

Trends in Washington Earnings, 1989-1999: A Report Based on the Census

Research Brief 29A: Change in Age Distribution and its Impact on Mean Earnings

Earnings are strongly related to age. Those aged 18 to 24 (including individuals who were working and not working) had the lowest mean earnings (\$10,408 dollars) and those aged 45 to 54 had the highest mean earnings (\$37,135 dollars). Between the 1990 and 2000 decennial censuses, Washington's working age population (aged 18 to 64) got older. If there were proportionately more older people in 1999, one might expect more people to earn relatively higher earnings in 1999 compared to 1989. Indeed, if one applies the 1999 earnings to the 1990 age distribution, one finds that mean earnings would have been \$784 less than actual earnings. Without controlling for other factors that might affect earnings, changes in the age distribution account for 16 percent of the increase in earnings. Read Research Brief 29A ...

Research Brief 29B: Change in Educational Distribution and its Impact on Mean Earnings

Earnings are strongly related to education. In 1999, the mean earnings of those with less than a high school diploma (including individuals who were working and not working) were \$13,336 dollars, compared to \$57,127 dollars among those with a masters, professional, or doctoral degree. Between the 1990 and 2000 decennial censuses, Washington's working age population became more educated. In 2000, Washington's adult residents were more likely to have a college degree or more, and less likely to have a high school diploma or less. If Washington's population was better educated in 2000 compared to 1990, one might expect that proportionately more of the population would earn more money. If one applies the 1999 earnings to the 1990 education distribution, mean earnings would have been \$1,216 dollars less in 1999 than actual earnings. Without controlling for other factors that might affect earnings, changes in the educational distribution account for 26 percent of the increase in earnings. Read Research Brief 29B ...

Research Brief 29C: Earnings of High School-Educated Males

The earnings growth experienced by male high school graduates (including those working and not working) in Washington State between 1989 and 1999 was lower than that experienced by women and other men. By 1999, male high school graduates were less likely to work full or part time and they were more likely not to work at all compared to 1989. Having proportionately fewer people working placed downward pressure on the earnings distribution of male high school graduates. At the same time, male high school graduates as a group were older in 1999 than they were in 1989. As older workers usually have higher earnings than younger workers due to their greater experience and seniority, this demographic shift placed upward pressure on the earning distribution. Even with older workers boosting earnings, male high school graduates who worked full time experienced smaller increases in earnings between 1989 and 1999 than male full time workers overall. Read Research Brief 29C ...

Research Brief 29D: Older Working-Aged Women and Large Gains in Earnings, 1989–1999

Women aged 55 to 64 experienced a large increase in earnings between 1989 and 1999. This increase in earnings was related to a number of factors. Women aged 55 to 64 were more likely to earn more for the same amount of time worked in 1999 compared to 1989. In addition, women in 1999 were more likely to have characteristics associated with higher earnings. Women aged 55 to 64 in 2000 were more likely to be divorced, to be educated beyond high school, to work, and to work full time than similarly aged women in 1990. Read Research Brief 29D ...

Research Brief 29E: Earnings of College-Educated Males

College educated men's earnings increased between 1989 and 1999. While many factors likely affected the increase in earnings, changes in the work level, age distribution, and earnings for full time workers are examined here. Between 1989 and 1999, the male college educated population got older. While three quarters of college educated men work full time in both 1989 and 1999, there was a decline in the percentage of college educated men who worked part time and an increase in the percentage of college educated men who did not work during the period. While the drop in the percentage of part time workers and the increase in the percentage of non-workers had a negative effect on earnings, the older population of male college graduate workers in 1999 had a stronger positive effect on earnings. In general, the increases in full time earnings among male college graduates were greater and occurred at a faster rate than for all men. Read Research Brief 29E ...

TRENDS IN WASHINGTON EARNINGS, 1989-1999: A REPORT BASED ON THE CENSUS

RESEARCH BRIEF NO. 29A

January 2005

Change in Age Distribution and its Impact on Mean Earnings

Erica Gardner

Using data from the 1990 and 2000 five percent Public Use Microdata Sample (PUMS), the relationship between age and earnings was examined for all Washington residents aged 18 to 64 (including those working and not working). Earnings include wage, salary, commission, bonus, and tip income from all jobs before deductions and/or net income from self-employment.¹

Earnings are strongly related to age. Looking at Figure 1, one can see that among Washington State residents aged 18 to 64 those aged 18 to 24 earned far less than those 45 to 54. The mean earnings of those aged 18 to 24 were \$10,408 compared to \$37,135 for those aged 45 to 55 (see Figure 1). As people began to retire and/or reduce their participation in the labor force in their late fifties and early sixties, mean earnings declined.

Figure 1—Washington State's Mean Earnings by Age, 1999

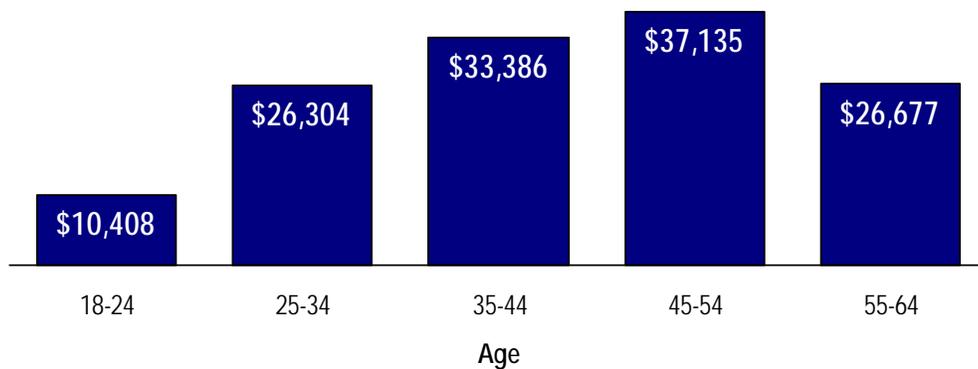
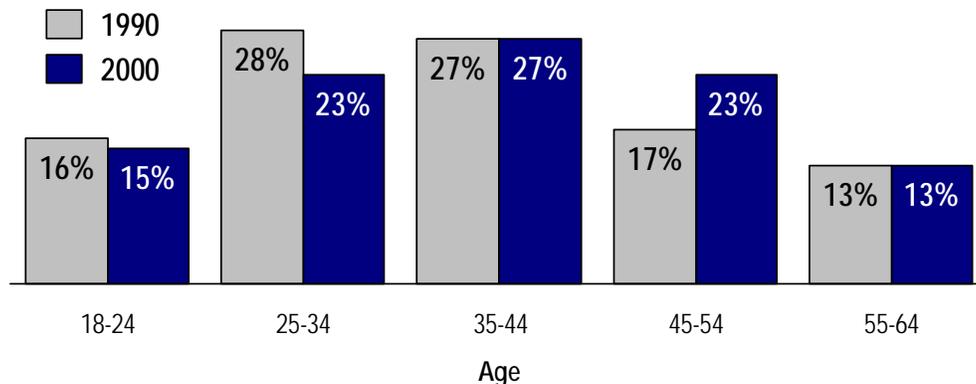


Figure 2—Age Distribution of Washington State, 1990–2000



The Washington State data used in this analysis come from the 2000 five percent Public Use Microdata Sample (PUMS). More information on these surveys can be found at the Census website: <http://www.census.gov/main/www/pums.html>.

