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“A Very Uneven Road: U.S. Labor Markets in the Past Thirty Years”

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Part I

The Great Recession: The Great Divide

Chapter 2

A Very Uneven Road: U.S. Labor Markets in the Past Thirty Years

Harry J. Holzer and Marek Hlavac

In the past three decades, the American economy has experienced large swings in performance, over shorter and longer time periods, and has undergone major structural changes. During the 1980s, we first endured a severe recession, engineered by the Federal Reserve Bank to fight high rates of inflation, and then recovered with a lengthy period of expansion and economic growth. Another and milder recession in the early 1990s was followed by an even more robust period of expansion, often called “the Great Boom” or “the Roaring Nineties,” during which high productivity and income growth returned to the U.S. economy. But in the decade of the 2000s, which once again began with a mild recession, the economic picture was more mixed: a shorter period of recovery, during which productivity growth was high but income growth was much lower, was followed by the “Great Recession,” the most severe economic downturn since the 1930s.

How did all of these economic forces play out in the U.S. labor market during this time period? In each economic cycle, how did trends in wages, employment, and annual earnings reflect these economic developments? Which groups of workers benefited from economic growth, and which did not? Despite the periodic ups and downs in the economy, what long-term trends do we find in the labor market? And does the current severe downturn, from which our recovery is likely to be painfully slow, change our long-term perceptions?

We use data from the Current Population Surveys for over thirty years to answer these questions. The analysis proceeds in two parts. First, we consider secular trends in labor market outcomes over the four years that constitute labor market peaks during this time period: 1979, 1989, 2000, and 2007. We measure trends in hourly wages and annual earnings (both adjusted for inflation) as well as employment rates across these years, considering how these vary by gender and educational group as well as other demographic traits, and also how they vary over the earnings distribution. We also look at the changing occupational and industrial distribution of American jobs to get more of a sense of the structural forces associated with the labor market outcomes we observed.

Second, we consider peak-to-trough changes in unemployment rates, unemployment durations, and the percentages of the unemployed enduring lengthy spells of unemployment during each of the four recessions: 1979–1982, 1989–1992, 2000–2003, and 2007–2010.¹ This analysis indicates the extent to which the current downturn is similar to that of 1979–1982 and the other milder ones; we also consider some evidence on the labor market recovery through 2013. We conclude with some thoughts about long-term labor market trends and policy implications to deal with both the severe downturn and secular developments.

Of course, many of the labor market developments we present have been described in other publications, and the causes of these labor market trends have been much analyzed and debated by labor economists over the past few decades. But most of the research does not cover the past full decade, including the last few years of the 2000–2007 cycle and the Great Recession. One of our contributions is to provide an up-to-date summary, accessible to both economists and non-economists, of secular trends and cyclical swings over three decades, including the last full cycle and the Great Recession.² We also interpret both short-term and long-term trends and their causes in light of the most recent evidence and generate some policy prescriptions for short-term and longer-term challenges based on all of this. We review not only the more technical literature by labor economists and describe what we have learned from that literature about the causes of trends but we also attempt to supplement it with more recent knowledge in various places.

The results of our analysis can be summarized as follows:

- Overall labor market performance in the United States has been very uneven across the past three decades. In the aggregate, moderate gains in wages and earnings during the 1979–1989 cycle were followed by more substantial gains in the 1989–2000 cycle and then very modest ones during 2000–2007.
- Despite this unevenness in overall labor market performance, certain common patterns appear across decades. In general, women and/or more-educated workers gained the most in earnings and employment, while men and/or less-educated workers gained the least (or actually lost ground in some cases). Within these groups, workers at the top of the earnings distribution gained the most compared to those at the middle or bottom, reflecting dramatic increases in inequality. Along some dimensions, younger and/or minority workers as well as those in the Midwest also lost ground relative to other groups.
- Dramatic decreases in employment in manufacturing and in production and clerical jobs, relative to higher- and lower-paying categories, further reflect important structural shifts in the demand for labor. But significant employment growth in other industries (such as construction and health services) and occupations (such as technicians) indicates that the middle of the job market remains substantial for those with appropriate skills.
- Of the four recessions during these three decades, two were quite mild and the other two were quite severe—especially the Great Recession of 2008 and beyond. Very large increases in unemployment rates and durations have occurred in the recent downturn and were experienced primarily by less-educated, younger, and/or minority workers, all of whom had already experienced relative declines in their earnings and employment over the past three decades. In addition, the recovery in the labor market so far has been quite modest, despite a fairly large decline observed in the nation’s unemployment rate.

Overall, we find a labor market in which progress has been very uneven over time and across labor market groups. Inequality has widened dramatically, and important structural changes have occurred. The current downturn is likely to be followed by a gradual recovery, during which time many of the unemployed will suffer from long-term “scarring.” And even after fully recovering, labor markets might continue to show only modest improvements, of the kind we saw from 2000 to 2007.

Appropriate policy responses should focus on short-term assistance to the unemployed as well as longer-term efforts to improve the skills of less-educated American workers and the quality of the jobs they get. Direct assistance to improve earnings among the less-educated, in

the form of institutions to raise wages and cash assistance to the working poor (through expansions in the Earned Income Tax Credit [EITC]), should be considered as well.

DATA AND EMPIRICAL FINDINGS

We have analyzed data from the Current Population Survey (CPS), a monthly survey of about 50,000 households conducted by the U.S. Census Bureau and the Bureau of Labor Statistics (BLS), to calculate all labor market statistics. Annual earnings figures were obtained from the Annual Social and Economic Supplement (ASEC, the “March supplement”) of the CPS for the preceding year. Hourly wages, employment-population ratios, and unemployment rates and durations come from the Outgoing Rotation Groups (ORGs) of the CPS monthly earner study. We also relied on a crosswalk from the Integrated Public Use Microdata Series (IPUMS-USA), published by the University of Minnesota, to classify occupations consistently across the years in our study.

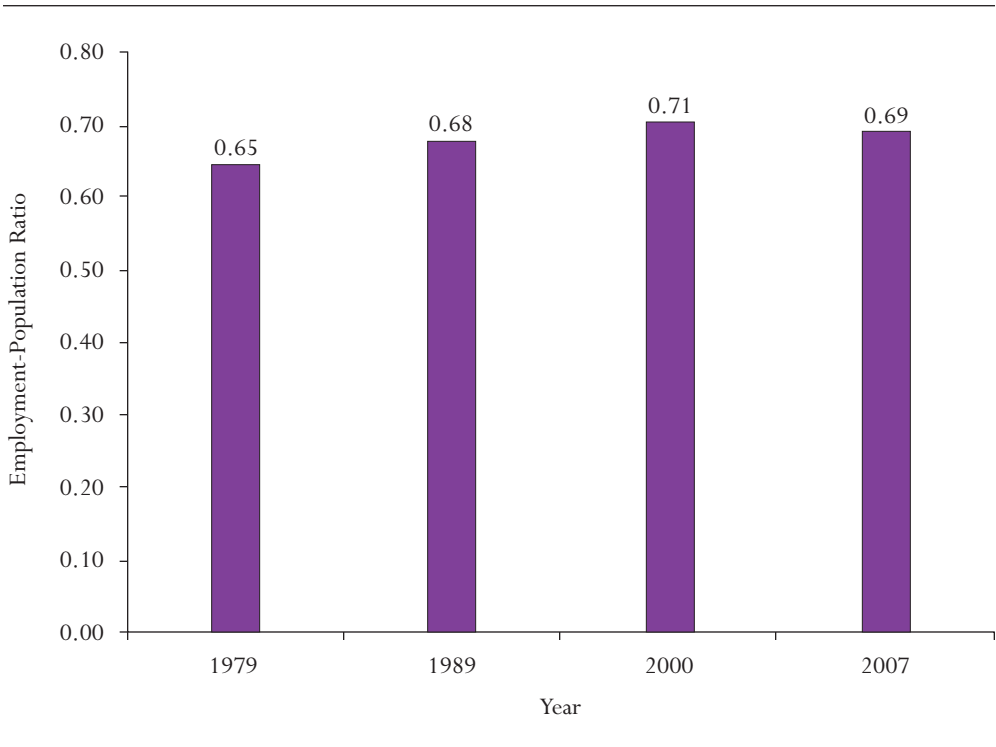
To express annual earnings and hourly wages in real 2010 dollars, we deflated nominal wage and earning figures using the chain-weighted Personal Consumption Expenditures (PCE) version of the Gross Domestic Product (GDP) deflator constructed by the Bureau of Economic Analysis. Our sample is limited to individuals between the ages of sixteen and sixty-nine and excludes full-time students and self-employed workers. Furthermore, it excludes individuals employed in the agriculture industry, as well as those in military or farming occupations.³

To preserve the confidentiality of survey respondents, the U.S. Census Bureau top-codes high incomes and earnings: values that exceed specified levels are reported at specified top-coded levels. To adjust annual earnings for top-coding, we used a cell mean series, created by Jeff Larrimore and his colleagues (2008), that provides the mean of all income values above the top-code for individuals in the public use March supplement of the CPS. For hourly wages, we applied a log-normal imputation to adjust top-coded values from the ORGs of the monthly CPS earner study, as proposed by John Schmitt (2003).

SECULAR LABOR MARKET TRENDS ACROSS THREE DECADES

We begin by presenting data on labor market outcomes in the cyclical peak years across the past three decades, which include 1979, 1989, 2000, and 2007. Figures 2.1 to 2.5 present aggregate data on three key labor market outcomes for those years: employment-population rates, hourly wages, and annual earnings. Both means and medians appear for the wage and earnings measures. Annual earnings represent the product of hourly wages and total hours worked per year, where the latter represents hours worked per week (part-time versus full-time) and weeks worked per year, and weeks worked (out of fifty) approximates the employment rate of any group of workers, which is one of our three measured labor market outcomes. Therefore, annual earnings should reflect both the wage and employment outcomes in the labor market that we separately consider.

Figures 2.1 to 2.5 demonstrate consistent progress in aggregate labor market outcomes across the three decades, but the rate of progress is uneven, both over time and across specific outcomes. For instance, mean real hourly wages rose very modestly in the periods 1979–1989 and 2000–2007 (by 3.8 and 6.9 percent, respectively), but much more substantially in the period 1989–2000 (by 17.6 percent). Median wages show similar trends. On the other hand, employment rates rose quite strongly in the years 1979–1989, and then they continued to increase in the period 1989–2000 before declining somewhat after 2000. As a result of these wage and employment trends, annual earnings rose somewhat in the years 1979–1989 (with mean

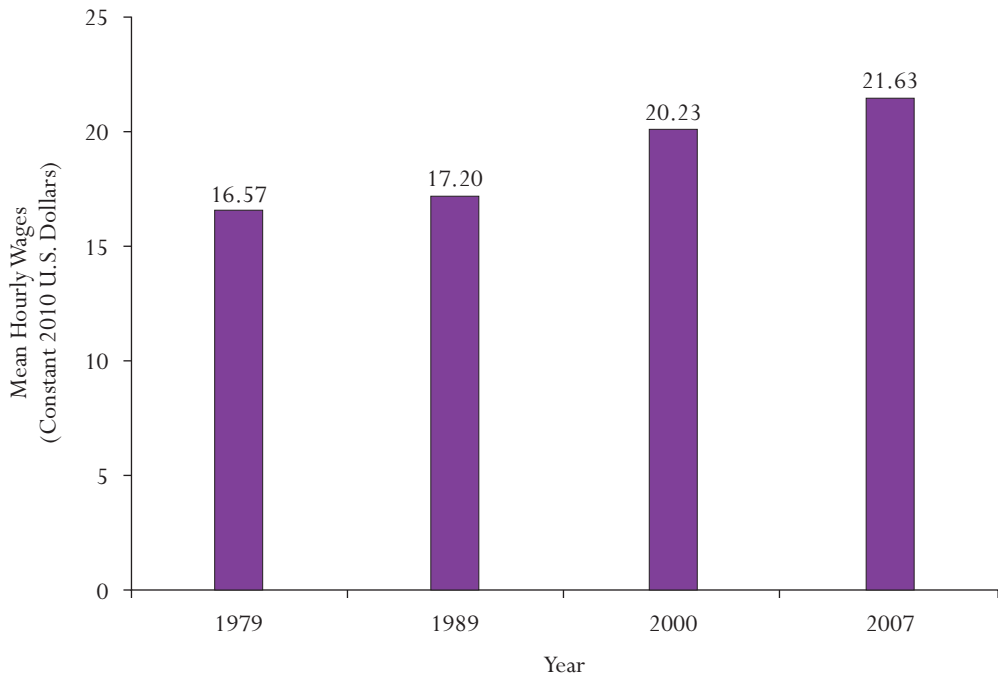
FIGURE 2.1 *Employment-Population Ratio, 1979–2007*

Source: Authors' calculations using Current Population Survey (CPS), Outgoing Rotation Groups.

and median wages rising 8 and 10 percent, respectively), and again during the years 1989–2000 (with mean and median earnings rising 23 and 15 percent), before flattening out after 2000 (with mean and median earnings rising only about 3 percent each).

