	-0.036
HEALTHCA	0.63	1.26	0.641	0.359	0.145
EGLESTON	-0.19	0.08	0.641	0.359	-0.044
BOSTONEV	-2.24***	12.38	0.641	0.359	-0.515
HORMANN	-4.84	1.40	0.641	0.359	-1.115
WORKSNYR	-0.01	0.06	0.641	0.359	-0.003
SUMMERHS	0.23***	8.42	0.641	0.359	0.052
Constant	-0.38***	6.00	0.641	0.359	-0.087
Log Likelihood	3027				
Degrees of Freedom	25, 1561				
Cox and Snell R-Sq	0.08				
Nagelker R-Sq	0.11				
Chi-Square	200.58***				
Base Group are East Boston High School and Madison High School Graduates					

*\*Implies significant at 10 percent level*

*\*\*Implies significant at 5 percent level*

*\*\*\*Implies significant at 1 percent level*

Our final statistical model of the college enrollment behavior of graduates from the city's district and other non-exam schools is similar to that of model three, except that it includes six additional variables representing participation in different types of school-to-career programs during the high school years. These programs were the Academy of Finance, the Academy of Public Service, the Academy of Travel and Tourism, Tech Boston, Pro Tech, and Career Pathways. Each of these variables is a dichotomous variable that takes on the value 1 if the graduate participated in such a program during the high school years and the value 0 if they did not participate in such a program. In contrast to the previous year's findings, only the Academy of Finance and Pro Tech programs had positive impacts on the probability of college enrollment of these graduates. The marginal impact on the probability of college enrollment was the highest for those graduates who participated in the Academy of Finance (31%) followed by the Pro Tech program (17%).

Table 8: Findings of the Logistic Regression Analysis of the Probability of College Enrollment Among Class of 2001 Boston Public High School Graduates, Non-Exam Schools with School-to-Career Programs

	B	Wald Stat	P	1-P	B*P*(1-P)
FEMALE	0.60***	44.72	0.658	0.342	0.134
BLACK	0.38**	7.74	0.658	0.342	0.086
ASIAN	1.62***	47.53	0.658	0.342	0.366
HISPANIC	0.20	1.77	0.658	0.342	0.046
BOSTONHS	-0.21	0.78	0.658	0.342	-0.048
BRIGHTON	0.26	1.94	0.658	0.342	0.058
BURKE	0.12	0.32	0.658	0.342	0.026
CHARLEST	-0.15	0.61	0.658	0.342	-0.034
DORCHEST	-0.18	0.57	0.658	0.342	-0.040
ENGLISH	0.38*	3.97	0.658	0.342	0.086
HYDEPARK	-0.02	0.01	0.658	0.342	-0.005
SNOWDENI	0.57*	3.15	0.658	0.342	0.129
SOUTHBOS	-0.23	1.39	0.658	0.342	-0.051
ACC	0.87**	6.78	0.658	0.342	0.197
WROXBURY	0.65***	11.77	0.658	0.342	0.147
FENWAY	0.80**	5.43	0.658	0.342	0.180
NEWMISSI	1.29**	5.26	0.658	0.342	0.290
MCKINLVO	-2.31**	7.13	0.658	0.342	-0.519
MCKINLTE	-0.07	0.01	0.658	0.342	-0.015
HEALTHCA	0.70	1.56	0.658	0.342	0.158
EGLESTON	-0.09	0.02	0.658	0.342	-0.021
BOSTONEV	-2.13***	11.08	0.658	0.342	-0.480
HORMANN	-5.76	0.73	0.658	0.342	-1.296
WORKSNYR	-0.02	0.07	0.658	0.342	-0.004
SUMMERHS	0.20**	6.63	0.658	0.342	0.045
ACAFIN	1.39**	6.95	0.658	0.342	0.312
ACAPUBS	0.30	0.51	0.658	0.342	0.067
ACATRAV	0.32	1.35	0.658	0.342	0.072
PROTECH	0.74***	13.99	0.658	0.342	0.167
TECHBOS	0.58*	1.80	0.658	0.342	0.130
CARPATH	0.00	0.00	0.658	0.342	-0.001
Constant	-0.42**	5.99	0.658	0.342	-0.096
Log Likelihood	2999				
Degrees of Freedom	31, 1986				
Cox and Snell R-Sq	0.09				
Nagelker R-Sq	0.12				
Chi-Square	228.53***				
Base Group are East Boston High School and Madison High School Graduates					

