United States Department of Labor

america's dynamic workforce

AUGUST 2008

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SECRETARY'S MESSAGE

BY U.S. SECRETARY OF LABOR ELAINE L. CHAO

America's dynamic workforce provides a strong foundation for our nation's continued long-term growth. In 2008, our country has faced significant challenges in the housing market, financial market volatility, and rising energy and food prices. These challenges have created anxiety for many workers. Yet, there are many strengths to see our country and our workforce through this period of economic uncertainty. America's workforce is the most productive in the world, according to the United Nations' International Labor Organization. And in recent years, labor productivity has grown at a faster rate than over the three prior decades. That is good news for workers because it lays the foundation for long-term economic growth and for a rising standard of living.

As our country deals with the current short-term challenges, we also must recognize the challenges that affect our long-term outlook. Our country is in the middle of a major economic transformation. Technology has accelerated the pace of change and our country is transitioning to a knowledge-based economy.

Good jobs are still being created. In fact, the majority of employment growth over the past six years has been in occupations with above-average compensation. Most of the new jobs projected for the future are expected to be filled by people with some post-secondary education. Over the next decade, new jobs will be created in high-growth industries including health care, nanotechnology, geospatial technology, and the life sciences. Education to gain the knowledge and skills that are in demand is key to future success in America's dynamic labor market.

Workers who acquire and maintain competitive knowledge and skills are finding jobs with good compensation. The goal of the Department of Labor is to ensure that the workforce has access to the information, training, and resources that will help them acquire the skills they need to access the growing opportunities in our nation's 21st century economy.

Despite the challenges that America has confronted over the past seven years, the fundamentals of the economy remains solid and resilient. This is a tribute to the dynamism, productivity, and flexibility of our nation's workforce.

ACKNOWLEDGMENTS

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Laura Genero, Associate Deputy Secretary, generously provided insightful advice and assistance at various stages of design and development of the report.

The text and charts for ***America's Dynamic Workforce: 2008*** were developed and edited by Ron Bird, Chief Economist, and by OASP economists David Langdon, Alison Pasternak, and Jay Berman. Economist intern Tanner Hartnett provided valuable assistance. Richard Manning of the Office of Public Affairs coordinated production and printing.

EXECUTIVE SUMMARY

America's Dynamic Workforce: 2008 presents an overview of current conditions and notable trends affecting the American labor market and economic activity. Primary emphasis is on measures of labor market performance – employment, labor force participation, unemployment, and compensation. General measures of economic performance such as gross domestic product (GDP) and productivity growth are also described as they relate to labor market conditions and trends.

Throughout this report the focus is on the data—what the numbers actually say about the American labor market—and on how individual data items fit together to present an overall portrait of the health and dynamism of the labor market. Data are current through July 31, 2008.

The report shows that the American labor market is strong and resilient. Labor market indicators describe an economy that has been creating jobs, expanding output, and rewarding work with good compensation. Although 2008 saw the end of a record 52 consecutive months of job gains (September 2003 though December 2007), this change in trends reflects multiple short-term challenges facing our economy. The prospects for long-term growth remain very bright.

The report also recognizes that, even as our economy grows in the future, there will be important challenges. The United States and the world are experiencing a major economic transformation. Technology has accelerated the pace of change, and the United States is transitioning to a knowledge-based economy.

The American economy creates good jobs. The majority of employment growth over the past seven years was in occupations with above-average compensation (wages plus benefits). This trend is likely to continue in the future, and most new jobs projected for the future are expected to be filled by persons with some kind of post-secondary education. Education to gain the knowledge and skills that are in demand is the key to success in America's dynamic labor market.

Workers who bring to the labor market the knowledge and skills that today's competitive economy demands are finding good jobs and rising compensation.

There are six chapters:

- **Chapter 1** summarizes the current levels and trends of payroll jobs, total employment, job openings, turnover, unemployment, and GDP. With the cyclical slowing of economic growth, unemployment rose to 5.5 percent in the first half of 2008, while payroll employment has declined. Nonetheless, the labor market remains dynamic with millions of job hires and separations taking place each month, and millions of unfilled job openings. And the unemployment rate remained below the average of the 1990s.
- **Chapter 2** presents an overview of recent trends in labor productivity and worker compensation. Over the last two decades, the capital-labor ratio has risen as has workers' educational attainment, thus helping American workers become even more productive. Rising productivity gains have largely translated into higher real compensation. Today's workers earn the fruits of their labor in different forms, as benefits are both significant and increasingly diverse.
- **Chapter 3** provides a global context for understanding the U.S. labor market and compares the United States and other countries along common dimensions of labor market indicators. The successful record of the United States across a broad range of indicators and over an extended

time period is remarkable for a mature industrial economy. The fact that the United States has achieved these results in the face of growing worldwide competition and other challenges, both natural and man-made, is a further testament to the robustness and resilience of an economic system based on free and open markets.

- **Chapter 4** examines the educational attainment of the labor force, including trends and comparisons of employment, earnings, and unemployment relative to educational attainment. Over three-fifths of the labor force age 25 to 64 has completed at least some post-secondary education. These workers comprise a valuable national asset of knowledge, skill, and experience. The 21st century labor market seeks and rewards workers who can offer the educational foundation, technical skills, and creative flexibility that employers need to compete and to adapt to changing needs successfully.
- **Chapter 5** highlights two trends that will significantly affect the shape of the labor force through the first half of the 21st century: an aging population and increasing racial and ethnic diversity. The aging of the population will lead to an aging of the labor force and slower labor force growth. Workers in the future will have to support a relatively greater dependent population as the baby boomer generation enters retirement. The labor force is projected to number 195 million persons in 2050, up from 153 million in 2007, with racial and ethnic minorities comprising an increasing share of the labor force.
- **Chapter 6** examines the job opportunities that will arise by 2016 and what will be required of the American workforce to fill those jobs. The aging population, the continued shift of employment to the service-providing industries, globalization, and the move toward increasingly sophisticated production techniques are key drivers of future job opportunities. More than ever, a solid educational foundation, involving schooling or training beyond high school, will be the key to accessing many of these jobs.

1 A Resilient Labor Market

After 52 consecutive months of steady job growth, payroll employment declined in January 2008 and in the succeeding months through June (the latest data as of this writing). The slowing of job growth in 2007 and the declines in 2008 reflected the cumulative economic drag of events in the housing and credit markets and the effects of escalating energy costs. Despite the reversals in job growth, real GDP growth remained slightly positive at a 1.0 percent annual rate in the first quarter. Unemployment rates remained close to 5.0 percent in early 2008, increasing to 5.5 percent in May and remaining at 5.5 percent in June. Still, the 5.5 percent unemployment rate in May and June was below the long-run average.

Some observers of the economy in late 2007 and in 2008 suggested that the economy was in recession, but the four indicators traditionally relied upon by the Business Cycle Dating Committee of National Bureau of Economic Research—economists who maintain the accepted record of business cycle peaks and troughs—were not clear on the question in the first half of 2008. While real sales of manufacturers, wholesalers, and retailers were down to a degree that would indicate the beginning of a recession, real personal income less transfer payments were essentially stable. The declines in payroll jobs and industrial production were less pronounced than the declines typical of past recessions.

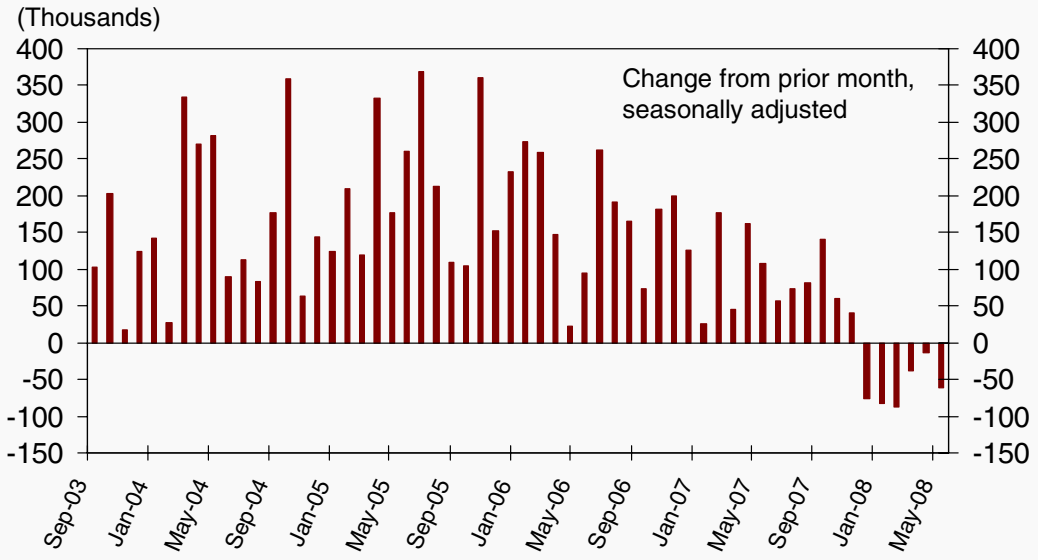
The growing importance of global trade to the American economy and to American workers may have been a factor in the uncertain economic indicators. Strong exports helped to offset the declines in factory output and employment associated with the contraction of the housing market and the sharp decline in U.S. motor vehicle sales.

Since employment began recovering in mid-2003 from the effects of the 2001 recession, the economy had tallied cumulative job gains of nearly 8.3 million through December 2007. The job losses in the first half of 2008 totaled 438,000, leaving total employment 0.3 percent below the December 2007 peak of 138.1 million nonfarm payroll jobs and 5.1 million above the February 2001 pre-recession peak.

The American economy and labor market are fundamentally strong, despite the setbacks brought on by recent events, and that strength is reflected in its resilience and ability to withstand such extraordinary challenges.

Many economists believe that the strength and resilience of the economy is the result of the flexibility of its labor markets, which enable employers and employees to respond rapidly to new challenges and opportunities and quickly to implement productivity-enhancing innovation. The result of such flexibility is an environment in which new jobs typically are being created faster than obsolete jobs are being eliminated. This provides the American worker with an important kind of employment security: the assurance that even if an existing job is lost to economic challenge and change, new opportunities will be available. Thus, labor market flexibility creates a market-oriented economic safety net.

Figure 1-1. Payroll jobs increased steadily from September 2003 to December 2007

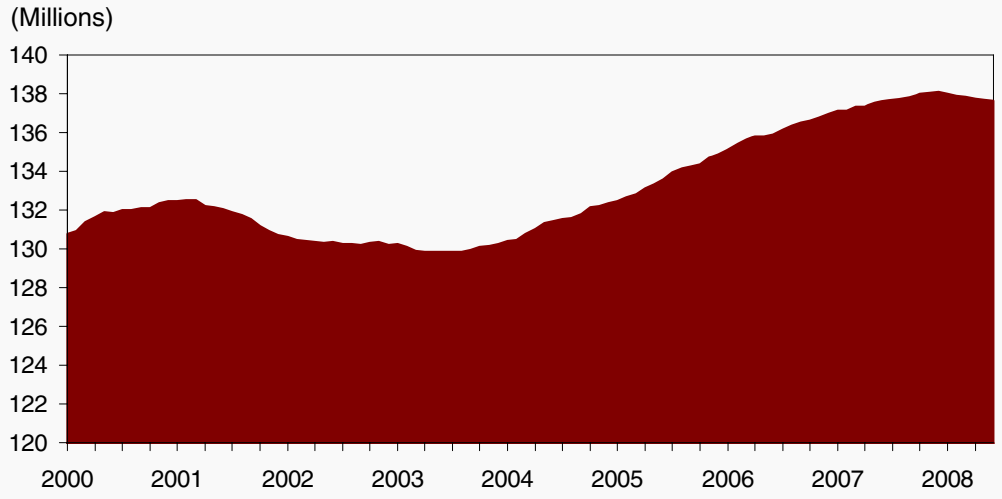


SOURCE: Bureau of Labor Statistics, Current Employment Statistics program.

Figure 1-1 shows the record of monthly changes in nonfarm payroll employment from September 2003 through June 2008.

The U.S. labor market recorded 52 consecutive months of job growth from September 2003 to December 2007, the longest run of consecutive monthly gains on record. The monthly payroll employment series goes back to 1939.

Figure 1-2. Payroll jobs reached a record level of 138,078,000 in December 2007



SOURCE: Bureau of Labor Statistics, Current Employment Statistics program.

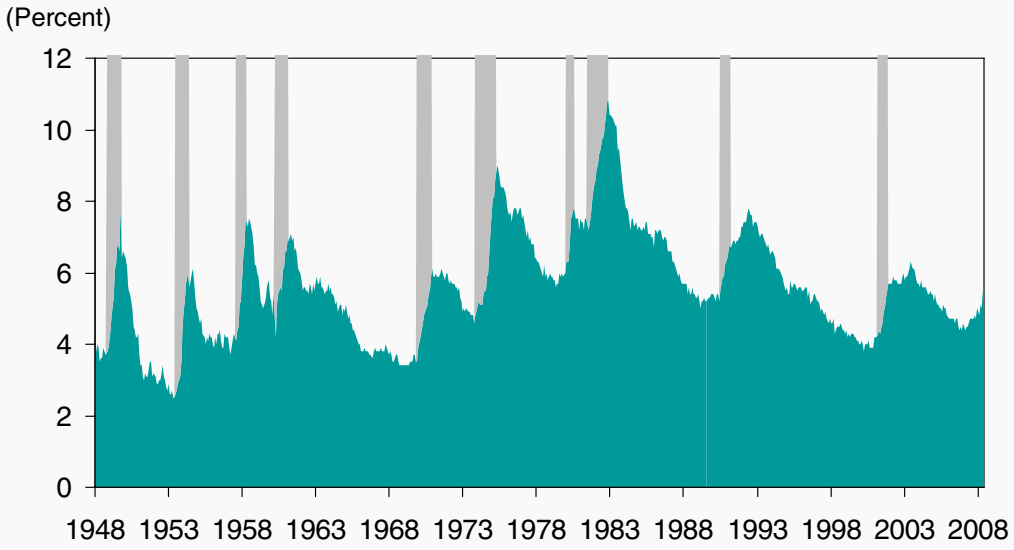
Figure 1-2 shows monthly payroll employment from January 2000 to June 2008. In February 2001, just before the onset of the 2001 recession in March, payroll employment peaked at 132.5 million jobs. Following the recession, payroll employment declined to a cyclical low of 129.8 million jobs in August 2003.

The rebound of payroll jobs erased the cyclical losses by February 2005 when total payroll employment surpassed the February 2001 peak. By December 2007, payroll employment reached a record high of 138.1 million jobs, or 5.6 million jobs above the February 2001 mark.

The recession that began in the first quarter of 2001 had its origins in economic events of 2000, when financial market reversals and inventory build-ups appear to have triggered increased layoffs and slower job growth. The September 11 terrorist attacks added pressure to an already declining economy.

Job growth slowed in 2007 and job declines occurred in 2008 as the economy was impacted by the collapse of the housing market, the credit crisis in the banking industry, and record high oil prices.

Figure 1-3. The unemployment rate remains below the long-term average



SOURCE: Bureau of Labor Statistics, Current Population Survey.

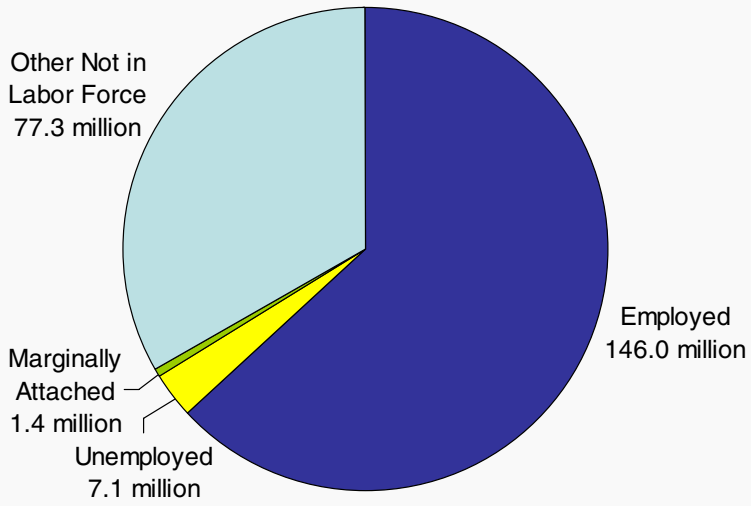
Figure 1-3 shows the trend of the unemployment rate from January 1970 to June 2008. At 5.5 percent in June 2008, the national unemployment rate was just below the 5.6 percent average since January 1948, when the series began.

The unemployment rate is below the post-recession high of 6.3 percent in June 2003, when the number of unemployed persons peaked at 9.3 million. The 6.3 percent unemployment rate following the 2001 recession was lower than the peak rate for any recession since the 6.1 percent peak following the 1970 recession.

In October 2006, the number of unemployed persons reached a post-2001 recession low of 6.7 million and remained little changed through the first quarter of 2007. With the slowing of the economy and decelerating job growth later in 2007, the number of unemployed began to rise, reaching nearly 7.7 million in December 2007 and 8.5 million in June 2008.

The median duration of unemployment averaged 8.5 weeks in 2007 and had risen to 10.0 weeks by June 2008, reflecting the decline in job growth and the softening of economic growth.

Figure 1-4. More than 60 percent of the population ages 16 and over worked in 2007



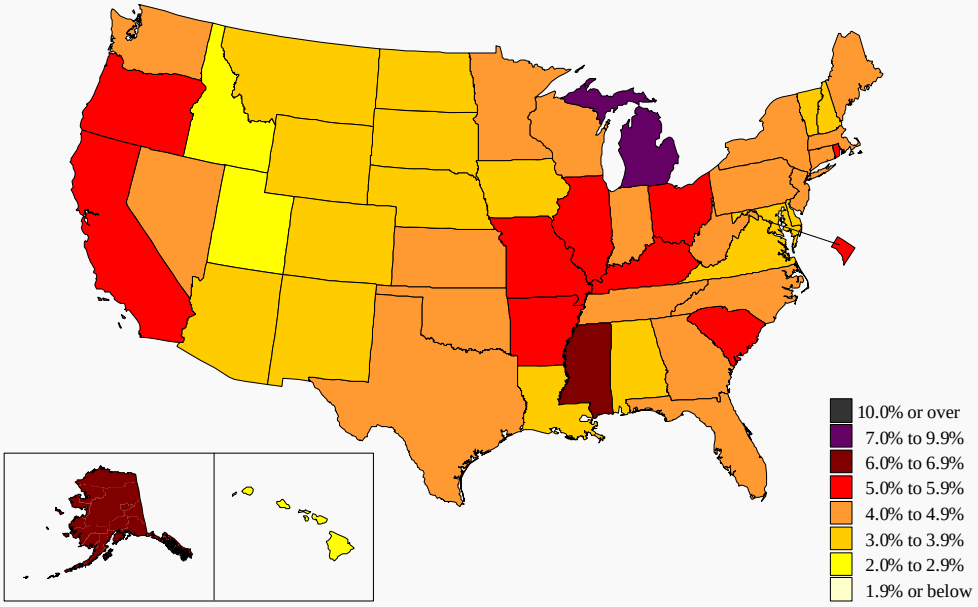
SOURCE: Bureau of Labor Statistics, Current Population Survey.
NOTE: Marginally attached persons not in labor force looked for work in past 12 months and were available to work during the survey reference week.

