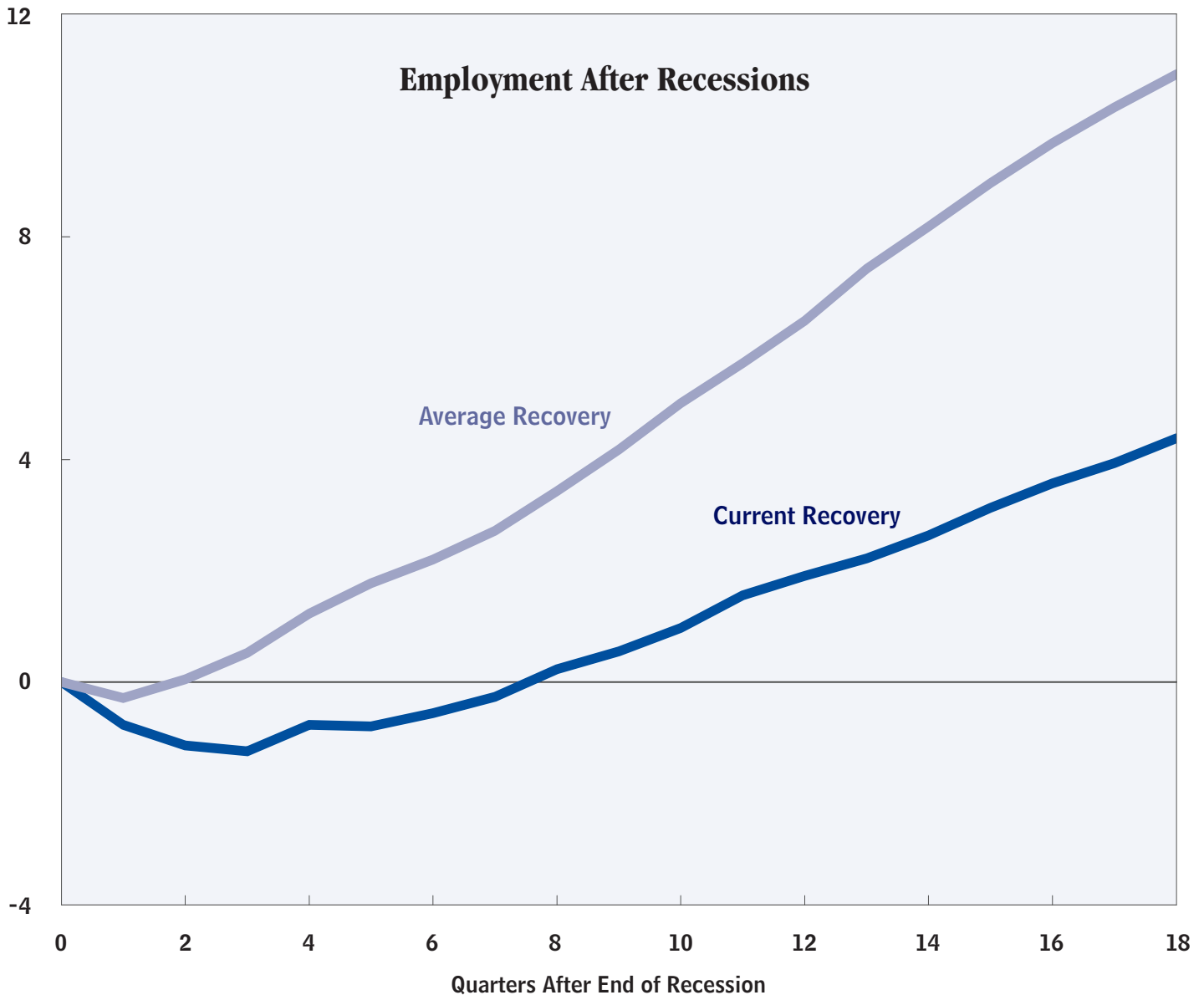


CBO

The Slow Recovery of the Labor Market

Percentage Difference From End of Recession



FEBRUARY 2014

Notes

Numbers in the text may not add up to totals because of rounding.

The figures show vertical bars to indicate the duration of recessions. (A recession extends from the peak of a business cycle to its trough.)

The chart on the cover shows postrecession employment of all workers on nonfarm payrolls; it does not include data revisions released by the Bureau of Labor Statistics in February 2014. The line showing the average recovery is derived from data for the periods after the recessions ending in March 1975, November 1982, March 1991, and November 2001.



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The Slow Recovery of the Labor Market

Summary

The deep recession that began in December 2007, when the economy began to contract, and ended in June 2009, when the economy began to expand again, has had a lasting effect on the labor market. More than four and a half years after the end of the recession, employment has risen sluggishly—much more slowly than it grew, on average, during the four previous recoveries that lasted more than one year. At the same time, the unemployment rate has fallen only partway back to its prerecession level, and a significant part of that improvement is attributable to a decline in labor force participation that has occurred as an unusually large number of people have stopped looking for work.

To a large degree, the slow recovery of the labor market reflects the slow growth in the demand for goods and services, and hence gross domestic product (GDP). The Congressional Budget Office (CBO) estimates that GDP was 7½ percent smaller than potential (maximum sustainable) GDP at the end of the recession; by the end of 2013, less than one-half of that gap had been closed. With output growing so slowly, payrolls have increased slowly as well—and the slack in the labor market that can be seen in the elevated unemployment rate and part of the reduction in the rate of labor force participation mirrors the gap between actual and potential GDP.

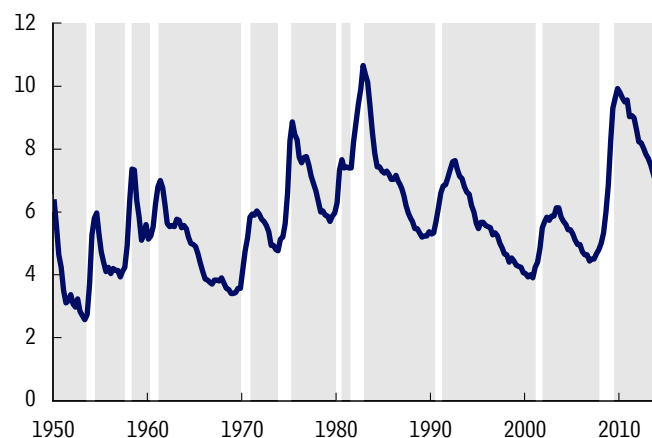
To a smaller degree, the slow recovery of the labor market is the result of structural factors that stem from the recession and the slow recovery of output but that are not directly related to the economy's current cyclical weakness. For example, an exceptionally large number of people have been unemployed for long periods, and the stigma attached to their long-term unemployment, along with a possible erosion of their job skills, has made it difficult for them to find new work.

In assessing the slow recovery of the labor market, CBO estimates the following:

- Of the roughly 2 percentage-point net increase in the rate of unemployment between the end of 2007 and the end of 2013, about 1 percentage point was the result of cyclical weakness in the demand for goods and services, and about 1 percentage point arose from structural factors; those factors are chiefly the stigma workers face and the erosion of skills that can stem from long-term unemployment (together worth about one-half of a percentage point of increase in the unemployment rate) and a decrease in the efficiency with which employers are filling vacancies (probably at least in part as a result of mismatches in skills and locations, and also worth about one-half of a percentage point of the increase in the unemployment rate).
- Of the roughly 3 percentage-point net decline in the labor force participation rate between the end of 2007 and the end of 2013, about 1½ percentage points was the result of long-term trends (primarily the aging of the population), about 1 percentage point was the result of temporary weakness in employment prospects and wages, and about one-half of a percentage point was attributable to unusual aspects of the slow recovery that led workers to become discouraged and permanently drop out of the labor force.
- Employment at the end of 2013 was about 6 million jobs short of where it would be if the unemployment rate had returned to its prerecession level and if the participation rate had risen to the level it would have attained without the current cyclical weakness. Those factors account roughly equally for the shortfall.