*\*Implies significant at 10 percent level*

*\*\*Implies significant at 5 percent level*

*\*\*\*Implies significant at 1 percent level*

Our previous findings have revealed that female graduates from the Class of 2001 were significantly more likely to attend college than their male counterparts. Was there any substantive variation in the estimated probabilities of college enrollment among men and women in the four race-ethnic groups? Findings displayed in Table 9 answer this question. We estimated the probabilities of college enrollment for four race-ethnic groups using the above four logistic regression models. Women in each of the race-ethnic groups had a statistically significant higher probability of attending college. For example, Black female graduates from Boston's public schools were 11 percentage points more likely to enroll in college than their Black male counterparts. Female graduates from the city's three exam schools were 8 percentage points more likely to enroll in college than their male counterparts. In the non-exam schools, Black females were 11 percentage points more likely to enroll in college than their male counterparts, and Black female participants in school-to-career programs were 11 percentage points more likely to enroll in college than their male counterparts. White females were 15 percentage points more likely to enroll in college than their male counterparts in Boston's public high schools. In the three exam schools, White women were 10 percentage points more likely to enroll in college than their male counterparts. Only the coefficient for Asian women in the regression for the exam schools was not statistically significant. Among the race-ethnic groups, Hispanic women had the highest increased probability of enrolling in college relative to their male counterparts. For example, for all high school graduates, Hispanic women were 19 percentage points more likely to enroll in college than their Hispanic male counterparts. Hispanic women from the exam schools and the non-exam schools were 18 and 23 percentage points, respectively, more likely to enroll in college than their male counterparts. Hispanic women in school-to-career programs had a 23 percentage point higher probability of attending college than their male counterparts. These differences are quite substantial.

Table 9: Marginal Increase in the Probability of College Enrollment Among Women in Each of Four Race-Ethnic Groups, Class of 2001 Boston Public High School Graduates

	Black	White	Asian	Hispanic
All Schools	0.112***	0.150***	0.050**	0.190***
Exam Schools	0.082*	0.102**	0.012	0.184**
Non-Exam Schools	0.114***	0.180***	0.081**	0.227***
STC participants	0.111***	0.185**	0.075**	0.235***

*\*Implies significant at 10 percent level*

*\*\*Implies significant at 5 percent level*

*\*\*\*Implies significant at 1 percent level*

### **Predicting the Probability of College Enrollment for Selected Groups of High School Graduates from the Class of 2001**

The findings of the logistic regression model models also can be used to predict the probability of college enrollment for high school graduates with given demographic, schooling, and work experience characteristics. The specific formulas used to generate these probability estimates are explained more fully in Appendix C. We have selected seven hypothetical high school graduates from the Class of 2001 to illustrate the range in the expected probabilities of being enrolled in college at the time of the winter 2002 follow-up survey. These seven hypothetical graduates have varying combinations of gender and race-ethnic characteristics, schooling backgrounds, and work experiences. The traits of each of these seven graduates and their predicted probabilities of college attendance are displayed in Table 10.<sup>8</sup>

The predicted probabilities of college attendance for these seven hypothetical graduates varied considerably, ranging from a low of 39 percent to a high of 99 percent. The highest predicted probabilities of college enrollment were for the three hypothetical graduates from the city's three exam schools. For example, a female, Asian graduate

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<sup>8</sup> The estimated probabilities of college attendance for the first three graduates are based on the findings of the logistic regression model for all high school graduates. The predicted probabilities of college enrollment for the other four graduates are based on the findings of the logistic regression model for the non-exam school graduates (model # 4).

from Boston Latin High School who worked during the summers of her high school years had a predicted probability of college attendance of 99 percent. The two other hypothetical graduates from O'Bryant Technical High School and Boston Latin Academy also had very high predicted probabilities of college attendance, 83 percent and 88 percent, respectively. (Table 10).