Figure 1-4 shows the distribution in 2007 of the total 231.9 million noninstitutional civilian population ages 16 and older.[1] The 146.0 million employed persons comprised 63.0 percent. Another 7.1 million were unemployed. Employed and unemployed combined comprise the labor force.

The Bureau of Labor Statistics (BLS) also publishes estimates of the subset of persons not in the labor force who have looked for work in the previous 12 months, and who want a job and are available for work, even though they have not actively looked during the last four weeks. In 2007, the number of persons in this "marginally attached" category totaled 1.4 million, of whom 369,000 cited discouragement about job prospects as the reason for not actively looking for work. The remainder cited other reasons, such as lack of transportation, illness, or family responsibilities.

In addition to the "marginally attached," there were another 77.3 million people who were also not in the labor force. Individuals not in the labor force include persons who are neither working nor looking for work for reasons such as retirement, disability, and school attendance.

Figure 1-5. Unemployment rates by state, 2007



SOURCE: Bureau of Labor Statistics, Local Area Unemployment Statistics program.

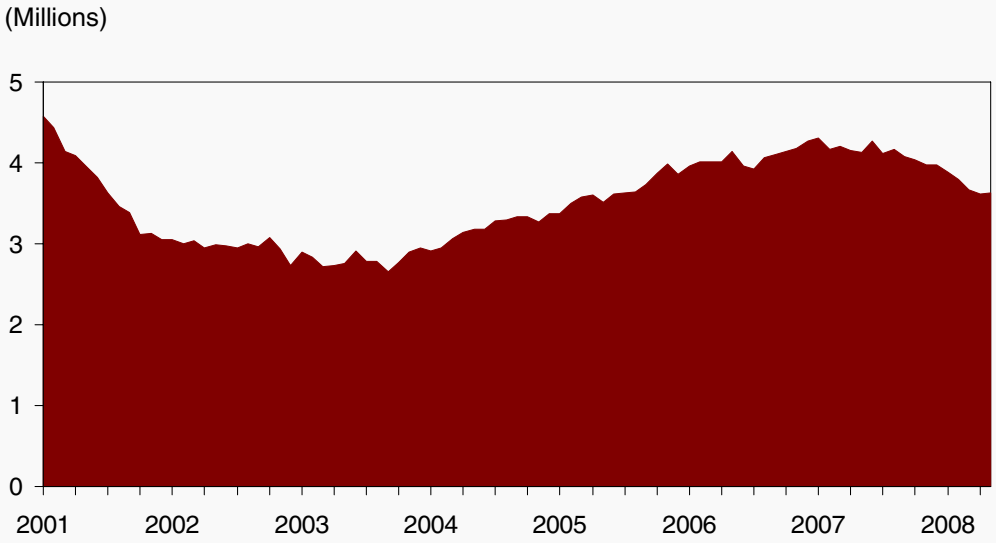
Figure 1-5 shows annual average unemployment rates by state in 2007. Hawaii's 2.6-percent unemployment rate was the lowest among the 50 states and the District of Columbia. The number of persons unemployed in Hawaii in 2007 was 17,169. Idaho and Utah had the next lowest rates, each at 2.7 percent, and unemployment levels of 20,484 and 36,288, respectively.

The 7.2-percent annual average unemployment rate in Michigan was the highest among the 50 states and the District of Columbia. The number of unemployed persons in Michigan in 2007 was 360,057. At 6.3 percent, the unemployment rate in Mississippi was second highest, and third was Alaska at 6.2 percent. The level of unemployment in 2007 was 83,068 in Mississippi and 21,717 in Alaska.

California had the highest annual average unemployment level in 2007 (979,152 persons), while the statewide unemployment rate was 5.4 percent.

Nine states and the District of Columbia had annual average unemployment rates between 5.0 and 5.9 percent.

Figure 1-6. Job openings peaked in 2007



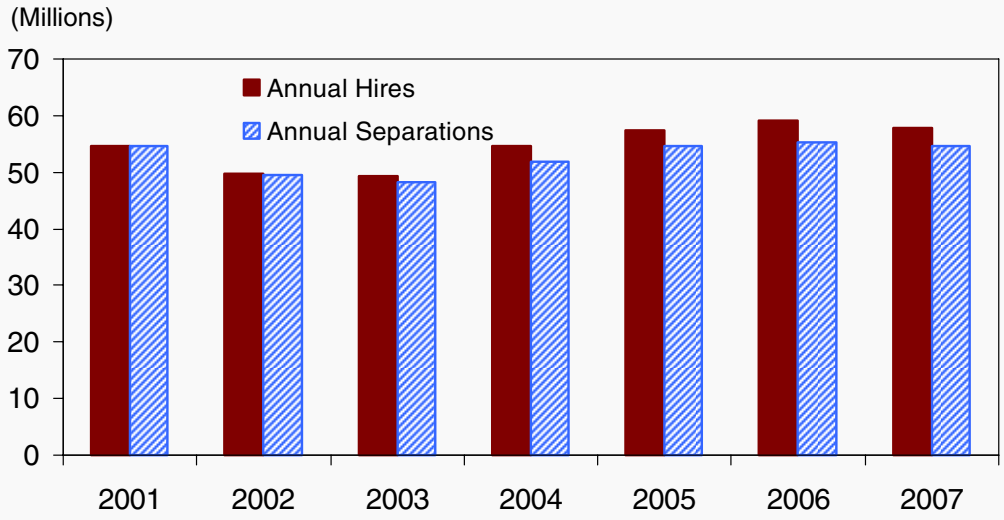
SOURCE: Bureau of Labor Statistics, Job Openings and Labor Turnover Survey.

Figure 1-6 shows data from the BLS Job Openings and Labor Turnover Survey (JOLTS) for unfilled job openings on the last day of each month. Job openings grew steadily from a low of 2.7 million in September 2003 to a peak of 4.3 million in January 2007. Job openings subsequently hovered between 4.1 and 4.3 million for much of 2007 before clearly trending downward, falling back to 3.6 million as of the last business day of May 2008.

Job openings include both existing jobs that have become vacant and new jobs that the employer has created but not yet filled. During the course of a month, many jobs become available and many are filled.

Data for job openings on the last business day of each month provide a snapshot estimate of the typical number of openings on a given day. A rising trend of openings suggests that job opportunities may be growing faster than qualified candidates are being found to fill them.

Figure 1-7. Turnover shows labor market dynamics



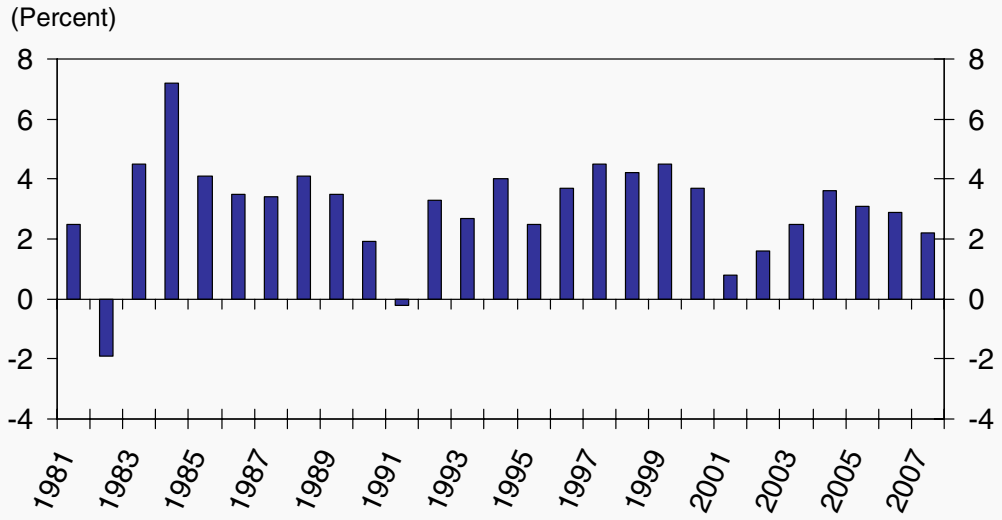
SOURCE: Bureau of Labor Statistics, Job Openings and Labor Turnover Survey.

Figure 1-7 shows annual turnover – hires and separations for 2001 through 2007. In 2007, employers made 57.8 million hires to fill vacancies or newly created jobs.[2] On average about 3.5 percent of jobs were filled each month.

Parallel to hires, separations totaled 54.6 million over the course of 2007. Separations included 31.1 million voluntary quits by employees, 19.7 million layoffs or discharges, and 3.9 million other separations, including those because of retirement, disability and death. It is likely that many of the voluntary quits involved job changes from one employer to another, but the exact number is unknown.

The JOLTS program collects data from employers on changes in payrolls. The numbers of separations and hires represent jobs vacated or filled, respectively. Some individuals change jobs or enter or leave the job market several times during a year, so the numbers of individuals who are involved in hires or separations is somewhat smaller than the numbers of jobs affected.

Figure 1-8. Annual average growth of real gross domestic product (GDP), 1981-2007



SOURCE: Bureau of Economic Analysis, National Income and Product Accounts.

The strength of the labor market is a reflection of the growth of real (after inflation adjustment) gross domestic product (GDP) in recent years. In 2007, GDP reached $13.8 trillion. Since 1980, real GDP has more than doubled.

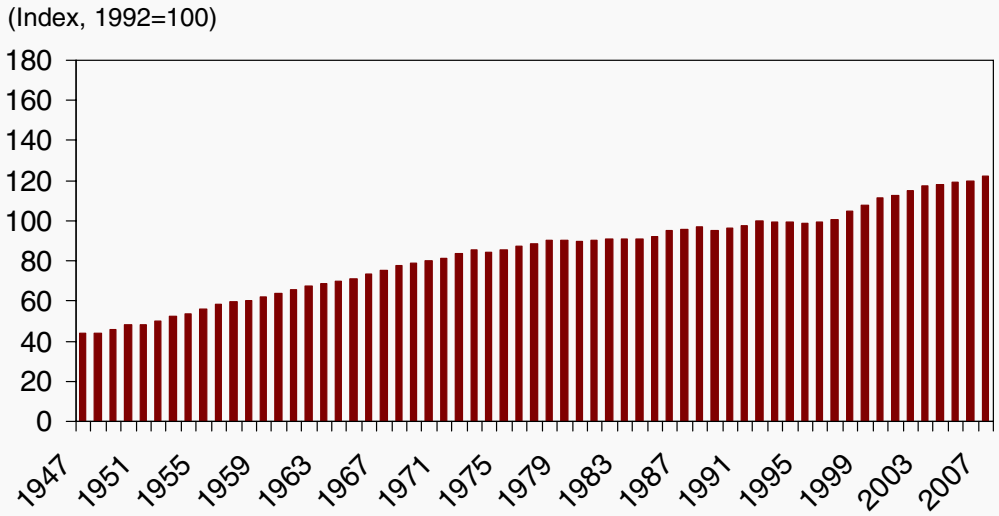
On a per capita basis, GDP in 2007 was $45,819. This was 5.4 times the per capita real GDP in 1929 of $8,495 (2007 dollars), and 1.7 times the $27,123 per capita real GDP in 1980 (2007 dollars).

Real GDP growth (Figure 1-8) averaged 2.2 percent in 2007. GDP growth was weak (0.6 percent annual rate) in the first and last quarters of 2007, but strong at 3.8 percent in the second quarter and 4.9 percent in the third quarter.

Reflecting the adverse conditions in the housing and financial markets, GDP growth continued at a slow 1.0 percent pace in the first quarter of 2008.

Since 1930, annualized real GDP growth has averaged 3.5 percent.

Figure 1-9. Real hourly compensation index, nonfarm business sector, 1947-2007



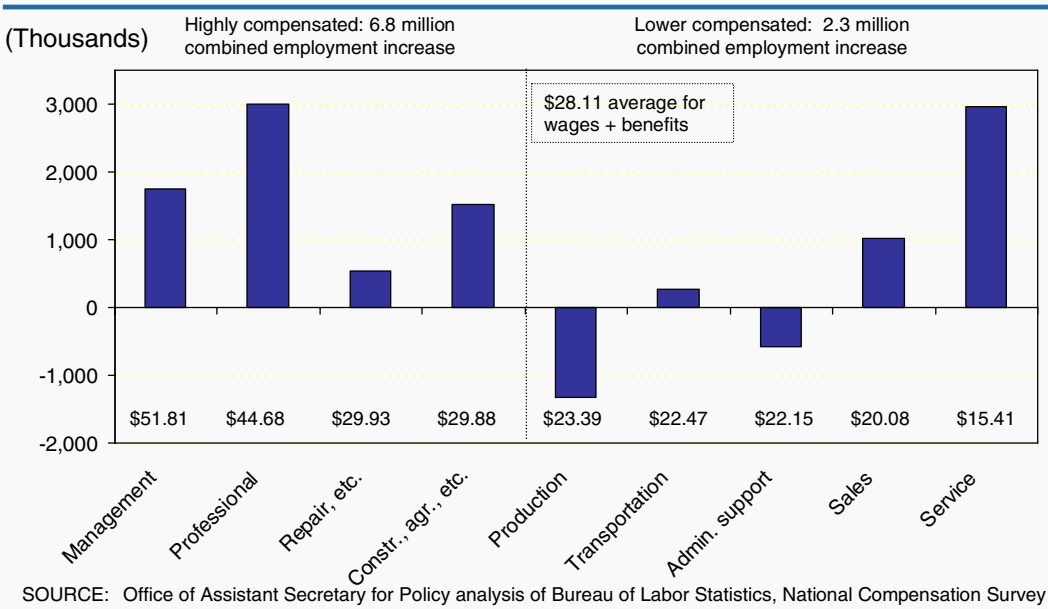
SOURCE: Bureau of Labor Statistics, Major Sector Productivity and Costs program.

Increasing real output and productivity have yielded real gains in compensation for employees. Compensation includes both wages and the cost of benefits such as health insurance, retirement plan contributions, paid leave, and other benefits. Figure 1-9 shows the steady increase in real hourly compensation in the nonfarm business sector over the past 60 years.

Over the most recent six years (2001-2007) the growth of real hourly compensation has continued at a 1.4 percent annual rate, compared to the 1977-1997 annualized growth of 0.6 percent and to the 0.5 percent annual average rate for the comparable business cycle years of 1991-1997. In 2007, the average level of real hourly compensation in the nonfarm business sector was 8.4 percent higher than in 2001.

Compensation measured by the constant dollar Employment Cost Index also shows gains in real hourly terms in recent years, up 4.9 percent between March 2001 and March 2008. Much of the increase in compensation was due to benefits costs, which were 13.8 percent higher in real terms from March 2001. Wages and salaries was 1.4 percent higher than in March 2001.

Figure 1-10. Highly compensated jobs drove much of 2001-2007 employment growth



SOURCE: Office of Assistant Secretary for Policy analysis of Bureau of Labor Statistics, National Compensation Survey (December 2007 compensation amounts) and Current Population Survey data (employment change 2001 – 2007 annual averages).

NOTE: Across all occupations, average compensation in December 2007 was $28.11 per hour. Compensation includes employer cost for both wages and benefits.

Figure 1-10 illustrates the relationship between increasing compensation (includes employer cost for both wages and benefits) and the changing structure of the labor market. Over the past six years, job growth has been greater among relatively well-compensated occupations: management, business and financial; professional and related; construction, extraction, and agricultural occupations; and installation, maintenance, and repair occupations.

Each of these four occupational groups paid above the average compensation of $28.11 per hour in December 2007.[3] These four higher-compensation occupational groups accounted for 6.8 million net additional workers between 2001 and 2007.[4]

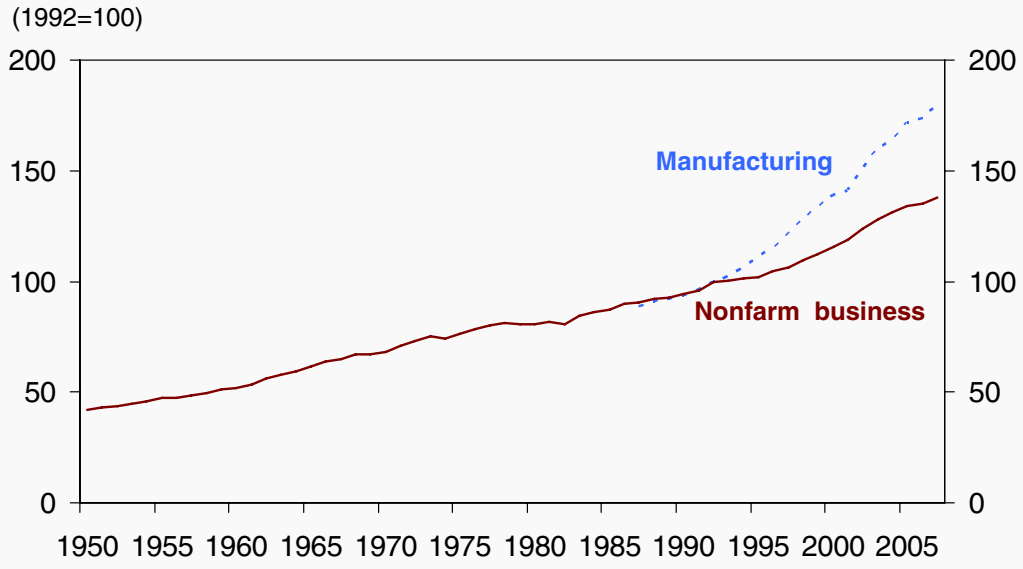
The five lower-paid occupational groups together accounted for 2.3 million net additional workers. Employment gains in the transportation, sales, and service occupational groups were partly offset by losses in production occupations and in administrative support occupations.

2 A PRODUCTIVE WORKFORCE

Both expanding population and rising productivity boost economic growth, but only the latter raises the standard of living. Productivity growth paves the way for increased real compensation (i.e., wages and benefits) for American workers. Labor productivity is defined as the ratio of real output to the number of labor hours required as input, and indexes of labor productivity measure its change over time.

Multiple factors can raise workers' productivity. Two factors—workers' skills and efforts—are a direct reflection of the workers themselves. Other important factors include the effects of research and development and capital investment (in other words, the development and incorporation of technological change), the organization of production, and changes in managerial skills. Resource allocation also can affect overall productivity growth. If, for example, resources are shifted away from low-productivity industries to high-productivity ones, a nation's overall productivity level will rise.

