

**The Growing Gender Gaps in College Enrollment and
Degree Attainment in the U.S. and Their Potential Economic
and Social Consequences**

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Prepared for:
The Business Roundtable
Washington, D.C.

May 2003

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Introduction

During the past few decades, the number of jobs in the U.S. economy has increased at a very strong rate. Between 1992 and 2000, the U.S. economy generated nearly 23.2 million net new wage and salary jobs in the non-farm sector. At the same time, however, the structure of job opportunities in U.S. labor markets by major industry and occupation has changed markedly. These changes in the industrial and occupational composition of employment were generated by a diverse array of forces including shifts in the composition of the final goods and services that comprise the nation's Gross Domestic Product, technological changes in production, corporate restructuring, and shifts in firms' internal staffing patterns. In turn, the transformation of the occupational employment structure involving a shift toward professional, management-related, and high level sales positions has markedly increased the demand for workers with post-secondary degrees and stronger literacy and math proficiencies.¹ Throughout the coming decade, the U.S. Bureau of Labor Statistics projects that employment in professional and management occupations will grow at above average rates, thereby raising the future demand for college educated workers.² As the demand for college educated workers outpaced increases in the available supply, the relative earnings position of college educated workers improved, and the lifetime earnings advantages of associate and bachelor degree holders, both men and women, improved markedly.³

The high and growing demand for workers with strong literacy proficiencies and higher levels of formal educational attainment has led to an increase in the number of adults seeking and completing post-secondary education. Until the late 1990s, there had been a steady increase in the proportion of the nation's newest high school graduates who enrolled in college. In the twenty years between 1980 and 2000, the proportion of 17-24 year high school graduates who

¹ For a review of the growing importance of strong basic academic proficiencies for success in U.S. labor markets in recent years, See: (i) Richard J. Murnane and Frank Levy, *Teaching the New Basic Skills*, The Free Press, New York, 1996; (ii) Andrew M. Sum, *Literacy in the Labor Force*, National Center for Education Statistics, Washington, D.C., 1999.

² For a review of the national BLS projections of employment by occupation through 2010, See: Daniel Hecker, "Occupational Employment Projections to 2010," *Monthly Labor Review*, November 2001, pp. 57-84. Hecker's analysis of the educational requirements by occupation indicates that 42% of the job growth between 2000 and 2010 will be in occupations that require post-secondary education or training.

³ For a review of the changing relative earnings of young adult workers by educational attainment and differences in the lifetime earnings of 18-62 year olds by educational attainment, See: Andrew Sum, Neeta Fogg, and Garth Mangum, *Confronting the Youth Demographic Challenge: The Labor Market Prospects of Out-of-School Young Adults*, Sar Levitan Center for Social Policy Studies, Johns Hopkins University, Baltimore, 2000.

were either enrolled in college or had completed some college grew from slightly over one-half (51 percent) to two-thirds (67.7 percent). Increased college enrollment rates occurred among both men and women and among all race-ethnic groups although the gains were considerably higher among women than men.

As a higher share of the nation's high school graduate population chose to enroll in college, many of the nation's institutions of higher learning responded by increasing their capacity to deliver educational services, thereby leading to steady increases in the number of college degrees awarded. In the 1999-2000 school year, the nation's post-secondary educational institutions awarded a total of 2.4 million degrees (including associate's, bachelor's, master's, doctorate, and professional degrees). Compared to the 1.9 million post-secondary degrees awarded in 1990, the total number of college degrees that were awarded in 2000 represented an increase of 444,000 degrees or a relative increase of 23 percent over the past decade. Increases in the number of degrees awarded took place at every educational level, ranging from a 13 percent increase in the number of professional degrees and an 18 percent increase in the number of bachelor degrees to a high of a 41% increase in the number of master's degrees awarded.

As a consequence of the greater numbers of college degrees received by adults, the average educational attainment of American adults improved over the past decade. Between 1990 and 2000, the fraction of the nation's adult population (25 years or older) that had earned an associate's or higher degree increased from 27 percent to 31 percent. The share of adults with a bachelor's or higher degree increased from one-fifth to one-fourth between 1990 and 2000. In contrast, in 1970, only 11 percent of the nation's adult population had completed four or more years of post-secondary schooling.⁴

There is however, some evidence that the growth of well educated younger adults has slowed in recent years, and younger males have clearly experienced fewer gains than women over the past decade.⁵ For example, the percent of young adults obtaining a regular high school

⁴ U.S. Bureau of the Census website (website: <http://www.census.gov/population/socdemo/education/tableA-2.txt>), historical tables on educational attainment, Table A-2. Percent of People 25 Years Old and Over Who Have Completed High School or College, by Race, Hispanic Origin, and Sex: Selected Years 1940 to 2000."

⁵ See: (i) Paul Barton, *The Closing of the Education Frontier?*, Policy Information Center, Educational Testing Service, Princeton, 2002; (ii) Andrew Sum, Neil Sullivan, et.al, *Gender Gaps in High School Dropout Rates and College Attendance Rates in Massachusetts and Its Large Cities: The Educational Deficits of Boys and Their Future Economic and Social Consequences*, Center for Labor Market Studies, Northeastern University, April 2002.

diploma has not improved over the past decade, the college enrollment rate of the nation's newest high school graduating class peaked in October 1997 and has declined for four consecutive years, and the share of the nation's 18-24 year olds who were enrolled in college in October of 2000 was essentially the same as it was eight years earlier in October 1992.⁶

While post-secondary degree attainment clearly has improved among the nation's adults over the past two decades, the gains in degree attainment were far more pronounced among women than men. As will be documented in this report, the size of the gender gaps in college enrollment and degree attainment have widened considerably over the past two decades. Yet, attention to the issue of gender imbalance in post-secondary education has been less than adequate. Objective analyses of key educational outcome data clearly indicate that males continue to fall behind females in the primary, secondary, and post-secondary educational areas. With modest exceptions, the research community has been relatively quiet on this issue.⁷ Mention of this problem has frequently been met with strong opposition from women's advocacy groups with concerns sometimes rooted in the fear that drawing attention to the dramatic reversal of the "traditional gender gap" will result in a movement to slow down the sustained progress made by women. The problems of higher school dropout rates and lower basic skills achievement, lower post-secondary enrollment and graduation rates among men should be addressed with the goal of moving men forward not by holding women back. The weaker degree of educational attainment among men is an issue that should be of concern to not just men but to women and to society as a whole. From an economic perspective, weaker educational attainment among men results in a reduction in the size of the skilled labor force—a resource that is vital to keep the nation's economic engine humming—and in labor productivity and economic growth. In the social arena, men play numerous roles: as husbands, fathers, breadwinners, and role

⁶ Over this eight year period, the college enrollment rate of young women (18-24 years old) increased by 2.4 percentage points while that of young men remained unchanged at 32.6%. The October 2000 college enrollment rate of young men was nearly six percentage points below that of young women (38.4%).

⁷ Some of the studies on the topic of gender imbalances in higher education include: (i) Jamilah Evelyn, "Community Colleges Start to Ask, Where are the Men," *The Chronicle of Higher Education*, June 28, 2002; (ii) Thomas Mortenson, "Where Have all the Men Gone?" National Associations for College Admissions Counseling, Washington D.C., October 6, 2000; (iii) Thomas Mortenson, "The Changing Gender Balance: An Overview," paper prepared for Conference on Fewer Men in Campus: A Puzzle for Liberal Arts Colleges and Universities, November 15-16, 1999, Goucher College, Baltimore; (iv) Jacqueline King, "Gender Equity in Higher Education: Are Male Students at a Disadvantage?" American Council Council on Education, October 2000; Christina Hoff Sommers, *The War Against Boys*, New York: Simon and Schuster, 2000.

models for young men. Marginalization of men on the educational front will jeopardize the ability of men to perform these vital economic and social functions that are key to strengthened family life and safe, stable and prosperous communities. This paper is, thus, devoted to an analysis of trends in gender differences in post-secondary educational enrollments and outcomes over the past few decades.

Data Sources on the Gender Characteristics of College Enrollees and Degree Recipients

There are a diverse array of national and state data sources on the demographic characteristics of new college students, all students enrolled in degree granting institutions, and degree recipients. These data sets include national household surveys, such as the Current Population Survey,⁸ administrative data bases maintained by the U.S. Department of Education, and various national longitudinal surveys, including the U.S. Department of Education's Beginning Postsecondary Students Longitudinal Study and the National Education Longitudinal Survey (NELS), which has been tracking the educational and labor market experiences of a national sample of youth who were eighth graders in 1988.⁹

During the month of October, in conducting the CPS survey, the U.S. Census Bureau includes a supplementary set of questions on the school enrollment status of all persons three years of age or older. The survey also identifies all new high school graduates and collects information on their college enrollment status in October.¹⁰ The October survey also captures data on the school enrollment status of all adults 18 and older, allowing us to identify the numbers of men and women who are attending college in October in each age group. We will use these data to identify trends in college enrollments among men and women across the nation from 1970 to 2000. Since the early 1990s, the monthly CPS surveys also have collected data on

⁸ The monthly CPS household survey is also used by the U.S. Bureau of Labor Statistics to collect data on the labor force and employment status of working-age individuals across the nation. The CPS labor force data are the source of the monthly statistics on the national number of employed and unemployed individuals and the monthly unemployment rate. See: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, January 2002, "Appendix A", U.S. Government Printing Office, Washington, D.C.

⁹ For a review of findings from the NELS survey on the early post-secondary educational experiences of these eighth graders, See: Allen Sanderson, Bernard Dugoni, Kenneth Rasinsky, and John Taylor, *National Education Longitudinal Study: 1988-1994, Descriptive Summary Report with an Essay on Access and Choice in Post-Secondary Education*, U.S. Department of Education, National Center for Education Statistics, Washington, D.C., March 1996.

¹⁰ For an overview of findings from the October 2001 CPS survey, See: U.S. Bureau of Labor Statistics, *College Enrollment and Work Activity of 2001 High School Graduates*, Washington, D.C., May 14, 2002.

the degree attainment status of the nation's adults, allowing estimates of the numbers of men and women holding associate degrees, bachelor degrees, Master's degrees, and Ph.D. and other professional degrees.

As part of its Integrated Postsecondary Education Data System (IPEDS), the U.S. Department of Education's National Center for Education Statistics collects annual data from states on the number of first-time freshmen enrolled in degree-granting institutions and the total number of students (full-time and part-time) in all degree granting institutions in each state. Gender breakouts of the enrollment data are available for both first-time freshmen and all college students. The IPEDS system also is used to collect data on the annual number of college degrees awarded by colleges and universities by type of degree across all states. The data on degrees granted are available by gender and race-ethnic group. The various longitudinal surveys of the U.S. Department of Education allow one to track college persistence and degree attainment among a sample of beginning post-secondary education students in 1995-96 and post-secondary attendance and persistence among a nationally representative sample of eighth graders from 1988.¹¹

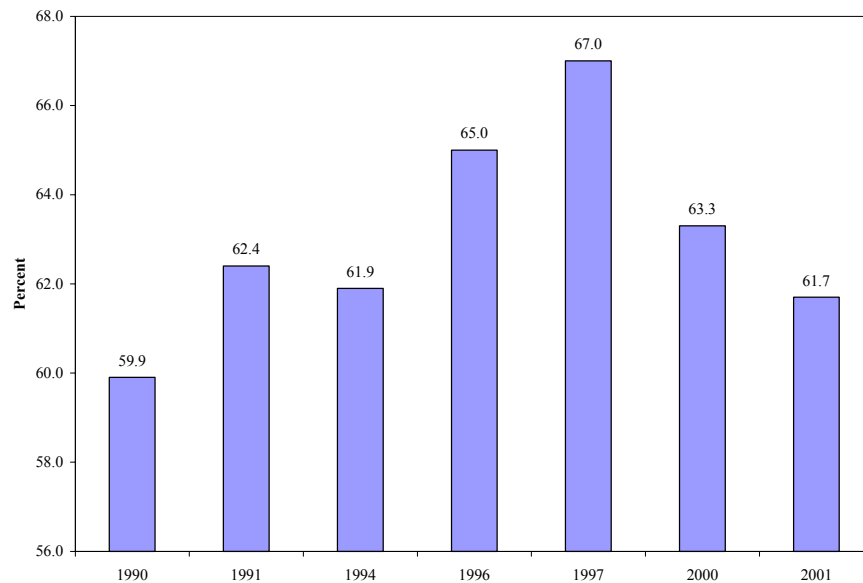
Trends in College Enrollment Rates Among New High School Graduates

