

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

Research Brief 27A: How Much Did Men and Women Work in 1999 Compared with 1989?

Mean and median earnings calculations are affected by the full-time, part-time, or non-work status of the population. Looking at the Census data for 1990 and 2000, one finds that there were some shifts in work level for men and women. While men still were more likely to work full time in 1999 than women, the gap between men's and women's rates of full time work declined. From 1989 to 1999, women increased their rate of full time work and men increased their rate of no work. Read Research Brief 27A ...

Research Brief 27B: Total Earnings Change for Washington Adults between 1989 and 1999

Between 1989 and 1999, Washington State mean earnings for all adults aged 18 to 64 (including those working and not working) increased 20 percent, or \$4,759, after adjusting for inflation. However, the benefits of the increase in mean earnings were not evenly spread across all adults. In 1999, Washington adults at the bottom quarter of the earning distribution were earning 23 percent more than adults at the bottom quarter in 1989, an increase of \$865 earned. In contrast, earnings in the third quartile (or 75th percentile) increased by 14 percent, or \$4,784. The bottom quartile experienced the greatest percent increase in earnings, but also the smallest increase in terms of dollars gained. The dollar gap between the highest earners and the lowest earners widened between 1989 and 1999, but the percentage difference decreased slightly. This analysis includes adults without earnings as well as adults who worked less than full time. Read Research Brief 27B ...

Research Brief 27C: Total Earnings Change For Men and Women in Washington State between 1989 and 1999

While all men aged 18 to 64 (including those working and not working) started and ended with higher earnings than women, women experienced greater increases in earnings between 1989 and 1999 than men. Between 1989 and 1999, women's median earnings increased 30 percent or \$3,073 compared to the seven percent increase or \$1,915 gained by men. The larger percentage and dollar increase in earnings experienced by women contributed to the decline in the gap between men's and women's earnings. Women's earnings as a percentage of men's earnings increased across all five percentiles examined. Women's earnings were closest to men's at the top of the earnings distribution, but the greatest percentage point increases were experienced by women at the median and 75th percentile. This analysis includes adults without earnings as well as adults who worked less than full time. Read Research Brief 27C ...

Research Brief 27D: Full-Time Worker Earnings by Sex: 1989-1999

Both women's and men's full time earnings increased between 1989 and 1999, but women's full time earnings grew at a faster rate than men's. For both men and women, the dollar gap between high and low full time earners and as well as the ratio of high to low full time earnings increased over this ten year period.

Between 1989 and 1999, men's mean full time earnings increased 16 percent compared to the 25 percent increase experienced by women. Still, men's full time earnings remained higher than women's full time earnings. In 1999, mean and median earnings were \$34,331 and \$29,000 for women compared to \$49,929 and \$40,000 for men. Read Research Brief 27D ...

Research Brief 27E: How Change in Earnings is Computed

This brief explains why inflation adjusted earnings are used to compare earnings at two points in time. Read Research Brief 27E ...

How Much Did Men and Women Work in 1999 Compared with 1989?

Erica Gardner

In 1999, men were more likely to work full-time¹ than women, but the gap between male and female rates of full-time work declined slightly between 1989 and 1999 (see Table 1). From 1989 to 1999, women increased their rate of full-time work from 37 percent to 41 percent while men's rate of full-time work remained relatively constant. Between 1989 and 1999, the percentage of men without employment increased by 2 points.

Table 1 – Change in the Distribution of Adults Aged 18 to 64 by Sex and Work Level: 1989-1999

	1989	1999	1999-1989
Men			
No Earnings	9%	11%	2%
Part-Time	28%	25%	-2%
Full-Time	63%	64%	0%
Women			
No Earnings	24%	23%	-2%
Part-Time	39%	37%	-2%
Full-Time	37%	41%	4%

¹ 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.

Total Earnings Change for Washington Adults between 1989 and 1999

Erica Gardner

Change in Washington State earnings was examined for all Washington resident (including those working and not working) using the data from the 1990 and 2000 five percent Public Use Microdata Sample (PUMS), which provide data on earnings in the prior year. Earnings include wage, salary, commission, bonus, and tip income from all jobs before deductions and/or net income from self-employment.¹ Looking at all adults in Washington aged 18 to 64, regardless of work status, one finds that mean earnings for individuals in 1999 were up 20 percent, or \$4,759 from 1989 after adjusting for inflation (see mean earnings in Table 1).