Figure 2-1. Nonfarm business and manufacturing indexes of labor productivity



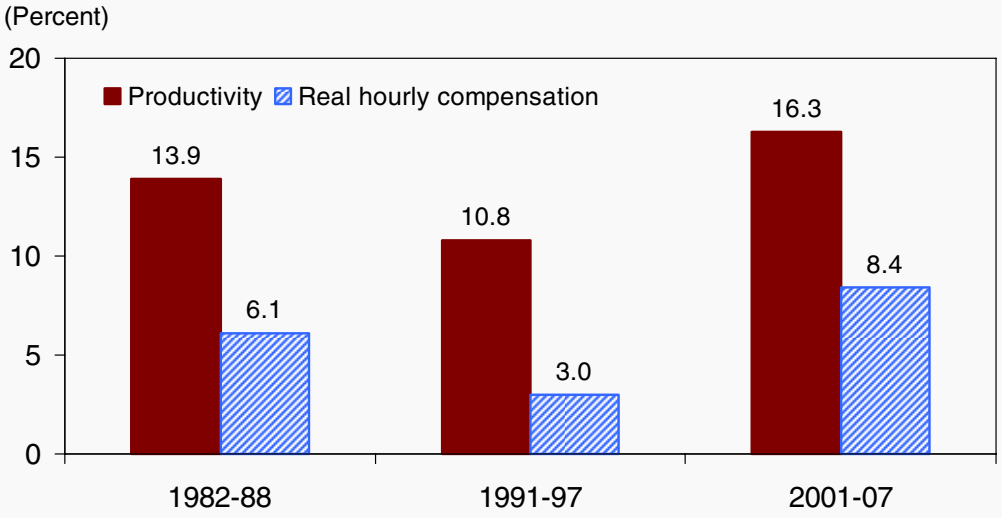
SOURCE: Bureau of Labor Statistics, Major Sector Productivity and Costs program.

Nonfarm business labor productivity has followed a long-term growth trend since the data were first published 60 years ago, and growth has accelerated over the past decade.

Labor productivity in 2007 was double the 1970 level and triple its 1954 level. Over the past decade (1997-2007), productivity climbed at a 2.6 percent annualized rate, well above the 1.6 percent rate over the prior decade (1987-1997) and the 1.7 percent rate for the prior 3 decades (1967-1997).

Estimates of manufacturing productivity, which date from 1987, also show a pronounced acceleration in growth. Between 1997 and 2007, manufacturing productivity surged 4.0 percent annually, well above the 3.1 percent rate over the prior decade (1987-1997).

Figure 2-2. Growth in nonfarm business productivity and real hourly compensation following recent recessions



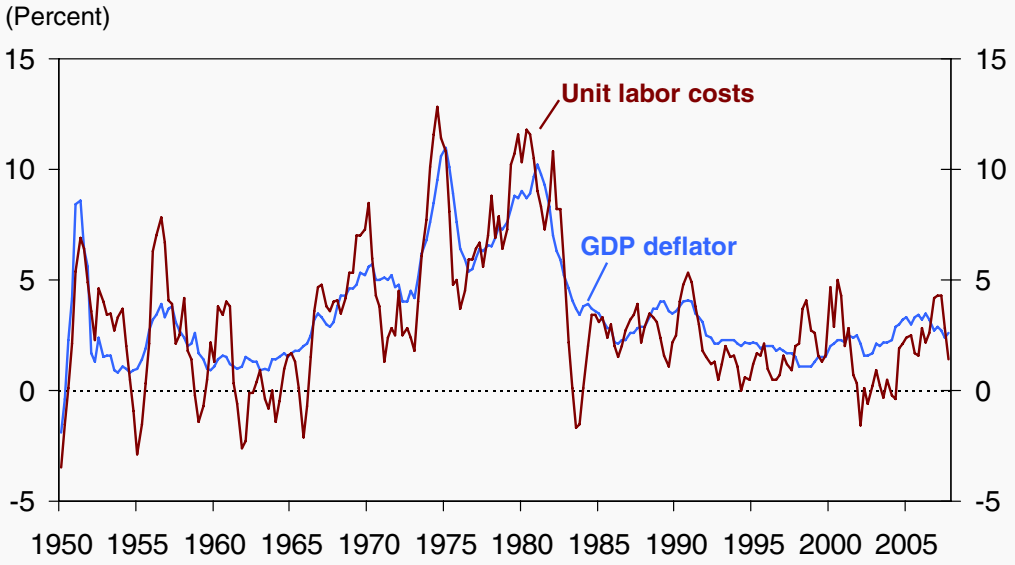
SOURCE: Bureau of Labor Statistics, Major Sector Productivity and Costs program.

Greater productivity gains have translated into greater compensation gains. Between 2001 and 2007, nonfarm business labor productivity increased 16.3 percent and real compensation per hour increased 8.4 percent.

The growth following the prior two recessions was notably lower. Between 1991 and 1997, labor productivity climbed 10.8 percent while compensation edged up 3.0 percent. Between 1982 and 1988, productivity increased 13.9 percent and compensation rose 6.1 percent.

In all three cases, the compensation gains fell short of productivity gains; however, a greater proportion of productivity growth translated into increased real hourly compensation between 2001 and 2007.

Figure 2-3. Year-to-year growth in nonfarm business unit labor costs and the GDP deflator



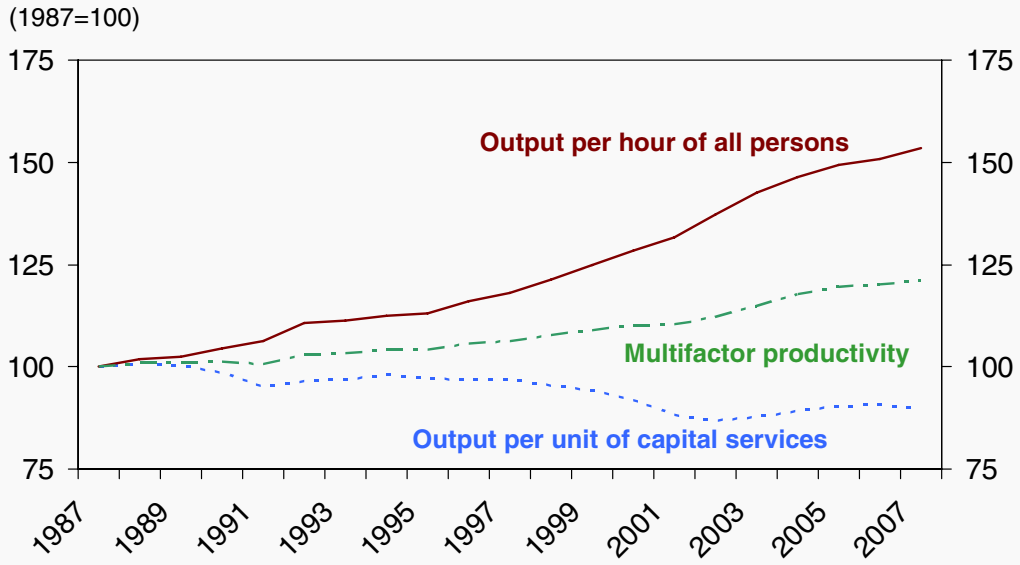
SOURCE: Bureau of Labor Statistics, Major Sector Productivity and Costs program and the Bureau of Economic Analysis.

Unit labor costs more directly measure the relationship between output and worker compensation. This measure is defined as nominal compensation per hour divided by real output per hour, or equivalently as the average nominal labor cost of a unit of output.

Unit labor costs are an indicator of inflationary pressures facing companies. If unit labor costs grow faster than overall inflation, then companies face pressure either to raise prices or reduce payments to other input factors.

Although growth rates in unit labor costs and other inflation measures diverge at times, their long-term trends are very similar. Figure 2-3 illustrates the year-to-year growth trends since 1950 of unit labor costs and the GDP deflator. Their correlation coefficient over the entire time period was 0.82, with 1.0 indicating perfect linear correlation.

Figure 2-4. Private nonfarm business labor, capital, and multifactor productivity, 1987-2007



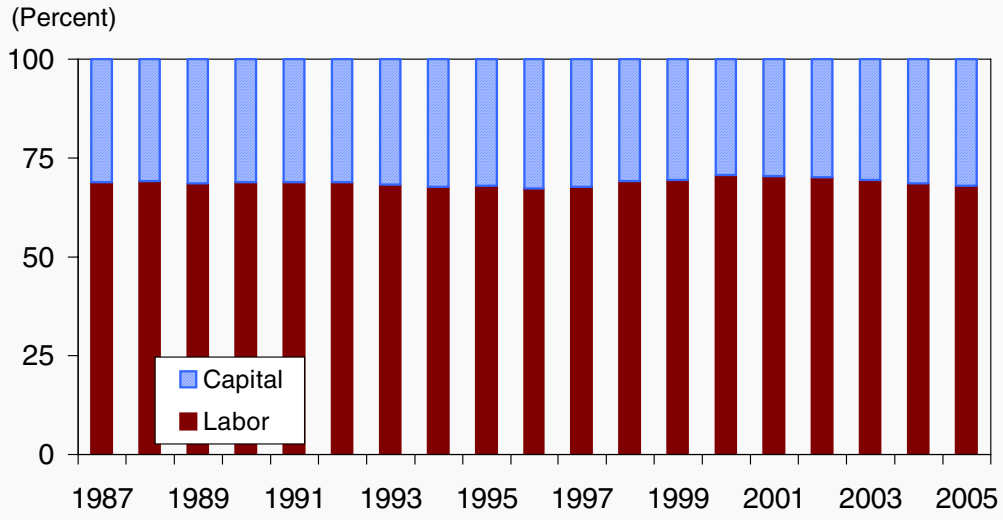
SOURCE: Bureau of Labor Statistics, Major Sector Multifactor Productivity program.

Estimates of multifactor productivity in the private nonfarm business sector take into account both labor and capital.[5] Increases in multifactor productivity reflect the joint influence on labor and capital of new technologies, economies of scale, managerial skill, changes in the organization of production, and other factors.

Over the past 20 years, multifactor productivity rose 20.9 percent. While labor productivity increased by 53.5 percent, capital services grew faster than labor input. The resulting increase in the capital-labor ratio and improvements in human capital—which BLS refers to as "growth in labor composition"—helped make U.S. workers more productive.

Human capital increased steadily over this period, as measured by workers' educational attainment. Because quarterly labor productivity measures merely focus on raw counts of worker hours and do not account for human capital, the increase in labor productivity is partly influenced by workers' increased educational attainment. Specifically, human capital growth between 1987 and 2007 accounts for about one-sixth of labor productivity growth during that period.

Figure 2-5. Private nonfarm business labor and capital cost shares

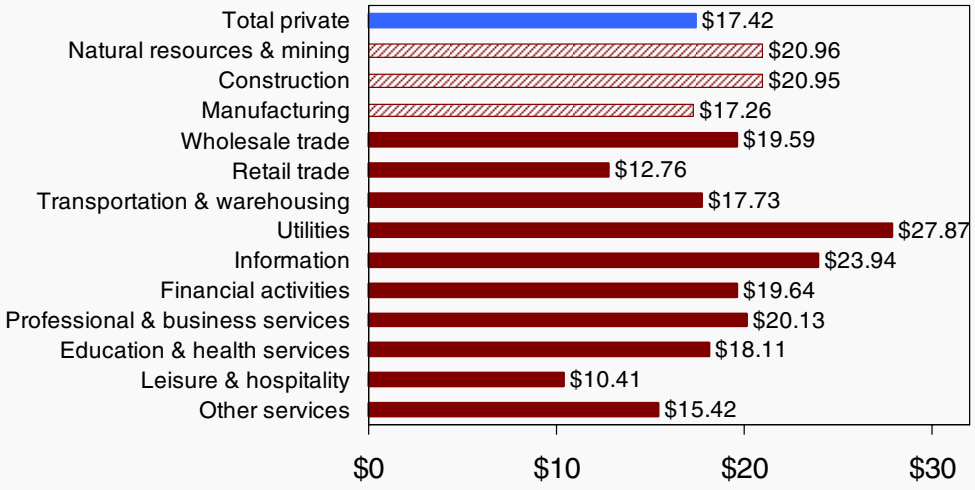


SOURCE: Bureau of Labor Statistics, Major Sector Multifactor Productivity program.

Data from the BLS multifactor productivity program provide additional insight into the relative cost of labor and capital. Labor costs are essentially equivalent to worker compensation, that is, wages and benefits.[6] Capital costs are more varied and less straightforward to define. Profits are a key part of capital costs, as are depreciation, interest payments, rental payments, property and motor vehicle taxes, and inventory valuation adjustments.[7]

One striking trend of the past 19 years is the stable share of costs of (and income going to) labor and capital. The labor share of costs has fluctuated between 67.4 and 70.7 percent of total costs. In 2005, labor costs represented 67.9 percent of total costs, similar to the percentages reported in the mid-1990s when the economy was at a similar point in the business cycle.

Figure 2-6. Average hourly earnings of production workers by major industry, 2007



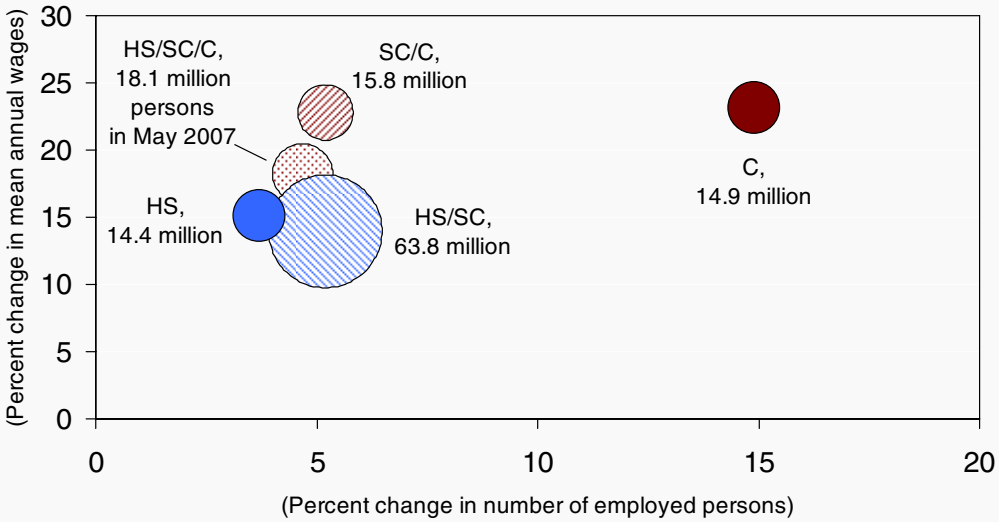
SOURCE: Bureau of Labor Statistics, Current Employment Statistics program.

Although manufacturing jobs are commonly regarded as well-paying jobs, many other industries have higher average hourly earnings of production or nonsupervisory workers.[8] At $17.26 in 2007, the average hourly earnings of manufacturing production workers were actually lower than the $17.42 average for all production or nonsupervisory workers in private industries.

Average hourly earnings were $23.94 in the information industry, or 39 percent higher than in manufacturing. Other industries with relatively high earnings include utilities; natural resources and mining; construction; professional and business services; financial activities; and wholesale trade.

Between 2001 and 2007, much of the employment growth came in industries with above-average hourly earnings. Employment in professional and business services, construction, and financial activities increased by 2.8 million. The private education and health service industries added 2.7 million jobs. Two notable exceptions are the utilities industry, which lost 46,000 jobs, and the information industry, which lost 600,000 jobs following the dot-com bust.

Figure 2-7. Employment and wage growth by educational cluster, 2001-2007



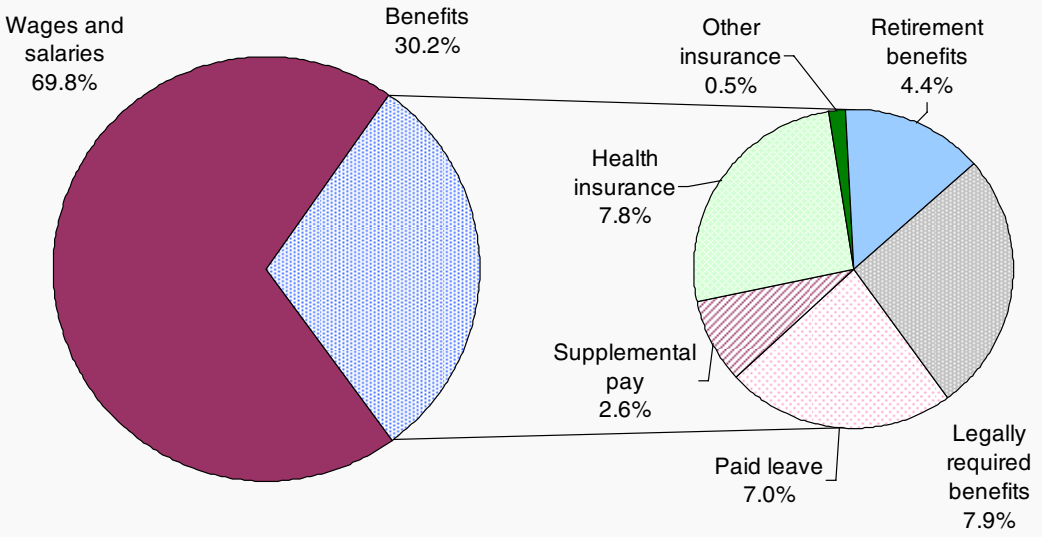
SOURCE: Office of the Assistant Secretary for Policy tabulation of data from the BLS Occupational Employment Statistics and Employment Projections programs.
NOTE: The circle icons are proportional to the number of persons employed in occupations within various educational clusters. HS refers to a high school diploma; SC, some college completed; and C, 4-year college degree.

According to Office of the Assistant Secretary for Policy's analysis of BLS data, although HS and HS/SC occupations still account for most jobs in the U.S., high job growth and high wage growth occupations are associated with greater post-secondary educational attainment.[9]

Between 2001 and 2007, employment at "college" jobs (generally, a bachelor's degree or higher) grew 14.9 percent (or 1.9 million jobs) and employment at "some college/college" jobs grew 5.2 percent (about 800,000 jobs). "Some college" includes both two year degree or vocational programs and college level coursework without degree completion. In contrast, employment at "high school" jobs grew only 3.7 percent (500,000 jobs).

High-wage growth occupations were also associated with higher education levels. Between 2001 and 2007, mean annual wages in "college" jobs and "some college/college" jobs increased 23.1 percent and 22.8 percent, respectively. Nominal wages in "high school" and "high school/some college" jobs only increased 15.1 percent and 13.9 percent, respectively.

Figure 2-8. Distribution of hourly compensation costs for civilian workers, December 2007



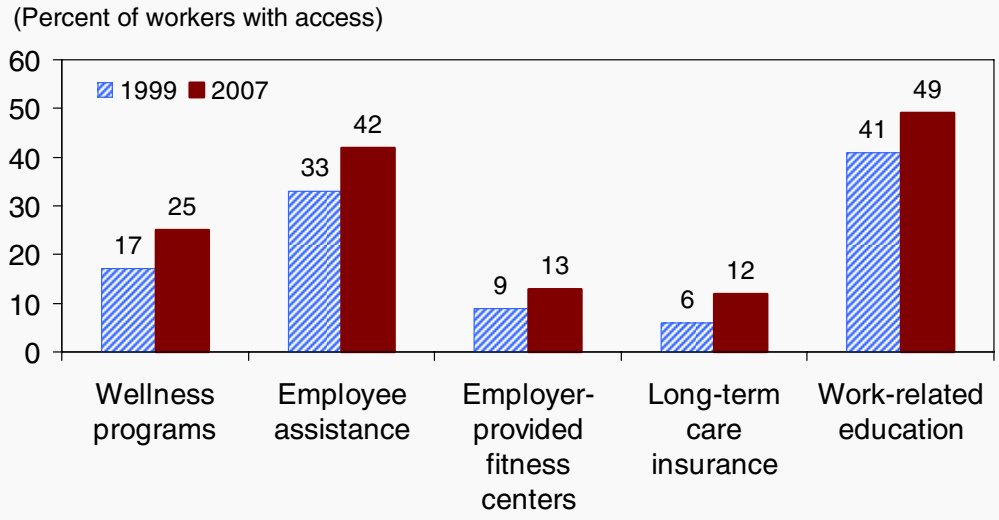
SOURCE: Bureau of Labor Statistics, Employer Costs for Employee Compensation.