It is noteworthy that, in contrast to some other recent evaluations of labor market trends (for example, Mishel et al. 2012), we find at least some real wage and earnings growth quite consistently occurring in the U.S. labor market over the past three decades. The extent to which our estimates are a bit more positive than some others might be due to our use of a price deflator that rises more modestly and more accurately than other measures of inflation (like the Consumer Price Index [CPI]) over time, as well as some other differences in sample composition.⁴

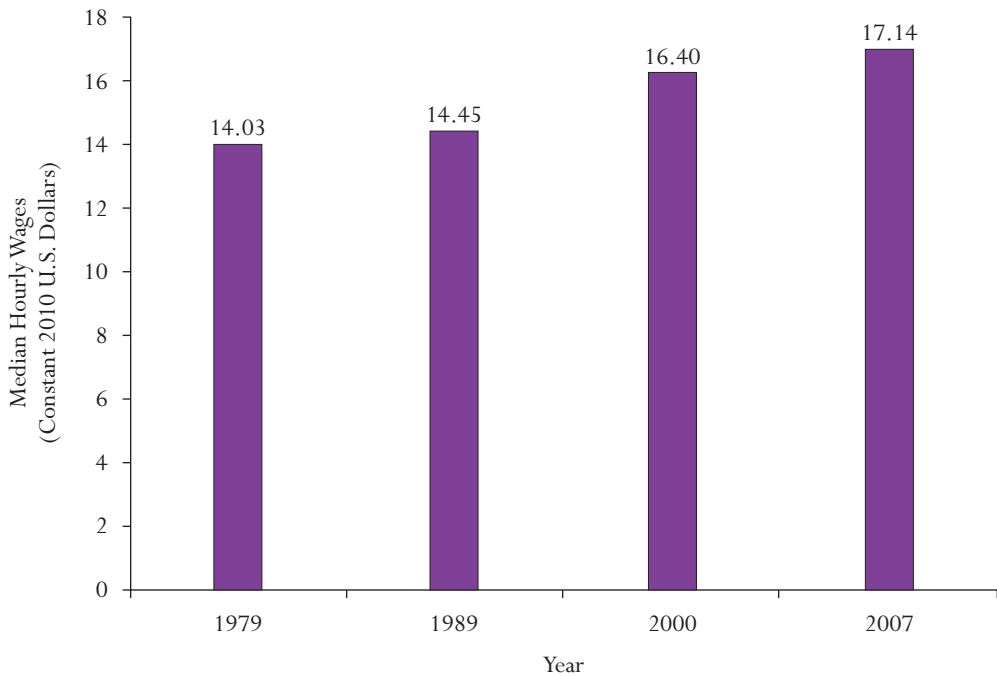
Having said that, real wage increases were very modest in the 1980s, as were wage and especially real earnings increases after 2000. What might account for the unevenness of these trends over time? Real wages declined in the aftermath of the second OPEC (Organization of the Petroleum-Exporting Countries) oil shock of the late 1970s and recovered only a bit afterward (owing to quite modest productivity growth). Any earnings growth observed during the 1980s was driven mostly by growth in employment, which probably reflected the aging of the Baby Boomer generation into their prime employment years. After double-digit inflation rates were brought down by a severe recession in the years 1981–1982, it is likely that a more moderate macroeconomic environment enabled the U.S. labor market to achieve lower aggregate unemployment and therefore raised employment rates during that time as well (Bernanke 2004).

FIGURE 2.2 *Mean Hourly Wages, 1979–2007*

Source: Authors' calculations using CPS, Outgoing Rotation Groups.

In contrast, the cycle 1989–2000 was characterized by what has become known as “the Great Boom” or “the Roaring Nineties” (Krueger and Solow 2002; Stiglitz 2003). After a mild recession during 1990–1991, very strong productivity growth (associated with new technological developments) allowed wages to rise significantly with low inflation. At the same time, strong consumer demand translated into strong employer demand for labor, which drove the unemployment rate to a thirty-year low, and other policies (like welfare reform and expansions of the Earned Income Tax Credit) also raised labor force participation rates among certain groups (like less-educated women), leading to increasing employment rates in the population (Blank 2002). As a result, both wages and earnings rose substantially in this period, as did employment rates. Also, it is noteworthy that most labor market outcomes for this entire period were much stronger in the 1995–2000 period than they were from 1989 to 1995, suggesting that the real boom was shorter-lived than the data for the whole period suggest (Holzer and Hlavac 2011).

But labor market outcomes over the 2000–2007 cycle were much less positive than earlier ones. While productivity growth remained very strong, much less of it showed up in the hourly wages of most American workers, perhaps reflecting growth in health care costs and other measurement issues as well as other labor market and institutional trends.⁵ At the same time, the high levels of employment achieved in the earlier decade were not fully sustained: labor force activity declined a bit, and unemployment among labor force participants also rose. Overall, the results suggest that employer demand for labor was weaker after 2000 than in the previ-

FIGURE 2.3 *Median Hourly Wages, 1979–2007*

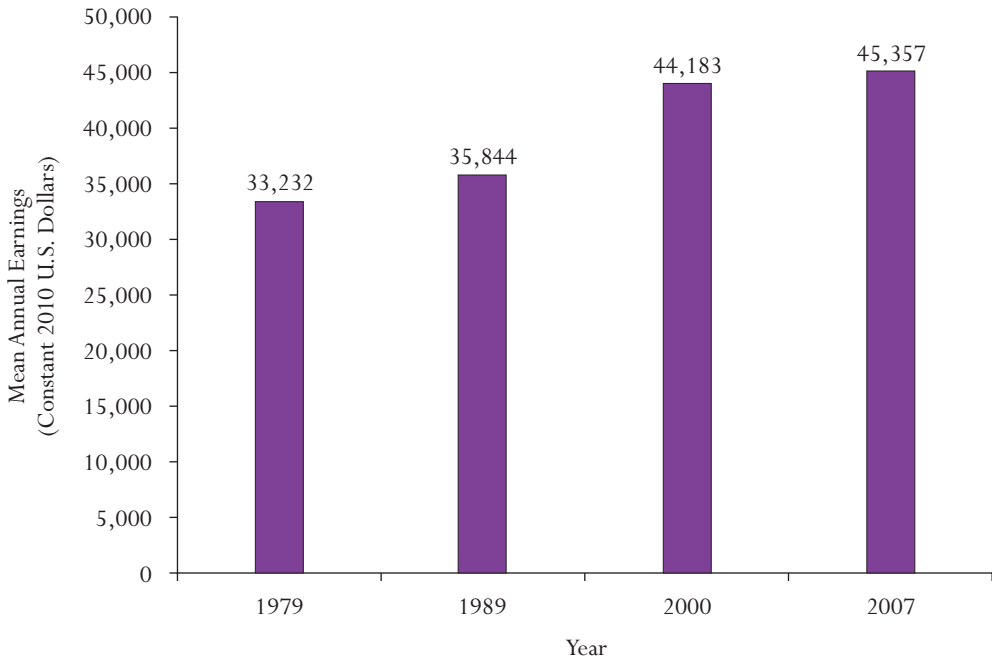
Source: Authors' calculations using CPS, Outgoing Rotation Groups.

ous cycle, with employers better able to produce the goods and services demanded by consumers without needing to hire many more workers.⁶

Overall, then, labor market progress in the aggregate has been extremely uneven across the past three decades. But within each period, how were any observed aggregate gains distributed across different demographic and earnings groups in the labor market? When were gains widely shared, and when not? In other words, were the gains very unevenly distributed across groups (resulting in greater labor market inequality), as well as over time?

Mean hourly wages, employment rates, and annual earnings for the years 1979 and 2007 appear in table 2.1. These are presented separately by gender and educational attainment, and also by race and region. In this table, we consider the absolute magnitudes of employment outcomes achieved by each group, so we can measure what happened to gaps across these groups over the entire period; subsequently, we consider the patterns of changes in outcomes during each of the three cycles, to more carefully review the progress made by different groups in those years.

The results presented in table 2.1 indicate that labor market gaps between males and females narrowed between 1979 and 2007, while those between education groups increased quite substantially. Focusing on annual earnings, the ratio of female-to-male earnings rose from 0.49 percent to 0.69 in that period. In contrast, the ratio of earnings of high school to college graduates fell from 0.65 to 0.54 over the same period, and that between college graduates and those with advanced degrees (beyond the B.A.) fell from 0.77 to 0.72.⁷

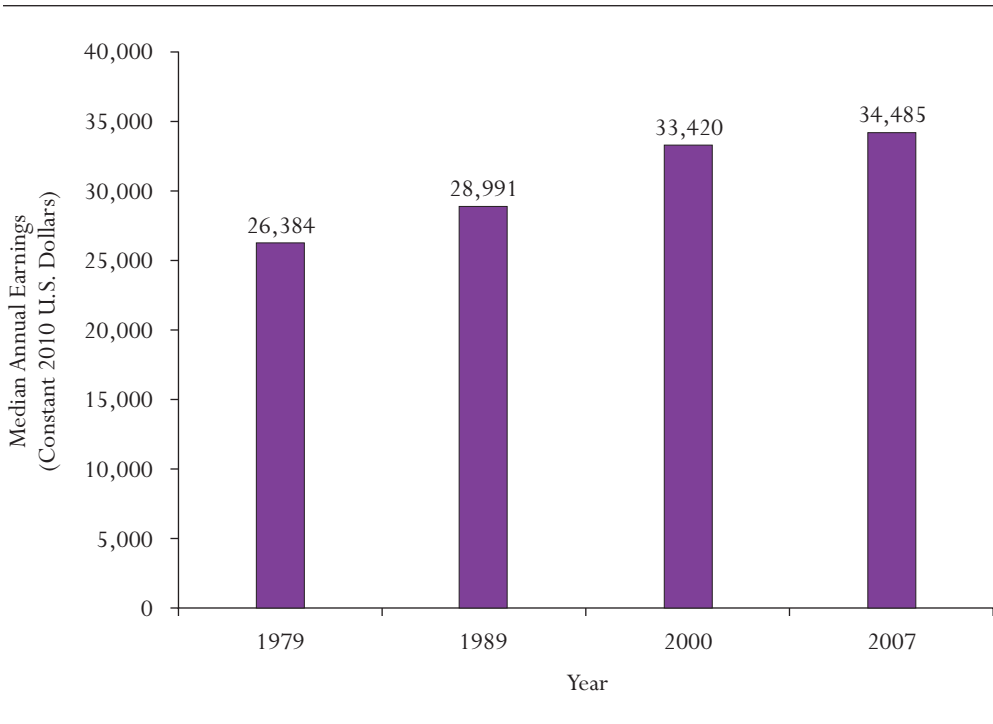
FIGURE 2.4 *Mean Annual Earnings, 1979–2007*

Source: Authors' calculations using CPS, Annual Social and Economic Supplement (ASEC).

When we consider trends by educational group and gender together, we find that hourly wages for less-educated men—that is, those with a high school diploma or less—were essentially flat over this entire period, while their annual earnings declined slightly. Somewhat more positive trends in wages and earnings can be observed for college-educated men as well as for less-educated women, while the greatest advances are observed for highly educated women. Indeed, college-educated women had annual earnings well below those of less-educated men in 1979, while by 2007 the former had earnings roughly 50 percent higher than the latter.

It is also noteworthy that both employment and hourly wage growth contributed to the observed patterns of earnings growth between males and females, with both being more rapid among females. Indeed, employment rates declined among men during this time period while rising for women. As we note more clearly later, positive correlations between changes in wages and employment suggest shifts in labor demand (relative to labor supply) across groups, which are likely to have contributed to the patterns of outcomes observed here. In this case, labor demand seems to have shifted away from less-educated workers, particularly men, and toward more-educated workers, especially women, over the entire period.

