

College Enrollment and Labor Market Outcomes For Class
of 2002 Boston Public High School Graduates: Key
Findings of the Winter/Spring 2003 Follow-up Surveys

Prepared by:

Ishwar Khatiwada
Andrew Sum

Center for Labor Market Studies
Northeastern University

Prepared for:

Boston Private Industry Council
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Introduction

Any effort to evaluate the success of high school programs in facilitating the transition of high school graduates to college and the world of work is dependent upon knowledge of the post-high school college and labor market experiences of recent graduates. The ability to track the post-high school college and labor market experiences of recent high school graduates is dependent upon the existence of a comprehensive and statistically representative set of follow-up data on these graduates. Since the mid-1980s, the Boston Private Industry Council (PIC) has conducted an annual follow-up survey of each year's graduating class from the Boston public high schools.

Boston is one of the few cities in the entire country to conduct such annual follow-up surveys of its public school graduates. The lack of accountability by most other public school districts is rather astounding.¹ The primary objective of the PIC follow-up surveys is to obtain information on Boston public high school graduates' transitions from high school to college and the labor market during the nine-month period following graduation. The survey captures information on their college and post-secondary training enrollment status, the types of colleges and post-secondary training programs attended, their college majors, their financial aid status, their employment status, key characteristics of their jobs, such as hours of work, hourly wages, their occupations, and the industries of their employers, senior year and summer job experiences during their high school years, and their job-related training activities. During the late winter and early spring of 2003, the Boston PIC made an effort to interview each of the nearly 3,516 graduates of Boston public high schools from the Class of 2002. This paper presents and assesses the main findings of the winter 2003 follow-up survey including the demographic characteristics of Class of 2002 graduates, their school and work activities at the time of the follow-up survey, their college enrollment status, their college majors, their employment status, their hours of work, hourly and weekly wages, the industries of their employers, their occupations, their training activities, and their participation in school-to-career programs during high school.

¹ Many public schools conduct exit surveys of the college and work plans of their graduates prior to graduation but do not validate these plans with independent follow-up surveys.

The Number and Demographic Characteristics of Public School Graduates from the Class of 2002

The total number of Class of 2002 graduates from Boston public high schools was 3,516.² (Table 1). Men accounted for 1,600, or 45.5 percent, of the members of the graduating class while women accounted for 1,916, or 54.5 percent of the graduates from the Class of 2002.³ The number of female graduates from Boston public high schools has been considerably higher than the number of male graduates for the last six graduating classes, i.e., those for 1997 to 2002, indicating that men are more prone than women to drop out of high school before graduation since the freshman class has typically contained more men. The ratio of female to male graduates for the Class of 2002 was 1.20, a rather substantial increase from the 1.12 ratio for the Class of 2001 which was the lowest ratio over the past six years. (Table 2). In each race-ethnic group, the number of female graduates exceeded the number of male graduates, with the largest relative differences prevailing among Asian graduates (123 women for every 100 men) and Black graduates (121 women for every 100 men). The ratio of female to male graduates for Hispanics from the Class of 2002 was 118 followed by 115 for Whites, the lowest ratio among the four race-ethnic groups.

² The higher number of graduates this year in comparison to last year is partly due to the inclusion of two new schools (Healthcare Academy and Community Academy) in the follow-up survey of 2003.

³ These data are based on the student records provided to the Boston Private Industry Council by the Boston public schools.

Table 1: The Distribution of Class of 2002 Graduates by Gender, Race/Ethnic Group, and Type of High School

Group	Number	Percent of Graduates
All	3,516	100.0
<u>Gender</u>		
# Men	1,600	45.5
# Women	1,916	55.5
<u>Race/Ethnic Group</u>		
# Asian	445	12.7
# Black	1,762	50.1
# Hispanic	723	20.6
# White	586	16.7
<u>Type of School</u>		
# Exam School	747	21.2
# District/Alternative School	2,769	78.8

Table 2: Number of Male and Female Graduates from Boston Public High Schools, Classes of 1997 to 2002

Graduating Class	Female	Male	Females per 100 males
1997	1,453	1,217	119
1998	1,685	1,390	121
1999	1,670	1,321	126
2000	1,591	1,340	119
2001	1,708	1,513	113
2002	1,916	1,600	120

A breakout of the Class of 2002 graduates by their race-ethnic backgrounds reveals that Black students accounted for one half of the total graduates (50.1%) followed by Hispanics (20.6%), Whites (16.7%), and Asians (12.7%). The racial/ethnic mix of Boston public school graduates differs markedly from that of the nation as a whole. U.S. statistics on high school graduates from the Class of 2002 reveal that only one-quarter of all high school graduates were Black or Hispanic; however, in Boston, over 70 percent of

Class of 2002 high school graduates were Black or Hispanic and nearly 12 percent were Asian.⁴

The graduates from the Class of 2002 attended 26 different high schools, including a number of typically small alternative schools. There were a total of 747 graduates from the city's three exam schools (Boston Latin, Latin Academy, and the O'Bryant Technical High School), accounting for 21 percent of the graduating class. The remaining 2,769 graduates (or 79% of the total) attended district, magnet, and small alternative high schools.

Follow-up Interview Completion Rates for Class of 2002 Boston Public School Graduates

Follow-up interviews were completed for 77 percent of the graduates from the Class of 2002. This completion rate was 5 percentage points lower than that for the Class of 2001, which was the highest interview completion rate achieved over the past six years. (Chart 1). The follow-up interview completion rate for women was four percentage points higher than that for men (79% vs. 75%). (Chart 2). There were modest variations in interview completion rates among graduates in the four major race-ethnic groups. Interview completion rates were highest for White (85.5%) and Asian graduates (81.3%) followed by Blacks (75.6%) and Hispanics (71.4%). Follow-up interview completion rates were 68 percent or higher in all high schools, except a few of the small alternative and vocational schools. Follow-up interview completion rates by high school ranged from a low of 68 percent for West Roxbury High School to a high of 91 percent for graduates from the New Mission School. (See Appendix A for a listing of follow-up interview completion rates by high school). The five Boston public high schools with the highest interview completion rates were New Mission (91.3%), Boston Latin Academy (89.6%), East Boston High School (85.8%), Boston Latin High School (85.5%), and ACC (85.5%). In contrast, the five schools with the lowest interview completion rates were

⁴ Findings on the estimated numbers and demographic characteristics of Class of 2002 high school graduates throughout the U.S. are based on the following research report, "College Enrollment and Work Activity of 2002 High School Graduates" U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C., June 2003.

West Roxbury High School (67.7%), Brighton High School (67.9%), Dorchester High School (70.4%), Charlestown High School (71.4%), and Madison Park High School (72.0%).

Follow-up interviews could not be completed with 23 percent of the graduates from the Class of 2002. Only 1 of 10 non-interviews involved a refusal to provide the requisite information. The inability to complete these interviews was primarily due to an absence of valid phone numbers and the new addresses for those who moved. A listings of reasons for the inability to complete these interviews is presented below in descending order.

Reasons	Percent
No Valid Phone Number/Phone Disconnected	34.8
No Response to Phone Message	32.0
Moved From Area, No Forwarding Phone Number	10.9
Other	6.9
Family Members Unable to Provide Information	5.1
Family Member Refused to Provide Information	4.3
Student Refused to Participate	2.8
Language Difficulty	2.1
Incarcerated	0.9
Deceased	0.1

Chart 1: Follow-Up Interview Completion Rates for Graduates from Boston Public High Schools, Classes of 1997 to 2002

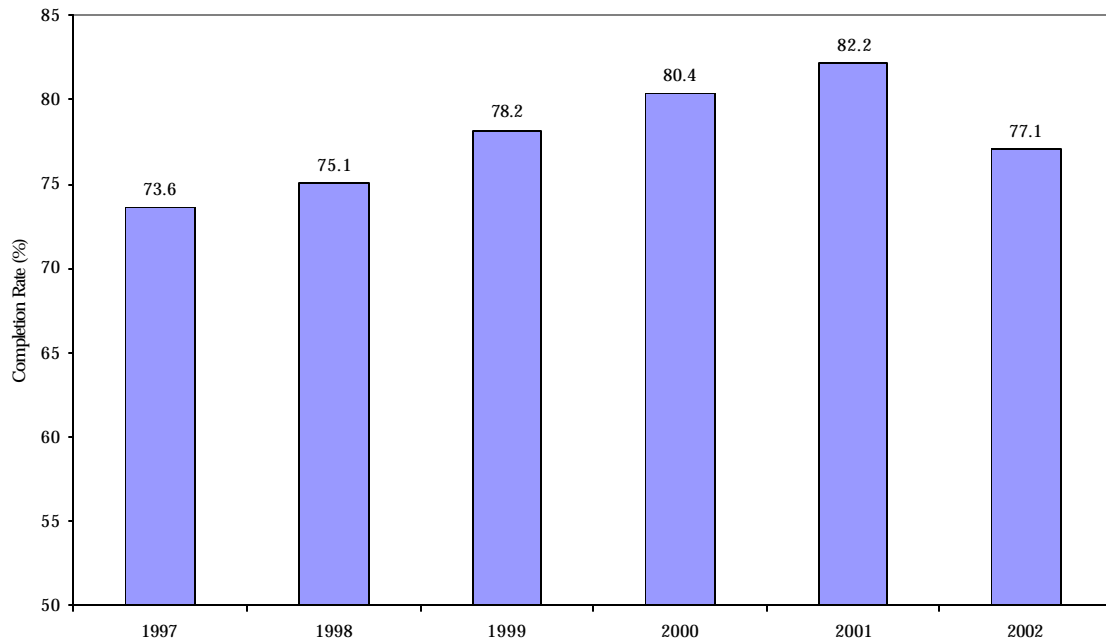
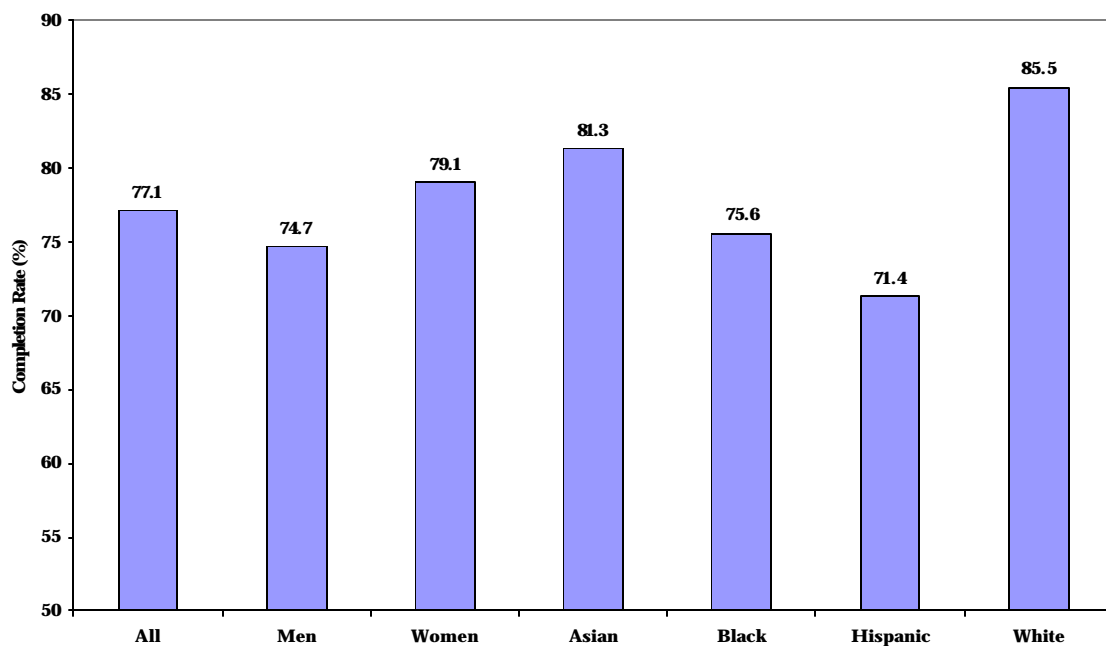


Chart 2: Follow-up Interview Completion Rates for Class of 2002 Boston Public High School Graduates by Gender & Race-Ethnic Group

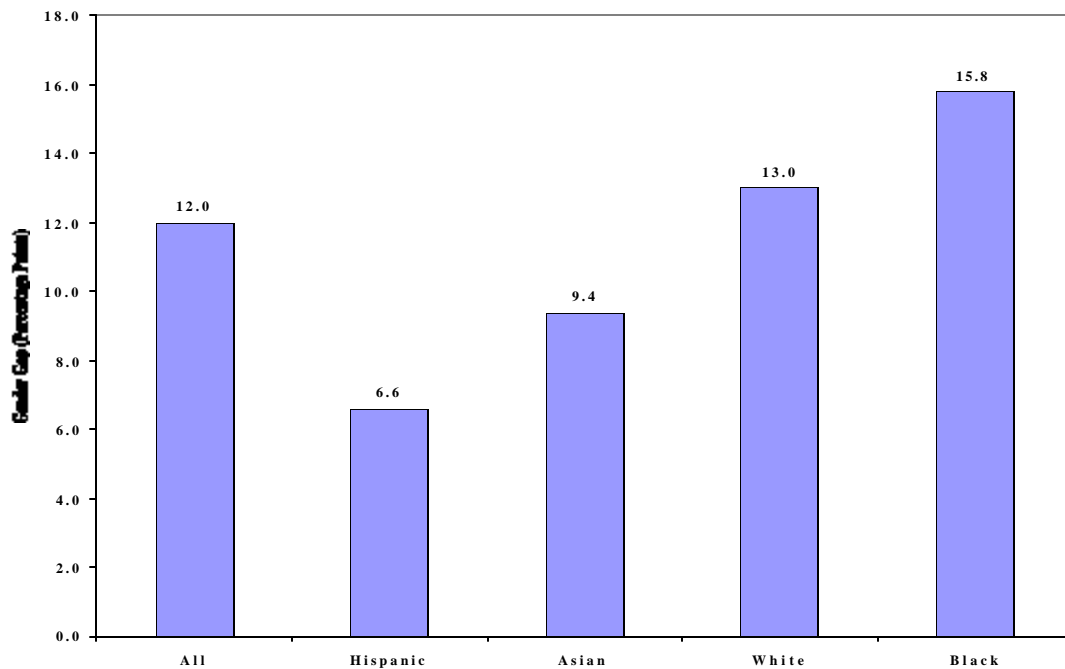


Employment and Schooling Activities of Class of 2002 Graduates of Boston Public High Schools

The follow-up questionnaire for the Class of 2002 was designed to identify all of the college, training, employment and job-seeking activities of each high school graduate at the time of the winter 2003 survey. The interviews took place between March and May, anywhere from 9 to 11 months following graduation. Among all graduates from the Class of 2002, sixty-eight percent were estimated to be attending a post-secondary educational institution or a technical/vocational training program at the time of the winter 2003 follow-up survey.⁵ (Chart 3). The post-secondary college/training program enrollment rate for the Class of 2002 was nearly two percentage points lower than that for the Class of 2001 which represented a record high for the city's graduates. Over half of those attending college or a post-secondary training program also were working at the time of the survey. Another 21 percent of the graduates were employed in a civilian job or serving in a branch of the nation's armed forces, but were not attending school or a training program. The remaining 11 percent of the graduates were neither working nor enrolled in a post-secondary school or training program. Of this last "at-risk" or "disconnected" group of graduates, three of every four reported that they were looking for a job at the time of the interview. The remaining 2.6 percent of the graduates from the Class of 2002 were not working, not enrolled in a school or training program, and not looking for a job at the time of the follow-up interview.