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Change in Age Distribution

Between the 1990 and 2000 decennial censuses the age distribution of the population shifted. In 2000, Washington State’s working age population became older, containing proportionately more people aged 45 to 54 and proportionately fewer people aged 25 to 34 (see Figure 2). In 2000, 23 percent of the Washington State’s population was aged 25 to 34, down six percentage points from 1990. In contrast, 23 percent of Washington State’s population was aged 45 to 54, up six percentage points from 1990.

The Effect of the Change in the Age Distribution on Earnings

In order to illustrate the effect of change in the age distribution of the population, one can standardize the population. If the age distribution of Washington State’s population had remained the same from 1990 to 2000, then mean earnings in 1999 would have been \$27,507, \$784 less than the actual mean earnings (\$28,291). According to this, 16 percent of the \$4,759 dollar increase in earnings in 1999 can be attributed to the change in the age distribution from 1990 to 2000.

**Table 1—Mean Earnings and Population Distribution by Age
Earnings Adjusted for Inflation (1999 dollars)**

Age	Mean Earnings			Population Distribution		
	1989	1999	1999-1989	1990	2000	2000-1990
18-24	\$9,594	\$10,408	\$814	15.9%	15.0%	-0.8%
25-34	\$22,190	\$26,304	\$4,114	28.4%	22.6%	-5.8%
35-44	\$29,722	\$33,386	\$3,664	26.6%	26.7%	0.1%
45-54	\$31,269	\$37,135	\$5,866	16.6%	22.5%	5.9%
55-64	\$20,850	\$26,677	\$5,827	12.5%	13.2%	0.7%
Total	\$23,532	\$28,291	\$4,759	100%	100%	0%

Conclusion

While the aging working population is not the only explanation for the increase in earnings between 1989 and 1999, it certainly is a contributing factor. Other factors, such as changes in the educational distribution and employer related changes are also likely to affect earnings.

¹ The 2000 Census topcoded wage and salary earnings at \$336,000 and self-employment earnings at \$245,000. Total earnings are the sum of these two values. The 1990 Census total earnings adjusted for inflation were topcoded at \$500,320 (\$391,368 unadjusted).

TRENDS IN WASHINGTON EARNINGS, 1989-1999: A REPORT BASED ON THE CENSUS

RESEARCH BRIEF NO. 29B

January 2005

Change in Educational Distribution and its Impact on Mean Earnings

Erica Gardner

Using data from the 1990 and 2000 five percent Public Use Microdata Sample (PUMS), the relationship between education and earnings was examined for Washington residents aged 18 to 64. Earnings include wage, salary, commission, bonus, and tip income from all jobs before deductions and/or net income from self-employment.¹

Earnings are strongly related to education. Looking at Figure 1, one can see that among Washington State residents aged 18 to 64 those that had less than a high school diploma earned far less than those individuals with a masters, professional, or a doctoral degree. In 1999, the mean earnings of those with less than a high school diploma were \$13,336, compared to \$57,127 among those with a masters, professional, or doctoral degree.

Figure 1—Washington State's Mean Earnings by Education, 1999

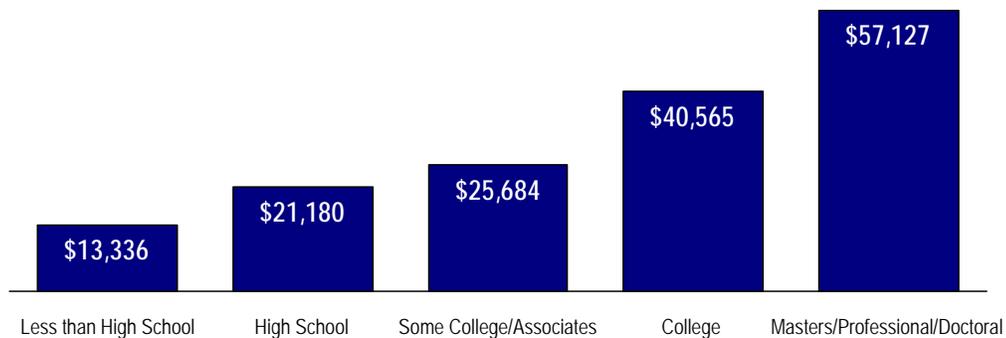
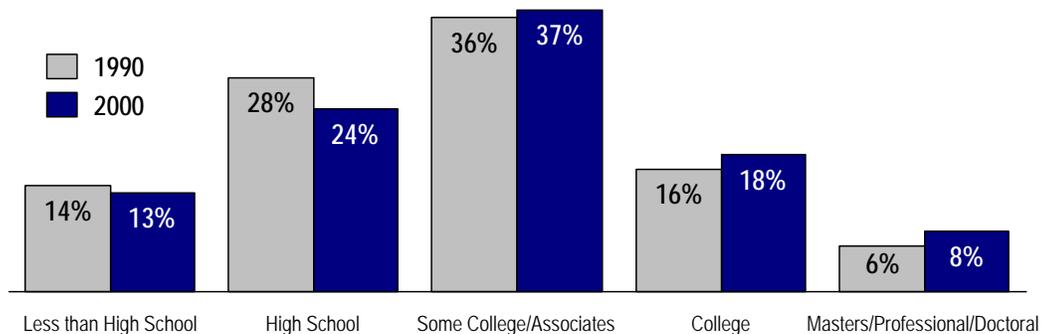


Figure 2—Educational Distribution of Washington State's Population, 1990–2000



The Washington State data used in this analysis come from the 2000 five percent Public Use Microdata Sample (PUMS). More information on these surveys can be found at the Census website: <http://www.census.gov/main/www/pums.html>.

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Change in Educational Distribution

Between the 1990 and 2000 decennial censuses, the educational distribution of the population shifted. In 2000, Washington State’s working age population became better educated. In 2000, the population was more likely to have a college degree or more, and less likely to have a high school diploma or less (see Figure 2).

The Effect of the Change in the Educational Distribution on Earnings

In order to illustrate the effect of change in the educational distribution of the population, one can standardize the population. Applying the educational distribution of 1990 to the mean earnings by education of 1999, one finds that the overall mean earnings would have been \$27,075, \$1,216 less than the actual mean earnings (\$28,291). According to this, 26 percent of the \$4,759 increase in earnings in 1999 can be attributed to the change in the educational distribution from 1990 to 2000.²

Table 1—Mean Earnings and Population Distribution by Education, Earnings Adjusted for Inflation (1999 dollars)

	Mean Earnings			Population Distribution		
	1989	1999	1999-1989	1990	2000	2000-1990
Less than High School	\$11,927	\$13,336	\$1,409	13.9%	12.9%	-1.0%
High School	\$18,983	\$21,180	\$2,197	27.7%	24.2%	-3.5%
Some College/Associates	\$22,582	\$25,684	\$3,102	36.3%	36.7%	0.4%
College	\$33,418	\$40,565	\$7,147	15.7%	17.8%	2.2%
Masters/Professional/Doctoral	\$49,464	\$57,127	\$7,663	6.4%	8.4%	1.9%
Total	\$23,532	\$28,291	\$4,759	100%	100%	0%

Conclusion

While the change in the educational distribution is not the only explanation for the increase in earnings between 1989 and 1999, it certainly is a contributing factor. Other factors, such as changes in the age distribution and employer related changes are also likely to affect earnings.