Figure 1.**Unemployment Rate**

(Percent)



Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: The unemployment rate is a measure of the number of jobless people who are available for and actively seeking work, expressed as a percentage of the labor force.

Data are quarterly and are plotted through 2013.

CBO expects that, under current laws governing federal taxes and spending, output will grow more rapidly in the next few years than it has in the recent past but recovery in the labor market will continue for some time.¹ The agency projects that by the second half of 2017, the gap between actual and potential GDP will return to its average historical relationship—bringing the effects of cyclical conditions on unemployment and labor force participation back to their average values in 2018. However, CBO projects, the aging of the population will further reduce labor force participation during the coming decade, and the longer-lasting effects of the recession and slow recovery on unemployment and the size of the labor force will continue, albeit with diminishing magnitude, throughout the decade. All told, CBO projects that the unemployment rate will fall to 5.8 percent by the end of 2017 and to 5.5 percent by 2024 (compared with 4.8 percent at the end of 2007) and that the labor force participation rate will decline to 60.8 percent by 2024 (compared with 66.0 percent at the end of 2007).

The pace and nature of the economic recovery have been difficult to predict, and the path of the economy and the labor market will no doubt hold surprises as well. CBO's

projections of the labor market are subject to several sources of uncertainty, and many developments could cause outcomes substantially different from those CBO has projected.

Developments in the Labor Market Since the Recession

The U.S. labor market has recovered slowly and only partially since June 2009, when the recession ended. Evidence of a weak recovery appears in the data on employment, unemployment, labor force participation, and other indicators of labor market activity. Although the recession ended more than four and a half years ago, the unemployment rate and, notably, the rate of long-term unemployment are still high; the labor force participation rate is well below its trend; and employment has not returned to its prerecession peak.

Unemployment Rates

The share of people in the labor force who are unemployed has fallen in recent years but remains high (see Figure 1).² It fell to 7.0 percent in the fourth quarter of 2013 (and 6.7 percent in December) after having reached a peak of almost 10 percent in the fourth quarter of 2009. Although the unemployment rate has reversed more than half its rise during the recession, it remains high by historical standards; its slow decline since the recent peak reflects in part the slowest recovery in employment following a recession since 1975 (except for the recession during 1980, which was followed by another recession only 12 months later).

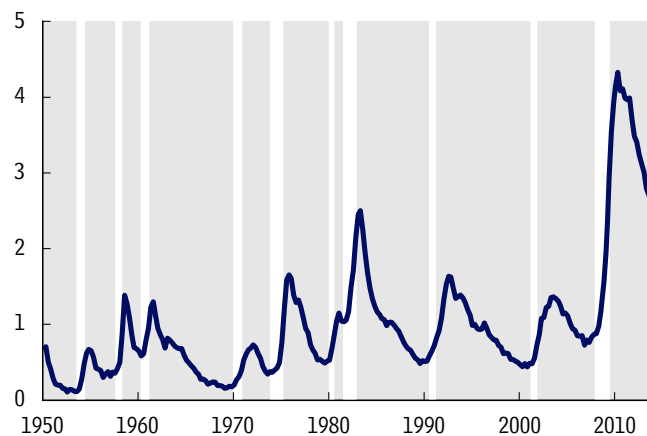
Although the rate of long-term unemployment—the percentage of the labor force that has been out of work for more than 26 consecutive weeks—also has declined in the past few years, it remains extraordinarily high (see Figure 2). The long-term unemployment rate was 0.8 percent in 2007; by the second quarter of 2010 it had surged to 4.3 percent. Although that rate has since declined to 2.6 percent, it is still higher than at any time between 1948 (when such data were first collected) and 2008. The long-term unemployed currently number about 4 million, compared with 1.3 million before the recession. In contrast, the share of the labor force that

1. See Congressional Budget Office, *The Budget and Economic Outlook: 2014 to 2024* (February 2014), Chapter 2, www.cbo.gov/publication/45010.

2. The labor force consists of people age 16 or older in the civilian noninstitutionalized population who have jobs or who are available for and actively seeking work. People are considered unemployed if they have no work but are available for and actively seeking work.

Figure 2.**Rate of Long-Term Unemployment**

(Percent)



Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: The rate of long-term unemployment is the percentage of the labor force that has been out of work for more than 26 consecutive weeks.

Data are quarterly and are plotted through 2013. The data before 1994 are not strictly comparable with the later data.

has been unemployed for less than five weeks rose from 1.7 percent to 2.1 percent during the recession and by 2011 had fallen back to close to its prerecession level; the share of the labor force that has been unemployed for 5 to 26 weeks rose from 2.2 percent to 4.7 percent during the recession but fell to 2.8 percent at the end of 2013.

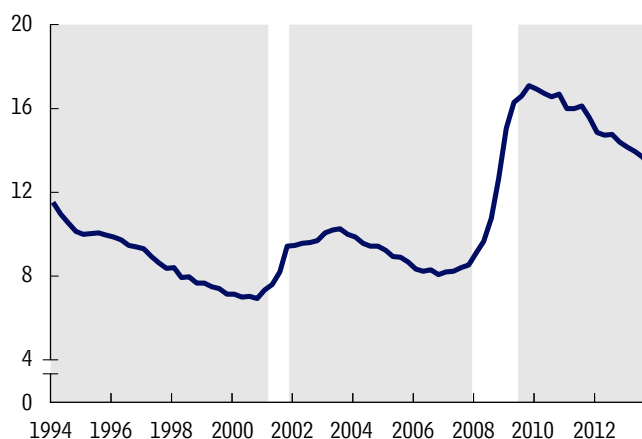
Broader indicators in the labor market also have improved only slowly. For example, the Bureau of Labor Statistics publishes a measure of underutilization in the labor market called U-6, which combines the number of unemployed people with numbers for two other groups of people: those who are “marginally attached” to the labor force (that is, who are not currently looking for work but are willing and able to work and who have looked for work in the past 12 months) and part-time employees who work less than 35 hours per week in all jobs for economic reasons (either because of slack work or business conditions or because they cannot find full-time employment). By the fourth quarter of 2013, declines in the number of people in each of those groups had reduced the U-6 measure to 13.3 percent, a notable improvement relative to the 17.1 percent mark in the fourth quarter of 2009 but still significantly above the 8.5 percent reading in the fourth quarter of 2007 (see Figure 3).

The share of employees who usually work part time rose during the recession, reaching 20 percent in 2010, compared with 17 percent in 2007. Although most people who work part time do so for noneconomic reasons, those who worked part time for economic reasons accounted for more than the entire increase in the share of employees working part time. That share has declined slowly but steadily since the end of the recession (although it remains above prerecession levels), and people who work part time for economic reasons have accounted for more than the entire decline (see Figure 4).

Patterns of unemployment by age, sex, and educational attainment indicate that no group has been spared in the weak labor market. However, the increase in unemployment during the recession was most pronounced among men and among some categories of workers with higher-than-average unemployment rates before the recession (such as people under age 25 and those without a high school diploma). Unemployment rates for all major categories of workers have declined over the past several years, reversing between half and three-fourths of their earlier increases, but they are still high.