**Table 1 – Total Earnings in Washington State for 18-64 Year Olds: 1989-1999,
Adjusted for Inflation (1999 dollars)**

	1989	1999	Change 1999-1989	% Change (1999/1989-1)
Mean	\$23,532	\$28,291	\$4,759	20%
Percentile				
10th	\$0	\$0	\$0	–
25th	\$3,835	\$4,700	\$865	23%
50th	\$17,897	\$20,000	\$2,103	12%
75th	\$34,516	\$39,300	\$4,784	14%
90th	\$51,136	\$60,000	\$8,864	17%

However, change in earnings was not uniform across the earnings distribution.

- In both 1989 and 1999, 17 percent of Washington’s adult population earned zero dollars or less.
- The bottom quartile experienced the greatest percent increase in earnings, but also the smallest increase in terms of dollars gained. At the 25th percentile there was a 23 percent increase in earnings from 1989 to 1999, but this only resulted in an extra \$865 earned.
- While the 50th, 75th and 90th percentiles experienced slower growth rates in earnings over the period compared to the 25th percentile, the upper earning percentiles experienced greater gains in dollars. Earnings at the 50th percentile increased 12 percent or \$2,103 from 1989 to 1999. The 75th percentile was \$4,784 higher in 1999 than it was in 1989, over double the dollar increase experienced at the 50th percentile. Finally, the 90th percentile experienced a 17 percent or \$8,864 increase in earnings from 1989 to 1999.
- The 90th percentile experienced an increase in earnings that was over 10 times the size of the dollar increase experienced by the 25th percentile.
- However, the ratio of earnings at the 90th percentile to earnings at the 25th percentile, decreased from 13.3 in 1989 to 12.8 in 1999.
- The gap between high earners and all other earners grew between 1989 and 1999. The gap between the 25th and the 90th percentile increased from \$47,301 in 1989 to \$55,300 in 1999, a 17 percent increase.

¹ The 2000 Census topcoded wage and salary earnings at \$336,000 and self-employment earnings at \$245,000. Total earnings in 1999 were the sum of these two values. The 1990 Census total earnings adjusted for inflation were topcoded at \$500,320 (\$391,368 unadjusted).

The Washington State data used in this analysis come from the 1990 and 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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Total Earnings Change For Men and Women in Washington State between 1989 and 1999

Erica Gardner

Change in earnings was examined by sex for all Washington State adult residents aged 18 to 64 (including those working and not working) using the data from the 1990 and 2000 five percent Public Use Microdata Sample (PUMS), which provide data on earnings in the prior year. Earnings include wage, salary, commission, bonus, and tip income from all jobs before deductions and/or net income from self-employment.¹

Change in Male Earnings

Between 1989 and 1999 male mean earnings increased 15 percent in Washington State (see Table 1).² However, all men did not experience the same increase in earnings. There was actually a decline in men's earnings at the 10th percentile. From 1989 to 1999, the percentage of men with zero earnings increased from nine to 11 percent. While males experienced increases in earnings above the 25th percentile, the increases were not equally shared across the earnings distribution. The higher the earning percentile, the greater the dollar and percent increase in earnings between 1989 and 1999. At the 25th percentile there was a \$218 or a two percent increase in male earnings between 1989 and 1999 compared to an \$8,081 or a 13 percent increase in earnings at the 90th percentile. The gap between male earners at the 90th percentile and the 25th percentile grew by 15 percent or \$7,863 over this period. The ratio of male earnings at the 90th percentile to male earnings at the 25th percentile increased from 5.9 in 1989 to 6.5 in 1999.

**Table 1 – Total Earnings in Washington State for 18-64 Year Old Males: 1989-1999,
Adjusted for Inflation (1999 dollars)**

	1989	1999	Change 1999-1989	% Change (1999/1989-1)
Mean	\$32,482	\$37,230	\$4,748	15%
Percentile				
10th	\$639	\$0	-\$639	–
25th	\$10,782	\$11,000	\$218	2%
50th	\$27,485	\$29,400	\$1,915	7%
75th	\$44,744	\$49,000	\$4,256	10%
90th	\$63,919	\$72,000	\$8,081	13%

**Table 2 – Total Earnings in Washington State for 18-64 Year Old Females: 1989-1999,
Adjusted for Inflation (1999 dollars)**

	1989	1999	Change 1999-1989	% Change (1999/1989-1)
Mean	\$14,478	\$18,750	\$4,272	30%
Percentile				
10th	\$0	\$0	\$0	–
25th	\$205	\$1,000	\$795	388%
50th	\$10,227	\$13,300	\$3,073	30%
75th	\$23,011	\$29,000	\$5,989	26%
90th	\$35,795	\$45,000	\$9,205	26%

The Washington State data used in this analysis come from the 1990 and 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 Female Earnings

Women's mean earnings increased 30 percent between 1989 and 1999 (see Table 2). Women's earnings increased dramatically across all the percentiles above the 10th percentile. Between 1989 and 1999, women's median earnings increased by 30 percent or \$3,073. At the 90th percentile, women's earnings increased by 26 percent or \$9,205.