¹ The 2000 Census topcoded wage and salary earnings at \$336,000 and self-employment earnings at \$245,000. Total earnings are the sum of these two values. The 1990 Census total earnings adjusted for inflation were topcoded at \$500,320 (\$391,368 unadjusted).

² The relatively large increases in mean earnings experienced by those with at least a college education are likely driven, at least in part, by workers with stock options in the software industry.

TRENDS IN WASHINGTON EARNINGS, 1989-1999: A REPORT BASED ON THE CENSUS

Earnings of High School-Educated Males

Erica Gardner

RESEARCH BRIEF NO. 29C

January 2005

What happened to male high school graduates in the 1990's? Did their earnings situation get better or worse between 1989 and 1999? Using data from the 1990 and 2000 five percent Public Use Microdata Sample (PUMS)¹, this issue brief will examine how earnings have changed for male high school graduates in Washington State and then evaluate how changes in the work level, age distribution, or full time earnings affected these changes.

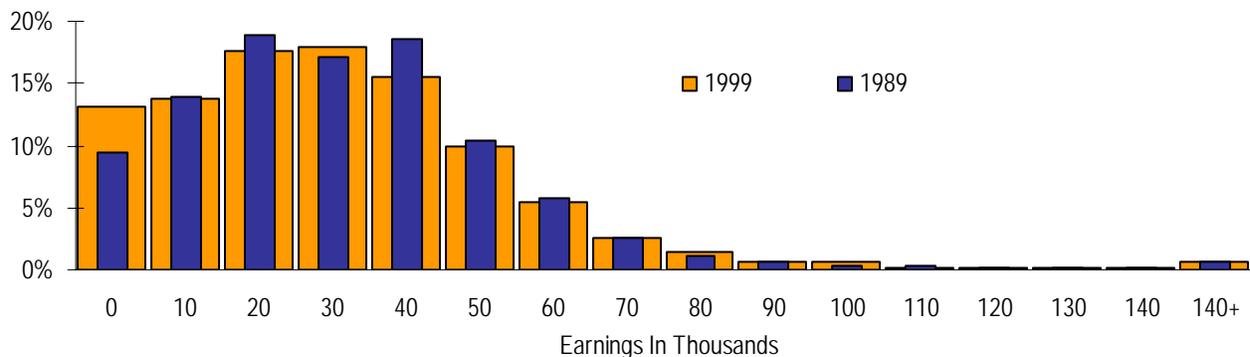
Overall Earnings Decline for Most Male High School Graduates

Change in earnings were mixed for all male high school graduates (see Figure 1 and Table 1). Although the mean earnings² of male high school graduates increased by a small margin (3 percent), there was a decline in earnings in the bottom half of the earnings distribution (see Table 1). This drop in the bottom half of the earnings distribution was driven, at least in part, by the four percentage-point increase in male high school graduates with zero earnings (increasing from 9 percent in 1989 to 13 percent in 1999).

At the 25th percentile there was a 12 percent or a \$1,266 decline in earnings from \$10,866 in 1989 to \$9,600 in 1999. Male high school graduates at the median experienced a 2-percent decline in earnings from \$24,414 in 1989 to \$24,000 in 1999.

Male high school graduates in the top quarter of the earning distribution experienced some gains in earnings. Male high school graduates at the 75th percentile earned \$39,300 in 1999, up 2 percent from 1989. Male high school graduates at the 90th percentile in 1999 earned \$55,000, up 8 percent from 1989.

Figure 1—Distribution of Earnings for Male High School Graduates



Note: Earning data was categorized in \$10,000 increments with the exception of the first and last earning categories (i.e. the \$10,000 earning category includes those earning \$1-\$10,000). The first earning category includes people with zero earnings and a small group of people with negative earnings. The last earning category includes those who earn \$140,000 or more.

The Washington State data used in this analysis come from the 2000 five percent Public Use Microdata Sample (PUMS). More information on these surveys can be found at the Census website: <http://www.census.gov/main/www/pums.html>.

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Table 1—Earnings for Male High School Graduates in Washington State Adjusted for Inflation (1999 dollars)

	1989	1999	Change 1999-1989	% Change (1999/1989-1)
Mean	\$27,138	\$27,872	\$734	4%
Percentile				
10th	\$470	\$0	-\$470	—
25th	\$10,866	\$9,600	-\$1,266	-12%
50th	\$24,414	\$24,000	-\$414	-2%
75th	\$38,352	\$39,300	\$948	2%
90th	\$51,136	\$55,000	\$3,864	8%

Drop in Percentage of Full and Part Time Workers Moves Earnings Down

The earnings distribution of male high school graduates is affected by work level.³ Those who work more tend to earn more. In 1999, the real mean and median full time earnings for male high school graduates were \$37,885 and \$32,400 respectively (see Figure 2). In contrast, the mean and median part time earnings for male high school graduates were \$17,492 or \$11,200 respectively. Those who have zero earnings and/or do not work, obviously have zero mean and median earnings.

All other things being equal, changes in the rate of full or part time work will change the earnings distribution. If the rate of full time work goes down or the rate of no work goes up then the overall earnings distribution will be lower than it would have been otherwise.

In 1999, the majority of male high school graduates worked full time, but the percentage of full time workers had declined since 1989(see Table 2). Sixty-two percent of male high school graduates worked full time in 1999, down 2 percentage points since 1989. Part time work also declined among male high school graduates. In 1999, 25 percent of male high school graduates worked part time, down 2 percentage points from 1989. Instead of working full or part time, an increasing percentage of male high school graduates did not work at all. In 1999, 13 percent of male high school graduates did not receive any earnings from work, up 4 percentage points from 1989.

If work level remained at 1989 levels, the mean earnings for male high school graduates in 1999 would have increased by roughly \$1,141 from \$27,872 to \$29,013. In this scenario, mean earnings would have increased by 4 percent over the 10-year period instead of 3 percent.

Figure 2—Mean and Median Earnings for Male High School Graduates by Work Level, 1999

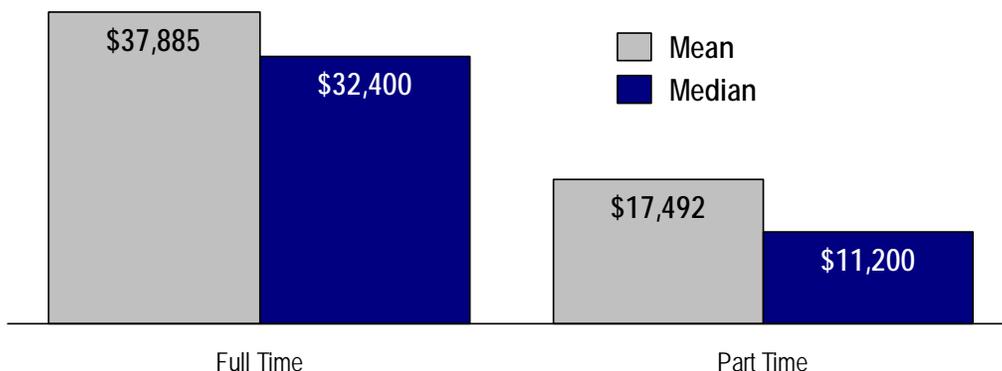


Table 2—Work Level for Male High School Graduates in Washington State

	1989	1999	Change 1999-1989
No Work: zero earnings	9%	13%	4%
Part Time: non-zero earnings and hours < 35 or weeks < 45	27%	25%	-2%
Full Time: non-zero earnings and hours ≥ 35 and weeks ≥ 45	64%	62%	2%

Does an Older Population of Male High School Graduates Translate into Higher Earnings?