The four hypothetical graduates from the district schools had quite variable predicted probabilities of college attendance, ranging from a low of 39 percent to a high of 88 percent. The probability of college attendance was considerably affected by the high school they attended, their race/ethnic origin, their work experiences in high school, and their participation in selected school-to-career programs. For example, the hypothetical Black male, who graduated from West Roxbury High School, had substantial work experience in high school, and participated in a Pro Tech program had an 83 percent predicted probability of attending college. The hypothetical Asian male who attended Snowden International High School had a similar high probability of college attendance (88%). In contrast, the two hypothetical males who attended East Boston and Madison Park High School, had no substantial work experience during high school, and did not participate in any school-to-career program had a predicted probability of college attendance of only 39 to 49 percent.

Table 10: Predicted Probabilities of College Attendance For a Selected Hypothetical Set of Boston Public High School Graduates from the Class of 2000

<b>Student Characteristics</b>	<b>Predicted Probability</b>
Asian, female, attended Boston Latin High School, worked during the summers, but not during the senior year of high school.	99.0%
Hispanic, male, attended Boston Latin Academy, worked during the summer and senior year of high school	88.0%
Black, female, attended O’Bryant Technical High School, worked during the summers, but not the senior year of high school.	83%
Black, male, attended West Roxbury High School, worked during the summer and senior year, participated in a Pro-Tech program.	83%
Asian, male, attended Snowden International High School, worked during the summer, but not during the senior year.	88%
White, male, attended East Boston High School, did not work in the summer or senior year, and did not participate in a school-to-career program.	39%
Black, male, attended Madison Park, did not work in the summer or senior year, did not participate in a school-to-career program.	49%

Our multivariate statistical analyses have revealed the existence of significant relationships between the college enrollment behavior of graduates and their gender, their race-ethnicity, the types of high schools they attended, their work experience during the high school years, and their participation in a school-to-career program. The academic backgrounds, academic performance, and course-taking behavior of these hypothetical students likely varied to a considerable degree across these high schools. The estimated, substantial independent effects of high school attended on college attendance, thus, likely represent differences in the academic proficiencies of these graduates at the beginning and end of their high school years and their course taking behavior. National longitudinal research has consistently shown that students who participate in college prep programs

during high school, *ceteris paribus*, are much more likely to enroll in college upon graduation.<sup>9</sup> The availability of the BPS transcript data for individual students should help us identify the independent influence of academic achievement, grade point averages, and high school courses on the college enrollment behavior of recent graduates from the city's public high schools.

## **Summary of Key Findings and Future Research Recommendations**

Findings in this research paper have provided both a description and an assessment of the college enrollment behavior of Class of 2001 Boston public high school graduates as well as a statistical analysis of the factors associated with higher and lower rates of college attendance among these graduates. Nearly 70 percent of the graduates from the Class of 2001 were attending college or a post-secondary training program at the time of the winter 2002 follow-up survey. This college enrollment rate was the highest for the 16 years that the PIC follow-up survey has been conducted. The college enrollment rate of women in the aggregate, across all four race-ethnic groups, and across various types of high schools exceeded the college enrollment rate of men, continuing a trend since the early 1990s. Slightly more than 75 percent of female graduates from the Class of 2001 were attending a college or a post-secondary training institution at the time of the winter follow-up survey versus only 63 percent of men, a gender gap of nearly 12 percentage points. The gender gap in college enrollment rates has been in the 7 to 13 percentage points range since 1996. Women in each of the four race-ethnic groups were more likely than their male counterparts to be attending college, and the size of these college enrollment rate gaps varied from 5 percentage points among Asians to 18 percentage points among Hispanics. Among graduates of the city's three exam schools, the college enrollment rate of women was 7 percentage points higher than that of men, but, among graduates of the district and other non-exam schools, the college

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<sup>9</sup> See: Nan L. Maxwell and Victor Rubin, High School Career Academies: A Pathway to Educational Reform in Urban District? W.E. Upjohn for Employment Research, Kalamazoo, Michigan 2001.

enrollment rate among women was 13 percentage points higher than that of men. Women's overall college enrollment rate advantage was partly attributable to the fact that they accounted for a clear majority (54%) of the graduates from the city's exam schools, who are significantly more likely to attend college.

College enrollment rates of Asian youth have exceeded those of graduates in the other three race-ethnic groups. While 88 percent of Asian graduates from the Class of 2001 were attending college or a post-secondary training institution, only 67 percent of Black and 63 percent of Hispanic graduates were attending a college or a post-secondary training institution at the time of the winter 2002 follow-up survey. College enrollment rates of Asian youth have always been higher than those of graduates from the other three race-ethnic groups; however, the college enrollment gaps across race-ethnic groups have been narrowing modestly in recent years.

