

Chapter

3

AGING & EMPLOYMENT

Educational Attainment

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BSAD 395A: Aging & the Workforce
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Abstract

The purpose of this chapter is to review and describe how educational attainment levels affect the population in the U.S. over a life-span. Various groups and cohorts within the population are affected in different ways and magnitudes. Large disparities and gaps are identified between genders, racial and ethnic groups, and age groups, even at equal educational levels. Combined with these individual characteristics, educational attainment affects the opportunities available to people throughout their lives and their overall success in their careers. The chapter goes on to describe how educational attainment levels affect various groups in each of the following ways: occupational choices, retirement decisions, demographic changes, geographic influences, labor force participation, retraining needs of older workers, incidence of displacement, earnings, and lifetime earnings. These areas are covered in terms of the overall population and with a special focus on the aging population.

Educational attainment levels have been increasing with each generation as has the demand for an educated labor force. The total United States population has been and will continue to grow, but one of the most significant trends has been in the growth rates of the older population as the baby boomers age. Through retirement, the older and less educated workers are being replaced by a better educated younger generation. The increase in technological advancement and the changing demands in the workplace have created a greater need for higher educational attainment and the retraining of the existing labor force, especially the aging or displaced workers. The chapter concludes by providing recommendations for our society in the future related to educational attainment.

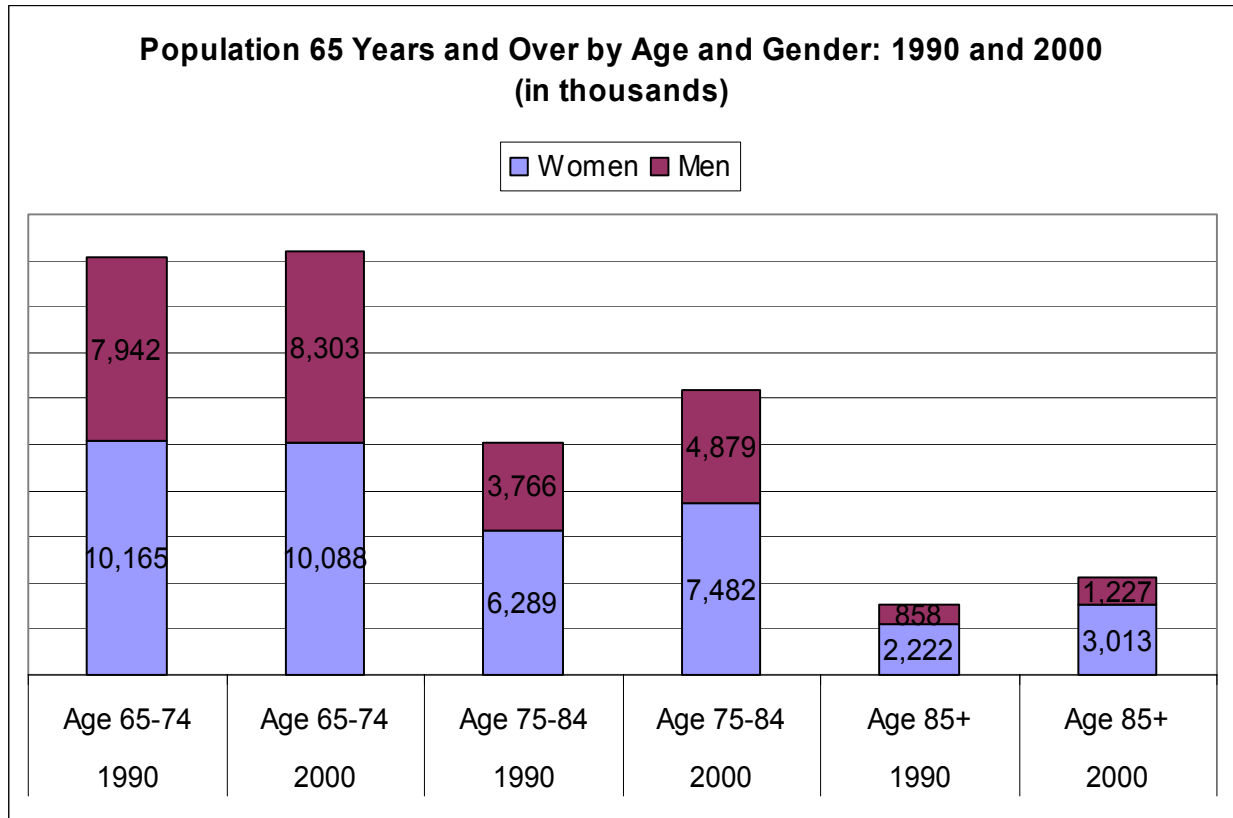
Issue Statement

Educational attainment levels affect the population over a life-span in terms of: age, gender, race and ethnicity, occupational choices, retirement decisions, demographic changes, geographic influences, labor force participation, retraining needs of older workers, incidence of displacement, earnings, and lifetime earnings, especially concerning the aging population.

Literature Review

Population and Demographic Trends:

The population in the United States has been growing over time and will continue to grow in the future. However, some of the demographic trends have changed in recent decades. A significant change in population trends is the growing number of people ages 65 and over. There were 35 million people over the age of 64 in 2000, which represents a 12 percent increase since 1990. However, in terms of the proportion of the total population, this older population actually decreased from 12.6 percent to 12.4 percent in the same time period. Though the number of people over the age of 64 increased, this segment actually grew slower than the total population. The population distribution of those ages 65 and over is shown in the following chart.



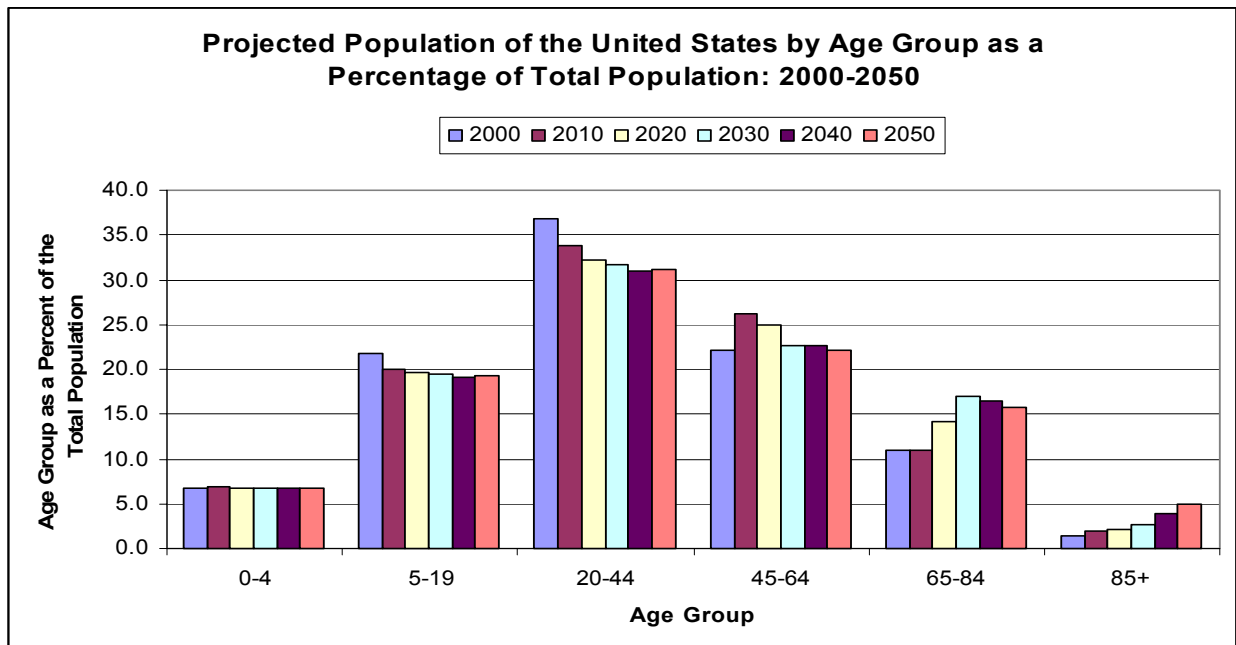
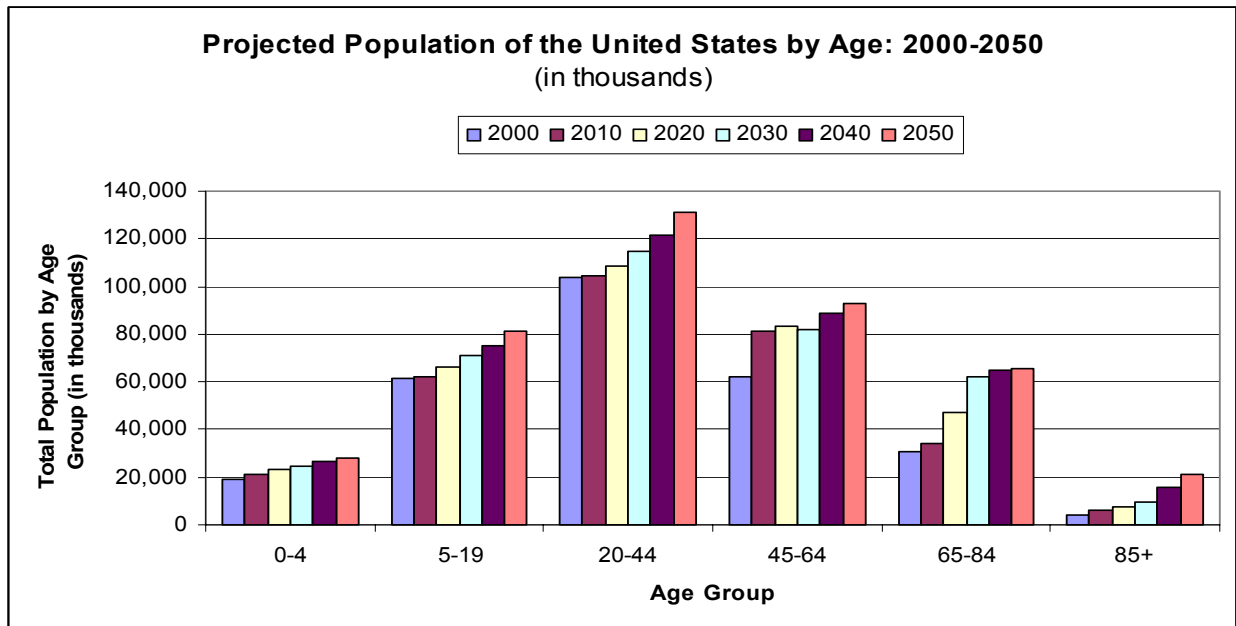
Source: US Census Bureau. <http://www.census.gov>

The total population increased by 13.2 percent to 281.4 million people during this ten year period. The age group with the greatest percent age increase in proportion of the overall population was actually those ages 85 and over, increasing by 38 percent. These population demographics show that the aging of the American population is an important trend and concern for society today and in the next few decades. (Hetzl)

Another demographic trend important to note is that women outnumber men in the older population ages 65 and over. In 2000, there were 20.6 million women in this age group compared to 14.4 million men. The two regions in the United States that had the most growth in the older population, as well as the total population, were the West and the South, with a 20 percent and a 16 percent increase respectively.

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The following charts show the total projected population for the United States between 2000 and 2050 in ten year increments and by age groups. The first chart shows the total population in numbers by age group and the second chart shows each age group as a percentage of the total population.



Source: U.S. Census Bureau, 2004

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The percent projected population chart shows that the only age groups increasing over the 50 year time period as a percentage of the total population are the 65-84 and 85+ groups.

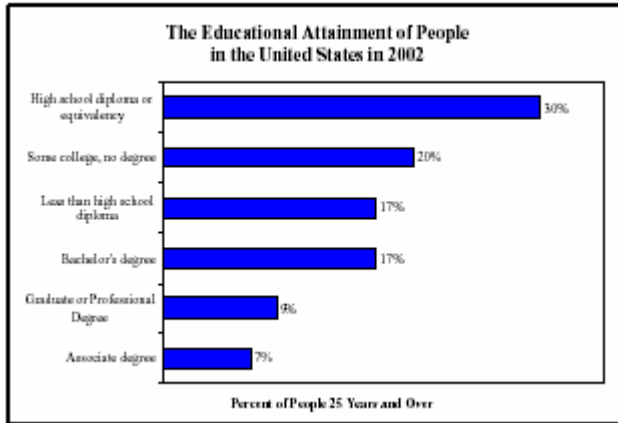
These groups include the aging baby boomer generation.