⁵ All these estimates are based on weighted sample results. These weights are based on follow-up response rates by high school and race-ethnic group within each high school.

Chart 3: Percentage Distribution of Class of 2002 Boston Public High School Graduates
by Their Activity Status at the Time of the Follow-up Survey



The college enrollment and employment outcomes for Boston graduates had been improving fairly steadily since 1992-93. However, as noted above, the college/training attendance rate of 68.3 percent for Class of 2002 graduates was nearly two percentage points lower than that for the previous year’s graduates, but was the third highest for the past 17 years. (Table 3). The fraction of graduates who were neither enrolled in school nor working had been characterized by decreasing trend since the early 1990’s, however, it increased modestly in 2002 to just under 11 percent. The 10.9% “at-risk” rate for the Class of 2002 was 1.7 percentage points above that for the Class of 2001. The rise in this ratio was attributable to an increased rate of unemployment among those graduates not enrolled in college, which was caused by deteriorating local labor market conditions, especially for young adults.⁶

⁶ See: Andrew Sum and Nathan Pond, The Deteriorating Labor Market for the Nation’s Youth, Center for Labor Market Studies, Northeastern University, Prepared for the National League of Cities, Washington D.C., June, 2003.

Table 3: Percentage Distribution of Boston Public High School Graduates by Their Activity Status at the Time of the Follow-up Survey, Classes of 1998 to 2002

(Numbers in Percent)

Activity	1998	1999	2000	2001	2002
School/Training	65.0	67.4	69.0	69.8	68.3
•School/Training Only	32.0	30.1	31.6	35.9	37.1
•School and Work	33.0	34.5	37.4	33.9	31.2
Work Only	24.5	23.8	21.7	19.2	19.3
Military	1.8	2.3	1.6	1.8	1.6
“At-Risk”	7.7	9.3	7.6	9.2	10.9
•Jobless, but Looking for Work	5.7	6.0	4.2	5.8	8.3
•Not Looking for Work	3.0	3.3	3.4	3.4	2.6

The major activities of Class of 2002 graduates varied by gender and race-ethnic group. As has been the case over the past seven years, female graduates from the Class of 2002 were more likely than male graduates to be attending a post-secondary educational or training program (73.3% vs. 61.5%). (Table 4). The gender gaps in college attendance rates were particularly large among Blacks (14.8 percentage points) and Hispanics (13.7 percentage points), followed by Whites (11.5 percentage points). The college enrollment rates for Asian male and female graduates were identical for the Class of 2002. In contrast, male graduates were much more likely than their female counterparts to be only working in a civilian job or serving in a branch of the nation’s armed forces (26.3% vs. 16.7%). The share of male graduates who were not engaged in any positive work or school activity was only 2.2 percentage point higher than that for their female counterparts (12.1% versus 9.8%).

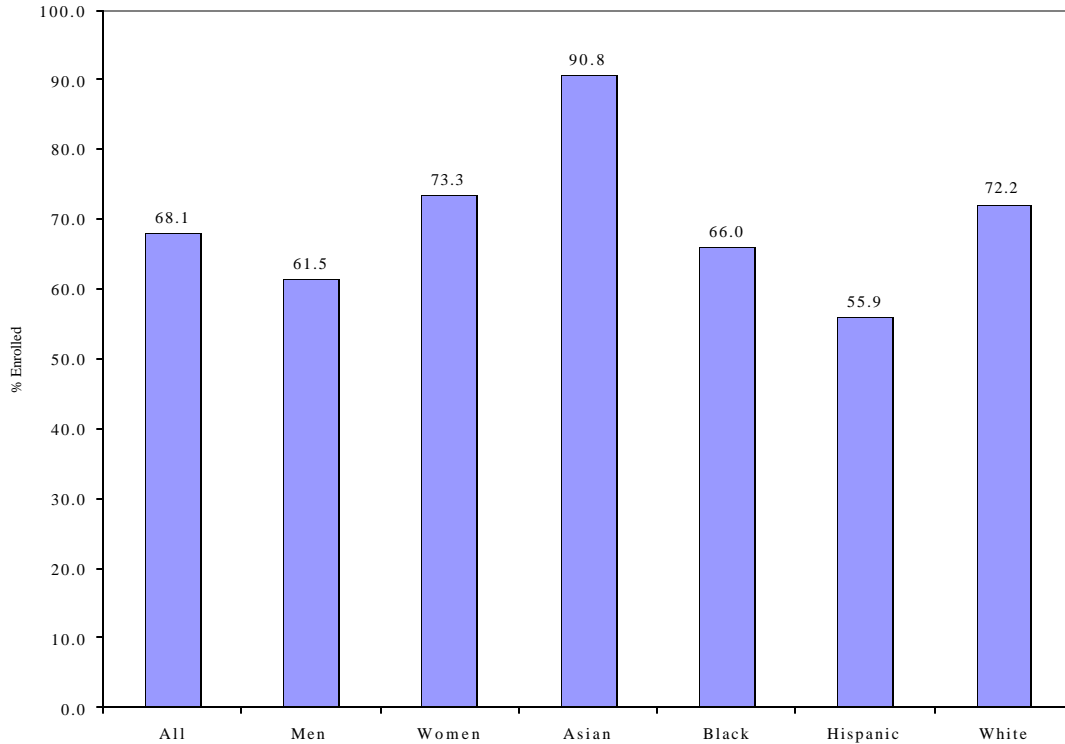
College/training enrollment rates across the four major race-ethnic groups ranged from a high of nearly 91% for Asian graduates to 72.2% for White graduates, 66% for Black graduates, and to a low of 56% for Hispanic graduates. (Chart 4). The college/training enrollment rate for Hispanic graduates from the Class of 2002 was 7

percentage points below the preceding year’s graduating Class. Hispanic graduates were the most likely to go directly to work in the civilian sector. The share of Boston public high schools graduates who reported that they were only working at the time of the follow-up survey ranged from a high of nearly 27% for Hispanic graduates to a low of 6% for Asian graduates. The percent of graduates who were classified as “at risk” varied from a low of 3.2 percent for Asian graduates to highs of nearly 12 to 15 percent for Black and Hispanic graduates, respectively.

Table 4: Major Activities of Class of 2002 Boston Public High School Graduates by Gender and Race/Ethnic Origin (Numbers in Percent)

Activity	All	Men	Women	Asian	Black	Hispanic	White
School/Training Only	37.1	34.7	38.9	50.6	34.9	28.5	43.9
School and Work	31.2	26.9	34.5	39.7	31.3	27.6	28.5
Work Only	19.3	23.2	16.3	5.6	20.4	26.8	17.3
Military	1.6	3.1	0.4	0.8	1.2	2.4	2.6
Jobless, but Looking	8.3	9.4	7.4	1.8	10.1	10.7	5.2
Not Looking for Work	2.6	2.7	2.4	1.4	2.2	4.2	2.5

Chart 4: Percent of Class of 2002 Boston Public High School Graduates Who Were Attending a Post-Secondary Education or Training Program at the Time of the Follow-up Survey by Gender & Race-Ethnic Group

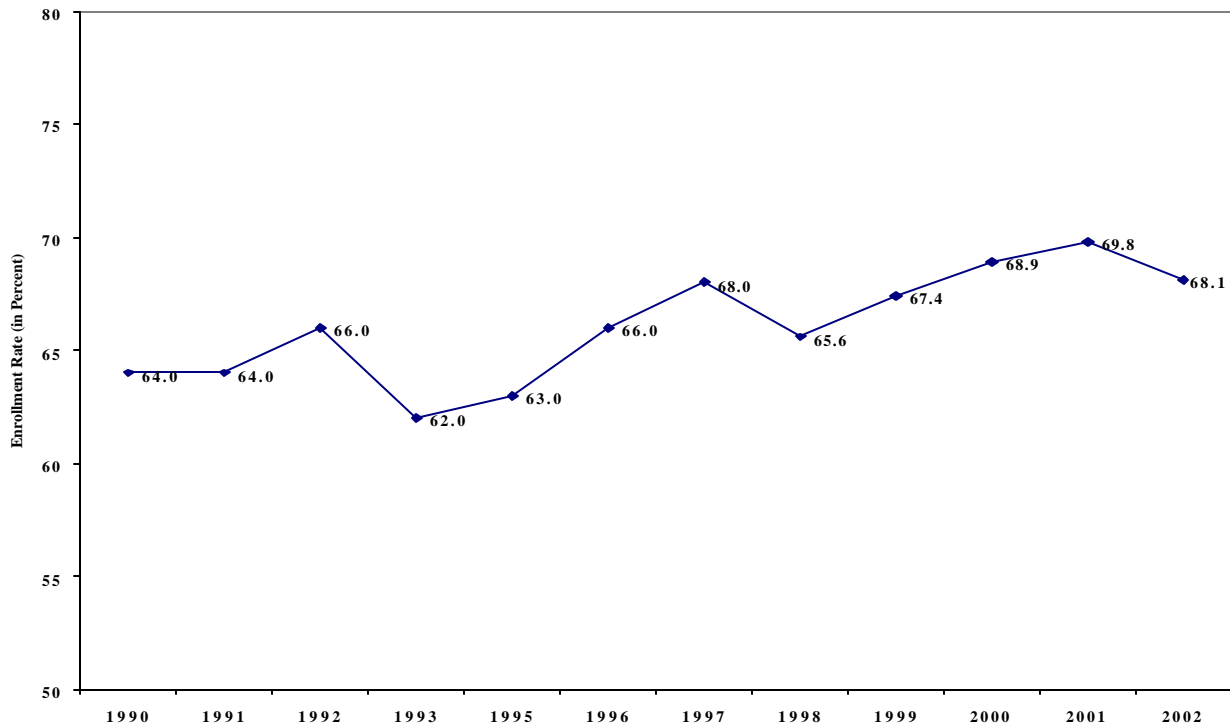


College and Training Program Enrollment Rates for Class of 2002 Graduates

One of the major obstacles of the Boston Public Schools is to achieve a high rate of transition of graduates into post-secondary schools and training institutions. The college and training program enrollment rate for Class of 2002 Boston public high school graduates stood at 68.1 percent in the Spring of 2003, 1.7 percentage points lower than the enrollment rate for the preceding year's graduating class, which was the highest college enrollment rate over the past 17 years. (Chart 5). The college/ training program enrollment rate for the city's public school graduates was only 50 percent in 1986, but had increased to 68 percent by 2002, an absolute increase of nearly 18 percentage points. The size of this increase between 1986 and 2002 should be considered a very substantial

accomplishment, far exceeding that for the nation as a whole. Although the college enrollment rate for Class of 2002 graduates was moderately lower than that for the prior year's graduating class, it still ranked third highest over the past 17 years.

Chart 5: Trends in College Enrollment Rates for Boston Public High School Graduates, Classes of 1990 to 2002



Despite improvements over the years in the overall college enrollment rate, there are some disturbing gender gaps in college enrollment rates for Boston public high school graduates. Similar findings apply to most other large central cities in Massachusetts and across the country. More than 73 percent of the female high school graduates from the Class of 2002 were enrolled in college or a post secondary training program at the time of the follow-up survey versus a college enrollment rate of only 61 percent for males. College enrollment rates of Class of 2002 graduates also varied markedly by race-ethnic group, ranging from a high of 90.8 percent for Asian graduates to 72 percent for White graduates, 66 percent for Black graduates, and to a low of 56 percent for Hispanic graduates.

The college/training enrollment rates of Class of 2002 graduates in each race-ethnic group were higher among women than men. (Table 5). The absolute size of the gender gap in the college/training program enrollment for all Boston public high school graduates was nearly 12 percentage points. There was no substantive gender gap in college enrollment rates in the city's exam schools (92.0% for women versus 91.5% for men) whereas the gender gap in college enrollment was much higher for graduates from the district schools (67.5% female versus 54.9% male). While male graduates from the three exam schools were just as likely to attend colleges as their female peers from these high schools. Women were more likely than men to attend an exam school and to graduate from the exam school they attended. The gender gaps in college attendance rates were largest for Blacks followed by Hispanics and Whites.

Among those enrolled in a college or post-secondary training program, women were more likely than men to be attending a four-year college or university (44.8% vs. 32.8%). Similar variations in types of colleges attended were observed for men and women in each of the four race-ethnic groups. The absolute sizes of the differences between the shares of women and men attending 4-year colleges were 15.8 percentage points for Black graduates, 13.0 percentage points for White graduates, 9.4 percentage points for Asian graduates, and only 6.6 percentage points for Hispanic graduates. (Chart 6). For the first time, the four-year college enrollment rate for Hispanic male and female was found to be small.