Earnings tend to increase with age. In 1999, the mean earnings for male high school graduates ranged from \$13,384 among those aged 18 to 24 to \$35,268 among those aged 45 to 54 (see Figure 3). Differences in earnings by age can mostly be explained by the difference in the experience and seniority that older workers have compared to younger workers. However, differences in earnings by age can also be explained by differences in work level by age. The youngest and oldest male high school graduates were the least likely to work full time (see Figure 4). The oldest male high school graduates were the most likely to have no work at all. Given these facts, finding that earnings were the lowest for the youngest and the oldest male high school graduates was not surprising.

Between 1990 and 2000, the age of male high school graduates shifted upwards (see Table 3). There were proportionally fewer men aged 25 to 34 and proportionally more men aged 35 to 44 and 45 to 54. Given the relationship between earnings and age, one would expect that an older population would result in higher overall earnings. Indeed, if the age distribution in 2000 was the same as 1990 then mean earnings would have been roughly \$561 less than actual. But if both age and work level remained the same in 1999 as it was in 1989 then the mean earnings would have been roughly \$511 dollars more. The increasing age of the male high school graduates, partially offset the effect of work level changes on overall earnings.

Figure 3—Mean Earnings for Male High School Graduates by Age

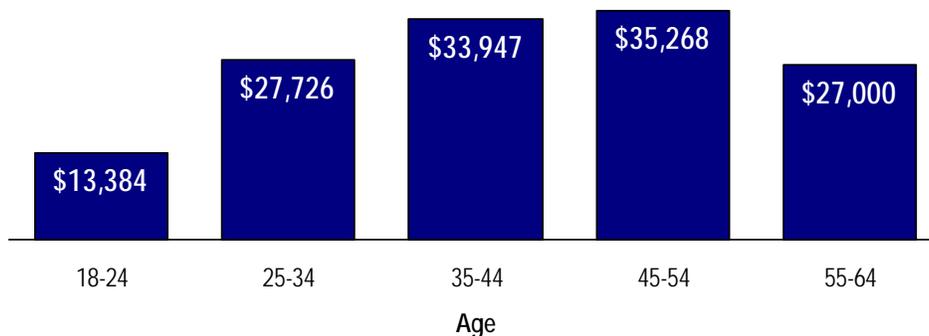


Figure 4—Work Level By Age For Male High School Graduates, 1999

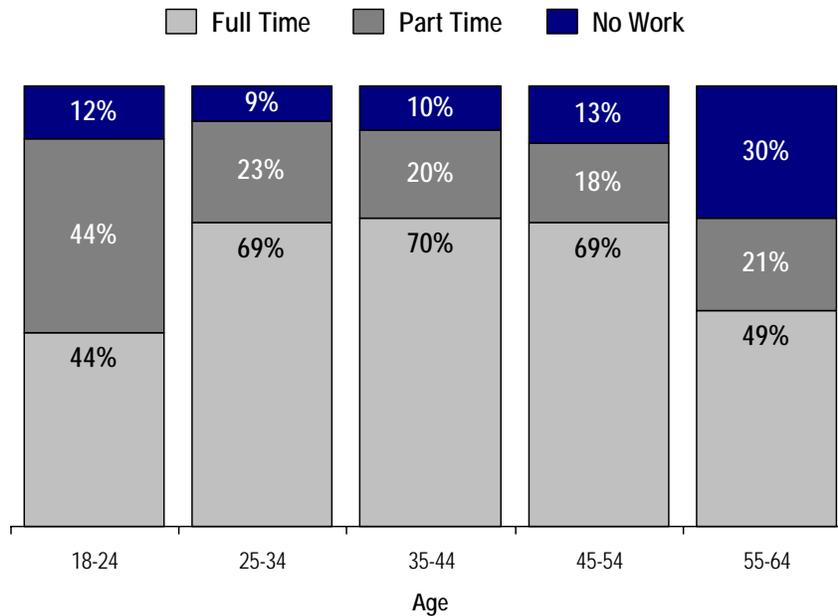


Table 3—Shift in Age Distribution of Male High School Graduates in Washington State

Age	1990	2000	Change 2000-1990
18-24	20%	19%	0%
25-34	32%	24%	-8%
35-44	21%	28%	7%
45-54	16%	17%	1%
55-64	13%	13%	0%

Did High School Graduates Experience Any Increases in Earnings for Full Time Work?

As shown above, changes in age distribution and work level affect overall earnings. Another factor affecting earnings change is whether male high school graduates have the same earnings for the same work level. Looking at full time earnings, male high school graduates experienced a small increase in earnings from 1989 to 1999 across all earnings percentiles examined, but the increase is much smaller than experienced by male full time earners overall (see Table 4).

**Table 4—Full Time Earnings of Male High School Graduates and All Men
Adjusted for Inflation (1999 dollars)**

		1989	1999	Change 1999-1989	% Change (1999/1989-1)
<i>Male High School Graduates</i>					
Mean		\$33,563	\$37,885	\$2,522	7%
Percentile					
	10th	\$14,418	\$15,000	\$582	4%
	25th	\$21,733	\$22,000	\$267	1%
	50th	\$31,960	\$32,400	\$440	1%
	75th	\$43,465	\$45,000	\$1,535	4%
	90th	\$56,249	\$60,000	\$3,751	7%
<i>All Men</i>					
Mean		\$43,225	\$49,929	\$6,704	16%
Percentile					
	10th	\$15,724	\$17,000	\$1,276	8%
	25th	\$25,418	\$26,000	\$582	2%
	50th	\$37,946	\$40,000	\$2,054	5%
	75th	\$51,136	\$57,000	\$5,864	11%
	90th	\$70,311	\$82,000	\$11,689	17%

Conclusion

Over half of the male high school graduate population earned less in 1999 than it did in 1989. The higher wages and/or salaries associated with older workers tempered the negative effects of the reductions in work levels experienced by male high school graduates. Male high school graduates experienced small increases in the earnings for full time workers, but these increases were substantially lower than for men overall.

¹ The PUMS is an individual level data set that contains decennial U.S. Census data collected from the long form of the U.S. Census. Earnings include wage, salary, commission, bonus, and tip income from all jobs before deductions and/or net income from self-employment. Earnings and work related data were collected for the year prior to when the Census was taken. For example, the 1990 PUMS contains answers to questions regarding what the respondent's earnings, hours worked, and weeks worked were for the prior year (1989). Population characteristics, such as age, were collected at the time of the Census. So the 2000 PUMS contains the ages of respondents in 2000.

² The 2000 Census topcoded wage and salary earnings at \$336,000 and self-employment earnings at \$245,000. Total earnings are the sum of these two values. The 1990 Census total earnings adjusted for inflation were topcoded at \$500,320 (\$391,368 unadjusted).

³ Full time work is defined as working 35 or more hours a week, 45 or more weeks a year, and having non-zero earnings. Part time work is defined by non-zero earnings, and working less than 35 hours a week or less than 45 weeks a year. No earnings is simply defined as having zero earnings.

