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Congressional Research Service

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The Distribution of Earnings of Wage and Salary Workers in the United States, 1994-2003

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The Distribution of Earnings of Wage and Salary Workers in the United States, 1994-2003

Updated December 2, 2004

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The Distribution of Earnings of Wage and Salary Workers in the United States, 1994-2003

Summary

The distribution of individual earnings is an indicator of a nation's economic well-being. The trend in the distribution of earnings is related to policy debates affecting both individual earnings and family income, including debates on education and training, health care, the minimum wage, immigration, foreign trade, tax policy, and other government programs and proposals.

Most studies have found that the distribution of earnings became more unequal over much of the 1980s. From the end of the eighties and into the early nineties the distribution of earnings was relatively unchanged. This report uses data from the monthly Current Population Survey (CPS) to analyze trends in the distribution of weekly earnings from 1994 to 2003. The report uses three measures of inequality: the Gini coefficient, the share of total earnings received by each quintile (i.e., fifth) of earners, and the ratio of earnings received by workers at the 90th, 50th, and 10th percentiles. Together, these measures indicate whether the distribution of earnings has changed and, if so, how it has changed.

This report analyzes trends in the distribution of earnings for three groups of workers: all wage and salary workers, hourly workers, and salaried workers. Wage and salary workers are persons who work for a private or public employer. Hourly workers are mainly workers who are paid an hourly wage. Salaried workers are mainly workers who receive an annual, monthly, or weekly salary. Hourly workers and salaried workers are separate subgroups of all wage and salary workers.

The analysis in this report indicates that inequality is greater among all wage and salary workers than among either hourly or salaried workers. The analysis indicates that inequality declined from 1994 to the late 1990s or early 2000s. During the economic expansion of the 1990s, workers at the bottom of the earnings distribution experienced improvements in both earnings and hours worked.

In the early 2000s, inequality increased. The measures of inequality used in this report do not agree on when inequality began to increase. But inequality began to increase earlier for salaried than for hourly workers.

From 1994 to 2003, inequality declined more among hourly workers, but increased more among salaried workers. Among women, inequality declined more and then increased more among hourly than among salaried workers. Among men, inequality declined more among hourly workers, but increased more among salaried workers.

Finally, from the mid-1990s to the early 2000s, among both men and women there was a slight decline in share of earnings received by the middle three quintiles of salaried workers. Some analysts define the middle three quintiles of earners as the middle class.

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The Distribution of Earnings of Wage and Salary Workers in the United States, 1994-2003

The distribution of individual earnings is an indicator of a nation's economic well-being. The distribution of earnings influences policy debates affecting both individual earnings and family income.¹

This report analyzes the trend in weekly earnings for employed wage and salary workers in the United States from 1994 through 2003. Wage and salary workers account for almost 90% of all workers. Most of the remaining workers are persons who are self-employed. The report provides separate analyses for men and women and for hourly and salaried workers.

The also report analyzes the labor market income of individual workers. The report does not examine family or household earnings or income.

Background

The trend in the distribution of earnings is an indicator of whether the relative supply of and demand for different skills have changed. A market economy may result in a distribution of earnings that some policymakers find socially unacceptable, leading to programs or proposals to reduce inequality. Thus, the trend in the distribution of earnings can influence policy debates on many legislative issues, including the amount and kind of spending for education and training, the minimum wage, welfare, access to health care, immigration, foreign trade, housing, taxes, fiscal policy, as well as other federal programs and policy proposals.

The results of a study of trends in the distribution of earnings can be affected, however, by the definition of earnings, whose earnings are examined (e.g., all workers, prime-age workers, full-time workers, etc.), the measure of inequality, the time period studied, and the availability of data.

¹ Earnings account for the largest share of both individual and family income. For individuals in 2003, wages and salaries accounted for 76.9% of total pretax income for persons 16 and over (and 84.6% for persons between 16 and 64). For families, wages and salaries accounted for 76.8% of pretax family income. (For the latter calculation, families include single individuals.) Calculated by the Congressional Research Service (CRS) from the March 2004 Current Population Survey (CPS).

Definition of Earnings

Earnings are payments that individuals receive for their labor services. Individuals are generally paid for a period of time worked (e.g., an hourly wage) or the quantity of goods or services produced (e.g., a piece rate). Individuals may also receive a salary, which is a given amount paid every week, month, year, or other time period. Earnings may be defined as cash wages only or as total compensation. The latter consists of cash wages plus fringe benefits (e.g., employer-paid health insurance, paid vacations, and employer contributions to a retirement plan).

Although wages represent the largest source of money income for the average family, many individuals and families receive cash or in-kind benefits from sources other than work (e.g., interest, dividends, cash assistance under the Temporary Assistance for Needy Families program (TANF), or food stamps). Also, one worker may support more individuals than another worker with the same amount of earnings. Some families have more wage earners than other families. Accordingly, the results of an analysis of individual earnings will likely differ from a study that uses a measure of total income or a different unit of analysis (e.g., the family or household).² Since individual earnings represent payments that individuals receive for their contribution to output in a market economy, this report focuses on the earnings of individual workers, where earnings consist of cash wages before taxes.

Individual earnings can be examined from three basic perspectives: the level of real earnings, the distribution of earnings, and earnings mobility (i.e., how the earnings of individual workers change over time). This report analyzes recent trends in the distribution of individual earnings. The report analyzes sample data for each year from 1994 through 2003. The data for each year provide a snapshot of earnings for that year. Thus, the report does not examine the trend in real earnings or how the earnings of individuals change over time.

Measures of the Distribution of Earnings

Different measures of the distribution of earnings provide different information and can lead to different conclusions about the trend in inequality. Some measures identify *whether* the distribution of earnings differs among groups or has changed over time. These measures may not reveal *where* the distribution differs or has changed. For example, the Gini coefficient may identify an increase or decrease in earnings inequality, but it does not identify which part of the earnings distribution has changed (e.g., whether there are relatively more earners at the upper, middle, or lower parts of the distribution). Therefore, analyses of the distribution of earnings that use the Gini coefficient are often supplemented with other measures of inequality, such as the ratio between the earnings of workers at the 90th and 10th percentiles or the share of earnings received by each quintile (i.e., fifth) of workers.

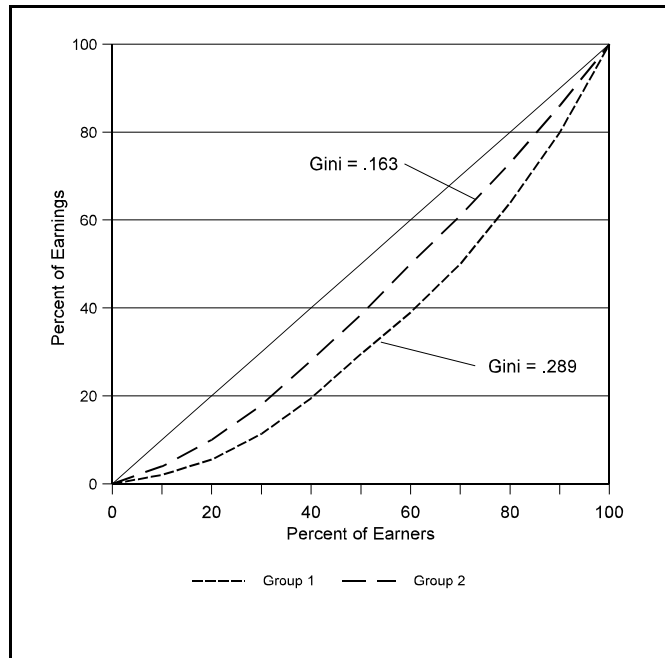
² For analyses of the distribution of household income, see CRS Report RS20811, *The Distribution of Income*, by Brian W. Cashell; CRS Report RL32639, *Inequality in the Distribution of Income: Trends and International Comparisons*, by Brian W. Cashell; and U.S. Department of Commerce, Bureau of the Census, *Income, Poverty, and Health Insurance Coverage in the United States: 2003*, P 60-226, Aug. 2004, pp. 27-33.

This report uses the following three measures of earnings inequality: the Gini coefficient; the ratio of earnings at the 90th, 50th, and 10th percentiles; and the share of total earnings received by each quintile of workers. Together, the measures indicate whether the distribution of earnings has changed and, if so, how it has changed.