Figure 3.**Underutilization of Labor**

(Percent)



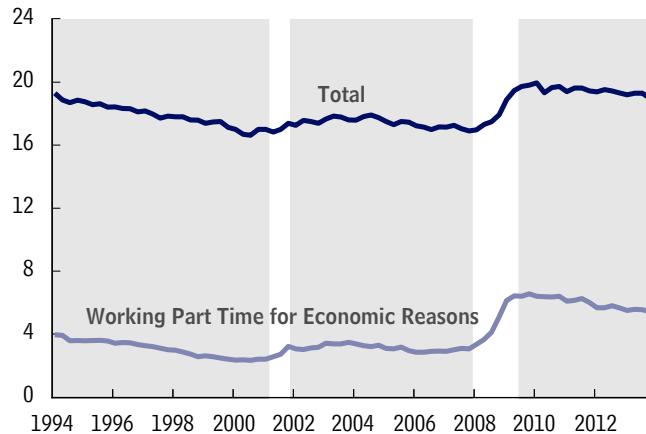
Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: This measure of the underutilization of labor, called U-6, combines the total number of people who are unemployed, those who are marginally attached to the labor force (who are not currently looking for work but are willing and able to work and have looked for work in the past 12 months), and those who work part time for economic reasons. It is expressed as a percentage of the labor force plus the number of marginally attached workers.

Data are quarterly and are plotted through 2013.

Figure 4.**Share of Workers Who Are Employed Part Time**

(Percentage of total employment)



Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: Part-time employees are people who usually work less than 35 hours per week. The share of part-time employment for economic reasons is the percentage of workers who work part time because of slack work or business conditions or because they cannot find full-time employment.

Data are quarterly and are plotted through 2013.

Labor Force Participation

Another striking consequence of the weak labor market has been the sharp decline in the labor force participation rate, the percentage of people in the civilian noninstitutionalized population who are age 16 or older and either working or actively seeking work (see Figure 5). That rate reflects people's decisions about the attractiveness of working or searching for work compared with such alternatives as attending school, caring for family members, or retiring. Key determinants include the demographic characteristics of the population and the availability of opportunities for employment. Participation typically falls when labor demand is weak, but poor prospects in the labor market seem to have had an unusually large effect in recent years.

The labor force participation rate edged downward by about one-quarter of a percentage point during the 2007–2009 recession, and it has fallen by about $2\frac{3}{4}$ percentage points since the end of the recession—to 62.9 percent in the fourth quarter of 2013, the lowest rate since 1978. The postrecession decline partly reflects the aging of the baby-boom generation, whose members have been reaching typical retirement ages (the oldest of the group turned 65 in 2011). But it also reflects

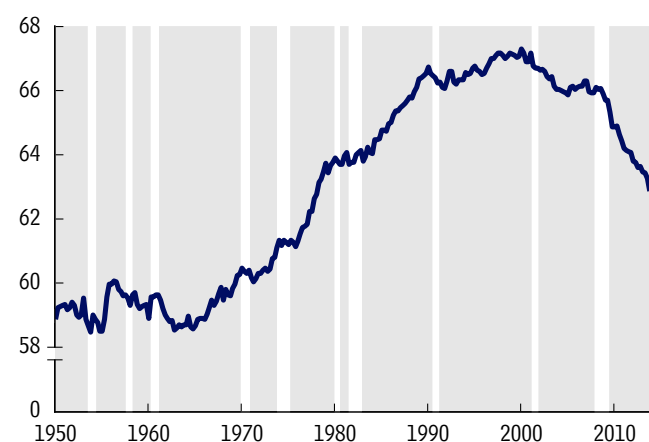
declining participation within some age groups. For men between the ages of 25 and 54, participation, which had been falling gradually over a period of four decades, fell by another 1.4 percentage points from 2009 to 2013. Participation among women in the same age group rose steadily between the 1950s and late 1990s, but then flattened for several years and fell by 1.8 percentage points from 2009 to 2013. Participation among men and women under age 25 fell by 1.8 percentage points between 2009 and 2013, a decline that was roughly in line with its trend over the previous decade. And participation among people between the ages of 55 and 64, which had been rising before the recession, has edged slightly lower since 2009. In contrast, the pronounced upward trend in the participation rate among people age 65 or older since the mid-1990s has continued.

Employment

Employment has picked up since the recession, but it has grown slowly, and employers now report having about 1 million fewer workers on their payrolls than they had in early 2008. The number of employees in nonfarm jobs peaked at 138 million in the first quarter of 2008 and fell to 129 million by the first quarter of 2010; since

Figure 5.**Rate of Participation in the Labor Force**

(Percent)



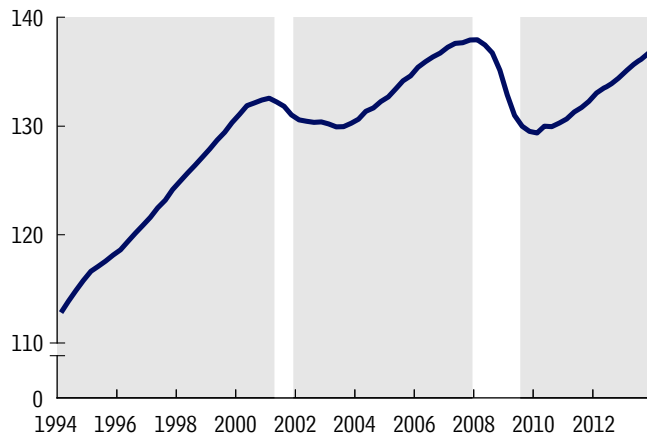
Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: The rate of participation in the labor force is the percentage of the civilian noninstitutionalized population age 16 or older that is either working or available for and actively seeking work.

Data are quarterly and are plotted through 2013.

Figure 6.**Total Nonfarm Employment**

(Millions of jobs)



Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: Nonfarm employment consists of all employees on nonfarm payrolls.

Data are quarterly and are plotted through 2013.

then, nonfarm employment has been on an upward trend, although it is still not quite 137 million—notwithstanding the growth in the U.S. population since 2008 (see Figure 6).³

In fact, employment has recovered essentially none of its dramatic decline as a share of the population. The employment-to-population ratio fell sharply from its prerecession peak of 63.3 percent in the fourth quarter of 2006 and now is barely above its postrecession low of 58.3 percent (see Figure 7).⁴ That change reflects both

3. Those figures are based on data from the Bureau of Labor Statistics as of January 10, 2014; they do not account for benchmark revisions scheduled for February 7, 2014. In a preliminary announcement, the Bureau of Labor Statistics, which calculates payroll employment on the basis of a survey of nonfarm establishments, indicated that the March 2013 employment figure would probably be revised upward by about 350,000 and that the revision is more than fully accounted for by a change in the classification of some establishments providing nonmedical home-based services for the elderly and people with disabilities. With that change excluded, the growth of employment between March 2012 and March 2013 is expected to be revised downward by about 125,000. Estimates of employment growth since March 2013 also may be revised.

4. The employment-to-population ratio uses a measure of employment from the Bureau of Labor Statistics' household survey of employment. Although the magnitudes of that measure and of payroll employment differ, their growth rates are generally similar.

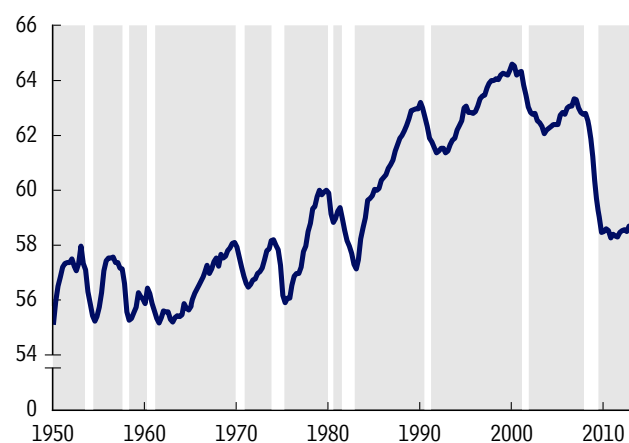
the decline in the rate of labor force participation and the increase in the rate of unemployment. If the unemployment rate had returned to its prerecession level and if the participation rate had risen to the level it would have attained without the current cyclical weakness, the employment-to-population ratio would be 60.8 percent, 2.3 percentage points above the current 58.5 percent, translating roughly to 6 million jobs.