Educational Attainment:

Educational attainment is one of the many important factors that influence individuals' choices, opportunities, and decisions throughout their life-span. Higher levels of education are closely associated with higher average earnings for workers over the age of 25 and salary earnings compound to significant differences over a lifetime. At the same time, unemployment decreases with additional educational attainment. There are also wide disparities in the education levels of different racial and ethnic groups. It has been shown that people with less education often have fewer choices and options in life. Therefore, educational attainment is clearly a significant element for most people throughout their life-span, as raising the educational levels of all groups will benefit the individual and society, through higher incomes, more tax revenue, and fewer people on public assistance. ("Educational Attainment.")

Although an education has always been important, these days it is more valuable than ever. According to the American Community Survey (ACS), in 2002, approximately 83 percent of people over the age of 25 had at least obtained a high school diploma (high school education or more), and 26 percent had achieved a bachelor's degree or higher. This is a 6 percent increase since 1990.

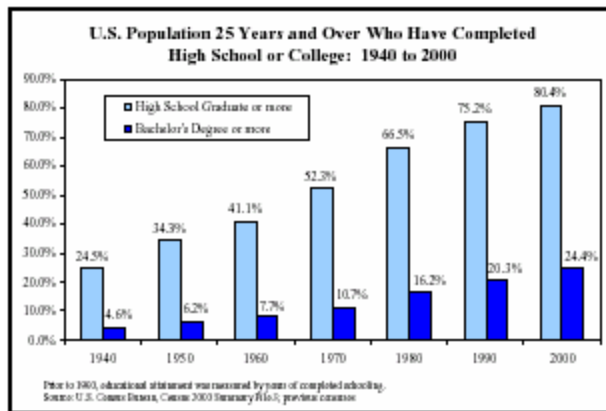
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Cantu, 1

Previously, there had been a much lower attainment rate. For example, according to the U.S. Census Bureau, in 1975, 63 percent of adults were high school educated, and 14 percent had earned a bachelor's degree. This higher educational level comes from an increasingly more educated younger populace replacing an older, less educated one.

Since 1940, the number of people who have graduated from high school as well as those who have earned a bachelor's degree has been increasing each decade.



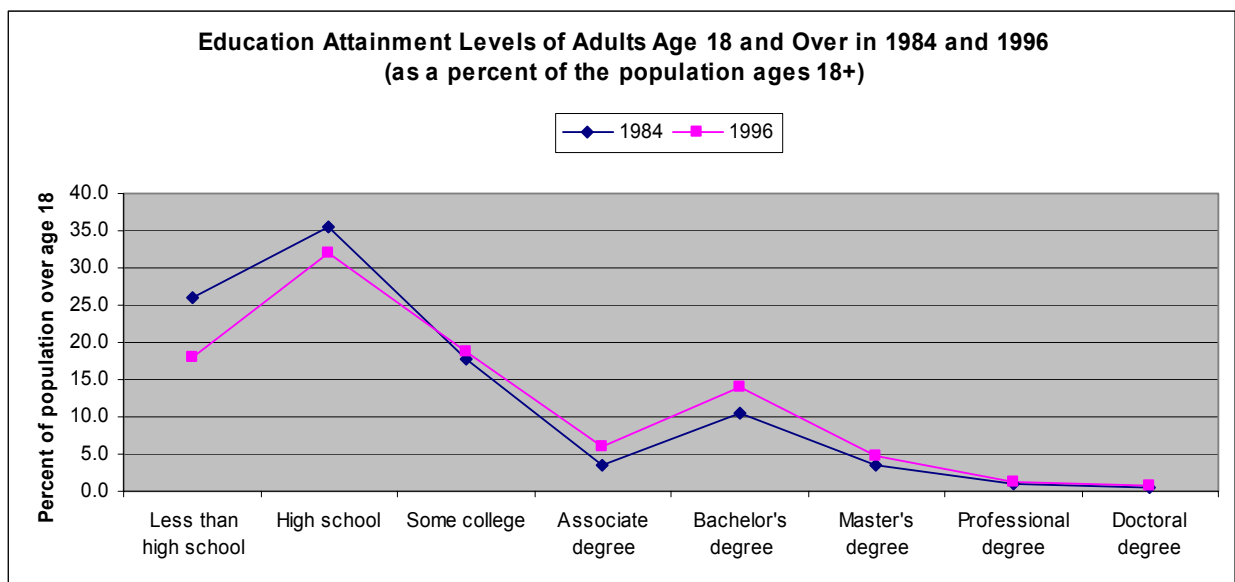
Cantu

From this chart one can see that the biggest jump in the percentage of individuals who completed high school and college occurred during the 1980's. This may be attributable to the fact that there was a need for higher skilled people during the boom in the

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economy, as well as the fact that more women during this time period were earning more bachelor degrees.

The economic rewards of education continue to increase, as do the numbers of people in the United States with degrees. The increase in economic rewards is especially evident beyond the high school attainment levels. There have been vast changes in education attainment over the last fifty years. In 1996, twice as many people ages 25-34 had vocational, associate, bachelor's, or higher degrees than those ages 65 and over. The increase in educational attainment has been especially evident among women. The change in educational attainment levels between 1984 and 1996 of adults age 18 and over is shown in the figure below. (Bauman)

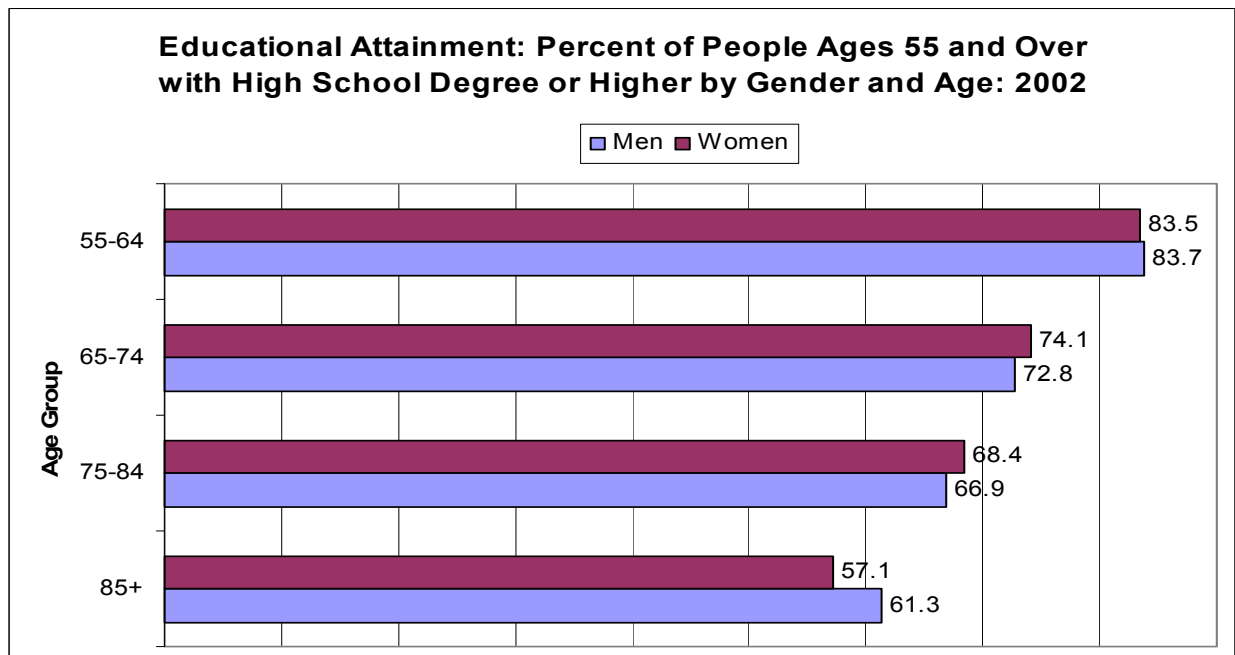


Source: Bauman, US Census Bureau. <http://www.census.gov>

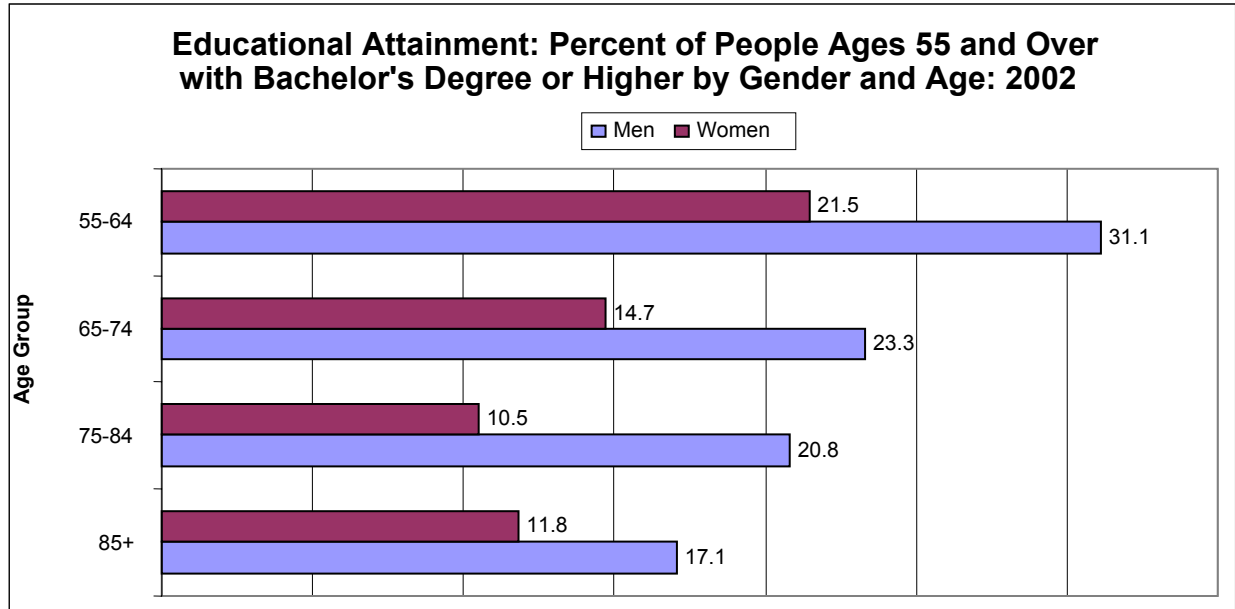
As you can see, between 1984 and 1996, more people are going to college, with a higher number of people earning associates, bachelor's and master's degrees. And of the degrees earned, the bachelor's is the highest.

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Among the older population ages 55 and over, men are more likely than women to have a bachelor's degree or higher, though women outnumber men in this age category. There is also less ethnic and racial diversity among the older population than the younger cohorts. In 2002, there were 26.6 million men and 33.0 million women ages 55 and over. (Smith) The educational attainment trends of this age group by gender are shown in the two charts below, distinguishing between high school degree or higher and bachelor's degree or higher.