A few other findings in table 2.1 are also noteworthy. The annual earnings of African Americans relative to those of whites stayed relatively constant over time (at about 0.73 to 0.75), but the relative wages of the former declined (from 0.83 to 0.78). Relative wages and earnings of Hispanics also declined, while their employment rates rose quite substantially—probably reflecting a large influx of less-educated Hispanic immigrants into the workforce in this

FIGURE 2.5 *Median Annual Earnings, 1979–2007*

Source: Authors' calculations using CPS, ASEC.

period (Borjas 2007). And relative wages and earnings of workers in the Midwest declined over time relative to those of workers in other regions: Midwestern workers had the highest hourly wages in 1979 but nearly the lowest by 2007. In fact, the heavy concentration of Midwestern workers and especially African American men in the durable manufacturing jobs that disappeared after 1980 may have contributed to the difficulties experienced by both groups (Bound and Freeman 1992; Bound and Holzer 1993), as we further note later.

LABOR MARKET CHANGES ACROSS GROUPS AND WITHIN TIME PERIODS

Exactly how and when all of these labor market developments occurred becomes clearer in table 2.2, where we present data for the changes that are observed within the periods 1979–1989, 1989–2000, and 2000–2007 in hourly wages, employment-population ratios, and annual earnings for all workers and by gender and educational attainment. But even within gender and education groups, inequality might have risen quite substantially in the past three decades. So similar data appear in tables 2.3 and 2.4 across the different parts of the wage and earnings distribution (namely, the tenth, fiftieth, ninetieth, and ninety-ninth percentiles of each distribution), with hourly wage changes appearing in table 2.3 and annual earnings changes in table 2.4. Changes in wages and earnings appear as cumulative annual growth rates, while overall absolute changes are presented for employment-population ratios.

TABLE 2.1 *Mean Hourly Wages, Employment-Population Ratios, and Mean Annual Earnings, by Gender, Education, Race, and Region, 1979–2007*

Category	Mean Hourly Wages (2010 Dollars)		Employment/ Population Ratio		Mean Annual Earnings (2010 Dollars)	
	1979	2007	1979	2007	1979	2007
All	16.57	21.63	0.65	0.69	33,232	45,357
By gender						
Men	19.60	24.01	0.79	0.75	43,062	53,404
Women	12.72	19.08	0.53	0.64	20,894	36,767
By education						
Less than high school	13.42	12.51	0.48	0.47	24,503	22,924
High school	15.26	16.67	0.66	0.66	29,704	32,627
Some college	16.78	19.34	0.74	0.73	33,460	39,774
College	21.50	28.33	0.78	0.79	45,678	60,302
Advanced degree	25.42	35.82	0.87	0.81	59,180	83,709
By education and gender						
High school or less						
Men	17.33	17.51	0.74	0.68	36,386	35,200
Women	11.36	13.65	0.47	0.54	18,056	24,726
Bachelor's degree or more						
Men	25.99	34.91	0.91	0.85	61,938	84,104
Women	17.37	26.69	0.68	0.75	30,616	52,847
By race						
White	17.05	23.13	0.66	0.71	34,632	49,267
Black	14.07	17.98	0.60	0.65	25,442	36,767
Hispanic	13.89	16.53	0.60	0.67	26,404	32,008
By region						
Northeast	16.72	23.57	0.64	0.71	34,051	49,343
Midwest	16.82	20.75	0.66	0.72	34,319	43,543
South	15.43	20.42	0.63	0.68	30,724	43,159
West	17.96	22.87	0.65	0.68	34,877	47,422

Source: Authors' calculations based on Current Population Survey, Outgoing Rotation Groups and Annual Social and Economic Supplement.

Notes: The sample is restricted to ages sixteen to sixty-nine. It excludes agriculture and the military. It also excludes full-time students and self-employed individuals. Individuals with hourly wages below \$2 or above \$5,000, as well as those with annual earnings below \$1,000 or above \$10 million, are not included.

The results for all workers in table 2.2 confirm what we saw earlier in figure 2.1—namely, that both employment and earnings grew rapidly in the 1989–2000 cycle in the United States, while employment grew rapidly in the 1979–1989 and 1989–2000 periods. Rising employment rates generated moderate earnings growth in the first period, while declining employment offset modest real wage growth to generate quite low growth in annual earnings (0.38 percent per year) in the 2000–2007 period.

Growth rates were very uneven, however, across gender and education groups as well as over time. In general, both wages and employment grew more rapidly for women than for men. This is true in each of the three cycles and within most education groups. The differences in

TABLE 2.2 *Changes in Mean Hourly Wages, Employment-Population Ratios, and Mean Annual Earnings, by Gender and Education, 1979–1989, 1989–2000, and 2000–2007*

Category	Mean Hourly Wages (Cumulative Annual Growth Rate)		Employment-Population Ratio (Absolute Change During Time Period)		Mean Annual Earnings (Cumulative Annual Growth Rate)				
	1979–1989	1989–2000	2000–2007	1979–1989	1989–2000	2000–2007	1979–1989	1989–2000	2000–2007
All	0.37%	1.49%	0.96%	0.03	0.03	-0.01	0.76%	1.92%	0.38%
Men, by education									
Less than high school	-1.23	-0.26	0.39	-0.06	0.00	-0.01	-1.47	0.20	-0.59
High school	-0.83	0.75	0.17	-0.05	-0.03	-0.03	-0.57	0.47	-0.63
Some college	-0.12	0.88	0.15	-0.03	-0.01	-0.04	0.29	1.19	-0.84
College	0.32	1.51	0.64	-0.02	-0.01	-0.02	0.76	1.90	-0.63
Advanced degree	1.12	1.68	1.29	-0.04	-0.03	-0.01	0.87	3.12	-0.21
Women, by education									
Less than high school	-0.64	0.52	0.72	0.01	0.03	-0.02	0.49	0.71	0.58
High school	0.18	1.10	0.65	0.05	0.02	-0.02	1.05	1.34	0.67
Some college	1.10	1.05	0.67	0.07	0.02	-0.02	1.95	1.55	0.76
College	1.53	1.90	0.76	0.09	0.00	-0.01	2.56	2.03	0.57
Advanced degree	1.58	1.76	0.87	0.04	-0.00	-0.02	1.89	2.57	0.85

Source: Authors' calculations based on CPS, Outgoing Rotation Groups, and ASEC.

Notes: The sample is restricted to ages sixteen to sixty-nine. It excludes agriculture and the military. It also excludes full-time students and self-employed individuals. Individuals with hourly wages below \$2 or above \$5,000, as well as those with annual earnings below \$1,000 or above \$10 million, are not included.

TABLE 2.3 *Changes in Hourly Wages Across the Wage Distribution, by Gender and Education, 1979–1989, 1989–2000, and 2000–2007*

Category	Tenth Percentile (Cumulative Annual Growth Rate)		Fiftieth Percentile (Median) (Cumulative Annual Growth Rate)		Ninetieth Percentile (Cumulative Annual Growth Rate)		Ninety-Ninth Percentile (Cumulative Annual Growth Rate)			
	1979–1989	2000–2007	1979–1989	2000–2007	1979–1989	2000–2007	1979–1989	2000–2007		
All	-0.91%	1.43%	0.13%	0.63%	1.16%	0.89%	1.20%	1.11%	2.63%	1.04%
Men, by education										
Less than high school	-1.88	0.91	0.66	0.55	-0.56	-0.88	0.12	-0.55	0.36	0.60
High school	-1.44	0.76	-0.01	-0.11	0.26	-0.25	0.33	-0.16	1.38	1.06
Some college	-1.17	1.64	-0.27	0.01	0.67	0.26	0.32	0.84	0.59	1.39
College	-0.44	1.13	-0.27	0.24	1.13	0.39	1.42	-0.12	2.61	-0.17
Advanced degree	0.50	1.31	0.60	0.72	1.24	1.11	1.72	1.81	1.78	-1.69
Women, by education										
Less than high school	-1.65	1.47	-0.07	0.56	0.64	-0.05	0.76	0.02	0.23	3.76
High school	-1.63	1.37	0.11	0.20	1.08	0.76	1.01	0.66	1.38	1.60
Some college	-0.78	1.28	0.24	0.39	0.96	1.71	1.01	0.99	1.00	1.98
College	0.73	1.14	0.18	0.35	1.45	1.75	2.27	0.86	1.80	3.53
Advanced degree	1.21	1.25	0.29	0.36	1.45	1.65	2.10	1.17	3.02	1.31

Source: Authors' calculations based on CPS, Outgoing Rotation Groups.

Notes: The sample is restricted to ages sixteen to sixty-nine. It excludes agriculture and the military. It also excludes full-time students and self-employed individuals.

employment trends are particularly noteworthy: employment growth was much more positive for women than for men at all levels of education until 2000, and less negative since then. Indeed, employment growth for men is quite uniformly negative over time and across groups, while for women it is mostly positive until 2000. As a result, the earnings of women generally outpaced those of men in each period and within most education groups, with only a modest decline in employment rates after 2000 marring an otherwise complete record of labor market progress among females over nearly three decades.

For both men and women, growth in wages, employment, and annual earnings is generally stronger for those with college or advanced degrees than for non-college-educated workers. Real wage growth is stronger for these groups in each period and especially in the pre-2000 periods, when workers with higher education enjoyed dramatic wage growth and earnings growth. Trends in employment growth are a bit more mixed, especially given the strong growth of employment for less-educated women in the 1990s as a result of policy changes like welfare reform and EITC expansions. Still, in most periods and across most groups, employment and hourly wage growth across groups are positively correlated, suggesting that relative labor demand shifts across both gender and education groups had important effects on the relative outcomes we observe.

Comparing the trends for men and women at different education levels, we note that real wage and earnings growth was negative for non-college-educated men in the 1979–1989 period, while earnings growth was negative for all groups of men after 2000. Thus, *earnings trends for men, and especially for the less-educated, have been mostly negative*, except during the boom of the 1990s. In contrast, trends have been mostly positive for women, even among the less-educated, and they are dramatically positive for those with college or advanced degrees. During the 2000–2007 period, hourly wage and earnings gains were even modest for college graduates, especially among men, but they were substantially stronger for men and women with advanced degrees.

Similar data for hourly wages and annual earnings appear in tables 2.3 and 2.4, respectively, for different parts of the wages and earnings distributions. At several points of these distributions (the tenth, fiftieth, ninetieth, and ninety-ninth percentiles), we present hourly wage and annual earnings gains for workers over each of the three cycles, for all workers and separately by gender and educational category.