Other Indicators

Other indicators of conditions in the labor market suggest that although fewer people are becoming unemployed, finding work is still unusually difficult. After rising during the recession, layoffs and discharges from employment have fallen back below their prerecession rates. As a result, initial claims for unemployment insurance (UI) benefits, which more than doubled during the recession, also are close to prerecession rates (based on a four-week moving average, which reduces the week-to-week volatility in this measure). In addition, the incidence of people quitting their jobs has increased, perhaps reflecting workers' improved perceptions about their ability to find new employment. Hiring, however, remains well below its prerecession rate, and, as a consequence, the probability that an unemployed person will find a job within a given period is significantly less than it

Figure 7.**Share of the Population That Is Employed**

(Percent)



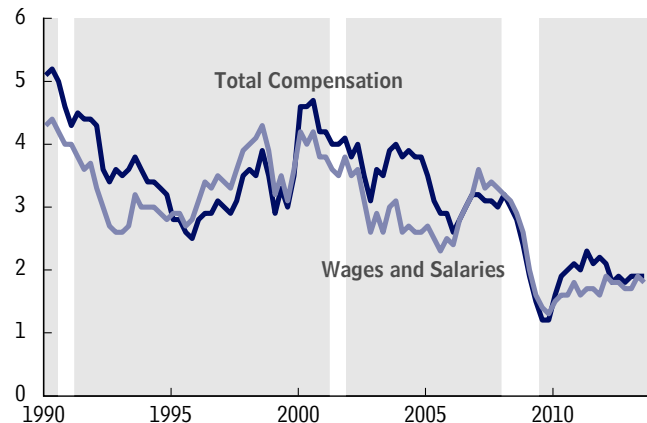
Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: Data show the number of employed workers (as measured by the Current Population Survey) as a percentage of the civilian noninstitutionalized population age 16 or older.

Data are quarterly and are plotted through 2013.

Figure 8.**Hourly Labor Compensation**

(Percentage change from the previous year)



Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: The data are employment cost indexes for workers in private industry. Total compensation is wages and salaries plus benefits.

Data are quarterly and are plotted through the third quarter of 2013.

was before the recession. Indeed, the number of job seekers for each open job is still high: That ratio was 1.8 in December 2007, it reached a peak of 6.7 in July 2009, and then dropped to 2.7 by November 2013.

The slow recovery of the labor market has depressed growth in labor compensation (the combination of wages, salaries, and benefits that workers receive). Hourly wages and compensation for private industry workers grew at an annual rate of about 3 percent in the years just before the recession; but since then, they have grown at a rate of about 2 percent annually (see Figure 8).⁵ In real (inflation-adjusted) terms, hourly compensation in the third quarter of 2013 was only 0.5 percent above its mark in the second quarter of 2009, at the end of the recession.

The slow growth of hourly compensation, combined with the slow growth of employment, has led to a decline

5. One manifestation of the weakness in the growth of labor compensation is the unusually large number of workers who have received no wage increases since the end of the recession. Had it not been for employers' reluctance to cut employees' nominal wages, the growth of labor compensation probably would have slowed even more. For more information, see Mary C. Daly and Bart Hobijn, *Downward Nominal Wage Rigidities Bend the Philips Curve*, Working Paper 2013-08 (Federal Reserve Bank of San Francisco, June 2013), <http://tinyurl.com/oomgx7n>.

in the labor share of total income. Labor income, which includes compensation and some proprietors' income, has declined as a share of gross domestic income (GDI) since the end of the recession, falling more sharply than its previous downward trend.⁶ CBO estimates that labor's share averaged about 57 percent in 2013, down from more than 59 percent in 2008 (and an average of about 59½ percent since 1980). In contrast, domestic economic profits' share of GDI rose over that period, reaching 9.5 percent of GDI, CBO estimates, up from 6.8 percent in mid-2009.⁷

Interpreting Developments in the Labor Market

The improvement of the labor market during the past several years has been slow because of cyclical and structural factors. Cyclical weakness in the overall demand for goods and services, which has been the more important of the two, has hampered the growth of employment, impeded the reduction in the unemployment rate, and depressed the labor force participation rate. However, structural factors—noncyclical forces that alter the willingness and ability of unemployed workers to find jobs and of employers to find suitable workers—also have restrained the recovery in the labor market.

Causes of High Unemployment

The slow growth of the economy has been the most important determinant of the path of the unemployment rate in the years since the onset of the recession, but structural factors have played a notable role as well—and one that has become relatively more significant as the

6. In principle, GDI equals GDP in that each dollar of production produces a dollar of income; in practice, the two differ because of difficulties in measuring both quantities. CBO defines labor income as the sum of employees' compensation and a percentage of proprietors' income (that percentage being employees' compensation as a share of the difference between GDI and proprietors' income). For further discussion, see Congressional Budget Office, *How CBO Projects Income* (July 2013), www.cbo.gov/publication/44433; and Congressional Budget Office, *The Budget and Economic Outlook: 2014 to 2024* (February 2014), Chapter 2, www.cbo.gov/publication/40510.

7. Domestic economic profits are corporations' U.S. profits adjusted to remove distortions in depreciation allowances that result from tax rules and to exclude the effects of inflation on the value of inventories. Domestic economic profits exclude certain types of income that U.S.-based multinational corporations derive from foreign sources, most of which does not generate corporate income tax receipts in the United States.

economy has improved. By the end of 2013, the causes of the roughly 2 percentage-point net increase in the rate of unemployment since the end of 2007 were identified as having been almost equally cyclical and structural, in CBO's assessment.⁸ (As discussed below, the current cyclical weakness of the economy would have a larger effect on the unemployment rate if it was not also holding down the participation rate.) If the unemployment rate was back down to its prerecession level of roughly 5 percent—about 2 percentage points below the average unemployment rate in the fourth quarter of last year—about 3 million people who are currently looking for work would be employed.

Cyclical Economic Weakness. According to CBO's assessment, the slow recovery of the labor market primarily reflects the slow recovery in production, which in turn is a reflection of the slow recovery in the demand for goods and services. By the second quarter of 2009, CBO estimates, real GDP was about 7½ percent below its potential level. From that point through the end of 2013, real output grew at an average annual rate of almost 2½ percent, leaving it roughly 4 percent below potential GDP by the end of last year.⁹ The unemployment rate typically increases when actual economic output falls short of potential output, decreasing employers' demand for workers. On average, and all else being equal, an output gap of -2 percent (when output is 2 percent below

its estimated potential) has been associated with an unemployment rate that is 1 percentage point above the natural rate (the rate arising from all sources other than fluctuations in the overall demand for goods and services). In the absence of the unusual factors affecting the labor market, the application of that historical relationship to the gap between actual and estimated potential GDP at the end of 2013 suggests that the cyclical weakness of the economy was responsible for elevating the unemployment rate by about 2 percentage points.

However, the historical relationship between the output gap and the unemployment rate does not account adequately for some of the structural factors that are currently pushing up unemployment or for the unusually large decline in the labor force participation rate that is currently holding down unemployment. After accounting for those developments (as described below), CBO estimates that cyclical economic weakness is currently keeping the unemployment rate roughly 1 percentage point above what it would otherwise be.