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Source: Smith, US Census Bureau. <http://www.census.gov>

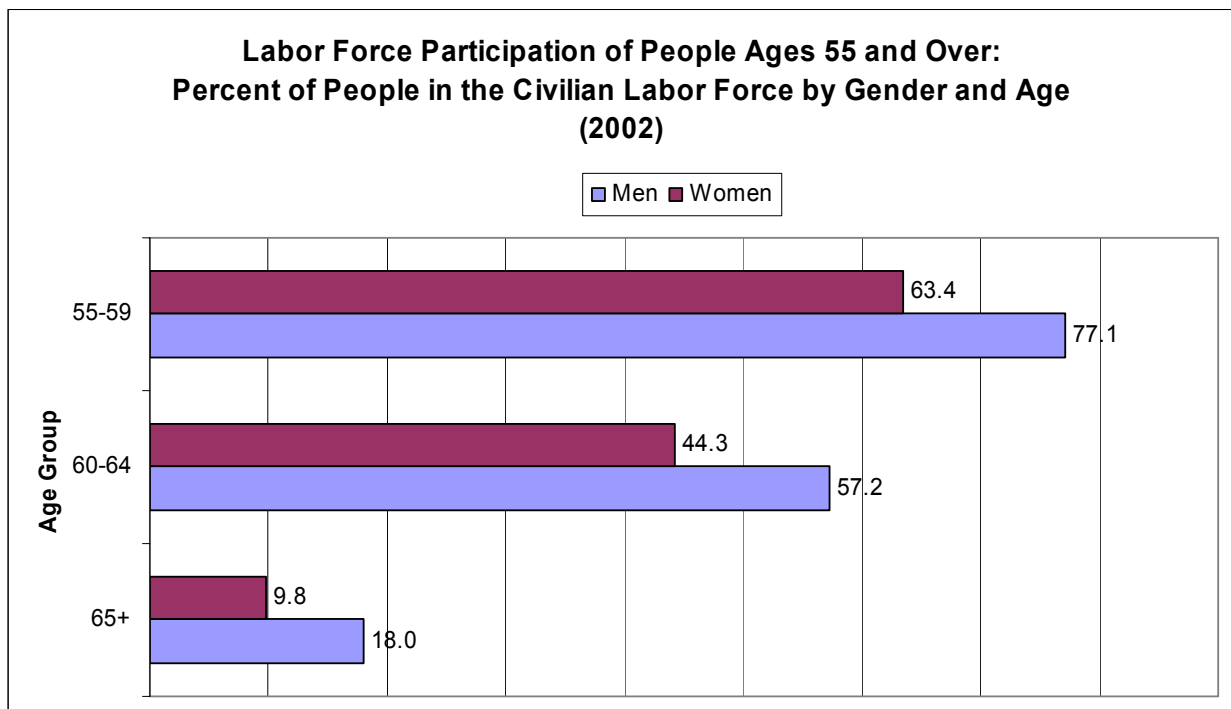
The first chart reflects the fact that the younger cohorts are more educated than the cohorts from previous decades. As time goes on, the United States population is growing more educated. From this we can also see that the gap in educational attainment is also narrowing between men and women. Over time, men and women have received more bachelor's degrees. During each decade of cohorts however, men have surpassed women. The second chart shows that more men over 55 have completed college degrees than women in the same age groups. This gender difference can be explained in part by the fact that women at that time stayed home to start families, and take care of the household. Women did not need the education to work outside of the home.

Labor Force Participation:

The labor force participation of the population over the age of 55 is demonstrated in the chart below. Older men in this age category are more likely than older women to

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be in the labor force, and the rate declines proportionately with age for both sexes. (Smith) This gender difference in labor force participation can partly be explained by the fact that women faced different societal norms growing up and during their lives than women do today. They were more often expected to stay home once they married as housewives and raise their families. Even the women interested in working at a later age have historically found it more difficult to enter the labor force later in life, often due to a lack of skills or work experience. However, with each decade, women have become more educated and more likely to participate in the labor force for a greater portion of their lives.



Source: Smith, US Census Bureau. <http://www.census.gov>

Age:

The newer cohorts of Americans are completing more years of schooling. College graduates are more likely to be active in the labor force, including those over age

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65. According to Podgursky and Swaim (1987), those without a high school diploma were 80 percent more likely than high school attainment to work part time for economic reasons and five times more likely than college graduates. “Part of the difference between the involuntary part-time employment rates of poorly educated and more well-educated older workers is probably attributable to differences in job displacement rates and reemployment adjustment problems, with dropouts having more trouble securing full-time jobs once they have left their career jobs (Podgursky and Swaim 1987).” (Bridges to Retirement, 56)

In the 1980’s high school dropouts were the least likely to reenter the workforce compared to college graduates whom were the most likely. This could be attributable to the high demand for professional and managerial workers in the late ‘80’s. ”Future cohorts of older workers will be better educated and therefore better positioned to work longer. Simultaneously, there will be much variance in education and skill development, leaving those with less education and limited skills at greater risk of becoming “obsolete” at they age.” (Crown, 70) Baby Boomers have reached higher educational levels than their previous cohorts.

Gender:

Through the 1980’s at nearly every age and education level income grew for women relative to men. It is expected that this shift will continue to occur due to the occupational development of the economy and increasing investment in education and job tenure from women. Prior to 1960, the gap in earnings between men and women was so great that it did not make much economical sense for women to work. Instead more

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women married earlier and had children. This trend and gap in earnings was due to the fact that during this time, men began taking advantage of government-provided subsidies from the G.I. bill to earn college degrees instead of stopping at the high school level.

Over the past 25 years, the percentage of men and women over the age of 25 who have obtained a bachelor's degree has risen, with women narrowing the gap. Looking at labor force participation rates among females shows that each decade of women has achieved a higher level of education than those previously. Women have become encouraged to pursue a higher educational level because of new opportunities as well as the changing economic and social environments. Since 1982, more women than men have received bachelor's degrees in the U.S. Despite the fact that the educational gap is narrowing, men still are earning more than women at each educational level. According to the U.S. Census Bureau the female- to-male earning ration was .67. Using all workers, which include part-time workers, this ratio drops to .57. This difference is due to the fact that women are more apt to work part-time or to be a seasonal worker.

According to the U.S. Census Bureau, over the work-life men can potentially earn almost \$2 million more than females. "Women, minorities, young people, employees of smaller firms, lower-level workers, and workers with lower levels of formal education tend to receive disproportionately low amounts of skills improvement training." (Hanson, 68) The average level of experience and job tenure has increased among women as the labor force becomes more highly educated. Women's drive to remain in the labor market after marriage and childbirth has resulted in higher educational attainment, tenure and work experience.

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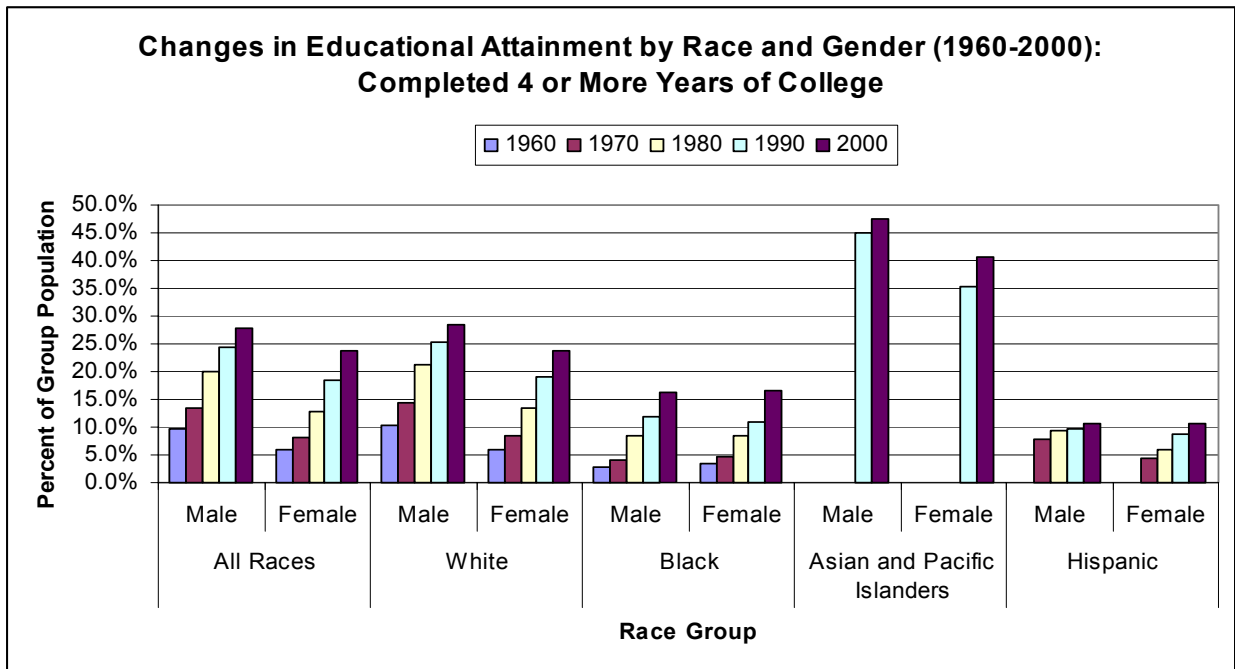
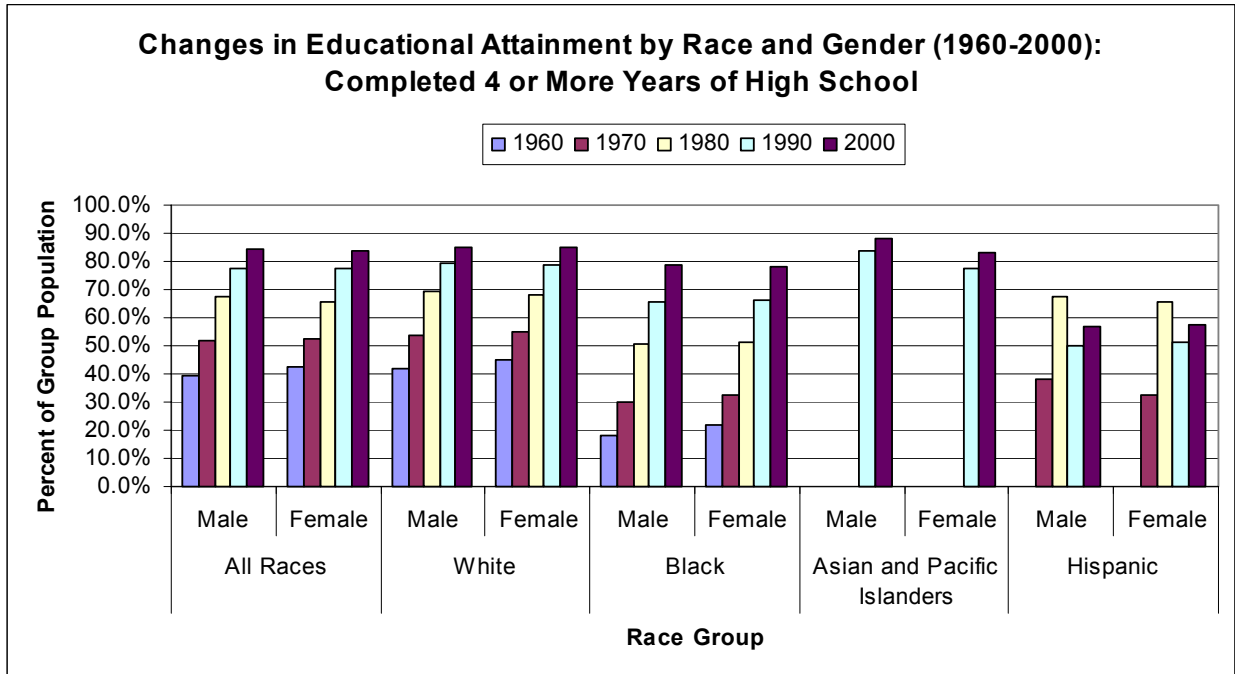
The time spent on completing advanced degrees varies among both gender and race groups. Those who completed bachelor's degrees or higher and started this level of education almost immediately after high school had an average delay of around one year. Women at the master's level take an average of one year longer than men to complete their degrees.

Race and Ethnicity:

The fastest growing population segment in the United States is that of Hispanic youths. Compared to other ethnic groups, Hispanics are more likely to drop out of high school and have a lower rate of college completion. It is estimated that by 2020, 1 in 6 U.S. residents will be of Hispanic origin. In 1990, Hispanics made up more than 9 percent of the population and growth is expected to be approximately 3.5 percent every five years.

Across population subgroups, education progress is uneven, although the non-white population receiving college degrees has increased. The changes in attainment by race and gender are demonstrated in the following two charts for both high school and college levels.

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Source: U.S. Bureau of the Census.

One reason for Hispanics' lower level of education compared to that of non-Hispanics is that new immigrants are less educated. Looking at native-born Hispanics, there is growth in educational attainment, however, there still is a lower completion rate.

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This dropout rate is highest for those Hispanics who are first generation immigrants, and then next among second generation immigrants. Even among third generation or higher the dropout rate for Hispanics was nearly twice that of Whites, according to 1998 statistical data from U.S. Department of Education, National Center for Education Statistics.