During October of each year, the U.S. Census Bureau includes a supplementary set of questions on the standard monthly CPS questionnaire that is designed to track the school enrollment status of all respondents ages three and older. The October CPS survey also identifies all new high school graduates during the past year and tracks their college enrollment status in the month of October. From the early 1980s through 1997, the share of the nation's newest high school graduating class that enrolled in college in the fall immediately following graduation rose quite steadily and strongly. From 1982 to 1990, the college enrollment rate among the nation's new high school graduates increased from slightly over 50 percent to just under 60 percent. From 1990 through 1997, the college enrollment rate increased further, rising to 67 percent in October 1997, the all time historical high. (Chart 1). Since 1997, however, the

¹¹ The U.S. Department of Labor funded a new national longitudinal survey for youth ages 12-16 at the time of the initial interview round in 1997. There were over 8,000 youth in this survey which will capture data on the educational enrollment and attainment experiences of these youth over time. For a review of the purposes, nature,

college enrollment rate among new high school graduates has declined steadily, falling to 61.7 percent in October 2001, more than five percentage points below the historical peak in October 1997. (Chart 1).¹²

Chart 1:
Trends in the College Attendance Rates of New High School
Graduates in the U.S., Selected Years 1990 – 2001
(in %)



Trends in college enrollment rates among new high school graduates in each major race-ethnic group were quite similar over the past decade. From the early 1990s through 1996-97, college enrollment rates among Black, Hispanic, and White high school graduates increased, with particularly strong gains among new Black (11.6 percentage points) and Hispanic (5.9 percentage points) high school graduates. From 1996-97 through 2000-2001, college enrollment rates declined for each major race-ethnic group. In the past two years, these college enrollment rates among new high school graduates ranged from a low of 52 percent among Hispanics to a high of nearly 64 percent among Whites. (Table 1).

and design of the NLSY 97 survey, See: Robert T. Michael and Michael R. Pergamit, “The National Longitudinal Survey of Youth, 1997 Cohort,” *The Journal of Human Resources*, Volume 36, Number 4, Fall 2001, pp. 628-640.

¹² For an earlier review of college attendance rates among new high school graduates, See: Andrew Sum, Neeta Fogg, and Garth Mangum, *Confronting the Youth Demographic Challenge: The Labor Market Prospects of Out-of-School Young Adults*, Sar Levitan Center for Social Policy Studies, Johns Hopkins University, Baltimore, October 2000.

Table 1:
Trends in the College Attendance Rates of New High School
Graduates in the U.S. by Race-Ethnic Group, October of Selected Years 1990 – 2001
(in %)

| | (A) | (B) | (C) | (D) |
|---------------------------------|------|----------------------|----------|----------------------|
| Time Period ⁽¹⁾ | All | Black ⁽²⁾ | Hispanic | White ⁽²⁾ |
| 1990 – 91 | 61.2 | 45.9 | 52.2 | 63.0 |
| 1996 – 97 | 66.0 | 57.5 | 58.1 | 66.6 |
| 2000 – 2001 | 62.5 | 55.5 | 52.2 | 63.6 |
| Change 1996 – 97 to 2000 – 2001 | -3.5 | -2.0 | -5.9 | -3.0 |

Notes: ⁽¹⁾ Figures are two year averages. Findings pertain to October of each year.

⁽²⁾ Findings for Blacks and Whites do include Hispanics in each race group.

Source: October CPS surveys, tabulations by U.S. Bureau of Labor Statistics and the authors of this report.

The college enrollment rates of male and female new high school graduates can be identified with the October CPS data. By the end of the 1970s decade, the college enrollment rates of new female and male high school graduates had reached parity. With a few minor exceptions since then, the college enrollment rates of female high school graduates have exceeded those of men. From October 1990 through October 2001, the October college enrollment rate of women outpaced that of men in every year except 1995 (See Table 2). From 1996 through 2001, the percent of new female high school graduates attending college exceeded that of men by three to ten percentage points, with an average difference of slightly more than six percentage points. Thus, not only are males less likely to graduate from high school than women, but they are also less likely than women to attend college in the fall immediately following their graduation from high school.¹³ They, thus, constitute a distinct minority of the nation's new college students.

¹³ For a recent review of gender differences in high school graduation rates, See: Andrew Sum, Paul Harrington, et. al, *The Hidden Crisis in the High School Dropout Problems of Young Adults in the U.S.*, Report Prepared by the Center for Labor Market Studies, Northeastern University for the National Business Roundtable, Washington, D.C., September 2002.

Table 2:
Trends in College Attendance Rates of New High School
Graduates in the U.S. by Gender, October of Selected Years 1990 to 2001
(in %)

| | (A) | (B) | (C) |
|--------------------|------|-------|-------------|
| Graduating Classes | Men | Women | Women – Men |
| 1990 | 57.8 | 62.0 | +4.2 |
| 1991 | 57.6 | 67.1 | +9.5 |
| 1994 | 60.6 | 63.2 | +2.6 |
| 1996 | 60.1 | 69.7 | +9.6 |
| 1997 | 63.5 | 70.3 | +6.8 |
| 2000 | 59.9 | 66.2 | +6.3 |
| 2001 | 59.8 | 63.6 | +3.9 |

Source: U.S. Bureau of Labor Statistics, analysis of October CPS surveys.

Another source of data on the gender characteristics of first-time freshmen is that provided by the U.S. Department of Education through its Integrated Postsecondary Education Data System's (IPEDS) fall enrollment surveys. The national and state IPEDS data on first-time freshmen pertain to all first year students in degree granting institutions, including community colleges as well as four year universities and colleges regardless of the year from which they graduated high school. Data on the number of male and female first-time freshmen in all degree-granting institutions of the U.S. from the fall of 1994 through the fall of 1999 are displayed in Table 3.

Table 3:
Number of First-time Freshmen⁽¹⁾ Enrolled in Degree
Granting Institutions of the U.S. by Gender, Fall 1994 to Fall 1999

| | (A) | (B) | (C) |
|--------------|-----------|-----------|--------------------------------|
| Fall of Year | Men | Women | Number of Women per 100 Men |
| 1994 | 984,558 | 1,145,647 | 117 |
| 1995 | 1,001,052 | 1,167,779 | 117 |
| 1996 | 1,013,616 | 1,179,813 | 116 |
| 1997 | 1,026,058 | 1,193,197 | 116 |
| 1998 | 1,025,123 | 1,192,833 | 116 |
| 1999 | 1,091,802 | 1,260,130 | 115 |

Source: U.S. Department of Education, IPEDS Fall Enrollment surveys.

Note: ⁽¹⁾ Numbers include full-time and part-time freshmen.

For each year from 1994 to 1999, the number of female first-time freshmen exceeded the number of men. The relative size of the differences in first-time enrollments ranged from 115 women per 100 men to 117 women per 100 men, with a mean ratio of 116 for this six year period (Table 3). IPEDS freshmen enrollment data by gender also are available for individual states. For the fall of 1999, the number of first-time freshmen women exceeded those of men in all but two states (Table 4). Only in North Dakota (95 women per 100 men) and Colorado (97 women per 100 men) were there more male than female freshmen college students. The ratios of the number of female freshmen per 100 men varied quite considerably across the 50 states and the District of Columbia, ranging from a low of 95 in North Dakota to a high of 153 in the District of Columbia (Table 4). The ten states with the highest relative number of female freshmen students were characterized by ratios of 125 women per 100 men to 153 women per 100 men. Seven of these 10 states were located in the South. Of the ten states with the lowest ratios of women to men, not one was located in the South, and eight of these ten states were located either in the Midwest farm belt or the Rocky Mountain region.

Table 4:
Number of Women First-time Freshmen Per 100 Men in
Degree Granting Institutions in Selected States Across the Nation, Fall 1999

| <u>Top 10 States</u> | <u>Women Per 100 Men</u> |
|----------------------|--------------------------|
| District of Columbia | 153 |
| Delaware | 148 |
| Kentucky | 133 |
| Maryland | 132 |
| Louisiana | 131 |
| South Carolina | 131 |
| Mississippi | 128 |
| Alaska | 127 |
| Massachusetts | 125 |
| Virginia | 125 |

| Bottom 10 States | Women Per 100 Men |
|------------------|-------------------|
| Minnesota | 109 |
| Montana | 108 |
| Oregon | 108 |
| South Dakota | 106 |
| Vermont | 104 |
| Kansas | 103 |
| Arizona | 102 |
| Wyoming | 102 |
| Colorado | 97 |
| North Dakota | 95 |

The IPEDS data system of the U.S. Department of Education also collects data on total enrollment of college students in degree granting institutions by gender. For the nation as a whole, the total number of female college students substantially exceeded the number of male students every year from 1993 to 2000 (Table 4). The ratio of the number of female to male college students has increased from the early 1990s through the fall of 2000, rising from 123 per 100 in 1993 to 128 women per 100 men from the fall of 1998 through the fall of 2000. These results indicate that women are not only more likely than men to enroll in college as freshmen but also to persist in college after the freshmen year. Results from the national longitudinal tracking of beginning post-secondary students during the 1995-96 school year found that, as of 1998, of those students enrolling in one or two year schools, women were more likely than men to obtain a certificate or degree and women enrolled in four year colleges were modestly more likely than men to still be enrolled in school (78.6% vs. 75.6%).

The IPEDS data on total college enrollments of men and women also are available at the state level. Findings for the fall of 2000 are displayed in Table 5. In all states, with the exception of Utah, there were more women enrolled in college than men, with the ratios of women to men in the other states ranging from 102 per 100 in North Dakota to a high of 154 per 100 in Maine. In the ten states with the highest ratios of women to men, there were 139 to 154 women per 100 male college students in the Fall of 2000. (Table 6). In 44 of the 50 states and the District of Columbia, there were 120 or more women per 100 men enrolled in college in the fall of 2000. Sharply higher college enrollments among women were the norm among the vast majority of states across the nation in the Fall of 2000.

Table 5:
Total Fall Enrollment⁽¹⁾ in Degree Granting Institutions of
the U.S. by Gender, Selected Years, 1993 to 2000

| | (A) | (B) | (C) |
|--------------|---------------|-----------------|-------------------|
| Fall of Year | Number of Men | Number of Women | Women per 100 Men |
| 1993 | 6,396,748 | 7,855,408 | 123 |
| 1994 | 6,342,217 | 7,885,083 | 124 |
| 1998 | 6,369,265 | 8,137,702 | 128 |
| 1999 | 6,490,646 | 8,300,578 | 128 |
| 2000 | 6,721,769 | 8,590,520 | 128 |

Source: U.S. Department of Education, IPEDS Fall Enrollment Surveys

Note: ⁽¹⁾ Totals include both part-time and full-time students.