Structural Factors. Structural factors raise both the actual rate of unemployment and the natural rate of unemployment. CBO estimates that structural factors accounted for roughly 1 percentage point of the difference between the unemployment rate at the end of 2007 and at the end of 2013. CBO also estimates that the natural rate of unemployment was 5 percent at the end of 2007 and, reflecting those structural factors, was 6 percent at the end of 2013.¹⁰ Three structural factors, according to CBO's analysis, account for that 1 percentage-point increase:¹¹

- About one-half of a percentage point is attributable to the stigma of long-term unemployment (which may cause employers to be less inclined to hire someone who has been out of work for a considerable period,

8. An alternative perspective on the increase in the unemployment rate since 2007 is offered in Casey B. Mulligan, *The Expanding Social Safety Net*, Working Paper 17654 (National Bureau of Economic Research, December 2011), www.nber.org/papers/w17654, which asserts that various changes in federal policies since 2007—such as extensions of unemployment insurance—increased the effective tax rate on labor income and thereby were primarily responsible for the sharp increase in unemployment during the recession and have slowed the subsequent recovery in the labor market. See also Casey B. Mulligan, *The Redistribution Recession: How Labor Market Distortions Contracted the Economy* (Oxford University Press, 2012). For an opposite view, see Jesse Rothstein, “The Labor Market Four Years into the Crisis: Assessing Structural Explanations,” *Industrial and Labor Relations Review*, vol. 65, no. 3 (March 2012), pp. 467–500, <http://tinyurl.com/ppan3j3>.

9. That roughly 4 percent shortfall is the difference between the estimate of GDP produced by the Bureau of Economic Analysis (BEA) and CBO's current estimate of potential GDP. BEA's estimate was released on January 30, 2014, after CBO completed its projection. According to BEA's release, GDP in the fourth quarter of 2013 was greater than what CBO had projected. Incorporating that higher level of GDP would probably raise CBO's estimate of potential output, but only slightly.

10. For use in its analysis of potential output, CBO also estimates an underlying long-term rate of unemployment that incorporates only long-lasting structural factors (discussed below). CBO uses its estimate of the natural rate to analyze inflation, among other purposes; for any actual unemployment rate, a higher natural rate is an indication that employers have more difficulty hiring workers, so growth in wages will tend to be higher and upward pressure on inflation will be greater.

11. For a more detailed discussion of the structural factors and related estimates for an earlier period, see Congressional Budget Office, *Understanding and Responding to Persistently High Unemployment* (February 2012), www.cbo.gov/publication/42989.

out of concern that the person might be a less desirable worker) and the erosion of workers' skills that can attend long-term unemployment.

- About one-half of a percentage point is attributable to a decrease in the efficiency with which employers filled vacancies, probably at least in part as a result of mismatches between the needs of employers and the skills and locations of those seeking work.
- About one-tenth of a percentage point is attributable to the incentives generated in 2013 by extensions of UI benefits (from the usual 26 weeks to as much as 99 weeks), primarily because the program's rules led some people to remain in the labor force and to continue to search for work in order to remain eligible. (The effect of that factor on the unemployment rate was greater in earlier years during and after the recession when more people were receiving extended benefits.)

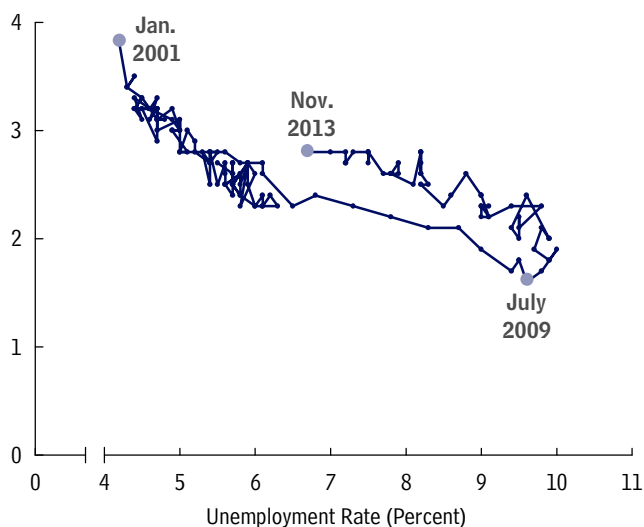
Evidence that factors other than weakness in overall demand for goods and services are boosting the unemployment rate comes in part from a shift in what is known as the Beveridge curve—the relationship between the job vacancy rate (the ratio of openings to total employment) and the unemployment rate (see Figure 9). That shift, an increase in the unemployment rate for any given job vacancy rate, suggests either that unemployed workers are facing unusual difficulties finding suitable work in the available jobs (as would result from the difficulties faced by the long-term unemployed or from a decrease in the efficiency with which employers and job seekers are matched) or that the labor force is growing for reasons that are unrelated to the strength in the economy (as would result from extensions of UI benefits).¹²

Stigma and the Erosion of Skills. Long-term unemployment can lead to subsequent difficulties in securing work. The stigma of being out of work for an extended period tends to worsen employment prospects. Another barrier is created by the erosion of skills that can come from long-term unemployment. Although the extent to which those factors increased unemployment during and after the recession is difficult to quantify, the probability of finding a job is significantly lower for the long-term unemployed than it is for people who have spent less time out of work. On the basis of that finding and other

Figure 9.

Beveridge Curve: Relationship Between Job Vacancies and Unemployment

(Total job vacancy rate, percent)



Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: The job vacancy rate is the number of job openings, expressed as a percentage of the sum of total nonfarm employment plus job openings.

The unemployment rate is a measure of the number of jobless people who are available for and actively seeking work, expressed as a percentage of the labor force.

Data are monthly and are plotted from January 2001 through November 2013.

findings in research, CBO estimates that the stigma and erosion of skills arising from the unusually large number of the long-term unemployed accounted for about one-half of a percentage point of the net increase in the

12. Recent research offers a variety of views on the structural factors that explain the shift in the Beveridge curve. For example, one report focuses on a combination of less efficient matching of job seekers with employers in the labor market, the effects of extensions of UI benefits on the incentives to look for work, and other factors; see Mary C. Daly and others, "A Search and Matching Approach to Labor Markets: Did the Natural Rate of Unemployment Rise?" *Journal of Economic Perspectives*, vol. 26, no. 3 (Summer 2012), pp. 3–26, <http://tinyurl.com/olxa6b4>. Other research, however, indicates that the increase in the number of the long-term unemployed accounted for the entire shift in the curve (either directly or through the effects of extensions of UI benefits); see Rand Ghayad and William Dickens, *What Can We Learn by Disaggregating the Unemployment–Vacancy Relationship?* Public Policy Brief 12-3 (Federal Reserve Bank of Boston, October 2012), <http://tinyurl.com/qjbnv2s>.

unemployment rate from the beginning of the recession to the end of last year.¹³ That effect has grown over time, and CBO expects it to persist for several years before gradually abating, as some of the long-term unemployed either retire or leave the labor force in some other way and as others eventually obtain stable jobs.

Matching Unemployed Workers With Available Jobs. In well-functioning labor markets, job seekers and employers efficiently find mutually beneficial matches. Individual businesses grow and shrink in response to fluctuations in profitability and in the demand for their products; workers change jobs as they look for and find positions that best fit their skills and interests; and improvements in technology, changing consumer preferences, and changes in international trade have disproportionate effects on various industries, occupations, and locations of work. The need for workers to move from one industry or occupation to another, to acquire new skills to facilitate such a shift, or to relocate to find new work often is characterized as a skill or locational mismatch, and such mismatches always result in some amount of unemployment as businesses with vacancies and workers looking for jobs take time to find good matches. That normal mismatch is one component of CBO's estimate of the natural rate of unemployment, which was 5 percent before the recession.

Mismatches can become more important when unusual advances in technology or shifts in the demand for various products require significant changes in the distribution of workers among industries, occupations,

or locations. For example, because the demand for construction workers declined sharply during the recession as a result of the collapse of the housing market, many affected workers sought employment in other occupations. Separately, some of the increase in the difficulty of matching unemployed workers with available jobs appears to have occurred because employers are recruiting less intensively than they have in the past to fill vacant jobs, independent of any changes in the suitability of the pool of candidates.¹⁴

CBO estimates that increased difficulties matching workers with jobs accounted for about one-half of a percentage point of the net increase in the unemployment rate from the beginning of the recession to the end of 2013. That effect will diminish gradually over the next few years, in CBO's judgment, as the causes of dampened matching efficiency recede and as workers acquire new skills, shift to faster growing industries and occupations, or relocate to take advantage of new opportunities.