Although wages account for the majority of total worker compensation, benefits also represent a substantial share (30.2 percent). Under the umbrella of "benefits" falls a diverse range of plans and programs of great value to workers and of notable cost to employers. Benefit plans include programs that may be difficult or costly for individuals to obtain, such as health insurance.

Health insurance accounted for 7.8 percent of total employee compensation in December 2007, which together with legally required benefits such as Social Security and Medicare (7.9 percent) were the largest single benefit cost to employers on average. Health benefits have risen from 7.2 percent of compensation in March 2004.

At 7.0 percent of total compensation in December 2007, paid leave fell just behind health insurance and the legally required benefits. Retirement benefits accounted for 4.4 percent, and supplemental pay (e.g., overtime, shift differentials, and bonuses) accounted for 2.6 percent.

Figure 2-9. Growth in access to specialized benefit programs in the private sector, 1999-2007



SOURCE: Bureau of Labor Statistics, National Compensation Survey.
NOTE: Small changes may not be statistically significant.

Workers are gaining access to an increasingly diverse set of specialized benefit programs. Because workers are most productive when they are healthy, employers have become more conscious about keeping workers in better physical and emotional health. Between 1999 and 2007, access to wellness programs increased from 17 percent to 25 percent. These programs include smoking cessation, weight control, nutrition education, hypertension testing and stress management classes.

Employee-assistance programs, which provide workers referral and counseling services in areas such as substance abuse, financial issues, legal problems, emotional problems and marital difficulties, have also grown in popularity, with access increasing from 33 percent to 42 percent. Access to employer-provided fitness centers increased from 9 percent to 13 percent during this period, while access to long-term care insurance doubled from 6 percent to 12 percent.

Employers know that education pays, and nearly half of private sector employers made work-related education benefits available in 2006, up from 41 percent in 1999.

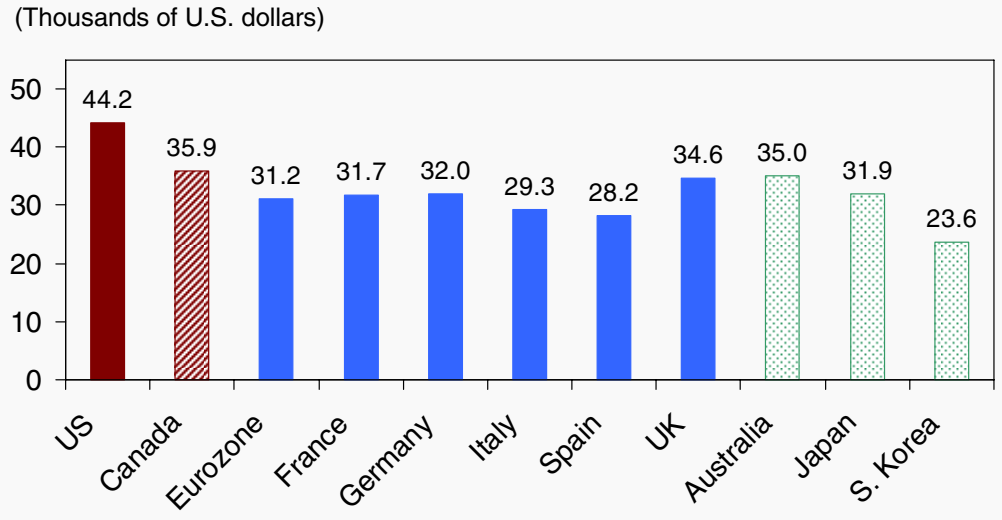
3 A BENCHMARK FOR OTHER NATIONS

The U.S. economy provides a consistent benchmark for the world across a broad range of economic and labor market indicators, including GDP per capita, the productivity of its workers, robust productivity growth, high labor force participation, low overall unemployment, and low long-term unemployment. Other nations may lead in individual indicators, but the United States is consistently at or near the top across many measures. Its vibrant, flexible labor market is a benchmark for other nations.

The successful record of the United States across a broad range of indicators and over an extended time period is remarkable for a mature industrial economy. The fact that the United States has achieved these results in the face of growing worldwide competition and other challenges, both natural and man-made, is a further testament to the robustness and resilience of an economic system based on free and open markets. And it is a testament to the energy, creativity, skills, flexibility, and competitiveness of American workers and employers.

This chapter provides an overview of a few selected labor market indicators across countries. For a more comprehensive review of international data, see *A Chartbook of International Labor Comparisons*, available online at www.dol.gov/asp.

Figure 3-1. GDP per capita in 2006, United States and selected countries



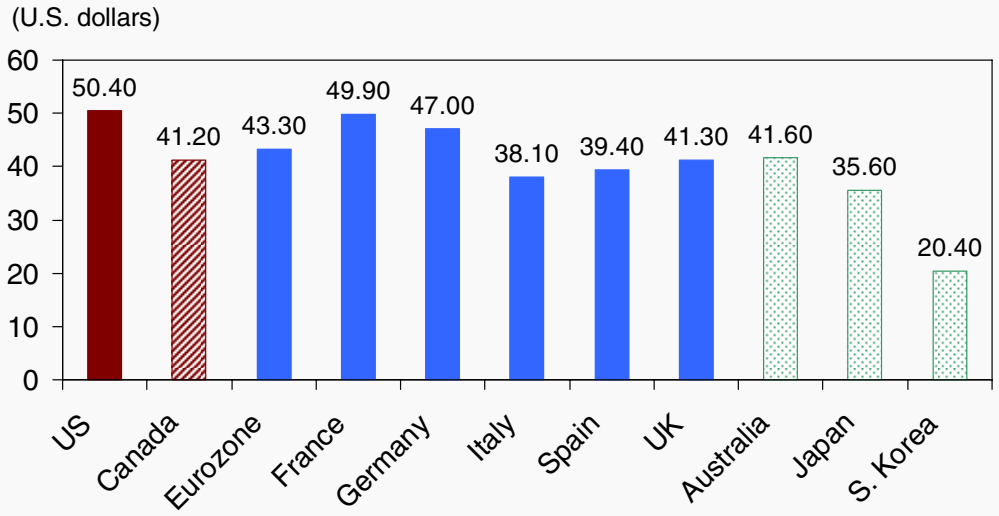
SOURCE: Department of Labor, *A Chartbook of International Labor Comparisons* and Eurostat.
NOTE: GDP estimates are converted to U.S. dollars using purchasing power parities.

Data on GDP per capita are remarkable. In 2006, U.S. per capita GDP totaled $44,200—about 23 percent higher than in Canada, 26 percent higher than in Australia, and 42 percent higher than the composite amount for the eurozone countries.[10]

What makes such comparisons more striking is the fact that the United States is such a large country. With a total population of nearly 304 million people, the United States is the third most populous nation in the world, following China (1.3 billion) and India (1.1 billion). The eurozone outnumbers the United States in total population (311 million); however, its labor force is marginally smaller—151 million compared with 153 million in the United States.[11]

The United States also leads the world in manufacturing, followed by China, Japan, and Germany. The United States contributed 20.5 percent of global value added in manufacturing in 2006, the latest year with complete data. China's value added represented 13.0 percent of the global total, while Japan's and Germany's contributions were 11.0 percent and 7.4 percent, respectively. The eurozone's share, at 20.8 percent, is about equal to that of the United States.[12]

Figure 3-2. GDP per hour worked in 2006, United States and selected countries

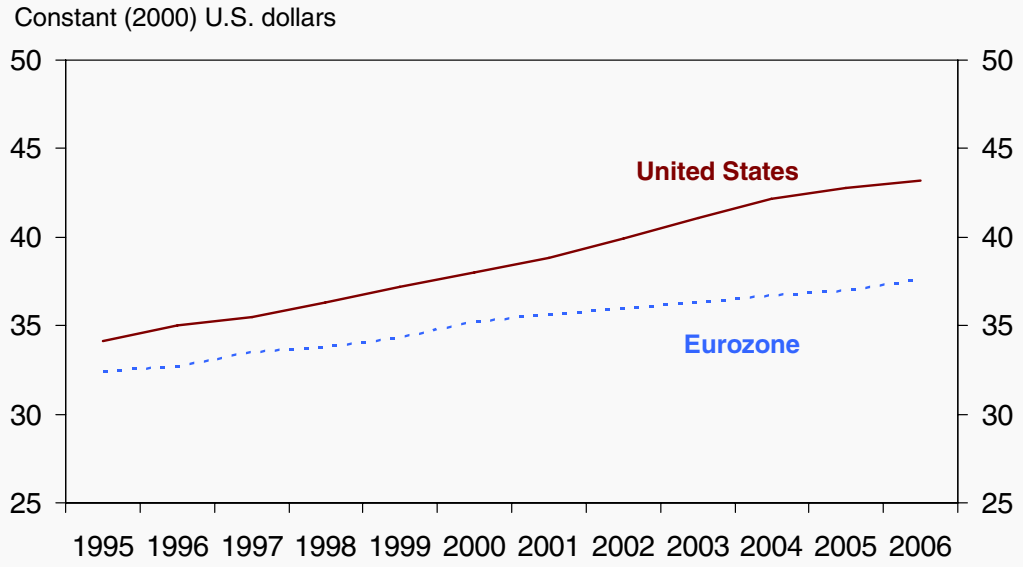


SOURCE: OECD.Stat.
NOTE: GDP estimates are converted to current U.S. dollars using purchasing power parities.

American workers are among the most productive in the world and their productivity has grown at an enviable pace in recent years. U.S. GDP was $50.40 per hour worked according to Organization for Economic Cooperation and Development (OECD) data in 2006, the most recent year for which broad international comparisons of per capita GDP can be made on a purchasing power adjusted basis.[13]

Among OECD member countries, the United States ranked near the top in terms of GDP per hour worked.[14] Among large major economies, France came closest to matching U.S. productivity levels, as French workers' output was valued at $49.90 per hour in 2006. Output per labor hour in the United States was over 20 percent higher than in Australia or Canada and over 40 percent higher than in Japan. Among the eurozone countries, GDP per hour worked averaged $43.30. Even among the largest eurozone countries, however, productivity levels varied notably, from $38.10 in Italy to $49.90 in France.

Figure 3-3. GDP per hour worked in the United States and the Eurozone countries, 1995-2006

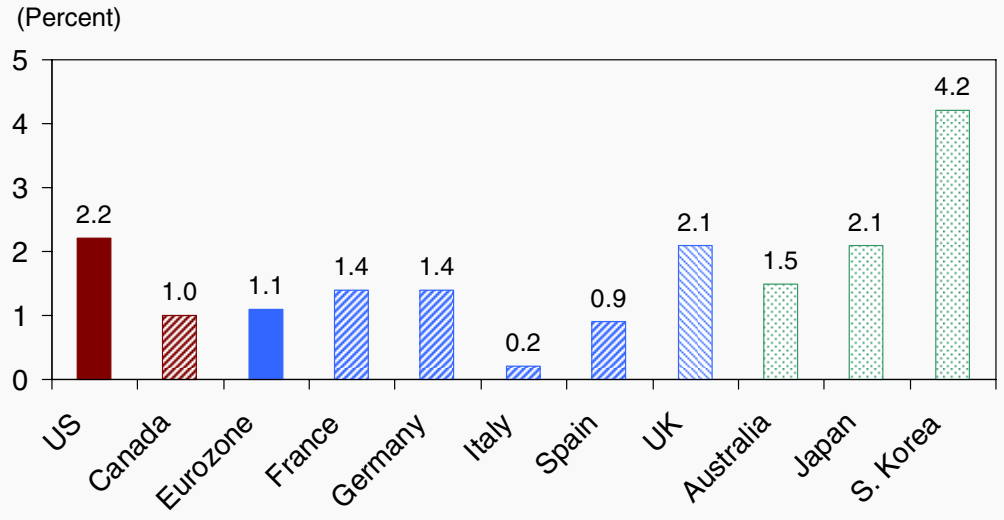


SOURCE: OECD.Stat.
NOTE: GDP estimates are constant (2000) U.S. dollars using purchasing power parities.

Not only are American workers highly productive, but their productivity also has grown steadily. As a result, the productivity gap between the United States and the eurozone has widened.

In 1995, American GDP per hour worked totaled $34.10, or 5.2 percent higher than the $32.40 per hour average for the countries that would form the eurozone. Over the next 7 years, the gap had more than doubled, and by 2005, the gap had nearly tripled from 5.2 percent to 14.9 percent—as U.S. growth in output per worker accelerated following the turn of the century.

Figure 3-4. Annualized growth in GDP per hour worked, 2000-2006, U.S. and selected countries



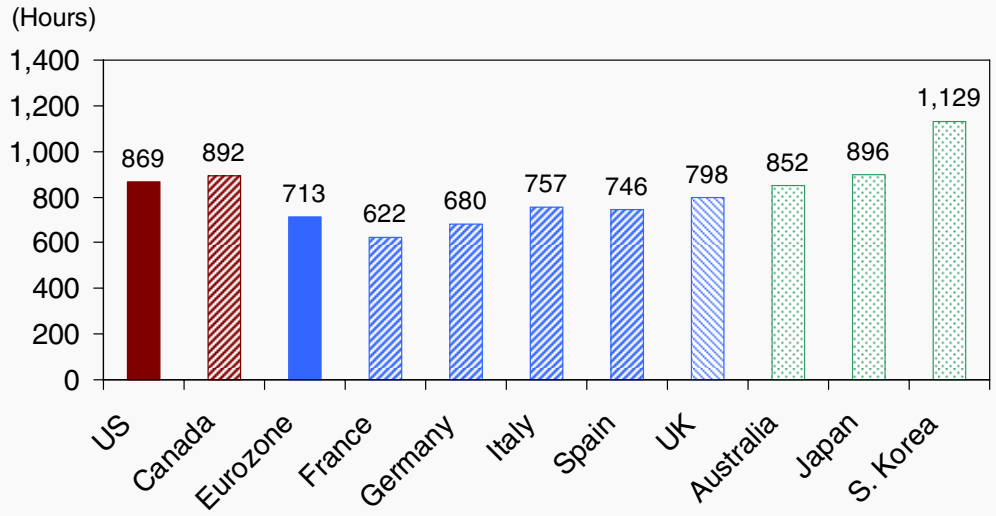
SOURCE: OECD.Stat.
NOTE: Eurozone GDP estimates are in constant (2000) dollars adjusted using purchasing power parities; estimates for individual eurozone countries and other countries are in national currencies at 2000 prices.

Between 2000 and 2006, GDP per hour worked expanded at a 2.2 percent annualized rate in the United States, on par with Japan and the United Kingdom and easily surpassing the gains witnessed in Australia (1.5 percent), the eurozone (1.1 percent), and Canada (1.0 percent).

With impressive annualized growth of 4.2 percent, South Korea handily topped the other major economies analyzed here.

In addition to great efficiency (output per hour worked), U.S. workers also put in great effort in terms of the average annual hours worked. Indeed, what distinguishes the United States from other productivity leaders, like France, is the fact that the U.S. workforce is also a leader in work effort, that is, hours on the job. On average, U.S. workers clocked 1,708 hours in 2006 while workers in the eurozone averaged 1,600 hours, over two and a half fewer weeks of full-time work per worker.

Figure 3-5. Annual labor hours per capita in 2006, United States and selected countries

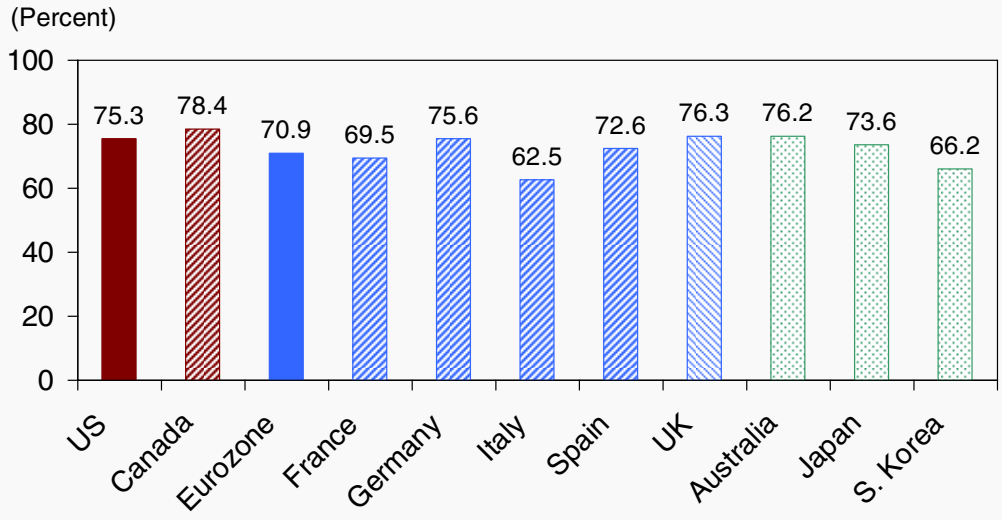


SOURCE: OECD.Stat.

Another perspective on work effort is provided by hours worked per capita. Unlike hours worked per worker, hours worked per capita is a single measure of the labor activity across the population—taking into account both the proportion of the population that is employed and the number of hours worked.

In 2006, per capita hours worked totaled 869 hours, placing the United States in the same neighborhood as Australia, Canada, and Japan. Hours were consistently lower in the major European economies. Per capita hours came in at 798 in the United Kingdom. The eurozone average was 713 hours, or about 18 percent lower than in the United States.

Figure 3-6. Labor force participation rate in 2007, United States and selected countries

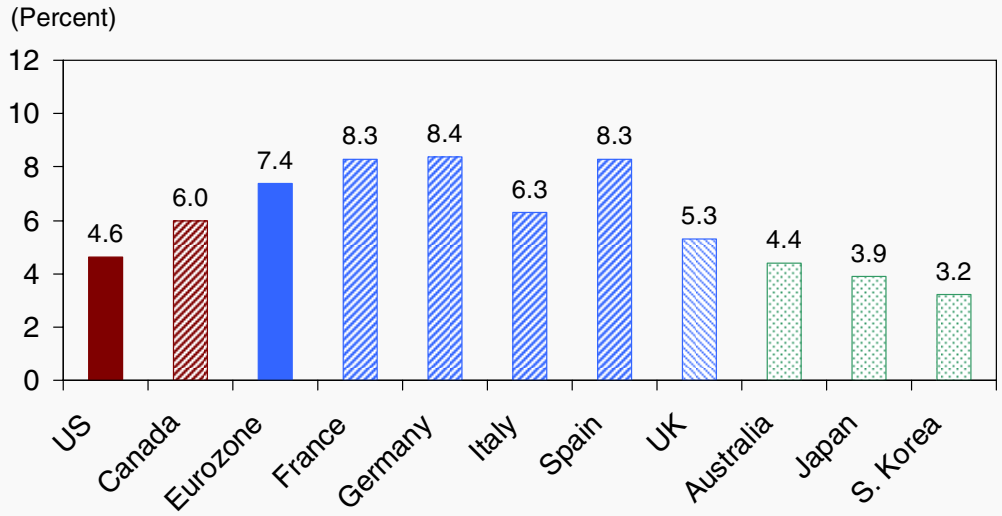


SOURCE: OECD.Stat.
NOTE: These OECD estimates cover persons age 15 to 64 except for the United States, which includes persons age 16 to 64. Data for the eurozone exclude Slovenia.