Gini Coefficient.

The Gini coefficient is a measure of earnings equality that ranges from 0 to 1. If the earnings of all individuals are the same, the Gini coefficient is equal to 0, representing complete equality of earnings. If one worker receives all the earnings, the Gini coefficient is equal to 1. Thus, a larger coefficient indicates a greater degree of inequality. The Gini coefficient is calculated by using the formula shown in the Appendix. Graphically, the Gini coefficient is illustrated in **Figure 1**. The horizontal axis shows the percent of all earners, while the vertical axis shows the percent of earnings received by all earners. The diagonal line represents total earnings equality. For example, on the diagonal line, 25% of earners receive 25% of earnings, 50% of earners receive 50% of earnings, and so on.

Figure 1. Illustration of Lorenz Curves and Gini Coefficients for Two Groups of Workers in the Same Year

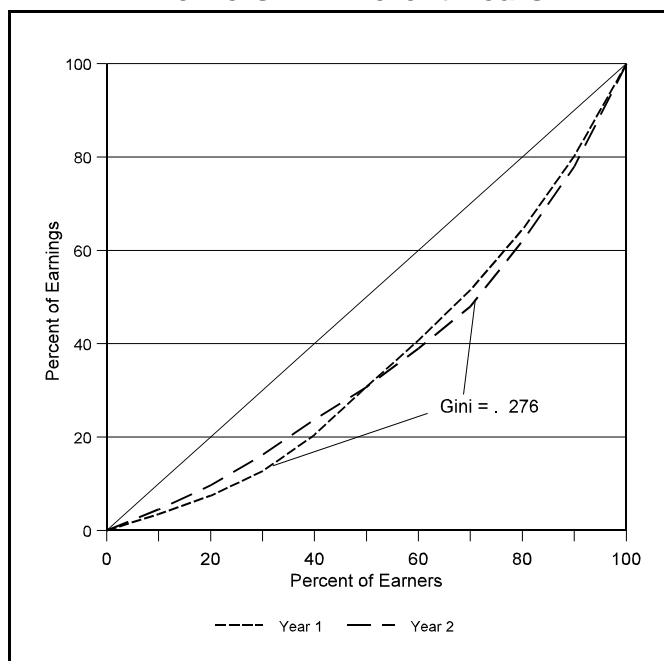


In **Figure 1** the two dotted lines — called Lorenz curves — illustrate two possible earnings distributions. The Gini coefficient is the ratio of (a) the area between the diagonal line and the Lorenz curve and (b) the total area under the diagonal line. **Figure 1** illustrates the distribution of earnings for two groups of workers in the same year. The distribution of earnings in the first group of workers (where the Gini coefficient is .163) is more equal than the distribution of earnings in the second group of workers (the Gini coefficient is .289). For the first group of workers, the bottom 60% of workers receive half of all earnings; the top 40% of earners receive the other half of earnings. In the second group of workers, the bottom 70% of earners receive half of all earnings; the top 30% of earners receive the other half of earnings.

The Gini coefficient may not capture a change in the shape of the distribution of earnings. To illustrate, **Figure 2** shows the distribution of earnings for the same group of workers in two different years. The figure shows that the distribution of

earnings has changed. But the Gini coefficient is the same (.276) in both years. In year two, both lower paid and higher paid workers receive a larger share of total earnings than they received in year one. For example, in year two the first 20% of workers receive 10% of earnings, compared to 7.5% of earnings in year one. In year two, workers in the middle of the distribution receive a smaller share of earnings than they received in year one.³ Changes in the shape of earnings distributions will be discussed again below in the section on “Findings.”

Figure 2. Illustration of Lorenz Curves and Gini Coefficients for the Same Group of Workers in Different Years



Earnings Ratios. Earnings ratios are often calculated using the earnings of workers at the 10th, 50th, and 90th percentiles. Earnings ratios are calculated by first ranking all workers from the lowest to the highest paid. The earnings of workers at the 10th percentile exceed the earnings of workers below the 10th percentile, and are less than the earnings of workers above the 10th percentile. Likewise, the earnings of workers at the 50th percentile — i.e., median earnings — exceed the earnings of workers below, but are less than the earnings of workers above, the 50th percentile. The earnings of workers at the 90th percentile exceed the earnings of workers below the 90th percentile. In a large survey sample, many workers have the same wage. Thus, there are generally many workers whose earnings place them at either the 10th, 50th, or 90th percentiles. The 90/10 earnings ratio is calculated by dividing the earnings of workers at the 90th percentile by the earnings of workers at the 10th percentile. Similarly, the 50/10 ratio is calculated by dividing median earnings by the earnings of workers at the 10th percentile. If all workers earned the same wage, the 90/10, 90/50, and 50/10 ratios would all be equal to 1. The greater the earnings ratios, the greater the degree of inequality.

³ At the lower end of the earnings distribution in **Figure 2**, the Lorenz curve for year two is higher than the curve for year one. This difference means that at the lower end of the distribution, workers in year two receive a larger share of total earnings than workers in year one. However, the curves for years one and two intersect at the point representing 50% of all earners. In both years, the lower 50% of earners receive 30% of all earnings. Because (a) workers at the lower end of the distribution receive a greater share of total earnings in year two than in year one and (b) the lower half of earners in both years receive the same share of total earnings, then (c) workers near the segment of the distribution that includes 50% of earners must receive a smaller share of total earnings in year two than in year one.

Share of Earnings by Quintile. To calculate the share of earnings received by each quintile of earners, workers are first ranked from lowest to highest paid. Workers are then divided into five equal-size groups, or quintiles. The total earnings received by each quintile is divided by the total earnings of all workers. If everyone's earnings were the same, each quintile would receive one-fifth of all earnings. The greater the share of earnings received by the highest paid workers (i.e., the top quintile) and the smaller the share of earnings received by the lowest paid workers (i.e., the bottom quintile) the greater the degree of inequality. Although there is no official definition of the middle class, some analysts and policymakers refer to the middle or middle three quintiles of workers as middle income, or middle class, earners.

Changes in the Distribution of Earnings

The distribution of earnings may change for several reasons. These reasons can be grouped into three broad categories: changes in the supply of labor, changes in the demand for labor, and institutional changes. The supply of labor can be affected by many factors, including changes in the age distribution of the population, labor force participation rates for different population groups, the level of educational attainment, the amount of immigration, and the level and kind of tax revenues and government spending (e.g., marginal tax rates and income transfer payments may affect decisions to work and how much to work). Some of the factors that may affect the demand for labor include technological change, changes in the composition of foreign trade, changes in the regulation of industry, and changes in consumer tastes. Institutional changes include factors such as the real value of the minimum wage, the degree of unionization, and the regulation of markets that affect the supply of or demand for labor.⁴

Reducing Inequality. The general reasons for changes in the distribution of earnings suggest ways to reduce earnings inequality. For instance, governments can adopt policies that reduce the relative supply of or increase the relative demand for

⁴ The literature on the causes of changes in the distribution of earnings is extensive. These causes are reviewed in Frank Levy and Richard J. Murnane, "U.S. Earnings Levels and Earnings Inequality: A Review of Recent Trends and Proposed Explanations," *Journal of Economic Literature*, v. 30, Sept. 1992, pp. 1354-1371; George E. Johnson, "Changes in Earnings Inequality: The Role of Demand Shifts," *Journal of Economic Perspectives*, v. 11, spring 1997, pp. 41-54; Robert H. Topel, "Factor Proportions and Relative Wages: The Supply-Side Determinants of Wage Inequality," *Journal of Economic Perspectives*, v. 11, spring 1997, pp. 55-74; Nicole M. Fortin and Thomas Lemieux, "Institutional Changes and Rising Wage Inequality: Is There a Linkage?" *Journal of Economic Perspectives*, v. 11, spring 1997, pp. 75-96; Yolanda K. Kodrzycki, "Labor Markets and Earnings Inequality: A Status Report," *New England Economic Review*, May/June 1996, pp. 11-24; CRS Report 98-441, *Is Globalization the Force Behind Recent Poor U.S. Wage Performance? An Analysis*, by Craig K. Elwell; and Sheldon Danziger and Peter Gottschalk, *America Unequal* (Cambridge, MA: Harvard University Press, 1995), pp. 127-148. For a discussion of the effect of changes in the real value of the minimum wage on the distribution of earnings, see David S. Lee, "Wage Inequality in the United States During the 1980s: Rising Dispersion or Falling Minimum Wage?" *The Quarterly Journal of Economics*, v. 114, Aug. 1999, pp. 977-1023.