Higher educational attainment stems from early education in the home and at school. “One report using 1999 data indicates that among 3- to 5- year-olds not yet enrolled in kindergarten, Hispanic children were less likely than non-Hispanic children to regularly engage in such “home literacy” activities as being read to, told a story, or taught letters, words, or numbers.” (Council, 4) Hispanic 3- and 4-year-olds are also less likely than non-Hispanic White children to be enrolled in early childhood education programs. In their pre-teen to teen years Hispanics typically also lag behind non-Hispanic whites in reading and math proficiency. Naturally, this leads Hispanics to score lower on the college entrance exams on average. This may also be in part attributable to the fact that they may be the first generation to attend college, and therefore their parents may be in no position to help guide them through the college-preparation process. The Hispanic population is also less likely to have taken the PSAT, to help them prepare for the SAT. Many of the differences in the educational attainment gap are attributable to the differences in family background and income. This disparity is apparent at a very young age, long before choices are made to complete high school or to go to college. Therefore, these disparities existing among disadvantaged members of the society need to be addressed before these choices have to be made. Income is also a predictor of

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educational attainment in that high-income families are more likely to send their children to college, particularly four-year colleges.

“[The] racial and ethnic mix of the American labor force will be shifting in future years. Future changes in this mix, especially those attributable to immigration, could conceivably exert downward pressure on future levels of educational attainment.” (Crown, 383) Non-Hispanic Whites are aging faster compared to other racial and ethnic groups. This means that different age brackets are becoming multicultural at different rates. Despite the progress, the Hispanic population has become more educated a gap still remains. These gaps spell trouble for the labor market which is showing an increased demand for workers who have strong problem-solving ability and technical skills.

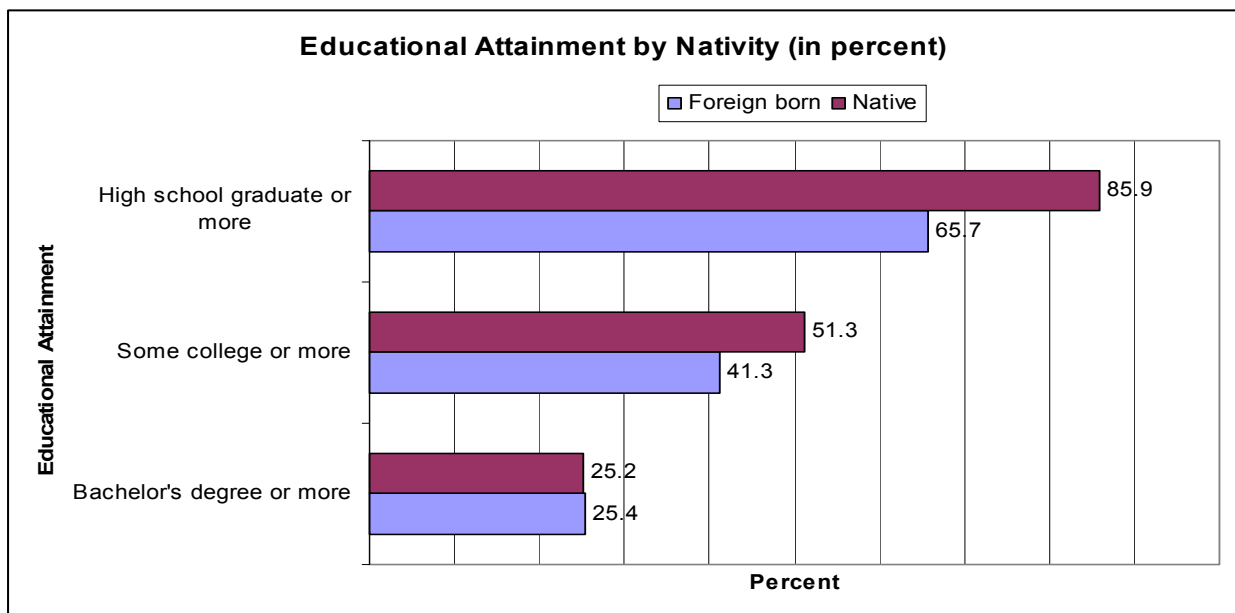
As with other groups, Hispanic's Lifetime Earnings will increase with educational attainment. However, at nearly every level of education, White non-Hispanics earn more than Blacks or Hispanics. Asian and Pacific Islanders with a comparable educational attainment at the high school graduate levels and the bachelor's level will earn less than White non-Hispanics. Those with graduate degrees, such as master's, doctoral, or professional, will have earnings like that of White non-Hispanics. Despite the fact that the work-life earnings are lower for Blacks and Hispanics than that of White non-Hispanics, educational attainment is still shown to provide great value. The bottom line is that despite one's race or ethnicity, educational attainment will pay off in the form of higher earnings.

Blacks take longer than Whites to finish their bachelor's degrees, while there is no significant time difference between Hispanics and Whites in completing this same

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educational level. However, the time difference between Blacks and Hispanics remains significant. (Bauman)

A comparison of the educational attainment levels of the natives of U.S. and foreign born populations reveals that there is a dramatic difference at the high school education level with a much lower percentage of foreign-born high school graduates, however, this gap narrows as educational attainment increases. There is actually almost no difference in the percentages with college attainment or higher levels between the native and foreign born. This is evident in the following chart. (Newburger)

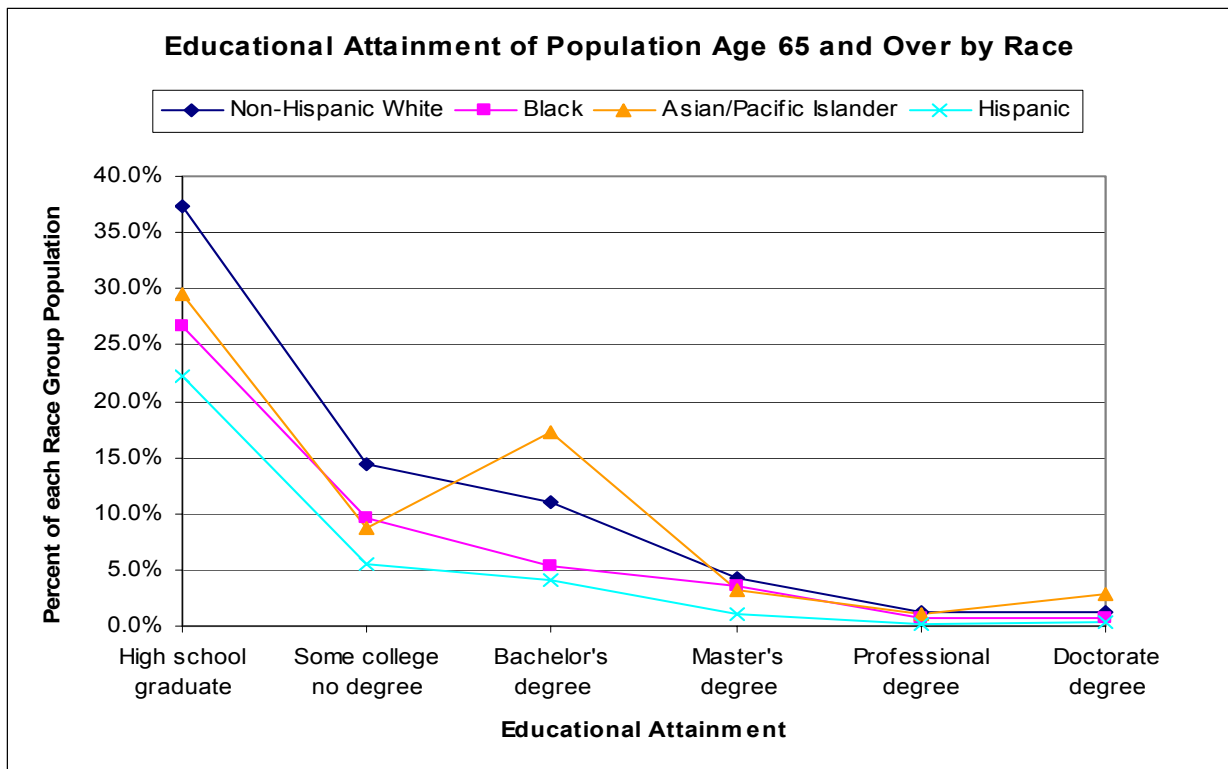


Source: US Census Bureau. <http://www.census.gov>

The differences in educational attainment levels of the older population age 65 and over for different race groups are shown in the chart below. The differences by race are most significant at the high school degree level and become smaller at the more advanced levels. One notable stray from the general trend of Whites leading in educational attainment across levels is in the high percentage of the Asian and Pacific

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Islander group with bachelor's degrees, surpassing all other groups at this education level. (US Census Bureau, 2002) Part of this trend may be due to the high educational standards and value attributed to education by the native cultures of the Asian and Pacific Islanders. Another is that a larger percentage of Asian and Pacific Islanders already arrive in the United States with higher levels of education than some of the other race groups, such as Hispanics.



Source: US Census Bureau. <http://www.census.gov>

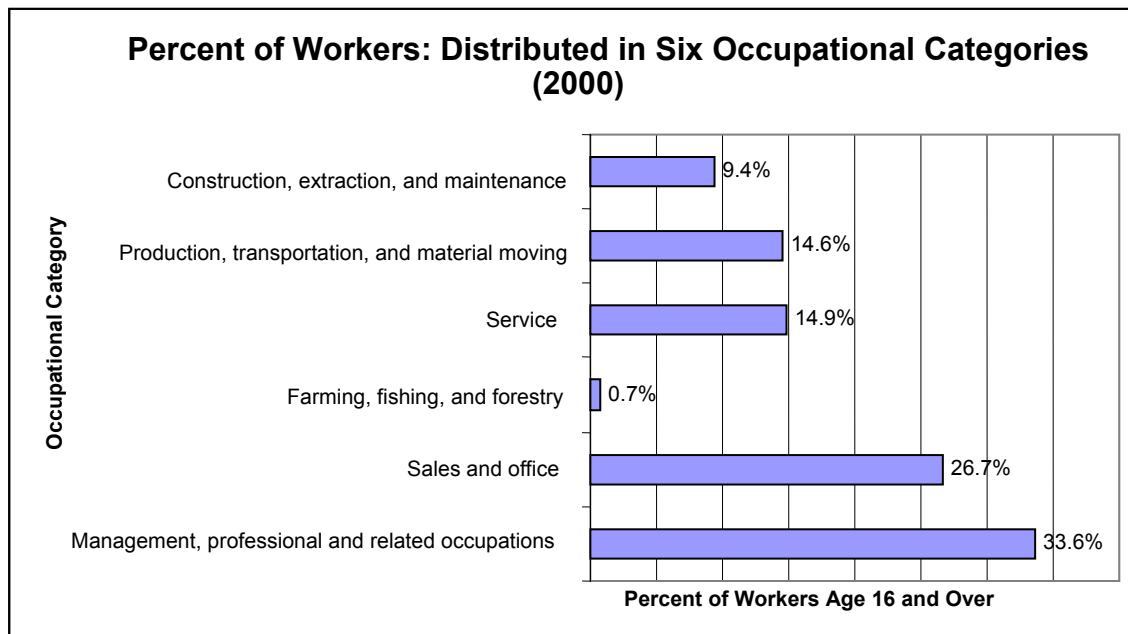
Occupation:

Occupational choices are directly influenced by the type and level of education that an individual receives. Human capital is enhanced by formal education, where individuals learn the latest technology. This results in helping to increase economic

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growth. The U.S. economy has gone through a technological transformation which has changed the nature of work and has resulted in a whole new set of skills. As a result, there has been a surge of jobs in the information technology sector. This growth is expected to continue.

In 2000, there were 281.4 million people in the U.S., of whom 129.7 million were age 16 and over and employed. The distribution of these workers among six major occupational groups is provided in the chart below.



Source: Fronczek, US Census Bureau.