The results of tables 2.3 and 2.4 indicate that the median American worker enjoyed modest wage and earnings growth in the 1979–1989 and 2000–2007 periods, and more substantial growth in both from 1989 to 2000. But once again, the patterns by gender and education are much more mixed. In general, the trends experienced by the median workers of different gender and education groups are quite similar to what we saw in table 2.2. Specifically, the median female college graduate experienced real wage and earnings growth in all periods. The median female non-college-educated worker has mostly enjoyed wage and earnings growth, while college-educated men did so as well until 2000. However, *the median less-educated male workers in the United States mostly experienced real wage and earnings losses in both the 1979–1989 and 2000–2007 periods and experienced earnings growth only between 1989 and 2000.*

What trends can be observed at other parts of the wage and earnings distributions? Wage growth for the bottom 10 percent was substantially lower than for others in the 1979–1989 period, even within education and gender groups, and it has been more mixed since. But wage and earnings growth for those at the ninetieth and ninety-ninth percentiles has been positive and quite dramatic, especially for those with college and advanced degrees, among both men and women. The huge returns to the highest earners are most noteworthy during the 1990s boom, but they persisted in the 2000s for men at the ninetieth percentile and for women at both the ninetieth and ninety-ninth. Furthermore, in what probably reflects dramatic increases in em-

TABLE 2.4 *Changes in Annual Earnings Across the Earnings Distribution, by Gender and Education, 1979–1989, 1989–2000, and 2000–2007*

Category	Tenth Percentile (Cumulative Annual Growth Rate)		Fiftieth Percentile (Median) (Cumulative Annual Growth Rate)		Ninetieth Percentile (Cumulative Annual Growth Rate)		Ninety-Ninth Percentile (Cumulative Annual Growth Rate)				
	1979–1989	1989–2000	1979–1989	1989–2000	1979–1989	1989–2000	1979–1989	1989–2000			
All	2.92%	3.54%	0.88%	1.30%	0.45%	0.6%	1.62%	0.60%	0.83%	5.36%	-2.68%
Men, by education											
Less than high school	-0.97	3.08	0.34	0.08	-0.64	-1.25	-0.22	-0.63	-1.46	1.23	0.54
High school	-1.71	1.07	-1.36	0.22	-1.32	-0.24	0.67	-0.18	0.41	0.85	0.29
Some college	0.86	2.35	-2.29	0.17	-0.77	0.28	1.16	-0.28	1.08	2.09	-2.00
College	-0.50	1.30	-0.28	0.43	-0.95	0.54	1.44	0.01	3.27	4.84	0.91
Advanced degree	-0.52	2.54	0.88	1.04	-0.27	-0.21	3.09	-0.14	3.27	4.84	0.91
Women, by education											
Less than high school	2.99	2.71	4.15	0.45	-0.11	0.52	0.59	0.29	2.02	-0.26	1.47
High school	3.46	3.50	1.55	1.05	0.21	1.62	1.18	0.13	2.02	1.15	2.22
Some college	6.03	3.98	1.61	2.43	0.10	2.02	1.30	0.55	2.02	1.66	1.53
College	8.11	2.99	-0.81	2.52	0.51	2.52	2.21	0.65	2.52	4.28	-0.22
Advanced degree	1.70	6.12	0.29	1.49	0.18	1.80	2.47	0.88	0.66	9.24	1.07

Source: Authors' calculations based on CPS, ASEC.

Notes: The sample is restricted to ages sixteen to sixty-nine. It excludes agriculture and the military. It also excludes full-time students and self-employed individuals.

ployment rates over time, earnings (but not wage) growth has been dramatic for highly educated women at the tenth percentile of earnings.⁸

Overall, we find that employment and earnings have generally risen for more-educated and high-earning workers, especially females, while declining the most for less-educated and low-earning workers, especially males. Despite the inconsistencies across particular time periods, these patterns hold up fairly consistently over a nearly thirty-year period. Inequality has thus risen quite dramatically *within* as well as between education groups over this time period.

THE CAUSES OF THESE TRENDS

What labor market developments might explain these trends in relative outcomes? A lengthy literature by labor economists now exists on the causes of these trends, though most of it does not cover the completion of the last full cycle in 2007 and the beginning of the Great Recession after that.

Generally, labor economists have focused on both labor market and institutional forces, and there has been some debate over the extent to which observed outcomes are accounted for by each; more mainstream economists such as Lawrence Katz and David Autor (1998) and Autor, Katz, and Melissa Kearney (2008) have stressed the former, while “revisionists,” including David Card and Jonathan Dinardo (2002, 2007) and Jared Bernstein (2008), have stressed the latter.

The mainstream economists mostly argue that labor demand relative to supply has shifted away from less-educated workers, especially those working in traditionally male-dominated industries (like manufacturing), and toward highly skilled workers in newer (service) industries. On the demand side, they mostly attribute these developments to skill-biased technical change (see Autor, Katz, and Krueger 1998; Autor, Levy, and Murnane 2003; Berman, Bound, and Griliches 1994; Levy and Murnane 2004), the microcomputer revolution having enabled employers to replace well-paid unskilled workers doing routine production and clerical work while demanding that more workers perform analytical functions. Large increases in inequality within educational categories, including those with college and advanced degrees, might also be attributable to these forces (Lemieux 2006).

Recently, some of these writers (Autor 2010; Autor, Katz, and Kearney 2007) have also noted a trend toward labor market “polarization” since the 1990s, in which the demand for low-wage service workers performing nonroutine social tasks has also increased relative to demand in the middle of the pay distribution. Also, the forces of trade and globalization earlier on were generally considered weaker contributors to the shifts in relative demand toward skilled workers (see, for example, Feenstra and Hanson 1998; Freeman 1995), but the rise of foreign offshoring of services in the past decade and the growing labor market integration of eastern Europe, China, and India into the global economy have led some economists (Blinder 2007; Freeman 2007a; Spence 2011) to view globalization as a much more potent force in the past decade and into the future.⁹

Moreover, the shift of demand from routine production labor to nonroutine professional and service labor is widely seen as one that benefits women relative to men (Blau and Kahn 2000). Improvements in the relative earnings of women probably reflect other forces as well, including declining discrimination (at least partly attributable to government antidiscrimination policies) and growing education and experience among female workers (Blau and Kahn 2006).¹⁰ The fact that both employment and earnings have declined for less-educated men (Juhn 1992)

and risen for women (especially the more-educated) reinforces the view that relative demand shifts have been an important part of this story.

But the shift in relative demand toward the more-educated also appears to be at least partly driven by lagging growth in the supply of more-educated workers (Goldin and Katz 2008; Katz and Murphy 1992). Indeed, the strong increases in the supply of skilled labor in the United States over much of the twentieth century seem to have stalled in the past three decades, thus contributing to a shortfall in such skills relative to the growing demand for them. And while growth in the demand for skill appears to have decelerated in the past few decades (relative to the 1980s), the growth of the supply of skilled labor has decelerated as well, contributing to ongoing and even rising labor market inequality (Goldin and Katz 2008). The fact that education and “achievement” gaps between those from higher- and lower-income families have grown over time also suggests declining opportunity for social mobility for the children of the latter over time and across generations, on top of rising inequality at any point in time (Duncan and Murnane 2011).

Finally, the revisionists mentioned earlier continue to argue that the exact pattern and timing of growing inequality is not fully explained by trends in labor supply and demand. Instead, they emphasize institutional factors such as declining real values of minimum wages (Lee 1998) and weakening labor unions (Card, Lemieux, and Riddell 2003; Freeman 2007b). Also, the enormous growth of earnings among the very highest-paid earners, along with specific analyses of trends in executive compensation (Bebchuk and Fried 2004) and financial market bonuses (Roubini and Mihm 2010), suggest peculiarities in the functioning of these specific markets that have helped dramatically raise inequality in the labor market overall, especially in the past decade. In many cases, these pay increases do not reflect high productivity or efficient market functioning, and they may even impede performance and productivity by creating perverse incentives for excess risk-taking and instability.¹¹

In our view, there is some merit to all of these views, and they should be understood as complementary rather than mutually exclusive. There is no doubt that the powerful market forces of technological change and globalization have changed the ways in which labor markets function and that they may have contributed to a general stagnation of labor market outcomes since 2000. The need to improve our educational outcomes in response to these trends, especially among lower-income Americans, remains very strong. Furthermore, the forces of technology and globalization are likely to have caused labor markets to become more competitive, making it harder for traditional institutions like minimum wages to raise wages among the less-skilled without causing job loss.¹² On the other hand, some labor markets remain highly imperfect, and institutions and policies continue to play important roles, as we argue in the conclusion.

DEMOGRAPHIC AND REGIONAL BREAKDOWNS

Besides gender, education, and place in the earnings distribution, what trends do we find in employment outcomes for workers along some other demographic or geographic breakdowns? In table 2.5, we present changes in median hourly wages and annual earnings for each of the three time periods by age group, race, and region. Since we include workers age sixteen to sixty-nine in our sample (but exclude full-time students and the self-employed), it is possible that some changes in observed outcomes over time are driven by changes in sample composition associated with rising school enrollments among the young and lower retirement rates among older workers.¹³

TABLE 2.5 *Changes in Median Hourly Wages and Median Annual Earnings, by Age, Race, and Region, 1979–1989, 1989–2000, and 2000–2007*

Category	Median Hourly Wages (Cumulative Annual Growth Rate)			Median Annual Earnings (Cumulative Annual Growth Rate)		
	1979– 1989	1989– 2000	2000– 2007	1979– 1989	1989– 2000	2000– 2007
<i>By age group</i>						
Sixteen to thirty-four	–0.14%	0.72%	0.21%	0.39%	0.88%	–0.16%
Thirty-five to fifty-four	0.27	0.92	0.70	0.65	0.97	0.22
Fifty-five to sixty-nine	–0.01	1.33	1.48	0.23	1.42	1.40
<i>By race</i>						
White	0.44	1.34	0.76	0.90	1.77	0.29
Black	–0.01	1.23	0.63	1.36	1.50	0.50
Hispanic	–0.42	0.70	0.84	–0.17	1.06	1.03
<i>By census region</i>						
Northwest	1.14	0.89	0.69	1.52	1.30	–0.11
Midwest	–0.35	1.44	0.09	–0.01	1.64	–0.41
South	0.15	1.41	0.73	0.75	1.54	0.39
West	0.24	0.72	0.76	0.70	1.07	0.98

Source: Authors' calculations based on CPS, Outgoing Rotation Groups, and ASEC.

Notes: The sample is restricted to ages sixteen to sixty-nine. It excludes agriculture and the military. It also excludes full-time students and self-employed individuals.

The results show uneven trends across all of these dimensions. Specifically:

- The youngest cohort (age sixteen to thirty-four) experienced the least wage and earnings growth, with modest real wage declines in 1979–1989 and earnings declines since 2000, while older workers (age fifty-five to sixty-nine) experienced the strongest gains after 1989.
- The wage gains of blacks and Hispanics lagged behind those of whites in most periods, while annual earnings gains were more mixed.
- Residents of the Midwest experienced flat or declining real earnings except during the 1989–2000 years, when they did relatively well.

Combining these results, we see once again that young and less-educated men did poorly in the past three decades, but this is especially true of young African American men in industrial regions. Indeed, the employment rates of young and less-educated black men have consistently fallen over time (Holzer, Offner, and Sorensen 2005) and are associated with rising rates of incarceration as well as nonmarital fatherhood. Faced with falling demand for their services, many young and less-educated black men seem to have “disconnected” from the labor market (Holzer 2009). In contrast, employment rates remain high among Hispanic and especially immigrant men, who remain hopeful about future improvements for their children, even if their real wages now lag behind those of native-born workers (Card 2005).

And the less-educated young women in these groups have made some progress, in terms of employment rates as well as real wages, as a result of both labor market and policy changes. Specifically, the “push” of welfare reform in the 1990s and the “pull” of a strong service economy, plus supports for young working mothers (like child care subsidies and expansions of the

EITC), have generated some employment gains for these groups, despite their low levels of skill (Blank 2002). The fact that education levels are also rising more rapidly for young women than for young men in all race and gender groups in the United States suggests relatively more positive trends for them in the future as well. On the other hand, the persistence of “achievement gaps” between racial and income groups in the United States, along with continuing discrimination and other forms of market “mismatch,” cause earnings gaps between whites and minorities to persist over time as well.¹⁴

Finally, the relative improvements in labor market outcomes among older workers are quite noteworthy. The long-term decline in the labor market participation of older workers has already begun to be reversed (Munnell 2007), and retirement ages will no doubt continue to rise over the coming years for a variety of reasons, especially among more-educated workers.¹⁵ But improvements in their relative wages and earnings over time also suggest that older workers who choose to work longer might find a labor market that is at least somewhat hospitable, with shifting demand by employers accommodating the rising supplies of older workers.

Overall, then, tables 2.1 to 2.5 have indicated that male, less-educated, younger, and minority workers have lost ground relative to others in the labor market in recent years. Do these individual results hold up when controlling for other factors, and which changes are statistically significant in our data? Appendix tables 2A.1 to 2A.4 present results from regressions for both hourly and annual earnings. We estimated the regressions using ordinary least squares (OLS) for the effects on mean wages and earnings, as well as quantile regressions for the effects on medians. (Since the OLS and quantile regressions presented very similar results, only the OLS estimates are reported here; the quantile results are available from the authors.) We estimated separate regressions for each of the four peak years we analyzed—1979, 1989, 2000, and 2007. Regressors in each equation include variables for gender, race, education, age, and region.

The regression results largely confirm what we have seen in the descriptive tables. While hourly wages improved in relative terms for females, they mostly declined for less-educated workers and minorities across these years. Gaps across age groups are relatively constant, but they widen in the 2000–2007 period. Midwestern workers lost ground relative to those in the Northeast, especially after 2000.