less-skilled labor. One way to reduce the relative supply of less skilled labor is through improvements in education and training or other forms of earnings-producing human capital (e.g., improved health care) for less skilled persons. One way to increase the relative demand for less skilled workers in the short term is through fiscal and monetary policies that maintain full employment (e.g., increased spending relative to revenues during an economic downturn). In the longer term, one way to increase the relative demand for less-skilled labor is through policies that increase the demand for goods and services produced with less-skilled labor (e.g., policies that increase the foreign demand for such goods and services). Governments can also increase equality by adopting policies that directly increase the relative before-tax wages of lower paid workers (e.g., with a higher minimum wage) or that raise the after-tax earnings of lower wage workers (e.g., with progressive taxation — including tax credits like the Earned Income Tax Credit (EITC)). Improvements in the distribution of earnings may, however, involve tradeoffs with an efficient allocation of labor; e.g., subsidies, tax preferences, or a higher minimum wage may affect the supply of or demand for labor.

The Distribution of Earnings from the 1960s to the 1990s

Studies of the distribution of earnings in the United States use different data and methods and often reach different conclusions. Most research indicates that earnings inequality increased during much of the 1980s. Studies have concluded that from the end of the eighties and into the nineties the distribution of earnings was relatively unchanged. However, inequality may have increased during the early- to mid-1990s. For example, one study of hourly earnings concluded that the 90/10 earnings ratio increased by 11.9% from 1979 to 1986, fell by 2.6% from 1986 to 1992, and increased by 2.4% from 1992 to 1995. The same study concluded that the Gini coefficient increased by 5.7% from 1979 to 1986, by 0.7% from 1986 to 1992, and by 4.0% from 1992 to 1995.⁵

The distribution of earnings in recent decades has differed among men and women. Among men, the distribution of earnings became more unequal through most of the 1960s, 1970s, and 1980s. Among women, the evidence indicates that, in the 1970s, there was either a decrease in inequality or, at least, that inequality did not increase. In the early- to mid-1980s, inequality increased among both men and women. Among men, there was some evidence of a decline in middle income (or “middle class”) earnings during the 1980s.⁶

⁵ Robert I. Lerman, “Reassessing Trends in U.S. Earnings Inequality,” *Monthly Labor Review*, v. 120, Dec. 1997, pp. 21-22.

⁶ Peter Henle and Paul Ryscavage, “The Distribution of Earned Income Among Men and Women, 1958-77,” *Monthly Labor Review*, v. 103, Apr. 1980, pp. 4-8; Lynn A. Karoly, *The Trend in Inequality Among Families, Individuals, and Workers in the United States: A Twenty-Five-Year Perspective* (Santa Monica, CA: RAND Corporation, 1992), pp. 31-43, 67-69; W. Norton Grubb and Robert H. Wilson, “Trends in Wage and Salary Inequality, 1967-88,” *Monthly Labor Review*, v. 115, June 1992, pp. 25-28; Arthur F. Jones Jr. and Daniel H. Weinberg, *The Changing Shape of the Nation’s Income Distribution: 1947-1998*, U.S. Census Bureau, P60-204, June 2000, pp. 2-3.

Findings

The remainder of this report analyzes trends in the distribution of weekly earnings for wage and salary workers in the United States from 1994 to 2003. Following an introduction, the section provides a brief summary of the major findings. Next, the section provides a more detailed summary of the findings.

Although this report analyzes the trend in the distribution of individual weekly earnings, it does not examine the trend in real earnings or how the earnings of individual workers change over time (i.e., earnings mobility).

Introduction

This report analyzes trends in the distribution of earnings for three groups of workers: all wage and salary workers, hourly workers, and salaried workers. Wage and salary workers are persons who work for a private or public employer. Hourly workers are mainly workers who are paid an hourly wage. Salaried workers are mainly workers who receive an annual, monthly, or weekly salary. Salaried workers may also include persons who are paid by commission. Hourly workers and salaried workers are separate subgroups of all wage and salary workers. Because there are differences in the labor market characteristics of men and women, the distribution of earnings among men and women are analyzed separately.⁷

The analysis uses three measures of inequality: the Gini coefficient; the ratio of earnings at the 90th, 50th, and 10th percentiles; and the share of total earnings received by each quintile of workers.

The analysis uses data from the monthly Current Population Survey (CPS). The CPS is a household survey conducted by the U.S. Bureau of the Census for the Bureau of Labor Statistics (BLS) of the U.S. Department of Labor. The CPS defines earnings as cash wages before taxes and other deductions. The monthly CPS does not collect information on the earnings of persons who are self-employed. Persons who work without pay on a family farm or business do not have earnings to report from that employment. The analysis is based on employed persons who report positive weekly earnings. A detailed explanation of the data and methodology used in this report is provided in the Appendix.

Table 1 shows the relative sizes and median weekly earnings of all employed wage and salary workers, hourly workers, and salaried workers. In 2003, an average

⁷ In general, women tend to work fewer hours per week than men, spend less time in the labor force, and enter and leave the labor force more often than men. The distribution of women by occupation and industry also differs from men. Among college graduates, the distribution of women by college major differs from men. CRS Report 98-278, *The Gender Wage Gap and Pay Equity: Is Comparable Worth the Next Step?*, by Linda Levine. Women's Bureau, U.S. Department of Labor, *Earnings Differences Between Women and Men*, available at [<http://permanent.access.gpo.gov/lps49666/wagegap2.htm>]. Daniel E. Hecker, "Earnings of College Graduates: Women Compared With Men," *Monthly Labor Review*, v. 121, Mar. 1998, pp. 64-66.

of 137.8 million persons were employed each month. Of this number, 122.2 million were wage and salary workers, 72.9 million were hourly workers, and 49.2 million were salaried workers. **Table 1** shows that salaried workers had higher median weekly earnings (\$788) than hourly workers (\$420). The median weekly earnings of all wage and salary workers (\$540) fell between the median earnings of hourly and salaried workers.

In addition to wage and salary workers, in 2003, an additional 15.3 million workers were self-employed, and an estimated 118,000 persons worked as unpaid employees in a family business.⁸

Table 1. Relative Size and Median Weekly Earnings of Employed Labor Force, 2003

Labor Force Group	Number (in thousands)	Median Weekly Earnings
Employed	137,736	Not available ^a
Wage and salary workers ^b	122,150	\$540
Hourly workers	72,916	\$420
Salaried workers	49,234	\$788

Source: Calculated by CRS from the monthly CPS.

- a. Employed persons include individuals who are self-employed and persons who work on a family farm or business without pay. The monthly CPS does not collect information on earnings for persons who are self-employed.
- b. The earnings calculations include only those wage and salary workers with positive weekly earnings.

Major Findings

- The analysis in this section indicates that inequality is greater among all wage and salary workers than among either hourly or salaried workers. Two of three measures of inequality used in this report indicate that inequality is greater among all wage and salary workers than among either men or women.
- Inequality declined from 1994 to the late 1990s or early 2000s. Inequality increased in the early 2000s.
- The measures of inequality used in this report do not agree on when inequality began to increase. But inequality began to increase earlier for salaried than for hourly workers.
- From 1994 to 2003, inequality declined more among hourly workers, but increased more among salaried workers.
- Among women, inequality declined more and then increased more among hourly than among salaried workers.
- Among men, inequality declined more among hourly workers, but increased more among salaried workers.
- Among men, from 1994 to 1999, there was a hollowing out of the earnings distribution: earnings at the top and bottom of the

⁸ Unpaid family members are persons who work without pay for 15 hours or more a week on a family farm or business.

distribution increased more than earnings in the middle of the distribution.

- From the mid-1990s to the early 2000s, among both men and women there was a slight decline in share of earnings received by the middle three quintiles of salaried workers. Some analysts define the middle three quintiles of earners as middle income, or middle class, workers.