TRENDS IN WASHINGTON EARNINGS, 1989-1999: A REPORT BASED ON THE CENSUS

RESEARCH BRIEF NO. 29D

January 2005

Older Working-Aged Women and Large Gains in Earnings, 1989–1999

Erica Gardner

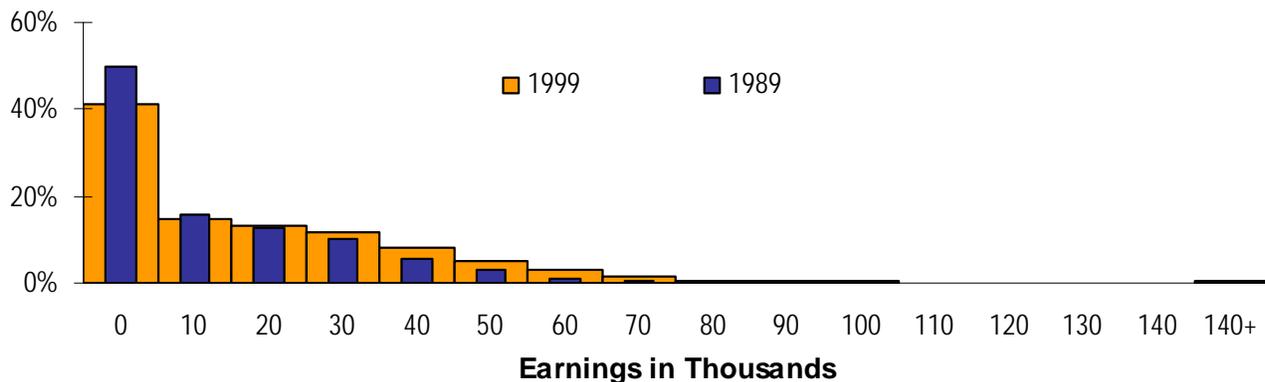
Women aged 55 to 64 (including those working and not working) experienced large increases in earnings between 1989 and 1999. Using data from the 1990 and 2000 five percent Public Use Microdata Sample (PUMS)¹, this issue brief examines the impact of factors such as higher educational levels, increases in work level, and changes in marital status to explain this increase.

Overall Earnings Increase for Women Aged 55 to 64

Women aged 55 to 64 increased their earnings dramatically between 1989 and 1999, driven in part by the increase in women in this age group who had earnings (see Figure 1). In 1999, 59 percent of women aged 55 to 64 had earnings, up 9 percentage points from 1989.

At the 75th and 90th percentiles women aged 55 to 64 earned more in 1999 than in 1989 (see Table 1). Women aged 55 to 64 earned \$25,000 at the 75th percentile in 1999, up 50 percent or \$8,294 from 1989. At the 90th percentile, women aged 55 to 64 earned \$42,500 in 1999, up 36 percent or \$11,194 from 1989.

Figure 1—Distribution of Earnings for Women Aged 55 to 64



Note: Earning data was categorized in \$10,000 increments with the exception of the first and last earning categories (i.e. the \$10,000 earning category includes those earning \$1-\$10,000). The first earning category includes people with zero earnings and a small group of people with negative earnings. The last earning category includes those who earn \$140,000 or more.

The Washington State data used in this analysis come from the 2000 five percent Public Use Microdata Sample (PUMS). More information on these surveys can be found at the Census website: <http://www.census.gov/main/www/pums.html>.

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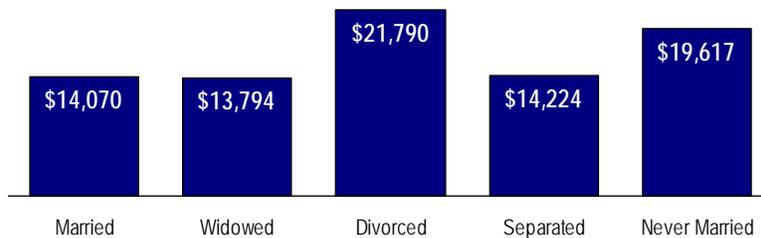
Table 1—Earnings for Women Aged 55 to 64, Adjusted for Inflation (1999 dollars)

	1989	1999	Change 1999-1989	% Change (1999/1989-1)
Mean	\$9,892	\$15,704	\$5,812	59%
Percentile				
10th	\$0	\$0	\$0	—
25th	\$0	\$0	\$0	—
50th	\$0	\$6,000	\$6,000	—
75th	\$16,706	\$25,000	\$8,294	50%
90th	\$31,306	\$42,500	\$11,194	36%

Earnings Move Upwards as a Higher Percentage of Women Aged 55 to 64 Were Divorced

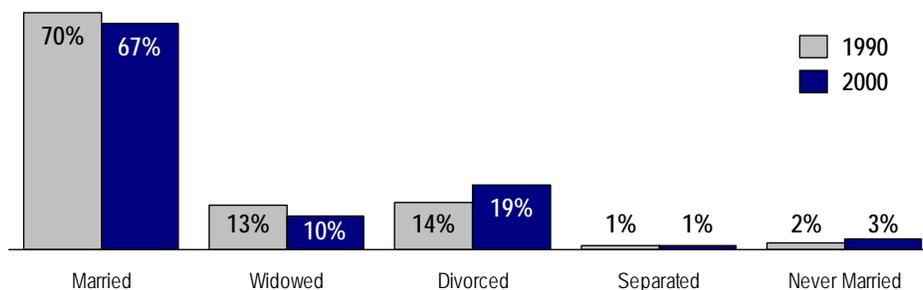
Women’s earnings vary a lot by marital status. The mean earnings for divorced and never married women in 1999 were significantly higher than the mean earnings for married, widowed and separated women (see Figure 2). In 1999, the mean earnings for divorced women aged 55 to 64 were \$21,790 compared to \$14,070 for married women.

Figure 2—Mean Earnings for Women Aged 55 to 64 by Marital Status, 1999



Between 1990 and 2000, the percentage of divorced women aged 55 to 64 increased five percentage points from 14 to 19 percent (see Figure 3). Given divorced women’s higher mean earnings, an increase in the proportion of divorced women should be associated with an increase in overall earnings. Indeed, if the percentage of women aged 55 to 64 who were divorced remained constant from 1990 to 2000, mean earnings in 1999 would have declined by roughly \$474.

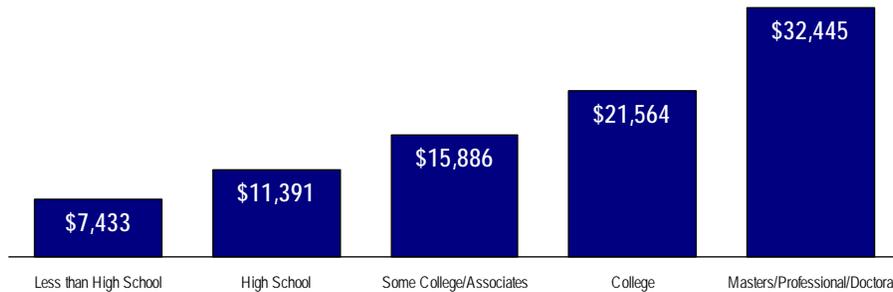
Figure 3—Change in Marital Status for Women Aged 55 to 64, 1990–2000