Comparing results on annual earnings to those on hourly wages, we find similar patterns of changes but sometimes larger magnitudes of differences and changes over time; this result reflects the generally positive correlations between levels and changes in wages and employment. Thus, relative annual earnings gains by women were even larger than in hourly wages; the earnings gaps between high school graduates and dropouts narrowed over time (as the latter had gained more employment), but the gaps between high school and college graduates (as well as those with advanced degrees) widened, and earnings gaps narrowed quite substantially between younger and older workers until 2000, but widened somewhat thereafter.

OUTCOMES BY OCCUPATION AND INDUSTRY

The results so far clearly suggest that demand has shifted away from less-educated and male workers and toward more-educated and female workers in the economy. What does this actually mean in terms of jobs and the economic sectors into which workers are hired? A clearer picture of the demand side of the labor market emerges from data on the distributions of employment across occupations and industries. Tables 2.6 and 2.7 present these data for 1979, 1989, 2000, and 2007 at the broadest (one-digit) levels.

The occupational data in table 2.6 show rising demand in the professional and managerial occupations, especially during the period 1989–2000. Employment in the low-wage service

TABLE 2.6 *Distribution of Employment, by Occupation, 1979, 1989, 2000, and 2007*

Occupation Group	1979	1989	2000	2007
Professional	11.78%	13.12%	16.03%	17.57%
Managerial	10.50	12.09	14.34	13.37
Technical	2.83	3.50	3.66	3.92
Clerical	18.49	17.31	14.97	15.00
Sales	7.65	10.32	10.54	10.18
Crafts	8.41	8.37	7.96	8.14
Operators	21.27	16.19	13.56	11.85
Laborers	4.51	4.34	4.24	3.55
Service	12.47	13.01	13.09	14.75

Source: Authors' calculations based on CPS, Outgoing Rotation Groups.

Notes: The sample is restricted to ages sixteen to sixty-nine, and excludes full-time students and self-employed individuals.

sector grew most rapidly in the period 2000–2007. Employment declined quite dramatically for equipment operators over the entire period—their employment shares dropped from more than 20 percent to less than 12 percent—and clerical employment dropped as well, especially during the 1989–2000 period, when secretaries were largely being replaced by personal computers.

All of these findings are consistent, of course, with the “polarization” hypothesis that has been advanced by David Autor and his various coauthors and that we noted earlier (see, for example, Autor 2010; Autor et al. 2008). In that view, the routine work in middle-skill or middle-paying jobs that still existed in 1980 has been largely replaced by computerized technology, while demand for nonroutine work at the high (professional and managerial) and low (service) ends of the labor market has expanded.

On the other hand, other parts of the middle of the labor market have maintained their relative shares or even grown. For instance, technical jobs have risen as a share of the market, as did sales jobs in the 1979–1989 period, and the share of the market accounted for by crafts has remained largely constant. Indeed, the middle-skill occupations (technical, clerical, sales, crafts, and operators jobs) accounted for 59 percent of jobs in 1979 and 49 percent in 2007; the widespread notion that the middle of the job market is completely disappearing is clearly not true. Of the jobs that remain in the middle, a higher share probably require some kind of post-secondary training or certification than before, and tasks are far less likely than before to be routine, but fairly well-paying jobs remain in strong demand for workers in these occupations (see Holzer 2010; Holzer and Lerman 2007).

Similarly, table 2.7 shows a large decline in employment in manufacturing, both durable and nondurable. Indeed, the per-year declines appear largest in the period 2000–2007, as imports from China began to grow quite dramatically.¹⁶ The steep declines in manufacturing (and operator) employment are also consistent with the Midwest’s weak labor market performance (as observed in table 2.6), since historically (durable) manufacturing jobs were heavily concentrated in that region.

In contrast, strong employment growth is observed in health and other services. While other services contain many jobs at the high (professional) and low (service) ends of the skill spectrum, health services also contain a strong contingent of middle-skill jobs below the level of registered nurse. Furthermore, there has been quite notable growth in construction, which

TABLE 2.7 *Distribution of Employment, by Industry, 1979, 1989, 2000, and 2007*

Occupation Group	1979	1989	2000	2007
Mining	0.99%	0.67%	0.44%	0.57%
Construction	5.79	5.84	6.20	7.22
Manufacturing, nondurable	11.70	9.84	7.57	5.30
Manufacturing, durable	14.17	11.06	9.09	7.14
Transportation, communications, and utilities	7.25	7.67	7.90	8.24
Wholesale trade	3.84	3.93	4.10	3.16
Retail trade	14.79	15.03	15.02	10.82
Finance, insurance, and real estate	6.09	6.98	6.54	6.80
Health services	7.51	8.32	9.34	10.90
Educational services	8.68	8.39	8.92	9.67
Other services	11.20	15.03	18.14	23.96
Public administration	6.06	5.58	5.14	5.39

Source: Authors' calculations based on CPS, Outgoing Rotation Groups.

Notes: The sample is restricted to ages sixteen to sixty-nine, and excludes full-time students and self-employed individuals.

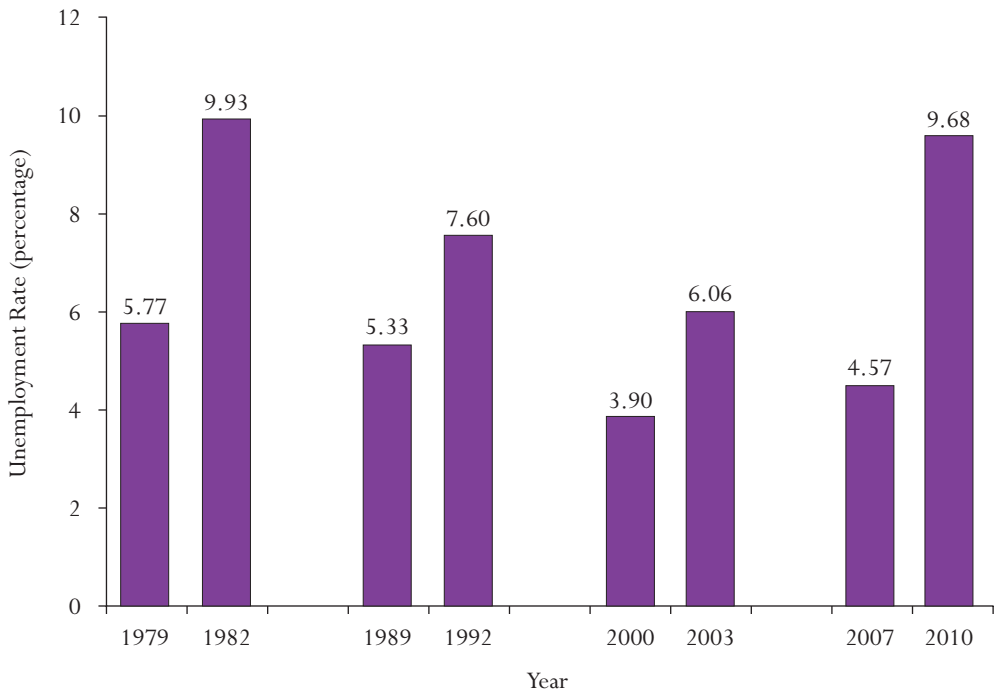
also employs large numbers of workers in craft occupations. At least some of this growth clearly predated the “housing bubble” period of 2000–2005, and it represents the long-term trend to which the labor market is likely to return after we recover from the Great Recession (during which construction employment declined precipitously).¹⁷

All of these results are very consistent with the data on job quality, worker skill, and industry that appear in *Where Are All the Good Jobs Going?* by Harry Holzer and his colleagues (2011). In that analysis, longitudinal data on both employers and workers enable the authors to estimate separate measures of job and worker quality, based on firm and worker “fixed effects.”¹⁸ The results show that “good jobs” are not disappearing from the U.S. labor market over the longer term, but they are much less likely than before to be found in the manufacturing sector; instead, they increasingly appear in construction, health care, retail trade, and professional services. While these good jobs are largely available to workers without a B.A. degree in all but the last of these sectors, they require a higher skill set than in earlier years. Thus, a higher correlation between worker skills and job quality is observed in the post-2000 period than in earlier years, and it implies that strong basic skills and postsecondary certifications are more likely to be prerequisites for employment in good-paying jobs than they were in the past.

BUSINESS CYCLE EFFECTS: THE GREAT RECESSION VERSUS OTHERS

Our analysis of secular trends in the labor market over the last three decades focuses on cyclical peaks only and thus abstracts from the issue of recessions. To analyze recessions in greater detail—and especially the effects of the Great Recession of 2008 and beyond—we compare labor market outcomes in cyclical peaks and troughs for all recessions that occurred in the last three decades.

Thus, we compare labor market changes during the periods 1979–1982, 1989–1992, 2000–2003, and 2007–2010. Figure 2.6 presents peak-to-trough changes in aggregate unemployment rates for these four downturns, while figure 2.7 presents them for average unemploy-

FIGURE 2.6 *Unemployment Rates, 1979–2010*

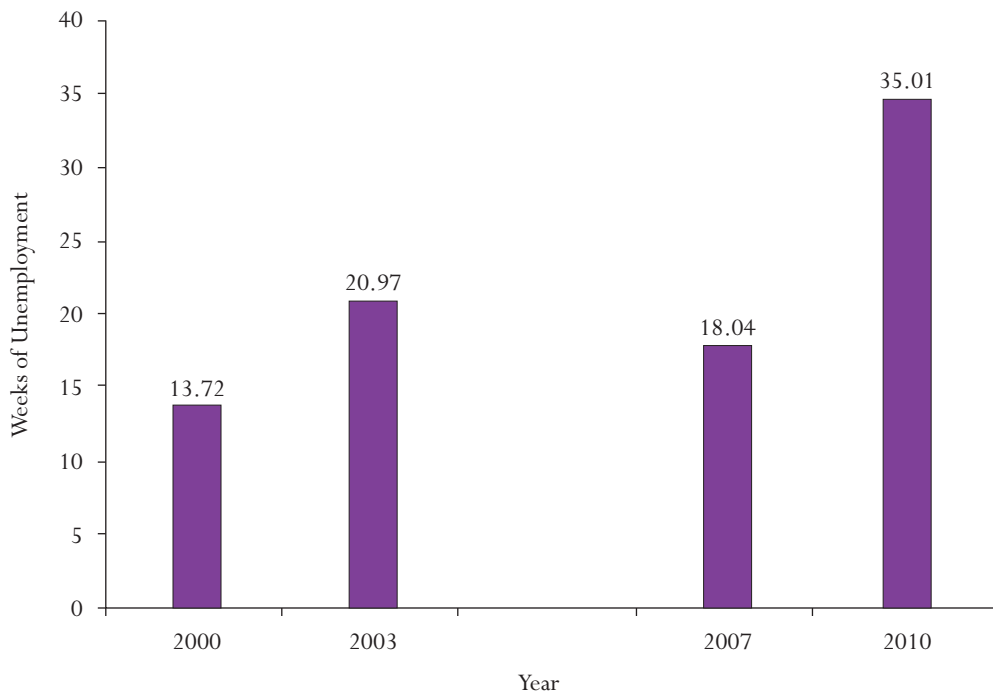
Source: Authors' calculations based on CPS, Outgoing Rotation Groups.

ment durations only for the latter two periods (which are the only ones during which duration data are available from the CPS). As is well known, average unemployment rates increased the most during the relatively severe recessions of 1979–1982 and 2007–2010 and less so during the milder ones in the intervening years. While aggregate (monthly) unemployment rose to its highest level—nearly 11 percent—in 1982, the peak-to-trough increase was largest during the Great Recession of 2007–2010.

The increase in the duration of unemployment spells in the current downturn has been huge. Mean durations rose by half in the 2000–2003 recession (from about fourteen weeks to twenty-one weeks), but they have nearly doubled in the Great Recession (from eighteen to thirty-five weeks), after a secular increase in durations between 2000 and 2007.

More detailed data on unemployment rates and durations, as well as on changes in them over time, appear in tables 2.8 and 2.9. Table 2.8 presents unemployment rates in 2007 by age, education group, region, race, and gender so as to provide a sense of the unemployment differentials across groups that persist even in tight labor markets. Table 2.9 then shows changes for these groups in unemployment rates, unemployment durations, and percentages of the unemployed with long spells (defined as more than six months) over each of the last four downturns (for unemployment rates) or the last two (for unemployment durations and percentages unemployed for long spells).