There are still gender differences among workers in the workplace today, including the type of jobs most frequently held by men and women. “The top occupations for men included: drivers/sales workers and truck drivers; first-line supervisors/managers of retail sales workers; retail salespersons; laborers and freight, stock and material movers; carpenters; and janitors and building cleaners...And the top occupations for women included: secretaries and administrative assistants; elementary

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and middle school teachers; registered nurses; cashiers; and retail salespersons.”
(Fronczek)

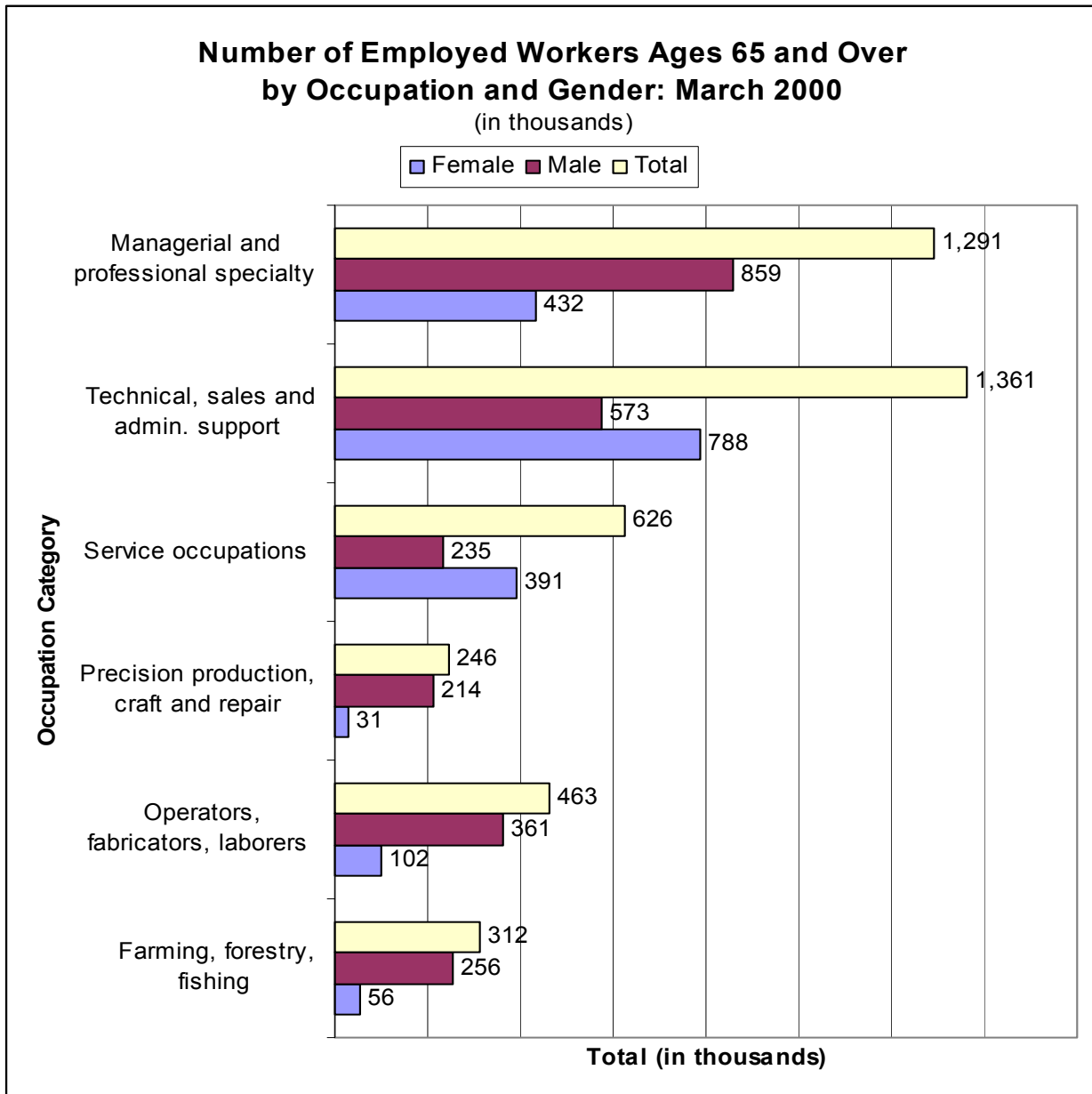
The occupations that paid most to both men and women were management, professional, and related occupations. However, women still earned less than men in all occupations. Asians and non-Hispanic Whites were found in these occupations more often than other racial groups. The largest percentage (18.6%) of Black workers was employed in the production, transportation, and material moving occupations, while farming, fishing, and forestry occupations employed the highest percentage of Hispanics than any other race group.

One reason people pursue higher education is to gain access to opportunities in the professional and managerial occupations. Of the people with managerial jobs, 46% had bachelor's degrees or higher and of those in professional occupations, 71 percent had attained this educational level, compared to only 8 percent of those employed in craft, service, farm, and production jobs. At every level of education, certain fields of training were more strongly associated with holding a job in professional and managerial occupations, such as business majors. One of the most popular fields of training beyond high school levels recently has been in business. In 1996, 7.5 million people had bachelor's degrees in business and 1.9 million attained the MBA level. Other common fields of training for degrees included: education, engineering, and health care. Some fields of training provide skills used directly in the labor market and other fields are more likely to lead to higher degree attainment. (Bauman)

The total number of employed workers over ages 65 and over varies by occupational category and gender. For example, there are twice as many men as women

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from this age group in managerial and professional occupations, while there are more older women than men in technical, sales, administrative support, and service occupations. The following chart shows the total number of employed older workers ages 65 and over and by gender, broken up into six major occupational categories.



Source: US Census Bureau.

Retirement Decisions:

According to the 1999 Retirement Confidence Survey, those with a higher education, higher income, fewer financial dependents, favorable financial attitudes, and received financial education at work, were more likely to have a retirement investment program. Having this program inspired retirement confidence. “The opportunity costs of withdrawing from the labor force are clearly higher for better-educated workers (Parnes 1983; Parsons 1981).” (Bridges to Retirement, 38) Females, nonwhites, and less-educated workers are typically the slowest groups to enter career jobs and leave them the quickest. “Those who are still in the labor force are much more likely to have higher educational levels than those who have retired.” (Crown, 42) For men, one of the factors that notably relates to retirement is having more than 13 years of education. The following chart shows the retirement savings by employment status, gender, and education level.

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Gender/Education Level	Employment Status	
	Employed	Unemployed
Male		
Less than High School	\$30,196	\$14,823
High School Graduate	\$39,723	\$23,802
Some College	\$44,612	\$27,071
College Graduate	\$78,203	\$79,846
Female		
Less than High School	\$27,669	\$22,462
High School Graduate	\$37,593	\$27,099
Some College	\$41,304	\$24,637
College Graduate	\$59,142	\$18,800
Total		
Less than High School	\$29,035	\$18,490
High School Graduate	\$38,524	\$25,732
Some College	\$42,768	\$25,773
College Graduate	\$69,991	\$53,304
Total n = 3,224		

Source: Health Retirement Study

From this chart you can see that retirement savings increase for both sexes that are employed as their education level rises. Employment Status certainly makes a difference in the retirement savings that one is able to accumulate. The one striking difference is where the male unemployed college graduate has a slightly higher retirement savings than the employed college graduate. These savings differences may stem from the fact that at lower education levels you tend to earn less, resulting in being able to save less. It also makes sense that as you become more educated you are less likely to become unemployed, thereby one would not need to draw on their retirement savings as much as the others might.

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Education Level	Employment Status	Age Group		
		45-50	51-55	56-60
Less than High School	Employed	\$19,887	\$26,428	\$33,162
	Unemployed	\$2,001	\$20,875	\$18,886
High School Graduate	Employed	\$27,247	\$35,176	\$46,800
	Unemployed	\$57,000	\$15,126	\$26,993
Some College	Employed	\$38,645	\$46,211	\$40,666
	Unemployed	\$26,250	\$20,000	\$30,267
College Graduate	Employed	\$66,222	\$67,596	\$74,666
	Unemployed	\$14,667	\$25,900	\$92,300

*Retirement savings include all type B retirement accounts and IRAs.

Source: Health Retirement Study

From this chart you can see that generally speaking, the older age groups tend to have more retirement savings. This may be a result of coming closer to reaching your peak earnings years as you age and, therefore, have more income available from which to save. In addition, as one ages the propensity to save becomes greater. If individuals have had a period of unemployment this by and large reduces the amount of savings accumulated.

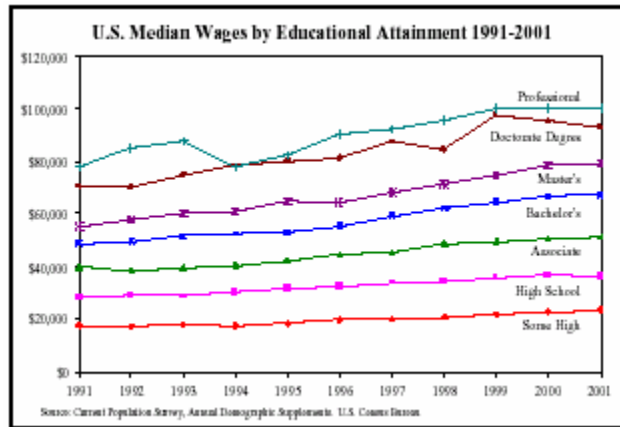
Earnings:

Hourly and annual earnings are significantly influenced by educational attainment. Jobs requiring higher education and skill levels pay higher wages than those which require fewer skills and little education.

During the period from 1991 to 2001 educational attainment was shown to increase the median wages in the U.S. As is shown by the following graph, “The level of

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education directly impacts a person's potential to earn more money. Not only does someone with an advanced degree make more money at the beginning of their career, but the degree to which their wages increase is greater." (Cantu, 1)



Cantu,

1

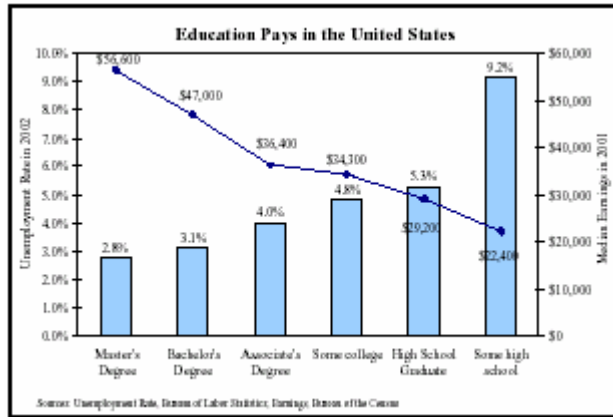
This chart shows that from 1991 to 2001 the higher median wage has been increasing for all educational levels, with greater wage increase as educational attainment increased. The only educational levels with greater variance over this time period are those holding either the Professional or Doctorate degrees, though these have increased over all as well.

Full-time, year round workers are expected to have higher average earnings than those workers who work part-time or for just part of the year. The level of commitment to work full-time year-round depends upon factors like educational level, sex, and age. High school dropouts therefore are less likely to work full time and year round than those individuals who have obtained a bachelor's degree.

The following chart shows that income usually increases as one achieves higher educational levels. Education also has an affect on incidence of unemployment, since the more education one receives, the less likely they are to become unemployed. This stands

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to reason since the more educated one is, the more competitive they will become in the labor market.



Cantu, 2

This should be a motivating factor for individuals to at least finish high school. Those with Bachelor's degrees are shown here to have the highest rate of employment.

The earnings of workers vary considerably by educational attainment levels. Full-time worker with professional degrees have monthly earnings of approximately \$7,000, while those who did not complete high school earn an average of less than \$2,000 per month. Even small amounts of postsecondary education attainment have been linked with higher earnings, as some college education may be enough to increase monthly earnings by \$340. (Bauman)

However, racial differences still exist, even at higher levels of educational attainment. Blacks earned less than Whites at almost every education level and even if Blacks had equal education levels as Whites, there would still be a 77 percent gap in earnings. Hispanics also had lower earnings than Whites, and the earnings gap would remain at 59 percent even if educational levels were equal.

