
Wages

Growth stalls while productivity and compensation diverge

Because wages and salaries make up roughly three-fourths of total family income (the proportion is even higher among the broad middle class), wage trends are the driving force behind income growth and income inequality trends. This chapter examines and explains the trends in wage growth and wage inequality during the last few decades up through 2005, with a particular focus on the current business cycle, from 2000 to 2005, and the earlier cycles over the 1979-89 and 1989-2000 periods.

The major development in the labor market in recent years has been the stunning disconnect between the possibilities of improved pay and the reality of stunted pay growth. Productivity growth, which provides the possibility of improved living standards, picked up speed in the mid-1990s and accelerated even further from 2000 through 2005. Yet, despite this enormous growth in productivity, wages for the typical worker were about the same in 2005 as in 2001. Pay rose from 1996 to 2001, fueled by the higher productivity and the progressive lowering of unemployment to 4.0% by 2000. Moreover, the wage momentum carried forward through 2001 and into 2002 despite rising unemployment. The wage momentum from the late 1990s is important to understand when looking at trends over the 2000-05 period; all of the wage growth within that latter period occurred within the first two years. The poor

job creation and increased job shortages during the early 2000s recession and lackluster recovery eventually knocked wage growth down so that prices rose at least as fast. This was the case even in 2005, when the unemployment rate fell to 5.1%. The failure of wages to rise for typical workers after 2001 is particularly interesting in light of the fact that half of the productivity growth of the 1995-2005 period occurred since then.

The poor wage performance of the past few years stands in strong contrast to the broad-based wage improvements of the 1995-2000 period, the earlier stage of the “new economy” when productivity growth first accelerated. In that period wages grew strongly across the board, rising at least 7% at every wage level. Remarkably, the fastest growth—11% or more—occurred at the two lowest wage levels (the 10th and 20th percentiles). However, workers with the very highest wages, at the 95th percentile, saw almost comparable wage growth of 10.6%. Since 2000, however, wage growth among lower-wage workers (the 30th percentile or below) has been modest, and the growth at the median, 3.0%, was less than half that of the 1995-2000 period.

There are three key elements of wage inequality. One is the gap at the “bottom,” reflected in the difference between middle-wage (median-wage earners) and low-wage workers. Another is the “top half” gap between high-wage (90th or 95th percentile wage earners) and middle-wage earners. The third element is the gap at the very top, i.e., the growth of wages for those in the upper 1%, including CEOs. These three elements have had differing historical trajectories. The gap at the bottom grew in the 1980s but has been stable or declining ever since, whereas the “top half” wage gap has persistently grown since the late 1970s. The very highest earners have done considerably better than other workers for at least 30 years, but they have done extraordinarily well over the last 10 years.

Explaining these shifts in wage inequality requires attention to several factors that affect low-, middle-, and high-wage workers differently. The experience of the late 1990s is a reminder of the great extent to which a low unemployment rate benefits workers, especially low-wage earners. Correspondingly, the high levels of unemployment in the early and mid-1980s and in recent years disempowered wage earners and provided the context in which other forces—specifically, a weakening of labor market institutions and globalization—could drive up wage inequality. Significant shifts in the labor market, such as the severe drop in the minimum wage and deunionization, can explain one-third of growing wage inequality. Similarly, the increasing globalization of the economy—immigration, trade, and capital mobility—and the employment shift toward lower-paying service industries (such

as retail trade) and away from manufacturing can explain, in combination, another third of the total growth in wage inequality. Macroeconomic factors also played an important role: high unemployment in the early 1980s greatly increased wage inequality, the low unemployment of the late 1990s reduced it, and high unemployment in recent years has renewed it.

The shape of wage inequality shifted in the late 1980s as the gap at the bottom—i.e., the 50/10 gap between middle-wage workers at the 50th percentile and low-wage workers at the 10th—began to shrink. However, over the last few years, this progress against wage inequality at the bottom has been halted among men and wage inequality at the bottom among women has resumed its growth. This reversal is partially the effect of the jobless recovery and the still-remaining shortage of jobs and partially a result of the continued drop in the real value of the minimum wage. The greatest increase in wage inequality at the bottom occurred among women and corresponded to the fall in the minimum wage over the 1980s, the high unemployment of the early 1980s, and the expansion of low-wage retail jobs. The positive trend in this wage gap over the 1990s owes much to increases in the minimum wage, low unemployment, and the slight, relative contraction in low-paying retail jobs in the late 1990s. The wage gap at the top half—the 90/50 gap between high- and middle-wage earners—continued its steady growth in the 1990s and early 2000s but at a slightly slower pace than in the 1980s. The continuing influence of globalization, deunionization, and the shift to lower-paying service industries (“industry shifts”) can explain the continued growth of wage inequality at the top.

The erosion of the extent and quality of employer-provided benefits, most notably pensions and health insurance, is an important aspect of the deterioration in job quality for many workers. Employer-provided health care coverage eroded from 1979 until 1993-94, when it stabilized, and then began falling again after 2000 through 2004 (the latest data): coverage dropped from 69.0% in 1979 to 55.9% in 2004, with a 2.9 percentage-point fall since 2000. Employees have absorbed half the rise in costs for employer-provided health premiums (not counting any of the higher deductibles or co-pays paid by employees) since 1992, even though their share of costs in that year was just 14%. Employer-provided pension coverage tended to rise in the 1990s but receded by 2.8 percentage points from 2000 to 2004 to 45.5%, 5.1 percentage points below the level in 1979. Pension plan quality also receded as the share of workers in defined-benefit plans fell from 39% in 1980 to just 19% in 2003. Correspondingly, the share of workers with a defined-contribution plan (and no other plan) rose from 8% to 31%.

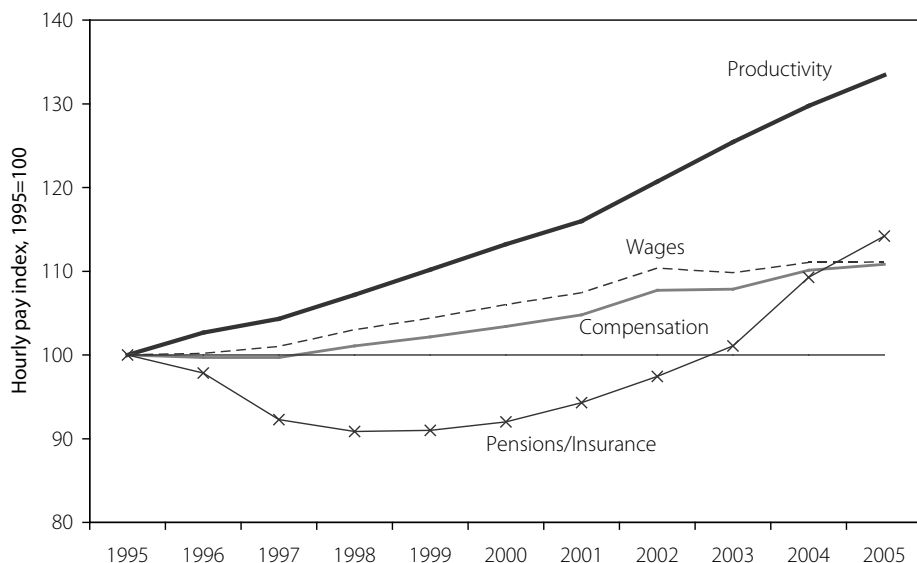
Young workers’ prospects are a barometer of the strength of the labor

market: when the labor market is strong for workers the prospects for young workers are very strong, and when the labor market is weak their prospects are very weak. Wages actually fell among every entry-level group, both high school and college-educated workers and both men and women in the period of sluggish wage growth since 2000. This contrasts to the extremely strong wage growth for each of these groups from 1995 to 2000, when wages rose roughly 10% for entry-level high school men and women and 20.9% for entry-level college men, 11.7% for college women.

Unionized workers earn higher wages than comparable non-union workers and also are 18.3% more likely to have health insurance, 22.5% more likely to have pension coverage, and 3.2% more likely to have paid leave. The erosion of unionization (from 43.1% in 1978 to just 19.2% in 2005) can account for 65% of the 11.1 percentage-point growth of the blue-collar/white-collar wage gap among men over the 1978-2005 period.

The real value of the minimum wage has been steadily falling in real terms, thereby causing the earnings of low-wage workers to seriously fall behind those of other workers and contributing to rising wage inequality. Those affected by the lower minimum wage make important contributions to their family's economic well-being. For instance, minimum wage earners contribute 58% of their family's weekly earnings; in 43% of the affected families the minimum wage earner contributed all of the family's earnings. Moreover, there are 7.3 million children living in the families that would benefit from a modest minimum wage increase. While minorities are disproportionately represented among minimum wage workers, 60% are white. These workers also tend to be women (59% of the total) and concentrated in the retail and hospitality industries (46% of all minimum wage earners are employed there, compared to just 21% of all workers).

The 1980s, 1990s, and 2000s have been prosperous times for top U.S. executives, especially relative to other wage earners. Over the 1992 to 2005 period the median CEO saw pay rise by 186.2%, while the median worker saw wages rise by just 7.2%. In 1965 U.S. CEOs in major companies earned 24 times more than an average worker; this ratio grew to 300 at the end of the recovery in 2000. The fall in the stock market reduced CEO stock-related pay (e.g., options), but by 2005 CEO pay had recovered to the point where it was 262 times that of the average worker. The lion's share of the gains for the top 1% accrued to the upper 10% of that elite group. Of the 3.6 percentage-point gain in the share of all earnings that the top 1% experienced between 1989 and 2000, 3.2 of them accrued to very upper tier.

FIGURE 3A Changes in productivity and hourly wages, benefits, and compensation, 1995-2005

Source: Authors' analysis.

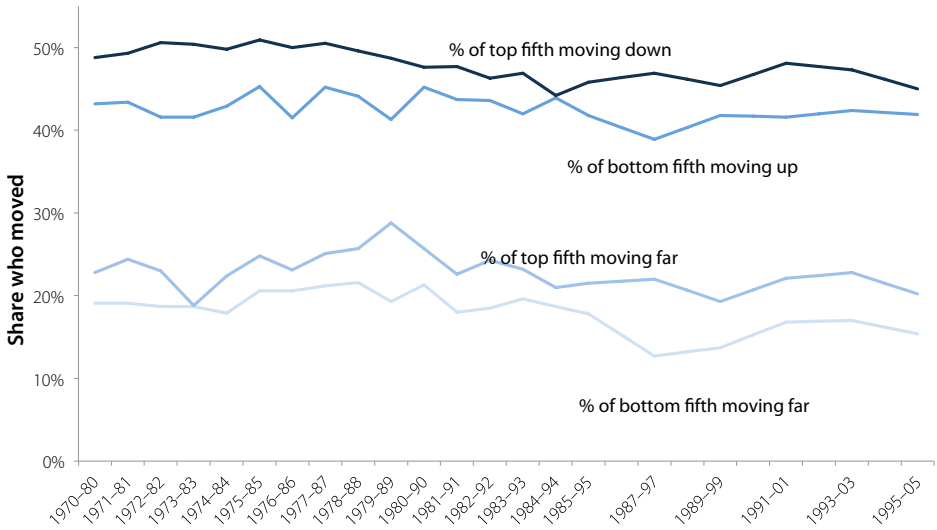
The jobs of the future will require greater education credentials, but not to any great extent. In 2004 the occupational composition of jobs required that 27.7% of the workforce have a college degree or more. This share will rise by just one percentage point, to 28.7%, by 2014.

The analysis of wages proceeds as follows. The first half of the chapter documents changes in the various dimensions of the wage structure, i.e., changes in average wages and compensation and changes by occupation, gender, wage level, education level, age, and race and ethnicity. These shifts in the various dimensions of wage inequality are then assessed and explained by focusing on particular factors such as unemployment, industry shifts, deunionization, the value of the minimum wage, globalization and immigration, and technology.

An extraordinary 10 years

Our usual analysis in this book of income, wages, wealth, and the like examines changes at comparable points between business cycles, because it is the underlying movement of the economy, from peak to peak, that is the major force

FIGURE 3B Share of people in bottom and top family income fifths moving along the income scale, 1970–1980 to 1995–2005



Note: Moving far means moving at least two income fifths (e.g., from the bottom to the middle fifth or the top to the middle fifth).

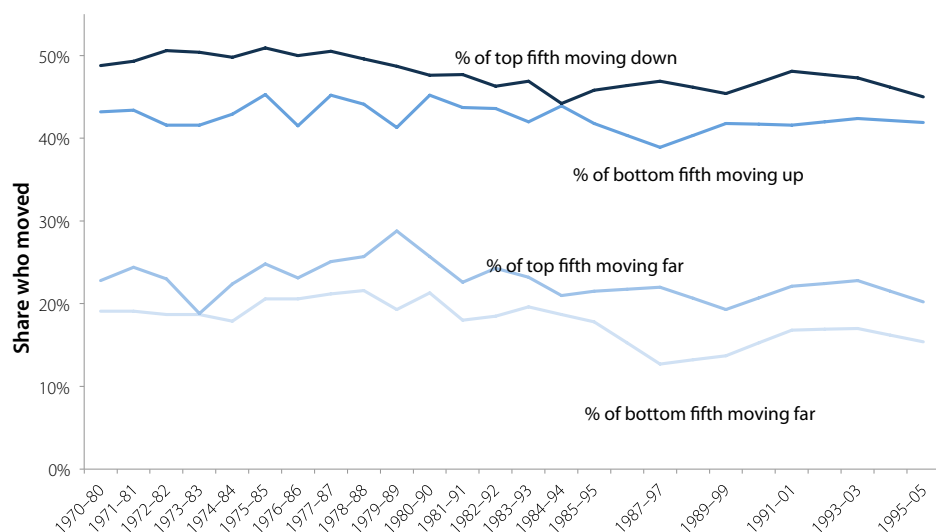
Source: Adapted from Bradbury (2011, Figure 2)

behind changes in income and wages and the standard of living. But a traditional analysis of business cycles—looking at wage growth from 1989 to 2000 and then from 2000 to 2005—would mask a surprising element of the wage story. Understanding the trends in wages and compensation over the 1990s and early 2000s requires an appreciation of the extraordinary characteristics of both the 1995-2000 and the 2000-05 periods.

What has been so extraordinary? First, productivity gained speed in the mid-1990s to rise 2.5% a year, double the rate of the prior 22 years back to 1973. This shift is important because productivity growth means that there is a bigger “economic pie” to provide rising wages and living standards. Second, productivity growth accelerated even further in the early 2000s, to a rate of 3.3% a year. In all, over the 1995-2005 period the output of goods and services per hour of work (productivity) grew a remarkable 33.4%; had pay followed, the annual earnings and incomes for most working people would have risen by a third. This is the third extraordinary fact: despite this enormous growth in productivity, wages for the typical worker were about the same in 2005 as in 2001. Pay rose from 1996 to 2001, fueled by the higher productivity and the progressive

FIGURE 3B Intragenerational mobility among poor and rich

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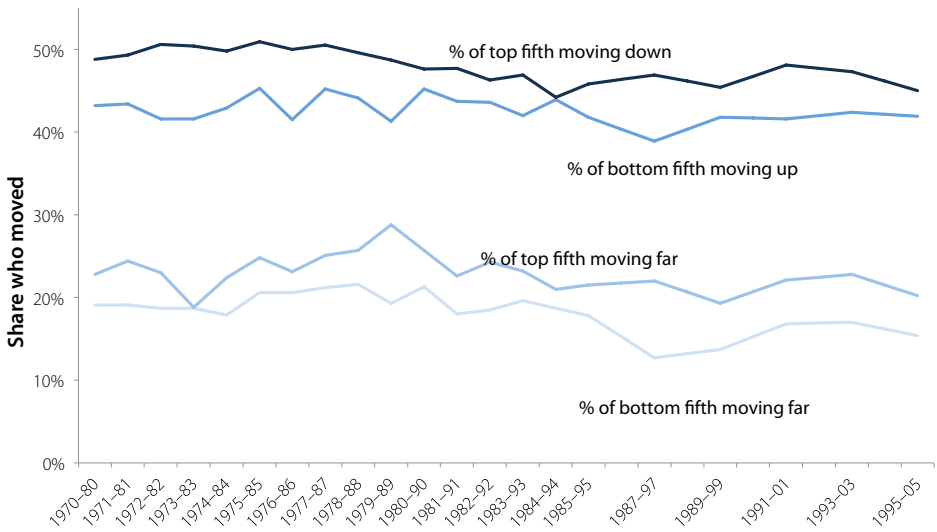
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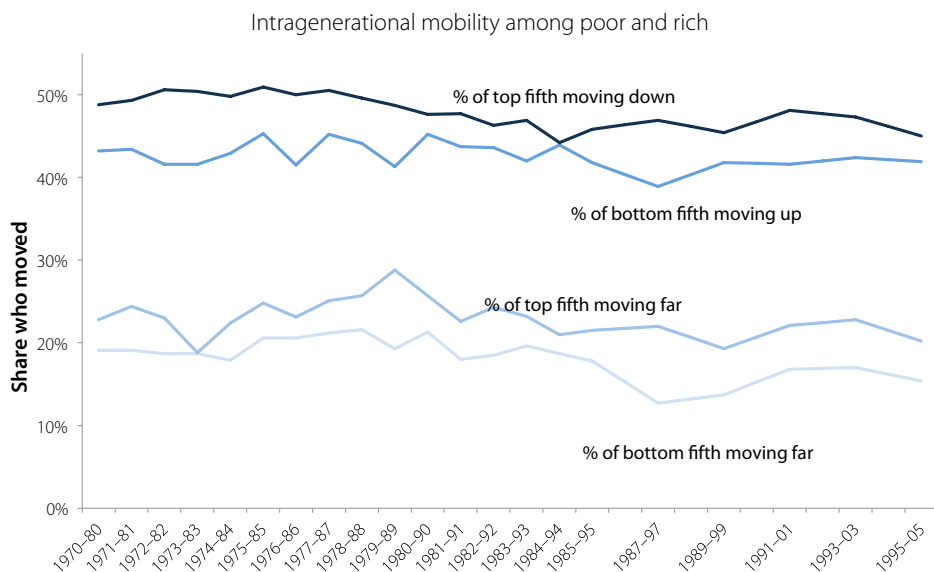
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In short, historically high productivity growth and historically low unemployment have had little if any impact on compensation and wages. The 33.4% increase in productivity between 1995 and 2005 was associated with benefits growth (health and pension) of less than half that much and wage growth for typical workers one-third that much. After 2001 there has been basically no wage improvement for typical workers, even though half of the productivity growth

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The stunning disconnect between the possibilities of improved pay and the reality of stunted pay growth is illustrated in **Figures 3A** and **3B**. Figure 3A shows the disparity since 1995 (the figure is indexed so that 1995=100) between hourly productivity growth and average hourly compensation (wages and benefits plus payroll taxes), hourly wages, and hourly benefits (health and pension coverage). Benefits declined in the late 1990s but grew quickly over the last few years (some of this growth reflects the strong stock market of the late 1990s which allowed employers to make only small contributions to pensions; health care costs were also better under control in the late 1990s). By 2005, benefits exceeded 1995 levels by about 14%. Wages and total compensation per hour grew in tandem, by just 11%, and so the disappointing wage performance probably cannot be blamed on higher benefit costs. By contrast, note the top line, which shows the 33.4% growth in productivity from 1995 to 2005.

Figure 3B focuses on measures for typical workers, i.e., the hourly wage of the median worker and the hourly earnings of production, nonsupervisory workers (about 80% of employment). These measures show wages rising through 2001 and then flattening since, despite lower unemployment and fast productivity growth. The trend in annual wages (a measure that reflects changes in work hours as well as hourly wages) also shows a total lack of improvement in the years past 2001 (the latest data are for 2004).

With this framework in mind, we now turn to an exploration of the vari-

TABLE 3.2 Growth in private-sector average hourly wages, benefits, and compensation, 1948-2005 (2005 dollars)

Year	Wages & salaries	Benefits*	Total compensation**	Benefit share of compensation
Hourly pay (NIPA)				
1948	\$8.92	\$0.48	\$9.40	5.1%
1989	18.54	4.21	22.75	18.5
<i>Annual percent change</i>				
1948-73	2.6%	7.3%	3.0%	
1973-79	0.2	5.2	1.0	
1979-89	0.8	1.0	0.8	
Hourly pay (ECEC)***				
1987	\$18.23	\$4.39	\$22.62	19.4%
1989	17.85	4.39	22.24	19.7
1995	17.47	4.34	21.81	19.9
2000	18.52	4.03	22.55	17.9
2005	19.41	4.76	24.17	19.7
<i>Annual percent change</i>				
1989-2000	0.3%	-0.8%	0.1%	
1989-95	-0.4	-0.2	-0.3	
1995-2000	1.2	-1.5	0.7	
2000-05	0.9	3.4	1.4	

* Includes payroll taxes, health, pension, and other non-wage benefits.

** Deflated by CPI for all items except health, with is deflated by CPI medical care index.

*** Data are for March.

Source: Authors' analysis of BLS Employer Costs for Employee Compensation (ECEC) data and BEA National Income and Products Accounts (NIPA) data.

ous dimensions of the growth of wages, benefits, and compensation.

Contrasting work hours and hourly wage growth

To understand changes in wage trends, it is important to distinguish between trends in annual, weekly, and hourly wages. Trends in annual wages, for instance, are driven by changes in both hourly wages and the amount of time spent working (weeks worked per year and hours worked per week). Likewise, weekly wage trends reflect changes in hourly pay and weekly hours. In this chapter we focus on the hourly pay levels of the workforce and its sub-groups so that we can dis-

tinguish changes in earnings resulting from more (or less) pay rather than more (or less) work. Also, the hourly wage can be said to represent the “true” price of labor (exclusive of benefits, which we analyze separately). Moreover, changes in the distribution of annual earnings have been predominantly driven by changes in the distribution of hourly wages and not by changes in work time. Chapter 4 goes on to address employment, unemployment, underemployment, and other issues related to changes in work time and opportunities.

Table 3.1 illustrates the importance of distinguishing between annual, weekly, and hourly wage trends. Over the 2000-04 period (2004 is the latest year of data we have in this series), annual wages declined by 0.3% annually. However, hourly wages, in inflation-adjusted terms, fell by 0.1% annually. The reason for this disparity was the decline in annual work hours, driven by a shorter work-week (weeks worked per year ticked up slightly, but not enough to keep total hours steady). In contrast, the annual wage and salary of the average worker in inflation-adjusted terms grew substantially faster than the average hourly wage in each of the last two decades because of a rise in work hours. Specifically, hourly wages grew 0.4% each year over the 1979-89 period and 0.9% over the 1989-2000 period. Yet annual wages grew at 0.9% and 1.3%, respectively, reflecting hourly wage growth and the 0.5% growth in annual hours worked in each period.

The most remarkable story in Table 3.1, however, is the sharp acceleration in hourly wage growth (to 1.8%) in the 1995-2000 period, a sharp departure from the measly 0.1% growth of the earlier part of the business cycle from 1989 to 1995 and the slow growth (0.4%) of the prior business cycle of 1979-89. As noted in the previous section, this strong hourly wage growth subsided in the early 2000s, as average wages per hour fell 0.1% annually from 2000 to 2004, despite faster productivity growth than in the late 1990s (3.4% vs. 2.5%).

Not surprisingly, trends in family income correspond to the shift from strong annual wage growth in the late 1990s and the decline thereafter. For instance, the strong pickup in wage growth in the late 1990s, along with an even stronger pickup of wage growth at the bottom end of the wage scale (detailed below), is the main factor behind the widespread improvements in family income in the late 1990s, discussed in Chapter 1, and the reductions in poverty, discussed in Chapter 6. Similarly, the fall in annual wages and reduced work hours in recent years has led to falling family incomes and higher poverty.

Faster productivity growth has been considered the main force behind the faster wage growth in the late 1990s. Productivity growth in 1996 and later years (2.5% annual growth from 1995 to 2000) was substantially higher than the

TABLE 3.3 Hourly and weekly earnings of private production and nonsupervisory workers,* 1947-2005 (2005 dollars)

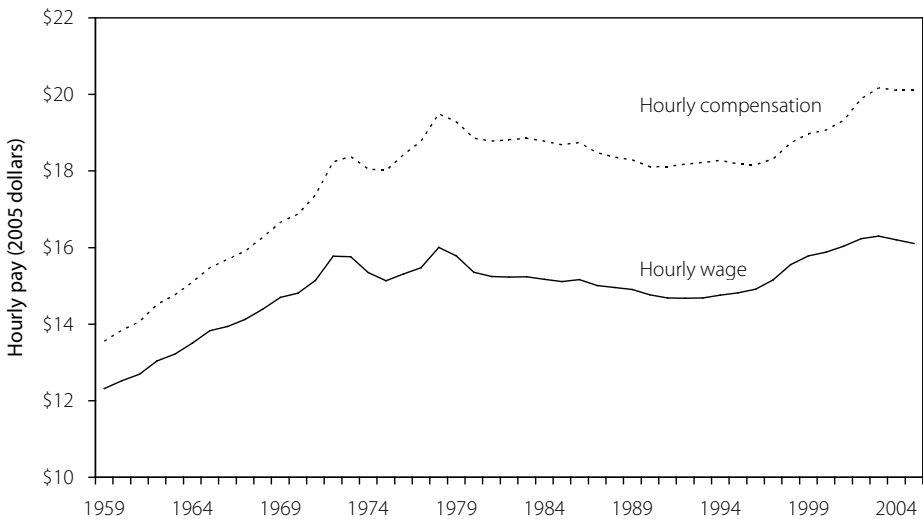
Year	Real average hourly earnings	Real average weekly earnings
1947	\$9.00	\$361.02
1967	14.12	535.25
1973	15.76	581.67
1979	15.78	561.74
1989	14.91	514.24
1995	14.81	508.43
2000	15.88	544.81
2005	16.11	543.65
<i>Business cycles</i>	<i>Annual growth rate</i>	
1947-67	2.3%	2.0%
1967-73	1.8	1.4
1973-79	0.0	-0.6
1979-89	-0.6	-0.9
1989-2000	0.6	0.5
1989-95	-0.1	-0.2
1995-2000	1.4	1.4
2000-05	0.3	0.0
1979-2005	0.1	-0.1

* Production and nonsupervisory workers account for more than 80% of wage and salary employment.
Source: Authors' analysis.

productivity growth earlier in the business cycle (1.3% in 1989-95) or in the two prior business cycles (roughly 1.2% to 1.4%). Thus, productivity growth was at least 1% faster each year in the late 1990s than in the prior 22 years and comparable to the growth of the late 1960s (2.5% from 1967 to 1973).

There are two parts to an explanation for the faster wage growth in the late 1990s: first, persistent low unemployment enabled workers to attain a rising wage (through better jobs, better pay offers for new jobs, and greater bargaining power) that more closely reflected productivity growth; second, productivity growth accelerated (which itself requires an explanation, not discussed here). When the low unemployment of the late 1990s yielded to recessionary conditions, the strong hourly wage growth ratcheted down but remained positive (rather than falling in real terms) for a few years before starting to fall in 2002 or

FIGURE 3C Hourly wage and compensation growth for production/non-supervisory workers, 1959-2005



Source: Authors' analysis.

so. When the tight labor markets of the late 1990s disappeared, fast productivity growth no longer translated into strong wage growth.

Annual hours of work per worker generally grew over the 1973 to 2000 period, helping to fuel the growth in family income (as discussed in Chapter 1). The decline in work hours in the early 2000s recession had not been reversed by 2004, and whether this business cycle produces a continuation of the long-term trend toward more hours worked (before the next recession is upon us) is yet to be determined.

Contrasting compensation and wage growth

A worker's pay or total compensation is made up of both non-wage payments, referred to as fringe benefits, and wages. Much of our analysis in this chapter focuses on wages because there are no data on workers' hourly compensation, including benefits, that can be analyzed by decile, race, gender, and education. But the available data do allow an examination of overall compensation trends and how they differ from overall wage trends.