The results presented in table 2.8 show high unemployment rates among blacks, the less-educated, younger workers, and Midwestern workers (relative to rates among whites, the

FIGURE 2.7 *Mean Unemployment Durations, 2000–2010*

Source: Authors' calculations based on CPS, Outgoing Rotation Groups.

more-educated, older workers, and workers from other regions), even in good times. Table 2.8 also shows that virtually all of these gaps widen during downturns, especially severe ones like 1979–1982 and 2007–2010. In particular, during the Great Recession we have seen unprecedented increases in unemployment rates among men, less-educated workers, young workers, and minorities (with Hispanics as well as blacks being particularly hard hit this time).¹⁹

The patterns of unemployment increases in the Great Recession are thus not dramatically different from those observed in earlier downturns, though their magnitudes are much more serious. Furthermore, the groups hard hit during the downturn are, for the most part, those who have suffered secular relative declines in employment and earnings outcomes, as observed earlier in the analysis. These groups include the less-educated, minority men, and (more recently) younger workers. Thus, the Great Recession has exacerbated the labor market difficulties that these groups have already experienced, certainly in the short term and perhaps in the longer term as well.

Finally, we note in table 2.9 that increases in unemployment durations and in the percentages of the unemployed suffering long spells of unemployment are somewhat more evenly spread across these groups. Thus, to the extent that long-term unemployment generates problems for workers who seek to reenter the labor market with obsolete skills or who have been stigmatized by their long unemployment spells, these difficulties might be experienced across a fairly broad group of workers.²⁰ Of course, the labor market has recovered some since the trough of the recession in 2010. The nation's unemployment rate has declined from over 10

TABLE 2.8 *Unemployment Measures, by Gender, Education, Race, and Census Region, 2007*

Category	Unemployment Rate (Percentage)	Mean Duration of Unemployment (Weeks)
All	4.57%	18.0
By gender		
Men	4.69	18.9
Women	4.44	17.1
By age		
Sixteen to thirty-four	6.56	16.2
Thirty-five to fifty-four	3.47	19.2
Fifty-five to sixty-nine	3.45	22.2
By education		
Less than high school	9.98	18.1
High school	5.56	18.2
Some college	4.30	17.3
College	2.43	19.1
Advanced degree	2.03	17.9
By race		
White	3.87	16.7
Black	7.87	23.2
Hispanic	5.26	15.1
By region		
Northeast	4.42	19.5
Midwest	5.12	19.8
South	4.19	17.1
West	4.73	16.3

Source: Authors' calculations based on CPS, Outgoing Rotation Groups.

Notes: The sample is restricted to ages sixteen to sixty-nine. It excludes agriculture and the military. It also excludes full-time students and self-employed individuals.

percent to under 7 percent. Most of this decline, however, has been attributed by economists, not to rising employment, but to declining labor force participation by both retirees and those in their prime-age years (Congressional Budget Office 2014). In such a recovery, the employment rates of young or less-educated workers have improved only modestly. It is also important to remember that recessions, especially very serious ones, generally limit earnings and growth, even among those who are working (Hines, Hoynes, and Krueger 2001). In particular, young workers now entering the job market are likely to be “scarred” by lower earnings as well as lower employment for years to come (Kahn 2010). Furthermore, other impacts on worker health and the educational achievement of the children of unemployed workers are likely to be negative as well (von Wachter 2010).

Before concluding this section, we turn to a controversy that has been brewing recently: the extent to which the recent increase in unemployment might be *structural* rather than *cyclical*. If cyclical, high rates of unemployment exist primarily because of insufficient numbers of available jobs relative to workers; if structural, unemployment can be exacerbated by a *mismatch* between the characteristics of unemployed workers and those sought by employers with vacant jobs. Mismatches can exist between the skills sought by employers (whether general or sector-

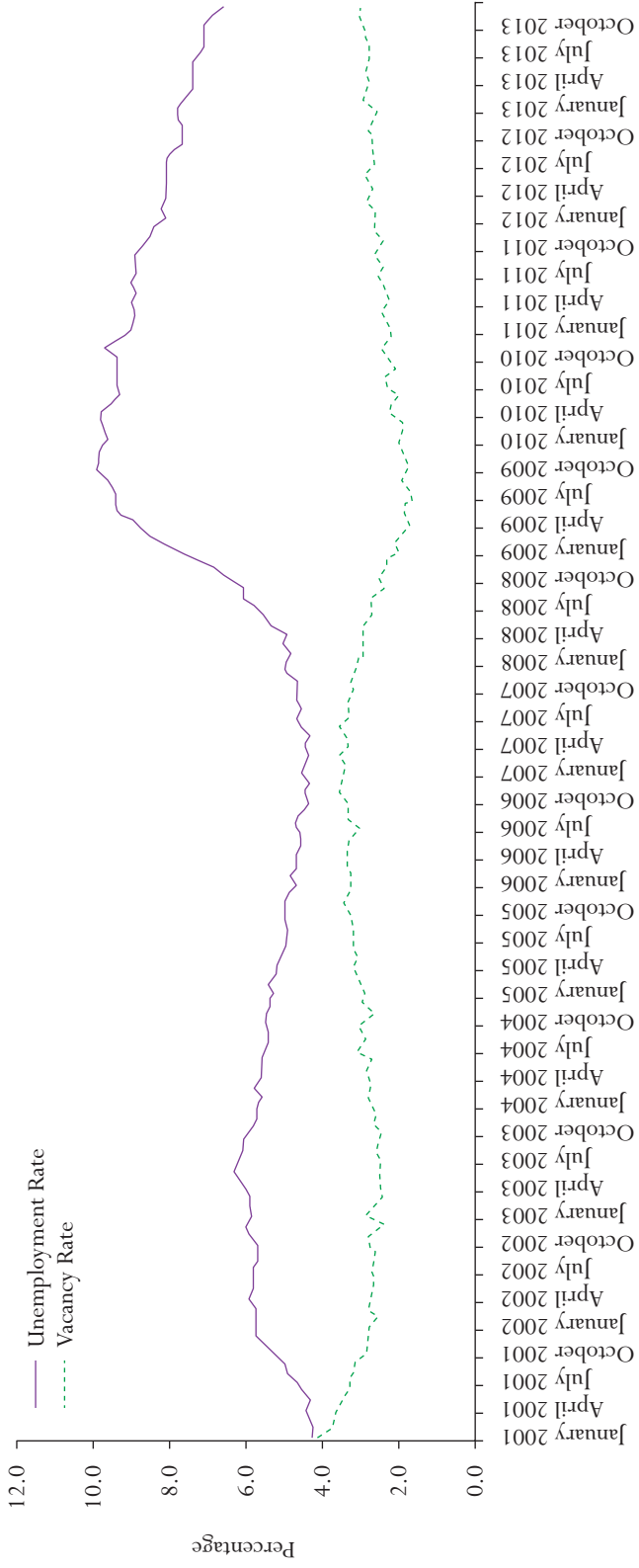
TABLE 2.9 *Peak-to-Trough Change in Unemployment Measures, by Gender, Education, Demographic Group, and Census Region, 1979–1982, 1989–1992, 2000–2003, and 2007–2010*

Category	Unemployment Rate			Mean Duration of Unemployment (Weeks)			Unemployment Duration over Six Months (Percentage of Unemployed Individuals)		
	1979–1982	1989–1992	2000–2003	2007–2010	2000–2003	2007–2010	2000–2003	2007–2010	2007–2010
All	4.16%	2.27%	2.16%	5.12%	7.3	17.0	12.36%		26.89%
By gender									
Men	5.34	2.91	2.65	6.00	7.4	16.6	13.69		26.85
Women	2.73	1.57	1.64	4.18	6.9	17.3	10.65		26.77
By education									
High school or less	5.69	3.03	2.50	7.29	6.0	17.1	10.62		26.69
Bachelor's degree or more	1.03	1.01	1.65	2.87	9.0	15.3	14.46		25.41
By age group									
Sixteen to thirty-four	5.20	2.56	2.69	6.18	5.8	14.3	9.63		22.70
Thirty-five to fifty-four	3.26	2.18	1.92	4.65	8.4	18.3	14.51		29.22
Fifty-five to sixty-nine	2.51	2.38	1.90	4.36	7.7	20.4	14.02		32.00
By race									
White	3.65	2.10	1.89	4.31	8.1	17.6	13.56		28.08
Black	6.79	2.68	3.22	7.76	7.9	15.8	14.30		24.23
Hispanic	5.78	2.85	1.87	6.72	2.4	17.4	3.71		28.13
By region									
Northeast	2.51	3.79	2.26	4.56	5.7	16.6	11.92		26.97
Midwest	6.23	1.27	2.21	4.49	8.2	15.8	13.47		23.83
South	3.76	1.69	2.15	5.15	6.8	16.9	11.04		27.00
West	4.02	2.88	2.04	6.17	8.1	18.9	13.36		30.09

Source: Authors' calculations based on CPS, Outgoing Rotation Groups.

Notes: The sample is restricted to ages sixteen to sixty-nine. It excludes agriculture and the military. It also excludes full-time students and self-employed individuals.

FIGURE 2.8 National Unemployment and Job Vacancy Rates, 2001–2013



Source: Authors' calculations based on Bureau of Labor Statistics.

specific) and those held by job-seekers, and mismatches become more likely if jobs permanently disappear during a downturn and then later reappear in different sectors. Mismatches can also exist across geographic areas if jobs are growing in areas different from where unemployed workers live.

One way to measure structural versus cyclical unemployment is to compare unemployment and job vacancy rates. Cyclical movements should show only inverse movements between job vacancy and unemployment rates, while structural and mismatch problems might be reflected in rising job vacancy rates for any given level of unemployment.²¹

Figure 2.8 plots quarterly movements in aggregate job vacancy and unemployment rates over the entire period from 2001 to 2013. Mostly, the plot shows inverse movements between the two rates, suggesting a dominance of cyclical swings over time. Vacancy rates have clearly fallen during the Great Recession as unemployment rates have risen, suggesting that high unemployment since 2008 has still been mostly a cyclical phenomenon.

At the same time, we note that the job vacancy rates observed in this downturn are not dramatically lower than those observed in the much shallower recession of 2000–2003. And since early 2009, the vacancy rate has shown a distinct rise, even while unemployment remains at or near double-digit levels. The higher vacancy rates are also consistent with some recent journalistic accounts of employers having difficulty filling jobs that require some fairly specific technical skills.²²

While not conclusive, these results suggest that employers might be having a somewhat more difficult time filling their vacant jobs, perhaps owing to growing mismatch problems.²³ Along with the rise in the numbers of the long-term unemployed, the data also suggest that a return to unemployment rates below 5 percent might become even more difficult if employers' slowness in creating new jobs becomes compounded by their growing difficulty in filling them over time.

CONCLUSION AND POLICY IMPLICATIONS

We have analyzed wage, employment, and earnings outcomes in the U.S. labor market over the past three decades. We have analyzed secular trends in the labor market by looking at how worker outcomes have changed across the peak years of 1979, 1989, 2000, and 2007; and we have analyzed four recessions that also occurred in these years, especially the Great Recession that began at the end of 2007 and from which our job market has yet to really emerge (as of early 2014).

Our secular analysis indicates that labor market trends have been fairly uneven over time. During the period 1979–1989, improvements in employment rates allowed earnings to rise quite significantly, despite modest wage (and productivity) growth. During 1989–2000, employment continued to rise, while wage increases and productivity grew to raise earnings even more. In the period 2000–2007, employment rates fell and wages grew very modestly despite continuing high productivity growth.

In addition to the unevenness of labor market performance over time, there has been unevenness (but somewhat more consistency over time) in the relative performance of different groups in the job market. Generally, women have gained ground relative to men, but wage and earnings gaps have widened between education and earnings groups. In the 1980s, gaps grew across the entire education and earnings spectrum; in the 1990s and 2000s, earnings and employment rose somewhat more for the lowest groups relative to the middle, while gains at the top decile or percentile grew the most. In some periods and by some measures, minorities lost ground relative to whites, younger workers did so relative to older ones, and residents of the Midwest lost ground relative to those living in the Northeast and other geographic areas.