Gini Coefficients

Table 2 shows Gini coefficients for all wage and salary earners, hourly workers, and salaried workers, respectively. A larger Gini coefficient indicates greater inequality.

Table 2 shows that, for the period 1994 to 2003, the distribution of earnings among all wage and salary workers was more unequal than among either hourly or salaried workers. Inequality among all workers was also greater than among either men or women. In 2003, the Gini coefficient among all wage and salary workers was .399, compared to .357 for hourly workers and .365 for salaried workers. The Gini coefficient was .393 for men and .382 for women.

One reason why there is greater inequality among wage and salary earners than among either hourly or salaried workers is that hourly and salaried workers are concentrated in different occupations. **Table 3** shows that, in 2003, 55.3% of salaried workers were employed in managerial or professional occupations, compared to 18.6% of hourly workers. By contrast, 52.3% of hourly workers were employed in service, construction, installation, production, or transportation occupations, compared to 20.5% of salaried workers.

(The monthly CPS does not collect information on the earnings of self-employed persons. **Table 3** shows that the distribution of self-employed persons by occupation is more like the distribution of salaried than hourly workers: 45.5% of self-employed workers were employed in managerial or professional occupations; 30.2% were employed in service, construction, installation, production, or transportation occupations.)

All Wage and Salary Workers. The Gini coefficient for all wage and salary workers indicates that, from 1994 to 2003, inequality declined from 1994 to 1999 and then increased from 1999 to 2002. From 1994 to 1999, the Gini coefficient fell from .397 to .394, and then increased to .399 in 2002 and 2003.

The Gini coefficient for all wage and salary workers does not indicate whether there are differences in the distribution of earnings between men and women. **Table 2** indicates that, from 1994 to the late 1990s, the decline in inequality among wage and salary workers was mainly among women. On the other hand, the increase in inequality in the early 2000s was among both men and women. In 1994, the Gini coefficient for women was .382; in 2000 it was .376. The coefficient then increased to .382 in both 2002 and 2003. Among men, the change in the Gini coefficient from

1994 to 1999 was not statistically significant.⁹ From 1999 to 2003 the coefficient for men increased from .384 to .393.

Hourly and Salaried Workers. The Gini coefficient for all wage and salary workers does not indicate whether there are differences between hourly and salaried workers. **Table 2** shows that, from 1994 to the late 1990s or early 2000s, inequality declined among both hourly and salaried workers. From 1994 to 2001, the Gini coefficient for hourly workers fell from .369 to .353. From 1994 to 1999, the Gini coefficient for salaried workers fell from .362 to .358.

Table 2. Gini Coefficients for Wage and Salary Workers, Hourly Workers, and Salaried Workers, 1994-2003

Year	All workers	Men	Women
A. Wage and Salary Workers			
1994	0.397	0.386	0.382
1995	0.397	0.384	0.381
1996	0.397	0.386	0.381
1997	0.398	0.387	0.382
1998	0.395	0.384	0.381
1999	0.394	0.384	0.377
2000	0.395	0.387	0.376
2001	0.396	0.387	0.379
2002	0.399	0.392	0.382
2003	0.399	0.393	0.382
B. Hourly Workers			
1994	0.369	0.352	0.360
1995	0.364	0.348	0.354
1996	0.364	0.349	0.353
1997	0.363	0.351	0.348
1998	0.358	0.345	0.347
1999	0.355	0.342	0.343
2000	0.354	0.343	0.340
2001	0.353	0.343	0.341
2002	0.355	0.343	0.348
2003	0.357	0.345	0.351
C. Salaried Workers			
1994	0.362	0.357	0.338
1995	0.362	0.354	0.339
1996	0.360	0.354	0.336
1997	0.360	0.355	0.339
1998	0.360	0.354	0.340
1999	0.358	0.351	0.336
2000	0.361	0.356	0.338
2001	0.362	0.357	0.340
2002	0.364	0.360	0.341
2003	0.365	0.362	0.341

Source: Calculated by CRS from the monthly CPS.

⁹ See “Confidence Intervals” in the Appendix for a brief discussion of significance tests. Unless stated otherwise, the comparisons discussed in this report are significant at the 5% confidence level.

Table 3. Occupation of Employed Wage and Salary Workers, Hourly Workers, and Salaried Workers, 2003

Occupation	Wage and Salary Workers	Hourly Workers	Salaried Workers	Self-employed Workers
Management, business, and financial occupations ^a	12.6%	5.0%	24.0%	29.0%
Professional and related occupations ^b	20.8%	13.6%	31.3%	16.5%
Service occupations ^c	16.5%	21.8%	8.7%	12.9%
Sales and related occupations ^d	10.9%	10.1%	12.1%	16.9%
Office and administrative support occupations ^e	15.5%	18.2%	11.5%	4.2%
Construction and extraction occupations ^f	5.2%	7.0%	2.6%	0.6%
Installation, maintenance, and repair occupations ^g	3.7%	4.7%	2.3%	10.9%
Production occupations ^h	7.6%	10.7%	3.0%	3.2%
Transportation and material moving occupations ⁱ	6.4%	8.1%	3.9%	2.6%
Farming, fishing, and forestry occupations	0.8%	0.8%	0.6%	3.3%
Total	100.0%	100.0%	100.0%	100.0%

Source: Calculated by CRS from the monthly CPS.

- a. Management, business, and financial occupations include executives, managers, wholesale and retail buyers, claims adjusters, budget analysts, financial advisors, tax preparers, and others.
- b. Professional and related occupations include engineers, scientists, lawyers, doctors, teachers, healthcare practitioners, social workers, and others.
- c. Service occupations include dental assistants, nursing aides, firefighters, police officers, chefs, cooks, waiters and waitresses, hairdressers, childcare workers, and others.
- d. Sales and related occupations include cashiers, travel agents, salespersons, insurance agents, financial services sales agents, real estate agents, and others.
- e. Office and administrative support occupations include tellers, file clerks, hotel clerks, receptionists, secretaries, computer operators, office clerks, and others.
- f. Construction and extraction occupations include carpenters, electricians, roofers, plasterers, painters, sheet metal workers, and others.
- g. Installation, maintenance, and repair occupations include aircraft mechanics, car mechanics security system installers, telecommunication line installers, office machine repairers, and others.
- h. Production occupations include bakers, machinists, tailors, welders, machine operators, and others.
- i. Transportation and material moving occupations include airline pilots, truck drivers, bus drivers, taxi drivers, railroad conductors, service station attendants, laborers, and others.

Table 2 also shows that, based on the Gini coefficient, inequality increased among salaried workers beginning in 1999 and among hourly workers beginning in 2001. From 1999 to 2003, the Gini coefficient for salaried workers increased from .358 to .365. From 2001 to 2003, the Gini coefficient for hourly workers increased from .353 to .357.

The economic expansion of the 1990s probably played a role in reducing inequality, while the economic slowdown of 2001 likely played a role in increasing inequality.¹⁰ Expansions are typically characterized by a decline in unemployment,

¹⁰ According to the National Bureau of Economic Research (NBER), which dates the peaks and troughs of the business cycle, the last completed recession began in Mar. 2001 and ended in Nov. 2001. NBER, *Business Cycle Dating Committee, National Bureau of Economic Research*, NBER, July 17, 2003, available on the Internet at (continued...)

an increase in the average workweek, and often by an increase in the relative earnings of lower paid workers. Nationally, the unemployment rate fell from 6.1% in 1994 to 4.0% in 2000, before rising to 5.8% in 2003.¹¹ From 1994 to 2000, the percentage of wage and salary workers employed full-time (35 or more hours per week) increased from 81.6% to 83.8%, and then declined to 82.9% in 2003. The percentage of hourly workers employed full-time increased from 75.5% to 77.9%, and fell to 76.3% in 2003. The percentage of salaried workers employed full-time increased from 91.6% to 92.8%, and was 92.7% in 2003.

In addition, the basic federal minimum wage was raised from \$4.25 to \$4.75 an hour in October 1996 and to \$5.15 an hour in September 1997.¹² This increase may have had an impact on the weekly earnings of lower wage workers.