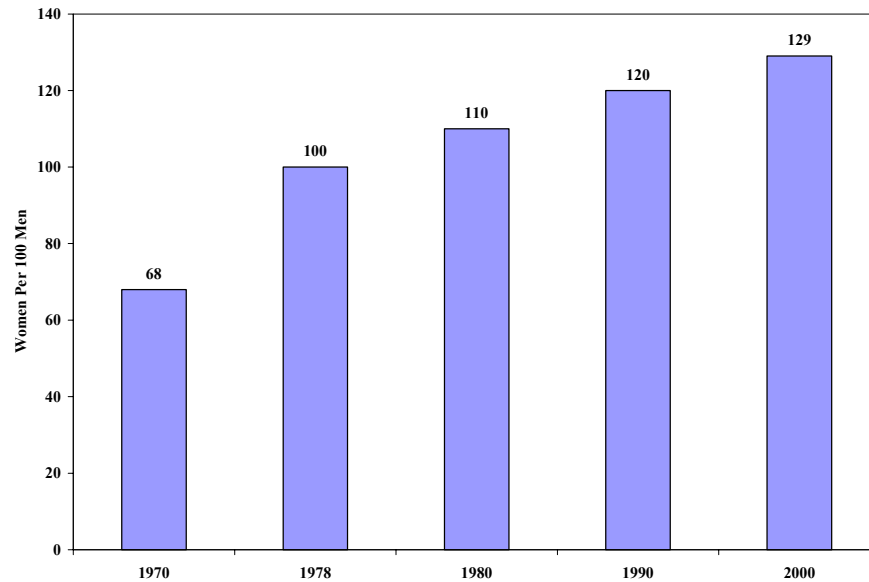
Table 6:
Number of Women Per 100 Men Enrolled in Degree
Granting Institutions in Selected States Across the Nation, Fall 2000

| Top 10 States | Number of Women Per 100 Men |
|-------------------------|--------------------------------|
| Maine | 154 |
| Delaware | 151 |
| Alaska | 149 |
| Mississippi | 144 |
| South Carolina | 143 |
| Kentucky | 142 |
| Arkansas | 140 |
| New Mexico | 140 |
| Louisiana | 139 |
| Maryland | 139 |
| <u>Bottom 10 States</u> | |
| Iowa | 121 |
| Arizona | 120 |
| Oklahoma | 120 |
| Oregon | 120 |
| Minnesota | 119 |
| Indiana | 116 |
| Montana | 116 |
| Colorado | 115 |
| North Dakota | 102 |
| Utah | 98 |

Trends in Gender Differences in College Enrollment by Age Group

The October CPS surveys on school enrollment allow estimates to be made of the number of college students in gender and age groups over time. The CPS college enrollment data are available nationally for more than 30 years. Our estimates of the total number of women enrolled in college relative to the number of men for selected years between October 1970 and October 2000 are displayed in Chart 2. In 1970, there were only 68 women enrolled in college per 100 men. By 1978, however, women had achieved equality in college enrollment with men. Since then, the number of women attending college has continued to outpace that of men by ever widening amounts. By 1980, there were 110 women enrolled in college per 100 males, by 1990 this ratio had increased to 120, and by October 2000 it had risen close to 130. (Chart 2).

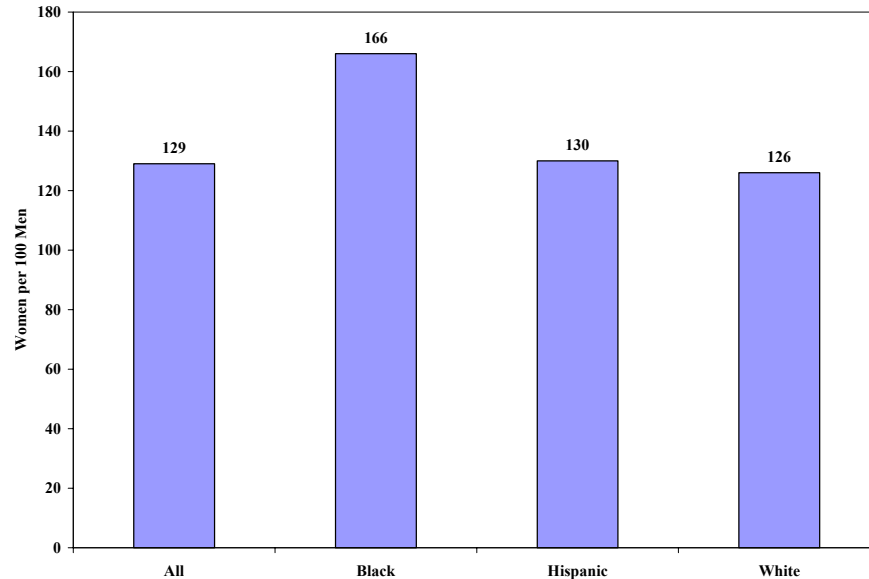
Chart 2:
Number of Women Enrolled in College Per 100 Men, All Age Groups: U.S.,
Selected Years, October 1970 to October 2000



The October CPS college enrollment data also can be broken down by race-ethnic group as well as by gender. In October 2000, the numbers of women enrolled in college exceeded the number of men in each of the three major race-ethnic groups: Blacks, Hispanics, and Whites. (Chart 3). The relative size of the gender gap was highest among Blacks (166 women per 100 men) but has grown considerably among Whites over the past few decades. During October 2000, there were 126 White women attending college for every 100 White men, a near doubling

of the ratio over the past thirty years.¹⁴ The Hispanic female/male college enrollment ratio stood at 130 in October 2000, up from an average ratio of only 82 in the early 1970s.

Chart 3:
Number of Women Enrolled in College Per 100 Men in All Age Groups,
Total and by Race-Ethnic Group, U.S., October 2000



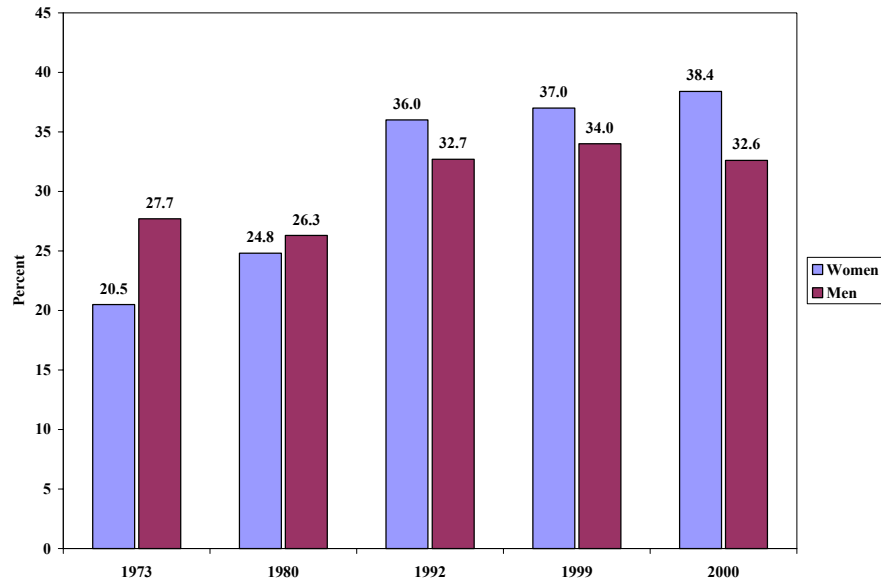
Trends in college enrollment rates for the nation's 18-24 year old adults by gender for selected years between 1973 and 2000 are displayed in Chart 4. The college enrollment rate represents the number of college students in that age group as a percent of the number of persons in the civilian non-institutional population in that same age group.¹⁵ In October 1973, the college enrollment rate among 18-24 year old males was 27.7 percent versus only 20.5 percent among young women, a 7 percentage point gap in favor of young men. By 1980, this gap had narrowed to 1.5 percentage points, and in the early 1980s young women achieved parity in college enrollment with men. Since then, young women's college enrollment rate has surpassed that of men every year, with widening gaps taking place over time. In October 2000, the college enrollment rate of young women had risen above 38 percent, exceeding that of young men by nearly six percentage points. The growing gender gaps in college enrollment rates among the

¹⁴ In October 1970, there were only 66 White women enrolled in college per 100 White men. By 1979, the number of White women enrolled in college surpassed that of White men for the first time.

¹⁵ The civilian non-institutional population excludes all inmates of institutions (jails, juvenile homes, nursing homes, prisons, long stay hospitals) as well as members of the nation's armed forces.

nation’s young adults reflect a combination of the superior high school graduation rates of young women and a higher rate of college attendance among female high school graduates.¹⁶

Chart 4:
Trends in the College Enrollment Rates of All 18-24 Year Old
Young Adults by Gender, U.S.: Selected Years 1973 – 2000
(in %)



The gender gaps in college attendance rates among young adults prevail among Blacks, Hispanics and Whites. (Table 7). In the Fall of 2000, the size of the gender gaps in college enrollment rates among the nation’s 18-24 year olds ranged from just under six percentage points among Whites to slightly over ten percentage points among Blacks. The college enrollment rates among these six gender/race-ethnic groups ranged from a low of only 18 percent among Hispanic males to a high of 38 percent among White females, a relative difference of more than two to one between the top and bottom of the distribution. The very low rate of college enrollment among young Hispanic males was substantially influenced by the high share of

¹⁶ The college enrollment rate for a given age group is the product of two variables: the percent of the group with a high school diploma/GED certificate and the share of these high school graduates attending college. The relationship can be represented by the following algebraic formula:

$$\text{COL/POP} = \text{HSGRAD/POP} * \text{COL/HSGRAD}$$

where COL = number of college students; HSGRAD = number of high school graduates; POP = number of persons in the population

immigrants among this age group, many of whom lacked high school diplomas and did not attend high school in the United States.¹⁷

Table 7:
College Enrollment Rates of All 18-24 Year Old Young
Adults by Gender and Race-Ethnic Group, U.S., Fall 2000
(in %)

| | (A) | (B) | (C) |
|-------------------|------|-------|-------------|
| Race/Ethnic Group | Men | Women | Women – Men |
| All | 32.6 | 38.4 | +5.8 |
| Black | 24.9 | 35.1 | +10.2 |
| Hispanic | 18.5 | 25.4 | +6.9 |
| White | 32.8 | 38.5 | +5.7 |

Source: October CPS household surveys, tabulations by U.S. Census Bureau.

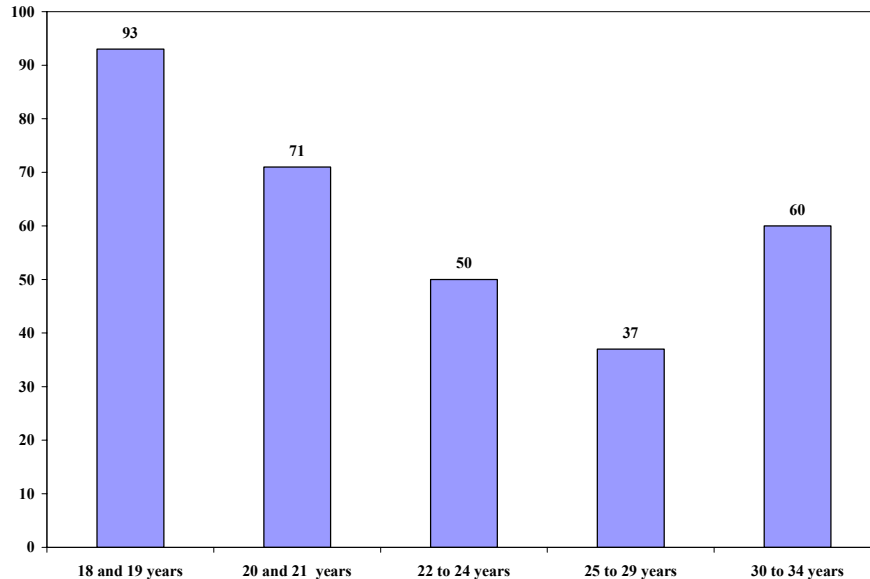
These rising gender gaps in college enrollment rates between young men and women have taken place in many community colleges as well as four year colleges and universities. A number of college and university presidents and administrators have recently recognized and commented on these growing gender gaps. Boston University’s President John Silber has recently called attention to the low share of male undergraduates (40%) in his university, claiming that it tends to be a distracting force among the male undergraduates.¹⁸ At the community college level, the high shares of female enrollments and their higher graduation rates have led to an ever widening gap between the numbers of women and men obtaining associate degrees in recent years. As will be noted below, the total number of associate degrees awarded to women throughout the nation exceeded the number awarded to men by 50 percent at the end of the 1990s.

The growing gender gaps in college enrollment rates have not been restricted to the nation’s younger adults. In every major age group, over the past thirty years, the number of women enrolling in college has substantially outpaced that of men. In 1970, the growth in the number of men enrolled in college exceeded the number of women in every major age group,

¹⁷ Nearly one-half of the 18-24 year old Hispanics in the U.S. in 2001 were foreign immigrants. See: Andrew Sum, and Mykhaylo Trubs’kyy with Sheila Palma, *The Nation’s Young Adult Immigrant Population: A Profile of Their Demographic and Educational Characteristics and Recent Labor Market Experiences*, A Report Prepared for the National League of Cities, Institute on Youth, Education, and Families, Washington, D.C., September 2002.

with women age 22 and older being enrolled at levels only 37 to 60 percent as high as those of men (Chart 5). By 1980, the number of women ages 30 and older enrolled in college exceeded the number of men, and women 25-29 years old had an enrollment level 92 percent as high as that of men (Chart 6). By 1990, women in every age group except those 22-24 were more likely to be enrolled in college than men with very large gender gaps prevailing among those 30 and older. By the fall of 2000, women in every age group were attending college in higher numbers than men with the size of these gaps being highest among persons 25 and older. After age 25, college attendance rates decline sharply, but women are much more likely to return to college to pursue degrees at all levels of education: community colleges, bachelor degree programs, and graduate and professional programs.¹⁹ There is no evidence that these gender gaps have peaked. In fact, as will be noted in a following section, the U.S. Department of Education projects that the gender gaps in degree attainment will widen over the coming decade at every major level of post-secondary education. Yet, few voices of concern over these rising gender gaps have appeared despite their adverse economic, labor market, fiscal, and social consequences.