Chart 6: Gender Gaps in Four-Year College Enrollment Rates Among Graduates Attending College or Post-Secondary Training Institution by Race-Ethnic Group, Class of 2002

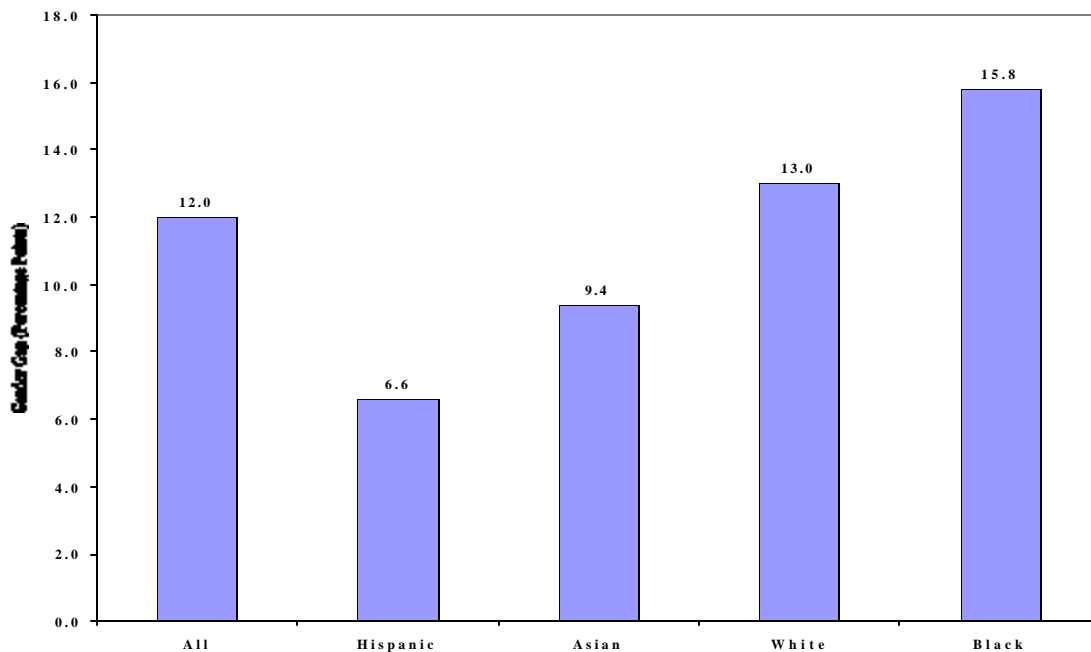


Table 5: Gender Gaps in College/Post Secondary Training Enrollment Rates of Boston Public High School Graduates by Race/Ethnic Group and Type of School, Class of 2002
(Numbers in Percent)

Group	Women (A)	Men (B)	Gap (Women-Men) (C)
All	73.3	61.5	11.8
Asian	90.8	90.2	0.6
Black, not Hispanic	72.4	57.5	14.8
Hispanic	61.7	48.1	13.7
White, not Hispanic	77.5	66.0	11.5
Exam Schools	92.0	91.5	0.5
District Schools	67.5	54.9	12.6

Similar to findings for the Class of 2001 and those of earlier years, the college attendance rates of Class of 2002 graduates also varied widely by high school. (Table 6). Not surprisingly, given the differences in students' academic achievements, a large gap

existed between the college/training enrollment rates of graduates of the city's exam and district schools. The absolute difference between the college/training enrollment rates of graduates from the exam schools and district schools was 30 percentage points (91.8% vs. 61.7%). The enrollment gap for the Class of 2002 was 8 percentage points higher than that for the Class of 2001, indicating lower college attendance rates among graduates from the district/magnet schools. The college/training program enrollment rates ranged across individual high schools from highs of 95 percent for Boston Latin High School and 93 percent for Boston Latin Academy to lows of 49.5 percent for Boston High School and 46.2 percent for Madison Park High School.

Table 6: Percent of Class of 2002 Graduates of Boston Public High Schools Who were Enrolled in College or a Post-Secondary Training Program at the Time of the Follow-up Survey, by High School

School	Enrollment Rate (%)
Boston Latin High School	94.9
Boston Latin Academy	92.8
Snowden International High School	87.3
O'Bryant High School	85.3
Fenway Park High School	81.1
New Mission	78.3
Boston Arts Academy	76.8
Health Care Academy	76.3
West Roxbury High School	71.2
South Boston High School	67.7
Charlestown High School	65.9
ACC	65.5
Hyde Park High School	64.8
Dorchester High School	64.5
Brighton High School	63.8
Boston Adult Academy	62.7
Eagleston	60.0
Burke High School	58.3
English High School	53.8
East Boston High School	52.0
Boston High School	49.5
Madison Park High School	46.2
Boston Evening	43.8
McKinley Tech.	12.5
Total	68.1

The overwhelming majority of college students (over 90 percent) reported that they were attending their post-secondary schools on a full-time basis. Nearly 91 percent of those attending a college or post-secondary training program were enrolled in a post-secondary educational institution, primarily four-year colleges and universities and community colleges. The ten educational institutions accounting for the largest number of college enrollees from the Class of 2002 are displayed in Table 7. These ten colleges and universities accounted for nearly 47 percent of the total number of enrolled graduates from the Class of 2002. Each of these ten colleges and universities were located in Massachusetts, and all but the University of Massachusetts at Amherst were located in the Boston metropolitan area.

The top ten enrolling colleges and universities for the Class of 2002 were characterized by a substantial degree of overlap with the ten largest enrolling institutions for graduates from the Class of 2001. Nine of the top ten enrolling institutions were the same for the Classes of 2001 and 2002 although several of their rankings were changed. Pine Manor College, which did not appear in the top ten enrollment institutions for the Class of 2001, ranked 8th highest in enrolling Class of 2002 graduates. The number of Class of 2002 graduates attending top ten colleges varied modestly in comparison to the Class of 2001.

Table 7: The Ten Colleges and Universities Attended by the Largest Number of Boston Public High School Graduates, Classes of 2001 and 2002

Class of 2001	Number of Students	Class of 2002	Number of Students
Bunker Hill Community College	201	Bunker Hill Community College	249
UMass-Boston	133	UMass-Amherst	118
Mass Bay Community College	121	UMass-Boston	98
UMass-Amherst	107	Massachusetts Bay Community College	93
Roxbury Community College	90	Boston University	70
Boston University	63	Roxbury Community College	70
Northeastern University	55	Northeastern University	53
Quincy Community College	47	Pine Manor College	50
Franklin Institute of Technology	44	Franklin Institute of Technology	46
Bay State Community College	40	Quincy Community College	43

College Majors of Class of 2002 Boston Public High School Graduates

Beginning with the Class of 2001, the PIC follow-up questionnaire included an open-ended question asking graduates enrolled in college identify their college majors. An analysis of the findings for the Class of 2002 revealed that 21.5 percent of all graduates had not yet declared a major. Higher percentage of women than men had not yet declared their college major at the time of the Winter 2003 follow-up survey (22.9% versus 19.3%). (Table 8). The most frequently cited major for the graduates from the Class of 2002 was business management (10%). Thirteen percent of male graduates reported a business major versus nearly 9 percent of the women. The second most frequently chosen college major for Class of 2002 Boston public high school graduates was nursing (5.2%); however, fewer than one percent of men identified nursing as their college major versus 8 percent of women. Nearly eight percent of male graduates opted for computer science as their college major while only 1.4 percent of the women did so. Overall, male graduates were more likely to choose physical sciences, particularly, engineering and computer science, as their college majors while female graduates were

more likely to choose nursing, psychology, communications, and liberal arts as their college majors.

Table 8: Top 10 College Majors of Enrolled Class of 2002 Boston Public High School Graduates, Total and by Gender

All			Men		Women	
Rank	College Major	Percent	College Major	Percent	College Major	Percent
1	Undecided	21.5	Undecided	19.3	Undecided	22.9
2	Business Management	10.4	Business Management	13.1	Business Management	8.7
3	Nursing	5.2	Computer Sciences	7.7	Nursing	8.0
4	Computer Sciences	3.9	Computer System Engineering	5.3	Psychology	4.6
5	Criminal Justice	3.9	Criminal Justice	3.9	Criminal Justice	3.8
6	Psychology	3.2	Electrical Engineering	2.3	Medical Assistant	3.6
7	Biology	2.7	Engineering	2.3	Biology	3.5
8	Computer System Engineering	2.4	Graphic Design	2.0	Communications	2.4
9	Communications	2.1	Computer Tech	2.0	English	2.1
10	Medical Assistant	2.1	Pharmacy	1.9	Education	2.1

Financial Aid Status of College Enrolled Members of the Class of 2002

A substantial majority of graduates from the Class of 2002 reported to have received some type of financial assistance to attend college or university (79%), and most graduates reported that they received several types of financial assistance. (Table 9). Of those graduates who received some type of financial assistance, 75 percent received loans, 74 percent received grants, 69 percent received scholarships, and 24 percent were work-study students.

Table 9: Percent of Enrolled Class of 2002 Boston Public High School Graduates Who Received Various Types of Financial Aid to Attend College

Type of Financial Aid	Percent Receiving Financial Aid
Any Type of Assistance	78.9
Scholarship	68.8
Loans	74.8
Grants	73.6
Work-Study	23.7
Other	3.5

Labor Force Participation Behavior of Class of 2002 Boston Public School Graduates

As noted earlier, the follow-up survey also collected information on the labor force status of each graduate at the time of the survey. Those graduates who were working or actively seeking and available for work at the time of the survey are categorized as members of the labor force. The labor force participation rate for Class of 2002 Boston public school graduates was slightly above 79 percent, implying that nearly 8 of every 10 graduates were either working or actively looking for work. (Table 10). The labor force participation rate of graduates from the non-exam schools was ten percentage points higher than that of graduates from the three exam schools (83.2% vs. 73.0%). Males were somewhat more likely to be in the labor force than women. There was a nearly four-percentage point difference between the labor force participation rates of men and women in favor of men. There were more substantial differences in labor force participation rates among members of the four race-ethnic groups. The labor force participation rates ranged from a high of 86 percent for Hispanic graduates to a low of 70 percent for Asian graduates. There were relatively small differences in the labor force participation rates of men and women within each of the four race-ethnic groups. Asian, Black, and Hispanic male graduates were more likely to participate in the labor force than each of their female counterparts while White female graduates were modestly more likely than their male counterparts to participate in the labor force.

Table 10: Labor Force Participation Rates⁷ (Military Included) of Class of 2002 Boston Public High School Graduates, Total and by Gender, Race-Ethnic Group, and Type of High School Attended (Weighted Cases)

	All	Men	Women
Total	79.2	81.2	77.6
Asian	69.9	74.6	66.1
Black	84.3	86.4	82.6
Hispanic	85.6	88.0	83.8
White	74.0	72.7	75.1
Enrolled	76.4	76.2	76.6
Not Enrolled	90.7	92.7	88.5
Exam School	73.0	73.0	72.9
Non-Exam School	83.2	78.7	81.7

Employment Rates of Class of 2002 Boston Public High School Graduates

At the time of the follow-up interviews, slightly over 52 percent of the graduates from the Class of 2002 were employed, including those serving in a branch of the nation’s armed forces. (Table 11). Employment rates of Boston public high school graduates from the Class of 2002 in all demographic groups, however, had declined in comparison to those for the Class of 2001. The employment rate for Class of 2002 graduates was 6 percentage points lower than the previous year’s employment rate. The deteriorating labor market for youth in both the Boston metropolitan area and the state of Massachusetts in recent years is the major factor underlying the lower employment rate. Recent findings on youth labor market developments in the U.S. have revealed that the employment rate for the nation’s 16-19 year old population was just over 36 percent in 2002, the lowest since the late 1940s.⁸ The 52 percent employment rate for graduates

⁷ Our estimate of the labor force participation rate may be biased slightly upward due to the inability to distinguish the actual labor force status of nearly 200 graduates from the Class of 2002 who were not employed at the time of the survey. If all of these youth were not actively looking for work, their inclusion would have lowered the labor force participation rate by as much as 5.5%.

⁸ See: Andrew Sum, Leaving Young Workers Behind, Report Prepared for National League of Cities, Center for Labor Market Studies, Northeastern University.

from the Class of 2002 represents a substantial improvement over the employment rates of Boston graduates during the early years of the 1990s decade when the local economy was in steep recession. For example, the employment rate for Class of 1991 graduates, who entered the labor market at a time when the state economy was close to its cyclical trough, was only 39 percent. The peak employment rate for graduates was 64 percent for the Class of 1988 who entered the labor market at the height of the economic boom in the 1980s in the state. A higher college enrollment rate in recent years has had the effect of moderately reducing the overall employment rate since college students are less likely to be working than their non-enrolled graduates. For example, among graduates from the Class of 2002, only 46 percent of college students were employed versus 66 percent of their non-enrolled counterparts.

Male graduates were slightly more likely than female graduates to be working at the time of the follow-up survey (53 percent versus 51 percent). This gender difference in the employment rate was attributable to a six-percentage point higher incidence of employment among males who were not enrolled in school. Among college students, women were modestly more likely to be employed than men (47 percent versus 44 percent).

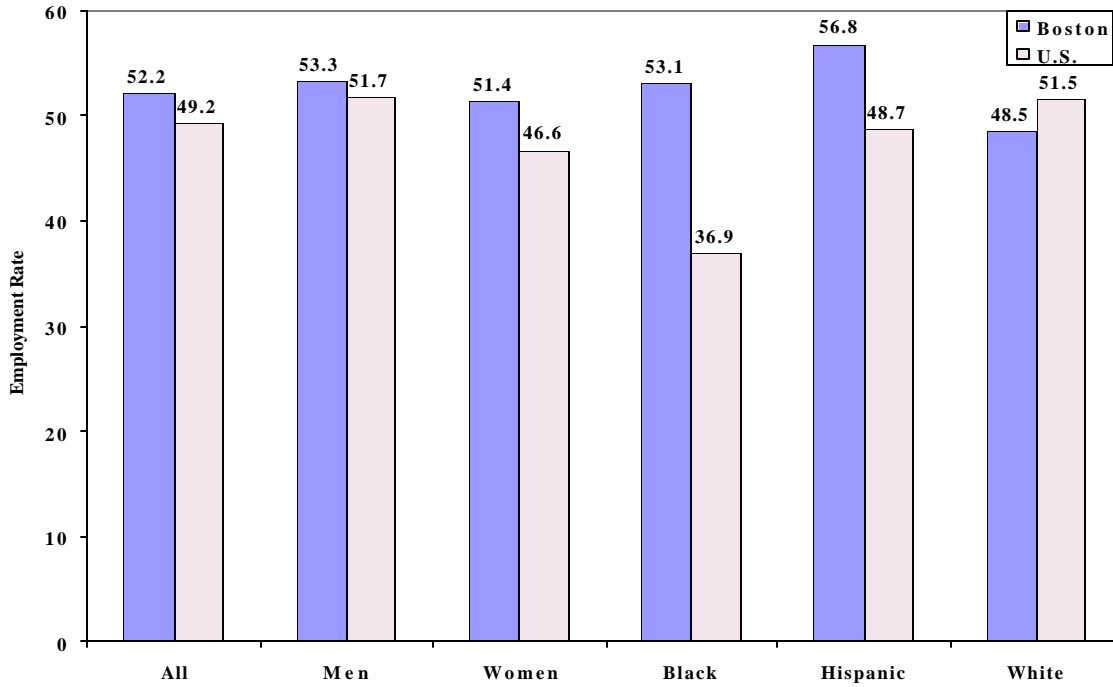
Employment rates of Class of 2002 graduates varied somewhat more by race-ethnic group. Hispanic graduates had the highest employment rate (57%) followed by Black (53%), White (48%), and Asian graduates (46%). The employment rate of Asian graduates had increased in 2002 in comparison to the preceding year's graduating class (41.6%). In each race-ethnic group, employment rates of non-enrolled graduates were considerably higher than those of their enrolled peers, with the size of the differences ranging from 16 to 33 percentage points.