Male and Female Workers. The Gini coefficient for wage and salary workers indicates that, from 1994 to the end of the decade, inequality fell among women, but not among men. In the early 2000s, inequality increased among both men and women. From 1994 to 2000, the Gini coefficient among women fell from .382 to .376, and then increased to .382 in both 2002 and 2003. Among men, the decline in the coefficient from 1994 to 1999 was not statistically significant. From 1999 to 2003, the coefficient increased from .384 to .393.

The decline in the Gini coefficient for women in the 1990s was mainly among hourly, and not salaried, women. From 1994 to 2000, the coefficient for hourly women fell from .360 to .340. The change in the coefficient from 1994 to 1999 among salaried women was not statistically significant.

The Gini coefficient for wage and salary men suggests that there was not a significant change in inequality from 1994 to 1999. But the Gini coefficient also indicates that, during this period, inequality declined among male hourly workers as well as among male salaried workers. From 1994 to 1999, the Gini coefficient among hourly men fell from .352 to .342; the coefficient for salaried men fell from .357 to .351. The apparent inconsistency between the Gini coefficient for all wage and salary men and for hourly and salaried men examined separately will be discussed below in the analysis of earnings ratios.

Finally, **Table 2** indicates that, for both men and women, inequality increased from the late 1990s or early 2000s among both hourly and salaried workers. From 1999 to 2003, the Gini coefficient for hourly men rose from .342 to .345; for salaried men the coefficient increased from .351 to .362.¹³ From 2000 to 2003, the coefficient

¹⁰ (...continued)
[<http://www.nber.org>].

¹¹ U.S. Department of Labor, Bureau of Labor Statistics, available on the Internet at [<http://data.bls.gov/>].

¹² CRS Report 98-960, *The Federal Minimum Wage and Average Hourly Earnings of Manufacturing Production Workers*, by William G. Whittaker.

¹³ The increase in the Gini coefficient for men from 1999 to 2003 was significant at the 10% (continued...)

for hourly women increased from .340 to .351. For salaried women, the coefficient increased from .336 in 1999 to .341 in both 2002 and 2003.

Earnings Ratios

The Gini coefficient measures the overall degree of inequality, but may not capture changes in the shape of the earnings distribution. Thus, analyses of the distribution of earnings using the Gini coefficient are often supplemented with other measures of earnings inequality. This section examines ratios in the earnings of workers at the 90th, 50th, and 10th percentiles. The next section examines the share of earnings received by each quintile of workers.

Like the above analysis of earnings using the Gini coefficient, **Tables 4** through **6** show that the distribution of weekly earnings among all wage and salary workers was more unequal than among either hourly or salaried workers.

All Wage and Salary Workers. The earnings ratios for all wage and salary workers in **Table 4** indicate that inequality declined from 1994 to the early 2000s, and then increased. From 1994 to 2000, the 90/10 ratio for all wage and salary workers fell from 7.48 to 6.80, and rose to 7.00 in 2003.¹⁴ The same pattern held for both men and women. Among men, from 1994 to 2001, the 90/10 ratio fell from 6.33 to 6.01, and increased to 6.41 in 2003. For women, the 90/10 ratio fell from 7.50 in 1994 to 6.60 in 2001, and rose to 7.05 in 2003. Thus, unlike the Gini coefficient, the 90/10 ratio suggests that, from 1994 to the end of the decade, inequality declined among both men and women (and not just among women).

The reason for the decline in the 90/10 ratios from the mid-1990s to the early 2000s was that weekly earnings at the 10th percentile increased more than weekly earnings at the 90th percentile. From 1994 to 2000, earnings among all wage and salary workers at the 10th percentile increased by 38.9% (from \$126.00 to \$175.00), while earnings at the 90th percentile increased by 26.3% (from \$942.30 to \$1,190.40).¹⁵ Among men, from 1994 to 2001, earnings at the 10th percentile increased by 41.2% (from \$170.00 to \$240.00) and by 34.0% (from \$1,076.00 to \$1,442.30) at the 90th percentile. Among women, during the same time period,

¹³ (...continued)
confidence level.

¹⁴ The increase in the 90/10 ratio from 2000 to 2003 for all wage and salary workers was significant at the 10% confidence level.

¹⁵ Weekly earnings at the 10th percentile can increase relative to earnings at higher percentiles because of a relative increase in hourly wages, a relative increase in the average workweek, or both. For example, from 1994 to 2000, the average number of hours usually worked per week among workers in the lowest decile of wage and salary workers increased more than the average workweek among workers in the highest decile. Among workers in the lowest decile, average hours usually worked increased by 1.1 hours (from 19.2 to 20.3 hours), compared to an increase of 0.4 hours (from 43.5 to 43.9 hours) among workers in the top decile. Similarly, from 1994 to 2000, average hourly earnings among workers in the first decile increased by 31.5% (from \$4.38 to \$5.76), compared to an increase of 24.1% (from \$18.73 to \$23.25) among workers in the top decile.

earnings at the 10th percentile increased by 50.0% (from \$100.00 to \$150.00) and by 32.0% (from \$750.00 to \$990.38) at the 90th percentile.

By contrast, the reason for the increase in inequality at the beginning of the current decade is that earnings at the 90th percentile increased more than earnings at the 10th percentile. From 2000 to 2003, earnings among all wage and salary workers, increased by 8.6% at the 10th percentile (from \$175.00 to \$190.00) and by 11.8% (from \$1,190.40 to \$1,330.00) at the 90th percentile. Among men, from 2001 to 2003, earnings did not increase at the 10th percentile, but increased by 6.6% (from \$1,442.30 to \$1,538.00) at the 90th percentile. Among women, during the same period, earnings at the 10th percentile did not increase, but increased by 6.7% (from \$990.38 to \$1,057.00) at the 90th percentile.

Table 4. Earnings Ratios for All Wage and Salary Workers, 1994-2003

Year	90/10 Ratio	90/50 Ratio	50/10 Ratio
All Workers			
1994	7.48	2.36	3.17
1995	7.37	2.40	3.07
1996	7.41	2.41	3.08
1997	7.10	2.34	3.03
1998	7.03	2.35	2.99
1999	7.10	2.40	2.95
2000	6.80	2.38	2.86
2001	6.83	2.43	2.81
2002	6.96	2.45	2.84
2003	7.00	2.46	2.84
Men			
1994	6.33	2.24	2.82
1995	6.40	2.25	2.85
1996	6.41	2.31	2.78
1997	6.14	2.27	2.70
1998	6.25	2.27	2.75
1999	6.14	2.30	2.67
2000	6.02	2.31	2.61
2001	6.01	2.36	2.54
2002	6.25	2.42	2.58
2003	6.41	2.40	2.67
Women			
1994	7.50	2.32	3.23
1995	7.33	2.35	3.12
1996	7.26	2.33	3.12
1997	6.88	2.31	2.98
1998	6.92	2.30	3.02
1999	6.92	2.27	3.04
2000	6.67	2.36	2.83
2001	6.60	2.29	2.88
2002	6.79	2.29	2.97
2003	7.05	2.29	3.07

Source: Calculated by CRS from the monthly CPS.

Table 4 also shows that the 50/10 ratio of earnings for all wage and salary workers declined from 1994 to 2001 (from 3.17 to 2.81). The same pattern held for men (from 1994 to 2001) and women (from 1994 to 2000).

Hourly and Salaried Workers. **Tables 5 and 6** indicate that, from 1994 to the end of the decade, inequality declined among hourly workers but that among salaried workers inequality was unchanged. From 1994 to 2001, the 90/10 ratio of earnings for hourly workers declined from 6.97 to 5.93. The 50/10 and 90/50 ratios also declined (from 1994 to 2002 and from 1996 to 2000, respectively). Among salaried workers, on the other hand, the changes in the earnings ratios were not statistically significant.