Chart 5:
The Number of Women Enrolled in College Per 100 Men, by Age Group, U.S., 1970



¹⁸ Boston University President John Silber’s remarks on the need to attract a higher number of male undergraduate students appeared in the following article: Patrick Healy, “At BU, Silber Fights Excess,” *The Boston Globe*, 9-28-2002, pp. A-1, B-4.

¹⁹ For a recent review of the return to college by older women in Massachusetts, See: David Bushnell, “Women’s Lives Changing Course Through College,” *The Boston Globe*, December 1, 2002, pp. C-1 and C-6.

Chart 6:
The Number of Women Enrolled in College Per 100 Men, by Age Group, U.S., 1980

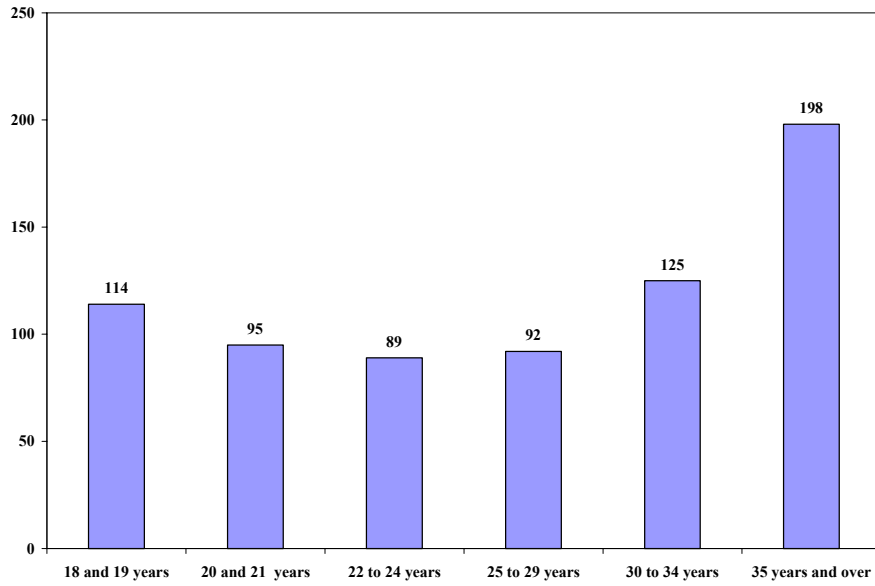


Chart 7:
Number of Women Enrolled in College Per 100 Men, by Age Group, U.S., 1990

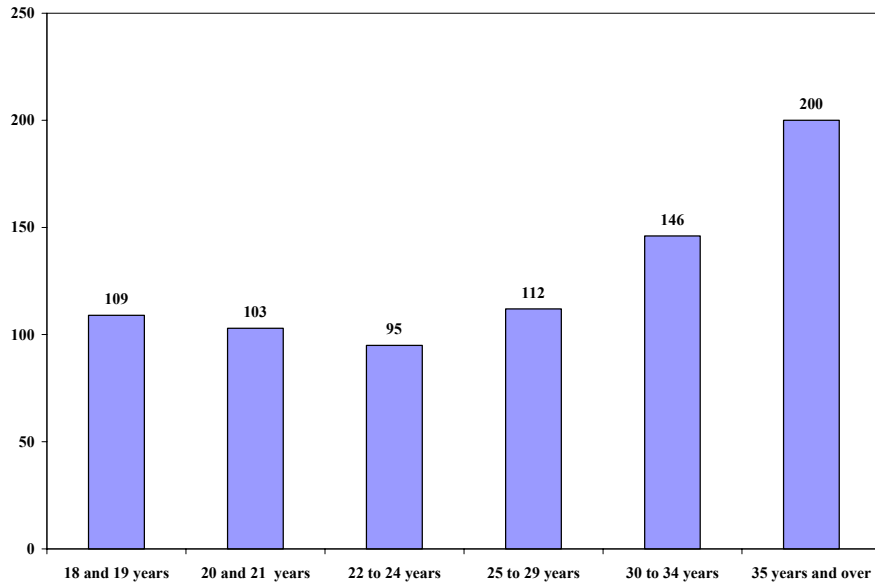
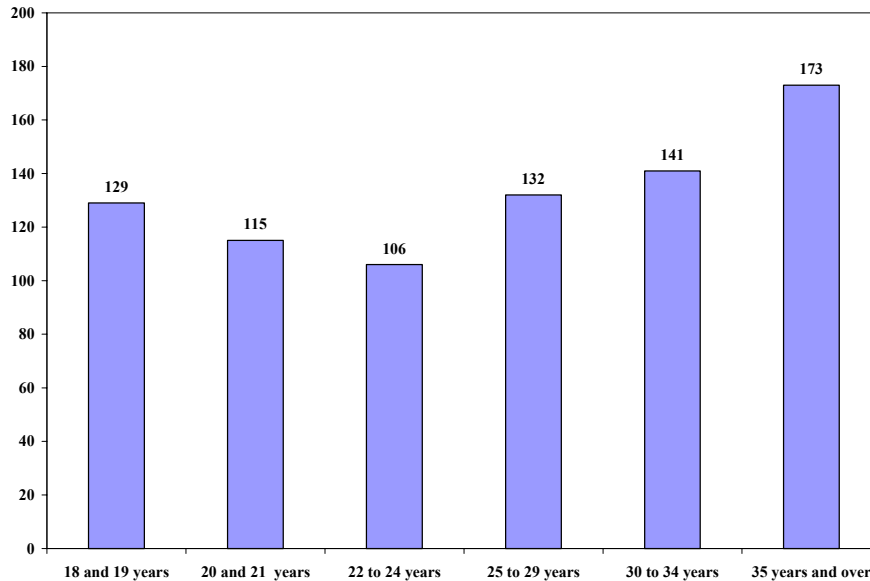


Chart 8:
Number of Women Enrolled in College Per 100 Men, by Age Group, U.S., 2000

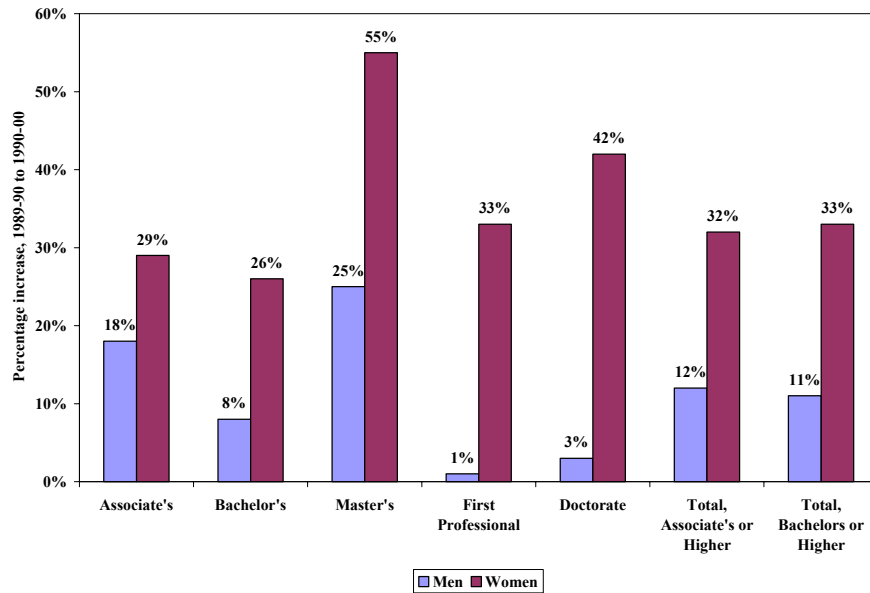


Trends in College Degree Attainment by Men and Women

While women have enrolled in college at higher rates than men over the past decade, have they succeeded in persisting in college long enough to acquire college degrees at higher rates than men? To answer this question, we have tracked trends in college degree attainment among men and women over the past few decades.

As noted in the introductory section of this report, between 1990 and 2000, there was a substantial increase in the number of post-secondary degrees awarded to U.S. adults. However, the rates of increase in degree attainment for women and men over the decade were sharply different. The number of degrees from the associate's level on up increased by one-third among females but only by 11 percent among men between 1989-90 and 1999-2000. At every level of degree attainment, the rate of increase in college degrees awarded was several times higher among females than among their male counterparts (Chart 9). For example, the rate of growth in the number of associate's degrees awarded to women was 29 percent compared to 18 percent among men. The number of bachelor's degrees awarded to women increased nearly four times faster than among men (28 percent versus 8 percent) while the number of master's degrees granted to women increased more than twice as fast as men (55 percent versus 25 percent).

Chart 9:
Percent Increase in the Number of Degrees Awarded
by Type of Degree and by Gender, U.S., 1989-90 to 1999-00



Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), 1989-1990 and 1999-2000; tabulations by authors.

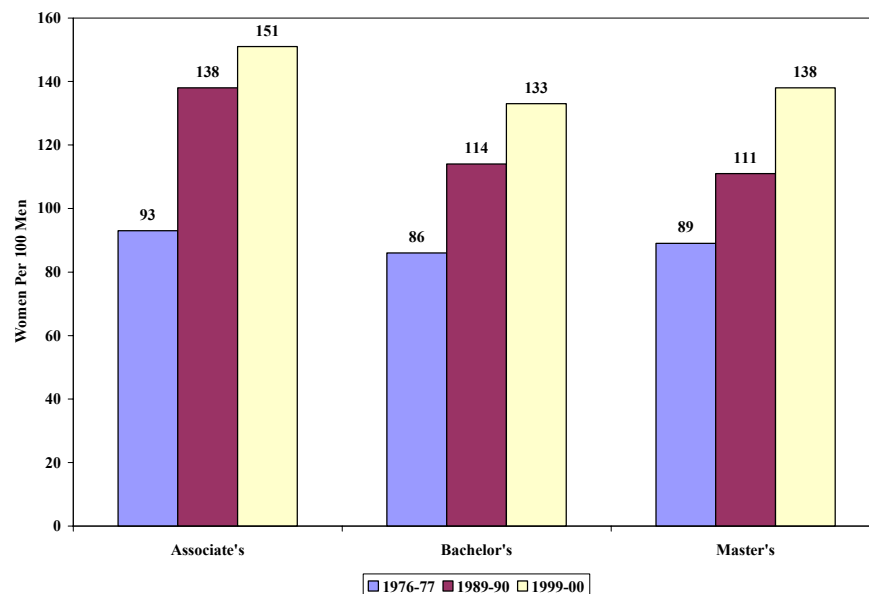
Over the past few decades, women have gained significant academic ground over men in college degree attainment. Many more academic degrees are being awarded to women today than are being awarded to men. In 2000, women earned 135 degrees for every 100 degrees awarded to men. In 1990, women had earned only 114 degrees for every 100 degrees earned by men. The largest gender gap in degrees awarded exists at the associate's degree level where in 2000 women earned 151 degrees for every 100 degrees earned by men. (Chart 10). The gender gap was also quite sizable at the bachelor's and master's degree levels. For every 100 degrees awarded to men in 2000, women were awarded 133 bachelor's degrees and 138 master's degrees.

Over time, the gender gaps in degree attainment have widened considerably in favor of women. Findings presented in Chart 10 reveal that, as recently as 1977, women were awarded fewer college degrees than men. During the 1976-77 academic year, more college degrees were conferred on men than women at every educational level. For example, in 1976-77, women were awarded only 93 associate degrees for every 100 awarded to men, and for every 100 new male

graduates with a bachelor's and master's degree, there were only 86 and 89 new female graduates, respectively.

By the middle of the 1980s, the educational fortunes of the two sexes in terms of degree attainment had largely converged. By the end of the decade, women were forging ahead of men, earning 138 associate degrees, 114 bachelor degrees, and 111 master's degrees for every 100 male graduates. The gender gaps grew wider during the 1990s, and, as will be revealed in a following section, projections of the number of degrees awarded to men and women by the U.S. Department of Education clearly indicate a further widening of these gaps throughout the current decade.