Table 11: Employment Rates of Class of 2002 Boston Public High School Graduates at
the Time of the Follow-up Survey, Total and by College Enrollment Status
(Military Included as Employed)

Group	Employment Rates for All Graduates	Enrolled in College	Not Enrolled in College
All	52.2	45.8	65.9
Men	43.3	43.8	68.4
Women	51.4	47.2	63
Asian	46.3	44.2	66.7
Black	53.1	47.5	63.9
Hispanic	56.8	49.1	66.4
White	48.5	39.5	72.2

As noted above, the employment rate for Class of 2002 graduates in the city of Boston was modestly below that of the preceding year’s graduating class due to a deteriorating labor market for teens in the metropolitan area and state. The employment rate for Boston public high school graduates from the Class of 2002 was nearly 6 percentage points lower than the preceding year’s graduating class (58% versus 52%) whereas the employment rate for new high school graduates in the U.S. remained unchanged in 2002 (49.2%). In the aggregate, however, Boston high school graduates from the Class of 2002 were more likely to be employed than all high school graduates across the nation. (Chart 7). The employment rate for Class of 2002 Boston public high school graduates was 3 percentage points higher than that of all national graduates from the Class of 2002. Both male and female graduates from the Boston public schools had higher employment rates than their peers across the country, with women enjoying a near 5 percentage point advantage over their national peers. Blacks and Hispanics high school graduates from Boston were substantially more likely to be employed than their national counterparts. The size of these employment advantages for Boston graduates ranged from 8 percentage points for Hispanics to 16 percentage points for Blacks. However, among Whites, the employment rate of Boston high school graduates was three percentage points below that of their national counterparts (48.3% versus 51.5%), a substantive reversal from the situation for the previous few graduating classes.

Chart 7: Comparisons of Employment Rates of All Class of 2002 Boston Public School Graduates with Those of Their U.S. Counterparts from the Class of 2002⁹



Employment Status of Enrolled High School Graduates

Nearly 47 percent of those Class of 2002 graduates from Boston public schools who were attending colleges, universities, or post-secondary training programs at the time of the follow-up interviews were simultaneously employed. (Table 12). This employment rate of enrolled Boston public high school graduates was 6 percentage points higher than that of all college students from the national Class of 2002. In each gender and race-ethnic group, except Whites, Boston’s college enrolled graduates were more likely to be working than their national counterparts. Enrolled female graduates from Boston public high schools were slightly more likely to be employed than enrolled men

⁹ Military service personnel are excluded from the count of the employed in both the city of Boston and the U.S. The October CPS surveys are limited to the civilian, non-institutional population of the U.S.

(47.2% vs. 43.8%). Employment rates of college students also varied somewhat by race-ethnic origin. Nearly half of Hispanic and Black college students were employed versus only 39 percent of White students. The graduates from the city’s three exam schools (Boston Latin Academy, Boston Latin, and O’Bryant Technical) were less likely to be working than their enrolled counterparts from the district and magnet schools, and those attending community colleges and post-secondary training programs were more likely to be working than those attending four year colleges and universities.

Table 12: Comparisons of the Employment Rates¹⁰ of Class of 2002 Boston Public School Graduates Enrolled in College with Those of Their Counterparts in the U.S.

College Student Group	Boston	U.S.	Boston less U.S.
All	45.8	40.1	+5.7
Men	43.8	39.5	+4.3
Women	47.2	40.6	+6.6
Black	47.5	28.3	+19.2
Hispanic	49.1	44.1	+5.0
White	39.5	41.8	-2.3

The Employment Status of Non-Enrolled High School Graduates From the Class of 2002, Comparisons of Findings for Boston and the U.S.

Employment rates for those Class of 2002 graduates not attending colleges or post-secondary training programs at the time of the follow-up interviews were estimated for graduates from Boston public high schools and all U.S. high schools. (Table 13). The results indicate that 64 percent of non-enrolled Boston public school graduates were employed at the time of the follow-up survey, a rate slightly below that of all high school graduates across the country (66.3%). In earlier years, the employment rate for non-enrolled Boston public high schools graduates was consistently higher than that of their national counterparts. For example, for the Class of 2002, the employment rate of non-enrolled Boston public high school graduates was slightly more than two percentage

¹⁰ Military service personnel are excluded from the count of the employed in both the city of Boston and the U.S.

points lower than that of their national counterparts whereas for the Class of 2001, non-enrolled Boston public high school graduates enjoyed a four-percentage point advantage over their national counterparts. Among non-enrolled men, Boston public school graduates were less likely to be employed than their counterparts across the country. In contrast, the estimated employment advantage was 3 percentage points for female graduates of Boston public schools. Among both Blacks and Hispanics, Boston public school graduates not attending college were found to enjoy substantial employment advantages over each of their respective national counterparts. The size of these employment advantages ranged from just over 10 percentage points for Hispanic youth to a high of 13 percentage points for Black non-enrolled graduates.¹¹ White graduates from Boston public schools, however, were modestly less likely to be employed than their counterparts across the country (69.4% versus 71%).

Table 13: Comparisons of Employment Rates of Non-Enrolled Class of 2002 Boston Public School Graduates with Those of Their U.S. Counterparts from the Class of 2002¹²

Group	Boston	U.S.	Boston-U.S.
All	64.1	66.3	-2.2
Men	65.8	71.7	-5.9
Women	62.4	59.7	2.7
Black	62.6	49.3	13.3
Hispanic	64.5	54.0	10.5
White	69.4	71.0	-1.6

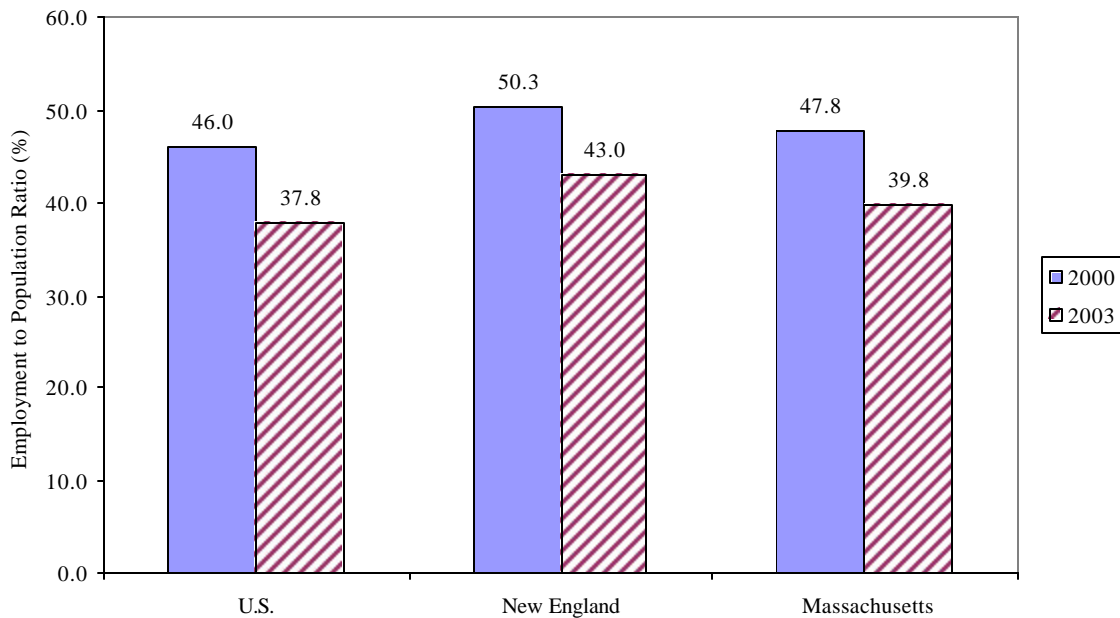
The problem of rising joblessness in recent years is not confined to youths in the city of Boston, but it is prevalent across Massachusetts, New England, and the nation as a whole. Teenaged youth are facing difficulties finding jobs due to the jobless recovery from 2001 recession, the influx of immigrant competing for jobs at the entry level, competition from jobless adults, and continuous loss of well paying manufacturing jobs

¹¹ The U.S. Bureau of Labor Statistics did not provide separate estimates of employment rates for Asian graduates from the nation's public high schools.

¹² Military service personnel are excluded from the count of the employed in both the city of Boston and the U.S.

across the nation. At the peak of the economic boom in 2000, the employment to population ratio of 16-19 year old youth in the U.S. was 46.0 percent; however, it declined to 37.8 percent in 2003, a substantial decline of 8.2 percentage point between 2000 and 2003. (Chart 8). The size of the decline in the employment to population ratio for 16-19 year old youth during the same period was 7 percentage points in New England and 8 percentage points in Massachusetts.

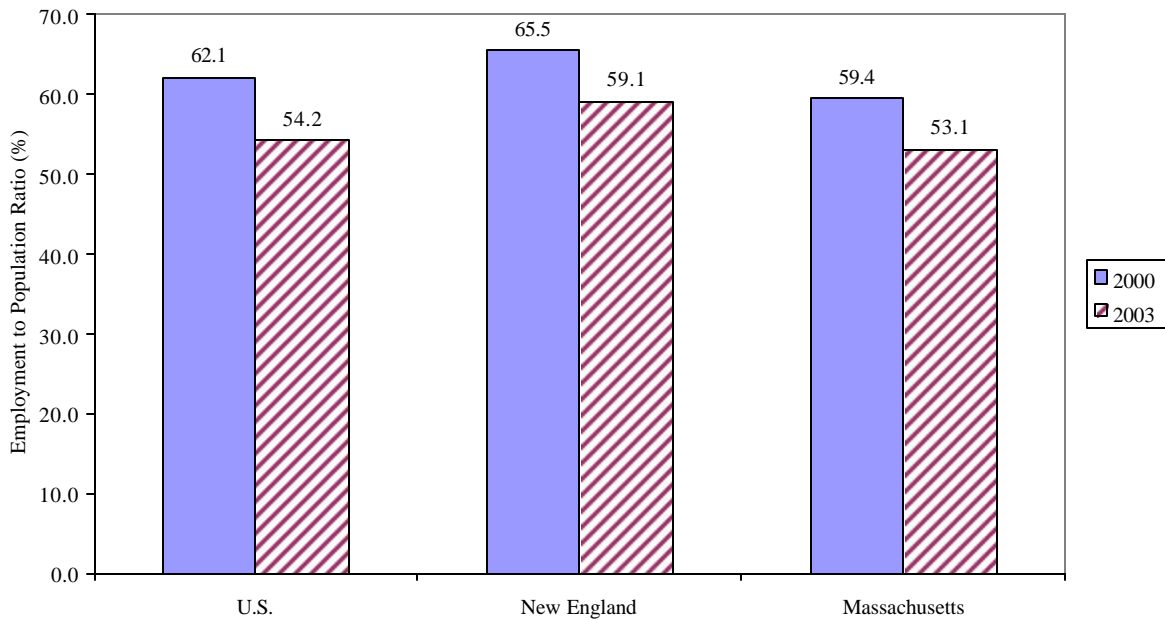
Chart 8: Employment to Population Ratios of 16-19 Year Old in the U.S., New England, and Massachusetts, 2000 and 2003 (12 Month Average)



Source: Monthly Current Population Survey (CPS), 2000 and 2003, U.S. Census Bureau, tabulation by authors.

Findings on employment to population ratios for 16-19 year old high school graduates between 2000 and 2003 was consistent with all 16-19 year old youth across Massachusetts, New England, and the entire nation. The employment to population ratios for 16-19 year old high school graduates between 2000 and 2003 declined by 8 percentage points in the U.S., 5 percentage points in New England, and 6 percentage points in Massachusetts. (Chart 9).

Chart 9: Employment to Population Ratios of 16-19 Year Old High School Graduates in the U.S., New England, and Massachusetts, 2000 and 2003 (12 Month Average)



Source: Monthly Current Population Survey (CPS), 2000 and 2003, U.S. Census Bureau, tabulation by authors.

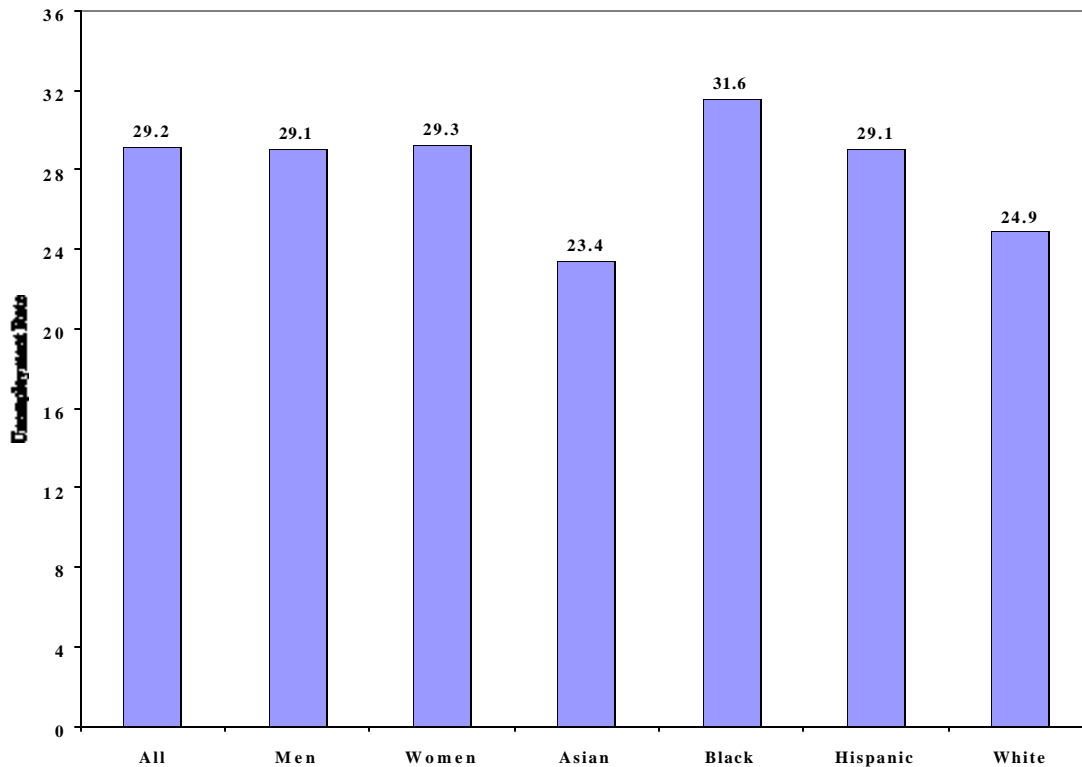
Unemployment Problems of Class of 2002 Graduates From Boston Public Schools and Comparisons With Those for Recent High School Graduates in The U.S.