While hours worked per capita provide a measure of work activity, the labor force participation rates provide a measure of labor force attachment—specifically the proportion of the population that is working or actively looking for work. As seen in Figure 3-6, labor force attachment was high across the Anglophone countries as well as in Germany, with rates ranging from 75.3 percent in the United States (for persons age 16 to 64) to 78.4 percent in Canada in 2007.

The eurozone average was several percentage points lower, at 70.9 percent. Among the large European economies, Italy stood out with its relatively low 62.5 percent participation rate. South Korea also stood out. Although its labor market leads by many measures, it does not lead in terms of labor force attachment. Korea's 66.2 percent labor force participation rate was over 7 points below Japan's participation rate and over 9 points below the U.S. figure.

Figure 3-7. Unemployment rate in 2007, United States and selected countries

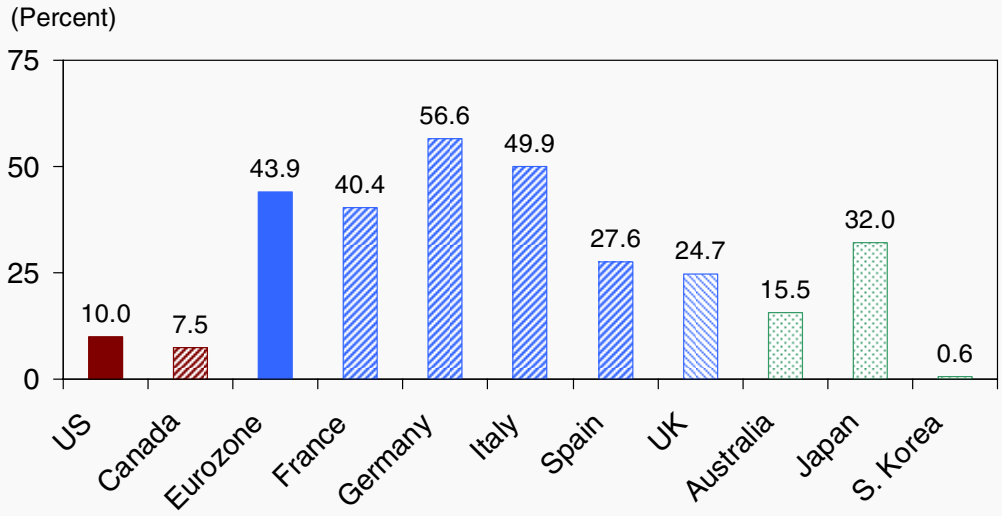


SOURCE: OECD.Stat.

The U.S. population participates in the labor market actively and with great success relative to other nations. The United States, along with other Anglophone countries, combines relatively high labor market participation with a low unemployment rate. In 2007, the unemployment rate was 4.6 percent. Japan and South Korea recorded lower rates; however, their labor force participation rates also were slightly lower.

The eurozone experienced not only lower participation rates, but workers also were less successful in translating participation into work. The unemployment rate across the eurozone averaged 7.4 percent in 2007. Joblessness in both France and Germany topped 8 percent. While the 8.3 percent rate in Spain is elevated relative to the United States and to the eurozone as a whole, it marks a substantial improvement from a decade earlier, when rates in the upper teens were the norm.

Figure 3-8. Incidence of long-term unemployment in 2007, United States and selected countries



SOURCE: OECD.Stat.
NOTE: Long-term unemployment refers to unemployment spells lasting one year or longer. Data for the eurozone exclude Slovenia.

A low unemployment rate, though laudable, may be little comfort to persons who are seeking work. In a truly vibrant labor market, low unemployment is coupled with low incidence of long-term unemployment. Europe and Japan differ starkly in their unemployment rates; however, both areas exhibit high degrees of long-term unemployment, defined as a period of unemployment lasting at least one year.

Over half of unemployed workers in Germany and nearly half in Italy were out of work for at least a year in 2007. The eurozone average of 43.9 percent was not much lower. In Japan, one out of three unemployed persons had been looking for work for at least a year. In the United States, the ratio was just one out of ten. South Korea can boast of a ratio of approximately one in one hundred.

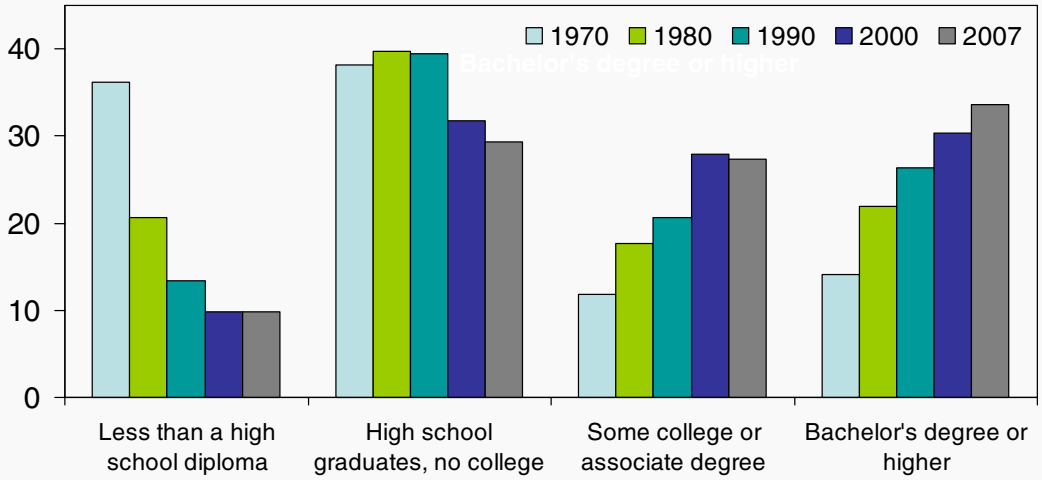
4 A LABOR FORCE THAT LEARNS

Sixty-five years ago only about one in twenty Americans ages 25 or older was a college graduate. Many jobs required no more than basic literacy and physical skills largely learned through experience. The change in the educational attainment of the labor force since the 1940s has been dramatic.

The 21st century labor market seeks and rewards workers who can offer the educational foundation, technical skills and creative flexibility employers need to compete and adapt to changing needs successfully. Higher educational attainment contributes to a worker's ability to efficiently absorb new knowledge and to learn new skills. Workers who can quickly move up the learning curve of a new job have a competitive advantage for economic success.

Figure 4-1. Educational attainment of the labor force, 1970-2007

(Percent of Labor Force Ages 25-64)



SOURCE: Bureau of Labor Statistics, Current Population Survey.
NOTE: Data are from the March Current Population Survey and are for persons age 25-64. Data for 2000 and 2007 are based on highest diploma or degree received; data for 1970, 1980, and 1990 were based on years of school completed.

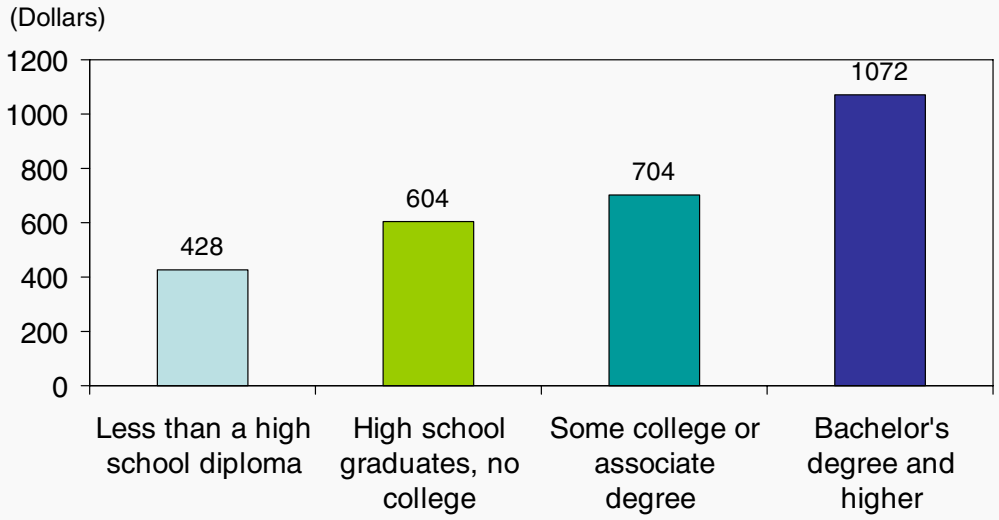
As recently as 1970, a high school diploma was sufficient for most jobs. 38.1 percent of the labor force (23.5 million persons) had completed no education beyond high school (12th grade), while an additional 36.1 percent had not completed high school.

Between 1970 and 2007, the proportion of persons ages 25 to 64 with some college (or an associate degree) more than doubled. The share with a bachelor's degree and higher also more than doubled over the period.

In 2007, 33.6 percent (41.9 million) of labor force members age 25 to 64 had earned a bachelor's degree or higher, 27.3 percent (34.0 million) had undertaken some college but had not attained a bachelor's degree, 29.3 percent (36.5 million) had attained only a high school diploma (or GED certificate), and 9.8 percent (12.2 million) had attained less than a complete high school education (no diploma or GED certificate).

From 1970 to 2007 the number of people ages 25 to 64 in the labor force with less than a complete high school education fell by 45.2 percent.

Figure 4-2. Median weekly earnings of full-time wage and salary workers age 25 and over, 2007



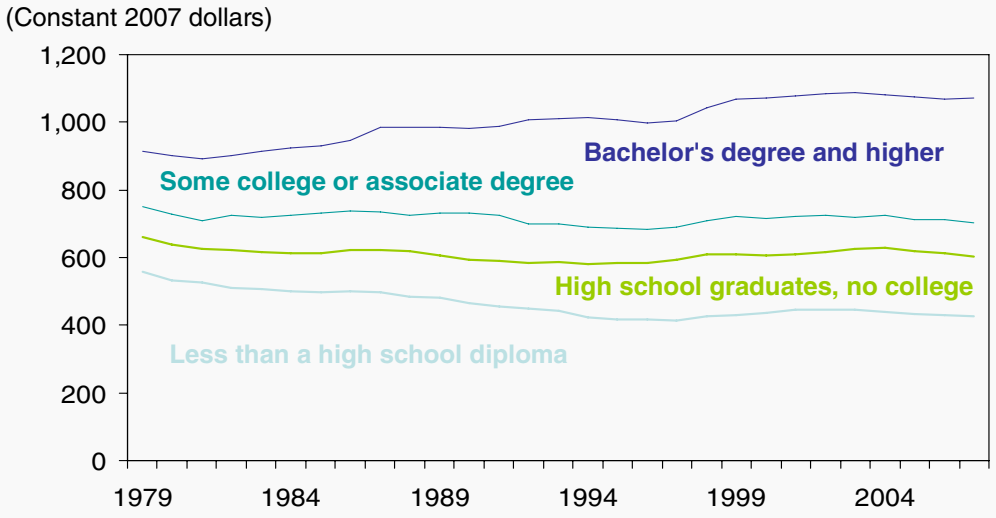
SOURCE: Bureau of Labor Statistics, Current Population Survey.

The relationship between educational attainment and wages is strong and positive. Figure 4-2 shows that among workers 25 years old and over, median weekly earnings of wage and salary workers who usually work full time are two and a half times more for persons with at least a college degree than for those who have not completed high school.

The weekly difference of $644 in 2007 would amount to an annual difference of $33,488 if extended over a 52-week year.

The trend toward higher educational attainment represents more than changing opportunities and tastes for consuming education services. The changes in educational attainment are closely associated with the changes in the occupational and industrial structure of the labor market, especially the growth in the demand for workers to provide professional, technical and managerial services.

Figure 4-3. Trends in real median weekly earnings, by educational attainment, 1979-2007



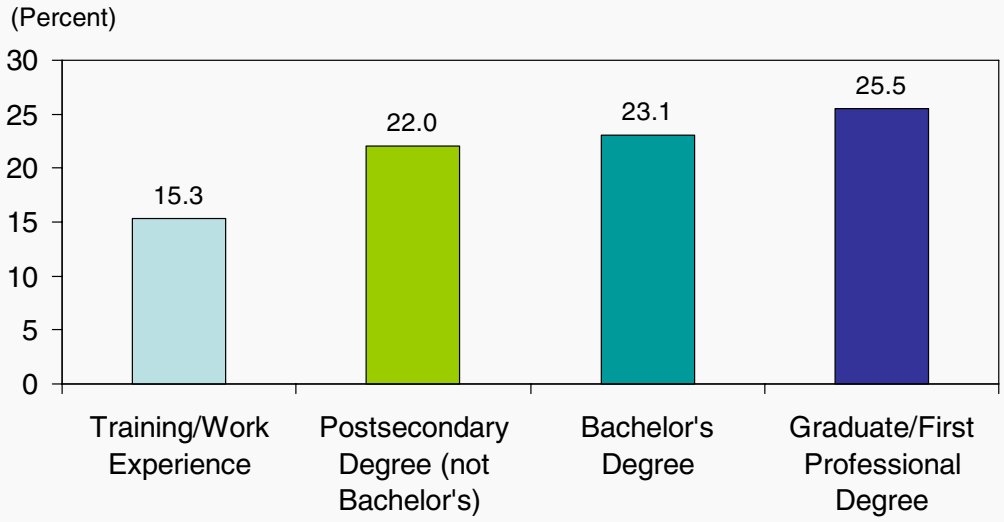
NOTE: Median weekly earnings of full-time wage and salary workers 25 years of age and over. Earnings data have been adjusted using the CPI-U-RS research series as of March 2008. Beginning in 1992, data are based on highest diploma or degree received; prior to 1992, data were based on years of school completed.
SOURCE: Current Population Survey, Bureau of Labor Statistics

The growing demand for workers with greater educational attainment over the past three decades is a factor underlying the increase in the education premium over the period. The education premium is the difference in earnings between the lower and higher educated groups in the labor force.

In 1979, the $356 difference (in 2007 inflation-adjusted dollars) in median weekly earnings of usual full-time workers between those with less than a high school diploma and those who had completed 4 or more years of college amounted to a 63.7 percent education premium – college completers enjoyed 1.6 times higher median weekly earnings than high school dropouts. By 2007, the education premium had risen to 150.5 percent: College graduates with a bachelor's or higher degree had median weekly earnings 2.5 times greater than the typical high school dropout earned.

Only college graduates have experienced growth in real median weekly earnings since 1979. In contrast, high school dropouts have seen their real median weekly earnings decline by 23.4 percent.

Figure 4-4. Wage growth, by education or training groups, 2001-2007

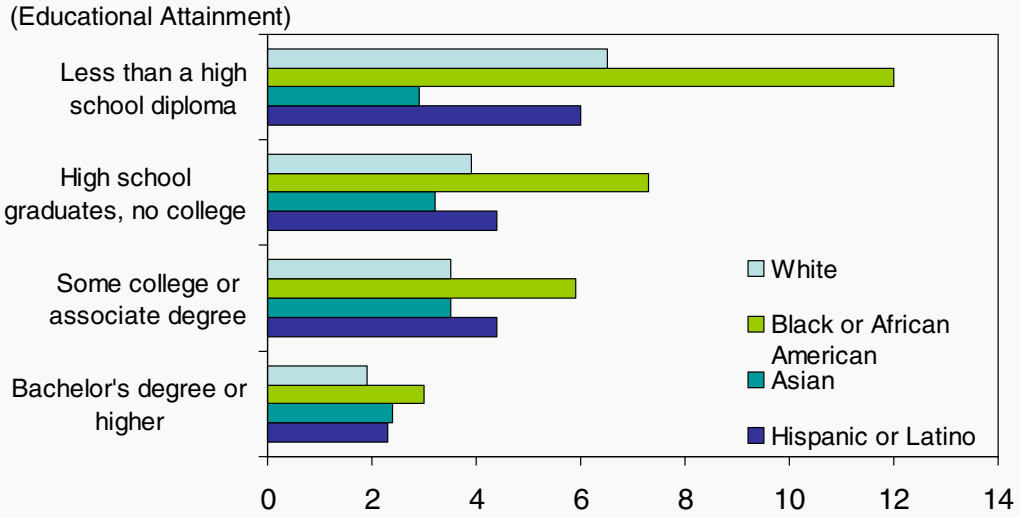


SOURCE: Office of the Assistant Secretary of Policy tabulation of data from the BLS Occupational Employment Statistics and Employment Projections programs.
NOTE: "Postsecondary Degree" includes Associate's Degree and Postsecondary Vocational Award. "Graduate/First Professional Degree" includes Master's, Doctoral and First Professional Degree. "Bachelor's degree" includes Bachelor's degree and "Bachelor's degree or higher, plus work experience."

Figure 4-4 illustrates the link between wage growth and education or training that can serve as a pathway to employment. Between 2001 and 2006, wage growth was highest (25.5 percent) in jobs for which a post-baccalaureate degree was the most significant educational pathway to employment.

Over the same time, wages grew 23.1 percent in jobs for which a bachelor's degree was the most significant educational pathway, and wages grew 22.0 percent in jobs for which an associate degree or vocational award was the most significant pathway. Wages grew 15.3 percent in jobs for which the most significant pathway to employment was on-the-job training or work experience but no formal post-secondary degree.

Figure 4-5. Unemployment rates, by education, race and ethnicity, 2007

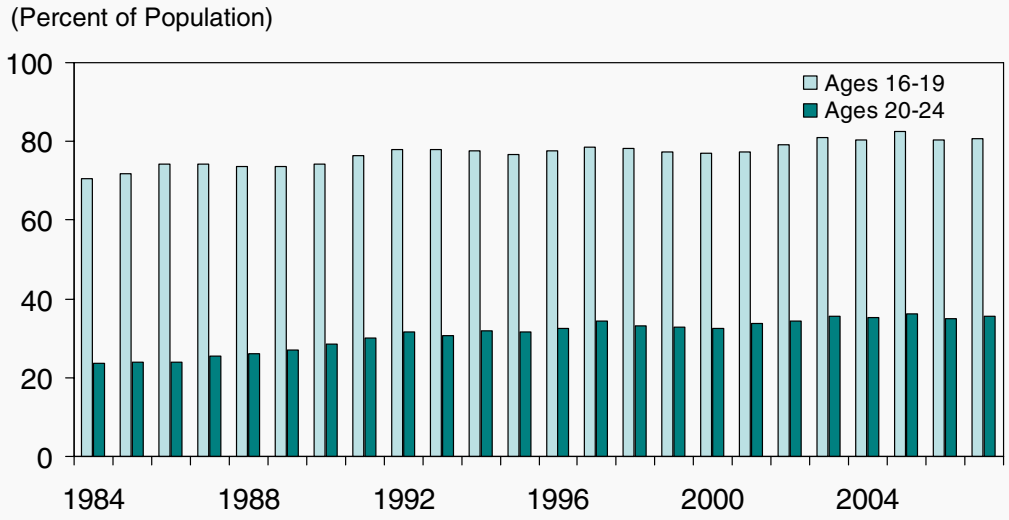


SOURCE: Bureau of Labor Statistics, Current Population Survey, 2007 annual averages.
NOTE: Includes workers age 25 year and over.