TABLE 3.4 Wages for all workers by wage percentile, 1973-2005 (2005 dollars)

Year	Wage by percentile*									
	10	20	30	40	50	60	70	80	90	95
Real hourly wage										
1973	\$6.79	\$8.20	\$9.74	\$11.33	\$12.99	\$14.91	\$17.31	\$19.80	\$24.88	\$31.21
1979	7.37	8.40	9.86	11.60	13.13	15.22	17.99	20.96	25.64	31.31
1989	6.33	7.88	9.45	11.29	13.13	15.33	18.24	21.81	27.54	33.85
1995	6.44	7.87	9.41	11.07	12.89	15.25	18.18	22.01	28.44	35.67
2000	7.15	8.81	10.29	11.90	13.88	16.42	19.47	23.66	30.92	39.44
2005	7.20	8.84	10.21	12.12	14.29	16.82	19.86	24.44	32.49	41.70
Percent change										
1973-79	8.4%	2.4%	1.2%	2.4%	1.0%	2.1%	3.9%	5.9%	3.1%	0.3%
1979-89	-14.1	-6.2	-4.2	-2.7	0.0	0.7	1.4	4.0	7.4	8.1
1989-2000	13.0	11.8	8.9	5.4	5.7	7.1	6.7	8.5	12.3	16.5
1989-95	1.8	-0.1	-0.5	-2.0	-1.8	-0.5	-0.3	0.9	3.3	5.4
1995-2000	11.1	11.9	9.4	7.5	7.7	7.7	7.1	7.5	8.7	10.6
2000-05	0.6	0.3	-0.8	1.8	3.0	2.4	2.0	3.3	5.1	5.7
1979-2005	-2.3	5.2	3.5	4.4	8.9	10.5	10.4	16.6	26.7	33.2

* The Xth percentile wage is the wage at which X% of the wage earners earn less and (100-X)% earn more.
Source: Authors' analysis of CPS ORG.

Table 3.2 examines the growth of compensation using the only two available data series. We employ the wage and compensation data that are part of the National Income and Product Accounts (NIPA) to track the historical trends from 1948 to 1989. These NIPA data are the Commerce Department's effort to measure the size of the national economy, termed the gross domestic product. Compensation levels exceed wage levels because they include employer payments for health insurance, pensions, and payroll taxes (primarily payments toward Social Security and unemployment insurance). We track more recent trends with data drawn from the Bureau of Labor Statistics' Employer Costs for Employee Compensation (ECEC) survey, which provides the value of wages and employer-provided benefits for each year since 1987. These data vary from those in NIPA because they describe only the private sector (government employment is excluded) and because the definition of "hours worked" is different.

Measured over the long term, benefits have become a more important part of the total compensation package. In 1948 only 5.1% of compensation comprised payroll taxes and health and pension programs. By 1989 the share had

TABLE 3.5 Wages for male workers by wage percentile, 1973-2005 (2005 dollars)

Year	Wage by percentile*									
	10	20	30	40	50	60	70	80	90	95
Real hourly wage										
1973	\$8.02	\$10.29	\$12.13	\$13.90	\$15.76	\$17.87	\$19.67	\$22.63	\$28.83	\$34.74
1979	8.11	10.31	12.40	14.43	16.51	18.75	21.03	24.43	29.74	35.67
1989	7.25	9.08	11.14	13.19	15.35	18.07	20.90	24.49	30.67	38.08
1995	6.98	8.82	10.49	12.61	14.79	17.28	20.30	24.28	31.66	39.59
2000	7.78	9.54	11.40	13.51	15.81	18.39	21.64	26.26	34.98	43.80
2005	7.79	9.64	11.24	13.37	15.64	18.33	21.79	26.71	36.08	46.40
Percent change										
1973-79	1.1%	0.1%	2.2%	3.8%	4.7%	4.9%	7.0%	7.9%	3.2%	2.7%
1979-89	-10.6	-11.9	-10.2	-8.6	-7.0	-3.6	-0.7	0.2	3.1	6.8
1989-2000	7.4	5.2	2.4	2.4	2.9	1.8	3.6	7.2	14.0	15.0
1989-95	-3.6	-2.8	-5.8	-4.4	-3.7	-4.4	-2.8	-0.8	3.2	3.9
1995-2000	11.4	8.2	8.7	7.1	6.9	6.4	6.6	8.1	10.5	10.6
2000-05	0.1	1.0	-1.5	-1.1	-1.1	-0.3	0.7	1.7	3.1	5.9
1979-2005	-3.9	-6.5	-9.4	-7.4	-5.3	-2.2	3.6	9.3	21.3	30.1

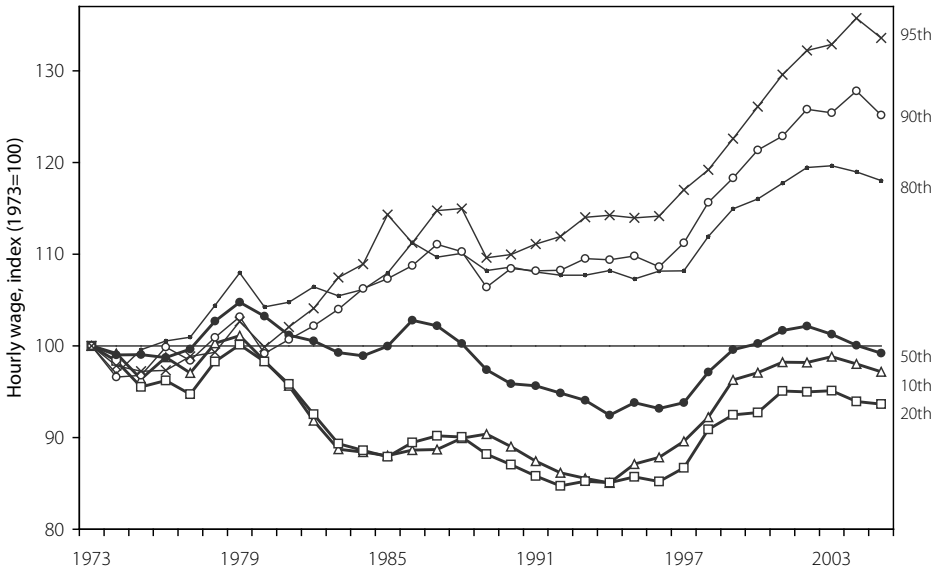
* The Xth percentile wage is the wage at which X% of the wage earners earn less and (100-X)% earn more.

Source: Authors' analysis of CPS ORG.

risen to 18.5%. But the benefits share of compensation has remained flat for about 20 years and even fell in the late 1990s (it regained ground in recent years). We examine trends of specific benefits, such as health, in a later section.

In the 2000-05 period benefits grew much faster than average wages, 3.4% vs. 0.9%, but since benefits make up only about 20% of compensation the rise in total compensation was just 1.4% a year. A different trend prevailed in the late 1990s, when benefits declined by 1.5% annually while wages rose 1.2%. Over the entire 1995-2005 period, as well as during the longer 1989-2005 period (and for 1979-89), the growth of wages and compensation was comparable. Thus, although compensation and wage trends may diverge during particular sub-periods, this has not generally been the case since 1979. One implication of compensation and wages growing roughly in tandem is that analyses (such as the one below) that focus on wage trends are using an appropriate proxy for compensation, at least on average. However, analyses of wage growth sometimes overstate the corresponding growth of compensation, as in the late 1990s, and sometimes understate compensation growth, as in recent years. If benefits

FIGURE 3D Change in real hourly wages for men by wage percentile, 1973-2005



Source: Authors' analysis of CPS ORG.

inequality has grown faster than wage inequality, as a few studies have suggested, then our analysis of wage trends understates the growth of compensation inequality.

We return to a discussion of benefits growth below when we examine specific benefits, such as health insurance and pensions.

Wages for production and nonsupervisory workers

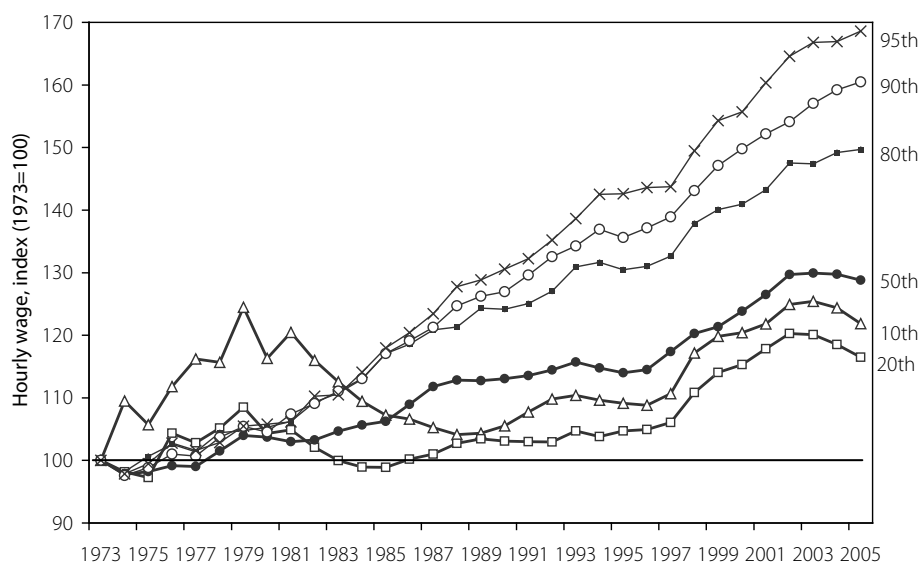
We now turn to the pattern of growth or decline in wages for the various segments of the workforce since 1973. Again, there are at least two distinct “wage regimes” over the last 30 years, one from 1973-95 that consisted of stagnant average wage growth and real wage reductions for the vast majority, and one from 1995 to the present that consists of faster real wage growth in the late 1990s followed by slower growth and then declining wages for typical workers in the 2000s. In general, the workers who experienced the greatest fall in real wages in the 1973-95 period were likely to be men, workers who initially had lower wages,

TABLE 3.6 Wages for female workers by wage percentile, 1973-2005 (2005 dollars)

Year	Wage by percentile*									
	10	20	30	40	50	60	70	80	90	95
Real hourly wage										
1973	\$5.65	\$7.02	\$7.90	\$8.83	\$9.95	\$11.20	\$12.62	\$14.55	\$17.99	\$21.26
1979	7.03	7.62	8.27	9.22	10.35	11.76	13.10	15.24	18.97	22.42
1989	5.89	7.26	8.40	9.65	11.22	12.82	15.10	18.09	22.71	27.39
1995	6.16	7.35	8.59	9.88	11.35	13.07	15.53	18.98	24.39	30.31
2000	6.80	8.09	9.32	10.80	12.32	14.25	16.88	20.51	26.95	33.10
2005	6.88	8.17	9.75	11.04	12.82	14.99	17.80	21.78	28.86	35.84
Percent change										
1973-79	24.5%	8.5%	4.7%	4.4%	4.0%	5.0%	3.8%	4.8%	5.4%	5.5%
1979-89	-16.2	-4.7	1.6	4.7	8.4	9.0	15.2	18.7	19.7	22.2
1989-2000	15.4	11.5	10.9	11.9	9.8	11.1	11.8	13.4	18.7	20.9
1989-95	4.6	1.2	2.2	2.4	1.1	2.0	2.9	4.9	7.4	10.7
1995-2000	10.3	10.1	8.5	9.3	8.6	9.0	8.7	8.0	10.5	9.2
2000-05	1.2	1.0	4.7	2.2	4.0	5.2	5.5	6.2	7.1	8.3
1979-2005	-2.1	7.3	18.0	19.7	23.9	27.5	35.9	42.9	52.2	59.9

* The Xth percentile wage is the wage at which X% of the wage earners earn less and (100-X)% earn more.

Source: Authors' analysis of CPS ORG.

FIGURE 3E Change in real hourly wages for women by wage percentile, 1973-2005

Source: Authors' analysis of CPS ORG.

workers without a college degree, blue-collar or service workers, or younger workers. In the early 1990s, however, wages also stagnated among male white-collar and college-educated workers. In the late 1990s real wages grew most rapidly among low-wage workers, the very highest-paid workers, and younger workers. The recession of the early 2000s knocked down wage growth, although the highest-wage earners fared best.

The data in **Table 3.3** and **Figure 3C** show wage trends for the 80% of the workforce who are production workers in manufacturing and nonsupervisory workers in other sectors. This category includes factory workers, construction workers, and a wide variety of service-sector workers ranging from restaurant and clerical workers to nurses and teachers; it leaves out higher-paid managers and supervisors. From 2000 to 2005 the hourly wage of production/nonsupervisory workers grew 0.3% per year, though in the last year (2004-05) it didn't grow at all (see Figure 3C). The momentum of the strong wage growth of the late 1990s was offset by the recession, but it took a few years for the recession's impact to be felt; this delay reflects the fact that macroeconomic conditions affect the labor market with a long lag. As we have discussed above, wage growth over the 2000-05 period was substantially less than the 1.4% growth over the 1995-2000 period.

The differences in trends between the early and latter part of the 1989-2000 period are striking: hourly wages fell 0.1% a year from 1989 to 1995 and then grew 1.4% a year from 1995 to 2000, a turnaround of 1.5 percentage points. Over the longer term, from 1979 to 2005, wages are up only slightly, from \$15.78 in 1979 to \$16.11 in 2005, a growth of just 0.1% per year—virtually stagnant. Figure 3C also tracks the hourly compensation of production/nonsupervisory workers; with the exception of the 1970s, when compensation grew far faster than wages as wages stagnated (see the divergence between the two lines arising in the 1970s), compensation and wage growth show similar trends.

The trend in weekly earnings corresponds closely to that of hourly earnings, with a decline in the 1980s and early 1990s and a shift to strong positive growth after 1995. The fall in weekly hours in 2000 and after meant that growth in weekly wages dropped to zero, even while hourly wages increased 0.3% annually. The weekly earnings of production and nonsupervisory workers in 2005 were \$543.56 per week (in 2005 dollars), nearly \$20 less than in 1979 and almost \$40 less than in 1973.

Wage trends by wage level

TABLE 3.7 Distribution of total employment by wage level, 1973-2005

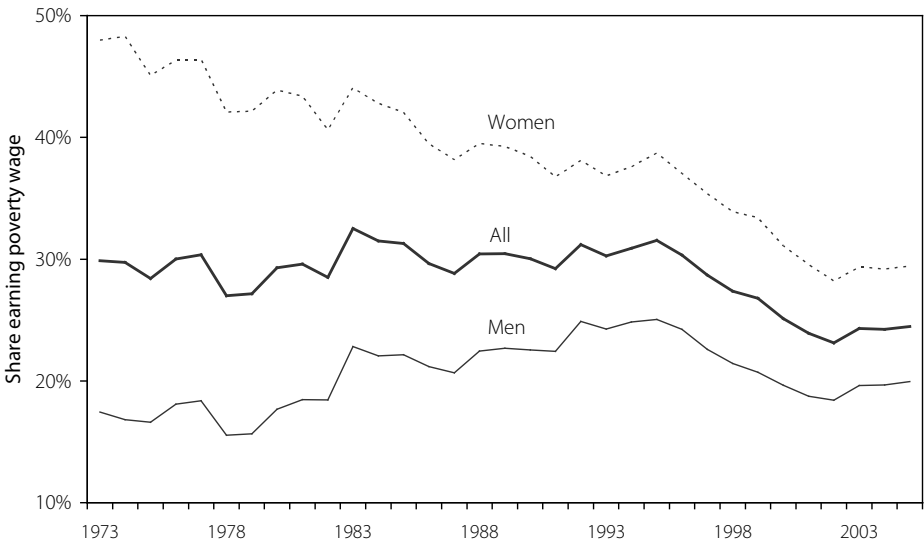
Year	Share of employment by wage multiple of poverty wage*							Total
	Poverty level wages:			100-125	125-200	200-300	300+	
	0-75	75-100	Total**					
All								
1973	11.7%	18.2%	29.9%	13.8%	35.0%	14.9%	6.4%	100%
1979	4.9	22.2	27.1	14.2	33.0	18.5	7.1	100
1989	13.9	16.5	30.5	12.6	30.9	17.2	8.9	100
2000	9.8	15.3	25.1	15.5	28.4	19.1	11.9	100
2005	10.0	14.5	24.5	16.0	27.2	18.3	14.0	100
<i>Change</i>								
1979-89	9.0	-5.7	3.3	-1.6	-2.1	-1.4	1.8	
1989-2000	-4.1	-1.3	-5.3	2.8	-2.4	1.9	3.0	
2000-05	0.1	-0.7	-0.6	0.5	-1.2	-0.7	2.1	
Men								
1973	5.6%	11.9%	17.4%	11.2%	40.2%	21.5%	9.7%	100%
1979	2.8	12.9	15.7	10.8	35.5	26.8	11.2	100
1989	9.5	13.2	22.7	10.7	31.8	21.7	13.1	100
2000	7.3	12.4	19.6	13.7	28.6	22.3	15.7	100
2005	7.6	12.3	19.9	14.7	27.5	20.2	17.6	100
<i>Change</i>								
1979-89	6.7	0.3	7.0	-0.1	-3.7	-5.1	1.9	
1989-2000	-2.2	-0.8	-3.0	3.0	-3.2	0.6	2.7	
2000-05	0.4	-0.1	0.3	1.0	-1.1	-2.1	1.8	
Women								
1973	20.5%	27.5%	48.0%	17.6%	27.5%	5.4%	1.6%	100%
1979	7.8	34.4	42.1	18.6	29.8	7.7	1.8	100
1989	19.0	20.3	39.2	14.8	29.8	12.0	4.2	100
2000	12.7	18.4	31.1	17.4	28.2	15.5	7.7	100
2005	12.5	16.9	29.4	17.3	26.8	16.3	10.1	100
<i>Change</i>								
1979-89	11.2	-14.1	-2.9	-3.8	0.1	4.3	2.4	
1989-2000	-6.3	-1.8	-8.1	2.6	-1.6	3.6	3.5	
2000-05	-0.2	-1.5	-1.7	-0.1	-1.4	0.7	2.4	

* The wage ranges are equivalent in 2005 dollars to: \$7.20 and below (0-75), \$7.20-9.60 (75-100), \$9.60-12.00 (100-125), \$12.00-19.19 (125-200), \$19.19-28.79 (200-300), and \$28.79 and above (300+).

** Combines lowest two categories and represents the share of wage earners earning poverty-level wages.

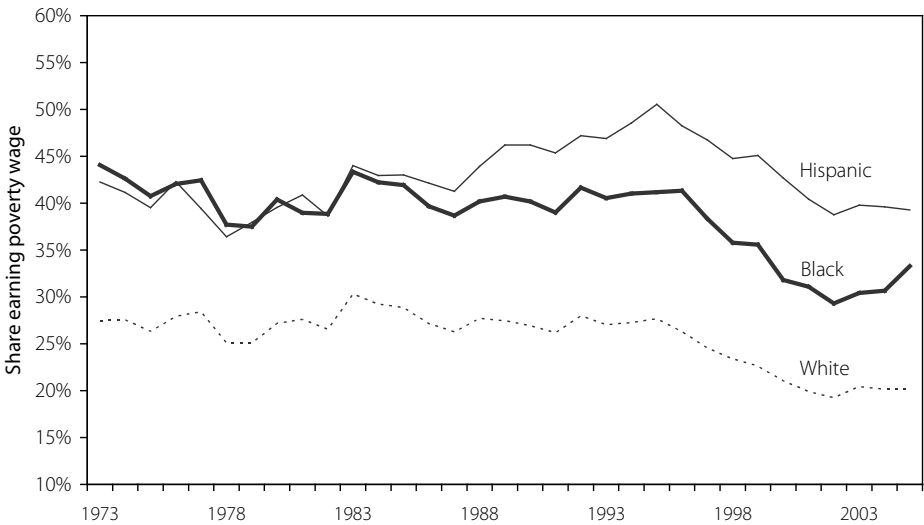
Source: Authors' analysis of CPS ORG.

FIGURE 3F Share of workers earning poverty-level wages by gender 1973-2005



Source: Authors' analysis of CPS ORG.

FIGURE 3G Share of workers earning poverty-level wages by race/ethnicity, 1973-2005



Source: Authors' analysis of CPS ORG.

For any given trend in average wages, particular groups of workers will experience different outcomes if wage inequality grows, as it has throughout the last 26 years: it grew pervasively in the 1980s, and grew at the top and fell or was stable at the bottom through most of the 1990s and 2000s. Wage trends can be described by examining groups of workers by occupation, education level, and so on, but doing so omits the impact of changes such as increasing inequality within occupation or education groups. The advantage of an analysis of wage trends by wage level or percentile (the 60th percentile, for instance, is the wage at which a worker earns more than 60% of all earners but less than 40% of all earners) is that it captures all of the changes in the wage structure.

Table 3.4 provides data on wage trends for workers at different percentiles (or levels) in the wage distribution, thus allowing an examination of wage growth for low-, middle-, and high-wage earners. The data are presented for the cyclical peak years 1973, 1979, 1989, and 2000, and for the most recent year for which we have a complete year of data, 2005, as well as for 1995-2000 (so we can examine the character of the rebound in wage growth over this period and since this period).

Wage growth slowed between the 1995-2000 period and the 2000-05 period, though wage growth has remained better than that of the 1979-95 period of relatively stagnant wages. Wages grew strongly across the board from 1995 to 2000, rising at least 7% at every wage level. Remarkably, the fastest growth was at the two lowest wage levels (10th and 20th), where wage growth was at least 11%. However, workers with the very highest wages, at the 95th percentile, saw almost comparable wage growth of 10.6%. Since 2000, however, wage growth among lower wage workers (30th percentile or below) has been modest, and the growth at the median, 3.0%, was less than half that of the 1995-2000 period. Wage growth among higher-wage workers was also much slower in recent years than in the 1995-2000 period. This wage deceleration, thus, has been pervasive. The deterioration in wage growth is even stronger than Table 3.4 shows because the momentum of the late 1990s carried wage growth into 2002 but was absent in the 2002-05 period (as seen in the earlier Figures 3A and 3B).

The deterioration in real wages from 1979 to 1995 was both broad and uneven. Wages were stagnant or fell for the bottom 60% of wage earners over the 1979-95 period and grew modestly for higher-wage workers—over 16 years the growth was just 5.0% at the 80th percentile and 10.9-13.9% at the 90th and 95th percentiles. Starting in the early 1990s low-wage workers experienced either more or comparable wage growth to that of middle-wage workers, so that the expanding wage gap between the middle and bottom lessened and then stabi-

TABLE 3.8 Distribution of white employment by wage level, 1973-2005

	Share of employment by wage multiple of poverty wage*							
	Poverty-level wages:							
Year	0-75	75-100	Total**	100-125	125-200	200-300	300+	Total
All								
1973	10.3%	17.1%	27.5%	13.6%	35.8%	16.1%	7.1%	100%
1979	4.5	20.6	25.1	13.9	33.5	19.6	7.9	100
1989	12.3	15.1	27.5	12.3	31.6	18.5	10.1	100
2000	8.0	13.0	21.1	14.4	29.4	21.2	13.9	100
2005	8.2	12.0	20.1	14.6	28.4	20.6	16.4	100
Change								
1979-89	7.8	-5.4	2.4	-1.5	-1.9	-1.1	2.2	
1989-2000	-4.3	-2.1	-6.4	2.1	-2.2	2.7	3.9	
2000-05	0.1	-1.0	-0.9	0.2	-1.1	-0.6	2.4	
Men								
1973	4.6%	10.3%	14.9%	10.7%	40.4%	23.1%	10.8%	100%
1979	2.4	11.0	13.4	10.0	35.7	28.4	12.4	100
1989	7.7	11.2	18.9	10.1	32.3	23.7	15.0	100
2000	5.4	9.6	15.0	11.7	29.3	25.2	18.8	100
2005	5.7	9.4	15.2	12.5	28.4	23.0	21.0	100
Change								
1979-89	5.3	0.2	5.5	0.0	-3.4	-4.7	2.6	
1989-2000	-2.3	-1.6	-3.9	1.6	-3.0	1.5	3.7	
2000-05	0.3	-0.2	0.2	0.8	-1.0	-2.2	2.2	
Women								
1973	18.9%	27.2%	46.1%	17.9%	28.9%	5.6%	1.6%	100%
1979	7.4	33.2	40.6	18.9	30.7	8.0	1.9	100
1989	17.6	19.5	37.1	14.9	30.8	12.7	4.5	100
2000	10.9	16.7	27.6	17.3	29.5	16.9	8.7	100
2005	10.8	14.7	25.5	16.7	28.3	18.1	11.4	100
Change								
1979-89	10.2	-13.6	-3.4	-4.1	0.2	4.7	2.6	
1989-2000	-6.7	-2.9	-9.5	2.4	-1.4	4.2	4.2	
2000-05	-0.2	-2.0	-2.1	-0.6	-1.1	1.1	2.7	

* The wage ranges are equivalent in 2005 dollars to: \$7.20 and below (0-75), \$7.20-9.60 (75-100), \$9.60-12.00 (100-125), \$12.00-19.19 (125-200), \$19.19-28.79 (200-300), and \$28.79 and above (300+).

** Combines lowest two categories and represents the share of wage earners earning poverty-level wages.

Source: Authors' analysis of CPS ORG.

TABLE 3.9 Distribution of black employment by wage level, 1973-2005

Year	Share of employment by wage multiple of poverty wage*							Total
	Poverty-level wages:			100-125	125-200	200-300	300+	
	0-75	75-100	Total**					
All								
1973	20.2%	23.9%	44.1%	14.2%	31.1%	8.1%	2.4%	100%
1979	7.3	30.2	37.5	15.6	31.0	13.0	3.0	100
1989	19.8	20.9	40.7	14.6	28.3	12.6	3.8	100
2000	12.3	19.5	31.8	18.9	28.8	15.0	5.5	100
2005	13.0	20.3	33.3	19.3	26.1	14.1	7.1	100
<i>Change</i>								
1979-89	12.6	-9.4	3.2	-1.0	-2.7	-0.4	0.9	
1989-2000	-7.5	-1.3	-8.9	4.3	0.5	2.4	1.7	
2000-05	0.7	0.8	1.5	0.4	-2.6	-0.9	1.6	
Men								
1973	11.8%	20.2%	31.9%	13.4%	40.3%	11.4%	3.0%	100%
1979	4.9	22.3	27.2	14.6	35.2	18.5	4.5	100
1989	15.5	19.8	35.3	14.2	30.4	15.4	4.7	100
2000	10.0	16.3	26.3	19.4	30.5	17.2	6.6	100
2005	11.3	17.4	28.7	19.5	28.2	15.3	8.2	100
<i>Change</i>								
1979-89	10.6	-2.5	8.1	-0.4	-4.8	-3.1	0.2	
1989-00	-5.4	-3.5	-8.9	5.2	0.0	1.8	1.9	
2000-05	1.3	1.1	2.4	0.1	-2.2	-1.9	1.6	
Women								
1973	30.1%	28.1%	58.2%	15.2%	20.5%	4.4%	1.7%	100%
1979	9.8	38.7	48.5	16.6	26.5	7.1	1.4	100
1989	24.0	21.8	45.9	14.9	26.2	10.0	3.0	100
2000	14.3	22.2	36.5	18.4	27.3	13.2	4.6	100
2005	14.3	22.8	37.1	19.1	24.4	13.1	6.3	100
<i>Change</i>								
1979-89	14.2	-16.9	-2.7	-1.6	-0.2	2.9	1.7	
1989-00	-9.8	0.4	-9.4	3.5	1.1	3.3	1.6	
2000-05	0.1	0.6	0.7	0.7	-3.0	-0.1	1.7	

* The wage ranges are equivalent in 2005 dollars to: \$7.20 and below (0-75), \$7.20-9.60 (75-100), \$9.60-12.00 (100-125), \$12.00-19.19 (125-200), \$19.19-28.79 (200-300), and \$28.79 and above (300+).

** Combines lowest two categories and represents the share of wage earners earning poverty-level wages.

Source: Authors' analysis of CPS ORG.