Table 5. Earnings Ratios for Hourly Workers, 1994-2003

Year	90/10 Ratio	90/50 Ratio	50/10 Ratio
All Workers			
1994	6.97	2.25	3.10
1995	6.84	2.27	3.01
1996	6.78	2.29	2.97
1997	6.41	2.26	2.83
1998	6.40	2.22	2.88
1999	6.20	2.15	2.88
2000	6.08	2.13	2.85
2001	5.93	2.20	2.70
2002	6.00	2.23	2.69
2003	6.23	2.23	2.80
Men			
1994	5.88	2.08	2.83
1995	5.89	2.06	2.86
1996	5.89	2.10	2.81
1997	5.87	2.20	2.67
1998	5.67	2.14	2.65
1999	5.53	2.14	2.59
2000	5.38	2.11	2.56
2001	5.26	2.08	2.53
2002	5.21	2.08	2.50
2003	5.43	2.13	2.55
Women			
1994	6.41	2.18	2.94
1995	6.31	2.15	2.93
1996	6.15	2.14	2.87
1997	5.97	2.09	2.85
1998	5.87	2.13	2.75
1999	5.86	2.08	2.82
2000	5.77	2.06	2.80
2001	5.76	2.06	2.80
2002	6.03	2.11	2.86
2003	6.14	2.12	2.89

Source: Calculated by CRS from the monthly CPS.

The earnings ratios for hourly and salaried workers indicate that inequality has increased in recent years. From 2001 to 2003, the 90/10 ratio for hourly workers

increased from 5.93 to 6.23. From 2000 to 2003, the 90/10 ratio for salaried workers rose from 5.33 to 5.77.

Male and Female Workers. Finally, **Tables 5** and **6** indicate that from 1994 to the late 1990s and early 2000s, among men inequality declined among both hourly and salaried workers. Among women, inequality declined among hourly, but not salaried, workers. From the early 2000s to 2003, the data in **Tables 5** and **6** suggest that inequality increased mainly among hourly women.

From 1994 to 2002, the 90/10 ratio for hourly men fell from 5.88 to 5.21. The 50/10 ratio fell from 2.83 to 2.50. Among salaried men, the decline in the 90/10 ratio from 1994 to 1999 was not statistically significant, but the 50/10 ratio fell from 2.59 to 2.33.

Among women, from 1994 to 2001, the 90/10 ratio for hourly workers fell from 6.41 to 5.76; the 90/50 ratio fell from 2.18 in 1994 to 2.06 in 2000. On the other hand, the changes in the earnings ratios for salaried women were not statistically significant.

Table 5 shows that, from 2001 to 2003, the 90/10 ratio increased among hourly women, indicating that inequality increased. The changes in the earnings ratios for hourly men and for salaried men and women do not suggest a clear trend in inequality.

Finally, the Gini coefficient for all men indicates that, from 1994 to 1999, the distribution of earnings did not change. On the other hand, the analysis of earnings ratios indicates that inequality among men declined. But **Tables 4** through **6** also indicate that, from 1994 to 1999, the 90/50 ratios for all, hourly, and salaried men increased.¹⁶ The reason for the increase in the 90/50 ratios among men is that earnings in the middle of the distribution did not rise as much as earnings at either the top or bottom of the distribution. For example, for salaried men, earnings at the 10th percentile increased by 33.3% (from \$259.61 to \$346.15). Earnings at the 90th percentile increased by 24.9% (\$673.03 to \$807.00). But median earnings rose by 19.9% (from \$1,384.61 to \$1,730.00). This is the scenario illustrated in **Figure 2**. The Gini coefficient did not identify a change in the shape of the earnings distribution: Among men, there was a slight hollowing out of the middle of the earnings distribution.¹⁷

¹⁶ For hourly men, the 90/50 ratio was significant from 1995 to 1999 at the 10% confidence level.

¹⁷ An analysis of annual family income for the years 1994 through 2000 found a similar hollowing out in the distribution of income. From 1994 to 2000, inflation-adjusted median income increased by 14.4% for families in the first quintile, by 9.6% in the middle quintile, and by 19.3% in the top decile. The study defined income as total cash income before taxes. Families were defined as the “primary economic unit” in a household. The study defined a family as an individual or couple, along with others in the household who are “financially interdependent” with the main individual or couple. Ana M. Aizcorbe, Arthur B. Kennickell, and Kevin B. Moore, “Recent Changes in U.S. Family Finances: Evidence from the 1998 and 2001 Survey of Consumer Finances,” *Federal Reserve Bulletin*, v. 89, Jan. 2003, pp. 2-5, 30.

Table 6. Earnings Ratios for Salaried Workers, 1994-2003

Year	90/10 Ratio	90/50 Ratio	50/10 Ratio
All workers			
1994	5.58	2.08	2.68
1995	5.46	2.10	2.60
1996	5.66	2.13	2.67
1997	5.38	2.10	2.56
1998	5.77	2.14	2.69
1999	5.42	2.14	2.53
2000	5.33	2.11	2.53
2001	5.45	2.13	2.56
2002	5.69	2.22	2.56
2003	5.77	2.20	2.63
Men			
1994	5.33	2.06	2.59
1995	5.21	2.08	2.50
1996	5.21	2.11	2.47
1997	5.13	2.05	2.50
1998	5.38	2.10	2.56
1999	5.00	2.14	2.33
2000	5.22	2.14	2.44
2001	5.49	2.22	2.47
2002	5.21	2.13	2.45
2003	5.27	2.08	2.53
Women			
1994	5.56	2.00	2.78
1995	5.56	2.00	2.78
1996	5.35	2.00	2.67
1997	5.38	1.97	2.74
1998	5.77	2.00	2.88
1999	5.26	2.02	2.61
2000	5.42	2.03	2.67
2001	5.25	2.01	2.61
2002	5.38	2.00	2.69
2003	5.55	2.01	2.77

Source: Calculated by CRS from the monthly CPS.

Share of Earnings by Quintile

Tables 7 through 9 show the share of total weekly earnings received by quintile for all wage and salary workers, hourly workers, and salaried workers, respectively. Like the analysis of the Gini coefficient, the tables show that the distribution of earnings among all wage and salary workers is more unequal than among either hourly or salaried workers, and more unequal among all workers than among men or women.

All Wage and Salary Workers. **Table 7** shows that inequality declined from 1994 to the end of decade. In the early 2000s, the data indicate a small increase in inequality.

From 1994 to 2000, the share of earnings received by the lowest quintile of wage and salary earners increased from 5.0% to 5.3%. The increase in the share of earnings received by the highest quintile was not statistically significant.

The pattern for male and female wage and salary workers was similar to the pattern for all wage and salary earners: from 1994 to 2000, the share of earnings received by the lowest quintiles of male and female workers increased (from 5.4% to 5.6% for men and from 5.1% to 5.5% for women).¹⁸ Changes in the share of earnings received by the highest quintile of male (from 1994 to 1998) and female (from 1994 to 2000) earners were not statistically significant.

In the early 2000s, the changes in the share of earnings received by quintile suggest a slight increase in inequality. From 2000 to 2003, the share of earnings received by the lowest quintile of wage and salary workers fell from 5.3% to 5.2%.¹⁹ From 2000 to 2002, the share of earnings received by the highest quintile increased from 45.0% to 45.4%.

Hourly and Salary Workers. **Tables 8 and 9** suggest that, from 1994 to the end of the decade, inequality declined among hourly, but not salaried, workers. The tables also suggest that, in the early part of the current decade, inequality increased among both hourly and salaried workers.

Among hourly workers, the share of earnings received by the lowest quintile of workers increased from 5.4% in 1994 to 6.0% in 2000. From 1994 to 2001, the share of earnings received by the highest quintile of hourly earners fell from 42.4% to 41.6%. Among salaried workers, from 1994 to 1999, the changes in the shares of earnings received by the bottom and top quintiles were not statistically significant.

From 2000 to 2003, the share of earnings received by the lowest quintile of hourly earners fell from 6.0% to 5.8%, suggesting an increase in inequality.²⁰ Among salaried workers, from 1999 to 2002, the share of earnings received by the highest quintile increased from 42.2% to 42.9%, which also suggests an increase in inequality. Among salaried workers, the share of earnings received by the middle three quintiles of workers declined from 1996 to 2002 (from 52.0% to 51.1%). In the early 2000s, the increased share of earnings received by the highest quintile was partially offset by the decline in the share of earnings received by the middle three quintiles.