The college enrollment rate of graduates from the city's exam schools was slightly more than 89 percent while only 64 percent of the graduates from the city's district and other magnet schools were enrolled in a college or a post-secondary training institution. Across individual high schools, college enrollment rates ranged from lows of 56 to 58 percent in Dorchester High School and Boston High School to highs of 91 percent in Boston Latin Academy and 93 percent in Boston Latin High School.

Findings based on our multivariate statistical analysis of the college enrollment decisions of Class of 2001 graduates revealed that the probability of attending college was significantly influenced by the high school that they attended, their gender, their race-ethnic origin, their summer job experiences, and their participation in selected types of school-to-career programs while in high school. High school graduates from each of the city's three exam schools (Boston Latin, Latin Academy, and the O'Bryant Technical School) were significantly more likely to attend college than their counterparts attending other high schools. Among graduates from the district and other non-exam schools, those who graduated from ACC, Brighton, Charlestown, Dorchester, English, Fenway Park,

Snowden International, and West Roxbury High schools were significantly more likely to attend college than their counterparts from the other non-exam schools.

Our multivariate statistical analysis also indicated that women were significantly more likely than male graduates from the Class of 2001 to attend college. A significant gender difference prevailed in the model for all high school graduates and in the model for graduates from the exam schools and the non-exam high schools. Asian graduates, *ceteris paribus*, were found to be more likely than Whites to be enrolled in college.

The summer job experiences of graduates during their high school years had significant positive impacts on the probability of college enrollment. Graduates with summer job experience were more likely to attend college than their counterparts who did not have any summer job experience during their high school years. Graduates from the non-exam schools who participated in selected types of school-to-career programs, especially, the Academy of Finance and Pro Tech had a significantly higher probability of college enrolment than their peers who did not participate in such programs while in high school.

To more fully understand variation in the college enrollment behavior and academic experiences of BPS high school graduates, the following future research activities should be undertaken:

1. Data from the high school transcripts of Boston public high school graduates should be integrated into the data base from the exit and follow-up surveys to allow a more thorough analysis of the influence of graduates' high school courses, grade point averages, and achievement test scores on their college enrollment and retention behavior.<sup>10</sup> How do the high school academic behaviors and experiences of BPS

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<sup>10</sup> For earlier evidence on the effects of such variables on college attendance behavior, See: (i) Andrew M. Sum and W. Neal Fogg, "The Adolescent Poor and the Transition to Early Adulthood," in Adolescence and Poverty: Challenge for the 1990s, (Editors: Peter Edelman and Joyce Ladner), Center for National Policy Press, Washington, D.C., 1991; (ii) National Center for Education Statistics, High School and Beyond. A National Longitudinal Survey for the 1980s. Two Years in High School: The Status of 1980 Sophomores in 1982, U.S. Government Printing Office, Washington, D.C., 1984; (iii) Andrew M. Sum, Neeta Fogg, and Garth Mangum, Confronting the Youth Demographic Challenge: Labor Market Prospects of At-Risk Youth, Sar Levitan Center for Social Policy Studies, Johns Hopkins University, Baltimore, 2000.

graduates influence their college enrollment behavior in the early years after graduation?

2. There is an immediate need to more fully understand the sources of the large gender gaps in college enrollment rates that have prevailed between men and women since the mid-1990s, especially among Black and Hispanic youth. There are several separate, but related sets of research questions that should be addressed. What accounts for the disproportionate number of female graduates from the city's three exam schools? Of the 734 graduates from the city's three exam schools from the Class of 2001, women accounted for 396 or 54%. In each of the exam schools, women represented a majority of the Class of 2001 graduates, with their share of graduates ranging from 52 percent in Boston Latin Academy to 57 percent in Boston Latin High School. These gender gaps for the city's three exam schools were, however, lower than those for the preceding year's graduating class. Are young women more successful than men in passing the entry exams for admission into these exam high schools? Is the high school retention rate among exam school students significantly higher among women than men? Do women in the non-exam high schools achieve higher course grades and academic achievement than men?