Extensions of UI Benefits. In response to the high unemployment caused by the recession, legislation to provide emergency unemployment compensation (EUC) was enacted that allowed states to provide additional weeks of federally funded unemployment benefits to people who had exhausted their regular state benefits.¹⁵ In CBO's judgment, those expansions had several effects on unemployment and on employment.

First, the availability of EUC discouraged some recipients from taking jobs they considered unsuitable because the additional benefits reduced the hardship of being unemployed, and the legislation required recipients to continue to search for employment and to remain in the labor force in order to continue to receive benefits. Although those incentives increased unemployment

13. Some researchers have found that employers are less likely to respond to a résumé from an applicant who has been unemployed for more than six months than to an otherwise identical résumé from an applicant who has been unemployed for a shorter period. See, for example, Rand Ghayad, "The Jobless Trap" (draft, 2013), <http://tinyurl.com/ob6laqz> (PDF, 733 KB); and Kory Kroft, Fabian Lange, and Matthew J. Notowidigdo, *Duration Dependence and Labor Market Conditions: Theory and Evidence From a Field Experiment*, Working Paper 18387 (National Bureau of Economic Research, September 2012), www.nber.org/papers/w18387. See also Martin Biewen and Susanne Steffes, "Unemployment Persistence: Is There Evidence for Stigma Effects?" *Economic Letters*, vol. 106, no. 3 (March 2010), pp. 188–190, <http://tinyurl.com/pwumhpl>; and Marianne Bertrand, Claudia Goldin, and Lawrence F. Katz, "Dynamics of the Gender Gap for Young Professionals in the Financial and Corporate Sectors," *American Economic Journal: Applied Economics*, vol. 2, no. 3 (July 2010), pp. 228–255, <http://tinyurl.com/nh94ysq>.

14. See Steven J. Davis, R. Jason Faberman, and John C. Haltiwanger, *Recruiting Intensity During and After the Great Recession: National and Industry Evidence*, Working Paper 17782 (National Bureau of Economic Research, January 2012), www.nber.org/papers/w17782.

15. In addition, lawmakers enacted other temporary provisions to aid the unemployed, including special provisions that made it easier for states to pay benefits under the extended benefits program (from February 2009 through December 2013) and a weekly supplement of \$25 that was available to people receiving regular, emergency, and extended benefits (from February 2009 through December 2010).

among recipients, the weight of the evidence suggests that their effect was small.¹⁶

Second, the availability of EUC affected the employment of prospective workers who were ineligible for benefits, such as new entrants and reentrants to the labor force. To the extent that beneficiaries were less likely to accept available jobs, those who were unemployed but not receiving benefits were more likely to obtain and accept job offers. Given the elevated unemployment rate, nearly all of the jobs that were not taken by people receiving EUC were instead taken by others who were searching for work, in CBO's view.

CBO estimates that those effects on incentives, taken together, had little effect on employment but, by boosting the number of people in the labor force, they

increased the rate of unemployment by as much as one-third of a percentage point during the past several years. However, the size of the effects diminished in 2013, as the number of people exhausting their regular state benefits declined and as new legislation trimmed the availability of EUC; by the fourth quarter of 2013, those effects boosted the unemployment rate by one-tenth of a percentage point, CBO estimates.

Separately, by putting money in the hands of people who spent much of it on goods and services, UI benefits increased the demand for workers to produce those goods and services, indirectly raising total employment compared with what it would have been otherwise. Taking into account the effects both on incentives and on spending, CBO estimates that in late 2013 the benefits provided by the EUC program raised employment by about 200,000.¹⁷ Combining that effect on employment with the increase in the labor force resulting from recipients' continuing to look for work in order to receive benefits, CBO estimates that the extension of UI benefits had little net effect on the unemployment rate at the end of 2013.

Causes of Low Labor Force Participation

According to CBO's analysis, the unusually low rate of labor force participation in recent years is attributable to three principal factors: long-term trends, especially the aging of the population; temporary weakness in employment prospects and wages; and some longer-term factors attributable to the unusual aspects of the slow recovery of the labor market, including persistently low hiring rates. Of the 3 percentage-point decline in participation between the end of 2007 and the end of 2013, CBO estimates, about 1½ percentage points was the result of long-term trends, about 1 percentage point arose from temporary weakness in employment prospects and wages, and about one-half of a percentage point was attributable to unusual aspects of the slow recovery.

Long-Term Trends. During the past six years, the participation rate has declined by roughly 1½ percentage points because of long-term trends, CBO estimates. That decline is attributable mostly to retirement of members of the baby-boom generation. The aging of that generation

16. Such benefits have been the subject of research for several decades. A widely cited publication from 1990 shows that eligibility for an extra five weeks of benefits led, on average, to a one-week increase in the duration of unemployment; see Lawrence F. Katz and Bruce D. Meyer, "The Impact of the Potential Duration of Unemployment Benefits on the Duration of Unemployment," *Journal of Public Economics*, vol. 41, no. 1 (February 1990), pp. 45–72, <http://tinyurl.com/qyw7elf>. A more recent publication suggests that most of that effect represented an expanded search effort, which ultimately could result in better matching of workers and jobs; see Raj Chetty, "Moral Hazard Versus Liquidity and Optimal Unemployment Insurance," *Journal of Political Economy*, vol. 116, no. 2 (April 2008), pp. 173–234, <http://tinyurl.com/ozfs7uq>. Most research focusing on the extension of benefits in recent years has revealed smaller effects and indicated that much of the increase in unemployment duration was among people who would otherwise have left the labor force, thus indicating that the increase in duration did not imply a decrease in employment. See Rob Valletta and Katherine Kuang, *Extended Unemployment and UI Benefits*, Economic Letter 2010-12 (Federal Reserve Bank of San Francisco, April 2010), <http://tinyurl.com/mtfpx6j>; Jesse Rothstein "Unemployment Insurance and Job Search in the Great Recession," *Brookings Papers on Economic Activity* (Fall 2011), pp. 142–196, <http://tinyurl.com/qgtgcuj>; and Henry Farber and Robert G. Valletta, *Do Extended Unemployment Benefits Lengthen Unemployment Spells? Evidence From Recent Cycles in the U.S. Labor Market*, Working Paper 19048 (National Bureau of Economic Research, May 2013), www.nber.org/papers/w19048. In contrast, a preliminary study reports large negative effects on employment from the extension of benefits in recent years, reflecting employers' responses to an increase in prevailing wages (albeit a relatively small one) that was necessary to attract UI beneficiaries to accept jobs. See Marcus Hagedorn and others, *Unemployment Benefits and Unemployment in the Great Recession: The Role of Macro Effects*, Working Paper 19499 (National Bureau of Economic Research, October 2013), www.nber.org/papers/w19499.

17. See Congressional Budget Office, letter to the Honorable Chris Van Hollen concerning the ways in which extending certain unemployment benefits would affect output and employment in 2014 (December 3, 2013), www.cbo.gov/publication/44929.

has increased the share of people who are age 55 or older and are thus less likely to work than younger people. In addition, underlying trends in the participation rate within groups of people of a given age or by sex have contributed slightly to the decline in the overall participation rate since 2007. For example, those trends suggest declining participation for people under 25 and roughly stable labor force participation rate for women in their prime working years (ages 25 to 54), which had risen rapidly from the 1960s to the 1980s. (CBO expects that, in coming years, the aging of the population will continue to push down the overall participation rate but underlying trends in the participation rate within groups will have little net effect on the overall participation rate.)¹⁸

Temporary Factors. During periods of cyclical economic weakness, a lack of good job opportunities discourages some people from searching for employment and encourages some people to stay in school instead of seeking work. As a result, the labor force participation rate tends to decline during economic downturns and rebound during recoveries.