Higher educational attainment is associated with lower unemployment rates regardless of race or ethnicity. For all races, lower rates of unemployment are correlated with higher levels of education. The unemployment rate, however, is particularly lower for African-American college graduates than African-American high school dropouts – 3.0 percent for college graduates versus 12.0 percent for those without a high school diploma (or GED certificate).

The relative cost of being a high school dropout has grown in terms of unemployment risk. The unemployment rate for high school dropouts spiked in the early 1980s, and while trending downward somewhat since then, it is still considerably higher than for other groups. The jobless rate for college graduates has been consistently lower and less subject to business cycle fluctuations than the unemployment rates associated with lower educational attainment. The gap in unemployment rates between those with a 4-year college degree and those without a high school diploma has increased from 3.3 percentage points in 1970 to 5.1 percentage points in 2007.

Figure 4-6. Trends in school enrollment among younger people, 1984-2007



SOURCE: October supplement, Current Population Survey, Bureau of Labor Statistics.
NOTE: Data beginning in 1981, 1994, and 2001 are not strictly comparable with data for prior years due to the introduction of new population controls. Data beginning in 2006 reflect a change in supplement weights and are not strictly comparable with estimates for earlier years.

The commitment that Americans have made to achieve higher levels of educational attainment reflects their realization of the present and future benefits of education for labor market success. More young Americans are investing in education. In 1984, 70.5 percent of the population, ages 16 to 19, was enrolled in school; by 2007 the proportion had steadily rose to 80.8 percent. Likewise, among the population ages 20 to 24, 23.7 percent was enrolled in school in 1984, compared to 35.7 percent in 2007.

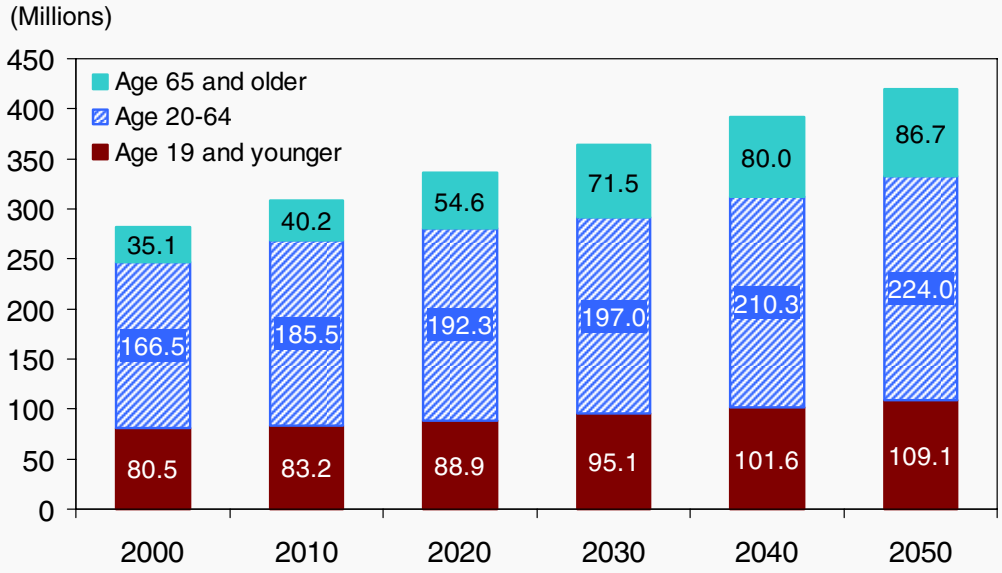
More youth are completing high school. The average freshman graduation rate, which is an estimate of the percentage of public high school students who graduate with a diploma within 4 years, was 74.7 in the 2004 - 2005 school year and has consistently increased in recent years.[15]

Likewise, since 2001, the college enrollment rate for recent high school graduates has trended upward. Of the nearly 3.0 million youth who graduated from high school between October 2006 and October 2007, 67.2 percent were in college in October 2007, and 93.2 percent of those were full-time students.[16]

5 PROJECTED LABOR FORCE TRENDS

A source of strength of the U.S. economy is the ability to recognize and embrace change: to transform challenges into opportunities. This chapter presents two key dynamics that will affect the shape of the U.S. labor force in the first half of the 21st century: an aging population and increasing racial and ethnic diversity. Both factors are expected to coincide with a pronounced slowing in labor force growth.[17] Another factor slowing labor force growth is the plateauing of women's labor force participation.

Figure 5-1. Age distribution of the U.S. population, 2000-2050



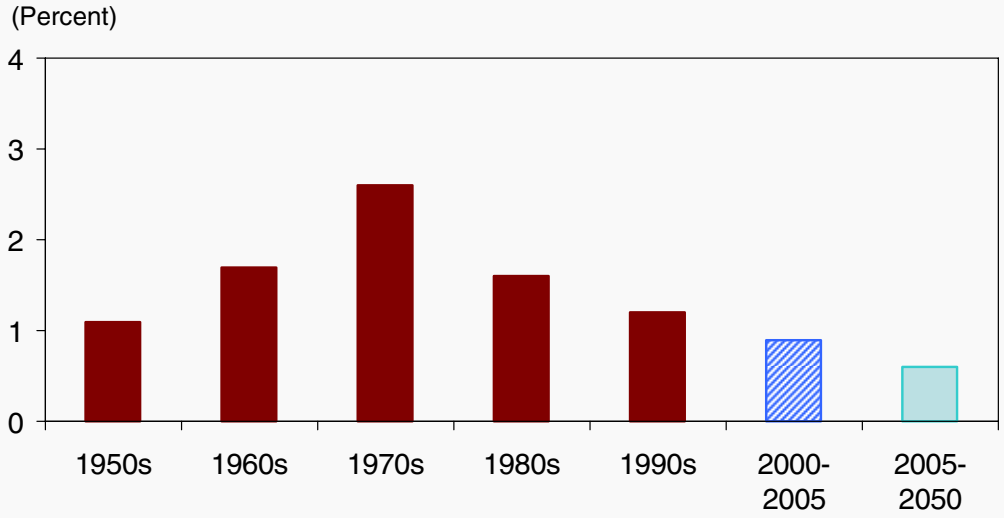
SOURCE: U.S. Census Bureau, 2004, "U.S. Interim Projections by Age, Sex, Race, and Hispanic Origin," http://www.census.gov/ipc/www/usinterimproj/ Internet Release Date: March 18, 2004.

The resident population of the United States surpassed 304 million in June 2008, and by 2050, the population will approach 420 million.[18] During this period, the population of 65 and older Americans is expected to more than double compared to current levels to reach an estimated 86.7 million.

By 2030, nearly one-fifth of the population will be 65 years or older. Growth in the population of younger Americans will be slower, as the population under 20 years of age will increase from current levels by roughly one-quarter to 109.1 million by 2050.

The working-aged adult population (age 20-64) will reach 224.0 million in 2050, up from 166.5 million in 2000. This is a 34.5 percent increase, a rate somewhat slower than the population as a whole. At that time, the working-age adult population will be 53.4 percent of the population, down from 59.0 percent in 2000.

Figure 5-2. Annual rates of labor force growth, 1950-2050



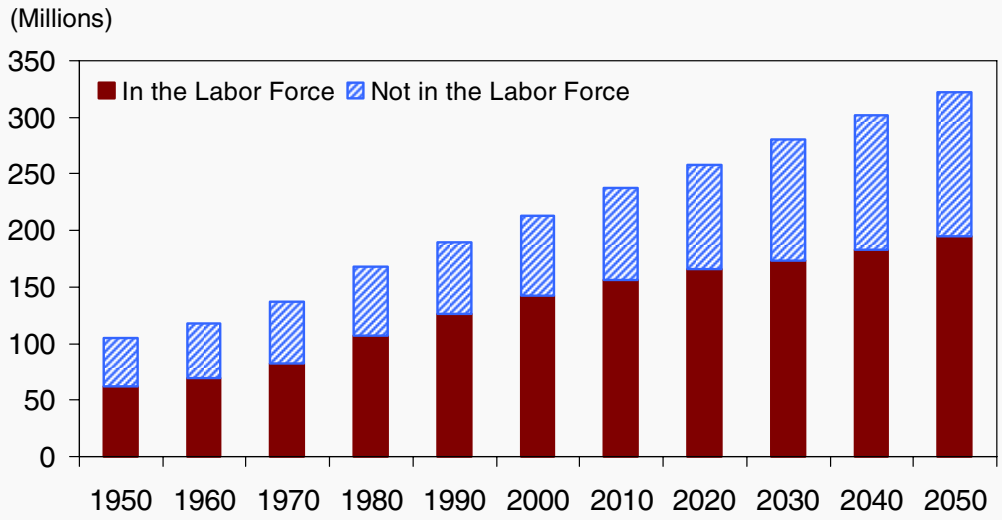
SOURCE: Mitra Toossi, "A New Look at Long-term Labor Force Projections to 2050," *Monthly Labor Review*, November 2006, 19-39.

The relatively fast growth of the population above traditional retirement age combined with slower growth of younger cohorts is expected to place severe constraints on labor force growth. This slowing will extend an already well-established trend reflecting the aging of the baby boomer generation.

Labor force growth peaked at 2.6 percent in the 1970s, as a result of the entry of the baby boomers into the labor force and significant increases in the labor force predication rates of women. Growth dropped back below 2.0 percent during the following two decades and fell further to 0.9 percent during the 2000-05 period. Between 2005 and 2050, annual labor force growth is projected to slow further, averaging 0.6 percent.

Slower labor force growth increases the importance of productivity growth to enable the economy to expand output, to support increasing proportions of older, retired consumers (and Social Security recipients), and to facilitate increased living standards. Innovation, capital investment, and investment in education and training create a foundation for future productivity growth.

Figure 5-3. Civilian noninstitutional population and labor force growth, 1950-2050



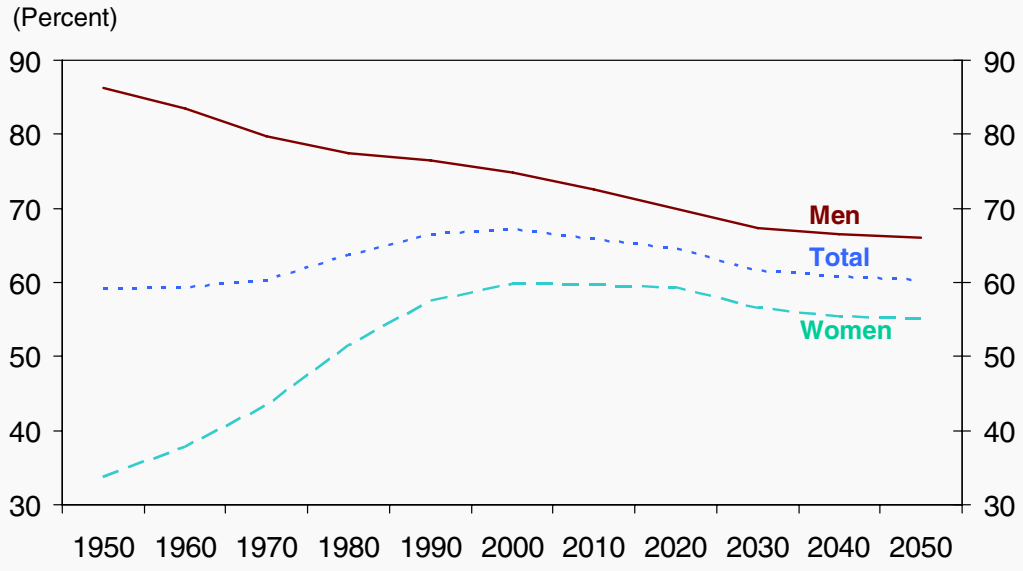
SOURCE: Mitra Toossi, "A New Look at Long-term Labor Force Projections to 2050," *Monthly Labor Review*, November 2006, 19-39.
NOTE: Includes ages 16 years and older.

As the baby boomer generation enters retirement age, a rising share of the population will move out of the labor force. By 2050, the labor force is projected to number 195 million, a 28.6 percent increase from 2005. In contrast, the number of persons not in the labor force will surge by 64.1 percent to 128 million.

As a result, the share of the civilian noninstitutional population age 16 and older that is in the labor force will decrease from 66.2 percent in 2006 to 60.4 percent in 2050. It is worthwhile noting that a 60 percent participation rate is not without historical precedent. Labor force participation rates around this level and lower were the norm until the mid 1970s.

Hispanics are projected to account for the majority of the 45.4 million increase in the overall labor force between 2005 and 2050. Growing more than three times the rate of the overall labor force, the Hispanic labor force will increase by 27.5 million to reach 47.3 million persons by 2050.

Figure 5-4. Civilian labor force participation rates, 1950-2050



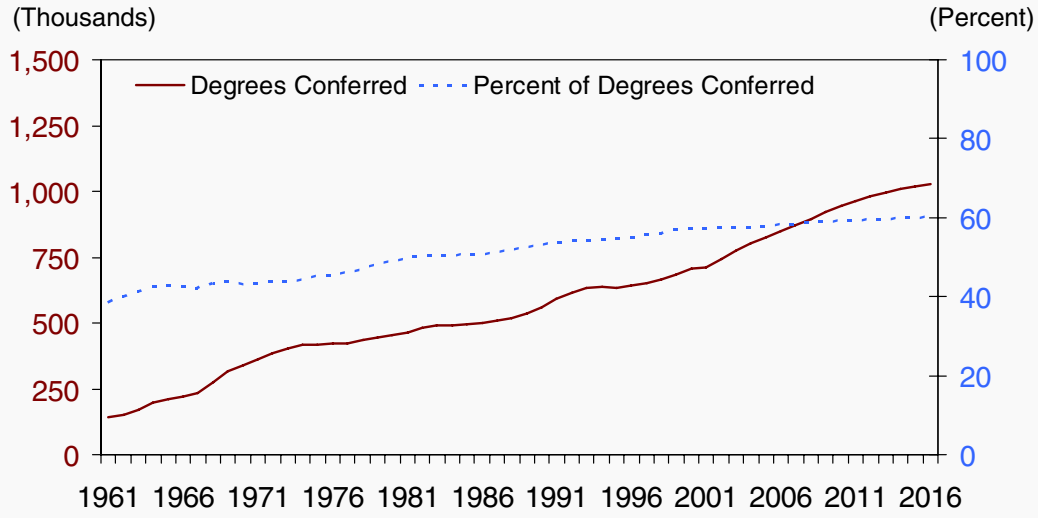
SOURCE: Mitra Toossi, "A New Look at Long-term Labor Force Projections to 2050," *Monthly Labor Review*, November 2006, 19-39.

During most of the second half of the past century, the increased incorporation of women into the labor force boosted overall labor force participation at the same time that men's participation weakened.

Overall labor force participation rose from 59.2 percent in 1950 to a peak of 67.1 percent from 1997 to 2000. While men's labor force participation slowly eroded from over 86 percent in the early 1950s to 73.2 percent in 2007, women's labor force participation rate increased from 33.9 percent in 1950 and peaked at 60.0 percent in 1999.

Both genders are expected to see participation fall in the future, reflecting the rising share of the population of retirement age. By 2050, the labor force participation rates for men and women are projected to fall from 73.2 percent and 59.3 percent in 2007 to 66.0 percent and 55.1 percent, respectively.

Figure 5-5. Bachelor's degrees conferred to women, 1961-2016



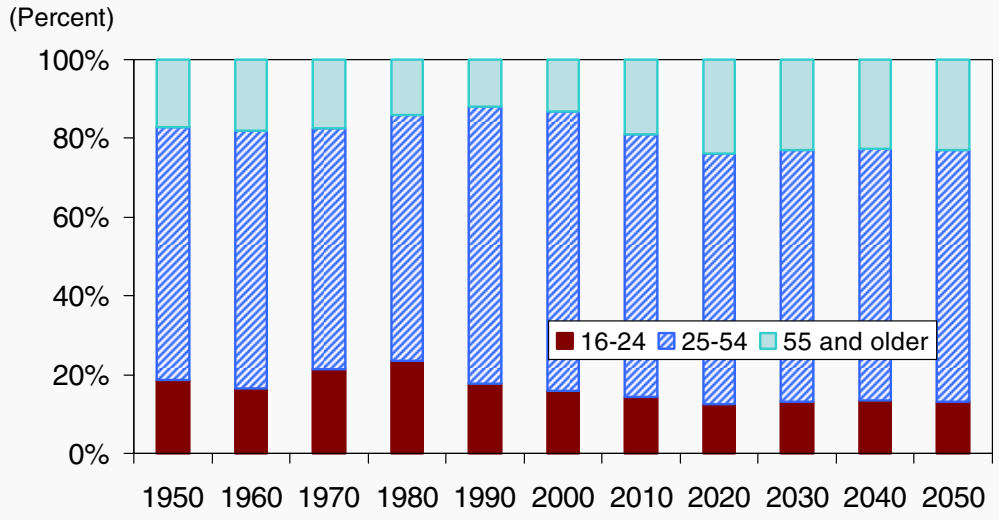
SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, "Completions Survey" (IPEDS-C: 91–99), and Fall 2000 through Fall 2004; and Degrees Conferred Model, 1975–76 through 2003–04.

Women's labor force participation has risen in step with women's increasing educational attainment. Yet, while participation has plateaued and is expected to remain flat, educational attainment will continue upward for at least the next decade.

In 1961, women earned less than 40.0 percent of the bachelor's degrees conferred, or about 140,000 degrees. By 1982, women started earning more than half of the bachelor's degrees conferred. In 2004, women earned over 800,000 bachelor's degrees, or 57.5 percent of all bachelor's degrees. Continuing this positive trend, women are expected to be awarded over 60 percent of all bachelor's degrees by 2016.

In 2005, women earned over 75 percent of bachelor's degrees awarded in health professions, education, and psychology. Although women earned half of the bachelor's degrees in business, that field of study was their most popular. Almost 160,000 bachelor degrees in business were awarded to women in 2005, accounting for over 20 percent of the overall growth in degrees earned by women between 1995 and 2005. The second most sought after bachelor's degree for women was education, with 84,790 degrees awarded in 2005.