Like men, the gap between the highest female earners and lower female earners increased between 1989 and 1999. The gap between women's earnings at the 90th percentile and women's earnings at the median increased by \$6,132 or 23 percent over this period. The ratio of female earnings at the 90th percentile to female earnings at the median decreased slightly from 3.5 in 1989 to 3.4 in 1999.

Change in Earnings Gap Between Men and Women

Women's earnings as a percentage of men's earnings increased across all percentiles with earnings (see Table 3). Adult women (including those working and not working) on average earned half of what adult men earned in 1999, up six percentage points from 1989. In all of the percentiles examined, women earned more relative to men in 1999 than in 1989. Women at the median and 75th percentiles exhibited the most dramatic percentage point increase in earnings. In 1999, women at the median earned 45 percent of what men at the median earned, up eight percentage points from 1989. Women at the 75th percentile earned 59 percent of what men earned in 1999, up eight percentage points from 1989.

Table 3 – Women's Earnings as a Percentage of Men's Earnings: 1989-1999

	Women's Earnings / Men's Earnings		Change 1999-1989
	1989	1999	
Mean	45%	50%	6%
Percentile			
10th	0%	–	–
25th	2%	9%	7%
50th	37%	45%	8%
75th	51%	59%	8%
90th	56%	63%	6%

Women at the top of the earnings distribution earned more relative to men compared to women at the bottom of the earnings distribution.³ In 1999, women at the 90th percentile earned 63 percent of what men at the 90th percentile earned. In contrast, women at the 25th percentile earned 9 percent of what men at the 25th percentile earned.

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 For more details on why mean earnings are often greater than the median earnings see [Total Earnings for Adults Aged 18 to 64 in 1999](#)

³ The percentages of women's earnings relative to men's earnings at the bottom of the income distribution are reflective of the higher rates of part-time work and no work by women compared to men.

Full-Time Worker Earnings by Sex: 1989-1999

Erica Gardner

Using data from the 1990 and 2000 five percent Public Use Microdata Sample (PUMS), change in total earnings for full-time workers was examined for Washington State residents aged 18 to 64 by sex.¹ Earnings include wage, salary, commission, bonus, and tip income from all jobs before deductions and/or net income from self-employment. Both women's and men's full-time earnings increased between 1989 and 1999, but women's full-time earnings grew at a faster rate than men's (see Table 1). Still, men's full-time earnings remained higher than women's full-time earnings.

Table 1 – Total Earnings for Adults Aged 18 to 64 Who Work Full Time: 1990-2000, Adjusted for Inflation (1999 dollars)

	1989	1999	Change 1999-1989	% Change (1999/1989-1)
Men				
Mean	\$43,225	\$49,929	\$6,704	16%
Earnings Percentile				
10th	\$15,724	\$17,000	\$1,276	8%
25th	\$25,418	\$26,000	\$582	2%
50th	\$37,496	\$40,000	\$2,054	5%
75th	\$51,136	\$57,000	\$5,864	11%
90th	\$70,311	\$82,000	\$11,689	17%
Women				
Mean	\$27,470	\$34,331	\$6,861	25%
Earnings Percentile				
10th	\$12,379	\$13,600	\$1,221	10%
25th	\$17,394	\$20,000	\$2,606	15%
50th	\$24,289	\$29,000	\$4,711	19%
75th	\$33,877	\$40,600	\$6,723	20%
90th	\$44,744	\$57,000	\$12,256	27%

Change in Male Earnings

Men's mean full-time earnings increased 16 percent or \$6,704 from \$43,225 in 1989 to \$49,929 dollars in 1999. Men in the bottom half of the earnings distribution did not experience the same earnings growth that those in the top half experienced. Male earnings at the 10th percentile increased eight percent or \$1,276 between 1989 and 1999, from \$15,724 to \$17,000. This increase may have been at least partly a result of the minimum wage increasing from \$3.85 an hour in 1989 to \$5.70 an hour in 1999.³ Male earnings at the 25th and 50th percentiles experienced rather small increases in full-time earnings (two and five percent respectively).

The Washington State data used in this analysis come from the 1990 and 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>.