The recent weakness in the economy has led to what CBO judges to be a temporary drop of roughly 1 percentage point in the participation rate since 2007. That decline corresponds to roughly 3 million people who have left the labor force or are staying out of it until more jobs are available. Continued recovery of the economy will increase the demand for workers, drawing those people back into the labor force. Thus, CBO projects that the dampening effect on labor force participation will have dwindled by 2018, a year after actual GDP is projected to return to its historical relationship with potential GDP.

A slight offset to that reduction in labor force participation comes from two other aspects of the recession and slow recovery. First, at the depths of the recession, when sharply falling prices for housing and equities caused a precipitous decline in wealth, a significant number of older people appear to have postponed retirement or otherwise stayed in the labor force to preserve or restore their financial well-being.¹⁹ Second, CBO estimates that

the extension of UI benefits modestly boosted labor force participation (as discussed earlier).

Longer-Term Factors Attributable to Unusual Aspects of the Slow Recovery. The limited opportunities for unemployed job seekers in recent years will also have long-term effects on people's participation in the labor force, especially on the participation of people who have been unemployed for a long time. The unusually protracted weakness in the demand for labor appears to have led some workers to become discouraged and permanently drop out of the labor force, a longer-term factor that CBO estimates accounts for about one-half of a percentage point of the decrease in the participation rate since 2007.

In part, the permanent withdrawal from the labor force among those unemployed workers is evident in a rise in the number of people applying for and receiving benefits from the Social Security Disability Insurance program, which provides benefits to nonelderly adults who have held jobs but who are judged to be unable to perform "substantial" work because of a disability.²⁰ In CBO's view, the difficulty of finding work during the past several years made it worthwhile for some unemployed people with moderate disabilities to apply for benefits rather than search for employment that would accommodate their disabilities. Indeed, the number of applications to the program averaged 2.8 million per year between 2009 and 2013, up from an annual average of 2.2 million during the previous five years. Once enrolled, very few recipients leave the program to return to the labor force.

Other people also have left the labor force and will not return—in CBO's view, because of the recession and slow recovery—without applying for disability benefits. For example, the weakness in the labor market has led some older workers to retire earlier than they otherwise would have and to remain out of the labor force permanently. In addition, some unemployed workers who were unable to find suitable new jobs chose alternative unpaid activities,

18. For further discussion about underlying trends in labor force participation rates by age and by sex, see Congressional Budget Office, *CBO's Labor Force Projections Through 2021* (March 2011), www.cbo.gov/publication/22011.

19. See Courtney C. Coile and Phillip B. Levine, "The Market Crash and Mass Layoffs: How the Current Economic Crisis May Affect Retirement," *B.E. Journal of Economic Analysis and Policy*, vol. 11, no. 1 (April 2011), <http://tinyurl.com/p6uqspw>.

20. See Congressional Budget Office, *Policy Options for the Social Security Disability Insurance Program* (July 2012), www.cbo.gov/publication/43421.

such as caring for family members, and will remain out of the labor force permanently.

The effect of long-term factors on the participation rate that has stemmed from the recession and its aftermath—inducing people to leave the labor force permanently—is expected to diminish slowly. Over time, those who have left for that reason will reach retirement age or otherwise come to a point at which they would have left the labor force regardless of the strength of the labor market. As the effects of the recession and its aftermath wane, future changes in labor force participation will be determined by long-run trends in demographics.

CBO's Labor Market Projections for the Next Decade

CBO expects that, under current laws governing federal taxes and spending, the labor market will strengthen considerably during the coming years because of a continued economic expansion and a lessening of the structural factors that have weighed on employment. CBO projects that the unemployment rate will fall to 5.8 percent by the end of 2017 and to 5.5 percent by 2024, reflecting declines in both cyclical and structural unemployment. CBO also projects that the downward pressure on the labor force participation rate from the recession and slow recovery will abate but that demographic trends and federal fiscal policies will diminish labor force participation—leading to a further decline in that rate during the next decade.

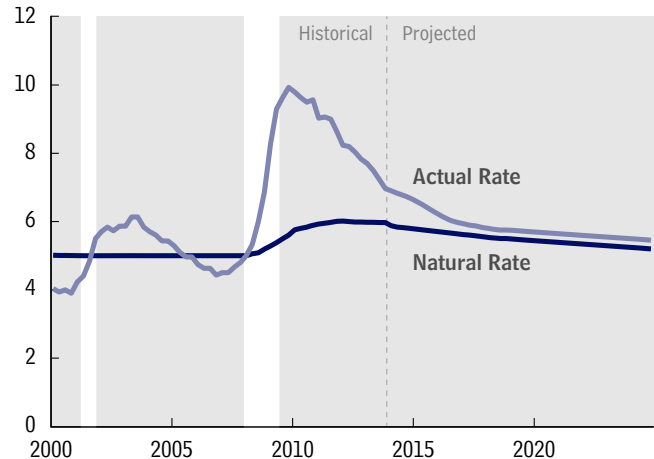
Nevertheless, a strengthening economy and the growth of the population will cause payroll employment in the non-farm business sector to increase from about 137 million at the end of 2013 to about 149 million at the end of 2024, CBO projects. In addition, CBO anticipates that growth in real hourly labor compensation will pick up as the demand for workers increases. The agency also expects that the share of total income earned by labor will increase over the decade but will not reach its average level of the past few decades.²¹

21. For further discussion of economic projections through 2024, see Congressional Budget Office, *The Budget and Economic Outlook: 2014 to 2024* (February 2014), Chapter 2, www.cbo.gov/publication/45010.

Figure 10.

Actual and Natural Rates of Unemployment

(Percent)



Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: The unemployment rate is a measure of the number of jobless people who are available for and actively seeking work, expressed as a percentage of the labor force. The natural rate is CBO's estimate of the unemployment rate arising from all sources except fluctuations in aggregate demand.

Data are quarterly. Historical data are plotted through 2013; projections are plotted through 2024.

CBO's labor market projections are constructed to lie in the middle of the distribution of possible outcomes, given the fiscal policies embodied in current law. Those projections are subject to many sources of uncertainty, and the outcomes could differ substantially from the projections.

Unemployment Rates

CBO expects the unemployment rate to decline over the next decade (see Figure 10), reflecting changes in cyclical and structural factors that have raised the unemployment rate since the beginning of the recession. The agency anticipates that, under current law, the unemployment rate will decline from the average of 7.0 percent in the fourth quarter of 2013, to 5.8 percent in the fourth quarter of 2017, and to 5.5 percent in 2024. The natural rate of unemployment is projected to decline from an estimated 6.0 percent at the end of 2013 to 5.6 percent in

the fourth quarter of 2017 and to 5.2 percent in 2024—0.2 percentage points above its prerecession level.²²

The projected decline in the unemployment rate through the end of 2017 reflects primarily the expected continued economic expansion, because the increase projected in the overall demand for goods and services will create a need for businesses to hire more workers. With the gap between actual and potential GDP anticipated to narrow to just one-half of a percent in the second half of 2017, the unemployment rate would be expected to drop considerably. However, CBO anticipates that this effect will be dampened because the improvement in labor market conditions will induce some of the people who have left the labor force to return to it.

The projected decline in the unemployment rate through the end of 2017 also reflects an expected waning of some of the structural factors that have raised unemployment since the beginning of the recession. The effect of the extension of UI benefits on the unemployment rate essentially ended with the expiration of that extension at the close of 2013. And the effect of unusually large problems in matching unemployed workers with available jobs—estimated at about one-half percentage point in late 2013—is expected to recede almost entirely by 2017 (and to disappear by 2018). In contrast, the effects of stigma and erosion of skills—also estimated to have raised the unemployment rate by about one-half of a percentage point in late 2013—will continue to hamper the ability of the long-term unemployed who remain in the labor force to find work.