The fact that employment and wage growth tend to be somewhat positively correlated across groups and over time suggests that labor demand, relative to labor supply, has shifted in major ways across these groups. Indeed, we believe that skill-based technical change and globalization have contributed importantly to the trends we observe across education and gender groups. Our analysis of occupational and industrial patterns of employment sheds more light on these developments. Growth in the highest- and lowest-skill occupations exceeded growth in the middle, especially for clerical workers and equipment operators, while employment in manufacturing shrank dramatically but grew in the services, especially health care. On the other hand, the widely held view that the middle of the job market is completely collapsing seems overblown. Substantial demand remains in many sectors and occupational categories for workers with at least some postsecondary educational credential or training.

On the other hand, institutions (like unions) and policies continue to play important roles. Policy shifts, including antidiscrimination efforts, welfare reform, and the growth of work supports for low-income mothers (like the EITC and child care subsidies), as well as improvements in their education and experience, have all contributed to the improved status of women in the labor market. More negative trends among other groups, like less-educated African American men, reflect market forces and the behavioral responses of these groups along with a general lack of similarly supportive policies for these low-wage workers.

Finally, our analysis of cyclical downturns over the last thirty years confirmed that the downturn that began at the end of 2007 constitutes, indeed, a Great Recession. Increases in unemployment rates and durations, and especially the growth of long-term unemployment, were quite dramatic. For the most part, unemployment rates rose the most for the workers who had already lost ground on a secular basis—in other words, males, less-educated workers, minorities, and the young. The job market recovery since 2010 and the employment rate increases among young and less-educated workers have been quite modest to date. And there is at least some reason to be concerned about the structural factors impeding recovery—such as a rise in job vacancy rates while unemployment remains quite high, and growing ranks of the long-term unemployed, for whom reemployment often becomes a growing challenge, at least according to the experiences of other countries in recent years.

What does the future hold for the U.S. labor market, in both the short and longer terms? And what policies are suggested by this analysis to help those workers who have lost the most ground in the downturn and over a longer period? Most economists expect a continuing slow recovery from the current downturn, which is often the case after a financial “bubble” bursts. Unemployment is likely to remain high for the next several years, declining only modestly each year.²⁴ For example, the Congressional Budget Office (2014) forecasts that unemployment will still be above 6 percent for most of 2016 and well above 5 percent for most of the coming decade. Previous research shows that certain groups of workers—especially the young who enter the labor market during such inauspicious times and permanent job-losers who suffer long-term unemployment—are likely to be “scarred” by their experiences and to suffer from lower earnings for many years, even after the labor market recovers.

And when a full recovery finally occurs, to what kind of labor market will we return? Are we more likely to revert to the economy of the 1990s, with its widely shared employment and earnings growth, or the 2000s, when the growth in demand for many kinds of labor was more limited and employment and earnings growth were limited and uneven as well?

We have no way to forecast future trends, but, unfortunately, the 1990s now look more like the anomalous period, while the period 2000–2007 more likely reflects the secular trends to which we will return. For instance, we have no reason to believe that the forces apparently generating limited labor demand for U.S. workers in the last decade—including technological

changes and growing globalization—will have very different effects in the coming decade.²⁵ We hope that productivity growth will remain strong, though that is not certain; even if it does, much of it may not show up in many workers' paychecks.

Other drains on earnings growth, such as rising health care costs, have abated somewhat, though future trends in executive and financial manager compensation (which shifted so much compensation to the top 10 and 1 percent of workers) remain quite unclear. Also, much of the employment growth that we observed in the past few decades was concentrated in sectors such as health care, financial services, and construction, where future employment growth is now more uncertain; and a decline over time in business start-ups in the United States might continue and limit new hiring and employment growth in the country more broadly (Manyika et al. 2011; Spence 2011).

With such an uncertain forecast for both the near term and longer term, how should labor market policy respond? At a minimum, expanded safety net provisions (including unemployment insurance, food stamps, and Medicaid) should remain in effect while the aggregate unemployment rate remains so high. Fears that such extensions will discourage job searches and re-employment might make sense in an economy with tight labor markets and significant job availability, but not in a market with so much slack.²⁶

Reemployment services that better help match unemployed workers to existing jobs and provide them with necessary assistance with job search or skills training should be considered as well, on top of other efforts to spur job creation in the short term. The latter could include tax cuts targeted toward employers that expand their payrolls and direct government expenditures on job creation (such as for infrastructure or state and local employees), as well as public service employment programs targeted toward the disadvantaged groups with the highest unemployment rates. Though such efforts have stalled politically, they should remain a high policy priority.

Over the longer term, and even in a generally weak labor market, there remains a strong case for improving the educational outcomes of workers. These outcomes should include certificates and degrees at two-year community and technical colleges as well as at four-year colleges and universities. Though earnings growth in the 2000s was modest even for college graduates, the enormous and sometimes growing gaps in earnings between more- and less-educated workers suggest tremendous opportunity for improving earnings and for dampening inequality if more workers could have such credentials. This means not only improving the access of many Americans to the full range of higher education options, but also raising rates of completion of degrees and certificates.²⁷

Of course, what happens in the labor markets depends not only on the quality of workers and their skills but also on the quality of the jobs created by employers. As we noted earlier, and contrary to many popular accounts, the U.S. labor market continues to create many millions of high-quality jobs (Holzer et al. 2011), but in contrast to jobs in previous generations, these jobs increasingly require workers who have good basic skills and educational credentials.²⁸

From a policy point of view, it is therefore important that the skills obtained by workers match the areas of the labor market where demand is strongest, and that we give them the credentials sought by employers in well-paying jobs. Potential workers need more career guidance from workforce development systems on where labor market demand is strong, and employers need to be engaged in the process of generating workers' skills to fill their available jobs through "sectoral" training programs, apprenticeships, and other kinds of incumbent worker training.²⁹ High-quality career and technical education in high schools, such as the Career Academies, which have provided strong labor market benefits to at-risk young men, should be strengthened as well (Kemple and Willner 2008; Lerman 2007).

We also need to encourage employers to create more good-paying jobs, as well as workers to develop the skills to fill them. Historically, we have used legal and institutional methods like higher minimum wages and collective bargaining to do so. Although we continue to believe that these institutions play important roles in the labor market, we also believe that their ability to raise private-sector wages is considerably lower than in earlier eras.³⁰ Thus, efforts to induce employers to create more good-paying jobs might have to rely more on “carrots,” such as subsidies and technical assistance related to broader economic development efforts, and less on “sticks” than in the past.³¹

For those workers whose education and skills remain limited and who face the prospect of employment only at low wages, other forms of income supplementation may need to be considered. For instance, the Earned Income Tax Credit from the federal government currently enhances the earnings of low-income parents with two or more children by as much as 40 percent, but childless adults and noncustodial parents paying child support benefit little from the current system. These limitations mean that many less-educated (and especially minority) men, who have fared so badly in the labor market in recent years, gain little from an important program that provides support to so many low-income mothers. Accordingly, expanding federal EITC eligibility and enhancing payments to currently underserved groups constitutes one way in which earnings can be supplemented and inequality reduced even in a labor market generating flat earnings growth and enormous gaps between the highest- and lowest-paid workers.³²

Finally, since the enormous increases in pay at the very top of the earnings distribution do not seem to always reflect productivity or efficient markets—indeed, they often reflect the opposite—it may be time to consider other measures to limit them. These might include more stringent regulations on compensation in the financial markets as well as changes in corporate governance practices that might limit exorbitant levels of executive pay.

APPENDIX

TABLE 2A.1 *Mean Hourly Wages (Ordinary Least Squares)*

Regressor Dummy	Dependent Variable ln (Hourly Wage)			
	1979	1989	2000	2007
Female	-0.398*** (0.002)	-0.306*** (0.002)	-0.263*** (0.002)	-0.247*** (0.002)
Black	-0.050*** (0.004)	-0.084*** (0.004)	-0.084*** (0.004)	-0.106*** (0.004)
Hispanic	-0.072*** (0.005)	-0.102*** (0.005)	-0.109*** (0.004)	-0.104*** (0.004)
Other race	-0.070*** (0.007)	-0.069*** (0.007)	-0.058*** (0.006)	-0.064*** (0.005)
High school	0.223*** (0.003)	0.206*** (0.003)	0.252*** (0.004)	0.235*** (0.004)
Some college	0.282*** (0.003)	0.350*** (0.004)	0.394*** (0.004)	0.380*** (0.005)
College	0.508*** (0.004)	0.607*** (0.004)	0.707*** (0.005)	0.704*** (0.005)
Advanced degree	0.596*** (0.006)	0.744*** (0.006)	0.876*** (0.006)	0.894*** (0.006)
Age thirty-five to fifty-four	0.252*** (0.002)	0.238*** (0.002)	0.228*** (0.003)	0.258*** (0.003)
Age fifty-five to sixty-nine	0.205*** (0.004)	0.186*** (0.004)	0.165*** (0.004)	0.219*** (0.004)
Census region				
Midwest	0.014*** (0.003)	-0.115*** (0.003)	-0.045*** (0.004)	-0.073*** (0.004)
South	-0.040*** (0.003)	-0.134*** (0.003)	-0.074*** (0.004)	-0.044*** (0.004)
West	0.079*** (0.003)	-0.045*** (0.004)	-0.028*** (0.004)	0.018*** (0.004)
Constant	2.469*** (0.003)	2.477*** (0.004)	2.464*** (0.005)	2.466*** (0.005)
Number of observations	165,316	162,572	147,846	162,221
R-squared	0.32	0.31	0.31	0.30

Source: Authors' calculations based on CPS, Outgoing Rotation Groups.

Note: Heteroskedasticity-robust standard errors are in parentheses.

***Statistically significant at the 1 percent level.

TABLE 2A.2 *Median Hourly Wages (Quantile Regression)*

Regressor Dummy	Dependent Variable ln (Hourly Wage)			
	1979	1989	2000	2007
Female	-0.429*** (0.002)	-0.325*** (0.003)	-0.276*** (0.003)	-0.258*** (0.003)
Black	-0.056*** (0.004)	-0.093*** (0.005)	-0.086*** (0.005)	-0.110*** (0.005)
Hispanic	-0.078*** (0.006)	-0.112*** (0.006)	-0.115*** (0.005)	-0.101*** (0.005)
Other race	-0.076*** (0.007)	-0.067*** (0.008)	-0.045*** (0.007)	-0.059*** (0.006)
High school	0.226*** (0.003)	0.231*** (0.004)	0.262*** (0.006)	0.242*** (0.006)
Some college	0.292*** (0.004)	0.389*** (0.005)	0.422*** (0.006)	0.400*** (0.006)
College	0.532*** (0.004)	0.659*** (0.005)	0.754*** (0.006)	0.739*** (0.006)
Advanced degree	0.623*** (0.006)	0.806*** (0.006)	0.932*** (0.007)	0.934*** (0.007)
Age thirty-five to fifty-four	0.261*** (0.003)	0.250*** (0.003)	0.245*** (0.003)	0.272*** (0.003)
Age fifty-five to sixty-nine	0.214*** (0.004)	0.212*** (0.005)	0.190*** (0.005)	0.235*** (0.004)
Census region				
Midwest	0.014*** (0.003)	-0.115*** (0.004)	-0.049*** (0.004)	-0.074*** (0.004)
South	-0.053*** (0.003)	-0.139*** (0.004)	-0.084*** (0.004)	-0.050*** (0.004)
West	0.073*** (0.004)	-0.049*** (0.004)	-0.038*** (0.004)	0.017*** (0.004)
Constant	2.477*** (0.004)	2.456*** (0.005)	2.435*** (0.006)	2.436*** (0.007)
Number of observations	165,669	162,897	148,161	162,656
Pseudo R-squared	0.21	0.19	0.19	0.19

Source: Authors' calculations based on CPS, Outgoing Rotation Groups.

Note: Heteroskedasticity-robust standard errors are in parentheses.