TABLE 3.10 Distribution of Hispanic employment by wage level, 1973-2005

	Share of employment by wage multiple of poverty wage*							
	Poverty-level wages:							
Year	0-75	75-100	Total**	100-125	125-200	200-300	300+	Total
All								
1973	16.8%	25.4%	42.3%	17.4%	30.4%	7.7%	2.1%	100%
1979	6.4	31.5	37.9	16.4	30.0	12.7	3.0	100
1989	21.8	24.4	46.2	13.0	27.2	10.0	3.6	100
2000	17.8	24.9	42.7	19.2	23.3	10.4	4.5	100
2005	16.6	22.7	39.3	20.9	23.5	10.5	5.7	100
Change								
1979-89	15.4	-7.1	8.3	-3.4	-2.8	-2.7	0.6	
1989-2000	-4.0	0.5	-3.5	6.2	-3.9	0.4	0.9	
2000-05	-1.2	-2.2	-3.4	1.7	0.2	0.1	1.3	
Men								
1973	10.6%	21.0%	31.7%	16.7%	38.0%	10.6%	2.9%	100%
1979	4.3	22.8	27.1	15.9	35.0	17.8	4.1	100
1989	18.1	23.0	41.1	12.9	29.0	12.5	4.5	100
2000	14.5	23.7	38.2	20.2	24.6	11.9	5.2	100
2005	13.2	21.9	35.0	21.9	24.9	11.5	6.7	100
Change								
1979-89	13.8	0.1	14.0	-3.0	-6.1	-5.3	0.4	
1989-2000	-3.6	0.7	-2.9	7.2	-4.4	-0.6	0.7	
2000-05	-1.3	-1.8	-3.1	1.7	0.3	-0.4	1.5	
Women								
1973	27.6%	33.0%	60.6%	18.7%	17.2%	2.8%	0.7%	100%
1979	9.6	44.8	54.5	17.3	22.2	4.8	1.2	100
1989	27.2	26.6	53.8	13.2	24.6	6.3	2.1	100
2000	22.6	26.7	49.3	17.8	21.3	8.2	3.4	100
2005	21.7	24.0	45.7	19.5	21.4	9.1	4.3	100
Change								
1979-89	17.6	-18.3	-0.7	-4.1	2.4	1.5	0.9	
1989-2000	-4.6	0.1	-4.4	4.6	-3.3	1.9	1.2	
2000-05	-0.9	-2.7	-3.6	1.8	0.1	0.9	0.9	

* The wage ranges are equivalent in 2005 dollars to: \$7.20 and below (0-75), \$7.20-9.60 (75-100), \$9.60-12.00 (100-125), \$12.00-19.19 (125-200), \$19.19-28.79 (200-300), and \$28.79 and above (300+).

** Combines lowest two categories and represents the share of wage earners earning poverty-level wages.

Source: Authors' analysis of CPS ORG.

lized. Increases in the minimum wage in the early and late 1990s and the drop in unemployment in the late 1990s can explain this trend.

This overall picture, however, masks different outcomes for men and women. Among men over the 2000-05 period, wages declined slightly or were relatively stagnant for the bottom 70%, grew 3.1% at the 90th decile, and 5.9% for the highest-wage earners (**Table 3.5**). Thus, the wage gap between the top and the middle continued to grow strongly in the 2000-05 period. This trend contrasts with the strong broad-based wage growth of the latter 1990s, when low-wage workers fared better than middle-wage workers. Over the preceding 1979-95 period, the wage declines were substantial, exceeding 10% for the median male worker (**Table 3.5** and **Figure 3D**). Between 1979 and 1989, the median male hourly wage fell 7.0%, and low-wage men lost 10.6%. In the early 1990s, across-the-board wage declines of roughly 3-5% affected the bottom 70% of male earners. Even high-wage men at the 90th percentile, who earned about \$30 per hour in 1979, did well only in relative terms, since their wage was only about 6% higher in 1995 than in 1979.

As with the overall trend, the pattern of male wage deterioration shifted between the 1980s and the early 1990s. In the 1980s, wages fell most at the lower levels, while in the 1990s wages eroded in the middle and at the bottom. Thus, the wage gap between middle- and low-wage men was stable in the early 1990s, although the gap between high-wage men (at the 90th percentile) and middle- and low-wage men continued to grow.

Over the longer term (1979-2005), the 95th percentile male wage grew faster than any other, at 30.1%, while wages at the middle and lower end fell. The median male wage in 2005, for instance, was still 5.3% below its 1979 level and was \$0.12 less than its level in 1973.

Wages grew more among women than men over the 2000-05 period; they rose from about 2-5% for the middle 40% and just about 1% for the lowest-wage women (**Table 3.6**). The highest-wage women, those at the 95th percentile, enjoyed 8.3% wage growth in this period.

As with men, women's wages rose strongly across the board in the 1995-2000 period. It is remarkable that this wage growth was fairly even among all women, from about 8% to 10.5%. But the recessionary conditions and weak recovery in recent years knocked down wage growth for women, as it did for men.

The most persistent wage growth between 1979 and 1995 was among the highest-wage women (**Table 3.6** and **Figure 3E**). For instance, wages grew 22.2% for women at the 95th percentile from 1979 to 1989 and another 10.7%

over 1989-95. In contrast, low-wage women saw their wages fall in the 1980s; the lowest paid at the 10th percentile experienced a decline of 16.2%. In the early 1990s women's wages at the 40th percentile and above grew more slowly than in the 1980s, with the wages in the middle dropping to a stagnant 1.1% growth over the six years (they grew 8.4% from 1979 to 1989). A very positive development of the early 1990s was the fact that wages for 10th percentile women rose, a marked contrast to the sharp decline in the 1980s. As we will discuss below, minimum wage trends—falling in real value in the 1980s and rising in the 1990s—can explain this pattern.

Over the entire 1979-2005 period the wages of the highest-earning women at the 95th percentile grew by 59.9%, more than double the 23.9% wage growth for the median woman over the same period.

Shifts in low-wage jobs

Another useful way of characterizing changes in the wage structure is to examine the trend in the proportion of workers earning low, middle, and high wages. These trends are presented in **Table 3.7** and **Figure 3F** for all workers and for men and women. The workforce is divided into six wage groups based on multiples of the “poverty-level wage,” or the hourly wage that a full-time, year-round worker must earn to sustain a family of four at the poverty threshold, which was \$9.60 in 2005 (in 2005 dollars), equal to two-thirds of the median hourly wage. Thus, workers are assigned to a wage group according to the degree to which they earned more (or less) than poverty-level wages.

Women are much more likely to earn low wages than men. In 2005, 29.4% of women earned poverty-level wages or less, significantly more than the share of men (19.9%). Women are also much less likely to earn very high wages. In 2005 only 10.1% of women, but 17.6% of men, earned at least three times the poverty-level wage.

The trend in the share of workers earning poverty-level wages corresponds to the story outlined at the start of this chapter: momentum in reducing poverty-level work began in the late 1990s, continued until 2002, then dissipated. This is evident in **Figure 3F** and **Figure 3G**, which shows trends by race/ethnicity. So, although the share of workers earning poverty-level wages actually fell from 2000 to 2005, from 25.1% to 24.5%, this progress came in the first two years of that period and then partially reversed. Among blacks the increase in low-wage work after 2002 was large enough to reverse the progress from 2000 to 2002.

In the 1989-2000 period the share of workers earning poverty-level wages fell from 30.5% to 25.1%, reversing the trend of the 1980s toward more poverty-

TABLE 3.11 Growth of specific fringe benefits, 1948-2005 (2005 dollars)

Year*	Voluntary benefits			Payroll taxes	Total benefits and non-wage compensation
	Pension	Health**	Subtotal		
Hourly pay					
1987	\$0.79	\$1.75	\$2.53	\$1.86	\$4.39
1989	0.64	1.82	2.46	1.93	4.39
1995	0.66	1.67	2.33	2.01	4.34
2000	0.67	1.48	2.14	1.89	4.03
2005	0.90	1.76	2.66	2.10	4.76
Annual dollar change					
1989-2000	\$0.00	-\$0.03	-\$0.03	\$0.00	-\$0.03
1989-95	0.00	-0.02	-0.02	0.01	-0.01
1995-2000	0.00	-0.04	-0.04	-0.02	-0.06
2000-05	0.05	0.06	0.10	0.04	0.15
Annual percent change					
1989-2000	0.4%	-1.9%	-1.2%	-0.2%	-0.8%
1989-95	0.5	-1.4	-0.9	0.6	-0.2
1995-2000	0.3	-2.5	-1.6	-1.2	-1.5
2000-05	6.2	3.6	4.4	2.2	3.4

* Data are for March.

** Deflated by medical care price index.

Source: Authors' analysis of BLS ECEC data.

level jobs. As Figures 3F and 3G show, the erosion of poverty-wage jobs in the 1990s came in the latter part of the decade, which saw falling unemployment and broad-based real wage growth. The turnaround toward more poverty-level jobs in 2003 thus represents a reversal of a seven-year trend.

The share of workers earning at least 25% below the poverty-level wage (labeled “0-75”) expanded significantly between 1979 and 1989, from 4.9% to 13.9% of the workforce. The group earning poverty-level wages (the “total” group) rose from 27.1% in 1979 to 30.5% in 1989. Thus, over the 1979-89 period there was not only a sizable growth (3.3% of the workforce) in the proportion of workers earning poverty-level wages, but also a shift within this group to those earning very low wages.

The share of workers earning poverty-level wages continued to expand,

TABLE 3.12 Change in private-sector employer-provided health insurance coverage, 1979-2004

Group*	Health insurance coverage (%)					Percentage-point change			
	1979	1989	1995	2000	2004	1979-89	1989-2000	2000-04	1979-2004
All workers	69.0%	61.5%	58.5%	58.9%	55.9%	-7.4	-2.7	-2.9	-13.0
<i>Gender</i>									
Men	75.4%	66.8%	62.6%	63.2%	58.7%	-8.7	-3.6	-4.4	-16.7
Women	59.4	54.9	53.3	53.6	52.5	-4.5	-1.3	-1.1	-6.9
<i>Race</i>									
White	70.3%	64.0%	61.7%	62.7%	59.8%	-6.3	-1.2	-3.0	-10.5
Black	63.1	56.3	53.0	55.4	54.1	-6.8	-0.9	-1.3	-9.0
Hispanic	60.4	46.0	42.1	41.8	39.7	-14.3	-4.3	-2.0	-20.6
<i>Education</i>									
High school	69.6%	61.2%	56.3%	56.2%	52.5%	-8.4	-5.0	-3.7	-17.1
College	79.6	75.0	72.1	71.3	68.5	-4.6	-3.8	-2.8	-11.2
<i>Wage fifth</i>									
Lowest	37.9%	26.4%	26.0%	27.4%	24.4%	-11.5	1.0	-2.9	-13.4
Second	60.5	51.7	49.5	50.9	46.0	-8.8	-0.8	-4.9	-14.5
Middle	74.7	67.5	62.9	63.9	61.5	-7.2	-3.6	-2.3	-13.2
Fourth	83.5	78.0	74.0	73.7	70.6	-5.5	-4.3	-3.0	-12.8
Top	89.5	84.7	81.5	79.9	77.5	-4.7	-4.8	-2.4	-12.0

* Private-sector, wage and salary workers age 18-64, who worked at least 20 hours per week and 26 weeks per year.

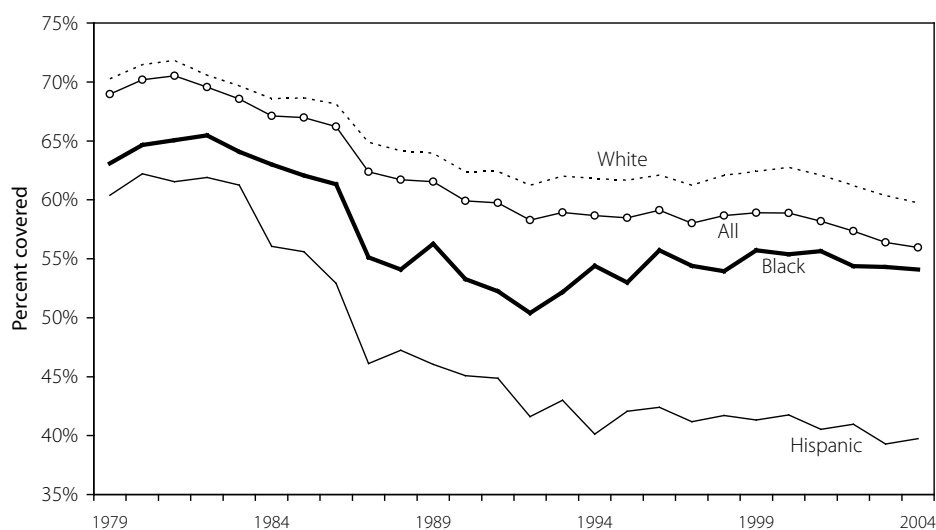
though more slowly, in the 1989-95 period, but then, not surprisingly given wage trends at the bottom, contracted in the 1995-2000 period (Figure 3F). The result was a fall in the poverty-wage employment share to 25.1% in 2000, down 5.4 percentage points from 1989 and the lowest level since 1973. Those earning very low wages still represented 9.8% of the workforce in 2000, twice the share as in 1979 but significantly less than the share in 1989. The real wage growth at the bottom of the wage scale in the latter 1990s thus rapidly diminished the share of workers earning poverty-level wages and offset the growth in poverty-wage shares over the 1979-95 period. However, a large share of the workforce, roughly a fourth, still earns poverty-level wages.

Over the 1979-89 period, the entire wage structure shifted downward, with proportionately fewer workers in the middle- and high-wage groups in 1989 than in 1979. The only exception is the modest expansion of the share of the

TABLE 3.13 Employee health insurance contribution requirements and employee cost shares, 1992-2005

	Single coverage		Family coverage		All coverage	
	Contribution:		Contribution:		Contribution:	
	Not required	Required	Not required	Required	Not required	Required
NCS						
1993	46%	54%	26%	74%	n.a.	n.a.
2000	32	68	19	81	n.a.	n.a.
2005	24	76	12	88	n.a.	n.a.
	Share of costs		Share of costs		Share of costs	
	Employer	Employee	Employer	Employee	Employer	Employee
NCS						
1992	n.a.	n.a.	n.a.	n.a.	86.0%	14.0%
2003	82%	18%	70%	30%	77.9	22.1
2005	82	18	71	29	n.a.	n.a.
Kaiser						
2005	84%	16%	74%	26%	n.a.	n.a.

Source: Authors' analysis of National Compensation Survey data, Wiatrowski (2004), Lettau (2004), and Kaiser Family Foundation.

FIGURE 3H Private-sector employer-provided health insurance coverage, 1979-2004

Source: Authors' analysis of March CPS.

workforce at the very highest earnings level (exceeding three times the poverty-level wage). In the 1989-2000 period there was a larger shift to the two highest-wage categories and a shift upward into lower-middle-wage jobs paying \$9.60 to \$12.00.

Overall trends in the share of workers earning poverty-level wages are primarily driven by trends among women, since women are disproportionately the ones earning these low wages. The share of women earning poverty-level wages declined modestly during the 2000-05 period, from 31.1% to 29.4%; all of the drop took place by 2002 and was slightly reversed by 2005 (Figure 3F). In the 1989-2000 period, the very bottom of the wage structure shrank as the proportion of women earning poverty-level wages, including the share earning very low wages, diminished. At the same time, the top two wage categories grew. The improvements, as Figure 3F shows, accelerated in the 1995-2000 period.

Among women workers, 11.2% shifted into the very-low-wage category during the 1979-89 period, while at the same time the two highest-wage groups grew by 6.7 percentage points. The shift downward among women appears to be an enlargement of the workforce earning very low wages, even though the proportion earning poverty-level wages overall fell from 42.1% to 39.2%.

Among men, the overall changes in the wage structure between 1979 and 1989 meant proportionately fewer middle-wage workers and more low-wage workers, with little growth in the share of very high earners. For instance, 7.0% of the male workforce shifted into the group earning less than the poverty-level wage, and the proportion of men in the other wage groups (except the highest) contracted. Over the 1989-2000 period the share of men earning poverty-level wages declined by 3.0%. Regardless of the recent trends, the share of poverty-level earners among men was 19.9% in 2005, still 4.2% more than in 1979.

Tables 3.8, 3.9, and 3.10 (and Figure 3G) present an analysis similar to the one in Table 3.7 for white, black, and Hispanic employment. The proportion of minority workers earning low wages is substantial—33.3% of black workers and 39.3% of Hispanic workers in 2005. Minority women are even more likely to be low earners—37.1% of black women and 45.7% of Hispanic women in 2005. The wage structure for each race/gender group has shifted over the last few decades.

Figure 3G shows the decline in white workers earning poverty-level wages from 1996 to 2002 and the bump up since then, ending with 20.1% earning low wages. This progress was solely among white women, whose low-wage share fell from 27.6% to 25.5%. Among white men over the 2000-05 period the share in low-wage work rose slightly; the share with the highest earnings

TABLE 3.14 Inequality of employer-provided health insurance participation and cost, 2003

Wage fourth	Employer cost per hour	Participation rate	Cost per participant
Lowest	\$0.29	19%	\$1.54
Low-middle	0.93	49	1.91
High-middle	1.49	65	2.28
Highest	2.28	72	3.18

Source: Authors' analysis of Lettau (2004).

TABLE 3.15 Change in private-sector employer-provided pension coverage, 1979-2004

Group*	Pension coverage (%)					Percentage-point change			
	1979	1989	1995	2000	2004	1979-89	1989-2000	2000-04	1979-2004
<i>All workers</i>	50.6%	43.7%	45.8%	48.3%	45.5%	-7.0	4.6	-2.8	-5.1
<i>Gender</i>									
Men	56.9%	46.9%	48.6%	50.3%	46.4%	-10.1	3.4	-3.8	-10.5
Women	41.3	39.6	42.5	45.8	44.3	-1.7	6.2	-1.5	3.0
<i>Race</i>									
White	52.2%	46.1%	49.5%	53.7%	50.6%	-6.1	7.6	-3.1	-1.5
Black	45.8	40.7	42.6	41.3	42.2	-5.1	0.7	0.9	-3.6
Hispanic	38.2	26.3	24.7	27.5	25.0	-11.9	1.2	-2.4	-13.1
<i>Education</i>									
High school	51.2%	42.9%	43.2%	43.8%	40.3%	-8.3	0.9	-3.5	-11.0
College	61.0	55.4	58.8	63.7	60.7	-5.6	8.3	-3.0	-0.3
<i>Wage fifth</i>									
Lowest	18.4%	12.7%	13.7%	16.3%	14.3%	-5.7	3.6	-2.0	-4.1
Second	36.8	29.0	32.0	35.8	31.9	-7.7	6.8	-3.9	-4.8
Middle	52.3	44.5	47.0	50.9	47.5	-7.8	6.4	-3.4	-4.8
Fourth	68.4	60.0	63.2	64.8	62.5	-8.3	4.8	-2.4	-5.9
Top	78.5	72.8	74.8	74.8	71.8	-5.8	2.1	-3.1	-6.8

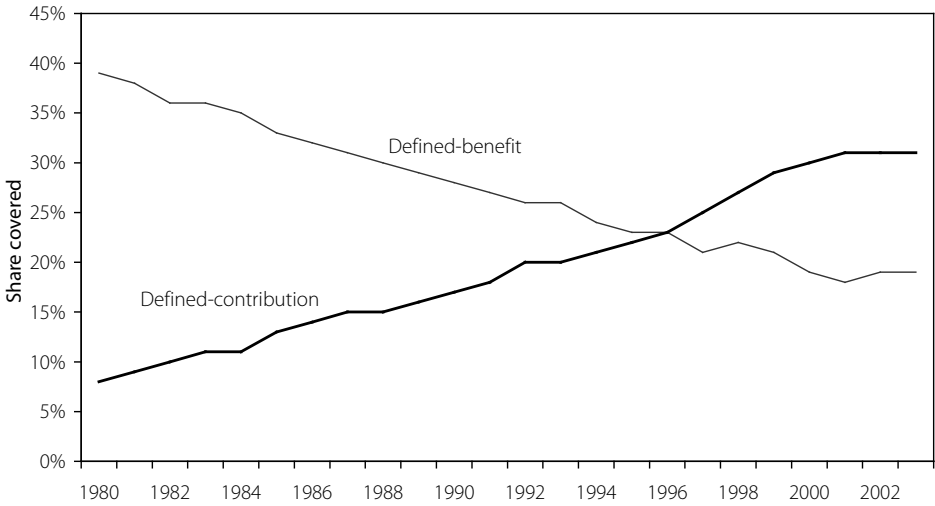
* Private-sector, wage and salary workers age 18-64, who worked at least 20 hours per week and 26 weeks per year.

Source: Authors' analysis of March CPS.

grew; and the share in the middle, from 125% to three times the poverty wage, declined—in other words, men were pushed both up and down out of the middle.

The wage structure shifted downward for whites in the 1979-89 period,

FIGURE 31 Share of pension participants in defined-contribution and defined-benefit plans, 1980-2003



Source: Center for Retirement Research (2006).

but in 1989-2000 whites moved from poverty-level to low- to middle-wage jobs and into very high wage jobs. By 2000, the poverty-wage share among white workers had fallen to 21.1%, 4% below its 1979 level, all due to progress in the late 1990s. The white male and white female wage structures have moved in different directions. In the 1980s, white women shifted substantially into the lowest and highest earnings groups. In contrast, the share of white men eroded in the middle-wage range in the 1980s, grew in the very high wage category, and shifted (although less than for women) to the very bottom. Similarly, the improvements in the 1990s were far greater for white women than for white men. Over the longer term, in fact, white women have seen their share of poverty-level earners decline remarkably, from 46.1% in 1973 to 25.5% in 2005. The share of high and very high earners also grew strongly among white women. In the 2000-05 period white women shifted up the wage scale, with fewer at low earnings and more in the higher-earning categories.

Blacks (Table 3.9) were the only race/ethnic group to see a growth in poverty-level wage earners over the 2000-05 period, despite the progress from

1996 to 2002. This growth in low-wage work occurred among both men and women. Among black men there was also a slight shift to the highest-paying jobs, but the predominant shift was from middle-wage jobs to lower-paying ones. The same pattern is true in this period for the shifts in the wage structure among black women.

In the 1980s blacks experienced a dramatic shift out of middle-wage employment into both very low wage employment and higher-wage employment. The shift out of poverty-level jobs in the 1990s reversed the 1980s expansion of the group of very low earners. By 2000, the share of poverty-wage earners among black men, 26.3%, was about the same as in 1979, but the 36.5% share among women was a historic low. Still, though, in 2000, 31.8% of black workers were in jobs paying less than poverty-level wages. The post-1979 trends, despite the improvement in the late 1990s, have left black men with fewer middle-wage jobs and more very low earning and very high earning jobs. Among black women, the share of very low earners grew (from 9.8% in 1979 to 14.3% in both 2000 and 2005), but otherwise they saw a general movement up the wage structure.

Hispanics, as other groups, saw a shrinkage of low-wage work from the mid-1990s to 2002 (Figure 3G), but no further progress since then. This trend was the case for both Hispanic men and women. While the share of Hispanic women in low-wage work has declined over the long term (down to a still high 45.7% in 2005 from 60.6% in 1973), the share of Hispanic men in low-wage work has risen (up to 35.0% in 2005, from 31.7% in 1973). These trends could be due to a change in the composition of the Hispanic workforce—a larger share of immigrants—as well as a shift in the overall job structure, but we are unable to distinguish between the two factors in this analysis. It is noteworthy, though, that immigration of low-wage Hispanic workers cannot explain why low-wage work grew among Hispanic men but not among women.

Both Hispanic women and men shifted in large numbers into the lowest-wage jobs between 1979 and 1989 and saw modest improvement over the 1990s. The growth in the percentage of Hispanic males earning poverty-level wages was substantial, up from 27.1% in 1979 to 38.2% in 2000. Roughly half (49.3%) of Hispanic women earned poverty-level wages in 2000, a decline from the 54.5% who did so in 1979. Among Hispanic men the share holding jobs over 125% of the poverty wage declined after 1979, but among Hispanic women those shares increased overall. Both Hispanic men and women saw their jobs shift to higher-wage categories in the 2000-05 period, although that upward shift ended in 2002.

TABLE 3.16 Dimensions of wage inequality, 1973-2005

	Log wage differentials						Percentage-point change			
	1973	1979	1989	1995	2000	2005	1973-79	1979-89	1989-2000	2000-05
Total wage inequality										
<i>90/10</i>										
Men	128.0%	130.0%	144.3%	151.1%	150.3%	153.3%	2.0	14.3	6.0	3.0
Women	115.9	103.2	134.9	137.6	137.7	143.4	-12.7	31.8	2.8	5.7
<i>90/50</i>										
Men	60.3%	58.8%	69.2%	76.1%	79.5%	83.6%	-1.5	10.4	10.2	4.1
Women	59.2	60.6	70.5	76.5	78.2	81.2	1.4	9.9	7.7	3.0
<i>50/10</i>										
Men	67.6%	71.1%	75.1%	75.0%	70.8%	69.7%	3.5	3.9	-4.2	-1.1
Women	56.7	42.5	64.4	61.1	59.5	62.2	-14.2	21.9	-4.9	2.7
Between group inequality*										
<i>College/high school</i>										
Men	25.3%	20.1%	33.9%	37.1%	42.0%	43.1%	-5.2	13.9	8.1	1.1
Women	37.7	26.5	41.0	46.7	47.9	47.1	-11.2	14.5	6.9	-0.8
<i>H.S./Less than high school</i>										
Men	22.3%	22.0%	22.1%	26.5%	26.0%	23.9%	-0.3	0.1	3.9	-2.1
Women	26.2	21.3	26.4	29.8	29.5	28.9	-4.9	5.1	3.0	-0.6
<i>Experience**</i>										
<i>Middle/young</i>										
Men	22.0%	21.5%	25.7%	27.0%	22.9%	25.9%	-0.5	4.1	-2.8	3.1
Women	8.0	9.5	17.8	21.8	18.4	21.6	1.5	8.3	0.6	3.2
<i>Old/middle</i>										
Men	3.4%	8.2%	12.4%	12.7%	8.8%	8.1%	4.7	4.3	-3.6	-0.7
Women	-2.0	0.4	2.1	5.4	4.6	6.4	2.4	1.7	2.5	1.8
Within group inequality***										
Men	42.3%	42.8%	46.7%	47.8%	48.1%	49.3%	1.4%	9.0%	3.0%	3.2%
Women	41.8	40.2	44.7	46.7	45.8	47.6	-3.8	11.4	2.4	2.1

* Differentials based on a simple human capital regression of log wages on five education categorical variables, age as a quartic, race, marital status, region, and ethnicity (Hispanic).

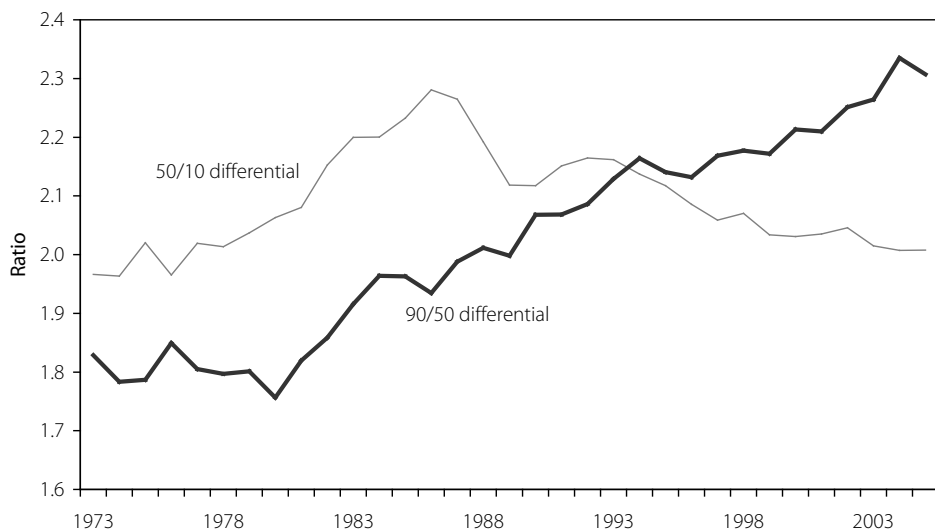
** Age differentials between 25- and 35-year-olds and 35- and 50-year-olds.

*** Mean square error from same regressions used to estimate experience and education differentials. Changes measured as percent change.

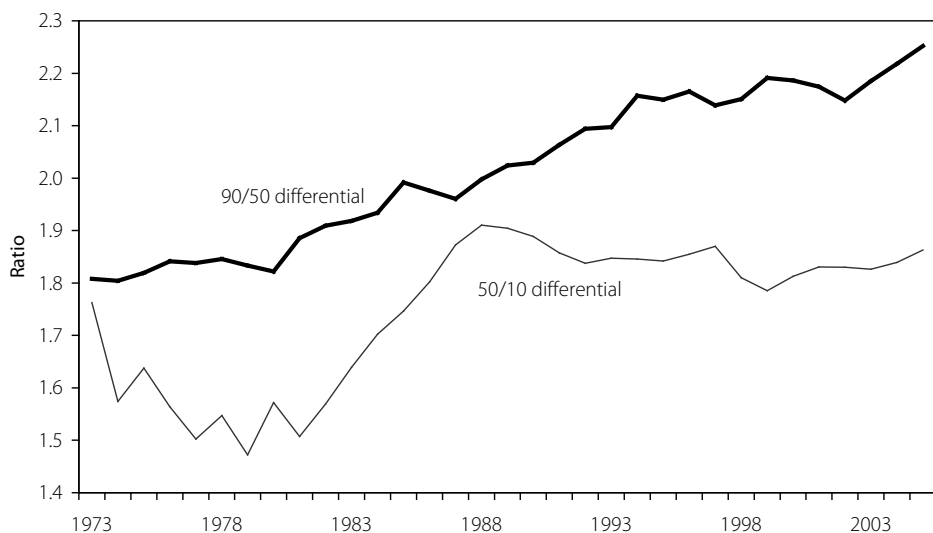
Source: Authors' analysis of CPS ORG.