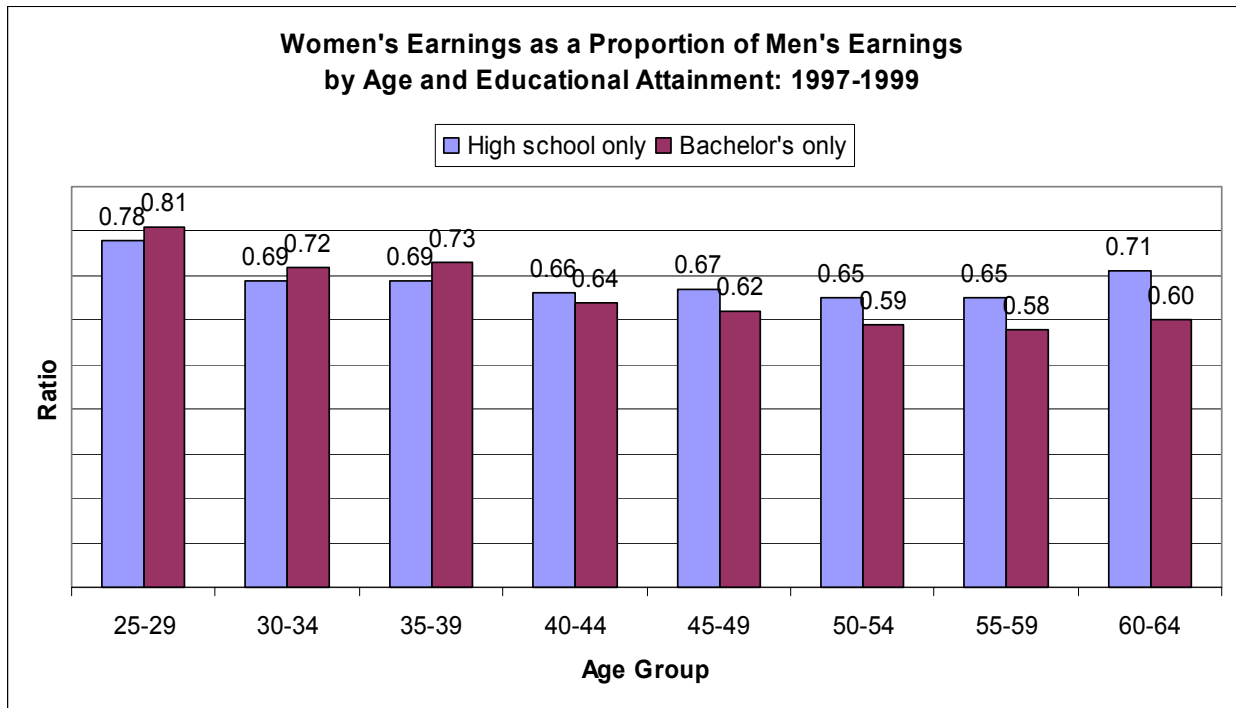
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Earnings vary among different age groups. People ages 18 to 29 earned less than older people at all educational levels, which demonstrates the significance of experience and seniority along with education attainment, for determining earnings in the labor force. Earnings were especially low for those under the age of 30 with some college but no degree, while people age 50 and over with some college but no degree earned as much as those with associate degrees. Work experience is an important factor for earnings. Historically, women's labor force participation has been more erratic than men's due to family responsibilities. Another factor influencing earnings is the field of training, which sometimes had as much of an effect on average earnings as the level of education attainment. It is also important to note that substantial variations occurred in earnings at every level of education. For example, the earnings of people with bachelor's degrees ranged from approximately \$2,000 to \$4,400 per month. This shows that occupations and employers also affect earnings potential.

There are also gender differences in earnings, as women earned less than men at every level of education and the earnings gap only increases with higher educational levels. Women with high school education degrees earned \$600 less per month than men; with bachelor's degrees they earned \$1,400 less; and with advanced degrees they still earned \$2,000 less. (Bauman) Though the earnings gaps varied by field, women earned less than men in most fields of training. For example, the gap was greater in natural science and medicine than in the liberal arts fields. One of the reasons for the earnings gaps between genders is that men with bachelor's degrees were more likely to pursue higher earning fields, such as business and engineering, while education was the most common field for women.

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Women's earnings as a proportion of men's by age and educational attainment as of 1999 are shown in the following chart.



Source: Day, US Census Bureau

Historical Changes in Earnings:

Educational attainment is becoming increasingly important in the labor force today. Almost 90 percent of young adults graduate from high school and about 60 percent of them continue on to college. Education levels have increased in the past 25 years. In 2000, 84 percent of adults had a high school diploma and 26 percent had a bachelor's degree, compared to only 63 percent and 14 percent, respectively, in 1975. Earnings have also increased with educational levels, as adults ages 25 to 64 earned \$34,700 on average per year, ranging from \$18,900 for high school dropouts to \$99,300 for professional degrees, on average. Earnings differences have also grown between

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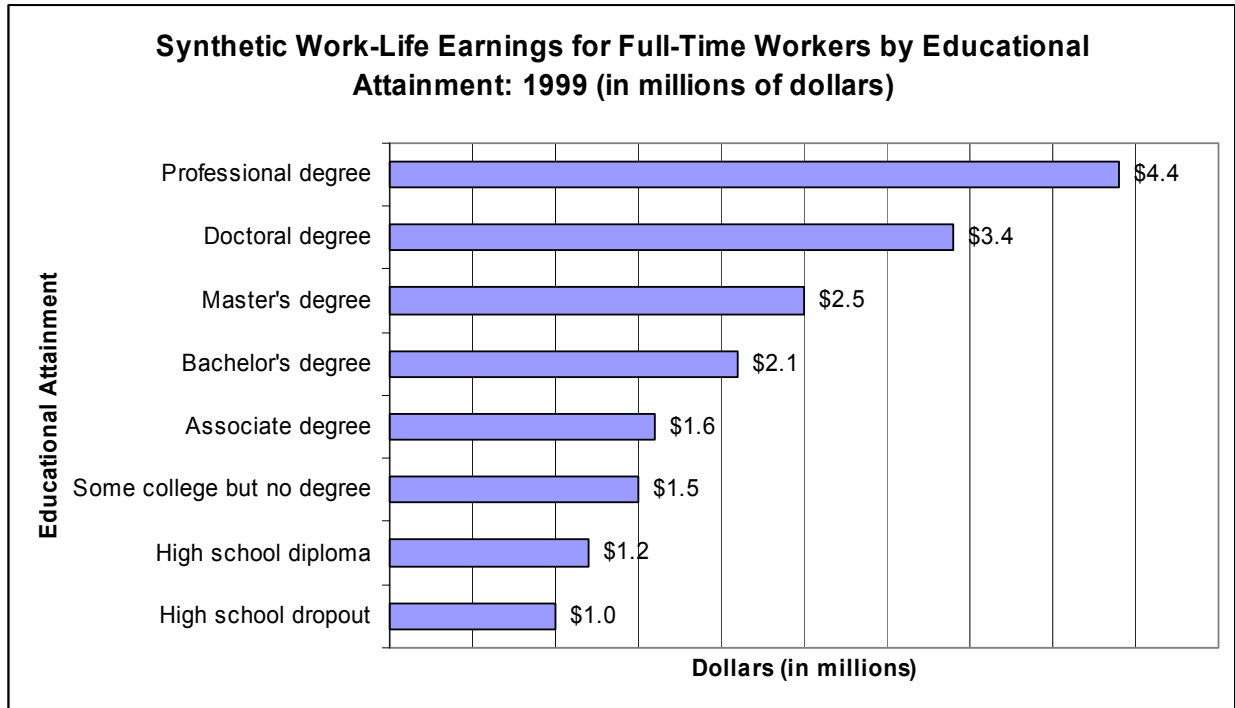
workers with different levels of educational attainment in the past 25 years. In 1975, full-time workers with bachelor's degrees earned 1.5 times that of high school graduates, and advanced degrees earned 1.8 times as much. By 1999, the ratio increased to 1.8 times for bachelor's degrees compared to high school graduates and to 2.6 times for advanced degrees. On the other hand, the relative earnings of the least educated workers fell during the past 25 years. In 1975, high school dropouts earned 0.9 times those with high school levels, compared to only 0.7 times in 1999. (Day)

The historical changes in earnings by education attainment are due to both the supply of labor and the demand for skilled workers. In the 1970s, the earnings of college graduates dropped as the number of people with this education level increased, making the range of relative earnings between education levels narrow. But recently, with technological changes favoring more skilled and educated workers, earnings for adults with higher education attainment have increased. At the same time, the decline of labor unions and a decline in minimum wage have contributed to a relative decrease in wages for the less educated worker, creating a larger earnings range between education levels.

Lifetime Earnings:

The differences in earnings become even more dramatic by educational attainment when they are compounded over a lifetime. The chart below shows the estimates of 40-year synthetic earnings for various educational attainment categories. The differences among education levels reflect both differential starting salaries and divergent paths of earnings over a life-span. The estimated synthetic work-life earnings for full-time workers by educational attainment are demonstrated in the following chart.

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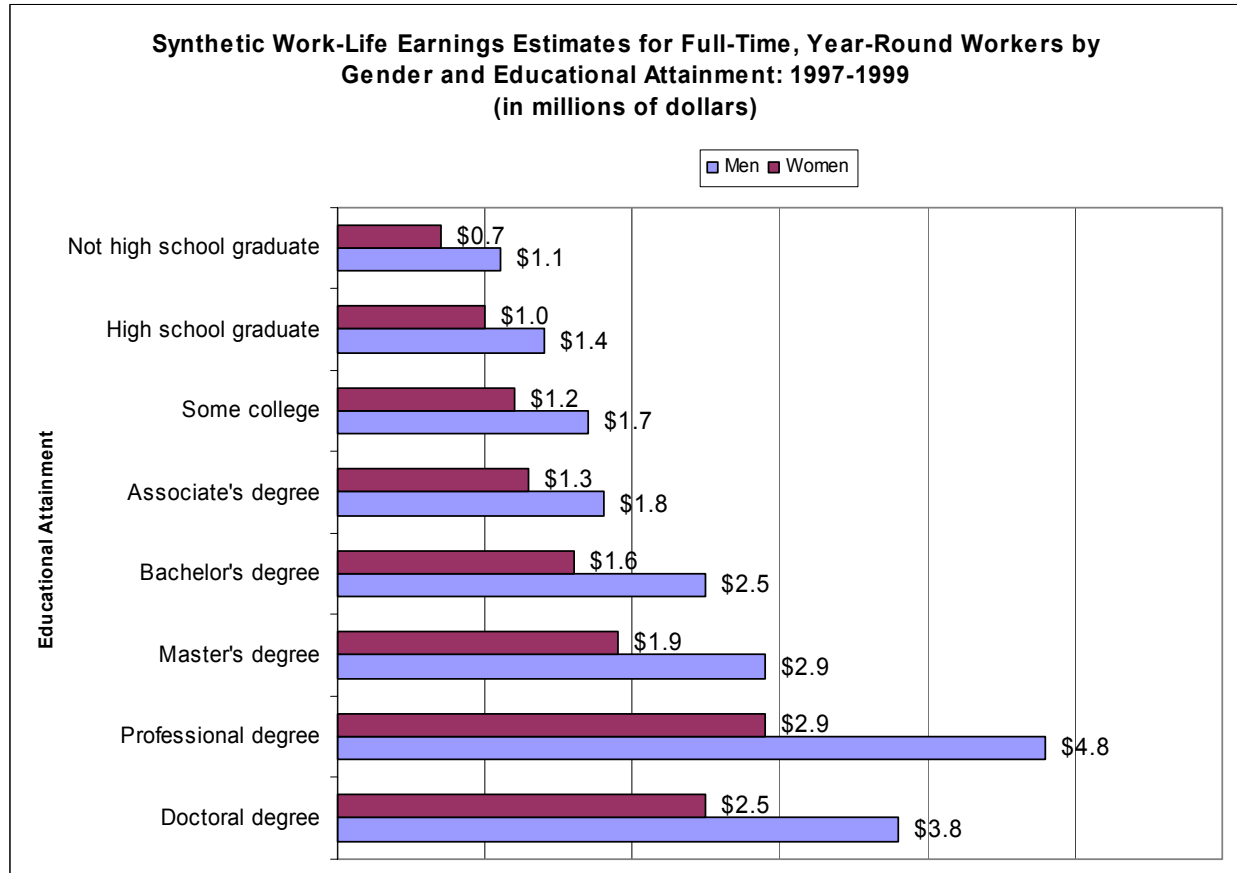


Source: Day, US Census Bureau.

The biggest dollar increase in synthetic work-life earnings occurs from the Doctoral degree to the Professional degree. Therefore, this matches the previous chart showing that median wages of those who hold Professional degrees surpasses that of other degree holders.

The education gap between men and women has been narrowing over the past 25 years. Since 1982, more women than men have received bachelor's degrees each year. By 2000, 28 percent of men and 24 percent of women attained bachelor's degrees, compared to only 18 percent of men and 11% of women in 1975. (Day) However, men still earn more than women with equal education levels. These gender gaps are demonstrated in the following chart.

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Source: Day, US Census Bureau.

Looking at the higher degree levels (bachelor's and above) it seems that over the work-life it pays for both women and men to obtain the professional degree in order to have the biggest gain in earnings.