Earnings Boosted by Higher Education of Women Aged 55 to 64

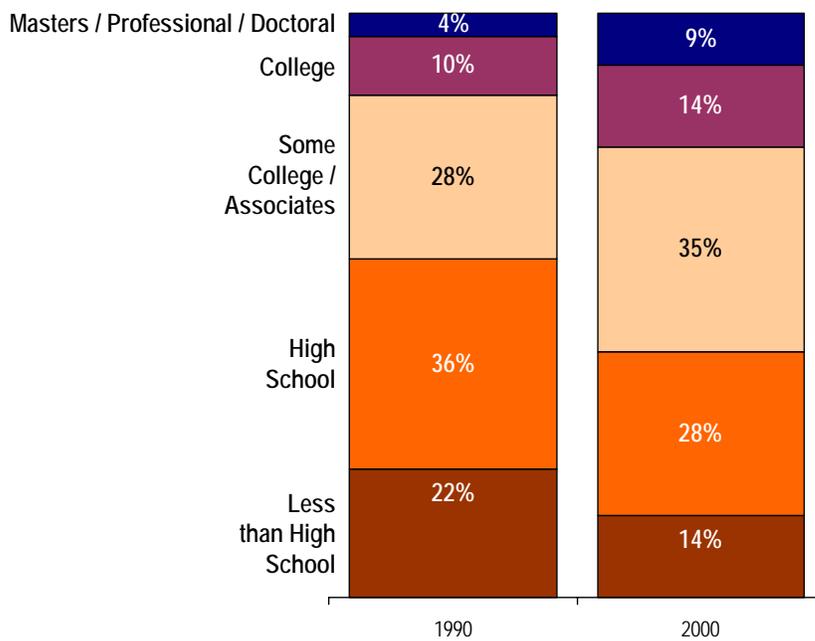
Looking at Figure 4, one can see that mean earnings varied dramatically by educational level for women aged 55 to 64 in 1999. Mean earnings increased with education, ranging from \$7,433 among women with less than a high school education to \$32,445 among women with a masters, professional, or doctoral degree.

Figure 4—Mean Earnings for Women Aged 55 to 64 by Education, 1999



In 2000, women aged 55 to 64 were more likely to have some college or more compared to women aged 55 to 64 in 1990 (see Figure 5). If the educational distribution had remained the same in 2000 as it was in 1990, then women’s mean earnings would have been over \$2,000 less than they were in 1999.

Figure 5—Educational Attainment of Women Aged 55 to 64, 1990–2000



The Effect of More Women Working and Working More Hours

As one might expect, mean earnings vary by work level.² Mean earnings for those who do not work were zero. In 1999, the mean earnings for women who worked part time were less than half the mean earnings for full time workers (see Figure 6).

Women aged 55 to 64 were more likely to work and more likely to work full time in 1999 than in 1989 (see Figure 7). In 1999, 31 percent of women aged 55 to 64 worked full time, up six percentage points from 1989. The percentage of women aged 55 to 64 who did not work declined by nine percentage points from 50 percent in 1989 to 41 percent in 1999.

In 1999, women aged 55 to 64 had higher labor force participation rates and higher rates of full time work across all educational levels and among the married and never married. If women in 1999 had the same labor force participation rates and rates of full time work as they did in 1989 then women’s mean earnings would have been over \$2,600 less in 1999.

Figure 6—Mean Earnings for Women Aged 55 to 64 by Work Level, 1999

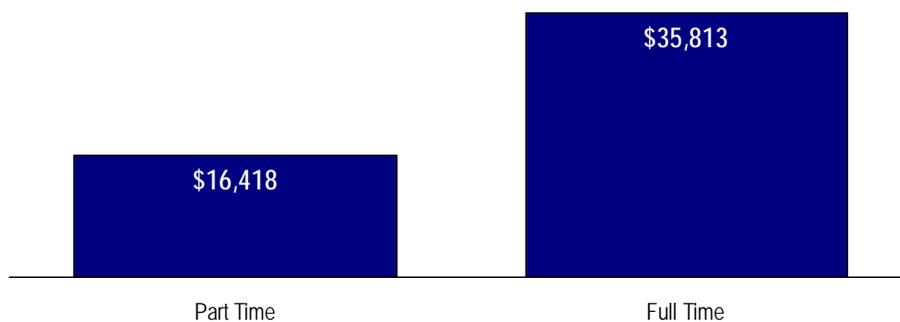
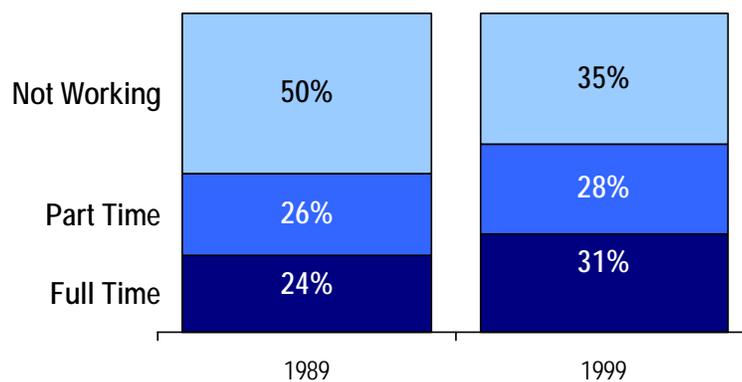


Figure 7—Distribution of Women Aged 55 to 64 by Work Level, 1989 and 1999



Women Aged 55 to 64 Earned More in 1999 for Full Time Work

Women aged 55 to 64 who worked full time in 1999 were more likely to earn more in 1999 than in 1989 (see Table 2). In 1999, these women's mean full time earnings were \$35,813, up 31 percent or \$8,500 from 1989. Women's full time earnings increased across every educational level. Women with a high school education experienced the smallest increases in earnings (14 percent). All other educational levels experienced earnings increases of 25 percent or more.

**Table 2—Mean Full Time Earnings for Women Aged 55 to 64 by Education
Adjusted for Inflation (1999 dollars)**

	1989	1999	Change 1999-1989	% Change (1999/1989-1)
Less than High School	\$20,405	\$26,081	\$5,676	28%
High School	\$25,315	\$28,902	\$3,587	14%
Some College/Associates	\$27,649	\$34,424	\$6,775	25%
College	\$34,395	\$43,490	\$9,095	26%
Masters/Professional/Doctoral	\$41,716	\$53,117	\$11,401	27%
Total	\$27,313	\$35,813	\$8,500	31%

Conclusion

The large increase in earnings that women aged 55 to 64 experienced between 1989 and 1999 was associated with a number of the factors examined in this issue brief. Women aged 55 to 64 were more likely to earn more for the same amount of time worked in 1999 compared to 1989. In addition, women in 1999 were more likely to have characteristics associated with higher earnings. Women aged 55 to 64 in 2000 were more likely to be divorced, to be educated beyond high school, to work, and to work full time than similar women in 1990.

¹ The PUMS is an individual level data set that contains decennial U.S. Census data collected from the long form of the U.S. Census. Earnings and work related data were collected for the year prior to when the Census was taken. Earnings include wage, salary, commission, bonus, and tip income from all jobs before deductions and/or net income from self-employment. The 1990 PUMS contains answers to questions regarding what the respondent's earnings, hours worked, and weeks worked were for the prior year (1989). Population characteristics, such as age, were collected at the time of the Census. So the 2000 PUMS contains the ages of respondents in 2000. The 2000 Census topcoded wage and salary earnings at \$336,000 and self-employment earnings at \$245,000. Total earnings are the sum of these two values. The 1990 Census total earnings adjusted for inflation were topcoded at \$500,320 (\$391,368 unadjusted).