All graduates from the Class of 2002 who reported that they were not working at the time of the follow-up survey were asked if they were actively looking for work and whether they were available to take a job “last week”. All jobless respondents who replied that they had actively sought work in the past four weeks and were available for work at the time of the follow-up survey were classified as unemployed.¹³ The unemployment rate for any sub-group of graduates represents the ratio of the number of unemployed to the civilian labor force (sum of the employed and unemployed). Unemployment rates were calculated for the entire graduating class and for each gender and race-ethnic group.

¹³ This definition of unemployment is in close accord with that of the U.S. Bureau of Labor Statistics in its analysis of the CPS labor force data.

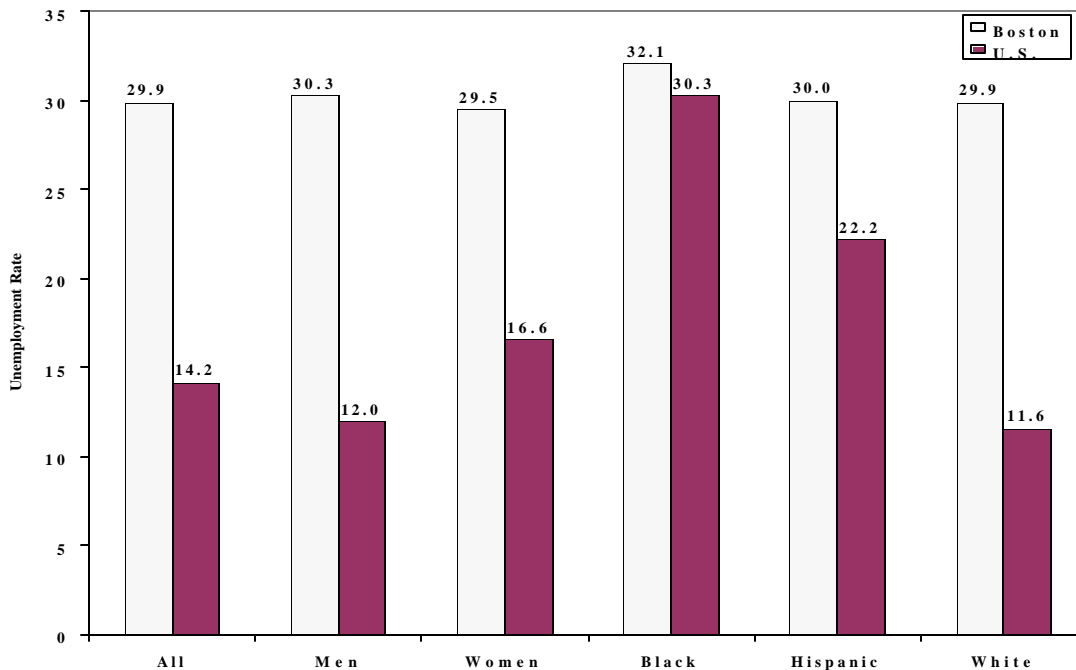
The estimated unemployment rate for the entire graduating Class of 2002 was a very high 29.2 percent, which was 5 percentage points higher than the unemployment rate for the preceding year's graduating class. The sharp rise in the unemployment rate for recent graduates largely reflects the greater weakness in local labor markets in early 2003. (Chart 10). The unemployment rates for both men and women were identical (29%), but there were larger variations in the unemployment rates among race-ethnic groups. For example, the unemployment rates of Class of 2002 graduates ranged from lows of 23 percent among Asian graduates and 24 percent among White graduates to highs of 29 percent for Hispanic graduates and 32 percent for Black graduates.

Chart 10: Unemployment Rates of Class of 2002 Boston Public High School Graduates,
Total and by Gender, Race-Ethnic Group, and Type of High School
(Military Included as Employed)



A comparison of the unemployment rates of Boston’s Class of 2002 graduates with those for a nationally representative sample of all high school graduates from the Class of 2002 is presented in Chart 11. In Boston, the unemployment rate for Class of 2002 graduates were sharply higher than that of their preceding year’s counterparts while it declined for U.S. high school graduates. The unemployment rate of all high school graduates in Boston was nearly 16 percentage points higher than that of their national counterparts, (29.9 % vs. 14.1%), the largest such gap experienced in recent years. Similar sized gaps existed between the unemployment rates of men and women graduates from Boston public high schools and their national peers. The unemployment rate of male Boston high school graduates was 18 percentage points higher than their U.S. counterparts while the gap was 13 percentage points for female graduates. Boston graduates in each race-ethnic group experienced unemployment rates that were 2 (Black) to 18 (White) percentage points higher than those of their national counterparts.

Chart 11: Unemployment Rates of All High School Graduates from the Class of 2002;
City of Boston and the U.S. (Military Excluded)

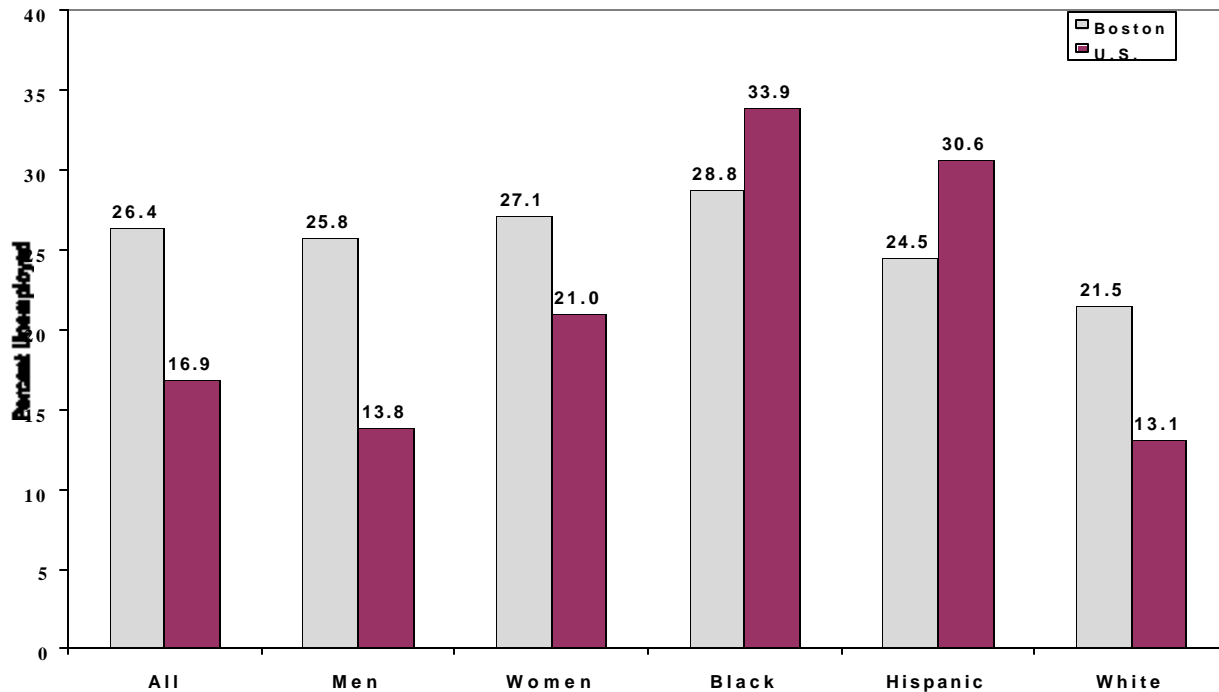


Unemployment rates also were estimated for those graduates not enrolled in college at the time of the follow-up interviews. For all Boston non-enrolled graduates from the Class of 2002, the unemployment rate was 26.4 percent. (Chart 12). Unemployment rates of non-enrolled graduates ranged from a low of 10.0 percent for White graduates to a high of 24 percent for Black graduates.

Comparisons of the unemployment rates of non-enrolled Boston public school graduates from the Class of 2002 with those of their national counterparts are also displayed in Chart 11. For the entire group of non-enrolled graduates, the unemployment rate of Boston graduates was 10.5 percentage points higher than that of their national counterparts (26.4% vs. 16.9%)¹⁴, the largest gap ever experienced in the past 13 years. The unemployment rate of non-enrolled, male high school graduates in Boston was 12 percentage points higher than that of their national counterparts (25.8% vs. 13.8%) while the gap was modestly lower for female graduates (6 percentage points). Among the three race-ethnic groups, Black and Hispanic graduates from Boston public schools fared better than each of their national counterparts in avoiding unemployment problems. For example, the unemployment rate of Black Boston graduates was only 29 percent versus 34 percent for their national counterparts and only 24 percent for Hispanic Boston graduates versus 31 percent for their national Hispanic counterparts. However, the unemployment rate for White Boston graduates was 8.4 percentage points higher than that of their national counterparts (21.5% versus 13.1%).

¹⁴ From a statistical stand point, the difference between these two unemployment rates was not large enough to be classified as statistically significant.

Chart 12: Unemployment Rates of Non-Enrolled High School Graduates From the Class of 2002, City of Boston and the U.S



In recent years, the joblessness problems among the nation's and state's youth have been quite severe. Higher open unemployment rates among youth are largely attributable to the national recession that began in early 2001, jobless recovery of 2002-2003, and partly due to structural changes in national labor markets such as the continued influx of immigrants competing for jobs, permanent job losses in manufacturing industries, and increased competition from jobless adults. Boston public high school graduates did not remain unscathed by this phenomenon, resulting in sharply higher unemployment rates over the past two years. For Boston city's public high school graduates, the labor force participation rate has increased over the past two years despite weaker economy. The labor force participation rate of Boston public high school graduates has increased from 72 percent for the Class of 1999 which entered the labor market at the peak of economic boom, to 79 percent in 2002, a sizeable increase. (Chart 13). As a consequence of the higher labor force participation rate and the reduced job findings rate, the unemployment rate for Boston public high school graduates has nearly

doubled between the spring of 2000 and 2003. (Chart 14). The unemployment rate for graduates from the Class of 2002 was 29% up sharply from 17% in 2000. Even though Boston public high school graduates participate in the labor market at a higher rate than their national counterparts, they are facing increasing difficulties in obtaining jobs.

Chart 13: Labor Force Participation Rates of Boston Public School Graduates, Classes of 1999-2002 (Military Included)

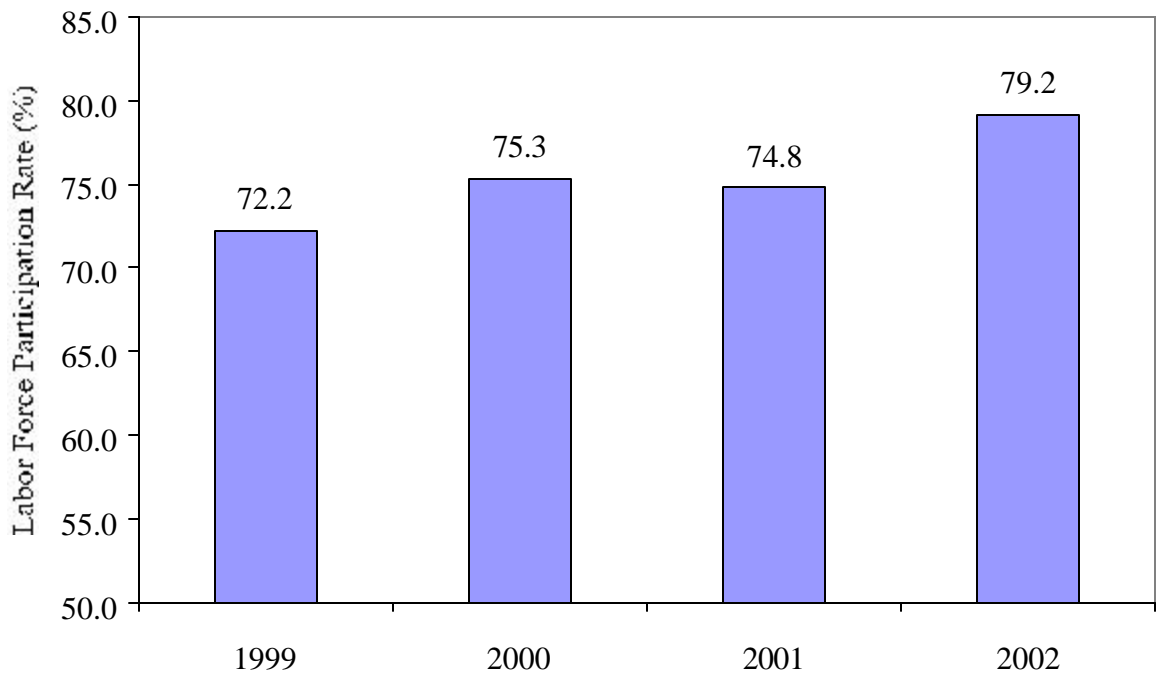
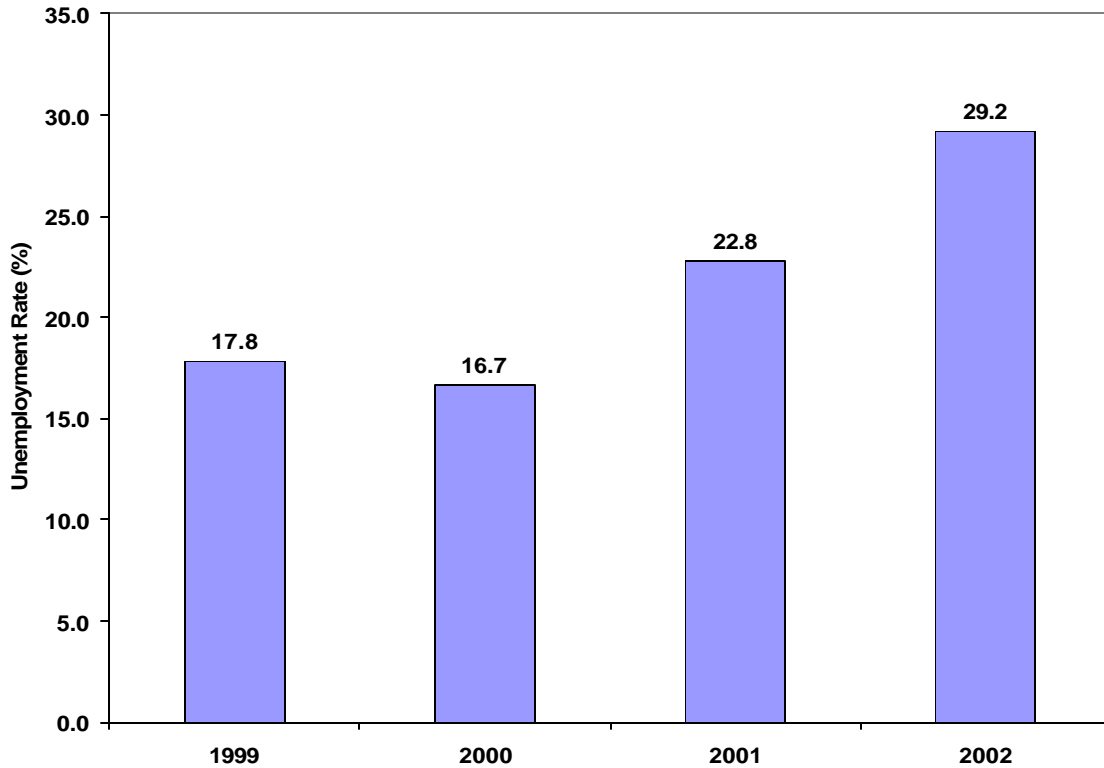