Figure 5-6. Civilian labor force by age group, 1950-2050

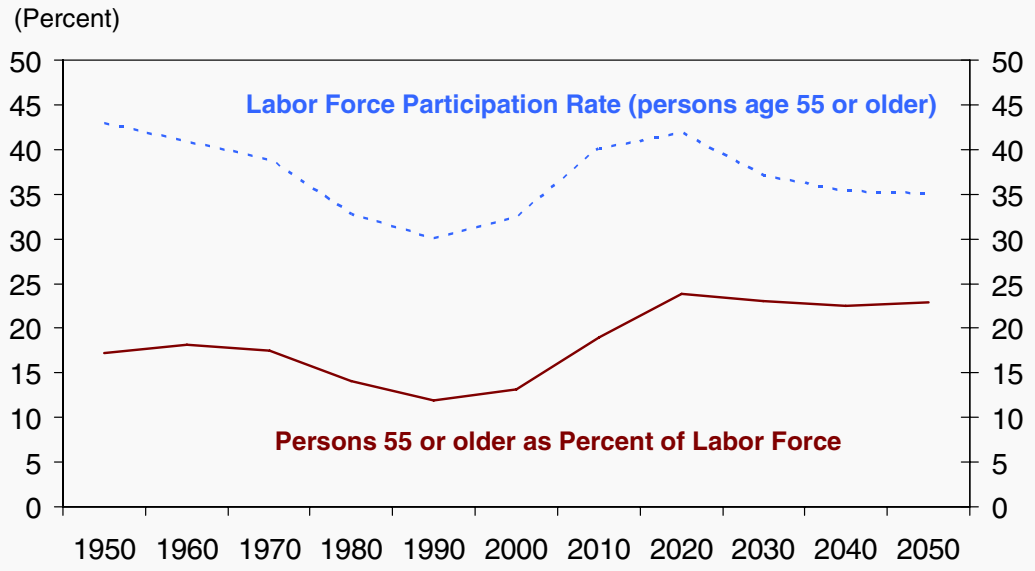


SOURCE: Mitra Toossi, "A New Look at Long-term Labor Force Projections to 2050," *Monthly Labor Review*, November 2006, 19-39.

The median age of the population provides a barometer of the maturing of the U.S. labor force. This statistic tells us the age of the worker in the middle of the age distribution – that is, the point at which half the population is younger and the other half is older. The median age of the labor force was 40.8 years in 2006, having trended upward from 34.6 years in 1980 and 1981. BLS projects the median age of the labor force to reach 42.0 years in 2020 before declining to 41.6 years in 2050.

As shown in Figure 5-6, another way of looking at the aging of the labor force is to look at each age group's share of the labor force. In 1970, prime age workers (ages 25 to 54) comprised 60.9 percent of the labor force. This age cohort's share of the labor force peaked at 72.3 percent in 1996 and abated to 68.1 percent by 2007. Their share is expected to continue its downward trend – falling to 63.6 percent by 2020 and remaining close to that share through 2050.

Figure 5-7. Older workers, age 55 and above, in the labor force, 1950-2050



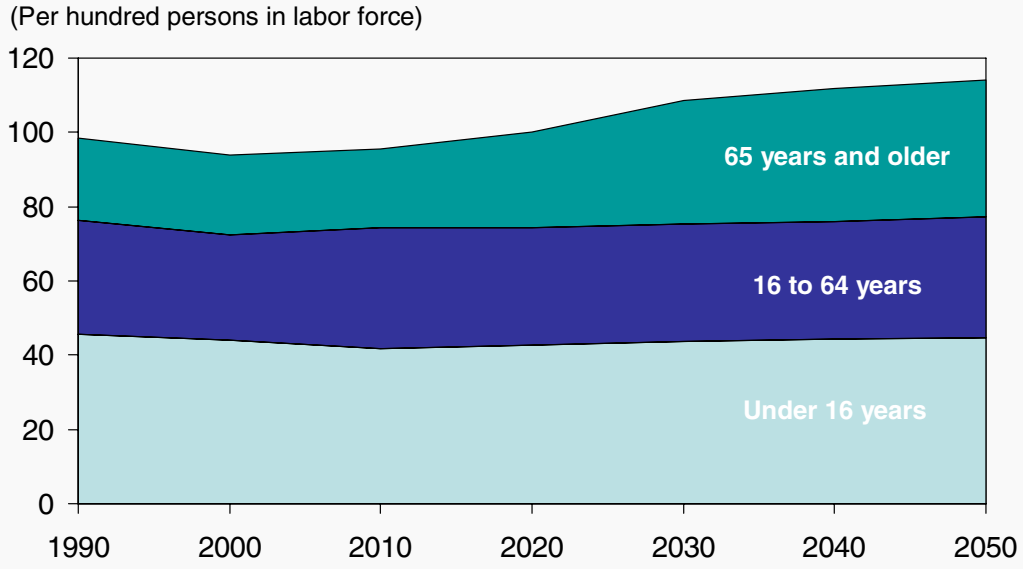
SOURCE: Bureau of Labor Statistics, Current Population Survey,1948-2005 annual averages. Projections: see Mitra Toossi, "A new look at long-term labor force projections to 2050" *Monthly Labor Review*, November 2006.

While younger workers' participation has slipped in recent years, older workers' labor force participation has increased. After steadily declining for much of the second half of the 20th century, the labor participation rate of older Americans and their share of the labor force have been increasing since the mid 1990s.

With greater life expectancy and access to better health care than their predecessors, baby boomers will have higher labor participation rates than the previous generation. The labor participation rate of persons 55 years and older has increased from 29.4 percent in 1993 to 38.9 percent in 2007. Their participation rates are expected to peak at 41.9 percent around 2020 before edging back to 35.1 percent around 2050.

This decrease in the labor participation rate reflects the fact that by 2020 all of the baby boomer generation will be over the prime working-age of 25 to 54. However, older workers will still comprise a significant proportion of the labor force. Their share of the labor force will increase from 17.3 percent in 2007 to 23.8 percent around 2020 and slightly recede to 22.9 percent by 2050.

Figure 5-8. Economic dependency ratio, 1990-2050

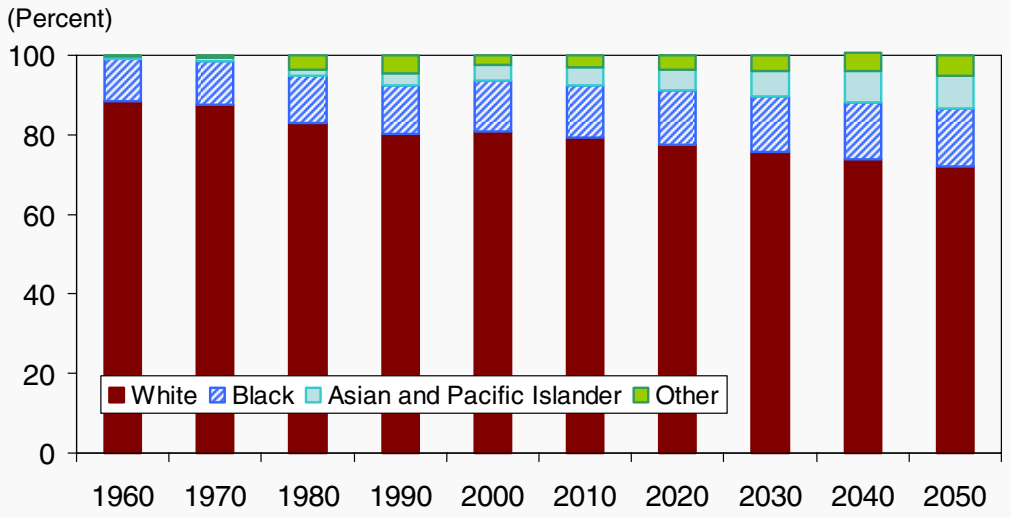


SOURCE: Mitra Toosi, "A New Look at Long-term Labor Force Projections to 2050," *Monthly Labor Review*, November 2006, 19-39.
NOTE: The economic dependency ratio measures the number of persons not in the labor force (by age group) per hundred persons in the labor force.

As the baby boomers enter their retirement years, future workers will carry the burden of supporting a relatively more dependent population.[19] In 2000, 93.9 persons were not in the labor force for every 100 persons in the labor force.

The dependency ratio will increase to 100.1 in 2020 and continue increasing to 114.0 in 2050. As the percent of persons age 65 and older who are not in the labor force, increases from 21.6 in 2000 to 36.8 by 2050, the amount of people supporting those who do not work will tilt in the opposite direction.

Figure 5-9. Population distribution by race, 1960-2050



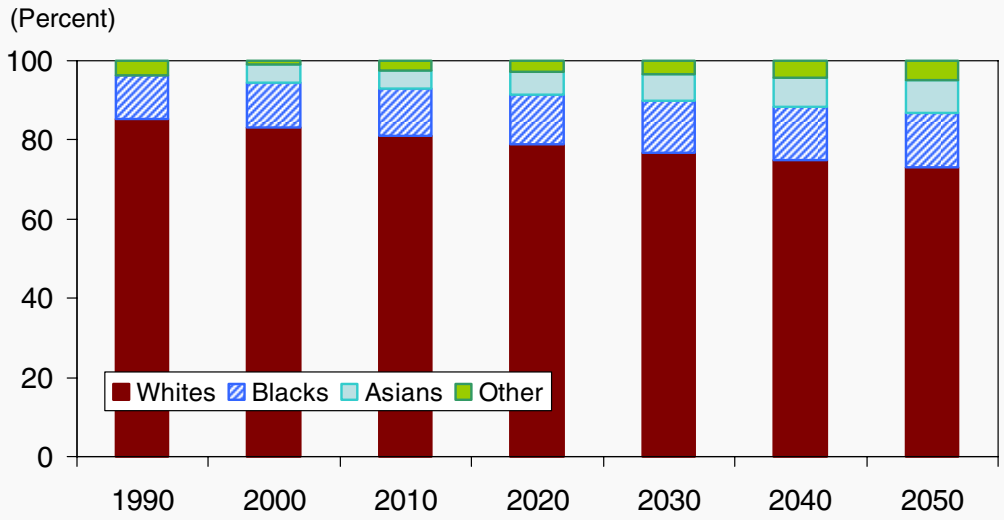
SOURCE: U.S. Census Bureau, "Historical Census Statistics on Population Totals By Race, 1790 to 1990, and By Hispanic Origin, 1970 to 1990," http://www.census.gov/population/www/documentation/twps0056.html I nternet Release Date September 13, 2002 and "U.S. Interim Projections by Age, Sex, Race, and Hispanic Origin," http://www.census.gov/ipc/www/usinterimproj/ Internet Release Date: March 18, 2004.

Many immigrants perceive the United States as a land of opportunity. Immigrants seeking freedom and opportunity have contributed to the increasing racial and ethnic diversity of the nation's population. In 1960, racial minorities accounted for about 11.4 percent of the total population, or 20.5 million persons. The racial minority share has steadily increased to 20.0 percent in 2007, or about 60.5 million persons.[20]

Asians have seen a significant increase in their share, increasing from 0.5 percent of the population in 1960 to 4.4 percent in 2007. The African-American population has also seen a sizable increase in its share, increasing from 10.5 percent in 1960 to 12.8 percent in 2007.

The share of persons of Hispanic ethnicity (who may be of any race) has increased dramatically from 6.4 percent of the population in 1980 to 15.1 percent in 2007.

Figure 5-10. Distribution of the labor force by race, 1990-2050

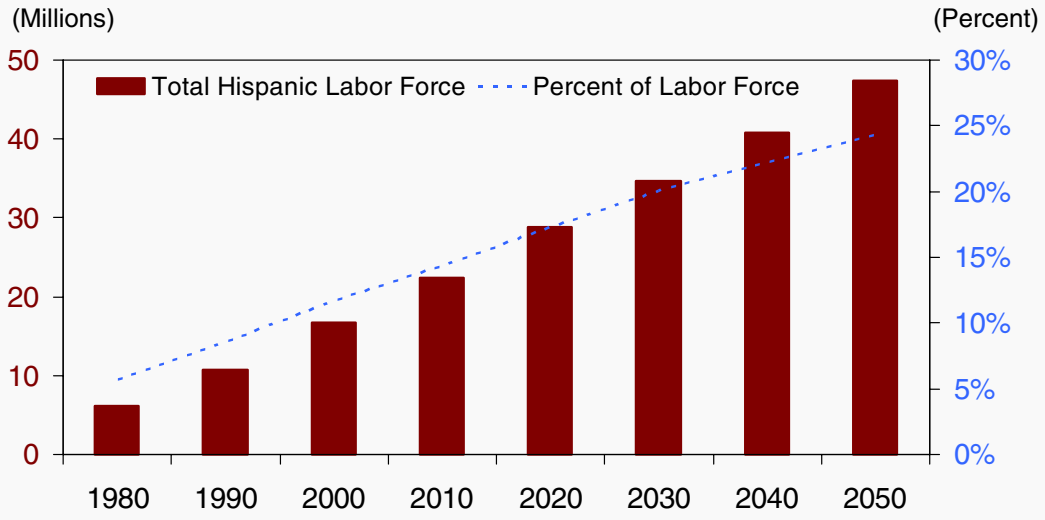


SOURCE: 1990, 2000: Bureau of Labor Statistics, Current Population Survey annual averages. Projections: Mitra Toossi, "A New Look at Long-term Labor Force Projections to 2050," *Monthly Labor Review*, November 2006, 19-39. Note that in 1990 the "other" category includes Asians.

In the coming decades, the labor force will follow population trends and become increasingly diverse. The declining share of the white labor force will parallel the declining share of the white population. In 1990, racial minorities accounted for 14.6 percent of the labor force, with African-Americans and Asians accounting for 10.9 percent and 3.7 percent, respectively.

In 2007, racial minorities increased their share to 18.4 percent, with African-Americans and Asians increasing their share to 11.4 percent and 4.6 percent, respectively. By 2050, the proportion of racial minorities in the labor force is projected to increase to 26.9 percent. The African-American and Asian labor force is expected to increase to 13.8 percent and 8.3 percent, respectively. Multiple race groups will also increase their share of the labor force from about 1 percent in 2000 to 4.9 percent in 2050.

Figure 5-11. Hispanic share of civilian labor force, 1990-2050



SOURCE: Mitra Toossi, "A New Look at Long-term Labor Force Projections to 2050," *Monthly Labor Review*, November 2006, 19-39.

The Hispanic share of the labor force will increase from 14.1 percent in 2007 to 17.3 percent in 2020, as the number of Latinos in the labor force reaches 28.8 million. By 2050, the Hispanic labor force is projected to number 47.3 million persons, or 24.3 percent of the total labor force.

The higher number of Hispanics in the labor force will be the result of increased immigration, higher fertility rates, and higher participation rates among Hispanics.

The Hispanic population in the U.S. is very young in relation to other racial and ethnic groups, and Hispanics, especially men, have a higher labor force participate rate than their non-Hispanic counterparts. However, by 2050 the aging of the Hispanic population will create a downward trend in their labor force participation.

6 TOMORROW'S OPPORTUNITIES

Which sectors of the economy will be the engines of future employment growth and what will be required of the American workforce to fill those jobs? These questions are on the mind of anyone contemplating potential education and career paths.

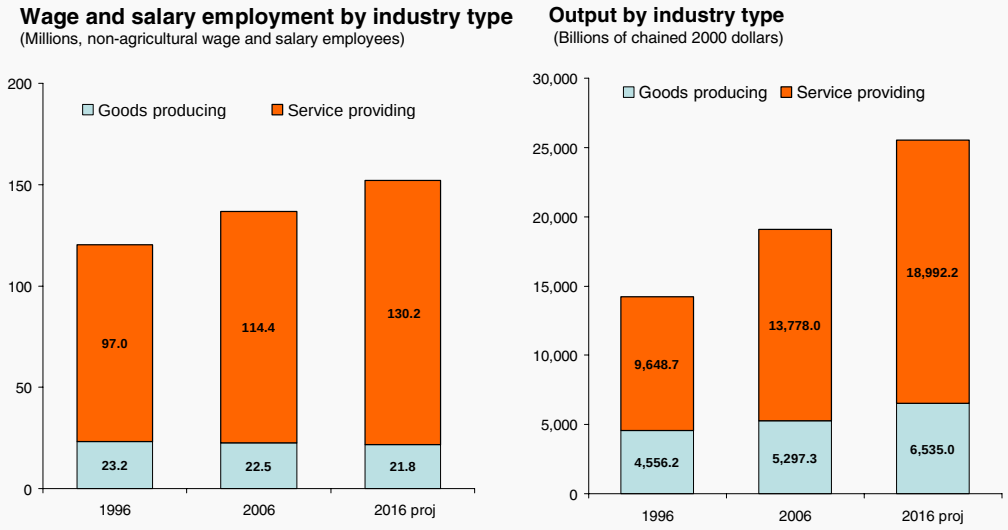
The answer to these questions has always rested on the dynamic and diverse nature of the U.S. economy. The aging of the population; the drive towards more sophisticated production techniques; the increasing globalization of trade; and the continued long-term shift from goods-producing to service-providing employment are the main drivers behind future job opportunities.

These trends suggest that the American workforce continues to be responsive to changing education and training requirements. Today, and increasingly in the future, a solid education foundation, including completion of post-secondary courses or degrees, is needed to compete successfully in the job market.

Tackling these hurdles is today's highly skilled, adaptive, and proud workforce. These hallmarks will serve the American workforce well as it meets the challenges that unfold in the future.

Figure 6-1. Employment and output: goods-producing and service-providing sectors

1996, 2006 and projected 2016, non-agricultural industries.



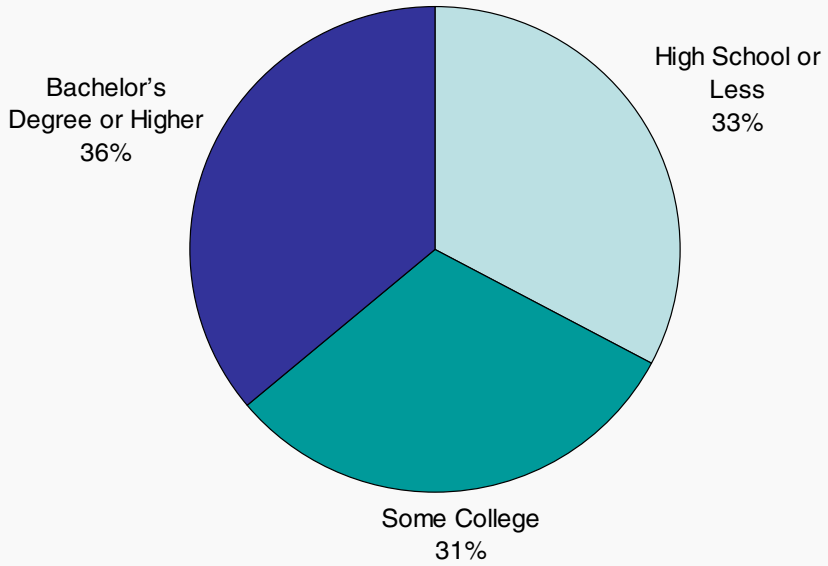
SOURCE: Bureau of Labor Statistics, Employment Projections Program. See Eric B. Figueroa and Rose A Woods, "Industry output and employment projections to 2016," ***Monthly Labor Review***, Nov. 2007, pp 53-85.
Note: Output totals shown exclude agriculture, forestry, fishing, and hunting, "special industries," and residual.

Service-providing industries now dominate the landscape of the American workforce from both an employment and output perspective. Presently, more than three out of four jobs are attributed to service-providing industries. Despite this shift in employment, the goods-producing side of the economy is expected to grow in terms of real output. Continued manufacturing productivity gains will negate any prospect for a reversal of this shift in employment from goods to services.