Trends in benefit growth and inequality

The analysis on the preceding pages shows that real wages declined for a wide array of workers over both the 1980s and the early 1990s, rose strongly between 1995 and 2002, then fell flat or declined through 2005. Also, total compensation, the real value of both wages and fringe benefits, grew at the same pace as wages

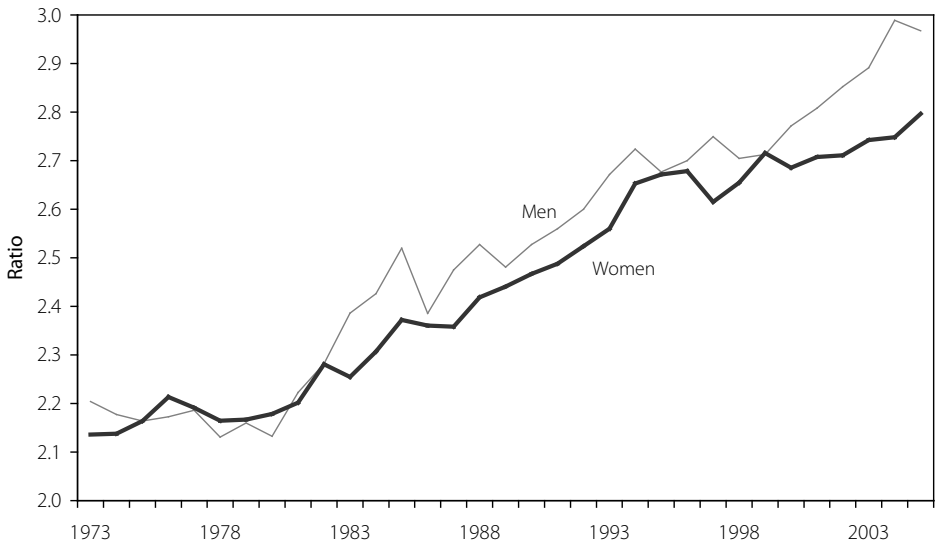
FIGURE 3J Men's wage inequality, 1973-2005

Source: Authors' analysis of CPS ORG.

FIGURE 3K Women's wage inequality, 1973-2005

Source: Authors' analysis of CPS ORG.

FIGURE 3L 95/50 percentile wage inequality, 1973-2005



Source: Authors' analysis of CPS ORG.

over the 1979-2005 period, though sometimes wages grew faster than compensation (the late 1990s) and sometimes more slowly (e.g., 2000-05). Benefits grew faster than wages during much of that time, but since they make up a small share of compensation (15-20%), their growth did not generate fast compensation growth overall. But fast growth in health care costs and pensions helped benefit growth exceed wage growth after 2000, and total compensation grew. In this section, we explore these issues further and examine changes in benefits by type of benefit and changes in health and pension coverage for different groups of workers. **Table 3.11** provides a breakdown of the growth in non-wage compensation, or benefits, using the BLS Employer Costs for Employee Compensation data (the aggregate amounts appeared in Table 3.2). These data, based on a survey of employers, show that total non-wage compensation, including health, pensions, and payroll taxes, were maintained at about \$4.40 per hour over the 1987-95 period. Following a 1.6% annual fall in the late 1990s, costs for health and pensions grew in the 2000-05 period, with a net increase of \$0.33 per hour from 1995 to 2005. Note, however, that this small rise in benefits costs occurred at the same time that productivity grew 33.3%.

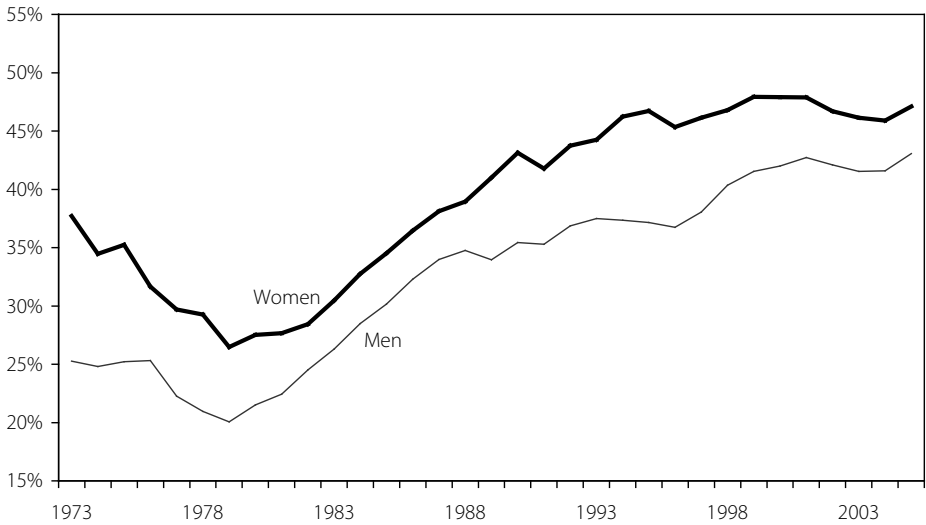
The data in Table 3.11 show average benefit costs. Given the rapid growth of wage inequality in recent years, it should not be surprising to find a growing inequality of benefits. **Tables 3.12** and **3.13** examine changes in health insurance and pension coverage for different demographic groups between 1979 and 2005. The share of workers covered by employer-provided health care plans dropped a steep 13.0 percentage points, from 69.0% in 1979 to 55.9%, in 2004 (Table 3.12). As **Figure 3H** illustrates, health care coverage eroded from 1979 until 1993-94, when it stabilized, and then began falling again after 2000 through 2004 (the latest data). We examine an indicator of the quality of coverage below.

Over the 1979-2005 period, health care coverage has declined twice as much among men (down 16.7 percentage points) than among women (down 6.9 percentage points), and slightly more among whites (10.5 percentage points) than among blacks (9.0 percentage points); Hispanics, though, suffered by far the largest drop—20.6 percentage points. The pattern in the erosion of health insurance coverage by wage level shows a growth in inequality in the 1980s, with greater erosion the lower the wage. The 1990s, however, saw modest extensions of coverage for the bottom 20%, while erosion continued for middle- and high-wage workers. Health insurance coverage eroded for all wage groups in the 2000-04 period. Consequently, over the longer period, 1979-2004, health insurance coverage declined sizably, and comparably, across the wage spectrum. Along education lines, however, there is evidence of growing inequality: employer-provided health insurance coverage fell 17.1 percentage points among high school graduates but by a lesser, though large, 11.2 percentage points among college graduates.

Table 3.13 uses information from the National Compensation Survey to examine an important aspect of employer-provided coverage: whether and to what extent the employee must contribute. The top panel shows the trends, for both single and family coverage, in whether employees are required to contribute to the insurance premium. In 1993 about half (54%) of workers in the private sector with single coverage were required to make contributions; by 2005 that share had risen to 76%. Almost all workers with family coverage, 88%, are required to pay some of the insurance premium.

How much more employees pay now than in the past for health insurance premiums is answered in the bottom panel of Table 3.13. Unfortunately, data relating to type of coverage are available only for years starting in 2003. In 2005, employers were paying 82% for single coverage and 71% for family coverage, about the same as in 2003. Another survey, sponsored by the Kaiser Family

FIGURE 3M College/high school wage premium, 1973-2005



Source: Authors' analysis of CPS ORG.

Foundation, confirms these data.

Data on cost sharing for *all* coverage are available for 1992 and 2003. The employer share fell from 86.0% in 1992 to 77.9% in 2003 (a share unlikely to be much different in 2005, given the stability of shared costs for single and family coverage). This shift in cost-sharing caused employees to pay the equivalent of \$0.25 more per hour worked in 2005 than if employers had maintained their 86.0% share of premium costs (the \$0.25 figure is calculated using the employer cost of \$1.76 per hour from Table 3.11, which implies a total employee and employer cost of \$2.26). The total cost in 1992, adjusted for overall inflation, was \$1.76, with an employer share of \$1.52. Thus, total insurance costs increased \$0.50 per hour worked from 1992 to 2005, and half of the increase was paid by employers and half by employees. If employee cost-sharing had held to its 1992 rate, then employees would have paid \$0.18 less and employers would have paid \$0.18 more per hour worked. This shift onto employees for basic premium costs does not count any of the higher deductibles or co-pays paid by employees that have occurred in this time period.

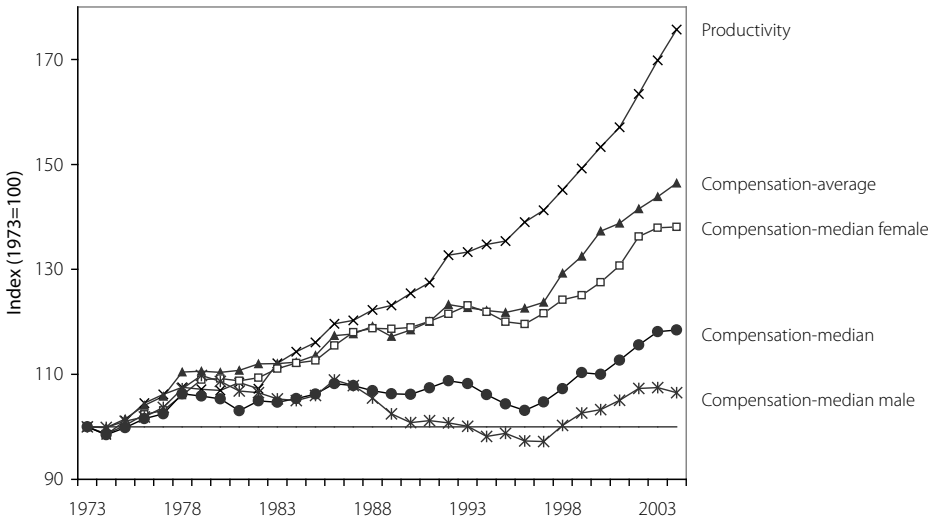
Inequalities in the coverage and quality of employer-provided health

insurance are illustrated in **Table 3.14**, which shows participation and costs in private sector employment for workers according to their wage “fourth.” Only 19% of workers with the lowest wages participated in their employers’ health insurance plan, far less than the 72% participation rate of the highest-wage workers. This difference in participation helps explain why employer costs for health insurance are much higher per hour for the highest-wage workers (\$2.28) and the upper-middle fourth (\$1.49) than for the lowest-wage workers, for whom employers spend just \$0.29 per hour. Differences in participation are not the only reason for this inequality in health care costs. The last column shows that employers spend twice as much per participant for the highest-wage workers (\$3.18) than for the lowest-wage workers (\$1.54). The gap reflects differences in the quality of insurance coverage and the degree to which employees must share premium costs.

Pension plan coverage (**Table 3.15**) declined as quickly as health care coverage in the 1980s: it dropped from 50.6% in 1979 to 43.7% in 1989. This decline is one of the reasons for the lessening of pension costs for employers over that period. In the 1989-95 period, however, pension coverage expanded slightly to 45.8%, and by 2000 coverage had grown to 48.3%, just 2.3% shy of 1979’s level. Pension coverage receded, however, in the 2000-04 period (the latest data), down to 45.5%, 5.1 percentage points less than in 1979. This means that less than half the workforce is covered by employer-provided pensions.

Over the entire 1979-2004 period, pension coverage declined primarily among men, from 56.9% to 46.4%. Women’s pension coverage, on the other hand, rose slightly, from 41.3% to 44.3%. Pension coverage eroded in the 1980s and then again between 2000 and 2004 for both men and women. By 2004, women workers were slightly less likely (44.3% versus 46.4%) than men to be covered by an employer’s pension plan. Both black and white workers saw pension coverage erode in the 1980s, but Hispanics experienced a large decline—an 11.9 percentage-point drop from 1979 to 1989. In the late 1990s, however, whites expanded their pension coverage and attained a level of 53.7%, 1.5 percentage points above the 1979 level of 52.2%. Hispanics also increased their share in the 1990s but still had coverage—27.5% in 2000—far below the 1979 level. Black workers saw only a modest 0.7 percentage-point increase in coverage in the 1990s. Surprisingly, black workers saw pension coverage erode during the late 1990s recovery. Over the entire 1979-2004 period pension coverage eroded dramatically among all racial/ethnic groups: down 1.5 percentage points among whites, 3.6 percentage points among blacks, and 13.1 percentage points among Hispanics.

FIGURE 3N Productivity and hourly compensation growth, 1973-2004



Source: Authors' analysis of NIPA, CPS ORG, and BLS productivity data.

The pattern of decline in pension coverage by wage level shows coverage dropping relatively evenly across wage groups in the 1980s and broadening across the board in the 1990s, with coverage expanding the most in the middle. Coverage declined across each wage fifth during the 1980s, between 2000 and 2004, and over the entire 1979-2004 period. Lower-wage workers are very unlikely to have jobs with employer-provided pension plans (14.3% were covered in 2004), and less than half of middle-wage workers have pension coverage. It should be noted that there was little coverage for low-wage workers to lose—just 18.4% for the lowest fifth and 36.8% for the second-lowest fifth in 1979. In 2004, the highest-wage workers were nearly five times as likely to have pension coverage as the lowest-wage workers (71.8% versus 14.3%). Changes in pension coverage by education show a growing inequality: over the 1979-2004 period pension coverage fell 11.0 percentage points among high school graduates but only 0.3 percentage points among college graduates. However, each educational group, both high school and college, had declines in health care coverage in the 2000-04 period.

The widening coverage of employer-provided pension plans in the 1990s was most likely due to the expansion of 401(k) and other defined-contri-

bution pension plans. These plans differ from defined-benefit plans, which are generally considered the best plans from a workers' perspective because they guarantee a fixed payment in retirement based on pre-retirement wages and years of service regardless of stock market performance. Yet, as shown in **Figure 3I**, a larger share of workers are now covered by defined-contribution plans, in which employers make contributions (to which employees often can add) each year. With this type of plan, a worker's retirement income depends on his or her success in investing these funds, and investment risks are borne by the employee rather than the employer. Therefore, the shift from traditional defined-benefit plans to defined-contribution plans represents an erosion of pension quality. Chapter 5 provides further discussion of pensions and retirement assets and income.

Explaining wage inequality

In this section we shift the discussion from a descriptive presentation of wage and benefit trends overall and for sub-groups to an examination of explanations for the pattern of recent wage growth. It is important to understand the average performance of wage growth and why particular groups fared well or poorly compared to others.

The data presented up to this point have shown the stagnation of wages and overall compensation between 1973 and 1995 and strong wage growth in the late 1990s. The momentum of the strong wage growth from the latter 1990s carried into the first few years of the early 2000s recession and prolonged labor slump, with wages starting to falter in 2002. **Table 3.16** presents indicators of a variety of dimensions (excluding race and gender differentials, discussed below) of the wage structure that have grown more unequal over the 1973-2005 period. Any explanation of growing wage inequality must be able to explain the movement of these indicators. (These inequality indicators are computed from our analysis of the Current Population Survey (CPS) outgoing rotation group (ORG) data series. These trends, however, parallel those in the other major data series, the March CPS.)

The top section of Table 3.16 shows the trends, by gender, in the 90/10 wage differential and its two components, the 90/50 and 50/10 wage differential (whose annual values are shown in **Figures 3J** and **3K**), over the 1973-2005 period. These differentials reflect the growth in overall wage inequality. The 90/10 wage gap, for instance, shows the degree to which 90th percentile workers—"high-wage" workers who earn more than 90% but less than 10% of the workforce—fared better than "low-wage" workers, who earn at the 10th percentile.

The 90/50 wage gap shows how high earners fared relative to middle earners, and the 50/10 wage gap shows how middle earners fared relative to low earners.

Wage inequalities have been growing continuously since 1979, although the pattern differs across time periods. For instance, among both men and women the shape of growing inequality differed in the 1980s (through about 1987-88) and thereafter. Over the 1979-89 period (as we saw above in the analysis of wage deciles in Tables 3.4 through 3.6), there was a dramatic across-the-board widening of the wage structure, with the top pulling away from the middle and the middle pulling away from the bottom. In the late 1980s, however, the wage inequality in the bottom half of the wage structure, as reflected in the 50/10 differential, began shrinking and continued to shrink through 1999, then stabilized and then fell a bit among men but rose a bit among women. On the other hand, the 90/50 differential continued to widen in the 1980s and 1990s and through to 2005 (except the last year for men). This widening of the wage gap at the top is even stronger in the 95/50 differential, shown **Figure 3L**. (The 95th percentile is the highest wage we feel can be tracked in our data with technical precision. We use other data in a later section to track the growing wage gap between the very highest earners and other workers). These disparate trends between high- versus middle-wage growth and middle- versus low-wage growth should motivate explanations that focus on how causal factors affect particular portions of the wage structure—top, middle, or bottom—rather than on how causal factors affect inequality generally.

The trends in the later years, 2000-05, may signal a return to the 1980s pattern of an across-the-board widening of wage inequality. The 50/10 wage gap started growing again among women after 1999, which corresponds to the earlier pattern—rising inequality at the top and the bottom of the wage distribution. However, among men there was falling inequality at the bottom (50/10 ratio). At the top, the wage gap (95/50 or 90/50) spiked upward sharply among men and grew moderately among women (especially the 95/50 ratio). Overall wage inequality, measured by the 90/10 ratio, grew among men and women over the 2000-05 period at about the same pace as in the 1990s for men and at an even greater pace than in the 1990s among women.

Among men, wage inequality grew dramatically at the top and bottom in the 1979-89 period, and the growth in the 90/50 differential continued as quickly through the 1989-2000 period (Table 3.16 and Figure 3J). Specifically, the 90/50 wage gap grew roughly 10 (log) percentage points in both periods. As discussed above, the character of this growing male wage inequality shifted in

TABLE 3.17 Real hourly wage for all by education, 1973-2005 (2005 dollars)

Year	Less than high school	High school	Some college	College	Advanced degree
Hourly wage					
1973	\$12.56	\$14.39	\$15.50	\$21.00	\$25.38
1979	12.82	14.38	15.38	20.17	24.62
1989	11.02	13.43	15.08	21.15	27.26
1995	9.97	13.18	14.75	21.88	28.87
2000	10.36	13.94	15.85	24.35	30.79
2005	10.53	14.14	15.89	24.67	31.49
Annualized percentage change					
1973-79	0.3%	0.0%	-0.1%	-0.7%	-0.5%
1979-89	-1.5	-0.7	-0.2	0.5	1.0
1989-2000	-0.6	0.3	0.5	1.3	1.1
1989-95	-1.6	-0.3	-0.4	0.6	1.0
1995-2000	0.8	1.1	1.5	2.2	1.3
1979-2000	-1.0	-0.1	0.1	0.9	1.1
2000-05	0.3	0.3	0.0	0.3	0.5
Share of employment					
1973	28.5%	38.3%	18.5%	10.1%	4.5%
1979	20.1	38.5	22.8	12.7	6.0
1989	13.7	36.9	26.0	15.6	7.9
2000	11.1	31.8	29.6	18.8	8.8
2005	10.4	30.1	29.9	19.8	9.8

Source: Authors' analysis of CPS ORG.

the most recent period. In the 1980s the separation between both the top and the middle and the middle and the bottom grew (seen in the 50/10 differential). However, in the 1989-2000 period, all of the growing wage inequality was generated by a divergence between the top and everyone else: the 90/50 differential grew while the 50/10 differential actually fell. The drop in the 50/10 wage gap among men actually began in 1986 (Figure 3J). After 2000, the 90/50 wage gap continued to grow, and the 50/10 wage gap declined slightly.

Among women, the wage inequality trends across time periods correspond to those of men. The 90/10 ratio dropped significantly between 1973 and the late 1970s, primarily because of the strong equalization in the 50/10 wage gap. In the 1980s, however, the 50/10 wage gap grew tremendously (up 21.9 percentage points), reversing the 1970s compression and increasing the gap an-

TABLE 3.18 Real hourly wage for men by education, 1973-2005 (2005 dollars)

Year	Less than high school	High school	Some college	College	Advanced degree
Hourly wage					
1973	\$14.68	\$17.41	\$17.79	\$24.01	\$26.67
1979	14.79	17.33	18.03	23.56	26.80
1989	12.49	15.59	17.19	24.25	30.15
1995	10.98	14.88	16.60	24.61	32.01
2000	11.38	15.74	17.95	27.64	34.54
2005	11.48	15.65	17.76	28.06	35.67
Annualized percentage change					
1973-79	0.1%	-0.1%	0.2%	-0.3%	0.1%
1979-89	-1.7	-1.1	-0.5	0.3	1.2
1989-2000	-0.8	0.1	0.4	1.2	1.2
1989-95	-2.1	-0.8	-0.6	0.2	1.0
1995-2000	0.7	1.1	1.6	2.4	1.5
1979-2000	-1.2	-0.5	0.0	0.8	1.2
2000-05	0.2	-0.1	-0.2	0.3	0.6
Share of employment					
1973	30.6%	34.4%	19.2%	10.3%	5.4%
1979	22.3	35.0	22.4	13.2	7.1
1989	15.9	35.2	24.4	15.7	8.8
2000	13.1	32.0	27.5	18.4	9.1
2005	12.6	31.4	27.4	18.9	9.6

Source: Authors' analysis of CPS ORG.

other 8 percentage points over 1973. One conclusion that can be reached about women's wage inequality is that it has been driven much more by what happened at the bottom—the 10th percentile—than was the change for men. This is likely due to the importance of the legal minimum wage to low-wage women, as we will discuss in a later section. Among women, the growth of the 90/50 differential was comparable to that of men in the 1980s but somewhat less in the 1990s. As with men, the 50/10 wage gap declined in the 1990s (Figure 3K shows the drop starting in about 1987). As mentioned above, the wage gap at the bottom among women started rising again after 1999.

The 95/50 wage gap among women followed approximately the same track as for men (Figure 3L). Wage inequality between the very top earners and those in the middle has been growing strongly, and steadily, since about 1980,

TABLE 3.19 Real hourly wage for women by education, 1973-2005 (2005 dollars)

Year	Less than high school	High school	Some college	College	Advanced degree
Hourly wage					
1973	\$8.85	\$10.96	\$11.84	\$16.40	\$21.72
1979	9.49	11.25	12.09	15.30	19.60
1989	8.67	11.21	12.99	17.57	22.90
1995	8.37	11.33	12.98	18.88	24.85
2000	8.73	11.96	13.88	20.90	26.36
2005	8.88	12.34	14.18	21.30	27.08
Annualized percentage change					
1973-79	1.2%	0.4%	0.3%	-1.1%	-1.7%
1979-89	-0.9	0.0	0.7	1.4	1.6
1989-2000	0.1	0.6	0.6	1.6	1.3
1989-95	-0.6	0.2	0.0	1.2	1.4
1995-2000	0.9	1.1	1.3	2.0	1.2
1979-2000	-0.4	0.3	0.7	1.5	1.4
2000-2005	0.3	0.6	0.4	0.4	0.5
Share of employment					
1973	25.6%	44.0%	17.5%	9.9%	3.1%
1979	17.2	43.0	23.4	12.0	4.4
1989	11.2	38.8	27.8	15.4	6.8
2000	8.9	31.7	31.9	19.2	8.4
2005	7.9	28.7	32.6	20.8	9.9

Source: Authors' analysis of CPS ORG.

confirming the continuous widening of wages at the top over the last two decades. The only exception is the flattening of the 95/50 gap among women since 1999.

Analysts decompose, or break down, growing wage inequality into two types of inequality—"between group" and "within group." The former is illustrated in Table 3.16 in two ways: the growing wage differentials between groups of workers defined either by their education levels or by their labor market experience. The most frequently discussed differential is the "college wage premium"—the wage gap between college and high school graduates—which fell in the 1970s among both men and women but exploded in the 1980s, growing about 14 percentage points for each. Growth then slowed after 1989. The pattern of growth of this key education differential in the 1990s, however, differed

TABLE 3.20 Educational attainment of workforce employment, 2005

Highest degree attained	Percent of employment				
	Men	Women	All	Natives only	Immigrants only
Less than high school	12.6%	7.9%	10.4%	6.8%	30.1%
High school/GED	31.4	28.7	30.1	31.0	25.2
Some college	18.8	21.5	20.1	21.7	11.3
Assoc. college	8.6	11.1	9.8	10.6	5.7
College B.A.	18.9	20.8	19.8	20.3	17.2
Advanced degree*	9.6	9.9	9.8	9.6	10.6
Total	100.0	100.0	100.0	100.0	100.0
<i>Memo</i>					
High school or less	44.0%	36.6%	40.5%	37.8%	55.3%
Less than B.A. degree	71.5	69.3	70.4	70.1	72.3
College B.A. or more	28.5	30.7	29.6	29.9	27.7
Advanced degree*	9.6	9.9	9.8	9.6	10.6

* Includes law degrees, Ph.D.s, M.B.A.s, and similar degrees.

Source: Authors' analysis of CPS ORG.

between men and women (see **Figure 3M**). Among men there was only modest growth in the education premium in the early 1990s—year-by-year trends (discussed below) show it to be relatively flat between 1987 and 1996—but it grew strongly thereafter. Thus, the 1990s growth in the male education premium primarily occurred in the last few years. Among women, however, the college wage premium grew steadily but modestly in the early 1990s and then evened out starting around 1995. The college wage premium declined a bit in the early 2000s before perking up in 2005.

Table 3.16 also presents the trends in another education differential—between those completing high school and those without high school degrees; this differential would be expected to affect the wage distribution in the bottom half, as about 10% of the workforce has less than a high school education, and high school graduates make up about a third of the workforce (see discussion of Tables 3.17 through 3.19). In 1973 as in 2005, those with a high school degree earned about 25% more than those without a degree. One reason for the stability of this differential is that, even as having a high school degree was becoming more valuable, the share of workers without a high school degree dramatically declined. This wage differential has been fairly

stable among men over the last 30 years, suggesting that education differentials have not been a driving force behind the changes in the 50/10 wage gap (up in the 1980s and declining thereafter). Among women, the wage gap between middle- and low-wage workers is far higher in 2005 than in 1973, yet the high school/less than high school differential is roughly the same. This suggests that changing wage differentials at the bottom among women have had only a weak relationship to changing education differentials.

Experience, or age, is another way of categorizing “skill.” The growth of experience differentials reflects the wage gap between older and middle-age and younger workers. The wage gap between middle-age and younger workers grew in the 1980s but not in the 1990s, particularly because the 1995-2000 wage boom, characterized by relatively faster wage growth among younger workers, markedly reduced this differential. The wage gap between older and middle-age women workers grew over the 1973-95 period and was relatively flat thereafter; it grew as well for men until 1995, and then declined by 2000 and was flat in the early 2000s.

Within-group wage inequality—wage dispersion among workers with comparable education and experience—has been a major dimension of growing wage inequality. Unfortunately, most discussions of wage inequality focus exclusively on the between-group dimensions of wage inequality discussed above, even though within-group wage inequality is by far the most important dimension of wage inequality’s growth. The growth of within-group wage inequality is presented in the last section of Table 3.16, with changes measured in percent. These data show that within-group inequality grew slightly among men in the 1970s and 1990s but grew strongly, by 9.0%, over the 1980s. Among women, within-group inequality fell in the 1970s, grew by 11.4% in the 1980s, and then grew a modest 2.4% in the 1990s. However, within-group wage inequality fell among women in the 1995-2000 period, while rising slightly among men. Growth in within-group wage inequality returned in the 2000-05 period among both men and women; it grew as much in five years as it had over the 11 years from 1989 to 2000.