In contrast, men with earnings at the 75th and 90th percentile experienced 11 and 17 percent increases in earnings. The earnings gap between male full-time earnings at the 10th and 90th percentiles grew by 19 percent or \$10,413, from \$54,587 in 1989 to \$65,000 in 1999. The ratio of earnings at the 90th percentile to the 10th percentile also increased from 4.5 in 1989 to 4.8 in 1990. At least part of the strong increase in male mean full-time earnings at the 75th and 90th percentiles was a result of stock options exercised by workers in the software industry.²

Change in Female Earnings

Women's mean full-time earnings increased 25 percent or \$6,861 from \$27,470 in 1989 to \$34,331 in 1999. Women's full-time earnings increased by 10 percent or more across all earnings percentiles, but women experienced larger increases in earnings at the top of the earning percentile than at the bottom. There was a 10 percent increase or \$1,221 gained among women's full-time earnings at the 10th percentile. Like the men, the increase in earnings experienced by the women at the 10th percentile might be due in part to the increase in the minimum wage during this period.³

In contrast, women's full-time earnings increased 27 percent or \$12,256 at the 90th percentile. The earnings gap between female full-time earnings at the 10th and 90th percentiles grew by 34 percent or \$11,035, from \$32,365 in 1989 to \$43,400 in 1999. The ratio of female earners at the 90th percentile to female earners at the 10th percentile increased from 3.6 in 1989 to 4.2 in 1999. Income from exercised stock options also helps explain the relatively large increases in earnings for females at the higher end of the income distribution.

¹ 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.

² 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 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 also topcoded total earnings at \$500,320 (adjusted for inflation).

³ Washington State Department of Labor and Industries "History of Washington State Minimum Wage"
<http://www.lni.wa.gov/workplacerrights/wages/minimum/history/default.asp>

How Change in Earnings is Computed

Erica Gardner

Data on earnings in the State of Washington were obtained from the five percent Public Use Microdata Sample (PUMS) for 1990 and 2000. Earnings include wage, salary, commission, bonus, and tip income from all jobs before deductions and/or net income from self-employment. The unadjusted mean earnings for Washington State residents aged 18 to 64 in 1989 and 1999 are shown in Figure 1. Figure 1 shows that the mean income in 1999 was nearly \$10,000 more than it was in 1989.

The Problem with Unadjusted Earnings

Comparing unadjusted earnings across time is problematic because the earning comparisons do not account for changes in the purchasing power of the dollar. Typically items cost more in the present than they did in the past due to inflation. In other words, a person earning \$20,000 in 1989 can buy more than a person earning \$20,000 in 1999.

So in order to obtain a meaningful comparison of earnings between 1989 and 1999, one has to inflate 1989 earnings into 1999 dollars. Using an inflation factor¹ to adjust for inflation, one finds that a person earning \$20,000 in 1989 earned the equivalent of \$25,568 in 1999 dollars.

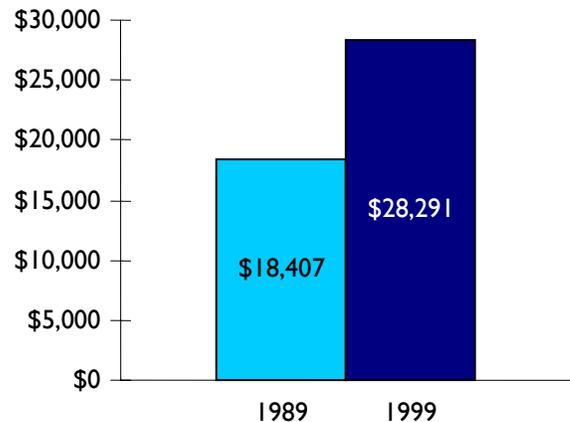
The adjusted mean earnings for Washington State are shown in Figure 2. Figure 2 shows that the mean earnings for Washington State residents aged 18 to 64 increased 20 percent over the ten-year period, from \$23,532 in 1989 to \$28,291 in 1999.

Annual rate of growth

The annual rate of growth in mean earnings from 1989 to 1999 was 1.86 percent.

¹ The inflation factor used is the Chain-Weight Implicit Price Deflator for Personal Consumption Expenditures; page 102: <http://www.erfc.wa.gov/pubs/novo3pub.pdf>

1 – Washington State's Mean Earnings (unadjusted for inflation): 1989-1999



2 – Washington State's Mean Earnings (adjusted for inflation): 1989-1999



The Washington State data used in this analysis come from the 1990 and 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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