Growth in manufacturing is concentrated in the production of computers, semiconductors, and communication equipment; pharmaceuticals, medicines, and medical equipment; transportation equipment; plastics and chemicals; and agriculture, mining, and construction machinery. This list highlights America's competitive advantage in the production of high valued-added goods that use advanced manufacturing techniques and a highly skilled workforce.

Dominant services provided by America's labor force are software publishing, internet, and telecommunication services; architectural and engineering services; management, scientific, and technical consulting services; and various financial and health related services.

Figure 6-2. Projected employment growth by expected educational attainment, 2006-16

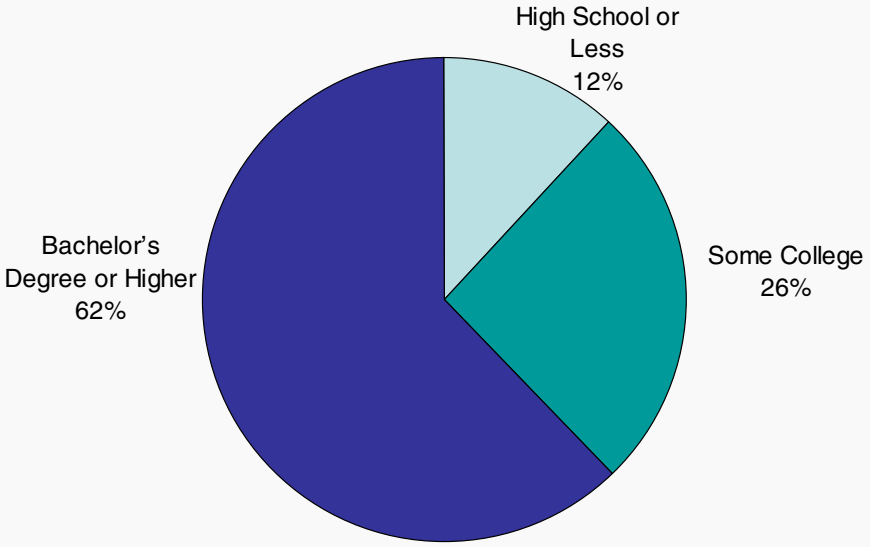


SOURCE: Bureau of Labor Statistics, Employment Projections program, National Employment Matrix 2006-2016.

The demand for a highly educated workforce is expected to continue. According to BLS, a little more than half (55.9 percent) of the current workforce has some form of postsecondary education. However, over two-thirds (67.2 percent) of the projected 15.6 million new jobs arising between 2006 and 2016 will most likely be filled by workers with some post-secondary education.

In addition to growth, BLS estimates openings that arise from net replacement needs – replacement of workers who permanently leave occupations for retirement or other reasons. Between 2006 and 2016, the total number of openings due to both growth and net replacement needs is projected to be 50.7 million. Due to the large number of replacement needs in some lower-skilled occupations, openings for workers with a high school degree or less will account for 42.7 percent of all openings, even though they account for only 32.8 percent of all new jobs due to growth.

Figure 6-3. Projected employment change in high-growth, high-wage jobs by expected educational attainment, 2006-16



SOURCE: Bureau of Labor Statistics, Employment Projections program, National Employment Matrix 2006-2016.

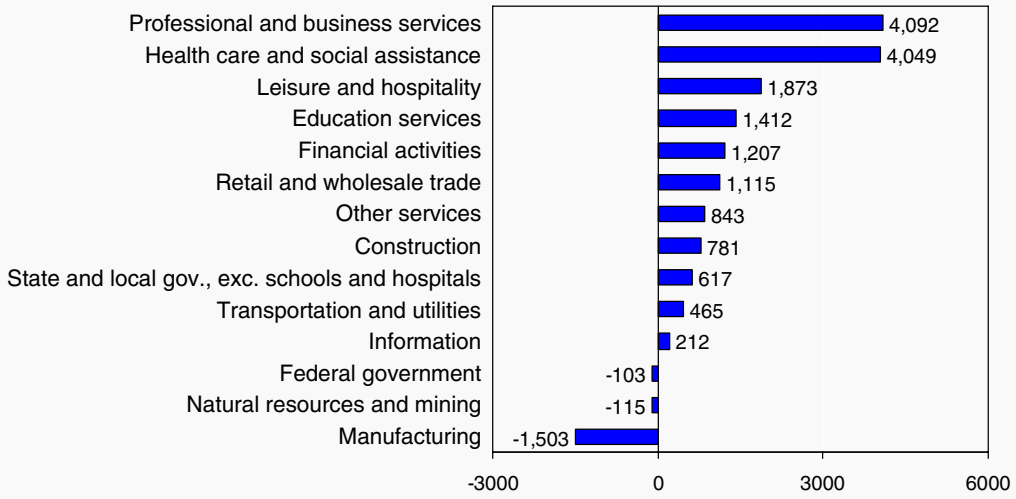
The projections for the high-growth, high-wage occupations emphasize the importance of an educated workforce. High-growth, high-wage occupations are (1) those that fall in the top half of the May 2006 wage distribution from the BLS Occupational Employment Statistics program (median annual wages greater than $30,400) and (2) are projected to experience faster-than-average job growth over the 2006-2016 period. These occupations are projected to account for 7.3 million new jobs over the 2006-2016 period.

Among those occupations with high growth and high wages, 87.9 percent of new jobs are expected to be filled by workers with at least some college education: 4.6 million jobs (62.2 percent of the total) by workers with at least a bachelor's degree and 1.9 million (25.7 percent) by workers with some post-secondary education, such as an associate degree or a vocational certificate.

Although high-wage, high growth occupations tend to be at the higher end of the education spectrum, there are jobs which fit that description at every level of education and training. Above average jobs that do not require a bachelor's degree are concentrated in construction and maintenance and repair occupations.

Figure 6-4. Projected employment change between 2006 and 2016, major industry sectors

(Thousands of wage and salary jobs)



SOURCE: Bureau of Labor Statistics, Employment Projections program.

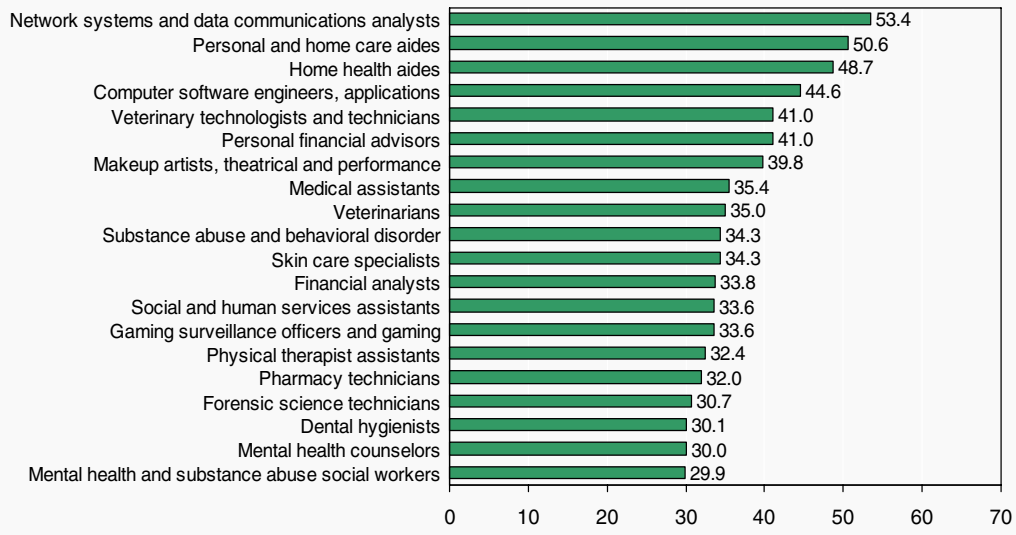
Industries that currently employ large numbers of people, such as retail trade; food services and drinking places; and construction, will continue to be important sources of employment, even though their growth may be proportionately less than other sectors. Together these industries account for almost a quarter of total wage and salary employment.

However, the industry sectors that are expected to exhibit the largest levels of growth and provide the most opportunities in the future are professional and business services and health care and social assistance. Together they are projected to add 8.1 million jobs or more than half the total expected employment growth for the economy as a whole by 2016.

Business demand for consultants, computer networks, and a variety of employment services to address complex business issues is expected to generate much of the demand for business services. Whereas advances in medical technology and the increasing population of the elderly are expected to drive growth for health care services.

Figure 6-5. Projected 20 fastest growing occupations

(Percent Change, 2006-2016)



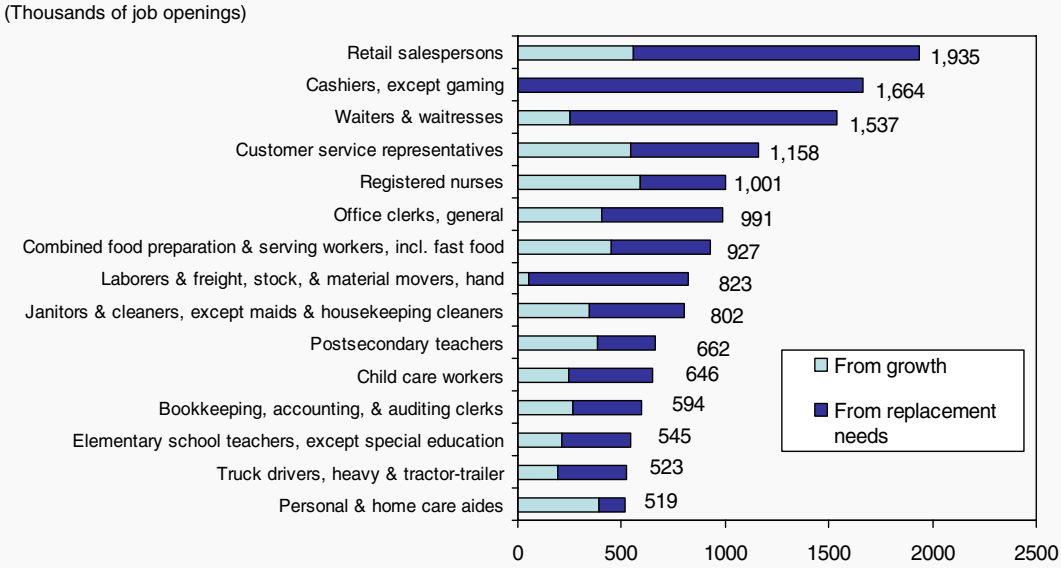
SOURCE: Bureau of Labor Statistics, Employment Projections program.

Health care and the provision of social and mental health services dominate the fastest growing occupations. The gradual aging of the population coupled with advances in new technologies that increase life expectancies will place the health care sector as a leading source of future employment growth. Home health aides and medical assistants are occupations that highlight this trend.

Other trends reflected by the fastest growing occupations show an increasing emphasis on personal appearance, financial well-being, and the demand for sophisticated information technologies and efficient communication systems.

The majority of these occupations have high relative wages and about half of these occupations generally require a bachelor's degree or higher as their most significant source of education and training.

Figure 6-6. Occupations that are projected to have the most job openings, 2006-2016



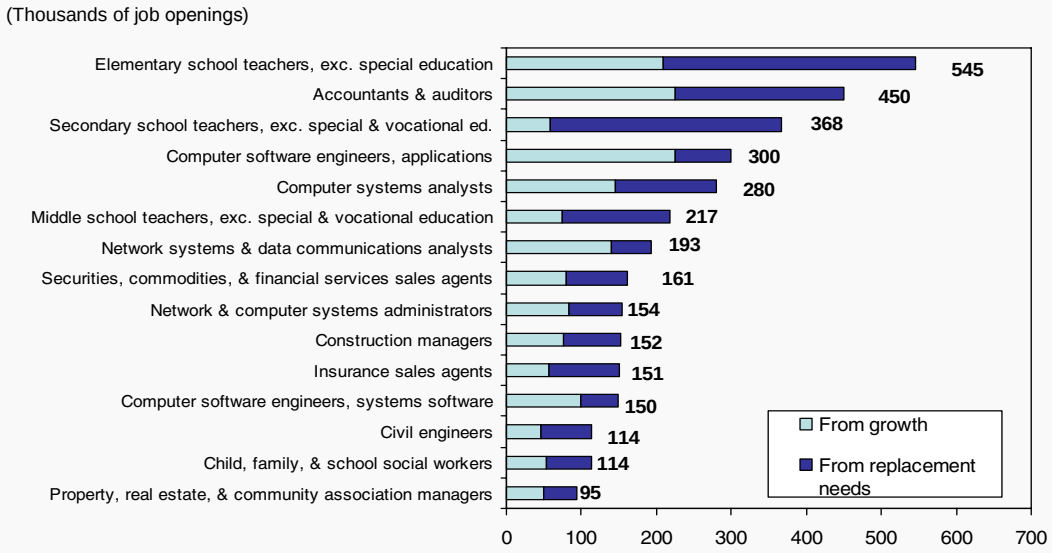
SOURCE: Bureau of Labor Statistics, Employment Projections program.

Most of job openings for people entering an occupation for the first time come not from job growth but from the need to replace workers who retire or permanently leave an occupation for other reasons. Replacement needs are projected to generate 68 percent of the approximately 50 million job openings between 2006 and 2016.

Low-paying entry-level occupations employing large numbers of youths often generate the highest replacement needs. Cashier occupations, with 50 percent of workers between the ages of 16 and 24 years, will need 1.7 million new workers to replace those who leave the occupation by 2016. Most of the occupations with the largest expected job openings had annual wages below the median.

Registered nurses and postsecondary teachers are two occupations with large amounts of expected openings that offer annual wages above the median. Registered nurses, in particular, had a median annual wage of $57,280 in 2006 and are expected to generate 587,000 new jobs from growth by 2016 – the largest in the economy. An additional 413,000 job openings will result from the need to replace experienced registered nurses who leave the occupation permanently, for retirement or other reasons.

Figure 6-7. Occupations that are projected to have the most job openings and that usually require a bachelor's degree, 2006-2016



SOURCE: Bureau of Labor Statistics, Employment Projections program.

Five of the top occupations with the most job openings that usually require a bachelor's degree are computer related jobs. The demand for these occupations is expected to increase as organizations continue to adopt and integrate increasingly sophisticated and complex technologies. These occupations also pay substantially above the median for all workers. Computer software engineers, applications highlight this list with a 2006 median annual wage of $79,780. In fact, all of the occupations presented in Figure 6-7 had annual wages above $30,400, the median for all workers.

Many teaching professions, such as elementary, middle, and secondary school teachers, also populate this list. The large number of openings for teachers reflects these occupations' size, expected retirements, and rising enrollments.

Among occupations that usually require a graduate degree, postsecondary teachers will see the largest jobs openings. This is expected to occur as the population of 18- to 24-year-olds increases; as a greater proportion of high school graduates attend college; and as more adults return to college to enhance their career prospects or update skills.

NOTES

[1] The 2007 annual average of monthly estimates was 231,867.
[2] Hires include re-hires of laid off employees and transfers of employees to other establishments operated by the same employer.
[3] Based on December 2007 estimates from the BLS National Compensation Survey's Employer Cost of Employee Compensation (ECEC) reports. Occupations in the graph are ranked according to December 2007 hourly compensation. ECEC data cover civilian workers employed by the private sector, state governments, and local governments.
[4] Based on annual average of monthly employment levels for each occupational group estimated from the Current Population Survey (CPS). The CPS data cover all workers, including public and private wage and salary workers and the self-employed.
[5] Capital is defined as the services derived from the stock of physical assets and software. The assets included are fixed business equipment and computer software, structures, inventories, and land. Structures include nonresidential structures and residential capital that is rented out by profit-making firms or persons.
[6] Labor compensation is defined as wages and salaries of employees plus employers' contributions for social insurance and private benefit plans. The value of all other fringe benefits also is included. Additionally, BLS estimates the wages, salaries, and supplemental payments of the self-employed.
[7] Capital compensation is defined as the sum of the portion of noncorporate income not attributed to labor, corporate profits, net interest, rental income, adjusted capital consumption allowance, inventory valuation adjustments, the portions of indirect taxes assumed to be associated with capital (notably motor vehicle and property taxes), and the sum of business transfers and government subsidies.
[8] These earnings data relate to production workers in natural resources and mining, production workers in manufacturing, construction workers in construction, and nonsupervisory workers in the service-providing industries. On average these workers account for about 82 percent of private nonfarm jobs.
[9] Workers' educational attainment and occupational choices, in addition to their industry choices, influence their wages. BLS has defined a set of six educational attainment clusters by detailed occupation that provide "a natural hierarchical sorting of occupations that reflects increasing levels of skill, education, and training. Occupations are grouped on the basis of the percentage of workers who have a high school diploma or less, some college or an associate degree, or a college diploma (bachelor's degree or higher). The system defines six education clusters: high school occupations (HS), high school or some college occupations (HS/SC), some college occupations (SC), high school or some college or college (HS/SC/C), some college or college (SC/C), and college (C). Because only two occupations fell into the some college cluster, it was excluded from this analysis. For more information on the educational attainment clusters, see Chapter 1 of *Occupational Projections and Training Data, 2008-09 Edition.*
[10] The eurozone is the area encompassing those European Union member states in which the euro has been adopted as the single currency in which a single monetary policy is conducted under the responsibility of the Governing Council of the European Central Bank. Currently there are 15 member states: Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Slovenia, and Spain. Because Slovenia joined the eurozone in January 2007 and Cyprus and Malta joined in January 2008, the 2006 eurozone

estimates cited in this chapter exclude these member states. Because of limited data availability, the 2007 estimates exclude Slovenia.

[11] July 2008 estimates from the CIA World Factbook, available online at www.cia.gov/library/publications/the-world-factbook.

[12] *A Chartbook of International Labor Comparisons* (available online at www.dol.gov/asp) and United Nations national accounts main aggregates database.

[13] GDP estimates are in current U.S. dollars adjusted using purchasing power parities.

[14] Comparisons of data based on levels of hours worked for a given year are not precise because of differences in data sources methods of estimation.

[15] U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Nonfiscal Survey of Public Elementary/Secondary Education." Findings available at http://nces.ed.gov/pubs2007/2007352.pdf and http://nces.ed.gov/programs/coe/2007/section3/tableXLS.asp?tableID=701.

[16] See the BLS publication "College Enrollment and Work Activity of 2007 High School Graduates" USDL 08-0559, April 25, 2008. http://www.bls.gov/news.release/pdf/hsgec.pdf.

[17] This chapter draws heavily on valuable research by Mitra Toossi of the Bureau of Labor Statistics published as "A new look at long-term labor force projections to 2050" in the *Monthly Labor Review*, November 2006.

[18] Census Bureau, monthly population estimates, available online at http://www.census.gov/popest/national/NA-EST2007-01.html (last visited July 2008).

[19] BLS defines the economic dependency ratio as the number of persons in the total population (including children and the Armed Forces) that are not in the labor force per 100 of those who are in the labor force.

[20] Census Bureau, Annual Estimates of the Population by Sex, Race, and Hispanic Origin for the United States: April 1, 2000 to July 1, 2007 (NC-EST2007-03).

www.dol.gov