The considerably higher dropout and withdrawal rates of male high school students also needs to be more carefully investigated. Of the 2,785 male freshmen enrolled in Boston public school in the 1997-98 school year, only 1,388 or 50 percent graduated with the Class of 2001 versus 63 percent of the women who were freshmen during that year. Do these young men transfer to other high schools inside and outside the city at higher rates than women or are they simply dropping out of high school at much higher rates than women? These critical research questions need to be fully investigated, and strategies for reducing the high dropout rates and strengthening the college attendance rates of men need to be developed. The economic prospects of men with limited formal schooling are quite bleak.

3. While the college enrollment rates of Black and Hispanic high school graduates have improved markedly over the past decade, there remain important gaps in college enrollment rates among graduates in the four race-ethnic groups. Among Class of 2001 graduates, the college enrollment rates of Hispanic and Black graduates were 21 and 25 percentage points, respectively, below those of Asian graduates, whose college enrollment rate was the highest at 88 percent. What types of strategies, including academic enrichment, after school tutoring, mentoring, and college counseling, might the Boston public schools pursue to improve the college going rates of Black and Hispanic graduates, especially among men?
  
4. There is a need to extend the length of existing follow-up surveys to track the college retention and academic performance of recent graduates over longer time periods. The existing follow-up survey currently tracks the college enrollment status of graduates approximately 9 to 10 months after their initial date of graduation from high school. The follow-up survey, thus, captures information on their enrollment status and financial aid status about halfway through the spring semester of their freshman year. No information is currently collected on their academic performance or course credits. The Boston Private Industry Council together with research staff from the Boston Public Schools and the Center for Labor Market Studies should work with all Massachusetts-based colleges and universities to obtain administrative record-based information on the college retention and academic performance of all BPS graduates in recent years, tracking progress initially through their first two full years of college and then extending the follow-up through four full years. Personal follow-up interviews with a representative sample of retained college students and dropouts should be conducted to gain more personal insights into their college experiences and performance.

**Appendix A: Definitions of Variables Appearing in the Logistic Probability Models of College Enrollment for Class of 2001 Graduates of Boston Public High Schools**

<i>Variable Name</i>	<i>Definition</i>
ENROLLED	A dummy variable representing the college or post-secondary training enrollment status of a high school graduate from the Class of 2001 =1 if enrolled in a post-secondary education or training program =0 if not enrolled
FEMALE	A dummy variable representing the gender of a high school graduate =1 if female =0 if male
BLACK	A dummy variable representing the race-ethnicity of a graduate from the Class of 2001 =1 if graduate is Black, not Hispanic =0 if other
WHITE	A dummy variable representing the race-ethnicity of a graduate from the Class of 2001 =1 if graduate is White, not Hispanic =0 if other
ASIAN	A dummy variable representing the race-ethnicity of a graduate from the Class of 2001 =1 if graduate is Asian =0 if other
HISPANIC	A dummy variable representing the race-ethnicity of a graduate from the Class of 2001 =1 if graduate is Hispanic =0 if other
BLATINAC	A dichotomous variable representing the Boston Latin Academy =1 if the school was the Boston Latin Academy =0 if else
BLATIHS	A dichotomous variable representing the Boston Latin High School =1 if the school was Boston Latin High School =0 if else

<i>Variable Name</i>	<i>Definition</i>
OBRYANT	A dichotomous variable representing the O'Bryant Technical High School =1 if the school was O'Bryant Technical High School =0 if else
BRIGHTON	A dichotomous variable representing Brighton High School =1 if the school was Brighton High School =0 if else
BOSTONHS	A dichotomous variable representing Boston High School =1 if the school was Boston High School =0 if else
BURKE	A dichotomous variable representing the Burke High School =1 if the school was Burke High School =0 if else
CHARLEST	A dichotomous variable representing Charlestown High School =1 if the school was Charlestown High School =0 if else
DORCHEST	A dichotomous variable representing Dorchester High School =1 if the school was Dorchester High School =0 if else
EASTBOST	A dichotomous variable representing East Boston High School =1 if the school was East Boston High School =0 if else
ENGLISH	A dichotomous variable representing English High School =1 if the school was English High School =0 if else
HYDEPARK	A dichotomous variable representing Hyde Park High School =1 if the school was Hyde Park High School =0 if else