Chart 10:
Trends in the Number of Associate's, Bachelor's, and Master's
Degrees Awarded to Women Per 100 Men., 1976-77, 1989-90, and 1999-2000, U.S.



Source: U.S. Department of Education, National Center for Education Statistics, Earned Degrees Conferred; Higher Education General Information Survey (HEGIS), "Degrees and Other Formal Awards Conferred" surveys; and Integrated Postsecondary Education Data System (IPEDS), "Completions" surveys; tabulations by authors.

While women continue to lag men in obtaining doctorate and professional degree, they are rapidly closing the educational gaps at the doctorate and professional degree levels as well. In 1977, there were only 23 women receiving professional degrees in fields such as law and

medicine per 100 new male graduates. (Table 8). The number of professional degrees conferred upon women per 100 men increased to 81 in 2000 and is projected to increase to 91 females per 100 males by 2010. Similar trends have prevailed in the award of doctorate degrees. In 1976, only 32 females earned a Ph.D. for every 100 new male doctorates. This ratio increased to 79 in 2000 and is projected to remain unchanged through 2010 (Table 8). Although the gender gap in favor of men at the highest degree levels has not been eliminated, women have gained considerable ground and are getting closer to obtaining parity with men in earning doctorate and professional degrees.

Table 8:
Trends in the Number of Professional and Doctorate Degrees
Awarded to Women Per 100 Men, U.S., 1976 – 77 to 1999 – 2000

| Academic year | Professional Degrees | Doctorate Degrees |
|---------------------|----------------------|-------------------|
| 1976-77 | 23 | 32 |
| 1984-85 | 49 | 52 |
| 1989-90 | 61 | 57 |
| 1994-95 | 69 | 65 |
| 1999-00 | 81 | 79 |
| 2009-10 (projected) | 91 | 77 |

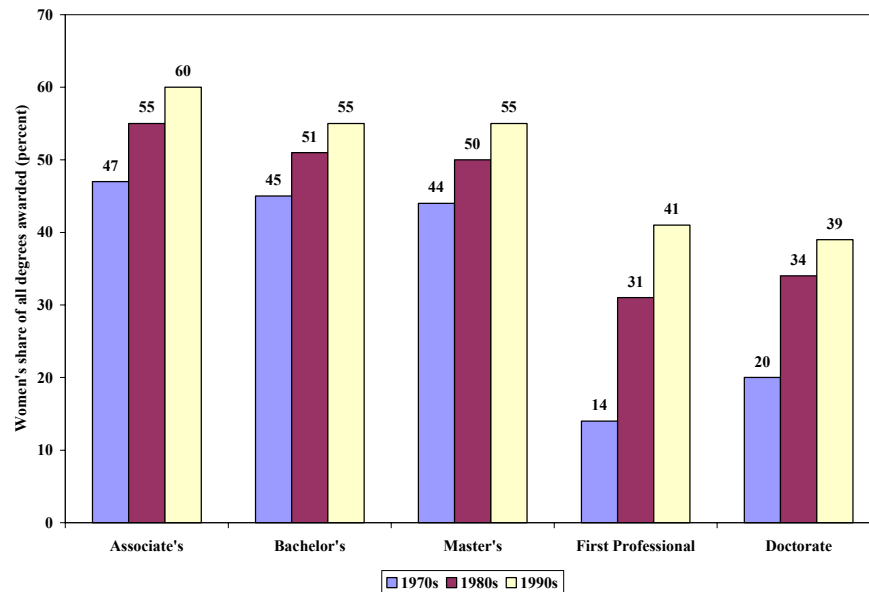
Source: U.S. Department of Education, National Center for Education Statistics, Earned Degrees Conferred; Projections of Education Statistics to 2011; Higher Education General Information Survey (HEGIS), "Degrees and Other Formal Awards Conferred" surveys; and Integrated Postsecondary Education Data System (IPEDS), "Completions" surveys; tabulations by authors.

Since the early 1970s, women have been receiving a higher and higher share of all new college degrees. Estimates of the share of all college degrees awarded to women during each of the past three decades are presented in Chart 11. During the decade of the 1970s, women earned 47 percent of all associate degrees, 45 percent of all bachelor's degrees, and 44 percent of all master's degrees awarded throughout the nation. Women's shares of all degrees awarded increased during the 1980s as well as the 1990s. During the past decade, women were awarded 6 out of 10 new associate degrees and 55 percent of all bachelor's and master's degrees. Projections by the U.S. Department of Education reveal that women's share of all degrees awarded in the nation will rise even further over the current decade. Our analyses of these

projections indicate that a majority of all associate, bachelor, and master’s degrees awarded during the 2000-2010 decade will be conferred on women.

Women also have been steadily increasing their share of professional and doctorate degrees. During the 1970s, women earned only 14 percent of all first professional degrees and one-fifth of all doctorate degrees awarded throughout the nation. In the 1990s, however, women were awarded four out of ten doctorate and first professional degrees, and the female share of these advanced degrees is projected to modestly increase over the 2000-2010 decade.

Chart 11:
Women’s Share of College All Degrees Awarded
During the 1970s, 1980s, and 1990s by Degree Level, U.S.



Source: U.S. Department of Education, National Center for Education Statistics, Earned Degrees Conferred; Higher Education General Information Survey (HEGIS), "Degrees and Other Formal Awards Conferred" surveys; and Integrated Postsecondary Education Data System (IPEDS), "Completions" surveys; tabulations by authors

Gender Gaps Among Race-Ethnic Groups in the Number of Post-Secondary Degrees Awarded

Over the past two decades, the gap between the two sexes in the number of college degrees awarded has grown sharply. As noted above, in academic year 1999-2000, women were awarded more associate, bachelor, and master's degrees than men. A key question is whether gender disparities in degrees awarded varied across major race and ethnic subgroups. To answer this question, we analyzed data on the number of associate, bachelor, and master's degrees awarded by gender to Asians, Blacks, Hispanics, and Whites during the 1979, 1989, and 2000 school years.

Rising gender gaps in college degree attainment have occurred among members of each race-ethnic group. There are, however, some important variations in the size of these disparities across race-ethnic groups. The largest gender gaps in the number of degrees conferred exist in the Black community. Black women are considerably more likely than Black men to graduate from college with a degree at each level of schooling. Moreover, the gap between the relative number of post-secondary degrees conferred on Black women and men has increased over the past 20 years. In 1979, for every 100 associate's and bachelor's degrees received by Black men, 142 and 144 degrees, respectively, were conferred on Black women. At the master's degree level 175 Black women were awarded a degree for every 100 Black men during the 1978-79 school year. In 1999-2000, for every 100 degrees awarded to Black men, Black women were awarded 188 associate degrees, 192 bachelor degrees, and 221 master's degrees. Not only were Black women earning many more college degrees than Black men, but the gender gaps were wider at each higher educational level. The much lower college degree attainment rates among Black men have important economic consequences since the economic returns to college investments are very high for Black men. Black males with college degrees and strong literacy/math skills also are far more likely to marry and live with their children.

The gender gap in degree attainment was also very large among Hispanics. In 1978-79, there was gender parity among Hispanic men and women at the associate's and Master's degree levels. During the same academic year, for every 100 bachelor's degrees conferred on Hispanic men, approximately 93 bachelor's degrees were received by Hispanic women. The gap between the numbers of degrees earned by Hispanic women and men increased considerably over the

following two decades. In 1999-2000, at every award level, Hispanic women earned about 150 post-secondary degrees for every 100 degrees conferred on their male counterparts. Asian and White women also fared far better than of then each of their respective male counterparts in earning college degrees over the past two decades. During the 1999-2000 school year, the disparities between Asian women and men were largest at the Associate's degree level (131 degrees for females for every 100 degrees conferred on males) and smallest at the master's level (111 degrees received by women for every 100 degrees by Asian men). The gender gaps among Whites also increased substantially over the past two decades. During the 1999-2000 school year, White women earned many more degrees than White men at each level of schooling (130 to 150 per 100 men) although the gender gap among Whites was wider at the associate's and master's degree levels than at the bachelor's degree level.

Table 9:
Number of Associate's, Bachelor's, and Master's Degrees
Conferred on Women Per 100 Men, by Race-Ethnic Origin, U.S.

| | 1978-79 | 1988-89 | 1999-00 |
|-----------------|---------|---------|---------|
| <u>Asian</u> | | | |
| Associate's | 85 | 97 | 131 |
| Bachelor's | 87 | 96 | 117 |
| Master's | 65 | 71 | 111 |
| <u>Black</u> | | | |
| Associate's | 142 | 169 | 188 |
| Bachelor's | 144 | 160 | 192 |
| Master's | 175 | 172 | 221 |
| <u>Hispanic</u> | | | |
| Associate's | 100 | 121 | 146 |
| Bachelor's | 93 | 114 | 148 |
| Master's | 99 | 119 | 153 |
| <u>White</u> | | | |
| Associate's | 111 | 135 | 149 |
| Bachelor's | 92 | 111 | 131 |
| Master's | 101 | 121 | 151 |

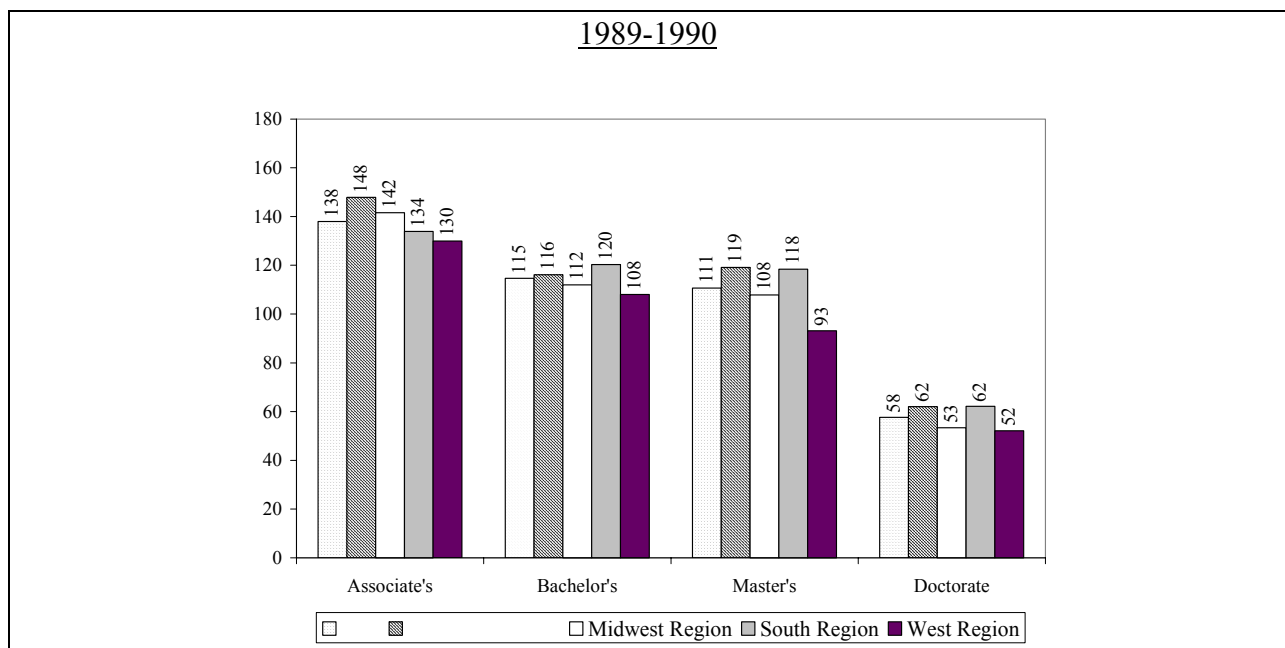
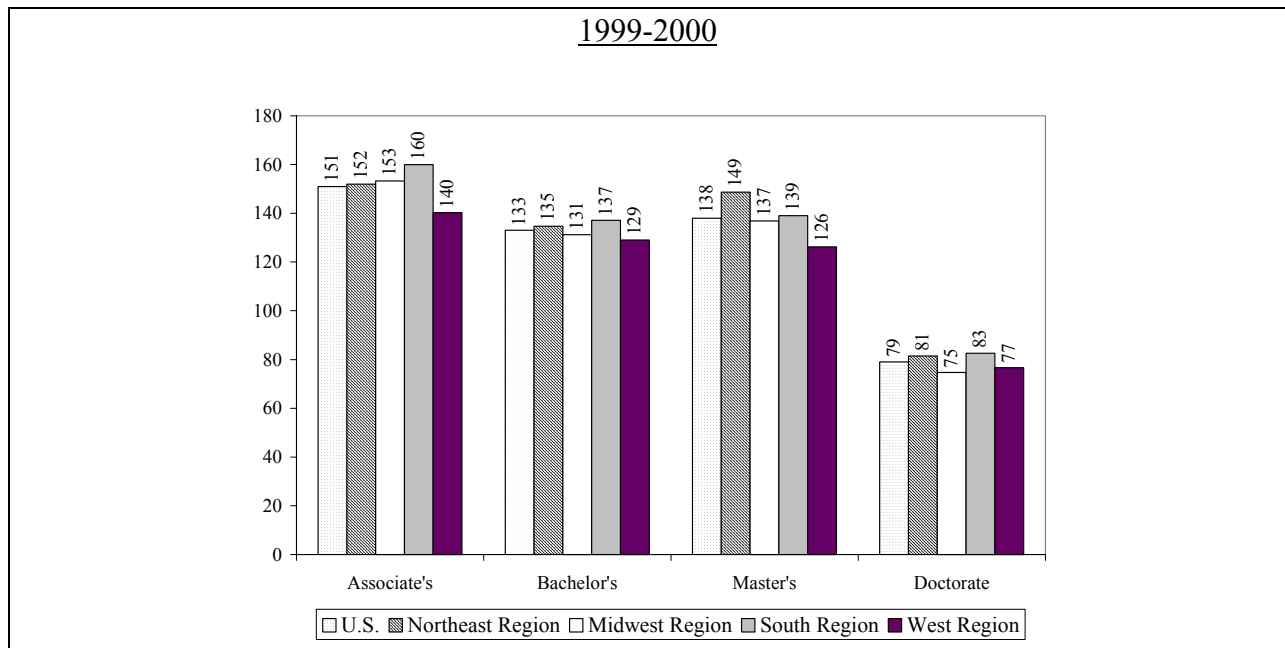
Source: U.S. Department of Education, National Center for Education Statistics, Earned Degrees Conferred; Higher Education General Information Survey (HEGIS), "Degrees and Other Formal Awards Conferred" surveys; and Integrated Postsecondary Education Data System (IPEDS), "Completions" surveys; tabulations by authors