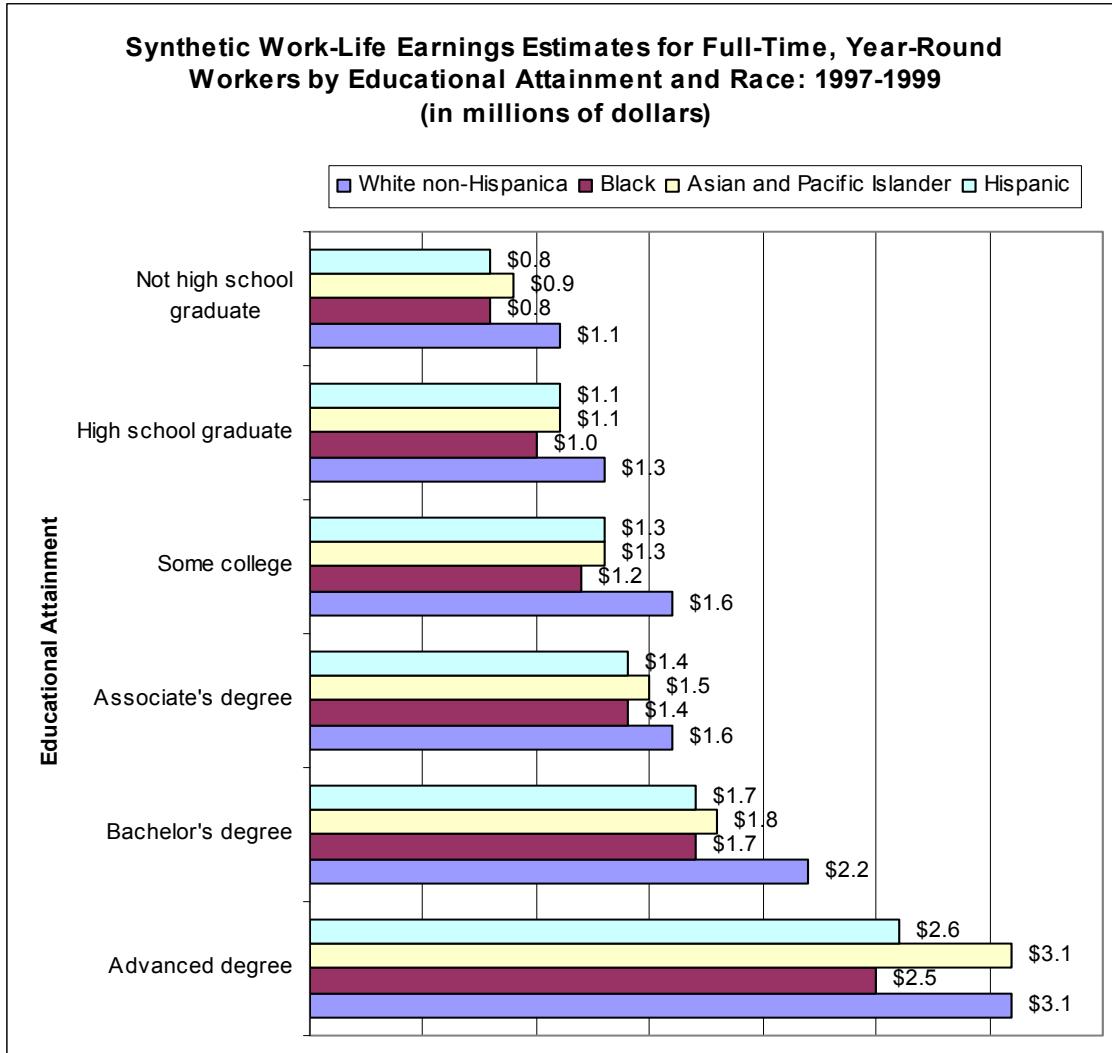
The average female-to-male earning ratio for ages 25-64 is 0.67 and this does not change dramatically by education levels. However, this ratio does change with age. Earnings are much closer between young men and women when they begin their careers than they are among older men and women, with ratios of 0.84 among the young and 0.56 among the older workers. This trend has not changed in the past 25 years. There are various events throughout the work-life that may partly explain the expanding wage

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gap with age, such as: continuous participation in the labor force, commitment to career goals, competing events, family obligations, discrimination, and promotions.

The work-life earnings also vary by race and ethnic origin at every level of educational attainment, as White non-Hispanics still earn more than Blacks and Hispanics. However, the educational investment still pays off for all races. Interestingly, while Asians and Pacific Islanders do earn less than Whites with high school and bachelor's degrees, but they have similar earnings as Whites with graduated degrees, including master's, doctoral, and professional. Overall, regardless of race and ethnicity, higher educational attainment does equate to higher earnings, especially over a life-time. Among all the races, Asian and Pacific Islanders see the biggest gain when moving from a bachelor's degree to an advanced degree. Interestingly, White non-Hispanics, and Hispanics see the same dollar gain in work-life earnings when moving between the two, even though White non-Hispanics still earn more at both the bachelor's and advanced degree levels.

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Source: Day, US Census Bureau

Retraining Needs of Older Workers:

The success of finding employment at a mature age is directly linked to an older person's ability to apply their existing skills in a different work context. There are skills that can be transferred into different industries and across occupations, such as organizational skills and management experience. Formal training can be used to expand and enhance a person's skills and employability. Blending existing skills with new skills

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will help a successful transition from one occupation to another. Some older workers are more willing to participate in training than others. The older workers who have post-school qualifications before they reach mature age are more likely to participate in training than those who do not. The individual's flexibility and an open mindedness are important factors in successful training and transition to new occupations for individuals. It is also important for older workers to consider part-time employment as well as full-time employment when searching for new careers. (Ball)

Due to increasingly rapid changes in the nature of work and the skills required, workers cannot expect to work in the same area over their entire life. Therefore, training is becoming more important for all workers throughout their working lives, especially for aging workers. The skills of existing workers now need to be updated on an ongoing basis, for young and older workers alike. The main issue facing older workers is the length of time it takes to find a new job once they become unemployed, creating an increasing number of discouraged older workers. Some of the factors that influence older workers' participation in training include attachment to the labor market, status in the labor market, gender, geographic location, and education attainment levels. Although training participation declines with age, it does vary by occupation and industry.

Older workers participate in training for different reasons than young workers. They are more concerned with acquiring skills or updating existing skills for their job than with gaining qualifications. Other reasons include gaining employment, owning a business, interest, and personal development.

Geographic Influences:

Rural and Urban Areas:

Rural Americans have attained higher levels of education today than the previous generations, however, education in rural areas still lags behind urban areas. For example, the South has a third of the Nation's rural population and half of all rural adults who have not completed high school. The increase in educational levels reflects better access to public education and the transition from a resource-based economy to a dominantly service-job economy.

“The skill requirements of rural jobs continue to rise along with education levels.” (2003, Rural Education At A Glance.) The prospects for less educated rural adults are less certain now than they were in the 1990s, as many of the rural jobs previously held by workers with limited education have been lost, due to changes in production technology, overseas competition, and changing consumer demands.

Employers are increasingly looking for well-educated and skilled workers. Though rural students perform as well as urban students on average, they are faced with more limited course offerings and fewer well-trained and paid teachers. The labor market rewards for college degrees has increased over the past 20 years, but many of the educated youth are still drawn toward urban areas with greater job opportunities and higher salaries. Raising education levels and quality of education is important for improving the economic life of rural populations.

New England:

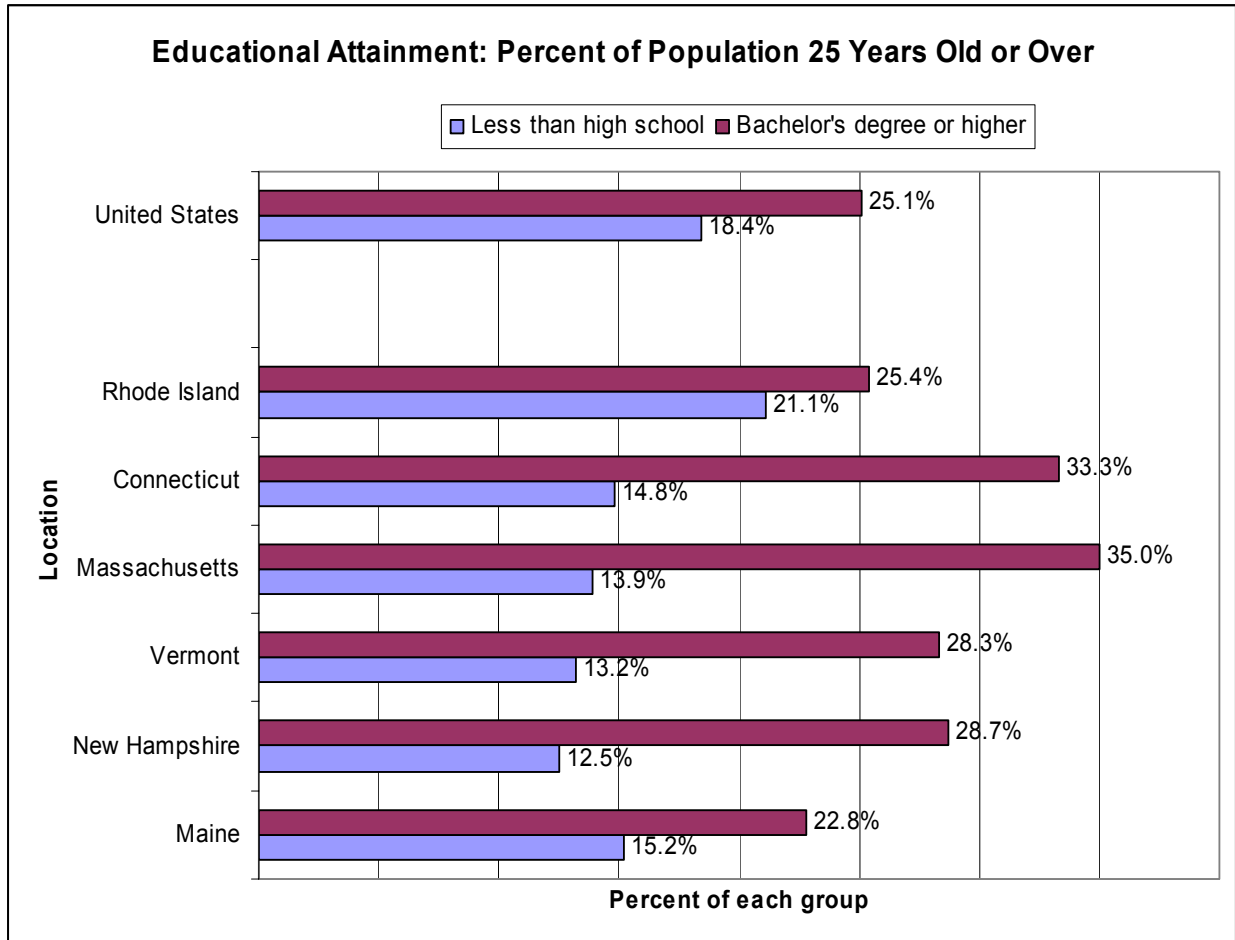
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New England has experienced faster demographic changes recently due to the increasing racial and ethnic composition and the shift in the age distribution of the population. Minority populations are expected to increase by one third in some of the New England states. This region already has an imbalance in the supply and demand of workers, with disparities between the business needs and the skill levels available in the labor force to meet those needs. As these new populations enter the labor markets, they will affect the skill level and educational attainment of the overall labor force. Therefore, educational attainment will become even more important for not only the existing population in New England but also for newcomers.

The salaries of workers without high school degrees decreased by 6.2% between 1989 and 1991, while the salaries of workers with college degrees increased during this time period by 3.2%. Even though the percentage of the population with less than a high school degree has decreased and the percentage with at least some college has increased, the education levels have not changed enough to stimulate the regional economy's labor force.

Language is another factor that will become more important in this region, as it can become a huge barrier for learning and educational attainment. "The age distribution of the current population and the growth in minority populations will have a sizable impact on the likely educational preparedness of the future work force." (Coelen) The educational attainment levels of specific New England states compared to the United States is shown in the following chart.