Chart 14: Unemployment Rates of Boston Public School Graduates, Classes of 1999-2002 (Military Included)



Full-Time/Part-Time Employment Status, Hours of Work, Hourly Wages, and Weekly Wages of Employed Graduates From the Class of 2002

The follow-up interviews also were used to collect data on the weekly hours of work and the hourly wages of employed graduates. The hourly wage data represent wages before taxes and any other payroll deductions. Based on the employed graduates' reported weekly hours of work, we have classified all workers into either a full-time or part-time status. We have adopted the standard definition of full-time employment of the U.S. Bureau of Labor Statistics. A full-time worker is one who was employed for 35 or more hours per week. Given the high share of employed graduates who were also enrolled in college, a clear majority of Boston public school graduates with jobs were working part-time at the time of the Winter 2003 follow-up survey. Only 27 percent of

the employed graduates reported that they were working full-time while 73 percent of the graduates reported that they were working part-time. The relatively low rate of full-time employment is due primarily to the high share of jobs held by graduates who were simultaneously enrolled in college. The share of graduates holding a full-time or part-time job at the time of the survey varied between men and women. For example, 33 percent of the men held full-time jobs while only 22 percent of the employed women were working full-time.

Mean weekly hours of work for all employed graduates were equal to nearly 25 hours, slightly higher than the mean hours worked by employed members of the Class of 2001. (Table 13). Those employed graduates who were not enrolled in college worked on average for 33 hours per week while those mixing school and work were employed on average for slightly under 19 hours per week. Non-enrolled graduates were finding it somewhat more difficult to obtain full-time job. Only 57 percent of the employed, non-enrolled graduates from the Class of 2002 were working full-time, i.e., 35 or more hours per week versus three-fourths of graduates from the Class of 2001. Full-time workers not only earn higher current hourly wages than part-time workers, but they are also much more likely to receive training from their employers, which should boost their future skills and wages as well.¹⁵

Among those employed, men tended to work more hours per week than women (27 hours versus 23 hours). Mean hours of work were highest among Hispanic workers (28), followed by Black (25), and White graduates (24). (Table 14). Employed Asian graduates worked only 16.5 hours per week. The sharply lower mean hours of work among employed Asians was primarily attributable to the higher frequency of part-time employment among Asian college students. Those Asian graduates who were not enrolled in college worked nearly as many hours per week as their peers in the other race-ethnic groups. (Table 15).

¹⁵ See: Ishwar Khatiwada and Andrew Sum, The Full-Time/Part-Time Job Status of Employed Class of 1999 Graduates, Report prepared for the Boston Private Industry Council, Boston 2001.

The mean hourly wage of all employed graduates was \$9.00. Men earned \$0.51 more per hour than their female counterparts (\$9.28 versus \$8.77), a nearly 6 percent higher wage. The mean hourly wages of employed graduates varied only modestly across the four major race/ethnic groups, ranging from a high of \$9.32 among White graduates to \$9.00 among Black graduates, \$8.96 among Hispanic graduates, and \$8.56 among Asian graduates. Those graduates who were enrolled in college or post-secondary training programs earned \$0.27 less per hour than their non-enrolled counterparts. The mean hourly wage of full-time employed graduates was \$0.82 or nearly 10 percent higher than that of part-time workers.

Table 14: Mean Weekly Hours of Work, Hourly Wages, and Weekly Wages for Employed Class of 2002 Boston Public High School Graduates, Total and by Gender, Race-Ethnic Group, and School Enrollment Status

Group	Mean Weekly Hours	Mean Hourly Wage	Mean Weekly Wage
All	24.6	\$9.00	\$226
Men	27.1	\$9.28	\$256
Women	22.6	\$8.77	\$202
Asian	16.5	\$8.58	\$148
Black	25.2	\$9.00	\$231
Hispanic	27.7	\$8.96	\$248
White	24.2	\$9.32	\$228
Enrolled	19.1	\$8.83	\$173
Not Enrolled	33.3	\$9.27	\$310

The findings on the weekly hours of work of employed graduates were combined with those on hourly wages to estimate the weekly earnings of each respondent who was employed in a civilian job. The mean weekly earnings of all employed graduates were equal to \$226. Non-enrolled graduates tended to work more hours per week than enrolled graduates, and they earned more per hour when they did work; thus, their mean weekly earnings were 80 percent higher than those of enrolled workers (\$310 versus \$172). Employed male workers obtained mean weekly earnings that were \$55 higher than those of employed female graduates (\$256 vs. \$201), reflecting a combination of higher hourly earnings and more hours of work. Differences also were observed among the weekly

wages of employed graduates in the four major race-ethnic groups. Weekly wages ranged from a low of \$148 among Asians to a high of \$248 for Hispanic workers. Among those not enrolled in school, mean weekly wages ranged from a low of \$303 for Hispanic graduates to a high of \$347 for White graduates. (Table 15). Overall, non-enrolled graduates from the Class of 2002 typically earned mean weekly wages that were twice as high as those of enrolled graduates in each of the four race-ethnic groups.

Table 15: Mean Weekly Hours of Work, Mean Hourly Wages and Mean Weekly Wages of Class of 2002 Boston Public High School Graduates Not Enrolled in College, Total and by Gender and Race-Ethnic Group

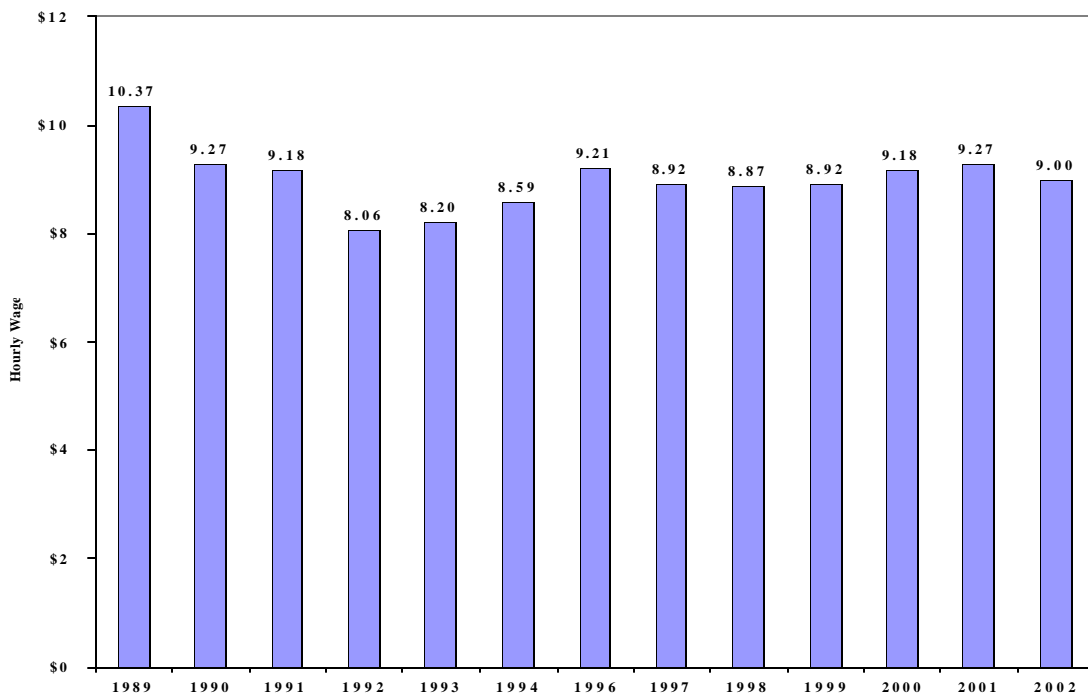
Group	Mean Weekly Hours	Mean Hourly Wage	Mean Weekly Wage
All	33.3	\$9.27	\$310.45
Men	34.2	\$9.46	\$325.25
Women	32.4	\$9.04	\$293.15
Asian	32.2	\$9.48	\$308.21
Black	32.2	\$9.38	\$304.74
Hispanic	34.3	\$8.89	\$302.81
White	35.8	\$9.58	\$346.81

Historical Trends in the Real Hourly Wages of Boston Public High School Graduates, Classes of 1989 to 2002

The availability of annual follow-up data for Boston high school graduates since the late 1980's allows us to identify trends in the real hourly wages of employed graduates, we have compared the mean hourly wages of employed persons in each year's graduating class back to 1989. The mean hourly wages of employed members of the Classes of 1989 through 2002 were adjusted for inflation using estimated changes in the Consumer Price Index for All Urban Consumers in the Greater Boston area between 1989 and 2003. Our findings yielded an inflation-adjusted mean hourly wage of \$10.37 in 1989, \$8.06 in 1992, \$9.27 in 2001, and \$9.00 for graduates from the Class of 2002. (Chart 15). Following a steep deterioration in the mean hourly wages of employed graduates during the severe regional recession of the early 1990s, the mean real hourly

wages of Boston public school graduates increased from \$8.06 in 1992 to \$9.27 in 2001, an increase of \$1.01 per hour or 15 percent. The mean real hourly wage of employed graduates of the Class of 2002 was \$9.00, or 3 percent below that of the previous year. The lower average wage appears to be attributable to a reduction in full-time job that pay higher hourly wages and a reduction in jobs in several sectors paying above average wages.

Chart 15: Mean Hourly Wages of Employed Boston Public School Graduates, Classes of 1989 to 2002 (In Constant March 2003 Dollars)



Industries and Occupations of the Jobs Held by Employed Class of 2002 Graduates

The follow-up survey questionnaire also was used to collect information from employed respondents on the names of the firms that employed them, the types of businesses operated by those firms, the geographic locations of these firms, and the major duties and occupational titles of their jobs. The above information was used by CLMS research staff to assign both an industry and occupational employment code to each of the jobs held by respondents at the time of the follow-up interviews. Class of 2002 graduates obtained jobs in every major industrial sector of the Boston metropolitan economy; however, slightly more than 48% of the employed graduates worked in a service-related industry (professional, business, or personal/entertainment services), and another 41 percent worked in retail trade industries. (Table 16). The remaining workers were employed by the finance, insurance, and real estate sector (3.7 percent), transportation, communication, utilities and communications (2.7 percent), construction (1.5 percent), public administration (1 percent), manufacturing (0.8 percent), and wholesale trade (0.6 percent). Out of an estimated 1,716 employed graduates, only 24 or 1.4 percent were employed in manufacturing industries, the source of many well-paying blue-collar jobs. The manufacturing sector had been experiencing severe job losses since the late fall of 2000, reducing employment opportunities for older and younger adults.¹⁶

There were a number of substantive differences between the industrial distributions of the jobs held by employed female and male graduates from the Class of 2002. Nearly thirty-seven percent of employed women were employed in professional service industries (colleges, hospitals, other health services, consulting firms) while only 25 percent of the men held jobs in such industries. In contrast, men were more likely than women to obtain employment in business and repair services (14% vs. 4%), construction (3.2% versus 0.1%), and transportation, communications, and utilities (4.1% vs. 1.6%). These differences between the industrial distributions of employment of men and women are also related to differences in their occupational employment distributions.

¹⁶ See: Timothy Aepfel, Less Sweat, More Tech: A New Blue Collar World, The Wall Street Journal, B1, July 2, 2002.