<i>Variable Name</i>	<i>Definition</i>
MADISON	A dichotomous variable representing Madison Park High School =1 if the school was Madison Park High School =0 if else
SNOWDEN	A dichotomous variable representing Snowden International High School =1 if the school was Snowden International High School =0 if else
SOUTHBOS	A dichotomous variable representing South Boston High School =1 if the school was South Boston High School =0 if else
ACC	A dichotomous variable representing ACC High School =1 if the school was ACC High School =0 if else
WROXBURY	A dichotomous variable representing West Roxbury High School =1 if the school was West Roxbury High School =0 if else
FENWAY	A dichotomous variable representing Fenway High School =1 if the school was Fenway High School =0 if else
HEALTHCA	A dichotomous variable representing the Health Care Academy =1 if the school was Healthcare Academy =0 if else
EGLESTON	A dichotomous variable representing Egleston High School =1 if the school was Egleston High School =0 if else
NEWMISSI	A dichotomous variable representing New Mission High School =1 if the school was New Mission High School =0 if else

<i>Variable Name</i>	<i>Definition</i>
BOSTONEV	A dichotomous variable representing Boston Evening High School =1 if the school was Boston Evening High School =0 if else
HORMAN	A dichotomous variable representing Horace Mann High School =1 if the school was Horace Mann =0 if else
SUMMERHS	A dichotomous summer job variable =1 if the graduate held a summer job during the high school years. =0 if no summer job held.
WORKSNYR	A dichotomous senior year job variable =1 if graduate held a job during the senior year in high school. =0 if no job was held in the senior year of high school.
ACAFIN	A dichotomous variable representing participation in a School-to-Career program in high school. =1 if graduate participated in an Academy of Finance program. =0 if else.
ACAPUBS	A dichotomous variable representing participation in a School-to-Career program in high school. =1 if graduate participated in an Academy of Public Service program. =0 if else.
ACATRAV	A dichotomous variable representing participation in a school-to-Career program in high school. =1 if graduate participated in an Academy of Travel and Tourism program =0 if else
CARPATH	A dichotomous variable representing participation in a School-to-Career program in high school. =1 if graduate participated in a Career Pathway program =0 if else

<i>Variable Name</i>	<i>Definition</i>
PROTECH	A dichotomous variable representing participation in a School-to-Career program in high school =1 if graduate participated in a Pro Tech program =0 if else
TECHBOS	A dichotomous variable representing participation in a School-to-Career program in high school =1 if graduate participated in a Tech Boston program =0 if else

**Appendix B: Means and Standard Deviations of Variables Used in Selected Logistic Regression Models**

Means and Standard Deviations of Variables Used in the First Logistic

Regression Model

Variable	Mean	Standard Deviation	N
ENROLLED	0.698	0.459	3214
FEMALE	0.537	0.499	3214
BLACK	0.496	0.500	3214
ASIAN	0.124	0.329	3214
HISPANIC	0.202	0.401	3214
OBRYANT	0.065	0.247	3214
BLATINAC	0.063	0.242	3214
BLATINHS	0.100	0.301	3214
WORKSNYR	0.650	0.865	3214
SUMMERHS	0.767	0.666	3214

Means and Standard Deviations of Variables Used in the Second Logistic

Regression Model

	Mean	Standard Deviation	N
ENROLLED	0.892	0.311	734
FEMALE	0.538	0.499	734
BLACK	0.278	0.448	734
ASIAN	0.253	0.435	734
HISPANIC	0.099	0.299	734
BLATINAC	0.274	0.446	734
BLATINHS	0.440	0.497	734
WORKSNYR	0.578	0.907	734
SUMMERHS	0.876	0.622	734