Male and Female Workers. **Tables 8 and 9** suggest that from the mid-1990s to the end of the decade, inequality declined among both hourly and salaried men. Among women, inequality declined mainly among hourly workers. The data in **Tables 8 and 9** suggest that, in the early 2000s, inequality increased among hourly women and salaried men.

¹⁸ The increased share of earnings received by the lowest quintile of men was significant at the 10% confidence level.

¹⁹ The reduced share of earnings received by the lowest quintile of wage and salary workers was significant at the 10% confidence level.

²⁰ The decrease in the share of earnings received by the lowest quintile of earners was significant at the 10% confidence level.

From 1994 to 2000, the share of earnings received by hourly men in the lowest quintile increased from 5.9% to 6.3%. From 1994 to 1999, the share of earnings received by salaried men in the lowest quintile increased from 6.1% to 6.5%. From 1999 to 2003, on the other hand, the share of earnings received by the lowest quintile of salaried men fell from 6.5% to 6.1%.²¹

From 1994 to 2000, the share of earnings received by hourly women in the lowest quintile increased from 5.6% to 6.1%, while the share of earnings received by women in the highest quintile fell from 41.7% to 40.4%. In the early 2000s, however, this trend reversed: the share of earnings received by the lowest quintile fell (from 6.1% to 5.8% between 2000 and 2003) and the share of earnings received by the highest quintile increased (from 40.4% to 41.3% between 2001 and 2003).²²

Finally, from the mid-1990s to the early 2000s, among both men and women there was a slight decline in share of earnings received by the middle three quintiles of salaried workers. From 1996 to 2002 the share of earnings received by the middle three quintiles of male salaried workers fell from 51.9% to 51.1%. From 1996 to 2003, the share of earnings received by the middle three quintiles of female salaried workers fell from 54.2% to 53.2%.²³ Some analysts define the middle class as the middle three quintiles of earners.²⁴

²¹ The changes in the share of earnings received by salaried men in the lowest quintile from 1994 to 1999 and from 1999 to 2003 were significant at the 10% confidence level.

²² The changes in the share of earnings received by hourly women in the lowest and highest quintiles were significant at the 10% confidence level.

²³ The reduction in the share of earnings received by the three middle quintiles of salaried earners was significant at the 10% confidence level for both men and women.

²⁴ An analysis of household income concluded that the percentage of households earnings between \$35,000 and \$49,000 (in inflation-adjusted, or constant, dollars) fell from 22.3% in 1967 to 15.0% in 2003. Griff Witte, "As Income Gap Widens, Uncertainty Spreads," *Washington Post*, Sept. 20, 2004, p. A1.

Table 7. Share of Total Weekly Earnings of All Wage and Salary Workers by Quintile, 1994-2003

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	All workers									
Lowest Quintile	5.0	5.0	5.0	5.1	5.2	5.3	5.3	5.3	5.2	5.2
Second Quintile	10.7	10.7	10.7	10.7	10.7	10.8	10.8	10.8	10.7	10.7
Third Quintile	16.1	16.1	16.1	15.9	16.0	15.9	15.9	15.8	15.8	15.8
Fourth Quintile	23.5	23.5	23.5	23.3	23.2	23.2	23.0	23.0	23.0	23.0
Highest Quintile	44.8	44.7	44.8	45.0	44.9	44.9	45.0	45.1	45.4	45.3
	Men									
Lowest Quintile	5.4	5.4	5.4	5.4	5.6	5.6	5.6	5.6	5.6	5.5
Second Quintile	11.0	11.1	11.0	10.9	11.0	11.0	11.0	10.9	10.8	10.8
Third Quintile	16.3	16.4	16.3	16.2	16.2	16.2	16.1	16.0	15.8	15.9
Fourth Quintile	23.4	23.3	23.3	23.2	23.2	23.1	22.9	22.9	22.8	22.9
Highest Quintile	44.0	43.9	44.0	44.2	44.0	44.2	44.5	44.6	45.0	45.0
	Women									
Lowest Quintile	5.1	5.2	5.2	5.3	5.3	5.4	5.5	5.4	5.3	5.3
Second Quintile	11.1	11.1	11.1	11.2	11.2	11.3	11.3	11.3	11.2	11.2
Third Quintile	16.6	16.5	16.5	16.4	16.4	16.5	16.4	16.4	16.4	16.4
Fourth Quintile	23.9	23.9	23.9	23.6	23.6	23.5	23.4	23.4	23.5	23.5
Highest Quintile	43.3	43.3	43.4	43.6	43.5	43.3	43.3	43.5	43.7	43.6

Source: Calculated by CRS from the monthly CPS. Details may not add to totals because of rounding.

Table 8. Share of Total Weekly Earnings of Hourly Workers by Quintile, 1994-2003

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	All Workers									
Lowest Quintile	5.4	5.5	5.6	5.7	5.8	5.9	6.0	5.9	5.9	5.8
Second Quintile	11.5	11.7	11.7	11.8	11.9	12.1	12.1	12.1	12.1	12.1
Third Quintile	16.7	16.8	16.8	16.7	16.8	16.9	16.9	16.9	16.9	16.9
Fourth Quintile	23.9	23.9	23.8	23.6	23.6	23.5	23.5	23.4	23.4	23.5
Highest Quintile	42.4	42.1	42.1	42.2	41.9	41.6	41.6	41.6	41.7	41.8
	Men									
Lowest Quintile	5.9	5.9	5.9	6.0	6.2	6.3	6.3	6.3	6.4	6.3
Second Quintile	11.9	12.0	12.0	12.0	12.2	12.3	12.3	12.3	12.3	12.3
Third Quintile	17.1	17.3	17.2	17.1	17.1	17.1	17.0	17.0	17.0	17.0
Fourth Quintile	24.1	24.2	24.2	23.9	23.9	23.8	23.7	23.8	23.6	23.6
Highest Quintile	41.0	40.7	40.7	41.1	40.7	40.5	40.6	40.6	40.8	40.9
	Women									
Lowest Quintile	5.6	5.7	5.7	5.9	5.9	6.0	6.1	6.1	5.9	5.8
Second Quintile	11.8	12.0	12.1	12.3	12.3	12.5	12.5	12.5	12.3	12.2
Third Quintile	17.1	17.3	17.3	17.3	17.3	17.4	17.4	17.5	17.4	17.3
Fourth Quintile	23.8	23.8	23.7	23.7	23.6	23.5	23.5	23.5	23.4	23.6
Highest Quintile	41.7	41.3	41.2	40.9	40.9	40.6	40.4	40.4	41.0	41.1

Source: Calculated by CRS from the monthly CPS. Details may not add to totals because of rounding.

Table 9. Share of Total Weekly Earnings of Salaried Workers, by Quintile, 1994-2003

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	All Workers									
Lowest Quintile	5.9	5.8	5.9	6.0	6.0	6.1	6.1	6.1	6.0	6.0
Second Quintile	12.0	12.0	12.0	12.0	12.1	12.1	12.0	12.0	11.9	11.9
Third Quintile	16.8	16.8	16.8	16.7	16.7	16.7	16.6	16.5	16.5	16.5
Fourth Quintile	23.1	23.1	23.1	22.9	22.9	22.9	22.8	22.8	22.7	22.8
Highest Quintile	42.3	42.3	42.1	42.4	42.4	42.2	42.5	42.7	42.9	42.8
	Men									
Lowest Quintile	6.1	6.2	6.2	6.3	6.4	6.5	6.4	6.4	6.3	6.1
Second Quintile	12.1	12.1	12.1	12.1	12.1	12.2	12.0	11.9	11.9	11.8
Third Quintile	16.8	16.8	16.8	16.8	16.7	16.7	16.6	16.6	16.5	16.5
Fourth Quintile	22.9	22.9	23.0	22.7	22.9	22.7	22.7	22.9	22.7	22.9
Highest Quintile	42.1	42.0	41.9	42.2	42.0	41.9	42.2	42.2	42.6	42.6
	Women									
Lowest Quintile	6.0	5.9	6.0	6.0	6.0	6.1	6.2	6.2	6.1	6.1
Second Quintile	12.8	12.7	12.8	12.8	12.8	12.8	12.7	12.8	12.8	12.7
Third Quintile	17.7	17.8	17.7	17.5	17.5	17.6	17.5	17.4	17.4	17.4
Fourth Quintile	23.6	23.7	23.7	23.4	23.3	23.5	23.4	23.1	23.0	23.1
Highest Quintile	40.0	39.9	39.8	40.3	40.4	40.0	40.2	40.6	40.7	40.6

Source: Calculated by CRS from the monthly CPS. Details may not add to totals because of rounding.