Table 16: Distribution of Employed Boston Public High School Graduates by Major Industrial Sector of Their Jobs, Class of 2002

Major Industry	Employed	Percent
Retail Trade	714	40.6
Professional & Related Services	557	31.7
Business & Repair Services	147	8.4
Personal, Entertainment, & Recreation Services.	144	8.2
Finance	64	3.7
Transportation, Communication, and Utilities	47	2.7
Construction	25	1.5
Public Administration	18	1.0
Non-Durable Goods	14	0.8
Wholesale Trade	10	0.6
Durable Goods	10	0.5
Agriculture, Forestry, and Fishing	6	0.4
Total	1,757	100.0

A comparisons of the industrial distribution of all wage and salary jobs in the Boston metropolitan area with that of employed graduates from the Class of 2002 revealed that employed graduates were substantially under-represented in construction, manufacturing, wholesale trade, and finance/insurance/real estate industries. Each of these industries tends to pay above average wages to their front line workers. To illustrate this, weekly wages were estimated for all employed graduates and for non-enrolled graduates in each major industrial group. Those graduates who were employed in construction industries earned an average weekly wage of \$353, the highest by far of all of the industrial sectors. The high weekly wage advantages of construction sector workers were due to a combination of higher hourly wages and more hours of work per week. Those graduates employed in wholesale trade industries enjoyed the second highest weekly wage (\$318 per week) closely followed by those working in financial services (\$301 per week) and transportation, utilities, and communications (\$288 per week). In contrast, the mean weekly wages of workers in non-durable manufacturing and retail trade industries were only \$187 and \$225, respectively. The lowest weekly wage earners were employed by firms in professional and related services with mean wages of only \$184 per week.

Since most employed college students tend to work in the retail trade and professional service industries on a part-time basis, their average weekly wages are held down by their fewer hours of work. To eliminate the effects of part-time work by college students on the estimated weekly earnings of employed graduates, we generated separate weekly earnings estimates for those graduates who were not enrolled in college. Findings in Table 17 reveal that the mean weekly earnings of non-enrolled graduates were twice as high as those of the enrolled. Non-enrolled graduates who were employed in the durable goods manufacturing industry obtained the highest mean weekly wages (\$445) followed by public administration (\$434), construction (\$409), wholesale trade (\$402), finance/insurance (\$359), business and repair services (\$354), and transportation and public utilities (\$334). Non-enrolled graduates employed in non-durable manufacturing industries (\$224) and personal, entertainment and recreation services (\$277) were characterized by the lowest mean weekly wages. (Table 17).

Table 17: Mean Weekly Wages for Class of 2002 Boston Public High School Graduates
by College Enrollment Status and by Major Industry

Major Industrial Sector	All	Enrolled	Not-Enrolled
Agriculture, Forestry, and Fishing	\$222	\$128	\$360
Construction	\$353	\$193	\$409
Non-Durable Goods Mfg.	\$187	\$163	\$224
Durable Goods Mfg.	\$275	\$136	\$445
Transportation, Communication, and Utilities	\$288	\$191	\$334
Wholesale Trade	\$318	\$272	\$402
Retail Trade	\$225	\$175	\$292
Finance/Insurance/Real Estate	\$301	\$235	\$359
Business & Repair Services	\$292	\$241	\$354
Personal, Entertainment, & Recreation Services.	\$240	\$209	\$277
Professional & Related Services	\$184	\$144	\$307
Public Administration	\$259	\$179	\$434
Total	\$226	\$173	\$311

Employed graduates from the Class of 2002 worked for a substantial number of different employers. At the time of the follow-up survey, 676 different local and out-of-state firms had hired one or more graduates from the Class of 2002. Only sixty firms, not including colleges and universities, employed four or more graduates; however, these

fifty-one firms employed 485 graduates or nearly 37 percent of all working graduates from the Class of 2002. Slightly more than 12 percent of the employed students, mostly occupying work-study positions, were working in colleges or universities at the time of the Winter 2003 follow up survey.

Employed graduates also were asked to describe the major duties that they performed at their jobs and to identify their job titles. Based on this information, the jobs of all employed graduates were classified by CLMS research staff into a detailed set of occupations, which were then combined into eleven major occupational groups. A substantial majority of the jobs held by employed graduates were accounted for by the following three major occupational groups: lower level sales such as cashiers and sales clerks (29%), administrative support (29%), and service occupations (26%). (Table 18). Together, these three occupational groups accounted for 83 of every 100 employed graduates. Due to their limited formal educational attainment, only 1.4 percent of the employed graduates held a professional, technical, or managerial-related position. Slightly over 8 percent of the graduates held blue-collar positions. Women were more likely than men to work in sales and administrative support positions (68% vs. 49%) while men were more likely to hold service related positions (31% vs. 22%), and to work in blue collar occupations (15% versus 3%).

Table 18: Distribution of Employed Boston Public High School Graduates by Major Occupational Area of Their Jobs, Class of 2002

Major Occupation	Employed	Percent
Low Level Sales	505	28.8
Administrative Support	501	28.6
Service	456	26.0
Professional Specialty	74	4.2
Machine Operators, Assemblers, and Inspectors	52	3.0
Handlers, Equipment Cleaners, Helpers, and Laborers	49	2.8
Precision Production, Craft, and Repair	46	2.6
High Level Sales	42	2.4
Technicians and Related Support	18	1.0
Executive, Administrative, and Managerial	6	0.4
Total	1,775	100.0

The mean weekly wages of employed graduates varied quite widely across these major occupational groups, ranging from highs of \$349 for executive, administrative, and managerial position, \$348 for high level sales occupations, and \$314 for craft-related occupation to lows of \$182 for workers in technical and related support and only \$172 for workers in professional specialty. (Table 19). The low mean weekly wages of workers in the professional occupations might seem somewhat surprising; however, many of the employed youth in this job category were working part-time and did not hold any professional or technical certification at the time of the interview. The jobs were more of an intern or assistant-type position.

Table 19: Mean Weekly Wages for Employed Class of 2002 Boston Public High School Graduates, Total and by Major Occupational Group

Major Occupations	Weekly Wage
Executive, Administrative, and Managerial	\$349
High Level Sales	\$348
Precision Production, Craft, and Repair	\$314
Handlers, Equipment Cleaners, Helpers, and Laborers	\$302
Machine Operators, Assemblers, and Inspectors	\$274
Service	\$245
Administrative Support	\$214
Low Level Sales	\$200
Technicians and Related Support	\$182
Professional Specialty	\$172
Farming, Forestry, and Fishing	\$150
Total	\$226

Graduates Who were Neither Working Nor Enrolled in School or Training

One of the major objectives of Boston's school-to-career and high school-to-college transition programs is to minimize the number of graduates who will end up being neither employed nor enrolled in an educational or job training program in the year following graduation. Such youth who lack ties to the post-secondary educational world and the labor market are often referred to as "at-risk" or "disconnected" youth in the youth development literature¹⁷. Such jobless youth with no schooling attachment frequently find it difficult to succeed in the labor market in their later adult years and often end up being poor and economically dependent. Young disconnected males also often end up becoming involved with the criminal justice system, thereby placing themselves at further risk in the labor market.

At the time of the Winter/Spring 2003 follow-up survey, just under 11 percent of Boston public school graduates from the Class of 2002 were estimated to be "at-risk"; i.e., neither working nor enrolled in a post-secondary school or training program. (Table 20). This "at-risk" rate for Boston public high school graduates was the highest since 1997, reflecting the greater difficulties faced by recent Boston graduates in finding employment. Male graduates were slightly more likely than their female peers to be "at-risk" (12.1% versus 9.9%), but there were somewhat larger differences among race and ethnic groups in the proportion of graduates who were at risk. Nearly fifteen percent of Hispanic graduates and slightly more than 12 percent of Black graduates were estimated to be at-risk versus only 3.2 percent of Asian graduates and eight percent of White graduates. The fraction of graduates assigned to the "at-risk" category also varied considerably by type of high school attended. Among graduates from exam schools, only 1.7 percent were classified as "at-risk" versus 13.4 percent of non-exam school graduates. Among the non-exam schools, the incidence of "at-risk" problems was as high as 22 percent in Madison Park High School and 21 percent in Burke High School. There is a

¹⁷ See: (i) Andrew M. Sum, Neal Fogg, and Neeta Fogg, Out-of-School, Out of Luck? The Labor Market Prospects of the Nation's Out of School Youth, Sar Levitan Center for Social Policy Studies, Johns Hopkins University, Baltimore, 1997. (ii) Douglas J. Besharov (Editor), America's Disconnected Youth: Towards a Preventive Strategy, American Enterprise Institute for Public Policy Research and CWAL Press, Washington D.C., 2000.

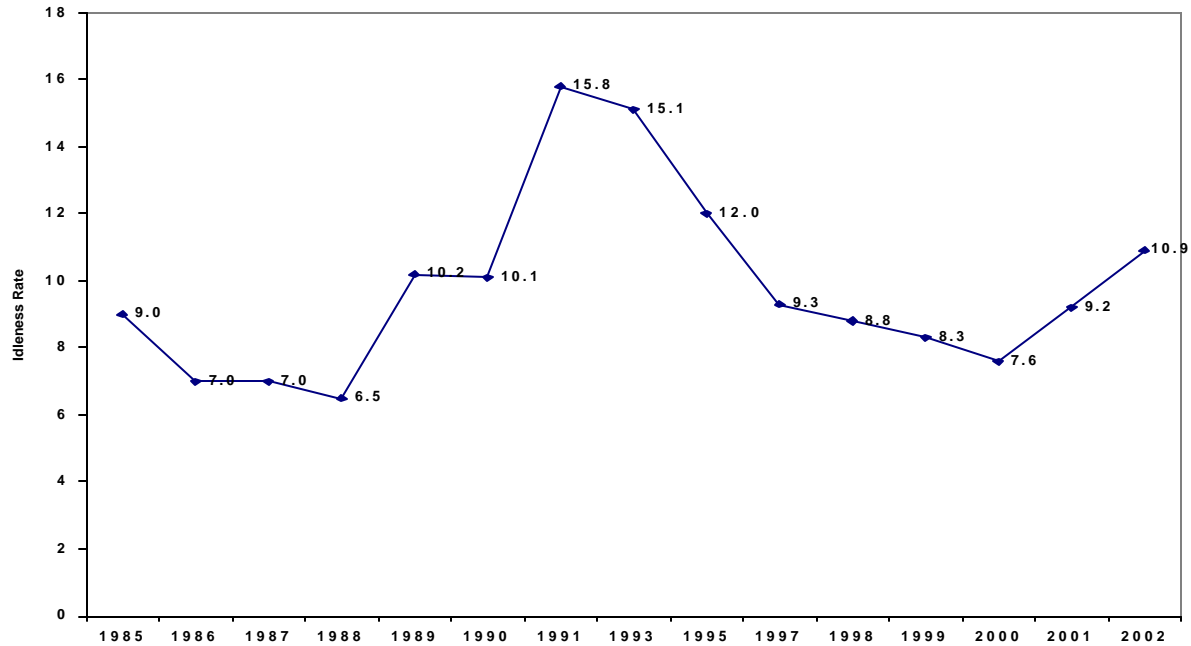
clear need for extending follow-up support and job placement assistance to these at-risk youth by Boston public high schools and the Private Industry Council’s career specialists.

Table 20: Percent of Class of 2002 Boston Public High School Graduates Who Were Neither Working Nor Enrolled in a College or Post-Secondary Training Program at The Time of The Follow-up Survey

Demographic Group	Percent at Risk
All	10.9
Men	12.1
Women	9.9
Asian	3.2
Black	12.3
Hispanic	14.8
White	7.8
Exam School	1.7
Non-Exam School	13.4

Chart 16 displays time trends in the idleness rates of Boston public high school graduates for the Classes of 1985 to 2002. The idleness rate was 10.9 percent for Class of 2002 graduates, 1.7 percentage points above the idleness rate of the preceding year’s graduating class. The idleness rate for Class of 2000 graduates was the lowest in the past decade. During the recessionary years of the early 1990s, the idleness rate of 15.8% for the Class of 1991 was the highest during the decade. The strength of the city and state economies and expanded and enriched school-to-career programs in recent years had improved college enrollment rates and job prospects for those graduates not enrolled in college, thereby lowering the share of graduates occupying an “at-risk” status by more than 50 percent since the early 1990’s. The economic deterioration in recent years has pushed up the idleness rate by nearly two percentage points.

Chart 16: Trends in the Share of Boston Public High School Graduates Who Were Neither Working Nor Enrolled in College or a Post-Secondary Training Program, Graduating Classes, 1985 to 2002



Job Search Intentions and Job Barriers Among Those Graduates Not in School, Not Working, and Not Seeking Work

Those graduates who were neither enrolled in school, nor employed, nor actively seeking employment at the time of the follow-up survey were asked why they were not actively seeking work and whether they intended to look for work in the next few months. Findings of their responses to these two questions are displayed in Tables 21 and 22.

A majority of these jobless, non-enrolled respondents indicated some intention to look for work over the next few months. Approximately 8 out of 10 of the jobless respondents responded that they either “definitely would” or “might” seek a job over the next few months. A slightly larger percentage of male respondents reported a desire to seek employment than their female counterparts (80% versus 75%).

Table 21: Future Job Seeking Plans of Class of 2002 Graduates Who were Not Enrolled in College, Not Employed, and Not Actively Seeking Work, Total and by Gender

(Numbers in Percent)

Plans to Look for Work	All	Men	Women
Yes	35.6	39.0	32.6
Maybe	43.5	41.5	42.5
No	23.9	19.5	21.8

Jobless respondents who were not actively looking for work were also asked why they were not currently seeking employment. The most frequent response was family responsibilities (44%) followed by an unwillingness to work at the present time (34%), illness or disability (20%), waiting to report to school (16%), and waiting to report to a new job (14%). Women often cited different reasons than men for not seeking work. Fifty-nine percent of the women cited family responsibilities while only 13 percent of the men did so. Jobless males cited a wide variety of reasons including not wanting to work at this time (51%), waiting to report to new job (30%), illness or disability (25%), and discouragement (18%). A variety of services will likely to be needed by this group of jobless youth to find employment, including childcare, health services, counseling and placement.