Means and Standard Deviations of Variables Used in the Third Logistic

Regression Model

	Mean	Standard Deviation	N
ENROLLED	0.641	0.480	2475
FEMALE	0.536	0.499	2480
BLACK	0.561	0.496	2480
ASIAN	0.085	0.280	2480
HISPANIC	0.232	0.422	2480
BOSTONHS	0.040	0.197	2480
BRIGHTON	0.087	0.282	2480
BURKE	0.068	0.252	2480
CHARLEST	0.083	0.276	2480
DORCHEST	0.054	0.225	2480
ENGLISH	0.085	0.280	2480
HYDEPARK	0.059	0.236	2480
SNOWDENI	0.025	0.156	2480
SOUTHBOS	0.087	0.281	2480
ACC	0.024	0.152	2480
WROXBURY	0.089	0.284	2480
FENWAY	0.022	0.147	2480
NEWMISSI	0.011	0.104	2480
MCKINLVO	0.005	0.072	2480
MCKINLTE	0.003	0.053	2480
HEALTHCA	0.008	0.089	2480
EGLESTON	0.004	0.063	2480
BOSTONEV	0.007	0.083	2480
HORMANN	0.002	0.040	2480
WORKSNYR	0.672	0.851	2476
SUMMERHS	0.734	0.675	2479

Means and Standard Deviations of Variables Used in the Fourth Logistic

Regression Model

	Mean	Standard Deviation	N
ENROLLED	0.641	0.480	2480
FEMALE	0.536	0.499	2480
BLACK	0.561	0.496	2480
ASIAN	0.085	0.280	2480
HISPANIC	0.232	0.422	2480
BOSTONHS	0.040	0.197	2480
BRIGHTON	0.087	0.282	2480
BURKE	0.068	0.252	2480
CHARLEST	0.083	0.276	2480
DORCHEST	0.054	0.225	2480
ENGLISH	0.085	0.280	2480
HYDEPARK	0.059	0.236	2480
SNOWDENI	0.025	0.156	2480
SOUTHBOS	0.087	0.281	2480
ACC	0.024	0.152	2480
WROXBURY	0.089	0.284	2480
FENWAY	0.022	0.147	2480
NEWMISSI	0.011	0.104	2480
MCKINLVO	0.005	0.072	2480
MCKINLTE	0.003	0.053	2480
HEALTHCA	0.008	0.089	2480
EGLESTON	0.004	0.063	2480
BOSTONEV	0.007	0.083	2480
HORMANN	0.002	0.040	2480
WORKSNYR	0.672	0.851	2480
SUMMERHS	0.734	0.675	2480
ACAFIN	0.014	0.117	2480
ACAPUBS	0.015	0.123	2480
ACATRAV	0.031	0.172	2480
PROTECH	0.081	0.273	2480
TECHBOS	0.015	0.121	2480
CARPATH	0.264	0.441	2480

### Appendix C: Estimating the Probability of a Graduate with Given Background Traits Being Enrolled in College at the Time of the Winter Follow-up Survey

The logistic regression models that were used to analyze the college enrollment status of Class of 2001 graduates provided estimates of the sign, size, and statistical significance of the influence of individual variables on the log of the odds of enrolling in college. The coefficients on the independent variables also were converted into estimated marginal effects evaluated at the means of all of the predictor variables in the model. One can also use the findings of the logistic regression model to estimate the probability of a high school graduate with given characteristics being enrolled in college at the time of the follow-up survey.

The procedure for estimating the probability of college enrollment for a graduate with given traits is relatively straightforward. The probability that a given high school graduate will be attending college is equal to the following:

$$P_i = \frac{e^{a + bx}}{1 + e^{a + bx}}$$

To calculate the values of  $P_i$ , we begin by calculating the value of  $a + bx$  for an individual with given traits,  $X_i$  (e.g., gender, race-ethnic origin, high school attended). The values of the  $\alpha$  and  $\beta$ 's are those generated by the logistic regression model. We then calculate the value of  $e^{a+bx_i}$ . The value of the denominator is simply equal to  $1 + e^{a+bx_i}$ . The ratio of these two values would then yield the estimated probability of college attendance for this individual.

To illustrate how this procedure is used, let us use the findings from our first model of the college enrollment decision for all high school graduates in Table 5. Let us take a White, non-Hispanic female who graduated from the Boston Latin Academy High School, who worked during the summer while in high school, but did not work during the

senior year of high school. The value of  $\mathbf{a} + \mathbf{b}x_i$  for this given individual was 2.42. Raising e to the power 2.42 yields a value of 11.2. The value of the denominator for the probability formula is 12.2. The ratio of these two values is equal to .918, implying that the probability of college attendance for this female graduate from the Boston Latin Academy High School was equal to 91.8%. These probability estimates can be derived for any given individual with a known set of demographic, schooling, and work experience traits.