This measure of within-group wage inequality is a “summary measure” describing changes across the entire wage distribution. Unfortunately, such a measure does not help us understand changes in particular measures of wage inequality, such as the 90/50 and 50/10 differentials presented in Table 3.16. This shortcoming is particularly troublesome for an analysis of the 1989-2000 period in which inequalities were expanding at the top (i.e., the 90/50) but shrinking at the bottom (i.e., the 50/10). A summary measure of inequality by definition reflects the net effect of the two disparate shifts in wage inequality in the 1990s,

TABLE 3.21 Hourly wages of entry-level and experienced workers by education, 1973-2005 (2005 dollars)

Education/experience	Hourly wage						Percent change				
	1973	1979	1989	1995	2000	2005	1973-79	1979-89	1989-2000	1995-2000	2000-05
High school											
<i>Men</i>											
Entry*	\$13.39	\$13.50	\$10.93	\$10.15	\$11.10	\$10.93	0.8%	-19.0%	1.5%	9.3%	-1.5%
34-40	19.14	19.32	16.91	16.22	16.88	16.77	1.0	-12.5	-0.2	4.1	-0.6
49-55	20.17	20.61	19.07	18.32	18.13	18.22	2.2	-7.5	-4.9	-1.0	0.5
<i>Women</i>											
Entry*	\$9.81	\$9.98	\$8.95	\$8.65	\$9.49	\$9.08	1.7%	-10.3%	6.1%	9.8%	-4.3%
34-40	11.26	11.65	11.73	11.87	12.59	12.62	3.5	0.6	7.3	6.1	0.3
49-55	11.73	11.99	12.34	12.44	13.23	13.92	2.2	2.9	7.2	6.3	5.2
College											
<i>Men</i>											
Entry**	\$17.76	\$17.79	\$18.29	\$16.97	\$20.51	\$19.72	0.2%	2.8%	12.1%	20.9%	-3.9%
34-40	28.66	27.64	27.06	27.74	30.72	31.44	-3.6	-2.1	13.5	10.8	2.3
49-55	29.54	30.64	30.43	30.75	31.64	30.70	3.7	-0.7	4.0	2.9	-3.0
<i>Women</i>											
Entry**	\$14.88	\$14.07	\$15.92	\$15.59	\$17.41	\$17.08	-5.5%	13.2%	9.3%	11.7%	-1.9%
34-40	17.75	16.13	18.39	20.73	22.63	23.75	-9.2	14.0	23.1	9.2	4.9
49-55	16.94	16.32	17.85	20.91	21.83	21.95	-3.7	9.4	22.3	4.4	0.6

* Entry-level wage measured as wage of those from 19 to 25 years of age.

** Entry-level wage measured as wage of those from 23 to 29 years of age.

Source: Authors' analysis of CPS ORG.

FIGURE 30 Entry-level wages of male and female high school graduates, 1973-2005

Source: Authors' analysis of CPS ORG.

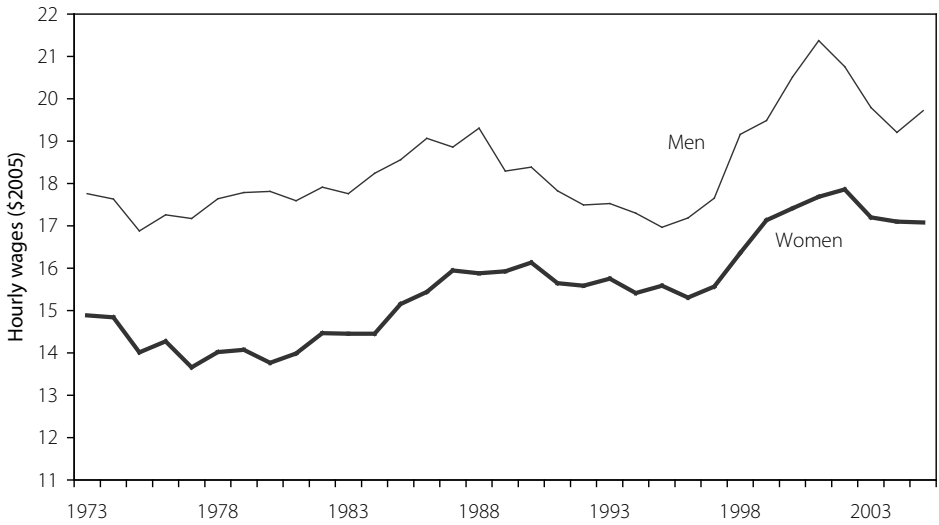
and explains the small change of within-group wage inequality from 1989 to 2000.

Since changes in within-group wage inequality have been a significant factor in various periods, it is important to be able to explain and interpret these trends. In a later section, we show that about half of the growth of wage inequality since 1979 has been from growing within-group wage inequality. Unfortunately, the interpretation of growing wage inequality among workers with similar “human capital” has not been the subject of much research. Some analysts suggest it reflects growing premiums for skills that are not captured by traditional human capital measures available in government surveys. Others suggest that changing “wage norms,” employer practices, and institutions are responsible.

We now turn to a more detailed examination of between-group wage differentials such as education, experience, and race/ethnicity as well as an examination of within-group wage inequality.

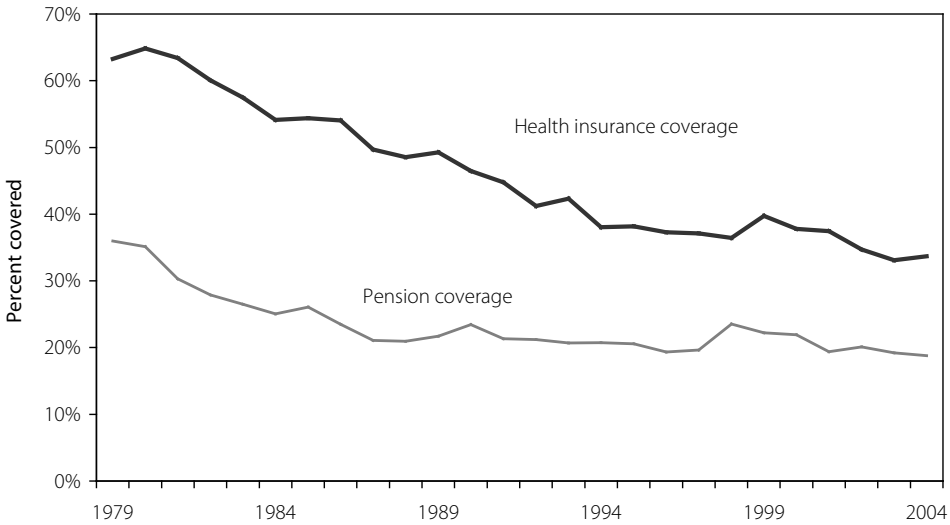
Productivity and the compensation/productivity gap

FIGURE 3P Entry-level wages of male and female college graduates, 1973-2005

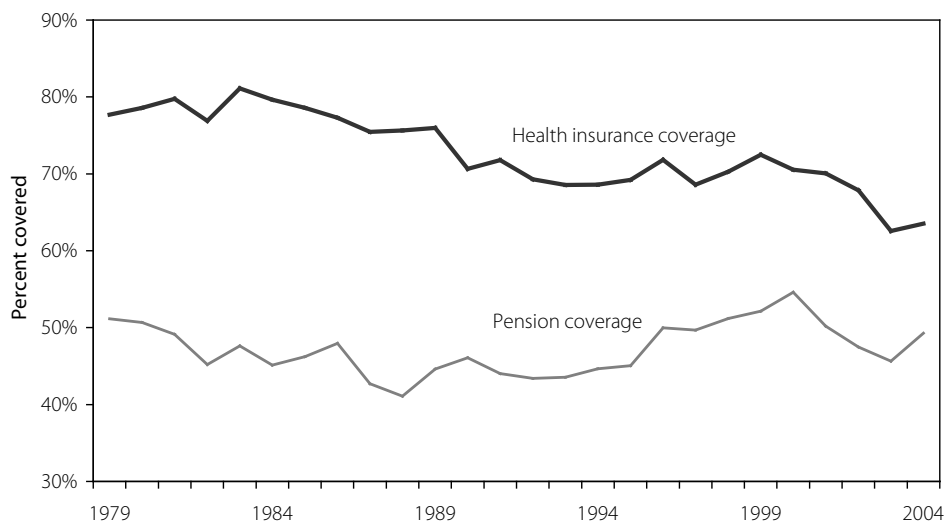


Source: Authors' analysis of CPS ORG.

FIGURE 3Q Health and pension coverage for recent high school graduates, 1979-2004



Source: Authors' analysis of March CPS.

FIGURE 3R Health and pension coverage for recent college graduates, 1979-2004

Source: Authors' analysis of March CPS.

Productivity growth, which is the growth of the output of goods and services per hour worked, provides the basis for the growth of living standards. However, for the vast majority productivity growth actually provides only the *potential* for rising living standards: recent history, especially since 2000, has shown that wages, compensation, and income growth for the typical worker or family have lagged tremendously behind the nation's fast productivity growth. In contrast, between 1995 and 2000 wage growth accelerated along with productivity growth. It seems important, therefore, to understand why productivity growth was better shared in the late 1990s than in the years since.

The relationship between hourly productivity and hourly compensation growth is portrayed in **Figure 3N**, which shows the growth of each relative to 1973 (i.e., each is indexed so that 1973 equals 100). As the figure illustrates, productivity grew 81% from 1973 to 2005, enough to generate large advances in living standards and wages if productivity gains were broadly shared. As Figures 3A and 3B showed at the start of this chapter, huge differences emerged between productivity and wages or compensation in the 2000-05 period.

There are two important gaps displayed in Figure 3N. First, the growth

in average compensation—which includes the pay of CEOs and day laborers alike—lagged behind productivity growth. Second, median hourly compensation grew far less than average compensation, reflecting growing wage and benefit inequality. Thus, there have been two wedges between the typical or median worker’s compensation and overall productivity growth: one is that workers, on average, have not seen their pay keep up with productivity (partly reflecting the shift from wage to capital income described in Chapter 1), and the other is that median workers have not enjoyed growth in compensation as fast as higher-wage workers, especially the very highest paid (as explored in a later section). This wedge reflects growing wage and benefit inequality.

There are several possible interpretations of the gap between average compensation and productivity. A benign explanation is that prices for national output have grown more slowly than prices for consumer purchases. Therefore, the same growth in nominal, or current dollar, wages and output yields faster growth in real (inflation-adjusted) output (which is adjusted for changes in the prices of investment goods, exports, and consumer purchases) than in real wages (which is adjusted for changes in consumer purchases only). That is, workers have suffered worsening “terms of trade,” in which the prices of things they buy (i.e., consumer goods) have risen faster than the items they produce (consumer goods but also capital goods). Thus, if workers consumed microprocessors and machine tools as well as groceries, their real wage growth would have been better and in line with productivity growth.

This terms-of-trade scenario is actually more of a description than an explanation. A growing gap between output and consumer prices has not been a persistent characteristic of the U.S. economy or other economies, and the emergence of this gap requires an exploration of what economic forces are driving it. Once the causes of the price gap are known (not simply accounted for), it can be interpreted. In the meantime, there are two ways to look at the divergence of compensation and productivity created by the terms-of-trade shift of prices. One is to note that, regardless of cause, the implication is that the “average” worker is not benefiting fully from productivity growth. Another is to note that the price divergence does not simply or solely reflect a shift in income from labor to capital; the gap between compensation and productivity growth reflects, at least in part, differences in price trends rather than a larger share of productivity growth going to capital incomes.

A cursory look at the data gives a sense of the relative contribution of the two components of the productivity-compensation gap, the price divergence and

TABLE 3.22 Hourly wages by decile within education groups, 1973-2005 (2005 dollars)

Education/ gender decile	Hourly wage						Percent change				
	1973	1979	1989	1995	2000	2005	1973-79	1979-89	1989-2000	2000-05	1973-2005
High school											
<i>Men</i>											
Low*	\$8.89	\$8.45	\$7.31	\$7.10	\$7.75	\$7.76	-5.0%	-13.5%	6.1%	0.1%	-12.7%
Median	16.03	16.11	14.19	13.09	13.77	13.82	0.5	-11.9	-3.0	0.4	-13.8
High	26.19	26.30	25.01	24.07	25.22	25.21	0.4	-4.9	0.8	-0.1	-3.8
<i>Women</i>											
Low	\$6.02	\$7.05	\$5.80	\$6.05	\$6.64	\$6.58	17.0%	-17.7%	14.4%	-0.9%	9.2%
Median	9.95	9.97	10.03	9.89	10.58	10.69	0.2	0.6	5.4	1.1	7.4
High	16.47	17.03	18.08	18.26	18.99	19.78	3.4	6.2	5.0	4.2	20.1
College											
<i>Men</i>											
Low	\$10.98	\$10.90	\$10.36	\$9.90	\$11.30	\$10.62	-0.7%	-5.0%	9.1%	-6.0%	-3.2%
Median	20.61	20.55	21.48	21.21	23.37	23.24	-0.3	4.5	8.8	-0.6	12.8
High	38.43	37.75	38.94	41.43	45.31	48.01	-1.8	3.2	16.3	6.0	24.9
<i>Women</i>											
Low	\$8.44	\$7.83	\$8.17	\$8.34	\$9.24	\$9.39	-7.2%	4.3%	13.1%	1.6%	11.2%
Median	14.58	13.60	15.79	16.79	18.17	18.35	-6.8	16.1	15.1	0.9	25.8
High	23.04	23.11	27.50	31.15	34.84	35.93	0.3	19.0	26.7	3.1	55.9

* Low, median, and high earners refer to, respectively, the 10th, 50th, and 90th percentile wage.

Source: Authors' analysis of CPS ORG.

TABLE 3.23 Decomposition of total and within-group wage inequality, 1973-2005

Year	Women				Men			
	Overall wage inequality* (1)	Between-group inequality** (2)	Within-group inequality*** (3)	Contribution of within-group inequality (3)/(1)	Overall wage inequality* (1)	Between-group inequality** (2)	Within-group inequality*** (3)	Contribution of within-group inequality (3)/(1)
1973	0.478	0.061	0.418		0.506	0.083	0.423	
1979	0.446	0.044	0.402		0.506	0.078	0.428	
1989	0.529	0.082	0.447		0.579	0.112	0.467	
1995	0.562	0.095	0.467		0.595	0.118	0.478	
2000	0.552	0.094	0.458		0.595	0.114	0.481	
2005	0.578	0.101	0.476		0.614	0.121	0.493	
<i>Change</i>								
1973-79	-0.033	-0.017	-0.016	49.1%	0.000	-0.005	0.006	n.a.****
1979-89	0.083	0.038	0.046	54.7	0.073	0.034	0.038	52.8%
1989-2000	0.023	0.012	0.011	46.6	0.016	0.002	0.014	86.3
1989-95	0.033	0.013	0.019	59.5	0.016	0.006	0.011	65.5
1995-2000	-0.009	-0.001	-0.009	91.8	0.000	-0.003	0.003	n.a.****
2000-05	0.026	0.007	0.018	72.1	0.019	0.007	0.012	63.7
1979-2005	0.132	0.057	0.075	56.7	0.108	0.043	0.064	59.8
1973-2005	0.099	0.041	0.059	59.2	0.108	0.038	0.070	64.9

* Measured as standard deviation of log wages.

** Reflects changes in education, experience, race/ethnicity, marital status, and regional differentials.

*** Measured as mean square error from a standard (log) wage regression.

**** Not applicable because denominator is zero or too small.

Source: Authors' analysis of CPS ORG.

the shift in “factor incomes” (capital’s profits and labor’s compensation). The gap between productivity and average hourly compensation over the 1979–2005 period was 0.9%, of which divergent price trends (gross domestic product or “output prices” versus consumer prices) could explain roughly 43%. This time period, however, includes some different dynamics in certain sub-periods, particularly over the last 10 years. From 1995 to 2000 productivity grew just slightly faster than real hourly compensation, 2.5% versus 2.4% annually. In this period the divergence between output price inflation and consumer inflation more than explains the divergence, indicating that, in this boom period compensation growth exceeded the growth of profitability. However, in the most recent five year period, 2000–05, productivity grew twice as fast as real hourly compensation, 3.30% versus 1.65%, reflecting a productivity-compensation gap growing 1.65% each year. In this period, price divergence can explain only 13% of the growth of the productivity-compensation gap, suggesting that the rapidly widening gap in recent years reflects a giant-scale shift from wages to profits. Over the entire period from 1979 to 2005 roughly 44% of the growth in the productivity-compensation gap can be explained by the relatively faster inflation in consumer purchases than in the inflation of overall output.

The issue of whether the growth in rates of profit (defined broadly as profits and interest per dollar of assets) has meant that wages have grown less than they would have otherwise was examined directly in Chapter 1. There, we saw that the share of income going to capital has grown significantly, and the trend was driven by a large increase in “profitability,” or the return to capital per dollar of plant and equipment. This growth has been especially strong since 2000. Labor’s share of corporate-sector income has dropped correspondingly, thus providing evidence of a redistribution of wages to capital incomes. Specifically, capital’s share of corporate income in 2005, at 20.9%, was the highest in nearly 40 years. Had the capital share of income stayed at the level of 1979, 17.9%, then compensation could have been 3.7% greater. The rise in profitability (pre-tax profits per dollar of assets) had an even larger impact: if the pre-tax return to capital in 2005 (11.9%) had been at the 1979 level (9.6%), then hourly compensation would have been 5% higher in the corporate sector, equivalent to reversing an annual transfer of \$235 billion from labor to capital (measured for 2005). The shift that has occurred in income from labor to capital has been large when compared to the size of the loss of wages for the typical worker due to factors such as the shift to services, globalization, the drop in union representation, or any of the other prominent causes of growing wage inequality discussed in this chapter.

TABLE 3.24 Hourly wage growth by gender, race/ethnicity, 1989-2005 (2005 dollars)

Demographic group	Hourly wage				Percent change			
	1989	1995	2000	2005	1989-2000	1989-95	1995-2000	2000-05
Men								
<i>Medians</i>								
White	\$16.51	\$15.88	\$17.28	\$17.42	4.7%	-3.8%	8.8%	0.8%
Black	11.94	11.61	12.64	12.48	5.8	-2.8	8.9	-1.3
Hispanic	11.10	10.12	11.09	11.14	-0.1	-8.9	9.6	0.5
Asian	15.42	15.29	17.18	18.49	11.4	-0.9	12.4	7.6
<i>By education</i>								
<i>High school*</i>								
White	\$16.21	\$15.56	\$16.66	\$16.64	2.8%	-4.0%	7.1%	-0.1%
Black	12.95	12.45	13.34	13.22	3.0	-3.9	7.2	-0.9
Hispanic	13.43	12.84	13.32	13.61	-0.9	-4.4	3.7	2.2
Asian	14.18	13.85	14.73	14.36	3.9	-2.3	6.4	-2.5
Women								
<i>Medians</i>								
White	\$11.56	\$11.84	\$12.96	\$13.78	12.1%	2.4%	9.5%	6.4%
Black	10.30	10.18	11.33	11.22	10.0	-1.1	11.2	-0.9
Hispanic	9.19	9.00	9.58	9.99	4.2	-2.0	6.4	4.3
Asian	11.96	12.18	13.81	14.49	15.4	1.8	13.4	4.9
<i>By education</i>								
<i>High school*</i>								
White	\$11.38	\$11.57	\$12.24	\$12.78	7.6%	1.6%	5.8%	4.3%
Black	10.50	10.45	11.25	11.38	7.1	-0.5	7.7	1.2
Hispanic	10.56	10.64	11.07	11.30	4.8	0.8	4.0	2.1
Asian	10.83	10.96	11.78	12.00	8.7	1.1	7.5	1.9

* Average wage

Source: Authors' analysis of CPS ORG.

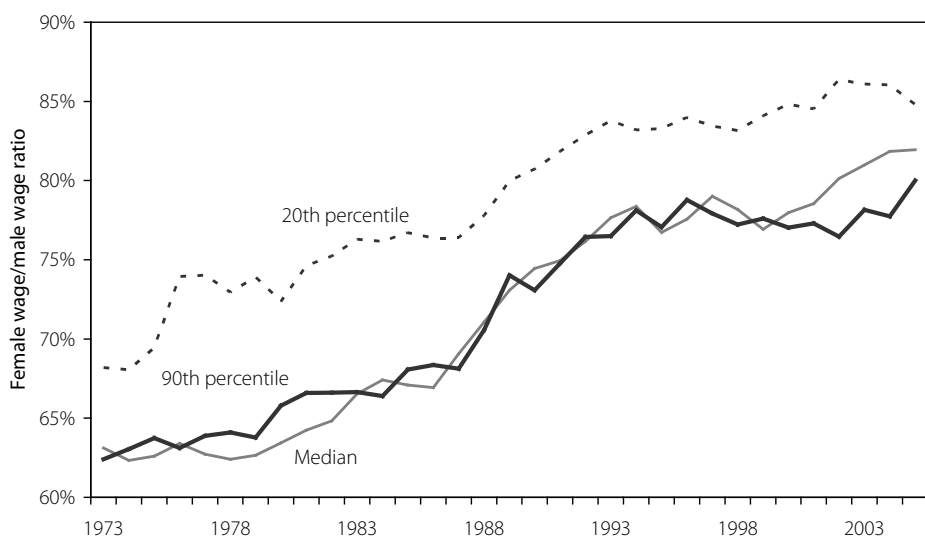
Rising education/wage differentials

Changes in the economic returns to education affect the structure of wages by changing the wage gaps between different educational groups. The growth in “education/wage differentials” led to greater wage inequality in the 1980s and 1990s (see Table 3.16 and Figure 3M) and helps explain the relatively faster wage growth among high-wage workers. This section examines wage trends among

TABLE 3.25 The gender wage ratio, 1973-2005 (2005 dollars)

	Median wage		Ratio: Women/Men
	Women	Men	
1973	\$9.95	\$15.76	63.1%
1979	10.35	16.51	62.7
1989	11.22	15.35	73.1
1995	11.35	14.79	76.7
2000	12.32	15.81	78.0
2005	12.82	15.64	82.0

Source: Authors' analysis of CPS ORG.

FIGURE 35 Gender wage ratio by percentile, 1973-2005

Source: Authors' analysis of CPS ORG.

workers at different levels of education and begins the discussion, carried on through the remainder of the chapter, of the causes of rising education/wage differentials and of overall wage inequality.

Table 3.17 presents the wage trends and employment shares (percentage of the workforce) for workers at various education levels over the 1973-2005

period. It is common to point out that the wages of “more-educated” workers have grown faster than the wages of “less-educated” workers since 1979, with the real wages of less-educated workers falling sharply (or rising more slowly in the 1995-2000 period). This pattern of wage growth is frequently described in terms of a rising differential, or “premium,” between the wages of the college-educated and high-school-educated workforces (as shown earlier in Table 3.16).

The frequent categorizing of workers as either “less educated” (those who are faring relatively poorly) or “more educated” (those faring relatively better) is potentially misleading. As we will show shortly, in some periods the better-educated workers do not fare so well. Moreover, the group labeled “less educated” actually comprises about 70-75% of the workforce and has skills and education that exceed those of most workers in the world. Only about 10% of the U.S. workforce, age 18-64, does not have a high school or equivalent degree. Last, it is notable that the “college-educated” group consists of two groups: one with just four years of college, and another more-educated (“advanced degree”) group; the wage trends for these two groups have frequently diverged so it makes sense to treat them separately.

Over the entire 1979-2005 period the simple story is that wages rose more the greater the education level of the group. This trend played out differently in various time periods. From 1979 to 1995 the wages of those with less than a college degree actually declined while those of college-educated workers rose modestly (Table 3.17). In the most recent period, 2000-05, wages grew a modest 0.3% annually for college-educated workers and for those with a high school degree or less. Those with “some college” saw no rise in wages (though the 0.3% annual wage growth of other workers can also be described as relatively stagnant). In contrast, wages grew rapidly for each education group from 1995 to 2000. One interesting pattern to note is that those with advanced degrees (master’s degrees, professional degrees in law, medicine, and so on) sometimes saw their wages grow faster than those with just a college degree (1979-89, 1989-95) but sometimes saw lower wage growth (1995-2000) and sometimes comparable growth (2000-05).

The increased wage differential between college-educated and other workers is frequently ascribed to a relative increase in employer demand for workers with greater skills and education. This interpretation follows from the fact that the wages of college-educated workers increased relative to others despite an increase in their relative supply, from 12.7% of the workforce in 1979 to 19.8% in 2005. That is, given the increased supply of college-educated workers, the fact that their relative wages went up implies a strong growth in employer de-

TABLE 3.26 Impact of rising and falling unemployment on wage levels and wage ratios, 1979-2000

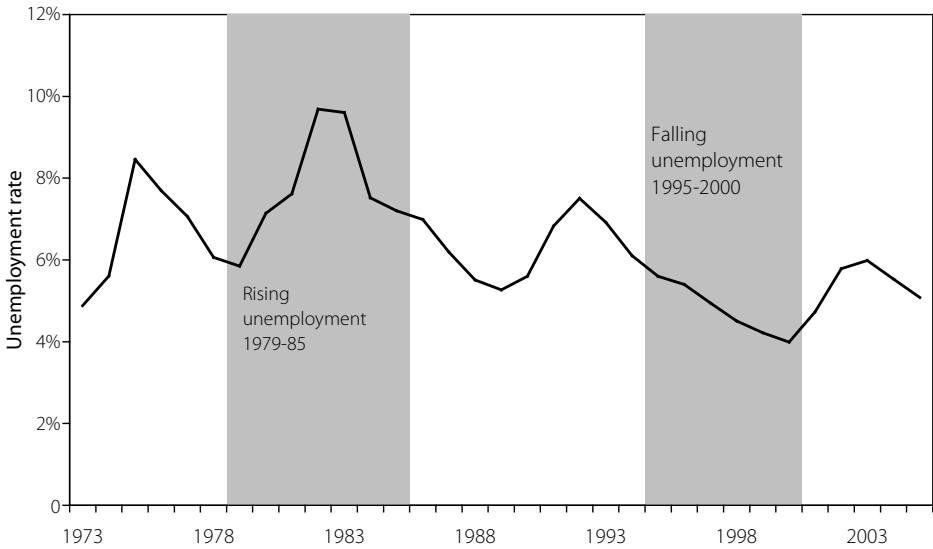
	1979-85		1995-2000	
	Men	Women	Men	Women
Actual changes				
Unemployment rate	1.4	1.4	-1.6	-1.6
50/10 (log)	9.6	17.0	-3.9	-1.8
90/50 (log)	8.7	8.0	3.8	1.1
Simulated effect of change in unemployment on:				
Hourly wages				
10th percentile	-15.2%	-17.2%	10.2%	7.0%
50th percentile	-9.4	-8.0	4.1	2.3
90th percentile	-8.9	-8.3	3.1	3.7
Wage ratios (log)				
50/10	6.6	10.5	-5.7	-4.5
90/50	0.6	-0.3	-0.9	1.4
Unemployment contribution to change				
50/10 (log)	68%	62%	145%	257%
90/50 (log)	6	-4	-25	131

Source: Authors' analysis.

mand for more-educated workers, presumably reflecting technological and other workplace trends.

Yet an increased relative demand for educated workers is only a partial explanation, especially if it is credited to a benign process of technology or other factors leading to a higher value for education and thus bidding up the wages of more-educated workers. Note, for instance, that the primary reason for an increased wage gap between college-educated and other workers is the precipitous decline of wages among the non-college-educated workforce in the 1979-95 period and not any strong growth in the college wage (it was rising a modest 0.5% annually in this time period). Moreover, as discussed below, there are many important factors that may not reflect changes in the relative demand for skill; these might include high unemployment, the shift to low-wage industries, deunionization, a falling minimum wage, and import competition, that can also lead to a wage gap between workers with more and less education. Below,

FIGURE 3T Unemployment, 1973-2005



Source: Bureau of Labor Statistics.

we argue that technological change has not been the driving force behind growing wage inequality.

Tables 3.18 and **3.19** present trends in wage and employment shares for each education group for men and women. Among men, wage growth in the most recent 2000-05 period has been relatively stagnant, up or down very modestly, for workers with college degrees and each education group of non-college-educated workers. This follows a period of exceptionally strong growth in the late 1990s, a period that stands apart from the long-term trend over the 26 years from 1979 to 2005. In the early part of this long period, from 1979 to 1995, wages fell strongly among non-college-educated men. The decline was sizable even among men with “some college”—8.0% from 1979 to 1995. The wage of the average high-school-educated male fell more, 14.1%, from 1979 to 1995, while the wages of those without a high school degree fell 25.8%. By contrast, the wages of male college graduates rose, but more modestly than commonly thought—just 2.9% from 1979 to 1989 and an additional 1.4% over the 1989-95 period. Year-by-year data show that male college wages in the 1979-95 period peaked in 1987. The period from 1995 to 2000 was one of strong real wage

growth among college-educated men, 2.4% annually, even stronger than among those with an advanced degree.