Gender Gaps in College Degree Attainment by Geographic Region and State

The IPEDS data on the annual number of college degrees awarded to men and women are also available at the state level. We have combined each of the 50 states and the District of Columbia into four major geographic regions (Northeast, Midwest, South, and West) using the regional classification system of the U.S. Census Bureau. We have used the IPEDS data on degrees awarded to men and women to calculate the size of the gender gaps at the regional and state level for the 1989-90 and 1999-2000 school years. Gender gaps in the numbers of degrees awarded have increased in each geographic region. Comparisons of the numbers of degrees conferred on women per 100 males in both the 1999-2000 and 1989-1990 school years are presented in Chart 12. Over the 1990-2000 decade, the gender disparity in degrees awarded widened in the nation and across each region within the nation. In 1990, the gender disparities in degree attainment typically were widest in the Northeast region where 148 associate degrees, 116 bachelor degrees, and 119 master degrees were awarded to women per 100 degrees awarded to men. Women received fewer doctorate degrees than men in 1990. This was true for the nation as a whole (58 percent 100 men) and in each geographic region.

Over the 1990-2000 decade, the gender disparities in degree attainment grew substantially larger across all regions. In the South, gender disparities rose most rapidly, thereby catapulting the region to number one in gender disparities at all degree levels except at the master's level where women in the Northeast region held an even larger lead over their male counterparts, earning 149 master's degrees for every 100 degrees earned by males in that region. In the South, during the 1999-2000 school year, women received 160 associate degrees for every 100 obtained by men and 137 bachelor degrees for every 100 men. The South has an above average share of Black residents among whom gender disparities in post-secondary degree attainment are the largest. Regional differences in gender disparities in degree attainment may also be related to differences in the academic offerings of higher education institutions in different regions. Those regions that offer more degrees in fields of study that are frequently dominated by men, such as science and engineering, will likely be characterized by smaller gender disparities. Further research on the sources of variation in gender disparities across regions and states is clearly needed.

Chart 12:
Number of Associate's, Bachelor's, Master's and Doctorate Degrees
Awarded to Women Per 100 Men by Geographic Region, 1999-2000, and 1998-1990, U.S.



Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) 1989-1990 and 1999-2000; tabulations by authors.

There also were wide differences in gender disparities in the number of degrees conferred on men and women across different states of the nation. Findings from a ranking of the states

based on the ratio of the number of associate's, bachelor's and master's degrees conferred on women and men are presented in Table 10. In 2000, there were very substantial differences in the ratios of associate degrees awarded to women and men across the 50 states. Kentucky was characterized by the greatest discrepancy between the number of associate degrees conferred on women and men (253 women per 100 men) while Nebraska had the smallest difference (101 women per 100 men). The five states with the largest gender gaps graduated between 188 and 243 women with associate degrees per 100 men. The top five states were all located in the South, and many of these states have a large non-Hispanic, Black population among whom the gender gap in the numbers of degrees conferred is the largest of all race groups. The five states with the lowest gender gaps in associate degree awards were somewhat dispersed across the country, with one state on the Pacific coast (Oregon), two in the Midwest region, one Rocky Mountain state, and one in New England (Rhode Island).

At the bachelor's degree level in 2000, the gender gaps across the 50 states and the District of Columbia ranged from a high of 162 women per 100 men in Delaware to a low of 106 women per 100 men in Utah. In every state, women received more bachelor degrees than men during the 1999-2000 school year. Of the 5 states with the greatest gender discrepancies, three were located in the South, and the remaining two were Maine and Alaska. Four of the five states with the smallest gender gaps in bachelor degree attainment were located in the Rocky mountain region. At the Master's degree level, the female to male ratios ranged from a high of 211 females per 100 males in Vermont to a low of 71 females per 100 males in Utah. Three of the five states with the largest gender gaps were located in the South while those with the most gender equality were primarily Rocky Mountain states.

A review of the findings on the number of associate's, bachelor's and master's degrees conferred during the 2000 school year on women per 100 men reveals that Utah was the only state that conferred fewer degrees on women than men and it did so only at the master's degree level. At the bachelor's degree level, women in Utah were awarded 106 degrees for every 100 degrees awarded to men. In every other state in the nation during the 1999-2000 school year, more women were awarded associate's, bachelor's, and master's degrees than men.

Table 10:
Number of Degrees Conferred on Women Per 100 Men, U.S., 1999-2000
 (Data for 1984-85 are provided for the Bachelor's and Master's
 Degree Levels in Parentheses)

| | <u>Associate's</u> | | <u>Bachelor's</u> | | <u>Master's</u> | |
|-----------------------------|---|--|--|--|--|--|
| Rank in 1999-00 State | Number of Females per 100 Men | State (1984-85 rank in parenthesis) | Number of Females per 100 Men (1984-85 data in parenthesis) | State (1984-85 rank in parenthesis) | Number of Females per 100 Men (1984-85 data in parenthesis) | |
| Top 10 | | | | | | |
| 1 | Kentucky 243 | Delaware (2) | 162 (134) | Vermont (1) | 211 (161) | |
| 2 | Arkansas 228 | Alaska (1) | 154 (138) | Maine (19) | 200 (107) | |
| 3 | Louisiana 211 | Louisiana (26) | 149 (103) | Mississippi (13) | 184 (119) | |
| 4 | Maryland 194 | Mississippi (11) | 147 (112) | Arkansas (6) | 176 (134) | |
| 5 | Delaware 188 | Maine (8) | 147 (117) | South Carolina (3) | 174 (147) | |
| Bottom 10 | | | | | | |
| 47 | Oregon 117 | Colorado (39) | 116 (97) | Arizona (40) | 113 (88) | |
| 48 | North Dakota 114 | Idaho (49) | 115 (82) | Colorado (26) | 113 (101) | |
| 49 | Wyoming 109 | Montana (49) | 113 (82) | Indiana (17) | 110 (109) | |
| 50 | Rhode Island 103 | North Dakota (50) | 110 (81) | Idaho (49) | 105 (66) | |
| 51 | Nebraska 101 | Utah (51) | 106 (70) | Utah (51) | 71 (54) | |

Comparisons of findings on bachelor and Master degree awards by gender for the 1984-85 academic year with those for the 1999-2000 school year reveal that the number of degrees awarded to women have grown faster than among men in every state. For example, among the five states with the smallest gender gaps in bachelor degree awards in 1999-2000 not one had awarded more degrees to women than men in 1984-85. Over the next 15 years, women would substantially outpace men in bachelor degree attainment with the ratios rising by 19 to 36 percentage points. Very similar findings prevail with respect to Master degree awards. Within every state, women earned Masters degrees at much higher rates than men over the 1985-2000 period. The gender gaps in Master degree awards widened considerably across all states and the District of Columbia.

Gender Differences in the Number of College Degrees Awarded by Visa Status of Degree Recipients

One of the most important demographic changes that occurred in the nation during the past decade was the huge influx of new foreign immigrants. Nearly 41 percent of the nation's net population growth and 48 percent of the nation's civilian labor force growth between 1990 and 2000 were attributable to new immigrants who arrived on the shores of the nation during the decade of the 1990s.²⁰ The nation's institutions of higher education were the destination for a number of the young adult immigrants who arrived between 1990 and 2000. Foreign-born persons who enter the United States to enroll in an educational institution are provided with student visas. Data from the U.S. Department of Education on degrees conferred contain information on the visa status of the graduates obtaining degrees. Those college graduates who hold a student visa are classified as non-resident aliens.

It should be noted that this count of non-resident aliens does not include all foreign-born persons because individuals who were born abroad but acquired a green card or citizenship status no longer hold a student visa and, thus, will not be classified as non-resident aliens. In our analysis of post-secondary degree awards to individuals by visa status, the title native-born or U.S. resident includes all individuals who were born in the U.S. as well as those foreign born individuals who were naturalized citizens or permanent residents (green card holders) of the United States. References to foreign students or non-resident aliens will include all individuals who possess a student visa.

Our analysis of the number of degrees awarded by visa status of the recipient by type of degree is presented in Table 11. Although nonresident aliens received a small share of the total number of degrees granted in the nation in both the 1990 and 2000 school years, the total number of degrees conferred on nonresident aliens increased sharply over the decade. The number of degrees received by nonresident aliens increased by 53 percent between 1990 and 2000, a rate of growth nearly 2.5 times as high as the rate of increase in the number of degrees awarded to U.S.

²⁰ For a review of the impact of foreign immigration on population growth in the U.S., See: Andrew Sum, Ishwar Khatiwada, Nathan Pond, and Sheila Palma, *The New Great Wave: Foreign Immigration in Massachusetts and the U.S. During the Decade of the 1990s*, Report Prepared for Teresa and H. John Heinz Foundation, Washington, D.C., June 2002.

residents. The rate of increase in the number of degrees granted to nonresident aliens was two or more times higher than the rate of increase among U.S. residents at every award level (Table 11).

The bottom third of Table 11 displays findings on the proportion of all degrees at each award level that were conferred on nonresident aliens. These findings indicate that, during the 1999-2000 academic year, one out of twenty degrees in the nation were conferred on nonresident aliens. In 1990, only one out of 25 degrees were conferred on nonresident aliens. The share of degrees conferred on nonresident aliens, however, varied widely by award level. In 2000, nearly one-quarter of all doctorate degrees, and 1 out of 8 master's degrees were awarded to nonresident aliens. In contrast, only 3 percent of bachelor degrees and less than 2 percent of associate degrees were received by nonresident aliens. Nonresident aliens' share of master's degrees and doctorate degrees increased by 2-percentage points between 1990 and 2000. A sizable fraction of the nation's postgraduate degrees, especially in scientific and engineering fields, was conferred on persons holding a temporary student visa. For example, 40% of all Masters degrees and 45% all doctorate degrees awarded in scientific, engineering, and information technology fields during 2000 were granted to nonresident aliens.