² Full time work is defined as working 35 or more hours a week, 45 or more weeks a year, and having non-zero earnings. Part time work is defined by non-zero earnings, and working less than 35 hours a week or less than 45 weeks a year. No earnings is simply defined as having zero earnings.

TRENDS IN WASHINGTON EARNINGS, 1989-1999: A REPORT BASED ON THE CENSUS

Earnings of College-Educated Males

Erica Gardner

RESEARCH BRIEF NO. 29E

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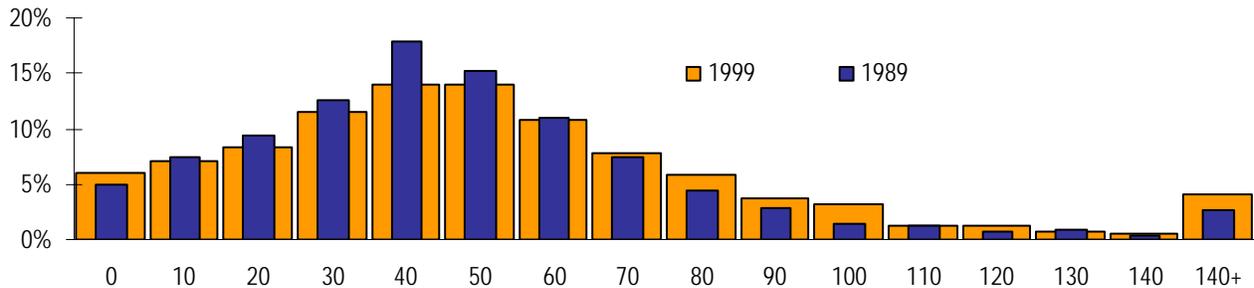
What happened to male college graduates in the 1990's? Did their earnings situation get better or worse between 1989 and 1999? Using data from the 1990 and 2000 five percent Public Use Microdata Sample (PUMS)¹, this issue brief will examine how earnings have changed for male college graduates² in Washington State and then evaluate how changes in the work level, age distribution, or full time earnings affected these changes.

Overall Earnings Increase for Most Male College Graduates

In general, earnings³ increased for male college graduates (see Figure 1 and Table 1). Figure 1 shows that the distribution of adjusted earnings for male college graduates shifted slightly to the right from 1989 to 1999 (i.e. earnings increased). Mean earnings increased 21 percent or \$9,357 dollars from \$44,638 in 1989 to \$53,995 in 1999 (see Table 1). At least part of the strong increase in mean male college graduate earnings was a result of stock options exercised by workers in the software industry.⁴

With the exception of earnings at the 10th percentile, where male college graduate earnings declined 13 percent or \$903 dollars, earnings increased at all other percentiles examined. At the 25th percentile, earnings increased by five percent or \$1,089. Male college graduates at the median experienced a 12 percent or a \$4,648 increase in earnings from \$38,352 in 1989 to \$43,000 in 1999. Male college graduates at the 75th percentile earned \$65,000 in 1999, up 16 percent from 1989. Male college graduates at the 90th percentile earned \$95,000 in 1999, up 19 percent or \$15,356 from 1989.

Figure 1—Distribution of Earnings for Male College Graduates



Note: Earning data was categorized in \$10,000 increments with the exception of the first and last earning categories (i.e. the \$10,000 earning category includes those earning \$1-\$10,000). The first earning category includes people with zero earnings and a small group of people with negative earnings. The last earning category includes those who earn \$140,000 or more.

The Washington State data used in this analysis come from the 2000 five percent Public Use Microdata Sample (PUMS). More information on these surveys can be found at the Census website: <http://www.census.gov/main/www/pums.html>.

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**Table 1—Earnings for Male College Graduates in Washington State
Adjusted for Inflation (1999 dollars)**

	1989	1999	Change 1999-1989	% Change (1999/1989-1)
Mean	\$44,638	\$53,995	\$9,357	21%
Percentile				
10th	\$6,903	\$6,000	-\$903	-13%
25th	\$23,011	\$24,100	\$1,089	5%
50th	\$38,352	\$43,000	\$4,648	12%
75th	\$56,249	\$65,000	\$8,751	16%
90th	\$79,644	\$95,000	\$15,356	19%

Has Work Level Changed among Male College Graduates?

The earnings distribution of male high school graduates is affected by work level.⁵ Those who work more tend to earn more. In 1999, the real mean and median full time earnings for male college graduates were \$64,047 and \$50,000 respectively (see Figure 2). In contrast, the mean and median part time earnings for male high school graduates were \$30,434 or \$19,000 respectively. Those who have zero earnings and/or do not work, obviously have zero mean and median earnings.

All other things being equal, changes in the rate of full or part time work will change the earnings distribution. If the rate of full time work goes down or the rate of no work goes up then the overall earnings distribution will be lower than it would have been otherwise.

Between 1989 and 1999, the percentage of male college graduates who worked full time increased a little, the percentage of part time workers declined, and the percentage of non-workers increased (see Table 2). In 1999 three quarters of men with college degrees worked full time, 19 percent worked part time, and the remaining six percent did not work. If work level remained at 1989 levels, the mean earnings for male college graduates in 1999 would have increased by roughly \$164.

Figure 2—Mean and Median Earnings for Male College Graduates by Work Level, 1999

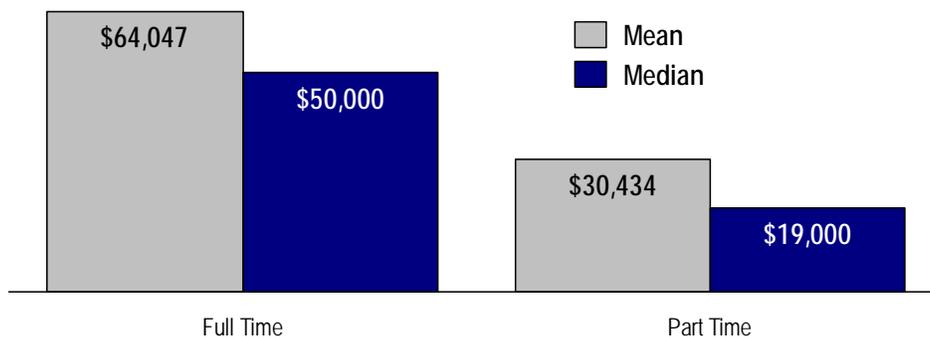


Table 2—Work Level for Male College Graduates in Washington State

	1989	1999	Change 1999-1989
No Work: zero earnings	4.5%	5.7%	1.2%
Part Time: non-zero earnings and hours < 35 or weeks < 45	20.8%	19.0%	-1.8%
Full Time: non-zero earnings and hours ≥ 35 and weeks ≥ 45	74.7%	75.3%	0.6%

Does an Older Population of Male College Graduates Translate into Higher Earnings?

Earnings tend to increase with age. In 1999, the mean earnings for male college graduates ranged from \$19,037 among those aged 18 to 24 to \$62,430 among those aged 45 to 54 (see Figure 3). Differences in earnings by age can mostly be explained by the difference in the experience and seniority that older workers have compared to younger workers. However, differences in earnings by age can also be explained by differences in work level by age. The youngest men are the least likely to work full time and the most likely to work part time (see Figure 4). Given their work levels and relative inexperience, it is not surprising that the youngest men earn the least.