Over the entire 1979-2005 period the pattern of growing wages for college-educated males (almost entirely due to the 1995-2000 period) and declining or stagnant wages for non-college-educated males meant a rise in the relative wage, or wage premium, for male college graduates. As shown in Table 3.16, the estimated college/high school wage premium (where experience, race, and other characteristics are controlled for) grew from 20.1% in 1979 to 33.9% in 1989 and to 43.1% by 2005. As Figure 3M shows, however, there was a flattening of the male college/high school premium over the 1988-96 period, particularly in the early 1990s. Since there has not been an acceleration of the supply of college-educated men (as shown in a later section), this slower wage growth implies, within a conventional demand-supply framework, that growth in the relative demand for college workers slowed in that period. From 1996 to 2000, however, this key education differential among men jumped again, followed by a decline and modest recovery by 2005. Thus, the growth in the college wage premium was relatively modest after 1988 with the exception of the late 1990s.

As we have seen in our earlier examinations of the wage structure, women's wages have grown faster than men's in nearly every category (deciles, poverty-level wages, etc). However, the same general pattern of relative wages—i.e., who does better—prevails among women as among men (Table 3.19). From 2000 to 2005, wage growth among women of all education groups rose comparably, from 0.6% for high school women to 0.4% or 0.5% for those with college or advanced degrees. In contrast, men's wage growth was more differentiated in recent years. In the late 1990s wages grew strongly among women in each education group, with the familiar pattern of greatest growth among college graduates (even greater than those with advanced degrees). In the 1979-89 and 1989-95 periods wages were stagnant among high-school-educated women but fell significantly among those without a high school degree (11.9% overall). Women with some college saw significant wage gains in the 1980s (unlike their male counterparts), but not in the early 1990s. College-educated women saw strong wage growth throughout the 1979-95 period (23.4% overall), faring by far the best among all gender-education categories. This pattern of wage growth resulted in growth of the college/high school wage differential comparable to that of men (Table 3.16), from 26.5% in 1979 to 41.0% in 1989 and to 46.7% in 1995 (the increase up to 1995 being higher than among men). However, the college wage premium among women has barely budged over the last 10 years, only rising to 47.1% by 2005. Thus, the education/wage gap grew more among women than among men in

TABLE 3.27 Employment growth by sector, 1979-2005

Industry sector	Employment shares				Change 2000-05		Hourly compensation 2005	Percent college graduates
	1979	1989	2000	2005	Shares	Level (000)		
Goods producing	27.8%	22.3%	18.7%	16.6%	-2.1	-2,516	\$29.37	19%
Mining	1.1	0.7	0.5	0.5	0.0	26	37.07	16
Construction	5.1	4.9	5.2	5.5	0.3	490	28.48	10
Manufacturing	21.6	16.7	13.1	10.7	-2.4	-3,031	29.47	23
Durable goods	13.6	10.2	8.3	6.7	-1.5	-1,923	30.98	25
Nondurable goods	8.0	6.5	4.8	4.0	-0.9	-1,110	26.96	21
Service producing	72.2%	77.7%	81.3%	83.4%	2.1	4,194	\$23.58	32%
Trans., utilities	4.0	3.8	3.8	3.7	-0.1	-107	20.48	17
Wholesale trade	5.0	4.9	4.5	4.3	-0.2	-184	27.44	25
Retail trade	11.3	12.1	11.6	11.4	-0.2	-25	15.23	16
Information	2.6	2.4	2.8	2.3	-0.5	-565	36.38	42
Fin., ins., real estate	5.4	6.1	5.8	6.1	0.3	454	32.80	39
Services	26.0	31.8	37.0	39.3	2.2	3,607	22.86	37
Government	17.9%	16.6%	15.8%	16.3%	0.6	1,013	n.a.	50%
Federal	3.2	2.9	2.2	2.0	-0.1	-141	n.a.	40
State and local	14.6	13.7	13.6	14.3	0.7	1,154	\$36.55	51
Total	100.0%	100.0%	100.0%	100.0%		1,678	\$26.61	30%

Source: Authors' analysis of BLS payroll data and Employer Costs for Employee Compensation and CPS.

TABLE 3.28 Annual pay of expanding and contracting industries, 1979-2005

Annual pay	Industries		Difference		Annual impact
	Contracting	Expanding	\$	%	
Compensation (000)					
2000-05	\$62.2	\$47.7	-\$1,453	-23.4%	-0.2%
1989-2000	47.7	37.3	-1,047	-21.9	-0.2
1979-89	48.3	33.1	-1,518	-31.4	-0.3
Wages and salaries (000)					
2000-05	\$51.6	\$41.0	-\$1,066	-20.6%	-0.2%
1989-2000	39.5	32.0	-748	-19.0	-0.1
1979-89	39.4	30.3	-907	-23.0	-0.2

Source: Authors' analysis of BLS payroll employment data and NIPA compensation data for roughly 60 industries in each time period.

the 1979-95 period and then stagnated while it rose somewhat among men. The relative losers among women—the non-college-educated—saw relatively stagnant wages, whereas among men wages fell.

Even though the wages of college-educated women have grown rapidly since 1979, a female college graduate in 2005 still earned \$6.76 less, or 24%, than a male college graduate in 2005.

Table 3.20 shows a breakdown of employment in 2005 by the highest degree attained and by gender and immigrant/native status. Some 29.6% of the workforce had at least a four-year college degree (19.8% have a college degree only and 9.8% also have a graduate or professional degree). Correspondingly, 70.4% of the workforce has less than a college degree, with 10.4% never completing high school; 30.1% completing high school or obtaining a GED; another 20.1% attending college but earning no degree beyond high school; and 9.8% holding associate degrees. These data reinforce the earlier discussion that the poor wage performance experienced by the “less educated” (frequently defined by economists as those without a college degree) between 1979 and 1995 and then from 2000 to 2005 affected a very large share of the workforce. This is important to note because the language used in public discussion asserts that the “less-educated” have done poorly, leaving the impression that they are a small part of the population. But “less-educated” implicitly corresponds to those without a four-year college degree, their share of the workforce, at 70.4%, is huge.

It is also interesting to note that the group of workers with more than

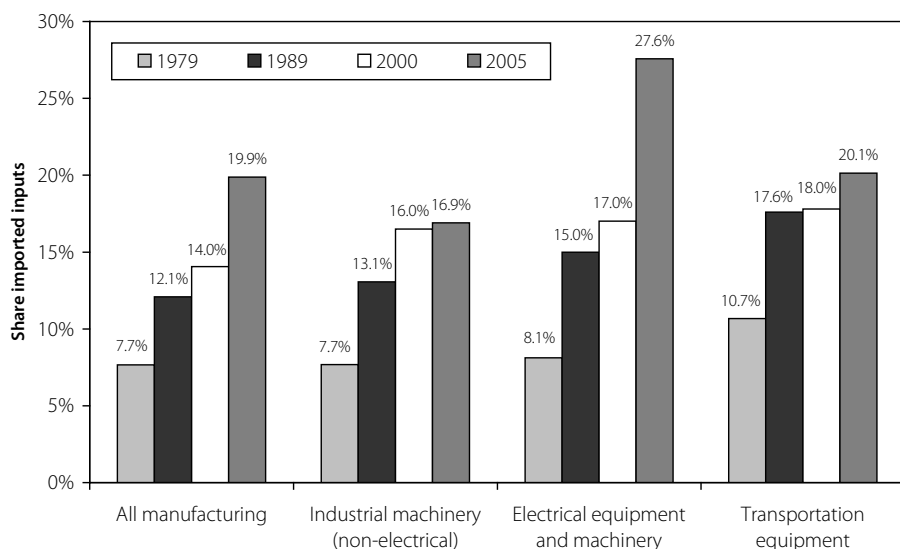
a high school degree but less than a four-year college degree now make up a group equivalent in size (29.9%) to groups of high school graduates (30.1%) and bachelor's degree holders (29.6%). Among women, those with some college or an associate's degree (32.6%) now exceed those holding at most a high school degree (28.7%).

Young workers' wages

Young workers' prospects seem to be an apt barometer of the strength of the labor market—when the labor market is strong for workers the prospects for young workers are very strong, and when the labor market is weak their prospects are very weak. For instance, the most dramatic erosion of wages over the 1973-95 period was among young workers. However, young workers also experienced the fastest wage growth over the 1995-2000 period. As a result, there have been significant changes—up and down—in wage differentials between younger and older workers, as shown earlier in Table 3.16.

Table 3.21 presents trends in wages for entry-level (one to five years of experience) high school and college graduates by gender. It is interesting to note that in the recent period of sluggish wage growth, wages actually fell among every entry-level group, both high school and college and both men and women. This contrasts to the extremely strong wage growth for each of these groups from 1995-2000, when wages rose roughly 10% for entry-level high school men and women and 20.9% for entry-level college men, 11.7% for college women. This change illustrates the vast swing in wages for entry-level workers between a period of strong wages and stagnant wages.

The generally poor wage performance of non-college-educated workers has been magnified among young entry-level workers (**Figure 3O**). Since the wages of both younger and non-college-educated workers fell most rapidly in the 1979-95 period and fared more poorly from 2000 to 2005, it should not be surprising that entry-level wages for men and women high school graduates in 2005 were still below their levels of 1979 or 1973. For instance, the entry-level hourly wage of a young male high school graduate in 2005 was 19.0% less than that for the equivalent worker in 1979, a drop of \$2.57 per hour. Among women, the entry-level high school wage fell 9.0% in this period. Entry-level wages for high school graduates grew rapidly, over 9%, between 1995 and 2005 for both men and women, and this growth ameliorated the long-term decline in their wages. Note that wages in entry-level jobs held by high-school-educated women are still less than those for their male counterparts, though the gap is not as wide as in the 1970s.

FIGURE 3U Share of imported intermediate inputs

Source: Bivens (2006).

Entry-level wages among male college graduates were stagnant over the 1973-89 period, fell 7.3% from 1989 to 1995, and then escalated rapidly in the late 1990s (**Figure 3P**). Much ground was lost for new college graduates from 2000 to 2005, as wages fell 3.9% among men and 1.9% among women. Thus, new male college graduates earned \$0.79 less per hour in 2005 than their counterparts did in 2000. Wages among women college graduates have grown more strongly than among any other group of women, and this strength is reflected in the long-term trend among entry-level women college graduates; their wages grew 21.4%, or \$3.01, from 1979 to 2005. Still, wages for new women college graduates in 2005 were 13.4%, or \$2.64, less than that of their male counterparts and 1.9%, or \$0.33, less than in 2000. So far in this business cycle, the better-educated workers with the newest skills are not faring so well in the “new economy.”

The erosion of job quality for young workers can also be seen in the lower likelihood of their receiving employer-provided health insurance or pensions. **Figures 3Q** and **3R** show the rate of employer-provided health insurance and pension coverage in entry-level jobs for, respectively, high school graduates and college graduates. Employer-provided health insurance among these recent

high school graduates fell by roughly half, from 63.3% to 33.7%, between 1979 and 2004 (the latest data). Pension coverage fell over this period as well, from an already low 36.0% in 1979 to an even lower 18.8% in 2004.

Health insurance coverage also fell among recent college graduates, but not as drastically as among recent high school graduates. The share covered was 77.7% in 1979 and 63.5% in 2004, with roughly half the decline resulting from the precipitous 7 percentage-point drop between 2000 and 2004. Pension coverage among young college graduates follows the overall pattern discussed in an earlier section. It fell between 1979 and the late 1980s and then regained its earlier level by 1998. However, this group's pension coverage fell over the 2000-04 period by 5.3 percentage points, from 54.6% to 49.3%. This sharp reduction in both health and pension benefits for young college graduates over the last few years indicates a substantial job quality problem even for those with the highest educational attainment.

The growth of within-group wage inequality

The data presented so far illustrate the various dimensions of wage inequality. The “between-group” inequality for workers by both education and experience (or age) can be characterized as a growth in differentials in education and experience, which are sometimes labeled as an increase in the “returns to education and experience” or as a shift in the rewards or price of “skill.” We now examine in greater depth the growth of “within-group” wage inequality, the inequality among workers with similar education and experience.

This growth in within-group wage inequality was shown earlier in Table 3.16. The analysis in **Table 3.22** illustrates the growth of this type of inequality by presenting wage trends of high-, middle-, and low-wage workers among high school and college graduates. In other words, the data track the wages of 90th, 50th (median), and 10th percentile high-school-educated and college-educated workers by gender and show a growing wage gap among college graduates and high school graduates.

Because of rising within-group inequality, the wage growth of the median or “typical” worker within each group has been less than that of the average worker. For instance, the median wage of the male high school graduate fell 13.8% over the 1973-2005 period, compared to a 10.1% drop in the average wage (Table 3.18). Similarly, the wage growth of male college graduates in the 1973-2005 period was 16.8% at the average (Table 3.18) but only 12.8% at the median (Table 3.22).

The growing disparity of wages within groups is demonstrated in Table

TABLE 3.29 Source of rising manufacturing trade deficit by country/region and factor intensity, 1979-2005

Region	Skilled intensive			Unskilled intensive			Capital intensive			Total	
	1979-89	1989-2000	2000-05	1979-89	1989-2000	2000-05	1979-89	1989-2000	2000-05	1979-89	1989-2000
OECD	17.8%	12.7%	15.5%	14.9%	7.4%	4.9%	34.1%	28.4%	15.3%	66.8%	48.6%
Latin America	-0.3	-4.3	17.2	1.5	4.3	6.0	1.4	-2.1	0.4	2.6	-2.1
Asia - 4 Tigers*	9.4	4.1	-5.3	12.9	-2.8	-1.9	-0.5	1.1	1.9	21.8	2.4
Japan	21.8	6.1	-3.9	0.4	0.3	-0.1	16.0	6.2	2.8	38.3	12.6
Mexico	1.7	6.5	8.9	0.4	1.9	1.5	0.5	2.9	-1.7	2.6	11.3
China	0.4	12.8	34.0	5.4	16.2	21.2	-0.2	2.1	3.0	5.5	31.0
Non-OECD	10.0	16.9	29.2	23.1	31.1	31.0	0.1	3.4	4.1	33.2	51.4
World	27.8	29.7	44.7	38.0	38.5	35.9	34.2	31.8	19.4	100.0	100.0

Change in manufacturing trade deficit (\$billion)

World	-\$34.1	-\$74.1	-\$94.6	-\$46.7	-\$96.2	-\$76.0	-\$42.0	-\$79.3	-\$41.0	-\$122.8	-\$249.6
											-\$211.6

* Singapore, Taiwan, South Korea, and Hong Kong.

Source: Bivens (2006) update of Cline (1997) using data from Feenstra (2002) and the University of California-Davis Center for International Data.

TABLE 3.30 Trade-deficit-induced job loss by wage and education level, 1979-2004

	1979-89	1989-2000	2000-04	Share of total employment, 2000
Total job displacement (thousands)	1,766	3,431	1,915	n.a.
Share of displacement				
College graduate*	12.2%	21.2%	21.3%	25.6%
Non-college	87.8	78.9	78.7	74.4
Some college	22.8	26.2	29.2	32.9
High school	37.0	36.5	35.9	30.8
Less than high school	28.0	16.1	13.5	10.7
Wage level**				
Highest wage	9.2%	13.3%	16.5%	14.2%
High wage	10.5	12.1	15.4	14.7
Upper-middle	15.2	21.8	27.5	26.3
Lower-middle	27.1	26.0	26.5	27.0
Lowest wage	37.9	26.8	14.2	17.7
Total	100.0	100.0	100.0	100.0

* Four years of college or more

** Corresponding to jobs that paid in the following wage percentile in 1979: 90-100, 75-89, 50-74, 21-49, and 0-20.

Source: Scott et al. (1997), Tables 1 and 2 and analysis of Census and BLS data in Bivens (2006).

3.22. While the high (90th percentile) wage among female college graduates grew 55.9% from 1973 to 2005, the low (10th percentile) wage in this group rose 11.2%, a 44 percentage-point disparity. Similarly, wage trends at the top of the college male wage ladder (24.9% growth) and the bottom (a 3.2% decline) diverged dramatically over the 1973-2005 period.

The question remains, however, as to how much the growth in overall wage inequality in particular time periods has been driven by changes in between-group versus within-group wage inequality. It would also be useful to know the role of the growth of between- and within-group inequality on growing wage inequality at the top (the 90/50 differential) versus the bottom (the 50/10 differential), but measurement techniques for answering this question are not readily available.

Table 3.23 presents the trends in overall wage inequality, as measured by the standard deviation of log hourly wages, and the trends in within-group wage inequality. These measures allow an examination of how much of the change in

overall wage inequality in particular periods was due to changes in within-group wage inequality and between-group wage inequality (primarily changes in the differentials for education and experience).

The data in Table 3.23 indicate that roughly 60% of the growth of wage inequality since 1979 has been driven by the growth of within-group wage inequality. Among women, for instance, overall wage inequality grew 0.132 over the 1979-2005 period, of which 0.075 was due to growth of within-group inequality. Similarly, 0.064 of the 0.108 increase in overall male wage inequality over the 1979-2005 period was due to growing within-group inequality.

The growth of wage inequality in the 2000-05 period is a departure from the prior five years of the late 1990s wage boom, when wage inequality was stable. For men, this shift to a renewed growth of wage inequality is about equally due to a renewed growth of within-group wage inequality (up from .003 to .012 among men compared to a within-group change from -.003 to .007). However, among women the renewed growth of wage inequality is much more due to growing within-group inequality than rising age or education differentials.

Wage inequality over the 1995-2000 period was essentially unchanged among men and declined among women, the latter a result of a decline in within-group wage inequality. Thus, Table 3.23 makes clear that any explanation of growing wage inequality must go beyond explaining changes in skill, education, experience, or other wage differentials and be able to explain growing inequalities within each of these categories.

It is also noteworthy that between-group wage inequality did not rise in the 1995-2000 technology-related productivity and wage boom, nor did it rise much during the fast productivity period from 2000 to 2005 (.007 among both men and women). This finding is inconsistent with a story that technology (or the “new economy”) has generated greater wage inequalities by expanding the economic return to skills—primarily education and experience. These data reflect that, while it is true that the college/high school wage differential grew in the 1995-2000 period, experience differentials fell and education differentials between high-school-educated workers and workers without a high school education were stable (see Table 3.16).

Wage growth by race and ethnicity

Race and ethnicity have long played an important role in shaping employment opportunities and labor market outcomes, and **Table 3.24** examines changes in those dimensions of the wage structure. Wage trends are presented by gender for two indicators of the middle of the wage structure (the median wage and the

high school wage) for four populations: white, black, Hispanic, and Asian. (A finer breakdown of groups (e.g., sub-populations of Hispanics) is not possible because of sample-size limitations and, for the same reason, the trends for the 1980s are not available. Also, note that our definitions of race/ethnicity categories exclude Hispanics from the white, black, and Asian groups.)

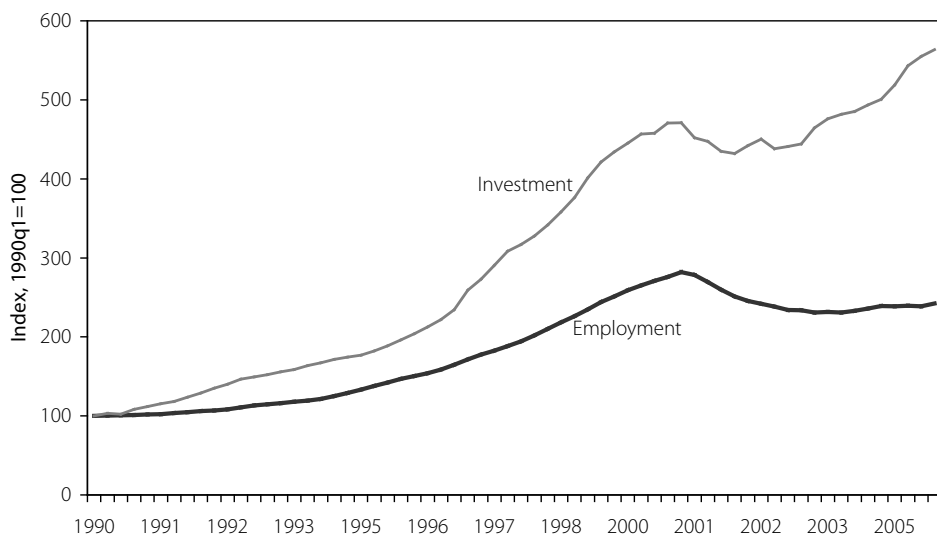
Over the recent 2000-05 period the male median wage was stagnant for whites and Hispanics and fell 1.3% for blacks. The 7.6% rise among Asian men is a standout exception. The wage trends among male high school graduates tell a similar story of stagnant wages for each race/ethnic group in recent years. In contrast wages rose rapidly for every race/ethnic group in the boom years from 1995 to 2000 but declined, especially among Hispanics, in the early 1990s.

Wage growth among women was stronger than that for men in recent years, at least as measured by median wages. White women fared best with a 6.4% rise, and Asians and Hispanics saw roughly 4% growth. The slight 0.9% decline of the median black woman's wage is the exception to the trend. In contrast, the median wage for black women grew faster than that for whites and Hispanics in the late 1990s (as with men, Asian women's wages soared faster than that of any other ethnic group). The wage trend among women high school graduates mirrors that of the median wage, although growth was slower both in the recent period and in the late 1990s by this measure.

The gender wage gap

As discussed in several earlier sections, women's wages have generally fared better than men's over the last few decades. For instance, in 1973 the ratio of the median woman's wage to the male median wage was 63.1% but rose to 82.0% by 2005 (see **Table 3.25** and **Figure 3S**). The rapid closing of the gender gap occurred primarily between 1979 and 1995, mostly as the result of a steady fall in the male median wage and modest growth of the female median wage. Figure 3S also shows the gender wage gaps at other points in the wage distribution—e.g., comparing the wages of low-wage men and low-wage women (looking at the 20th percentile) and doing likewise for high-wage men and women (looking at the 90th percentiles). The gender wage gap between low-wage men and women as well as between high-wage men and women was fairly stable from the mid-1990s to 2001 or 2002. Over the last few years there was a spurt of wage growth among high-wage women relative to high-wage men, closing the gender gap further. However, low-wage women have not closed the wage gap any further with their male counterparts in recent years.

FIGURE 3V Employment in software and computer services and real software investment, 1990-2005



Source: Bivens (2006).

Unfortunately, there is no research that explains these trends or examines how shifts in skills, the gender composition of work, and other factors have contributed to the closing and then flattening of the gender gap.

Unemployment and wage growth

One category of factors shaping wage growth can be labeled macroeconomic. These factors reflect the overall health of the economy and determine whether it is producing less than it has the capacity to do, as indicated by high unemployment and excess production capacity. Generally, slack in the economy is driven by monetary policy (the growth of the money supply, interest rates), fiscal policy (the size of the government surplus/deficits, with increasing deficits adding to demand and thereby lessening slack), and the U.S. international position (trade deficits, the flow of investment dollars abroad or from abroad to the United States). Factors that affect growth include those that limit or generate slack but also those that shape productive potential, such as public and private investment, technological change, workforce skills, and work organization (how factors of production are combined).

TABLE 3.31 Share of Mexican and other immigrants in workforce, 1940-2005

	Share of workforce (decennial Census)										Share of workforce (CPS)			Change	
	1940	1950	1960	1970	1980	1990	2000	2000	2000	2005	1980-90	1990-2000	2000-05		
Total															
All immigrants	9.8%	7.3%	6.0%	5.2%	6.5%	8.8%	13.2%	13.4%	14.9%	14.9%	2.3	4.4	1.5		
Mexican immigrants	0.3	0.4	0.4	0.4	1.1	2.0	4.0	3.9	4.6	4.6	0.9	2.0	0.8		
Other immigrants	9.5	6.9	5.6	4.8	5.4	6.8	9.2	9.6	10.3	10.3	1.4	2.4	0.7		
Male															
All immigrants	10.9%	7.8%	6.1%	5.0%	6.4%	9.4%	14.5%	15.0%	16.8%	16.8%	3.0	5.1	1.8		
Mexican immigrants	0.4	0.4	0.4	0.5	1.3	2.5	5.1	5.0	6.1	6.1	1.2	2.6	1.0		
Other immigrants	10.5	7.4	5.7	4.5	5.1	6.9	9.4	10.0	10.7	10.7	1.8	2.5	0.7		
Female															
All immigrants	6.9%	6.0%	5.9%	5.4%	6.5%	8.2%	11.7%	11.6%	12.8%	12.8%	1.7	3.5	1.2		
Mexican immigrants	0.2	0.2	0.3	0.3	0.9	1.4	2.8	2.5	3.0	3.0	0.5	1.4	0.5		
Other immigrants	6.7	5.8	5.6	5.1	5.6	6.8	8.9	9.1	9.8	9.8	1.2	2.1	0.7		

Source: Borjas and Katz (2006) and authors' analysis of CPS ORG.

TABLE 3.32 Percent distribution of educational attainment of immigrants, 1940-2000

	1940	1950	1960	1970	1980	1990	2000
Male workers							
<i>Mexican immigrants</i>							
High school dropouts	94.6%	91.2%	88.3%	82.6%	77.2%	70.4%	63.0%
High school graduates	3.0	6.7	6.7	11.7	14.3	19.0	25.1
Some college	1.0	1.5	2.7	3.6	5.7	7.8	8.5
College graduates	1.4	0.6	2.4	2.2	2.9	2.8	3.4
<i>Non-Mexican immigrants</i>							
High school dropouts	84.4%	76.4%	64.5%	45.5%	30.2%	21.0%	17.0%
High school graduates	9.2	14.5	16.8	23.9	26.7	26.0	25.8
Some college	2.8	4.0	8.3	11.7	15.2	21.3	20.9
College graduates	3.7	5.1	10.4	18.9	27.9	31.7	36.3
Female workers							
<i>Mexican immigrants</i>							
High school dropouts	84.5%	82.4%	83.9%	77.3%	72.9%	64.7%	57.0%
High school graduates	12.5	10.3	11.4	16.9	17.7	21.9	26.6
Some college	2.1	4.4	2.7	4.5	7.0	10.5	11.8
College graduates	0.9	2.9	2.0	1.4	2.4	3.0	4.5
<i>Non-Mexican immigrants</i>							
High school dropouts	79.2%	68.5%	59.3%	43.9%	30.1%	20.0%	15.5%
High school graduates	15.8	22.3	25.5	33.7	35.2	31.1	27.6
Some college	2.8	5.0	9.6	12.6	16.8	24.0	24.4
College graduates	2.2	4.2	5.7	9.9	17.9	24.9	32.6

Source: Borjas and Katz (2006) Table 2.

Macroeconomic conditions greatly affect wage growth and wage inequality. The issue of productivity and wage growth was discussed in an earlier section, so here we focus on other macroeconomic factors, particularly the extent of unemployment and underemployment (trends in these factors are explored in detail in Chapter 4). The burdens of an underperforming economy and high employment are not equally shared; lower- and middle-income families are more likely to experience unemployment, underemployment, and slower wage growth because of a weak economy. For many years, until recently, white-collar workers and high-wage workers were relatively unaffected by unemployment and recessions. Not surprisingly, therefore, high unemployment is a factor

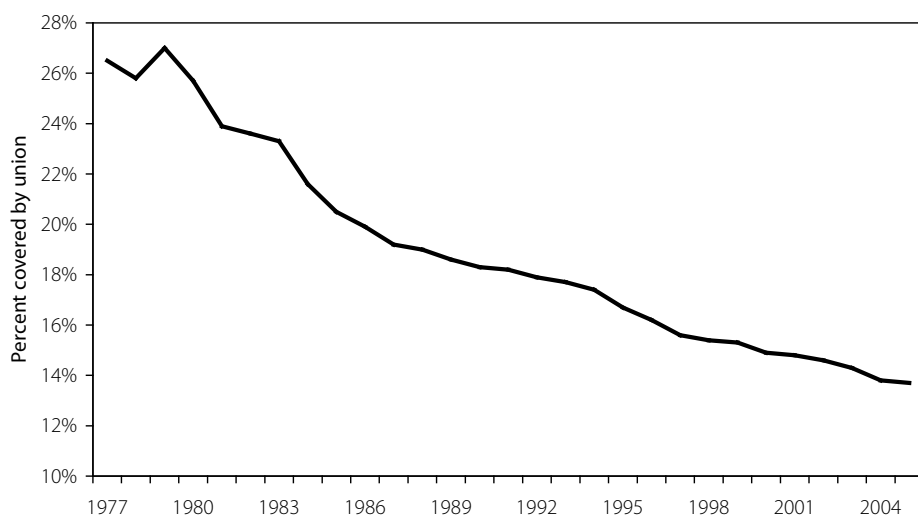
that widens wage and income inequality.