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Source:

2000. Source: U.S. Census Bureau, "Census 2000 Supplementary Survey"

Displaced Workers:

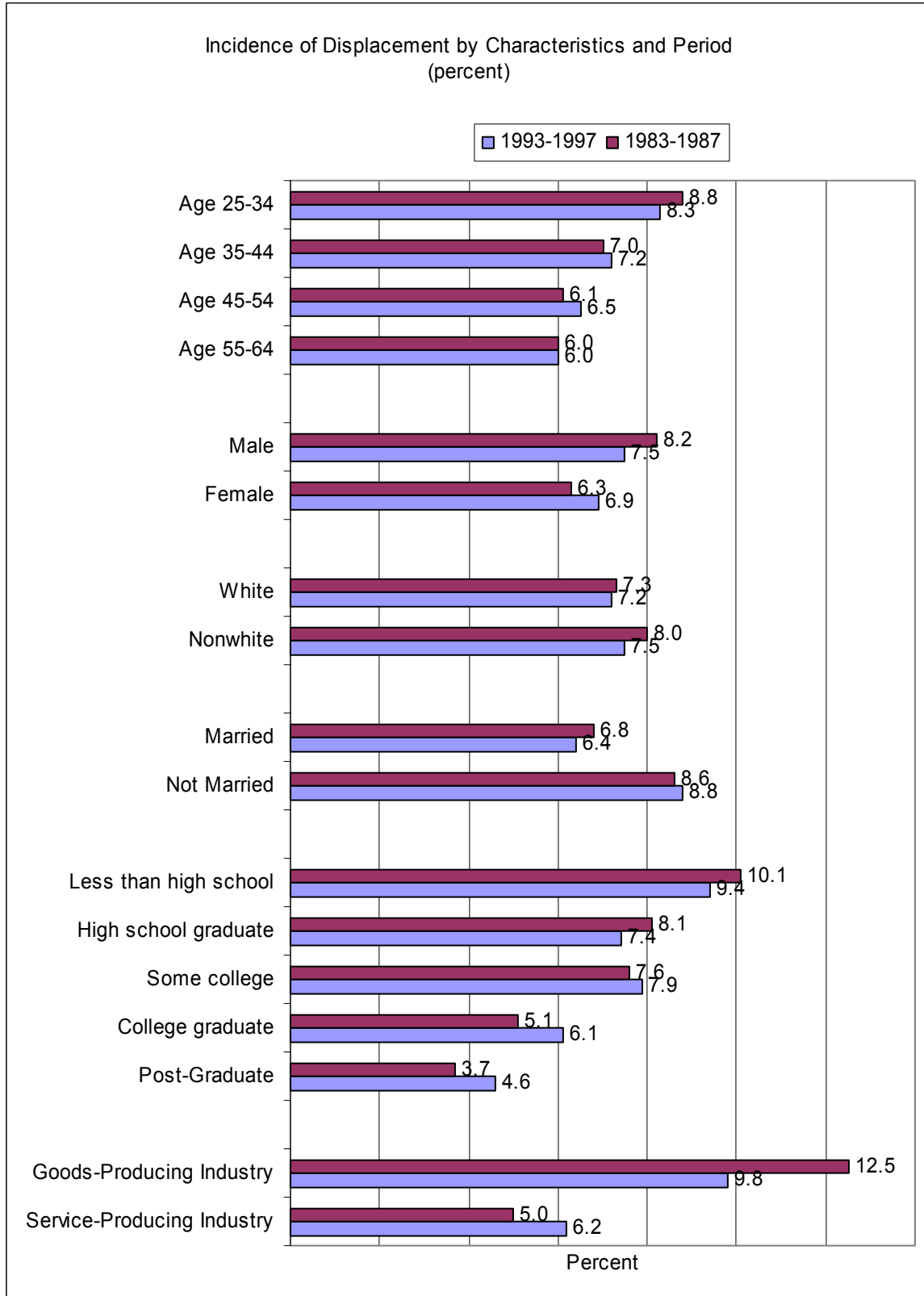
Displaced workers are those that have involuntarily lost their jobs. This issue has been especially relevant for middle-aged and older workers, as the incidence of displacement among these age groups has increased over time compared to younger workers. Some of the possible explanations for this shift include: changes in educational attainment, changes in the relationship between education and displacement, and industry shifts that negatively affected older workers relative to younger workers. (Rodriguez)

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Educational attainment among displaced workers also changed over time. For example, the displacement rates for college graduates increased significantly, while the displacement rates for high school graduates and those who did not attend college declined. Despite these changes in rates, the displacement rates still decreased with increased educational attainment. Older and more educated workers were less likely to be displaced than younger and less educated workers. Displacement rates also rose for those employed in the service sector and for women. On the other hand, the rates declined for men. However, the shifts from goods-producing to service-producing jobs still lowered the overall average incidence of displacement. Another factor that has affected displacement rates is industry changes, as workers in the service-related industries have experienced higher probabilities of displacement across all age groups. The proportions of involuntary exits have increased significantly with age during the 1980s and 1990s; and these rates are significantly higher for less educated workers.

The following chart shows the change in incidence of displacement between two periods: 1983-1987 and 1993-1997 by age, gender, race, marital status, education attainment, and industry.

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Source: Rodriguez, p.503.

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In the past, education had protected workers from displacement, as less educated workers had much higher rates of involuntary job loss than the more educated, white-collar, or service-producing workers. However, these trends may have changed over time. The increase of involuntary job loss was most evident among the workers aged 45-54. The primary reason that displacement rates vary across age and education groups is the differences in specific human capital. “Workers with more education are likely to have lower costs of or greater benefits from acquiring specific skills than do less educated workers.” (Rodriguez, p.500) Some of the reasons for the changes over time may include: increased demand for skilled workers, increased usage of computers and technology, and changes in the industry mix across age groups. While the demand for skilled workers increased since the 1970s, so did the returns to education and experience and wage differences within education and experience groups.

These shifts have affected older workers more dramatically because of their lower average educational attainment. While older workers do tend to have more years of experience than younger workers, they also tend to have fewer years of education. Technological changes have also contributed to higher displacement rates among older workers and created a greater demand for trained employees. Retraining will become essential for older workers in avoiding the incidence of displacement in their work-lives. “Because more educated workers traditionally have lower displacement rates than less educated workers, changes in average educational attainment across age groups also may affect the relative incidence of displacement among older workers over time.” (Rodriguez, p.500)

Summary of Results

Educational attainment is becoming increasingly important in the U.S. across the population and will continue to play a key role for individuals as technology increases and the demands in jobs change in the future. Although the educational attainment of the total population has been increasing in the past decades, there are still large gaps and differences between cohorts of different age groups and among racial and ethnic groups. The higher educational levels of the overall population are mostly due to the increasingly more educated younger populace replacing the older, less educated cohorts. Educational attainment affects individuals in many ways throughout their life-cycle, including the occupational and employment opportunities available to them, their earnings potential and overall life-time earnings, their skill level, and their ability to remain competitive in the labor force at later ages.

With the continuously growing and aging population, educational attainment early in life, as well as the retraining of skills and additional education, will become even more important in the next few decades. However, even at higher educational levels, gender and age differences still exist. Some individuals remain at a disadvantage today despite their educational attainment, including women, minorities, and older workers, who are faced with lower earnings and opportunities than White non-Hispanic males at the same educational level and occupations. Despite the fact that the educational gap is being narrowed, men still are earning more than women at each educational level. Part of the difference in earnings may be explained by the following factors: women historically tended to major in fields which provide smaller economic returns than men, women were more apt to work part-time or be seasonal workers, and fewer women remained in the

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labor force continuously due to family responsibilities. This trend continues in society today and will continue to be an issue for some time, at least until greater efforts can be made to decrease the earnings and opportunity gaps in the labor force. On the other hand, despite one's gender, race or ethnicity, educational attainment will pay off in the form of higher earnings for all individuals with higher education levels, especially over a lifetime.

Since 1940, the number of people who have graduated from high school as well as those who have earned a bachelor's degree has been increasing each decade. Women in particular have been increasing their educational attainment. When looking at men and women who have completed bachelor's degrees, during the past 25 years, women have narrowed the gap. Since 1982, more women than men have received bachelor's degrees in the U.S. Men over the age of 55 are more likely than women in this same age bracket to be labor force participants.

Younger populations are completing more schooling now than previous generations. As these population segments age they will naturally become more educated thus more apt to work longer. At the same time, because of differences in education and skills levels, those without or with less, stand to be replaced.

The income difference, which is due in great part to higher educational attainment, is one that empowers you to make choices, which will enrich your life. According to the Postsecondary Education Opportunity Research Letter indicates that each dollar, which is spent on a man's college education, equates to \$34.85 in increased lifetime income. From a young man's perspective, the value of obtaining a higher education level is clear. The Postsecondary Education Opportunity Research Letter

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indicates that those families whose head of household holds a bachelor's degree will have a lifetime income of approximately \$1.6 million larger than that of families who are only headed by a high-school diploma. (Hansen)

Currently, the fastest growing population segment of the U.S. is Hispanics. It is predicted that 1 in 6 U.S. residents will be of Hispanic Origin, by 2002. Minority populations are expected to increase by one third in some of the New England states. Information from the Census Bureau shows that for non-Hispanic Whites that earnings over a work life for those with a bachelor's degree compared with a high school diploma will increase by approximately \$1 million dollars. African Americans, Asians and Pacific Islanders, and Hispanics on the other hand will only see an increase of about \$700,000. (Bergman) According to the 1997 U.S. Census Bureau, the age at which Black and Hispanics complete school is higher than it is for Whites. According to Day and Bauman, from 2003 to 2028 almost all White and non-White groups are increasing their educational attainment. The only exception to this appears to be with native born non-White males and foreign-born Hispanic males at the Bachelor degree level.

The following are factors leading to a concern that educational levels may level off or possibly even decrease in future decades. One factor is that educational levels will level due to cohort succession, as new cohorts replace those retiring. A decrease in educational levels comes from the concern that the population of ethnic groups and immigrants who traditionally have a lower level of education is increasing. Information from the U.S. Census Bureau in 2000 projected that Blacks and Hispanics are expected to increase in numbers to over 37 percent of the population from the year 2000 to 2050, up

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from 24 percent. (Day) However, for Hispanics this percentage increase is not matched by educational growth.

The reason most people strive to obtain higher educational levels is to gain access to more job opportunities, higher wages, greater job security, and in general a greater sense of self-satisfaction. It is projected we will see an increase in the number of earned degrees at all levels. It is also expected that the number of Associate and Bachelor's degrees attained will increase by 21 percent overall and the number of Master's Degrees is projecting to increase by 19 percent, with the gap narrowing between men and women.

Conclusions and Recommendations

As educational attainment becomes more important in society, the labor force, and for the economy today, the younger generations and the older workers will increasingly find benefits from additional educational attainment and retraining over their work-lives. Although differences exist among gender and race groups, despite educational attainment, some of these trends will begin to change slowly over time as other trends change. One of these changes will be seen among women, as women no longer work part-time or seasonally as much as they had traditionally and more women begin working throughout their lives as men have in the past.

As minority populations continue to increase, it will be important for society to make changes in the educational opportunities provided to these groups in order to make these individuals better prepared for the labor force by increasing their skill levels and removing some of the language barriers that exist. Therefore, educational attainment will become even more important for not only the existing population but also for newcomers.

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Raising education levels and quality of education everywhere, especially in rural areas, is important for improving the economic life of rural populations.

Because of the growing population of Hispanics, the U.S. will have to look to improve the educational prospects of both immigrant and native-born Hispanic youth. Disparities among disadvantaged members of society become apparent at an early age. Society needs to continue to find ways to provide disadvantage youth with educational opportunities at each level and to help break down some of the financial barriers that are obstacles to college education. We will need to create more developmental services for low-income children at the preschool age and social services for families, such as the Head Start Program. Starting at an earlier age has been shown to be more cost effective.

Technological changes and advances will also increase the need for higher educational attainment of the overall working population as well as the continuous retraining of existing labor force participants, especially the older workers. Technological changes have also contributed to higher displacement rates among older workers and created a greater demand for trained employees. Retraining will become essential for older workers in avoiding the incidence of displacement in their work-lives. Due to increasingly rapid changes in the nature of work and the skills that are required, workers cannot expect to work in the same area over their entire life-cycle. Therefore, retraining will become more important for all workers throughout their working lives, especially for aging workers.

The bottom-line is that educational attainment will become even more important in our society and additional educational attainment leads to higher life-time earnings.

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