These findings raise an important human resource development question: would it be in the nation's best interest to retain some of those foreign students who received post-baccalaureate degrees from the nation's institutions of higher education. The answer to this question has been made somewhat more complicated than a simple economic calculus would suggest after the terrorist attacks of 9/11 and the new security concerns that face the nation. It is, however, imperative to investigate the underlying causes of the slowdown in the growth of post-baccalaureate degrees earned by natives (especially native men) relative to nonresident aliens, particularly in light of the strong and growing demand for college educated workers especially in scientific, engineering, and information technology fields.

Table 11:
Trends in the Number of Degrees Awarded
by Visa Status of Recipient, U.S., 1990 and 2000

| | 1989- 1990 | 1999- 2000 | Absolute Change | Relative Change. |
|---|---------------|---------------|--------------------|---------------------|
| <u>Nonresident alien</u> | | | | |
| Associate's | 5,968 | 10,187 | 4,219 | 71% |
| Bachelor's | 26,644 | 39,159 | 12,515 | 47% |
| Master's | 34,744 | 56,180 | 21,436 | 62% |
| Doctorate | 8,770 | 10,869 | 2,099 | 24% |
| Total | 76,126 | 116,395 | 40,269 | 53% |
| <u>Native (not on student visas)</u> | | | | |
| Associate's | 463,125 | 568,673 | 105,548 | 23% |
| Bachelor's | 1,027,371 | 1,203,329 | 175,958 | 17% |
| Master's | 292,405 | 402,331 | 109,926 | 38% |
| Doctorate | 30,642 | 34,250 | 3,608 | 12% |
| Total | 1,813,543 | 2,208,583 | 395,040 | 22% |
| <u>Percent of all degrees awarded to nonresident aliens</u> | | | | |
| Associate's | 1.3% | 1.8% | 0.5 | 38.3% |
| Bachelor's | 2.5% | 3.2% | 0.7 | 24.7% |
| Master's | 10.6% | 12.3% | 1.7 | 15.4% |
| Doctorate | 22.3% | 24.1% | 1.8 | 8.3% |
| Total | 4.0% | 5.0% | 1.0 | 24.3% |

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) 1989-1990 and 1999-2000 public use data files; tabulations by authors.

Our analysis of trends in the number of degrees conferred on men by visa status over the past decade reveals sharp differences in growth rates in degree attainment between the two groups. Between 1990 and 2000, the total number of college degrees conferred on native males grew by only 12 percent versus a 30 percent growth rate among nonresident alien males. The number of associate degrees conferred on nonresident alien males increased by 51 percent compared to a growth rate of only 18 percent among native males. The rate of growth of bachelor's degrees awarded to alien males was three times as high as the growth rate among native males. The number of master's degrees awarded to alien males increased at nearly twice the rate among native males (39 percent versus 21 percent). At the Ph.D. level, the total number of degrees received by males would have declined had it not been for the increased number of male graduates with student visas. As a result of these changes in degrees at each award level, the share of all degrees conferred on males that were awarded to student visa holders increased

from 5.8 percent in 1990 to 6.7 percent in 2000, representing an increase of 0.9-percentage points or a relative increase of 15 percent. The share of degrees received by non-resident males varied considerably by degree level. In 2000, 3 out of 10 new Ph.D. degrees and slightly over 17 percent of all new master's degrees received by males were conferred on nonresident aliens. Male holders of student visas earned only 4 percent of all bachelor's degrees and less than 2 percent of all associate degrees in 2000.

Table 12:
Trends in the Number of College Degrees Awarded to Men
by Visa Status of Recipient, U.S., 1990 and 2000

| | 1989- 1990 | 1999- 2000 | Absolute Change | Relative Change |
|---|---------------|---------------|--------------------|--------------------|
| <u>Nonresident alien</u> | | | | |
| Associate's | 2,847 | 4,304 | 1,457 | 51% |
| Bachelor's | 16,979 | 20,804 | 3,825 | 23% |
| Master's | 23,782 | 33,129 | 9,347 | 39% |
| Doctorate | 7,128 | 7,663 | 535 | 8% |
| Total | 50,736 | 65,900 | 15,164 | 30% |
| <u>Native (not on student visas)</u> | | | | |
| Associate's | 195,664 | 230,353 | 34,689 | 18% |
| Bachelor's | 477,436 | 512,299 | 34,863 | 7% |
| Master's | 131,825 | 159,471 | 27,646 | 21% |
| Doctorate | 17,939 | 17,563 | -376 | -2% |
| Total | 822,864 | 919,686 | 96,822 | 12% |
| <u>Percent of all degrees among males awarded to nonresident aliens</u> | | | | |
| Associate's | 1.4% | 1.8% | 0.4 | 27.9% |
| Bachelor's | 3.4% | 3.9% | 0.5 | 13.6% |
| Master's | 15.3% | 17.2% | 1.9 | 12.5% |
| Doctorate | 28.4% | 30.4% | 1.9 | 6.8% |
| Total | 5.8% | 6.7% | 0.9 | 15.1% |

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) 1989-1990 and 1999-2000 public use data files; tabulations by authors.

Trends in the number of degrees conferred on women with student visas and their native counterparts are presented in Table 13. Although the concentration of foreign students was not as strong among women as it was among men, the number of foreign women who earned postsecondary degrees from American colleges and universities doubled from 25,000 in 1990 to 50,000 in 2000. The number of degrees conferred on native women increased at a much slower

rate, 30 percent, although this rate of increase was more than twice as high as that among their native male counterparts (12 percent).

Table 13:
Trends in the Number of Degrees Awarded to Women
by Visa Status of Recipient, U.S., 1990 and 2000

| | 1989-90 | 1999-00 | Absolute Change | Relative Change |
|---|---------|-----------|-----------------|-----------------|
| <u>Nonresident Aliens</u> | | | | |
| Associate's | 3,121 | 5,883 | 2,762 | 88% |
| Bachelor's | 9,665 | 18,355 | 8,690 | 90% |
| Master's | 10,962 | 23,051 | 12,089 | 110% |
| Doctorate | 1,642 | 3,206 | 1,564 | 95% |
| Total | 25,390 | 50,495 | 25,105 | 99% |
| <u>Native (not on student visas)</u> | | | | |
| Associate's | 267,461 | 338,320 | 70,859 | 26% |
| Bachelor's | 549,935 | 691,030 | 141,095 | 26% |
| Master's | 160,580 | 242,860 | 82,280 | 51% |
| Doctorate | 12,703 | 16,687 | 3,984 | 31% |
| Total | 990,679 | 1,288,897 | 298,218 | 30% |
| <u>Percent of all degrees among females awarded to nonresident aliens</u> | | | | |
| Associate's | 1.2% | 1.7% | 0.6% | 48.2% |
| Bachelor's | 1.7% | 2.6% | 0.9% | 49.8% |
| Master's | 6.4% | 8.7% | 2.3% | 35.7% |
| Doctorate | 11.4% | 16.1% | 4.7% | 40.8% |
| Total | 2.5% | 3.8% | 1.3% | 50.9% |

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) 1989-1990 and 1999-2000 public use data files; tabulations by authors.

The number of degrees conferred on female nonresident aliens increased by 88 percent or more at every degree level, including a 110 percent increase at the master's degree level. Native women also earned many more degrees in 2000 than in 1990, but the rate of increase in graduation among these women was much smaller compared to nonresident alien women. However, the rate of increase in new degrees awarded to native women at every degree level between 1990 and 2000 was much higher than the rate of increase in new graduates among native males.

The share of all degrees awarded to women that were conferred on nonresident aliens increased from 2.5 percent in 1990 to 3.8 percent in 2000, representing a 1.3 percentage point

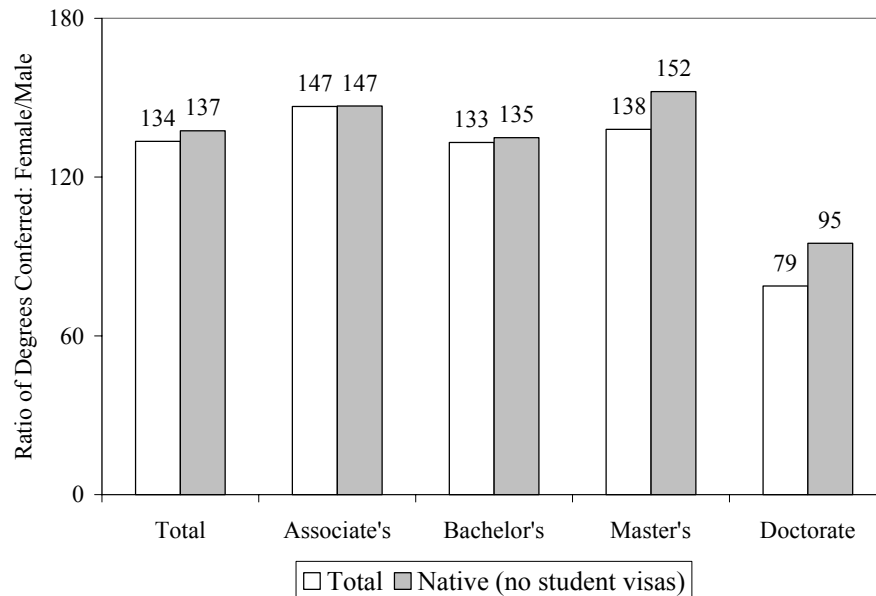
increase or a relative increase of 51 percent. As was the case for males, the share of college degrees received by nonresident alien women varied considerably by type of degree. In 2000, over 16 percent of all Ph.D. degrees awarded to females were conferred on nonresident alien women, an increase of 4.5-percentage points or 41 percent since 1990. The proportion of master's degrees awarded to nonresident alien women increased from 6.4 percent in 1990 to 8.4 percent in 2000.

A comparison of the growth rates in the number of degrees conferred by gender revealed a much more rapid increase among women than among men. Despite the sharp increases in degree attainment between 1990 and 2000, nonresident alien graduates accounted for a much smaller fraction of all female graduates than they did among new male graduates. The share of all degrees in 2000 conferred upon nonresident aliens among males was 6.7 percent compared to 3.8 percent among women, a difference of 2.9-percentage points. The major factor underlying the higher share of degrees received by nonresident aliens among men was the lackluster performance of native males. While the total number of degrees earned by both male and female nonresident alien students increased sharply (30 percent among males and 99 percent among females) and by higher rates than their native counterparts, native females achieved a much higher rate of growth in degrees earned than native males (30 percent versus 12 percent).

As a result of these substantial differences in degrees earned by native males and females, the gaps between the number of degrees awarded to native females and males were larger than the overall gender gaps between the total numbers of degrees awarded. Chart 13 displays the ratios of degrees awarded to women per 100 men in the 2000 school year for all persons and for natives only. The ratio of the number of degrees awarded to women per 100 men was higher among native persons (137 females for every 100 males) than it was among all persons—134 females per 100 males. These gender gaps were more substantial at higher degree levels. Overall, 138 master's degrees were awarded to women for every 100 awarded to men. Among natives (those not on student visas), the ratio was 152 women per 100 men. Overall in 2000, 79 doctorate degrees were granted to women for every 100 men. After excluding those Ph.D. recipients with a student visa, native women were awarded 95 doctorate degrees for every 100 degrees awarded to men. While the overall gap between the total number of degrees conferred on women and men was quite large, in the absence of those foreign-born persons who held

student visas, the gender gap in degree attainment would have been even larger, particularly at the bachelor's and master's degree levels.

Chart 13:
Number of Degrees Conferred on Women Per 100 Men, Total and Native, U.S., 2000



Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) 1999-2000 public use data files; tabulations by authors.

The Future Outlook for Gender Gaps in Post-Secondary Educational Attainment

The above findings have revealed the existence of widening gender gaps in post-secondary educational enrollment and degree attainment over the past few decades in the U.S. as a whole and in all regions and states. In every major age and race-ethnic group, women across the nation now enroll in college, persist in college, and graduate from college at considerably higher rates than men. These growing gender gaps in college enrollment and degree attainment have prevailed in every major geographic region and division and in the vast majority of states, especially in the South.