There are a number of mechanisms through which high unemployment affects wages and, especially, affects them differently for different groups of workers. The wages of groups that have lower wages, less education or skill, and less power in the labor market are generally more adversely affected by high unemployment and underemployment. In other words, those already disadvantaged in the labor market become even more disadvantaged in a recession or in a weak economy. Conversely, as unemployment falls in a recovery and stays low, the greatest benefit accrues to those with the least power in the labor market—non-college-educated, blue-collar, minority, and low-wage workers.

How does this happen? First, these groups experience the greatest employment decline in a downturn and the greatest employment growth in a recovery. This greater-than-average gain in employment reflects higher demand for these workers and consequently provides them with a greater increase in leverage with employers, a position that generates higher wages. Second, as unemployment drops, more opportunities arise for upward mobility for these workers, as they switch jobs either to a new employer or within the same firm. Third, unions are able to bargain higher wages when unemployment is low. Fourth, macroeconomic conditions and institutional and structural factors interact in important ways. For instance, the early 1980s saw a surge of imports and a growing trade deficit, a decline in manufacturing, a weakening of unions, and a large erosion of the minimum wage that coincided with (and in some cases partly caused, as was the case with the trade and manufacturing problems) the rising unemployment at that time. The impact of these factors on wage inequality was probably greater because of high unemployment. So, for example, the impact of trade on wages (discussed below) was greater because the recession had already induced a scarcity of good jobs. It should not be surprising that the most radical restructuring of wages (a tremendous growth in wage inequities) and the substantial real wage reductions for non-college-educated workers occurred during the period of very high unemployment from 1979 to 1985.

The impact of rising unemployment and falling unemployment can be illustrated by examining the effect on wages of increases in unemployment in the 1979-85 period and decreases in unemployment in the 1995-2000 period, as shown in **Table 3.26**. These estimates focus on the effect of unemployment trends on the 10th, 50th, and 90th percentile wages and the 90/50 and 50/10 wage ratios for each gender.

Figure 3T shows the course of unemployment in these two periods—the sharp rise in unemployment in the early 1980s and the persistent drop in

FIGURE 3W Union coverage rate in the United States, 1977-2005*

* Covered by a collective bargaining agreement.

Source: Hirsch and Macpherson (1997) and BLS.

TABLE 3.33 Union wage and benefit premium, March 2005 (2005 dollars)

	Hourly pay			
	Wages	Insurance	Pension	Compensation
All workers				
Union	\$24.10	\$3.63	\$2.39	\$33.17
Non-union	18.81	1.54	0.72	23.09
<i>Union premium</i>				
Dollars	\$5.29	\$2.09	\$1.67	\$10.08
Percent	28.1%	135.7%	231.9%	43.7%

Source: Authors' analysis of BLS data.

unemployment to roughly 4% in the late 1990s. During the 1980s recession wage inequality rose sharply, both at the top (the 90/50 ratio) and the bottom (the 50/10 ratio), with low-wage women being most adversely affected. Correspondingly, during the 1995-2000 boom the 50/10 wage ratios became smaller among both men and women while the 90/50 ratio among women continued to grow.

TABLE 3.34 Union wage premium by demographic group, 2005 (2005 dollars)

Demographic group	Percent union*	Union premium**	
		Dollars	Percent
Total	14.3%	\$1.52	14.7%
Men	15.6	2.32	18.4
Women	12.9	0.97	10.5
Whites	14.2%	\$1.27	13.1%
Men	15.9	2.14	17.0
Women	12.4	0.61	8.2
Blacks	18.2%	\$2.31	20.3%
Men	19.9	2.46	22.0
Women	16.8	2.24	18.6
Hispanics	11.9%	\$3.02	21.9%
Men	12.1	4.16	26.8
Women	11.6	1.75	15.9
Asians	12.8%	\$2.02	16.7%
Men	12.6	1.72	16.0
Women	13.1	2.53	17.5
New immigrants (less than 10 years)			
Men		\$1.28	14.6%
Women		1.74	14.6
Other immigrants (more than 10 years)			
Men		\$2.25	17.8%
Women		0.91	10.2

* Union member or covered by a collective bargaining agreement.

** Regression-adjusted union premium advantage controlling for experience, education, region, industry, occupation, and marital status.

Source: Authors' analysis of CPS ORG.

How much of these shifts in wage inequality were due to unemployment trends? Table 3.26 presents the results of simulations that estimate the effect of unemployment trends during the 1979-85 and 1995-2000 periods on the wages in the final year of each period—1985 and 2000, respectively. For instance, the early 1980s recession lowered the wages (relative to what they otherwise would have been) of workers at the 10th percentile in 1985 by 15.2% among men and 17.2% among women. The drop in unemployment in the 1995-2000 period

TABLE 3.35 Union premiums for health, retirement, and paid leave

Benefit	Union	Non-union	Difference		Union premium
			Unadjusted	Adjusted*	
Health insurance					
Percent covered	83.5%	62.0%	21.5%	17.5%	28.2%
Employer share (%)					
Single	88.3%	81.8%	6.5%	9.1%	11.1%
Family	76.3%	64.9%	11.4%	10.1%	15.6%
Deductible (\$)	\$200	\$300	-\$100	-\$54	-18.0%
Retiree health coverage	76.6%	59.8%	16.7%	14.6%	24.4%
Pension					
Percent covered	71.9%	43.8%	28.1%	23.6%	53.9%
Employer costs (per hour)					
Defined benefit	—	—	—	\$0.39	36.1%
Defined contribution	—	—	—	-0.11	-17.7
Time off					
Vacation weeks	2.98	2.35	0.63	—	26.6%
Paid holiday/vacation (hours)	—	—	—	22.2	14.3

* Adjusted for establishment size, occupation, industry, and other factors.

Source: Buchmueller, DiNardo, and Valletta (2001) and Mishel et al. (2003).

raised wages for low-wage (10th percentile) men and women by 10.2% and 7.0%, respectively. Unemployment had a sizable but lesser effect on the wages of middle- and high-wage workers; surprisingly, unemployment seems to affect middle- and high-wage workers to the same extent—about an 8-9% reduction in the 1980s and a 3-4% improvement in the late 1990s. Thus, unemployment did not greatly affect the 90/50 wage ratio, which grew overall in both periods. However, the very large impact of unemployment on the wages at the bottom led to large changes in the 50/10 wage ratio—a roughly 5 percentage-point reduction in the late 1990s and a 6.6 percentage-point increase for men and a 10.5 percentage-point increase for women in the early 1980s. Consequently, the higher unemployment in the early 1980s can account for over 60% of the growth in the 50/10 wage ratio in that period, while lower unemployment can account for more than all of the diminution of wage inequality at the bottom in

TABLE 3.36 Union impact on paid leave, pension, and health benefits

Benefit	Paid leave	Pension and retirement	Health insurance
Union impact on benefit incidence	3.2%	22.5%	18.3%
Union impact on benefit cost per hour			
Total impact	11.4%	56.0%	77.4%
From greater incidence	3.4	28.4	24.7
From better benefit	8.0	27.7	52.7

Source: Pierce (1999), Tables 4, 5, and 6.

the late 1990s. In the latter period, then, unemployment likely offset other factors (such as immigration, trade, and so on, as discussed below) that otherwise would have generated growth in wage inequality.

The higher unemployment and overall labor slack in the early 2000s (documented in Chapter 4) clearly took their toll on wage growth and exacerbated wage inequality. Simulations comparable to those presented in Table 3.26 show that the yearly growth of real median wages was slowed by 1.5% among men and 1.0% among women. The persistently high unemployment had an even greater effect on the wage growth of low-wage (10th percentile) workers, knocking growth of their wages down 2.2% and 1.5% per year, respectively, among men and women. As a result, wage inequality was higher at the bottom—as reflected in the 50/10 wage gap—than it would have been if low unemployment had been maintained: the 50/10 wage gap would have fallen slightly among women (0.7 percentage points) rather than risen slightly and fallen much faster among men (2.5 percentage points) than the slight fall (by 0.7 percentage points) that actually occurred. Since wage growth for high-wage workers was affected to the same extent as that for middle-wage workers, higher unemployment did not fuel the continuing growth of the wage gap at the top.

The shift to low-paying industries

One factor that contributes to growing inequality and lower pay, especially for non-college-educated workers, is a changing mix of industries in the economy. Such changes include the continued shift from goods-producing to service-producing industries and at times to lower-paying service industries. The shift in the industry mix of employment matters because some industries pay more than

TABLE 3.37 Effect of declining union power on male wage differentials, 1978-2005**A. Unionization and effect of union decline on wages**

	Percent union				Union effect*			
	1978	1989	2000	2005	1978	1989	2000	2005
By occupation								
White collar	14.7%	12.1%	11.2%	10.7%	0.2%	0.0%	-0.2%	-0.2%
Blue collar	43.1	28.9	23.1	19.2	11.5	6.7	4.3	3.8
Difference	-28.4	-16.7	-11.9	-8.5	-11.3	-6.8	-4.5	-4.1
By education								
College	14.3%	11.9%	13.1%	11.0%	0.9%	0.5%	0.9%	0.4%
High school	37.9	25.5	20.4	19.0	8.2	5.5	3.1	3.3
Difference	-23.6	-13.6	-7.4	-8.0	-7.3	-5.0	-2.3	-2.8

B. Contribution of union decline on wage differentials

	Change in wage differential**				Change in union effect				Deunionization contribution			
	1978-89	1989-2000	2000-05	1978-2005	1978-89	1989-2000	2000-05	1978-2005	1978-89	1989-2000	2000-05	1978-2005
White collar/blue collar	5.0%	4.2%	1.9%	11.1%	-4.6%	-2.3%	-0.5%	-7.3%	-90.5%	-55.2%	-23.5%	-65.3%
College/high school	3.0	8.1	1.1	22.1	-2.3	-2.5	0.6	-4.4	-17.8	-30.6	53.6	-20.1

* Premium estimated with simple human capital model plus industry and occupational controls. Union effect is premium times union coverage.

** Estimated with a simple human capital model.

Source: Authors' update of Freeman (1991).

others for workers of comparable skill.

These industry employment shifts result from trade deficits and deindustrialization as well as from differential patterns of productivity growth across industries. (Industries facing the same growth in demand for their goods and services will generate more jobs the slower their productivity growth.) This section examines the significant erosion of wages and compensation for workers resulting from the employment shift to low-paying industries since the 1980s.

Despite a common perception, this industry-shift effect is not the simple consequence of some natural evolution from an agricultural to a manufacturing to a service economy. For one thing, a significant part of the shrinkage of manufacturing is trade-related. More important, industry shifts would not provide a downward pressure on wages if service-sector wages were more closely aligned with manufacturing wages, as is the case in other countries. Moreover, since health coverage, vacations, and pensions in this country are related to the specific job or sector in which a worker is employed, the industry distribution of employment matters more in the United States than in other countries. An alternative institutional arrangement found in other advanced countries sets health, pensions, vacation, and other benefits through legislation in a universal manner regardless of sector or firm. Therefore, the downward pressure of industry shifts on pay can be said, in part, to be the consequence of the absence of institutional structures that lessen inter-industry pay differences.

Trends in employment growth by major industry sector and the annual compensation and “college intensity” (the share of workers with a college degree) in 2005 for each sector are presented in **Table 3.27**. Over the 2000 to 2005 period payroll employment rose by a very modest 1,678,000 (the sluggish job growth is explored in detail in Chapter 4). Many jobs were lost in this period in the highest-paying sectors, including manufacturing (down 3,031,000) and especially durable manufacturing (down 1,923,000), with jobs also lost in other highly paid industries, such as information, that had grown rapidly in the 1989-2000 period. Thus, industry shifts in the current business cycle have put downward pressure on compensation.

The extent of adverse industry shifts in the past is best examined in an analysis of changes in the shares of the workforce in various sectors (Table 3.27). When industries with above (or below) average pay levels expand employment share they raise (or lower) the average pay. The 1979-89 period saw significant downward pressure on pay due to industry shifts: the share of the workforce in low-paying services and in retail trade was 6.4 percentage points higher in 1989 than in 1979. The parallel trend was the roughly 7 percentage-point drop

TABLE 3.38 Union wage premium for sub-groups

Benefit	Union wage premiums	Percent union
Occupation		
White collar (1997)	2.2%	11.6%
Blue collar (1997)	23.3	20.8
Education		
College (1997)	5.1%	10.4%
High school (1997)	20.8	23.6
All (1992, 1993, 1996)	24.5	n.a.
High school or less	35.5%	n.a.
Wage distribution (1989)		
Lowest fifth	27.9%	23.5%
Second fifth	16.2	30.3
Middle fifth	18.0	33.1
Fourth fifth	0.9	24.7
Top fifth	10.5	17.7

Source: Mishel et al. (2003), Table 2.3a; Gundersen (2003), Table 5.1 and Appendix C; and Card (1991).

in the share of the workforce in high-paying industries such as manufacturing, construction, mining, government, transportation, and utilities.

The data in Table 3.27 illustrate the different, and less adverse, shifts in industry employment in the 1990s relative to the 1980s. Although durable manufacturing's share of employment declined in the 1990s (by 1.9 percentage points), this was less than the decline of the 1980s (3.4 percentage points). The low-wage retail trade sector expanded by 0.8 percentage points in the 1980s but shrank in the 1990s. Similarly, higher-wage sectors such as construction and transportation/utilities expanded or were stable in the 1990s but contracted in the 1980s. In general, high-wage sectors fared better in terms of employment growth in the 1990s than in the 1980s. Correspondingly, the 1990s contraction of retail trade, by far the lowest-wage sector, helped wages grow. Thus, one reason that median wages eroded less and low wages did better in the early 1990s than in the 1980s might be related to this different pattern of industry employment growth.

The annual wages and compensation of the expanding and con-

TABLE 3.39 Impact of unions on average wages of high school graduates

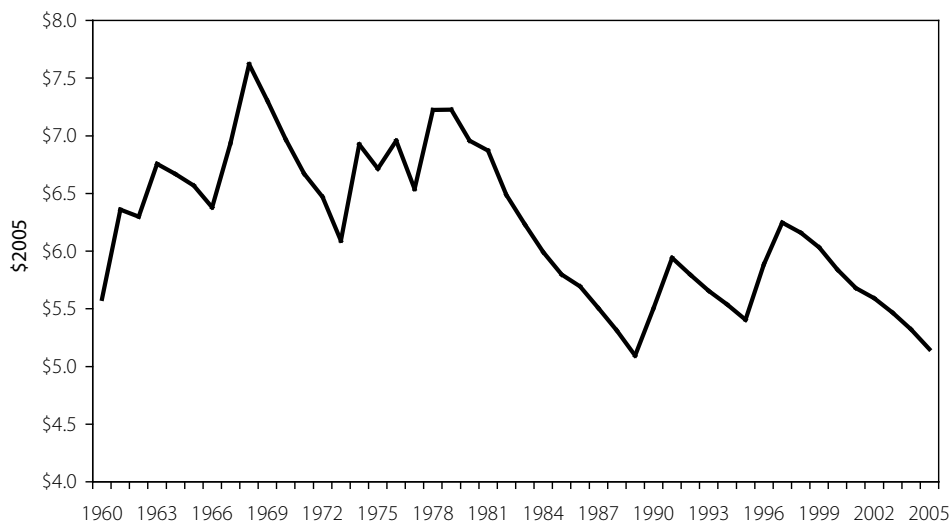
	Share of workforce	Union wage impact	Union contribution to higher average wage
Non-union	75.0%	5.0%	3.8%
Union	25.0	20.0	5.0
Total	100.0	8.8	8.8

Source: Authors' analysis.

tracting industries in each business cycle since 1979 are presented in **Table 3.28**. The wages and compensation of “expanding” industries, for instance, reflect the pay levels of each industry that experienced a rise in the share of total employment, weighted by the extent of the expansion in employment shares. These calculations show that expanding industries have paid annual wages roughly 20% lower than the industries that were contracting. The gap in pay between expanding and contracting industries has been somewhat larger for compensation than wages, indicating that the benefits gap is wider than the wage gap. The last column shows how much the shift toward lower pay has meant in terms of lower growth in wages and compensation: generally, wages and compensation grew 0.2% less each year, or at least 2.0% less over 10 years, as a result of industry shifts.

Trade and wages

The process of globalization since the 1980s has been an important factor in both slowing the growth rate of average wages and reducing the wage levels of workers with less than a college degree. In more recent years trade and globalization have begun to affect white-collar and college-educated workers to a great extent as well. The increase in international trade and investment flows affects wages through several channels. First, increases in imports of finished manufactured goods, especially from countries where workers earn only a fraction of what U.S. workers earn, reduces manufacturing employment in the United States. While increases in exports create employment opportunities for some domestic workers, imports mean job losses for many others. Large, chronic trade deficits over the last 27 years suggest that the jobs lost to import competition have outnumbered the jobs gained from increasing exports. Given that export industries tend to be less labor intensive than import-competing

FIGURE 3X Real value of the minimum wage, 1960-2005

Source: Authors' analysis.

industries, even growth in “balanced trade” (where exports and imports both increase by the same dollar amount) would lead to a decline in manufacturing jobs.

Second, imports of intermediate manufactured goods (used as inputs in the production of final goods) also help to lower domestic manufacturing employment, especially for production workers and others with less than a college education. The expansion of export platforms in low-wage countries has induced many U.S. manufacturing firms to purchase part of their production processes from low-wage countries. Since firms generally find it most profitable to purchase the most labor-intensive processes, the increase in intermediate inputs from abroad has hit non-college-educated production workers hardest. The growth in imports of intermediate inputs is shown in **Figure 3U** for the years 1979 to 2005. For all of manufacturing, the share of intermediate inputs into the production process that were imported rose from 7.7% in 1979 to 19.9% in 2005. In transportation equipment, the imported intermediate inputs share rose from 10.7% in 1979 to 20.1% by 2005.

Third, low wages and greater world capacity for producing manufactured goods can lower the prices of many international goods. Since workers’

TABLE 3.40 Value of the minimum wage, 1960-2005

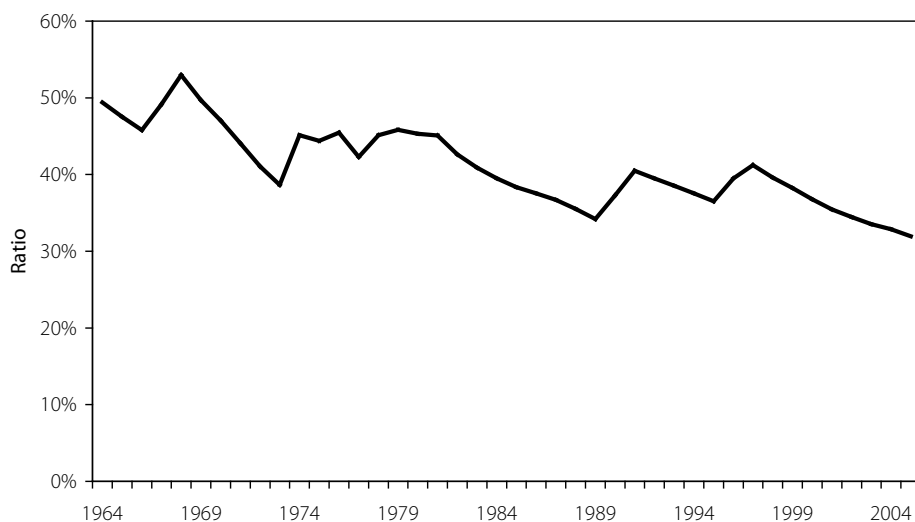
Year	Minimum wage	
	Current dollars	2005 dollars
1960	\$1.00	\$5.59
1967	1.40	6.93
1973	1.60	6.09
1979	2.90	7.23
1989	3.35	5.09
1990	3.80	5.50
1991	4.25	5.94
1996	4.75	5.88
1997	5.15	6.25
2000	5.15	5.84
2005	5.15	5.15
Period averages		
1960s	\$1.29	\$6.65
1970s	2.07	6.78
1980s	3.33	5.99
1990s	4.53	5.82
1979-2005	4.16	5.87
Percent change		
1979-89		-29.5%
1989-2000		14.6%
2000-05		-11.8%
1967-2005		-25.7%

Source: Authors' analysis.

pay is tied to the value of the goods they produce, lower prices from international competition, despite possible lower inflation, can lead to a reduction in the earnings of U.S. workers, even if imports themselves do not increase.

Fourth, in many cases the mere threat of direct foreign competition or of the relocation of part or all of a production facility can lead workers to grant wage concessions to their employers. This is referred to as the “threat effect.”

Fifth, the large increases in direct investment flows (i.e., plant and equipment) to other countries have meant reduced investment in the domestic manufacturing base and significant growth in the foreign manufacturing capacity capable of competing directly with U.S.-based manufacturers.

FIGURE 3Y Minimum wage as percentage of average hourly earnings, 1964-2005

Source: Authors' analysis.

Sixth, the effects of globalization go beyond those workers exposed directly to foreign competition. As trade drives workers out of manufacturing and into lower-paying service jobs, not only do their own wages fall, but the new supply of workers to the service sector (from displaced workers plus young workers not able to find manufacturing jobs) helps to lower the wages of similarly skilled workers already employed in service jobs.

Last, trade in services has gained prominence in recent years as call center operations, computer programming, doctor support services (reading X-rays, for instance), research and development, and other white-collar services have been transferred or purchased abroad, sometimes to countries with far lower wages than those in the United States (most notably India and China). Less is known about this recent phenomenon, sometimes called “offshoring,” but it seems to be a mechanism through which globalization is now adversely affecting white-collar jobs and wages (and will increasingly continue to do so). Not only are jobs directly displaced, but also the wage growth of still-employed white-collar workers threatened by offshoring is constrained.

This section briefly examines the role of international trade and investment in recent changes in the U.S. wage structure. Since even the preceding list

TABLE 3.41 Characteristics of workers affected by potential federal minimum wage increase to \$7.25 by 2008*

	Total workers affected by minimum wage increase	Workers directly affected by increase**	Workers affected by spillover***	All workers****
Number of workers (in millions)	14.9	6.6	8.3	130.3
Percent of workforce	11%	5%	6%	100%
Demographics				
<i>Gender</i>				
Male	41%	39%	43%	52%
Female	59	61	57	48
<i>Race / ethnicity</i>				
White	60%	59%	61%	69%
Black	16	16	16	11
Hispanic	19	21	18	14
Asian	2	2	2	4
<i>Family status</i>				
Parent	26%	25%	28%	36%
Married parent	17	16	18	29
Single parent	9	9	10	7
<i>Age</i>				
Teens (16-19)	21%	29%	14%	5%
Adults (20+)	80	71	86	95
Work hours				
1-19 hours	16%	21%	12%	5%
20-34 hours	30	35	26	13
Full time (35 + hrs)	54	44	62	82
Industry				
Retail trade	23%	24%	23%	12%
Leisure and hospitality	23	29	18	9
Other	54	48	60	79

Share of weekly earnings contributed by minimum wage workers

	Average share of earnings from affected workers	Share of families with 100% of earnings from affected workers
All families with an affected worker	58%	43%
Excluding families without children	59	46

Number of children with parents affected by minimum wage increase: 7,315,000

* Assuming a phase-in with the final step in 2008.

** These are the workers earning between the state minimum wage and \$7.25.

*** These are workers currently earning above \$7.25, likely to be affected by "spillover effects."

**** Includes workers not covered by minimum wage.

Source: EPI analysis of 2005 CPS ORG data.

Table 3.42 Impact of lower minimum wage on key wage differentials among women, 1979-97

Wage differential	Actual wage differentials				Simulated wage differentials at 1979 minimum wage				1979-89				1979-97			
	1979		1989		1989		1997		Change in wage differential		Minimum wage effect		Change in wage differential		Minimum wage	
	differentials		differentials		differentials		differentials		Actual		Simulated		Actual		Simulated	
	1979	1989	1979	1989	1979	1989	1979	1989	Actual	Simulated	Difference	Difference	Actual	Simulated	Difference	Difference
Wage ratios (logs)																
50/10	0.39	0.64	0.63		0.41	0.41			0.26	0.02	0.23		0.24	0.02	0.21	89.5%
90/10	1.00	1.35	1.39		1.12	1.18			0.35	0.12	0.23		0.39	0.18	0.21	54.3
Education differentials																
College/high school	0.31	0.46	0.51		0.42	0.48			0.15	0.11	0.04		0.20	0.17	0.03	
15.8%																
College/less than high school	0.49	0.69	0.75		0.60	0.67			0.20	0.11	0.09		0.26	0.18	0.08	29.4%
Addendum:																
Percent earning less than 1979 minimum																
Less than high school		43.4%	53.7%													
High school		23.6	26.2													
College		6.1	7.0													
All		20.1	21.5													

Source: Authors' analysis.

of channels through which globalization affects wages is not complete and not yet quantified, this analysis understates the impact of globalization on wages in the 1980s, 1990s, and the 2000s.

Table 3.29 provides information on the growth of the manufacturing trade deficit (the excess of manufactured imports over exports) from 1979 to 2005 by region and type of industry—industries that heavily use unskilled labor, skilled labor, or capital. The manufacturing trade deficit grew to \$586 billion in 2005, or to 4.6% of GDP, from a position of balance in 1979. This growing trade deficit reflects the far faster growth of imports and the much slower growth of exports since 1979.

The growth of the manufacturing trade imbalance was greater in the 1980s (up 2.3% of GDP) than in the 1990s (up 1.6% of GDP). The pace quickened between 2000 and 2005, however, as the imbalance grew by 0.9% of GDP in just five years (compared to 1.6% of GDP over 11 years).

Trade with developing countries (the “non-OECD” row in Table 3.29) has been increasingly important in driving up the trade deficit. It was responsible for 33.2% of the growth in the 1980s but 51.4% and 64.3% in the following periods. Much of the growing importance of developing-country trade is due to trade with China, which accounted for 58.2% of the higher trade deficit in the 2000-05 period and about a third of the higher deficit in the 1990s. The increased trade imbalance with China arises more from trade in skilled-intensive products (contributing 34.0% of the total growth) than unskilled-intensive (up 21.2% of total growth). Trade with Mexico contributed about 10% of the higher deficit between 2000 and 2005 and over the 1990s.

Table 3.29 also provides a breakdown of the growth in the manufacturing trade deficit by the skill-intensity and capital-intensity of the product. Deficits have grown in each of the three product types, both skilled-intensive and unskilled-intensive as well as capital-intensive products. It is important to note that the growth in the trade deficit since 2000 has been more from trade in skilled-intensive industries (44.7% of total growth) than industries relying on unskilled workers (accounting for 35.9% of the growth). These data do not include trade in primarily white-collar sectors, but it is clear that even in manufacturing trade is leading to increased global pressure for U.S. white-collar workers.

These data suggest not only a large increase in the trade deficit but a growing exposure of a broad range of industries to foreign competition from the most advanced countries and from lower-wage developing countries. This growth in the trade deficit and increased global competition can, and would be expected to, adversely affect the wages of non-college-educated workers relative to others, as we will explore below. In fact, any potential gains from

TABLE 3.43 Distribution of potential minimum wage gains and income shares by fifth for a proposed federal increase to \$7.25 by 2008

Weekly earnings fifth	Share of gain from increase	Share of total earnings	Average weekly earnings
Lowest	38%	5%	\$315
Second	19	10	635
Middle	18	16	978
Fourth	14	24	1,446
Highest	12	45	2,762

Source: EPI analysis of 2005 CPS ORG data.

trade would be created precisely through such a mechanism—a redeployment of workers and capital into more highly skilled or capital-intensive industries, a movement that lessens the need for non-college-educated workers. The offshoring trend is a mechanism whereby workers with high levels of education are being replaced, but this is still a smaller phenomenon than the more usual trade impact on middle- and low-wage workers.

We now turn to an examination of the types of jobs that were lost as the trade deficit grew and as job losses in import-sensitive industries exceeded job gains in export industries. In periods of low unemployment, it may be the case that a trade deficit does not cause actual job loss because workers displaced by rising imports have found employment in non-traded sectors such as services. Nevertheless, even with low unemployment a trade deficit will affect the composition of jobs (less manufacturing, more services), thereby affecting wage inequality. In this light, **Table 3.30** indicates how trade flows affect the composition of employment by wage level and education relative to a situation in which the ratios of imports and exports to output remained at 1979 levels. Specifically, Table 3.30 shows the number of jobs lost because of the growing trade deficit in recent periods and the share of jobs lost in particular education and wage categories. This analysis relies on information on the types of jobs in each industry and the changes in the trade deficit by industry. By using an input-output model, the analysis can examine how jobs across the economy are affected, including jobs that feed into other industries (e.g., showing how steel workers are affected by fewer car sales).