Appendix: Data Source and Methodology

The analysis in this report uses data from the monthly Current Population Survey (CPS). The CPS is a household survey conducted by the U.S. Bureau of the Census for the Bureau of Labor Statistics (BLS) of the U.S. Department of Labor. The monthly CPS is the main source of labor force data for the nation, including estimates of the monthly unemployment rate. The CPS collects a wide range of demographic, social, and labor market information. Each month, approximately 50,000 households are contacted to be interviewed, either in person or by phone. The CPS collects labor force data for civilians 15 and over. The monthly CPS sample is representative of the civilian noninstitutional population; it does not include persons on active military duty.^{25,26}

Each month one-fourth of the CPS sample is asked questions about current hourly or weekly earnings. Hourly earnings are reported for persons who are paid an hourly wage or who report their earnings on an hourly basis. Weekly earnings are reported for wage and salary workers. The CPS generally defines wage and salary workers as persons who work for a private or public employer and self-employed persons who work in an incorporated business. The monthly CPS does not collect information on earnings for persons who are self-employed. Therefore, in this report, wage and salary earners exclude self-employed persons. Weekly earnings consist of usual earnings before taxes and other deductions, and include tips, overtime pay, and commissions usually received (at a person's main job). In most cases, earnings reported for a period other than a week are converted by BLS into a weekly amount.

The monthly CPS sample is representative of the civilian noninstitutional population; it does not include persons on active duty in the Armed forces or persons in institutions such as nursing homes or correctional facilities. The survey collects information on persons who are temporarily absent from a surveyed household and who have no other usual address. These persons include individuals who are on vacation, away on business, and college students. The survey includes civilian noninstitutional persons living in group quarters. (Group quarters are living quarters where residents share common facilities. Examples may include group homes, fraternities, or sororities.)²⁷

The analysis in the report is based on persons ages 15 and over who are employed and who report positive weekly or hourly earnings. The analysis includes

²⁵ U.S. Bureau of the Census, *Measuring 50 Years of Economic Change*, Current Population Reports, P60-203, Sept. 1998, p. D-1.

²⁶ U.S. Department of Labor, Bureau of Labor Statistics, *Basic Monthly Survey*, available at [<http://www.bls.census.gov/cps/bglosary.htm>].

²⁷ U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, v. 48. Jan. 2001, pp. 232, 236, 241. U.S. Department of Labor, Bureau of Labor Statistics, *Current Population Survey: Design and Methodology*, Technical Paper 63, U.S. Department of Labor, Mar. 2000, pp. 1-1, 3-7–3-9, 5-4, 6-5.

both full-time and part-time workers.²⁸ The monthly data for each year from 1994 to 2003 were combined to calculate annual monthly averages.

In this report, average hourly earnings for wage and salary workers were calculated by dividing usual weekly earnings by usual hours worked per week. The calculations of average hourly earnings for both wage and salary workers and hourly workers are weighted averages (i.e., weighted by the CPS person weight).

Monthly CPS data for years before 1994 are not strictly comparable to data for the years 1994 and later. In January 1994 a number of changes were made in the monthly CPS. The major change was a redesigned questionnaire. The new questionnaire was intended to improve the quality of labor market information. The redesigned questionnaire modified the definitions of several labor force concepts expanded the number of questions to collect information on additional topics. In 1994, the Census Bureau also adopted a new computer-assisted interviewing process.²⁹ In part, for these reasons, the analysis in this report begins with data from January 1994.³⁰

In January 2003, the CPS introduced population controls based on the 2000 Census. Sample weights for January 2000 through December 2002 were revised to reflect the higher population estimates from the 2000 census and the higher rate of population growth since the census. This report uses the revised sample weights for 2000-2002. The revised weights increase the size of the labor force but have less of an effect on percentage calculations. In January 2003, the CPS also introduced a new occupational classification system.³¹ This classification system is used in **Table 3**.

Gini Coefficient

The Gini coefficient, named after Italian statistician Corrado Gini, ranges from 0.0, representing perfect equality, to 1.0, representing perfect inequality. The Gini coefficient is calculated using the following formula:

$$G = 1.0 - \sum_{i=1}^n f_i (p_i + p_{i-1})$$

²⁸ If the analysis of weekly earnings in this report included self-employed persons, the results would likely have shown greater inequality. On the other hand, if the analysis of weekly earnings excluded part-time workers, the results would likely have shown greater equality.

²⁹ U.S. Department of Labor, Bureau of Labor Statistics, "Revisions in the Current Population Survey Effective January 1994," *Employment and Earnings*, v. 41, Feb. 1994, pp. 13-16.

³⁰ The redesigned 1994 survey may have raised observed wage inequality. David Card and John E. DiNardo, "Technology and U.S. Wage Inequality: A Brief Look," *Economic Review*, v. 87, Federal Reserve Bank of Atlanta, Third Quarter 2002, p. 51.

³¹ Mary Bowler, Randy E. Ilg, Stephen Miller, Ed Robison, and Anne Polivka, "Revisions to the Current Population Survey Effective in January 2003," *Employment and Earnings*, Feb. 2003, v. 51, pp. 4-5, 7, 18.

where f_i is the proportion of earners in interval i and p_i is the proportion of total earnings received by earners in interval i and all lower intervals.³²

Topcoded Earnings

In the CPS, usual weekly earnings are topcoded. That is, if a person's weekly earnings exceed a certain amount, the individual's recorded earnings are cut off at a given level. Weekly earnings are topcoded to protect the confidentiality of survey respondents. From 1994 through 1997, usual weekly earnings were topcoded at \$1,923. From 1998 through 2003, usual weekly earnings were topcoded at \$2,884.61. In this report, estimates of average earnings were imputed for topcoded weekly earnings using the Pareto distribution (named after the Italian economist Vilfredo Pareto).³³ Separate estimates were made for men and women for each year from 1994 to 2003. Earnings were imputed for persons with earnings at the topcoded amount whose earnings were topcoded — i.e., the usual earnings of some persons are equal to the topcoded amount, so their earnings are not topcoded. To illustrate, the following estimates of average weekly earnings were imputed for 2003: \$4,496.42 for men and \$4,117.93 for women.

Confidence Levels

Estimates based on survey responses from a sample of households have two kinds of error: nonsampling error and sampling error. Examples of nonsampling error include information that is misreported and errors made in processing collected information. Sampling error occurs because a sample, and not the entire population, of households is surveyed. The difference between an estimate based on a sample of households and the actual population value is known as sampling error. When using sample data, researchers typically construct confidence intervals around population estimates. Confidence intervals provide information about the accuracy of estimated values. With a 95% confidence interval and repeated samples from a population, 95% of intervals will generally include the actual value of a population characteristic.

Confidence intervals also provide a way to test hypotheses. For example, suppose that the average weekly earnings for a group of workers, based on survey data, is \$500 and that the 95% confidence interval for that estimate is \$475 to \$525 (i.e., $\$500 \pm \25). If a researcher's hypothesis is that the average earnings for this group of workers is \$460, the hypothesis would be rejected at the 95% confidence level (i.e., the 95% confidence interval does not include \$460). In a similar way,

³² U.S. Bureau of the Census, *Studies in the Distribution of Income*, Series P60-183, 1992, p. 60.

³³ The Pareto distribution is given by: $N = AY^{-\alpha}$, where Y represents the level of earnings and N is the proportion of persons with earnings equal to or greater than Y . A and α are coefficients that can be estimated using ordinary least squares. (Martin Bronfenbrenner, *Income Distribution Theory*, Chicago, Aldine-Atherton, 1971, p. 44.) In this report, A and α were estimated using a segment of the earnings distribution preceding, but not including, the topcoded amount. The segment of the earnings distribution used to estimate A and α was that segment that best predicted the number of persons whose earnings were topcoded.

confidence intervals are used to test for differences between groups and for changes over time.