***Statistically significant at the 1 percent level.

TABLE 2A.3 *Mean Annual Earnings (Ordinary Least Squares)*

Regressor Dummy	Dependent Variable ln (Annual Earnings)			
	1979	1989	2000	2007
Female	-0.742*** (0.006)	-0.584*** (0.006)	-0.495*** (0.007)	-0.463*** (0.005)
Black	-0.062*** (0.012)	-0.097*** (0.011)	-0.082*** (0.012)	-0.086*** (0.009)
Hispanic	0.007 (0.012)	-0.095*** (0.011)	-0.114*** (0.010)	-0.098*** (0.008)
Other race	-0.093*** (0.020)	-0.103*** (0.018)	-0.088*** (0.017)	-0.069*** (0.012)
High school	0.588*** (0.009)	0.358*** (0.010)	0.344*** (0.012)	0.338*** (0.011)
Some college	0.525*** (0.010)	0.528*** (0.011)	0.549*** (0.013)	0.559*** (0.011)
College	0.961*** (0.011)	0.858*** (0.012)	0.913*** (0.014)	0.913*** (0.012)
Advanced degree	1.071*** (0.014)	1.014*** (0.014)	1.180*** (0.016)	1.203*** (0.013)
Age thirty-five to fifty-four	0.588*** (0.006)	0.365*** (0.007)	0.353*** (0.007)	0.403*** (0.006)
Age fifty-five to sixty-nine	0.479*** (0.010)	0.191*** (0.011)	0.182*** (0.012)	0.277*** (0.009)
Census region				
Midwest	0.026*** (0.009)	-0.143*** (0.009)	-0.061*** (0.010)	-0.058*** (0.008)
South	-0.010 (0.009)	-0.146*** (0.008)	-0.049*** (0.010)	-0.022*** (0.008)
West	0.031*** (0.009)	-0.114*** (0.010)	-0.050*** (0.010)	0.006 (0.008)
Constant	9.482*** (0.011)	9.974*** (0.012)	9.866*** (0.015)	9.801*** (0.013)
Number of observations	78,665	63,893	54,391	83,322
R-squared	0.30	0.25	0.26	0.26

Source: Authors' calculations based on CPS, Annual Social and Economic Supplement.

Note: Heteroskedasticity-robust standard errors are in parentheses.

***Statistically significant at the 1 percent level.

TABLE 2A.4 *Median Annual Earnings (Quantile Regression)*

Regressor Dummy	Dependent Variable ln (Annual Earnings)			
	1979	1989	2000	2007
Female	-0.771*** (0.006)	-0.546*** (0.005)	-0.446*** (0.005)	-0.416*** (0.005)
Black	-0.073*** (0.011)	-0.117*** (0.009)	-0.077*** (0.009)	-0.102*** (0.008)
Hispanic	-0.011 (0.011)	-0.133*** (0.008)	-0.122*** (0.008)	-0.131*** (0.007)
Other race	-0.067*** (0.018)	-0.109*** (0.014)	-0.070*** (0.013)	-0.073*** (0.010)
High school	0.616*** (0.008)	0.361*** (0.008)	0.345*** (0.010)	0.334*** (0.010)
Some college	0.604*** (0.008)	0.546*** (0.008)	0.559*** (0.010)	0.554*** (0.010)
College	0.983*** (0.010)	0.841*** (0.009)	0.898*** (0.011)	0.900*** (0.011)
Advanced degree	1.076*** (0.014)	0.981*** (0.011)	1.139*** (0.013)	1.147*** (0.012)
Age thirty-five to fifty-four	0.550*** (0.006)	0.340*** (0.005)	0.327*** (0.006)	0.351*** (0.006)
Age fifty-five to sixty-nine	0.491*** (0.009)	0.231*** (0.008)	0.229*** (0.009)	0.267*** (0.008)
Census region				
Midwest	0.011 (0.009)	-0.141*** (0.007)	-0.061*** (0.008)	-0.077*** (0.007)
South	-0.028*** (0.008)	-0.149*** (0.007)	-0.072*** (0.008)	-0.044*** (0.007)
West	0.004 (0.008)	-0.114*** (0.007)	-0.061*** (0.008)	-0.004 (0.007)
Constant	9.631 (0.009)	10.011*** (0.009)	9.973*** (0.011)	9.949*** (0.011)
Number of observations	81,742	64,996	54,951	84,066
Pseudo R-squared	0.17	0.16	0.16	0.16

Source: Authors' calculations based on CPS, Annual Social and Economic Supplement.

Note: Heteroskedasticity-robust standard errors are in parentheses.

***Statistically significant at the 1 percent level.

NOTES

1. We use annual unemployment rates to measure labor market peaks and troughs in the business cycle. These tend to lag behind the dates of peaks and troughs as measured by changes in real gross domestic product (GDP) and the beginning and end dates of recessions, as determined by the National Bureau of Economic Research (NBER).
2. Other authors who have provided recent summaries of both the short- and longer-term trends include Autor (2010) and Mishel et al. (2012).
3. To reduce the influence of extreme outliers, calculations of mean annual earnings and hourly wages are restricted to individuals who earn, in 2010 dollars, between \$2 and \$5,000 per hour, and between \$1,000 and \$10 million per year.
4. The Bureau of Labor Statistics has created the newer CPI Research Series Using Current Methods (CPI-U-RS) for all urban workers, which tries to deal with upward biases in the traditional CPI-U. But even using the latter (as Mishel et al. have done), measured inflation rates are higher than those attained using the chain-weighted real GDP deflator (as we have done). For instance, measured inflation during the period 1979–2007 using the CPI-U, CPI-U-RS, and GDP deflator is 185.5, 166.1, and 150.8 percent, respectively. Other differences between our samples and Mishel et al.'s include our use of a broader age range and slightly different methods of dealing with sample outliers.
5. Holzer and Hlavec (2011) describe how more rapid increases in health care costs after 2000 led to smaller wage increases associated with given levels of real compensation growth. The increases in the share of profits in GDP, as well as huge increases over time in executive pay and financial market bonuses, also appear to have contributed to the declining shares of productivity growth that result in wage growth for most workers. Finally, the price indices used to adjust for inflation in output have risen more slowly than those used for earnings, thus leading to higher measured productivity than earnings growth over time, though it is not clear that this mattered more after 2000 than before.
6. Economists generally believe that productivity growth should *not* reduce employment rates in the long run, as higher productivity generates higher real incomes, which, in turn, generate rising levels of demand for goods and services and therefore for employment over the long run. But within a short time period during which consumer demand is limited, it might be possible for such a trade-off to exist.
7. Alternatively, the college–high school premium rose from 0.54 to 0.85 and the premium for advanced degrees over college rose from 0.30 to 0.39.
8. The same value is shown in table 2.4 for the men in the ninety-ninth percentile of college graduates and those with advanced degrees, since in the CPS both of these values are affected by the top-coding issue described earlier.
9. These views have been disputed, however, by Jagdish Bhagwati (2007) and Robert Lawrence (2008), among others.
10. To the extent that gender gaps in earnings continue to exist, these seem to be at least partly associated with the losses of experience and earnings growth associated with motherhood (Waldfogel 1998) and may also reflect the persistence of “glass ceiling” effects for professional and managerial women (Albrecht, Bjorklund, and Vroman 2003).
11. See also Levy and Temin (2007). According to Roubini and Mihm (2010), financial market bonuses in particular might reflect market failures such as asymmetric information between buyers and sellers of financial products, a lack of transparency that leads to underpricing of risk, and moral hazard among financial managers (especially if they feel their banks are “too big to fail” and the risks of their actions are borne by the public).
12. Barry Hirsch (2008) argues that because deregulation and imports made product markets more competitive in the past few decades, it became more difficult for unions to raise worker compensation levels absent offsetting increases in their productivity.
13. If both part-time and full-time enrollment rates are rising, then the inclusion of part-time students and exclusion of full-time students suggest lower rates of employment or hours of work for those groups with rising enrollment, whose members are likely to be stronger in academic ability than those who continue to work full-time. This could generate some downward trends in labor market outcomes among both younger and older workers. On the other hand, Harry Holzer, Paul Offner, and Elaine Sorensen (2005) present evidence suggesting that these compositional effects account for few of the employment trends observed over time for young men. Declining

rates of retirement can also lead to rising employment among the elderly, and even rising wages if the most able workers are those who are working longer.

14. For evidence on recent trends in the black-white achievement gap, see Magnuson and Waldfogel (2008). Some evidence of growing achievement gaps over time across family income groups appears in Reardon (2011).
15. Rising retirement ages and work effort among the elderly are likely to reflect improving health and a lack of sufficient assets to finance consumption during retirement on the “supply side” of the labor market, and perhaps growing demand for experienced workers or declining discrimination on the “demand side.”
16. Before the current decade, most economists had attributed employment declines in manufacturing much more to technological advances than to the growing levels of imports, since the share of American-made products in world output had not declined nearly as much as had employment in the manufacturing industries. But the rise of manufacturing products imported to the United States from China since 2000 seems to have somewhat changed this view (Krugman and Wells 2009). Houseman and her colleagues (2010) argue that output and productivity growth in U.S. manufacturing has also been overstated, owing to various statistical biases.
17. For instance, construction employment reached roughly 7 million workers in 2000, before the housing bubble really became inflated, before falling to about 5.5 million workers in 2010.
18. Holzer and his coauthors (2011) use microdata from the Longitudinal Employer Household Dynamics (LEHD) data, based on unemployment insurance (UI) earnings records of states that are matched to various surveys by the U.S. Census Bureau. Since both workers and firms are identified in the UI data, which are longitudinal, separate worker effects and firm effects can be calculated for each that measure worker and job quality.
19. The precipitous declines in construction and manufacturing employment since 2007 appear to have particularly lowered employment rates among Hispanic men, more than in previous downturns.
20. For a review of the evidence on how long-term unemployment can reduce reemployment rates among workers, see Dao and Loungani (2010).
21. Movements along the “Beveridge Curve,” which plots aggregate unemployment and vacancy rates, measure cyclical movements in the labor market, while outward shifts in the curve suggest the growing structural or frictional problems that raise the non-accelerating inflation rate of unemployment (or NAIRU). For a recent discussion that suggests such growing structural factors, see Elsby, Hobijn, and Sahin (2010). A skeptical reading of this argument appears in Mishel et al. (2012).
22. See, for instance, Louis Uchitelle, “Despite Recession, High Demand for Skilled Labor,” *New York Times*, June 24, 2009; see also Michael Fletcher, “Why Does Fresno Have Thousands of Job Openings—and High Unemployment?” *Washington Post*, February 2, 2011.
23. Another possibility is that lengthy spells of UI availability to workers during this downturn have limited their willingness to apply for available jobs, thereby raising job vacancy rates somewhat (Elsby et al. 2010).
24. For a discussion of how recessions brought on by financial market turmoil lead to persistent unemployment over time, see Reinhart and Rogoff (2009).
25. For pessimistic accounts of how global forces will affect workers in the coming decade, see Freeman (2007a) and Blinder (2007).
26. Recent evidence suggesting that unemployment insurance only modestly affects job search and unemployment rates can be found in Card, Chetty, and Weber (2007).
27. For a discussion of how rising rates of college completion might help dampen inequality, see Goldin and Katz (2008). For a discussion of how college completion rates can be improved, especially among lower- to middle-income Americans, see Haskins, Holzer, and Lerman (2009).
28. In this study, the quality of a job is distinguished from the quality of workers by whether or not the firm pays a wage premium above what the worker usually obtains in others jobs in the labor market. With longitudinal earnings data over many years for both workers and firms, we were able to estimate “worker effects” and “firm effects” where the latter reflect job quality.
29. For a discussion of how improvements in the attainment of degrees and certificates, especially at community colleges, can improve economic mobility for disadvantaged Americans, and also on the need to make sure that such certifications are linked to trends in labor market demand, see Furchtgott-Roth, Jacobson, and Moker (2009). For recent evidence on sectoral training programs, see Maguire et al. (2010), and for evidence on the success of Career Academies, see Kemple and Willner (2008). Robert Lerman (2007) also discusses the potential of career education to improve labor market outcomes for disadvantaged youth.

30. The fractions of private-sector workers covered either by federal minimum wages or collective bargaining are very low: for the latter, fewer than 7 percent of workers are now covered; the fraction covered by the former depends on the statutory minimum relative to the median market wage at any time, but is always below 10 percent and often below 5 percent. In addition, when labor and product markets become more competitive, as they no doubt have in recent decades, the ability of these institutions to raise wages without creating job losses diminishes as well, unless the higher wages are offset by higher worker productivity.
31. For a review of such efforts, including tax credits for incumbent worker training, technical assistance for firms trying to improve worker promotion possibilities, and the like, see Holzer et al. (2011).
32. For a discussion of how the EITC might be expanded to improve coverage of low-income childless adults and especially noncustodial fathers paying child support, see Edelman, Greenberg, and Holzer (2009).

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