To examine the historical shifts of the effect of globalization, it is worthwhile to first examine the 1980s, a period where large trade imbalances and

job-related losses became important and very visible to the public. In the 1980s, 87.8% of the 1,766,000 trade-related job losses were jobs held by non-college-educated workers. In contrast, 74.4% of all jobs in 2000 were held by workers without college degrees. Therefore, trade disproportionately impacted the non-college-educated workforce. Moreover, workers with lesser education credentials were generally more intensely affected by trade; those without high school degrees were disproportionately affected relative to those with high school degrees, and those with no college were affected more than those with some college. Likewise, trade-deficit-related job losses in the 1980s fell disproportionately on the lowest-wage workers and lower-middle-wage workers. The 44.7% of the workforce in the two lowest pay categories (as of 2000) suffered 65.0% of the trade-related job losses. Consequently, non-college-educated and middle- and lower-wage workers disproportionately bore the costs and pressures of trade deficits and global competition in the 1980s.

Interestingly, trade-related job losses were more evenly spread across wage and education levels in the 1990s and since 2000 than in the 1980s. After 1989, about 21% of the trade-related job losses have been borne by college graduates, a share not much below their 25.6% share of the workforce in 2000 and an impact nearly twice as large as in the 1980s. Likewise, trade after 1989 cost high-wage jobs roughly in proportion to their presence in the workforce (see the two highest wage categories contributing 25.4% of the losses in the 1990s and 31.9% of the losses since 2000, comparable to their workforce share of 28.9%). This pattern suggests that the effect of growing trade imbalances since 1989 may have been more evenly spread over the workforce; thus, trade may have had a lesser effect on inequality between education or wage-level groups in the last decade and a half than in the 1980s (creating a more broad-based loss of worker bargaining power in the economy). This analysis probably overstates the adverse trade impact on the higher wage and education groups because one of its underlying assumptions is that, when an industry loses jobs, it does so proportionately across types of jobs (e.g., a 10% loss of jobs means 10% fewer jobs in each category within the industry). Since the response to lost export opportunities or displacements from greater imports has almost surely fallen disproportionately on the non-college-educated workforce of each industry (rather than the white-collar or technical workers), this analysis understates the degree to which trade and globalization affect non-college-educated workers relative to those with college degrees. Nevertheless, this analysis does show that the industries adversely affected recently by trade are higher-paying and employ more college-educated workers than the trade-impacted industries of the 1980s.

TABLE 3.44 Use of computers at work (1984-97)

	1984	1989	1993	1997
All workers	24.5%	36.8%	46.0%	49.9%
By education				
Less than high school	4.8%	7.4%	8.9%	11.3%
High school	19.8	29.2	34.0	36.1
Some college	31.9	46.4	53.5	56.3
College or more	41.5	57.9	69.1	75.2
<i>Ratio high school/college</i>	47.7%	50.5%	49.1%	48.1%
Men	30.2	34.2	34.2	35.5
Women	69.4	69.3	66.9	62.7
By gender				
Men	21.1%	31.6%	40.3%	44.1%
Women	29.0	43.2	52.7	56.7
<i>Ratio male/female</i>	73.0%	73.2%	76.5%	77.8%
By race				
Whites	25.3%	37.9%	47.3%	51.3%
Blacks	18.2	27.2	36.2	39.9
Other	23.7	36.0	42.3	48.2
<i>Ratio black/white</i>	72.1%	71.7%	76.7%	77.7%
By age				
Under 30	24.7%	34.9%	41.4%	44.5%
30-39	29.5	42.0	50.5	53.8
40-49	24.6	40.6	51.3	54.9
50 and older	17.6	27.6	38.6	45.3

Note: Entries display percentage of employed individuals who answer that they "directly use a computer at work."

Source: Card and DiNardo (2002).

Taken together, Tables 3.29 and 3.30 suggest that trade, particularly with low-wage developing countries, accelerated the long-term decline in manufacturing employment. The data also suggest that the fall in employment opportunities was especially severe for non-college-educated manufacturing production workers in the 1980s, with broader but more even impacts in the 1990s. Since production (and white-collar) workers in manufacturing earn, on average, substantially more than workers with similar skills in non-manufacturing jobs, these trade-

induced job losses contributed directly to the deterioration in the wage structure, particularly for middle-wage and lower-wage workers. And since millions of trade-displaced workers sought jobs in non-manufacturing sectors, trade also worked to depress the wages of comparable workers employed outside manufacturing. The result is to weaken the wages of middle- and low-wage workers relative to those of high-earning workers.

It is difficult to quantify the other channels discussed at the beginning of this section—the “threat effect” of imports and plant relocation on U.S. manufacturing wages and the reality of large-scale international direct investment flows. Nevertheless, these effects are likely to be as large as or larger than those that are more readily quantifiable.

In the early 2000s globalization’s adverse impacts seemed to be moving upscale, affecting so-called knowledge workers such as computer programmers, scientists, and doctors as work previously done in the United States was located in or relocated to other countries. This phenomenon of offshoring high-tech, white-collar work is noteworthy because the workers affected, especially computer-related professionals, are frequently discussed as the winners in the globalization process. If the jobs of such highly educated workers are now at risk in the global economy, it makes one wonder which jobs cannot be moved offshore. Two factors seem to have made offshoring of white-collar work a potentially significant phenomenon. One is that technology, particularly fast Internet and other communications technology, makes coordination and transmission of work worldwide much easier. A second factor is what could be called a “supply shock” arising from the availability of millions of highly educated workers in places such as China, India, Eastern Europe, Russia, and elsewhere who are willing to do the work for a lower wage than U.S. workers.

Hard data that could inform us of the extent of offshoring and how much more to expect in the future are not available because our data systems are not well suited to measuring trade in services (including that which is transferred over the Internet) as opposed to goods. Even if the current level of offshoring is modest, the high public profile of this practice and the statements from firms of their intentions to intensify their offshoring is sufficient to depress wage expectations in the relevant labor markets.

Outsourcing also emerged as a concern for many workers at a time when the labor market for college-educated workers, especially new college graduates, was faring poorly. As discussed above, wages for entry-level college graduates have fallen since 2000. The review of unemployment and employment trends in Chapter 4 shows that the college graduate unemployment rate

increased more in this than in earlier recessions and that the employment rates of college graduates declined in recent years, a highly unusual development. The data in the next chapter also point to high unemployment among software programmers and engineers. In this light, offshoring is affecting a group that has already been experiencing unusual labor market distress.

There is some evidence to suggest that the increased global sourcing of software work is not just a future possibility but an ongoing development.

Figure 3V examines trends in information technology (IT) software *employment* relative to *demand* for IT software. Some analysts have pointed to the bursting of the IT investment bubble as a major source of the labor market distress for IT professionals; however, the burst bubble has not been the sole source of IT labor market woes.

While the lesser investment in IT software following the bursting of the IT investment bubble surely led to declining IT employment, by early 2004 real (inflation-adjusted) spending on IT software had actually exceeded its 2000 peak, and by the end of 2005 it had considerably grown further. Yet, employment in IT software industries remains well below its peak level. One interpretation is that this employment gap is due to the movement of IT software work offshore. The experiences of the United States and India offer some persuasive, though indirect, evidence.

Another aspect of globalization is immigration. The percentage of the labor force that are immigrants declined in the United States over the first half of the last century but began to grow in the 1970s and started to grow faster in the 1980s, as seen in **Table 3.31** (which shows the immigrant share of the workforce from 1940 to 2005 for all immigrants and for those from Mexico, the largest single source country). These data indicate that the growth in the number of immigrant workers, relative to native labor force growth, has doubled in each decade starting in 1970: the immigrant share grew 1.3 percentage points in the 1970s, followed by 2.3 percentage points in the 1980s and 4.4 percentage points in the 1990s. Roughly half the growth in immigration as a share of the workforce has resulted from Mexican immigration, especially among men. Whereas immigrants made up 5.2% of the workforce in 1970 they now constitute roughly 15%, almost three times as important a presence.

Holding all else constant, a rise in immigration increases the available labor supply in the United States and thus tends to reduce wages. If one workforce group—say, those without a high school degree—experiences the largest growth in immigration, then that group will have wage growth inferior to (or real wage declines greater than) that of other less-affected groups. Since the

largest share of immigrants is found among those without a high school degree, it would be that group of native workers most affected by immigration. (Recall from Table 3.20 that 6.8% of the native-born workforce had less than a high school education, compared with 30.1% of immigrant workers.) **Table 3.32** shows that a majority of Mexican immigrants, 63.0% of men and 57.0% of women, do not have a high school education. Among non-Mexican immigrants the share without a high school degree (15.5% of women and 17.0% of men) is larger than among native workers (6.8% overall). Thus, immigration disproportionately adds to the supply of “less than high school” or “dropout” workers relative to other education levels.

At the other end of the education spectrum, Table 3.20 shows a greater share of immigrants than native workers with advanced degrees, 10.6% versus 9.6%, and a not dissimilar share of those with just a college degree, 17.2% versus 20.3%. Therefore, the impact of growing immigration has been broadly felt, including among those with college or advanced degrees. These numbers suggest that immigrants compete disproportionately with the least-skilled U.S. workers and therefore have generated pressure to lower wages for those without a high school degree, particularly since the end of the 1970s. On the other hand, immigration has probably not been associated with growing wage inequality between high- and middle-wage earners and may have lessened the growth in inequality. This might be the case because immigration has added more workers relative to native workers in the college and advanced degree categories than it has added among the high school educated or among those with some college or an associate’s degree.

The degree to which immigration adversely affects the wages of workers is a matter of some dispute among economists. The answer heavily depends on how much employers see immigrants as substitutes for native workers and, related to this, whether immigrants are working in somewhat distinct markets. A particular concern is whether new immigrants adversely affect the employment and wages of other populations (e.g., the black workforce, native Hispanics, and Hispanics who immigrated some time ago) with a disproportionate share of workers lacking a high school degree.

Given this downward pressure on the wages of low-wage workers from increased immigration, it is surprising that wages at the bottom did better in the 1990s than in the 1980s and that the 50/10 wage gap has been stable or declining since the late 1980s. However, two sets of increases in the minimum wage and many years of persistent low unemployment in the late 1990s may have offset the impact of immigration. In the early 2000s there was no low unemploy-

ment or minimum wage increases to boost low wages, and the 50/10 wage gap stopped its strong descent and instead grew slightly among women and fell more slowly among men (see Table 3.16). Immigration may be asserting an adverse impact under these conditions.

The union dimension

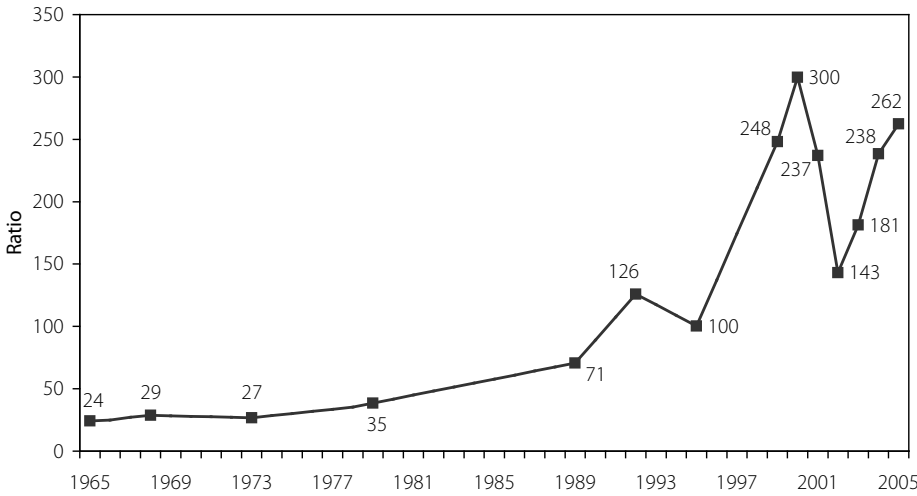
The percentage of the workforce represented by unions was stable in the 1970s but fell rapidly in the 1980s and continued to fall in the 1990s and the early 2000s, as shown in **Figure 3W**. This falling rate of unionization has lowered wages, not only because some workers no longer receive the higher union wage but also because there is less pressure on non-union employers to raise wages (a “spillover” or “threat effect” of unionism). There are also reasons to believe that union bargaining power has weakened, adding a qualitative shift to the quantitative decline. This erosion of bargaining power is partially related to a harsher economic context for unions because of trade pressures, the shift to services, and ongoing technological change. However, analysts have also pointed to other factors, such as employer militancy and changes in the application and administration of labor law, that have helped to weaken unions and their ability to raise wages.

Table 3.33 shows the union wage premium—the degree to which union wages exceed non-union wages—by type of pay (benefits or wages) for all workers (useful occupational breakdowns are no longer available) in 2005. The union premium is larger for total compensation (43.7%) than for wages alone (28.1%), reflecting the fact that unionized workers are provided insurance and pension benefits that are more than double those of non-union workers.

Table 3.34, using a different data source and methodology, presents another set of estimates of the union wage premium. Specifically, the premium is computed so as to reflect differences in hourly wages between union and non-union workers who are otherwise comparable in experience, education, region, industry, occupation, and marital status. The union premium is presented as the extra dollars per hour and the percentage higher wage earned by those covered by a collective bargaining contract. This methodology yields a lower but still sizable union premium of 14.7% overall—18.4% for men and 10.5% for women.

There are sizable differences in union wage premiums across demographic groups, with blacks and Hispanics having union premiums of 20.3% and 21.9%, respectively, far higher than the 13.1% union premium for whites. Consequently, unions raise the wages of minorities more than of whites (the

FIGURE 3Z Ratio of CEO to average worker pay, 1965-2005



Source: Authors' analysis of *Wall Street Journal*/Mercer (2006).

wage effect of unionism on a group is calculated as the unionism rate times the union premium), helping to close racial/ethnic wage gaps. Hispanic and black men tend to reap the greatest wage advantage from unionism, though minority women have roughly double the union premiums that their white counterparts enjoy. Unionized Asians have a wage premium somewhat higher than that of whites, with Asian women obtaining a premium on par with that of other minority women.

Unionized immigrant workers obtain a premium comparable to other workers, whether they have immigrated relatively recently (within 10 years) or further back in time.

Table 3.35 provides information on the union premium for various non-wage dimensions of compensation related to health insurance, pensions, and paid time off. The second and third columns present the characteristics of compensation in union and non-union settings. The difference between the union and non-union compensation packages are presented in two ways, unadjusted (simply the difference between columns two and three) and adjusted (for differences in characteristics other than union status such as industry, occupation, and establishment size). The last column presents the union premium, the percentage

TABLE 3.45 Executive annual pay, 1989-2005 (2005 dollars)

Pay category and percentile	Annual pay (\$thousands)*					1992-2005		Percent change	
	1989	1992	1995	2000	2005	(\$000)	%	1989-2005	2000-05
Realized direct compensation*									
25	n.a.	\$1,311	\$1,545	\$1,812	\$2,697	\$1,386	105.7%	n.a.	75.0%
Median	n.a.	2,114	2,536	3,292	6,050	3,936	186.2	n.a.	139.0
75	n.a.	4,032	4,548	8,110	13,360	9,328	231.4	n.a.	194.0
Average	\$2,687	4,760	3,795	11,886	10,982	6,222	130.7	309%	189.0
									-7.6

* Sum of salary, bonus, gains from options exercised, value of restricted stock at grant, and other long-term incentive award payments.

Source: Authors' analysis of *Wall Street Journal/Mercer* (2006).

TABLE 3.46 Average CEO compensation, 1993-2003 (2005 dollars)

	Annual compensation (\$millions)						Percent change		
	1993	1995	2000	2001	2002	2003	1993-2000	2000-03	1993-2003
Top CEO									
S&P 500	\$4.00	\$5.25	\$18.86	\$15.52	\$11.15	\$9.89	371.0%	-47.6%	147.0%
MidCap 400	2.42	3.13	5.48	5.09	5.07	4.35	127.0	-20.7	80.0
SmallCap 600	1.46	1.68	2.67	2.79	2.39	2.19	83.0	-18.1	50.0
Next highest four managers									
S&P 500	\$1.58	\$1.93	\$5.23	\$4.77	\$3.61	\$3.34	232.0%	-36.1%	112.0%
MidCap 400	0.96	1.06	1.91	1.59	1.52	1.45	98.0	-23.7	51.0
SmallCap 600	0.50	0.67	0.93	0.86	0.82	0.73	84.0	-21.4	45.0

Source: Authors' analysis of Bebchuk and Grinstein (2005), Table 1.

difference between union and non-union compensation, calculated using the “adjusted” difference.

These data show that a union premium exists in every dimension of the compensation package. Unionized workers are 28.2% more likely to be covered by employer-provided health insurance. Unionized employers also provide better health insurance, paying an 11.1% higher share of single-worker coverage and a 15.6% higher share of family coverage. Moreover, deductibles are \$54, or 18.0%, less for union workers. Finally, union workers are 24.4% more likely to receive health insurance coverage in their retirement.

Similarly, 71.9% of union workers have employer-provided pensions, compared to only 43.8% of non-union workers. Thus, union workers are 53.9% more likely to have pension coverage. Union employers spend 36.1% more on defined-benefit plans but 17.7% less on defined-contribution plans. As defined-benefit plans are preferable, as discussed earlier, these data indicate that union workers are more likely to have the better form of pension plans.

Union workers also get more paid time off. Their three weeks of vacation amount to about three days (0.63 weeks) more than non-union workers receive. Including both vacations and holidays, union workers enjoy 14.3% more paid time off.

Table 3.36 provides a more refined analysis of the union wage premium by comparing the employer costs in unionized settings to non-union settings in comparable occupations and establishments (factories or offices). Specifically, the estimated union premium controls for the sector (public or private) in which the establishment is located, the establishment’s size, full-time or part-time status of its employees, and its detailed industry and region. Unionized workers are 18.3% more likely to have health insurance, 22.5% more likely to have pension coverage, and 3.2% more likely to have paid leave. Unionized employers pay more for these benefits because the benefits they provide are better than those offered by non-union employers and because unionized employers are more likely to provide these benefits. For instance, unionized employers pay 77.4% more in health insurance costs per hour, 24.7% more because of the greater incidence and 52.7% because of the better benefit.

This analysis also shows that unionized employers pay 56.0% more per hour for pension plans, 28.4% from a greater incidence of providing pensions and 27.7% from providing better pensions. Similarly, unionized workers have 11.4% greater costs for their paid leave, mostly because of the more extensive paid leave (the 8.0% “better benefit” effect).

The effect of the erosion of unionization on the wages of a segment of

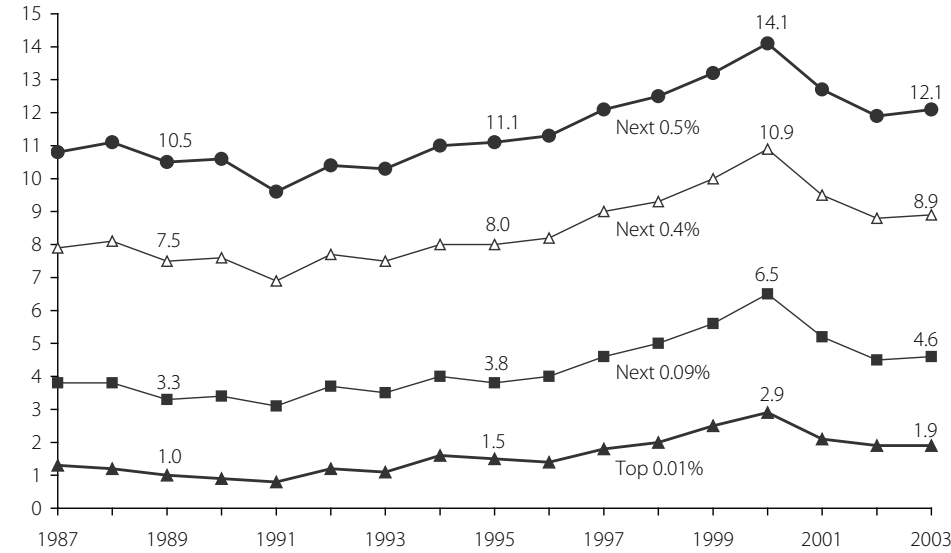
TABLE 3.47 CEO pay in advanced countries, 1988-2005 (2005 dollars)

Country	CEO compensation			Percent change 1988-2005	Ratio of CEO to worker pay, 2005*	Foreign pay relative to U.S. pay, 2005 U.S. = 100	
	(\$000)					CEO	Worker
	1988	2003	2005				
Australia	\$180,760	\$737,162	\$707,747	292%	15.6	33%	82%
Belgium	383,718	739,700	987,387	157	18.0	46	99
Canada	423,358	944,375	1,068,964	152	23.1	49	83
France	404,331	780,380	1,202,145	197	22.8	56	95
Germany	412,259	1,013,171	1,181,292	187	20.1	55	106
Italy	342,492	893,035	1,137,326	232	25.9	53	79
Japan	502,639	484,909	543,564	8	10.8	25	91
Netherlands	396,403	716,387	862,711	118	17.8	40	87
New Zealand		476,926	396,456		24.9	18	29
Spain	352,006	658,039	697,691	98	17.2	32	73
Sweden	234,670	743,160	948,990	304	19.2	44	89
Switzerland	510,567	1,263,450	1,390,899	172	19.3	64	130
United Kingdom	453,485	881,047	1,184,936	161	31.8	55	67
United States	805,490	2,386,762	2,164,952	169	39.0	100	100
Non-U.S. average	383,057	794,749	946,931	173	20.5	44	85

* Ratio of CEO compensation to the compensation of manufacturing production workers.

Source: Authors' analysis of Towers Perrin (1988, 2003, and 2005).

FIGURE 3AA Shares of earnings among top 1% of earners, 1989-2003



Source: Authors' analysis of Schwabish (2006).

the workforce depends on the degree to which deunionization has taken place and the degree to which the union wage premium among that segment of the workforce has declined. **Table 3.37** shows both the degree to which unionization and the union wage premium have declined by occupation and education level over the 1978-2005 period (1979 data were not available). These data, which are for men only, are used to calculate the effect of weakened unions (less representation and a weaker wage effect) over the period on the wages of particular groups and the effect of deunionization on occupation and education/wage differentials.

Union representation fell dramatically among blue-collar and high-school-educated male workers from 1978 to 2005. Among the high-school-graduate workforce, unionization fell from 37.9% in 1978 to 19.0% in 2005, or by about half. This decline obviously weakened the effect of unions on the wages of both union and non-union high-school-educated workers. Because unionized high school graduates earned about 17% more than equivalent non-union workers (a premium that declined from roughly 22% in 1978, not shown in table), unionization raised the wage of the average high school graduate by

TABLE 3.48 Effect of changing occupational composition on education

Job characteristic	Change		
	2004	2014	2004-14
Annual earnings	\$34,694	\$35,088	1.1%
Education level			
High school or less	43.5%	42.6%	-0.9%
Some college	28.7	28.7	0.0
College or more	27.7	28.7	1.0
	100.0	100.0	
Education/training			
Work experience in a related occupation	7.6%	7.4%	-0.2%
Short-term on-the-job training	35.6	35.1	-0.5
Moderate-term on-the-job training	19.9	19.1	-0.8
Long-term on-the-job training	7.6	7.3	-0.3
Postsecondary vocational award	5.4	5.7	0.2
Associate's degree	3.7	4.1	0.4
Bachelor's degree	11.7	12.4	0.7
Bachelor's or higher degree, plus work experience	4.5	4.6	0.1
Doctoral degree	1.3	1.5	0.2
First professional degree	1.3	1.3	0.1
Master's degree	1.5	1.6	0.1
Total	100.0	100.0	

Source: Authors' analysis of BLS data.

8.2% in 1978 (the “union effect”). Unions had a 0.9% impact on male college graduate wages in 1978, leaving the net effect of unions on narrowing the college/high school gap by 7.3 percentage points in that year. The decline in union representation from 1978 to 2005, however, reduced the union effect for high school male workers to just 3.3% in 2005 while hardly affecting college graduates; thus, unions closed the college/high school wage gap by only 2.8 percentage points in 2005. The lessened ability of unions to narrow this wage gap (from a 7.3% to a 2.8% narrowing effect) contributed to a 4.4 percentage-point rise in the college/high school wage differential from 1978 to 2005, an amount equal to 20.1% of the total rise in this wage gap. In other words, deunionization can explain a fifth of the growth in the college/high school wage gap among men between 1978 and 2005.

The weakening of unionism's wage impact had an even larger effect on

blue-collar workers and on the wage gap between blue-collar and white-collar workers. The 43.1% unionization rate among blue-collar workers in 1978 and their 26.6% union wage premium boosted blue-collar wages by 11.5%, thereby closing the blue-collar/white-collar wage gap by 11.3 percentage points in that year. The union impact on this differential declined as unionization and the union wage premium declined, such that unionism reduced the blue-collar/white-collar differential by 4.1 rather than 11.3 percentage points in 2005, a 7.2 percentage-point weakening. This lessened effect of unionism can account for 65% of the 11.1 percentage-point growth of the blue-collar/white-collar wage gap over the 1978-2005 period. It was primarily driven by the enormous decline of unionism among blue-collar men, from 43.1% in 1978 to just 19.2% in 2005. In that nearly 30-year period unionism among blue-collar workers lost much of its ability to set wage patterns.

Unions reduce wage inequalities because they raise wages more at the bottom and in the middle of the wage scale than at the top. Lower-wage, middle-wage, blue-collar, and high-school-educated workers are also more likely than high-wage, white-collar, and college-educated workers to be represented by unions. These two factors—the greater union representation and the larger union wage impact for low- and mid-wage workers—are key to unionization's role in reducing wage inequalities.

The larger union wage premium for those with low wages, in lower-paid occupations, and with less education is shown in **Table 3.38**. For instance, the union wage premium for blue-collar workers in 1997, 23.3%, was far larger than the 2.2% union wage premium for white-collar workers. Likewise, the 1997 union wage premium for high school graduates, 20.8%, was much higher than the 5.1% premium for college graduates. The union wage premium for those with a high school degree or less, at 35.5%, is significantly greater than the 24.5% premium for all workers.

Table 3.38 presents a comprehensive picture of the impact of unions on employees by showing the union wage premiums by the wage distribution. The sample is split into five equal groups of workers from the lowest wage to the highest. The union wage premium was far greater among low-wage workers (27.9%) than among middle-wage (18.0%) or the highest-wage (10.5%) workers. The table also shows the greater unionization rates in the middle of the wage distribution and the greater unionization at the bottom than the top.

There are several ways that unionization's impact on wages goes beyond the workers covered by collective bargaining to affect non-union wages and labor practices. For example, in industries and occupations where a strong core

of workplaces are unionized, non-union employers will frequently meet union standards or, at least, improve their compensation and labor practices beyond what they would have provided if there were no union presence. This dynamic is sometimes called the union threat effect, the degree to which non-union workers get paid more because their employers are trying to forestall unionization.

There is a more general mechanism (without any specific “threat”) in which unions have affected non-union pay and practices: unions have set norms and established practices that become more generalized throughout the economy, thereby improving pay and working conditions for the entire workforce. This has been especially true for the 75% of workers who are not college educated. Many fringe benefits, such as pensions and health insurance, were first provided in the union sector and then became more generalized—though, as we have seen, not universal. Union grievance procedures, which provide due process in the workplace, have been adapted to many non-union workplaces. Union wage-setting, which has gained exposure through media coverage, has frequently established standards of what workers generally expect from their employers. Until the mid-1980s, in fact, many sectors of the economy followed the patterns set in collective bargaining agreements. As unions have weakened, especially in the manufacturing sector, their ability to set broader patterns has diminished. However, unions remain a source of innovation in work practices (e.g., training, worker participation) and in benefits (e.g., child care, work-time flexibility, sick leave).

The impact of unions on wage dynamics and the overall wage structure is not easily measurable. The only dimension that has been subject to quantification is the threat effect. The union effect on total non-union wages is nearly comparable to the effect of unions on total union wages. **Table 3.39** illustrates the union impact on union, non-union, and average wages among workers with a high school education. Assuming that unions have raised the wages of union workers by 20.0%, the average high school wage would be raised by 5.0% (25% of 20%). The total effect of unions on the average high school wage in this example is an 8.8% wage increase, 3.8 percentage points of which are due to the higher wages earned by non-union workers and 5.0 percentage points of which