The future outlook for gender differences in degree attainment is for widening gaps over the current decade. A recent review of historical trends in the educational expectations of young men and women has revealed the rise of significant gender differences in expectations of college

graduation over the past two decades.²¹ At the end of the 1970s, the National Longitudinal Survey of Youth (NLSY 79) revealed that 15-16 year old male and female adolescents had statistically identical expectations of completing a four year degree. During 1997, however, female adolescents were significantly more likely than their male counterparts to report that they expected to complete four years of college. Their expected probability of obtaining a bachelor degree was at least 10 percentage points higher than that of adolescent men.²²

In earlier surveys of the educational expectations of young adolescents based on the National Education Longitudinal Survey (NELS), the U.S. Department of Education found that among 1988 eighth graders women were more likely than men to report an expectation of obtaining at least a bachelor's degree (68% vs. 63%). When interviewed four years later in 1992, women also more often reported than men an expectation of completing at least four years of college (63.2% vs. 59.7%).²³ Given higher educational expectations among women and findings of past national research which shows that expectations are strongly correlated with ultimate educational attainment, one would expect women's future educational attainment to continue to outpace that of men.

Projections of future college degree awards by gender and level of schooling through the year 2010 have been made by the U.S. Department of Education's National Center for Education Statistics.²⁴ We have reviewed the Department of Education's findings on the projected number of associate, bachelor, and master's degrees that will be awarded to men and women during the 2004-05 and 2009-2010 school years and compared them to the number of degrees that were actually awarded during the 1999-2000 school year. At each degree level, the number of women who are projected to obtain degrees over the coming decade will grow at a higher rate than men.

²¹ For an overview of the educational expectations of the members of the NELS cohort at the time of both the 1988 and 1994 surveys, See: Allen Sanderson, Bernard Dugoni, Kenneth Rasinski, and John Taylor, *National Education Longitudinal Study: 1988-1994...*

Findings on the educational expectations of 15-16 year old males and females from the 1997 National Longitudinal Survey of Youth are presented in the following publication: John R. Reynolds and Jennifer Pemberton, "Rising College Expectations Among Youth in the United States: A Comparison of the 1979 and 1997 NLSY," *The Journal of Human Resources*, Volume 36, Number 4, Fall 2001, pp. 703-726.

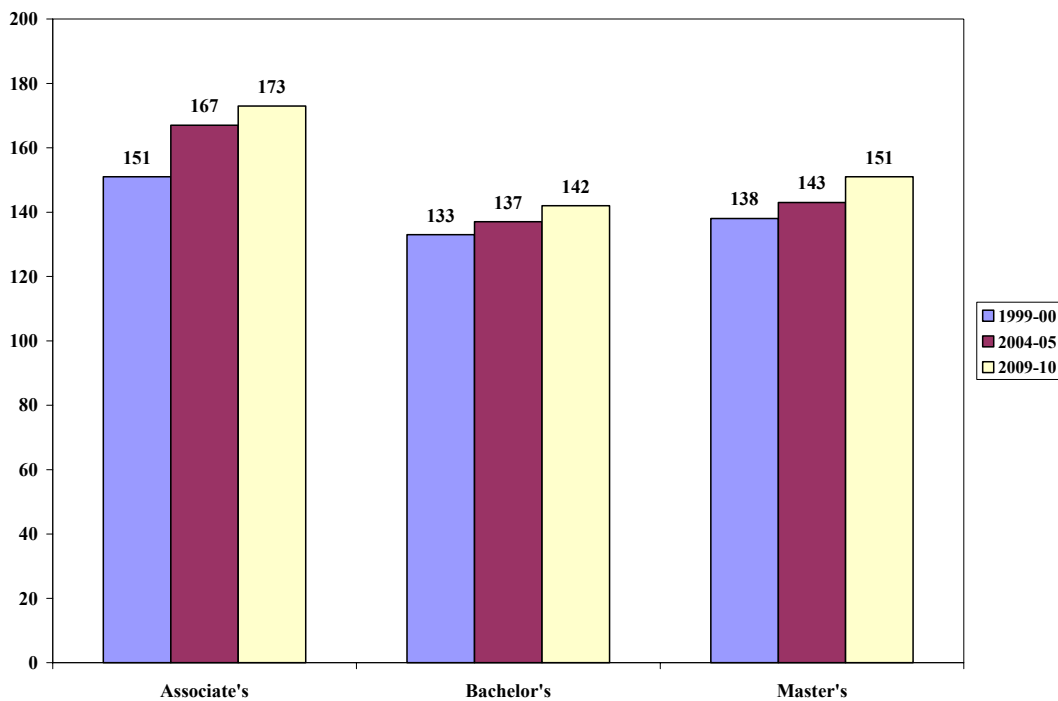
²² The 1997 NLSY survey not only asked respondents how much formal education they expected to complete, but it also obtained information from respondents on their self-assessed probability of obtaining a bachelor's degree.

²³ These findings are based on the 1988 and 1992 NELS interview surveys.

²⁴ The U.S. Department of Education also projects undergraduate enrollments by gender in two and four-year post-secondary institutions. In the fall of 1999, there were 128 women enrolled in such college programs for every 100

During 1999-2000, there were 151 associate degrees awarded to women for every 100 associate degrees awarded to men. By mid-decade, this ratio is projected to rise to 167 women per 100 men and by 2009-2010 the ratio is projected to rise to 173 women per 100 men (Chart 14). Among bachelor degree recipients, the number of degrees awarded to women relative to men is projected to rise from 133 at the end of the 1990s to 142 per 100 by the year 2010. Women also are projected to widen their lead over men in acquiring Master's degrees over the coming decade, with the ratio of women to men rising from 138 per 100 at the end of the 1990s to 151 per 100 in the year 2010. (Chart 14).

Chart 14:
Number of Women Awarded Associate, Bachelor, and Master's Degrees Per
100 Men, U.S.: Actual in 1999 – 00 and Projected for 2004 – 05 and 2009 – 10

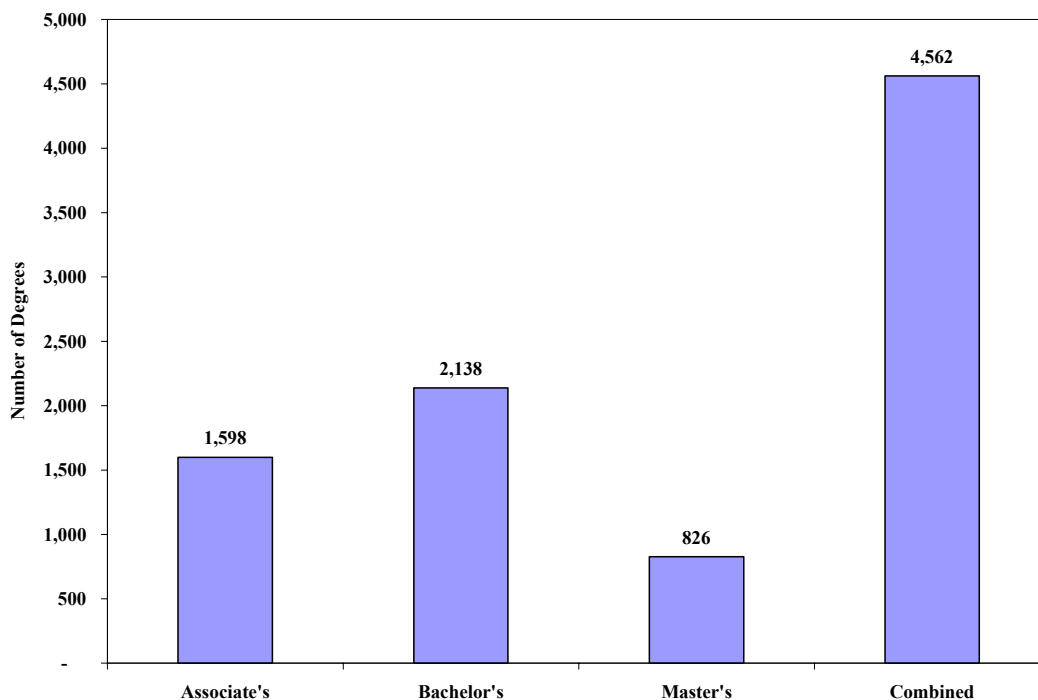


We have analyzed the projections of the total number of associate, bachelor, and Master's degrees that will be awarded to men and women each year over the 1999-2000 to 2009-2010 school years. The gaps between the number of degrees that will be awarded to women and men at each educational level were summed over this 11 year period. To achieve gender equality in the number of degrees awarded to men and women over the above 11 year period, males will have to obtain nearly 1.6 million more associate degrees, 2.14 million more bachelor degrees,

men. By 2010, the Department of Education projects that the female/male enrollment ratio will rise above 138.

and 826,000 more master’s degrees, representing a grand total of 4.562 million more post-secondary degrees in these three categories. (Table 14 and Chart 15). The achievement of this key national educational goal would require a massive increase in degree attainment by men over that currently projected by the U.S. Department of Education. The nation’s males would need to obtain 66% more associate degrees, 37% more bachelor degrees, and 44% more master’s degrees than they are currently projected to secure over the decade by the National Center for Education Statistics. This goal cannot be met in the absence of a major increase in male academic preparation (especially improved reading and writing proficiencies), college enrollment, and college persistence. Despite the critical importance of boosting future degree attainment among American males, little attention has been paid to this issue by either national and state educational policymakers and administrators or by political leaders from both political parties.

Chart 15:
The Number of Additional Associate, Bachelor, and Master’s Degrees
Needed by Men to Achieve Gender Equality by 2010
 (Numbers in 1000s)



What’s At Stake in Boosting Male College Degree Attainment?

See: U.S. Department of Education, *The Condition of Education, 2002*, p. 130.

The case for substantively boosting the number of men enrolling in post-secondary educational institutions and obtaining college degrees is based upon a variety of positive links between labor market, economic, political, and social outcomes and higher levels of formal schooling. A brief summary of the more important links between male educational attainment and key labor market, economic, and social outcomes is presented below.²⁵ A more comprehensive analysis of these relationships will be provided in a future research report by the authors.

First, males with post-secondary schooling are more likely than their less educated peers to actively participate in the labor force and to work more weeks and hours during the year. Thus, a better educated adult male population should increase the national pool of future workers and the annual aggregate supply of labor hours and help reduce future labor shortages in high skilled occupations.

Second, better educated adult males are less likely to be unemployed and underemployed when they do seek work. Increasing the future number of adult men with post-secondary degrees should, thus, help lower aggregate unemployment and reduce structural unemployment problems in the nation's labor markets.

Third, better educated workers (both male and female) tend to raise the productivity levels of firms in most industries. Improved formal schooling among male workers should, thus, help boost labor productivity and long-term national economic growth, thereby raising American living standards.

Fourth, due to their higher annual hours of work and their higher real wages, a better educated male workforce will obtain higher real annual earnings. Findings on the expected lifetime earnings of U.S. male adults abased on cross-sectional findings from March CPS surveys during calendar years 2000 and 2001 show that the average male holding an Associate's degree could expect to earn approximately \$450,000 more over his working life than the typical

²⁵ For an earlier review of the relationships between the educational attainment of young adults and their labor market success, See: Andrew Sum, Neeta Fogg, and Garth Mangum, *Confronting the Youth Demographic Challenge...*

male with only a high school diploma.²⁶ Males with a bachelor's degree would obtain mean lifetime earnings that are nearly \$1.25 million higher than those of male high school graduates with no post-secondary schooling.

Fifth, as a consequence of their considerably higher lifetime earnings, better educated males will pay higher Social Security payroll, state income, and federal income taxes over their lifetime, with the size of these tax revenue streams rising strongly with the level of formal schooling. Better educated males also receive far less in cash and in-kind benefits (food stamps, Medicaid, rental housing subsidies) than their less educated counterparts from federal, state, and local governments. A better educated adult male labor force should help improve federal and state budgets and strengthen the financial position of the Social Security system.

Sixth, better educated males, especially past age 30, are more likely to be married and living with their spouses and children. They are less likely to father children out of wedlock. A better educated male population, thus, should help increase marriage rates, strengthen family life, reduce family poverty and dependency, and improve the future economic prospects of the nation's children.

Finally, a better educated and more literate male population should increase civic engagement, voting rates, and volunteerism and strengthen political democracy. Based on findings of past national research, a more well educated adult male population should also be less involved with the criminal justice system, reduce the number of adults incarcerated in jail and prison, and lower overall crime rates.

²⁶ These lifetime earnings estimates are based on cumulating the mean annual earnings of males with associate degrees and high school diplomas from ages 18 to 62. Those persons with no paid employment during the year were assigned an earnings figure of zero.