Table 22: Percentage Distribution of Jobless Respondents by Reasons For Not Actively Seeking Work

Reasons	Men	Women	All
Other	50.4	44.7	50.0
Family Responsibilities, Child Care Problems	13.3	59.4	43.7
Do Not Want to Work at this Time	50.8	20.4	34.2
Illness or Disability	24.8	17.6	20.5
Waiting to Report to School	18.4	15.3	16.4
Waiting to Report to a New Job or an Old Job	30.5	4.2	14.5
Discouraged	17.9	3.8	9.7

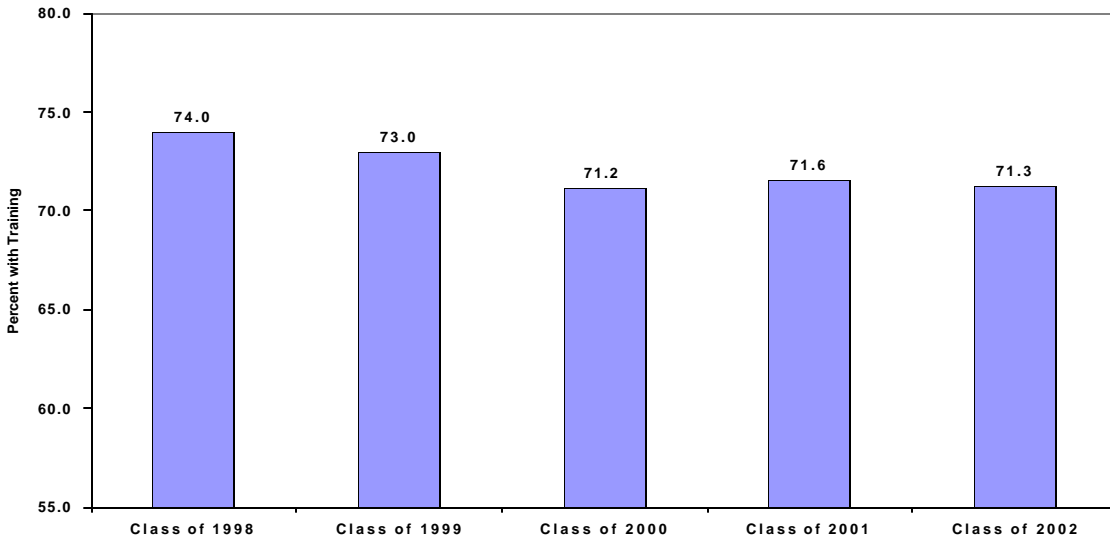
The Receipt of Training From Employers by Employed Graduates

One of the objectives of the Boston PIC school-to-career programs is to obtain employment for participants that will lead to further training by the employer. Each employed graduate from the Class of 2002 was asked whether he or she had received some type of training from their current employer. Slightly more than 71 percent of the employed graduates reported that they had received some type of training from their current employer. (Chart 17). The share of employed graduates receiving some type of training was nearly identical to that of employed graduates from the Class of 2000 and the Class of 2001.

Five categories of activities were used to identify the type of training received, and multiple responses were allowed to this question. These five categories of training were the following:

- Apprenticeship training involving a combination of on-the-job training under the supervision of others and training in classroom settings to prepare for work in a specific occupation.
- Basic skills training, including reading, math, writing, and communication skills
- Computer training.
- Formal training involving a structured set of activities on or off the job.
- Informal on-the-job training from fellow workers or supervisors.

Chart 17: Percent of Employed Class of 1998, 1999, 2000, 2001, and 2002 Boston Public High School Graduates Who Received Some Type of Training from Their Current Employer



Employed male graduates from the Class of 2002 were slightly more likely to receive some training from their current employer than their female counterparts (72.0% vs. 70.3%). Employed non-enrolled graduates were nearly 6 percentage points more likely to obtain training than those graduates who were enrolled in college (76.2% vs. 70.1%).

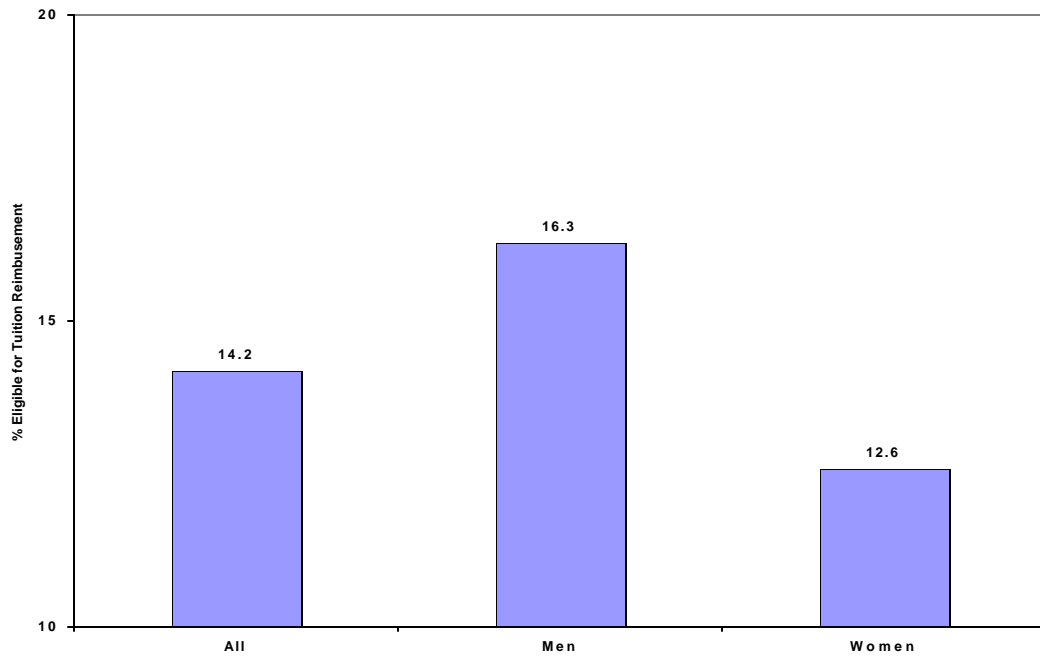
The percentage distribution of all employed youth who received some training by type of training obtained is displayed in Table 23. Respondents reported receiving on-the-job training most frequently, with 91 percent of all employed youth citing this type of training. The second most frequently reported type of training was formal training, with 34 percent of graduates reporting to have obtained such training. National research has consistently revealed that this type of training has among the most favorable effects on the hourly wages of the employed. Receipt of some computer training was reported by 19 percent of the graduates followed by 16 percent reporting basic skills training, and only 7 percent receiving apprenticeship training, another type of training with long lasting wage impacts.

Table 23: Percent of Employed Class of 2002 Boston Public High School Graduates Receiving Some Type of Training by Type of Training Obtained from Their Employers at the Time of the Follow-up Survey (Multiple Responses Allowed)

Type of Training	Percent of Total
Informal On-the-Job Training	90.6
Formal Training	34.0
Computer Training	18.9
Basic Skills Training	16.1
Apprenticeship Training	7.2

A key employee benefit for young adults in today's labor markets is tuition reimbursement from the employer for courses taken in post-secondary education and training institutions. Of all employed graduates, 14.2 percent reported that they would be able to receive some tuition reimbursement from their current employers, with men more likely than women (16.3% vs. 12.6%) to report such employee benefits at their current work site. (Chart 18).

Chart 18: Percent of Employed Class of 2002 Graduates Who Were Eligible for Tuition Reimbursement From Their Current Employer, Total and by Gender



Participants in School-to-Career Programs; Their College Enrollment and Labor Market Status

The city of Boston's School-to-Career programs in public high schools are designed to enhance the immediate post-high school employability and post-secondary school attendance of youth attending the district schools by providing educational services, training, and in-school employment in fields such as finance, public administration, health, technical, and travel and tourism. Of the 2,769 graduates from the city's non-exam high schools, 1,143 graduates reported that they had participated in a school-to-career program. Of those graduates who participated in such programs while in high school, 2.6 percent were enrolled in the Academy of Finance, 2.4 percent in the Academy of Public Service, 3.8 percent were enrolled in the Academy of Travel and Tourism, 9.3 percent in Pro Tech, 15.1 percent in Tech Boston, and 67 percent in Other Career Pathways. (Table 24).

Table 24: Numbers of Class of 2002 Boston Public High School Graduates Who Reported that They Had Participated in Some Type of School to Career Program¹⁸

Program	Number of Graduates	Percent of Graduates
Academy of Finance	30	2.6
Academy of Public Services	28	2.4
Academy of Travel and Tourism	43	3.8
Pro Tech	106	9.3
Tech Boston	173	15.1
Other Career Pathway	763	66.8
Total	1,143	100.0

District school graduates who reported during the interview that they had participated in a School-to-Career program during high school were characterized by more favorable college enrollment and labor market outcomes than their peers who did not participate in such programs. These differences by themselves do not represent program impacts since youth were not randomly assigned to these programs. The college/post-secondary training enrollment rate among school-to-career program participants was nearly 79% as opposed to 64% for their peers in the non-exam schools who did not participate in school-to-career programs. (Table 25). For those youth who were not enrolled in college at the time of the follow-up interview, the employment rate of participants in school-to-career programs was 5 percentage points higher than that of their counterparts in the same high schools who did not participate in such programs. Among those who were not enrolled in a college or training, mean weekly earnings of former school-to-career program participants were \$78 higher than their counterparts who did not participate in such program. Those graduates from district schools who did not participate in school-to-career programs were more likely to be “at-risk” than their peers participating in such programs (13% versus 3%). These positive differences between the outcomes of school-to-career participants and their comparison group counterparts cannot be automatically attributed to the effects of these programs since youth were not

¹⁸ A separate data set on STC program participants provided by the School-to-Career Program Office of the Boston Public Schools revealed that there were a total of 2,025 such graduates from the Class of 2002. In district/magnet schools, 1,806 graduates participated in at least one school-to-career program. In Tech Boston alone, there were 740 graduates from the Class of 2002.

randomly assigned to these programs. A future set of research papers will attempt to estimate the independent effects of participation in school-to-career programs on a set of college and labor market outcomes using data on the demographic, socioeconomic, academic performance, and school behavior characteristics of the participants in these school-to-career programs and their comparison group counterparts.

Table 25: Selected College and Labor Market Outcomes for Class of 2002 Graduates from the District and Alternative High Schools by Their Participation in School-to-Career Programs¹⁹

Outcome	School-to-Career Participant	Non-Participant	Difference (A-B)
College or Training Program Enrollment	78.9	63.6	+15.3
Employment Rate, All	56.8	51.5	+5.3
Employment Rate of Non-Enrolled	85.7	64.7	+21.0
Weekly Earnings of the Employed (Non-Enrolled)	\$380	\$302	+\$78
Not Employed Not in College	3.4	12.9	-9.5

Table 26 displays the mean weekly wages of non-enrolled Class of 2002 Boston public high schools who participated in various types of school-to-career programs. The mean weekly wages of non-enrolled school-to-career program participants ranged from a high of \$286 for graduates who participated in an Academy of Travel and Tourism program to a low of \$199 for graduates who participated in the Tech Boston program.

¹⁹ These estimates are based on self-reported school-to-career program activities from the PIC follow-up survey. Since we do not have information on the intensity of these school-to-career programs, we are not using the data set provided by the school-to-career office from the Boston Public Schools. We merged the data set provided by the STC office with follow-up data and find that nearly 7 out of 10 graduates from district/magnet schools with completed follow-up surveys were school-to-career program participants..

Table 26: Weekly Wages of Employed Non-Enrolled Class of 2002 Boston Public High School Graduates, by Type of Program

STC Program	Weekly Wage
Academy of Finance	\$226
Academy of Public Services	\$227
Academy of Travel and Tourism	\$286
Pro Tech	\$201
Tech Boston	\$199
Other Career Pathway	\$246
No Program	\$237
All	\$243

Summer Job and Senior Year Employment Experiences of Class of 2002 Boston Public High School Graduates

The follow-up survey questionnaire also collected information from each graduate on whether they worked during the summers of their high school years and during the senior year of high school²⁰. This information also can be used to help predict the likelihood of post-high school employment and the weekly earnings of employed graduates. Past local and national research has indicated that those graduates who worked in their senior year and in the summers during their high school years had more favorable labor market outcomes upon graduation.

²⁰ The questionnaire also collected data on the number of summers during which they were employed and the number of weeks during the senior year that they worked. For findings on the summer and senior year employment experiences of Class of 1999 graduates, see: Ishwar Khatiwada and Andrew Sum, The Senior Year In-School and Summer Work Experiences of Class of 1999 Boston Public School Graduates, a report prepared for the Boston Private Industry Council, March 2001.

Table 27: Senior Year and Summer Job Experiences of Class of 2002 Boston Public High School Graduates, by Gender and Race/Ethnic Group

Group	Percent with Summer Job Experience	Percent with Senior Year Job Experience
All	80.7	65.5
Men	78.9	63.1
Women	82.2	67.5
Asian	79.2	53.7
Black	83.5	68.3
Hispanic	70.9	65.9
White	85.4	65.9

Nearly 81 percent of the graduates from the Class of 2002 reported that they had worked in one or more of the summers during their high school years. (Table 27). Female graduates were modestly more likely than men to have worked in the summers (82% vs. 79%). Among graduates from the four major race-ethnic groups, a substantial majority of all groups during the summers with White graduates (85%) most likely to have worked in the summers followed by Black graduates (83%), Asian graduates (79%), and Hispanic graduates (71%). Slightly more than 65 percent of the graduates also reported that they held some type of job during their senior year of high school, an employment rate well above that of all central city youth across the country. The findings for senior year job experience revealed that women graduates were more likely to have worked in the senior year than their male counterparts (67.5% vs. 63.1%). Among the race-ethnic groups, 66 percent to 68 percent of White, Black, and Hispanic graduates reported that they worked at some point during the senior year as compared to only 54 percent of Asian graduates. A future research report will examine the nature and intensity of these summer and senior year work experiences and their impacts on a variety of post-high school labor market outcomes.

Appendix A: Interview Completion Rates for Class of 2002 Boston Public High School Graduates by High School

School	Number of Graduates	Number of Completed Follow-up Interviews	Interview Completion Rate
Boston Latin High School	352	301	85.5
Boston Latin Academy	211	189	89.6
O'Bryant High School	184	153	83.2
Brighton High School	224	152	67.9
Charlestown High School	220	157	71.4
Dorchester High School	169	119	70.4
East Boston High School	225	193	85.8
English High School	266	200	75.2
Hyde Park High School	210	168	80.0
Burke High School	156	128	82.1
South Boston High School	195	142	72.8
Boston High School	103	83	80.6
Snowden International High School	63	52	82.5
Madison Park High School	275	198	72.0
Boston Adult Academy	102	58	56.9
ACC	55	47	85.5
West Roxbury High School	285	193	67.7
Fenway Park High School	53	42	79.2
New Mission	23	21	91.3
McKinley Voc.	4	4	100.0
McKinley Tech.	8	6	75.0
Community Academy	3	0	0.0
Health Academy	2	1	50.0
Boston Evening	16	11	68.8
Boston Arts Academy	69	55	79.7
Egleston	5	5	100.0
Health Care Academy	38	33	86.8
Total	3,516	2,711	77.1