Mean earnings of male college graduates increase with age until ages 55 to 64 when earnings decline. The high rate of non-workers, coupled with the relatively high rate of part time workers, brought down the mean earnings of college educated men aged 55 to 64, but it is interesting to note that even with the low rate of full time workers the mean earnings were still higher than the mean earnings of college educated men aged 25 to 34.

Between 1990 and 2000, the age of male college graduates shifted upwards (see Table 3). There were proportionally fewer men aged 18 to 44 and proportionally more men aged 45 to 64. Given the relationship between earnings and age, one would expect that an older population would result in higher overall earnings. Indeed, if the age distribution in 2000 was the same as 1990 then mean earnings would have been roughly \$956 less than actual. If both the age distribution and work level by age remained the same in 1999 as it was in 1989 then the mean earnings would have been roughly \$949 dollars less than actual.

Figure 3—Mean Earnings for Male College Graduates by Age, 1999

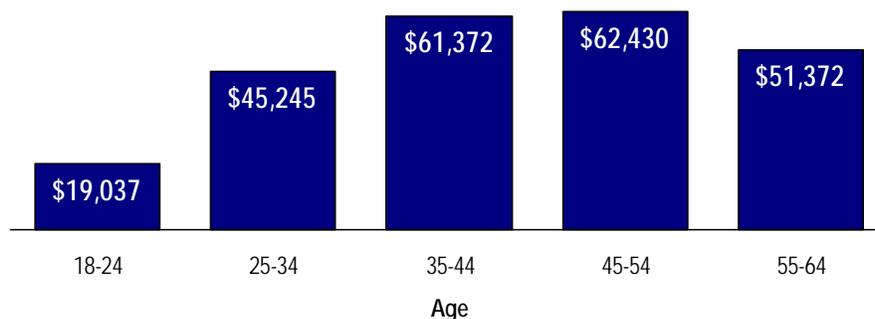


Figure 4—Work Level By Age For Male College Graduates, 1999

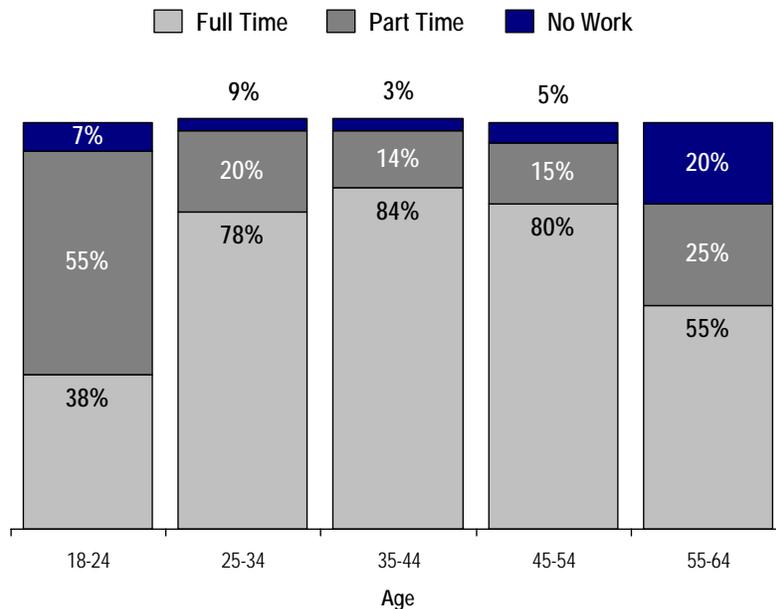


Table 3—Shift in Age Distribution Among Male College Graduates in Washington State

Age	1990	2000	Change 2000-1990
18-24	5%	5%	-1%
25-34	32%	27%	-4%
35-44	34%	29%	-5%
45-54	18%	26%	9%
55-64	12%	13%	1%

Did College Graduates Experience Any Increases in Earnings for Full Time Work?

As shown above, changes in the age distribution affected earnings in an upward direction more than offsetting the changes in work level. Another factor affecting earnings change is whether male college graduates have the same earnings for the same work level. Looking at full time earnings, male college graduates experienced increase in earnings across all percentiles examined. Male college graduates experienced larger increases in real dollars above the 10th percentile compared to all men (see Table 4). With the exception of men at the 10th and 90th percentiles, college educated men working full time experienced faster rates of increase in earnings compared to all men.

Conclusion

The earnings of male college graduates increased over the 10-year period between 1989 and 1999. The higher wages and/or salaries associated with older workers more than made up for the slight declines in the proportion of part time workers and the increase in the proportion of non-workers. In general, college educated men experienced greater increases in full-time earnings compared to men overall.

**Table 4—Full Time Earnings of Male College Graduates and All Men
Adjusted for Inflation (1999 dollars)**

		1989	1999	Change 1999-1989	% Change (1999/1989-1)
<i>Male High School Graduates</i>					
Mean		\$52,784	\$64,047	\$11,263	21%
Percentile					
	10th	\$23,011	\$24,000	\$989	4%
	25th	\$31,960	\$35,000	\$3,040	10%
	50th	\$44,744	\$50,000	\$5,256	12%
	75th	\$61,363	\$72,000	\$10,637	17%
	90th	\$86,299	\$100,000	\$13,701	16%
<i>All Men</i>					
Mean		\$43,225	\$49,929	\$6,704	16%
Percentile					
	10th	\$15,724	\$17,000	\$1,276	8%
	25th	\$25,418	\$26,000	\$582	2%
	50th	\$37,946	\$40,000	\$2,054	5%
	75th	\$51,136	\$57,000	\$5,864	11%
	90th	\$70,311	\$82,000	\$11,689	17%

1 The PUMS is an individual level data set that contains decennial U.S. Census data collected from the long form of the U.S. Census. Earnings include wage, salary, commission, bonus, and tip income from all jobs before deductions and/or net income from self-employment. Earnings and work related data were collected for the year prior to when the Census was taken. For example, the 1990 PUMS contains answers to questions regarding what the respondent's earnings, hours worked, and weeks worked were for the prior year (1989). Population characteristics, such as age, were collected at the time of the Census. So the 2000 PUMS contains the ages of respondents in 2000.

2 College graduates are defined for these purposes as those who have completed a four-year degree. Those who have gone on to complete higher degrees are not included in this analysis.

3 The 2000 Census topcoded wage and salary earnings at \$336,000 and self-employment earnings at \$245,000. Total earnings are the sum of these two values. The 1990 Census total earnings adjusted for inflation were topcoded at \$500,320 (\$391,368 unadjusted).

4 In 1999 the software industry had roughly 27,300 workers making up less than one percent of Washington's workforce. That year the software industry reported 10.3 billion dollars in wages to employment security. If one assumes that the real wage of each of these workers was about \$100,000 then about 7.6 billion of these reported wages were a result of stock options. The high earnings of these relatively few workers raised the mean earnings. The full effect of these top earners on mean earnings is minimized somewhat by the fact that the 1990 and 2000 Censuses topcoded total earnings (see Endnote 3 above).

5 Full-time work is defined as working 35 or more hours a week, 45 or more weeks a year, and having non-zero earnings. Part time work is defined by non-zero earnings, and working less than 35 hours a week or less than 45 weeks a year. No earnings is simply defined as having zero earnings.