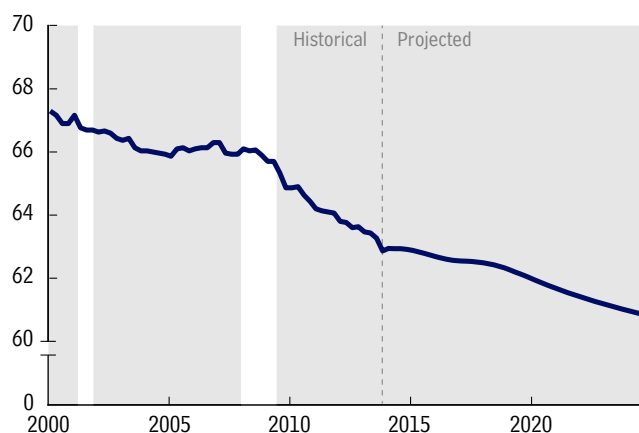
The projection of the small additional decline in the unemployment rate over the 2018–2024 period stems from CBO’s anticipation that the effects of stigma and skill erosion will wane as more of the long-term unemployed either leave the labor force or find jobs. Even

22. For use in its analysis of potential output, CBO also estimates an underlying long-term rate of unemployment that incorporates only long-lasting structural factors. Of the three structural factors discussed in this report, only the stigma and erosion of skills related to the long-term unemployed are expected to be sufficiently long lasting to be included in that underlying long-term rate. Thus, CBO estimates that the underlying long-term rate of unemployment was 5.0 percent before the recession, that it rose to 5.5 percent in 2013, that it will remain there through 2017 because the effects of stigma and skill erosion will remain roughly constant over the next four years, and that it will then decline to 5.2 percent in 2024 as those effects wane.

Figure 11.

Historical and Projected Rate of Participation in the Labor Force

(Percent)



Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: The rate of participation in the labor force is the percentage of the civilian noninstitutionalized population age 16 or older that is either working or available for and actively seeking work.

Data are quarterly. Historical data are plotted through 2013; projections are plotted through 2024.

in 2024, however, CBO expects that those effects will boost the unemployment rate by about one-quarter of a percentage point.

CBO projects that the unemployment rate will be about one-quarter of a percentage point above the natural rate in the latter part of the coming decade. That gap is not based on a forecast of specific cyclical movements in the economy; instead, it is based on CBO’s estimate that the unemployment rate has been, on average, higher than the natural rate since 1947 and, notably, during each of the past five business cycles. The difference arises because the shortfalls in output relative to CBO’s estimate of potential output during economic downturns have been larger and more frequent than the excesses during economic expansions.

Labor Force Participation

CBO projects that the labor force participation rate, which averaged 62.9 percent in the fourth quarter of 2013, will be at the same level, on average, in 2014 but will fall to 62.5 percent by the end of 2017 and to 60.8 percent by the end of 2024 (see Figure 11).

For 2014 to 2017, CBO anticipates that many of the people who left the labor force because of a lack of job opportunities will return as labor market conditions improve and that the number of people who stay out of the labor force (for example, to attend school) will diminish. However, CBO expects, the cyclical recovery in participation will be more than offset by the downward pressure on participation stemming from other changes. The most significant effect will come from the aging of the population (and other demographic changes), but federal tax and spending policies will also play a role. The Affordable Care Act (ACA) will tend to reduce participation, with the largest impact stemming from new subsidies that reduce the cost of health insurance purchased through exchanges.²³ Specifically, by providing subsidies that decline with rising income (and increase with falling income) and by making some people financially better off, the ACA will create an incentive for some people to choose to work less.²⁴ The structure of the tax code—in which rising incomes push some people into higher tax brackets—will also reduce labor force participation slightly.

The further projected decline in the participation rate after 2017 primarily reflects the ongoing aging of the population, with smaller further effects of the federal fiscal policies just discussed. Those effects are offset in part by a reduction in the number of people who will have permanently stopped looking for work because of the recession and slow recovery; many of them would, by that period, have left the labor force anyway through retirement or by some other means. Still, CBO estimates that the lasting effects of the recession and slow recovery will depress labor force participation by 0.4 percentage points in 2024.

Employment

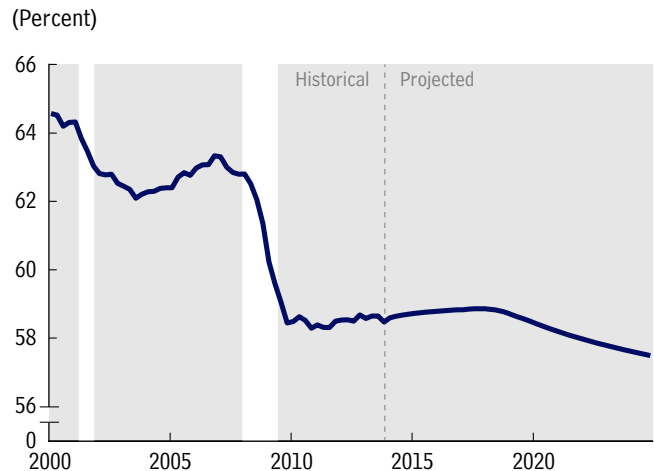
CBO's projections for the growth of employment during the next decade reflect the agency's projections of growth

23. As referred to in this report, the ACA comprises the Patient Protection and Affordable Care Act, the health care provisions of the Health Care and Education Reconciliation Act of 2010, and the effects of subsequent judicial decisions, statutory changes, and administrative actions.

24. For more information, see Congressional Budget Office, *The Budget and Economic Outlook: 2014 to 2024* (February 2014), Appendix C, www.cbo.gov/publication/45010.

Figure 12.

Historical and Projected Share of the Population That Is Employed



Sources: Congressional Budget Office; Bureau of Labor Statistics.

Notes: Data show the number of employed workers (as measured by the Current Population Survey) as a percentage of the civilian noninstitutionalized population age 16 or older.

Data are quarterly. Historical data are plotted through 2013; projections are plotted through 2024.

in the population and of the changes in the rate of labor force participation and the unemployment rate, described above.

Under current law, CBO expects, nonfarm employment will increase by about 7 million from the end of 2013 to the end of 2017. That gain reflects a recovery in the demand for goods and services that will boost both labor force participation and businesses' demand for labor as well as a gradual decline in the natural rate of unemployment as mismatches in the job market return to prerecession rates. Working in the opposite direction are demographic changes that will lower labor force participation. All told, CBO projects, the employment-to-population ratio will only edge upward, reaching 58.9 percent at the end of 2017—just 0.4 percentage points above the ratio at the end of 2013 and well below the peak of 63.3 percent reached at the end of 2006 and the beginning of 2007, before the recession (see Figure 12).

After 2017, the growth of employment slows somewhat more in CBO's projections, as demographic changes continue to push the labor force participation rate

downward. CBO anticipates that, under current law, the employment-to-population ratio will fall to 57.5 percent in 2024.

Uncertainty of Projections

CBO's labor market projections are subject to many sources of uncertainty. In keeping with its usual practices, CBO constructed its latest projections to lie within what it judges to be the middle of the distribution of possible outcomes, given the policies embodied in current law. Actual outcomes undoubtedly will differ from those projections in at least some respects.

One source of uncertainty regarding projections of the labor market concerns the growth in overall demand for goods and services. If demand increases more quickly or slowly than CBO projects, the labor market also will improve more quickly or slowly.

Another source of uncertainty derives from the natural rate of unemployment. If it is above CBO's estimates, future employment and output will tend to be lower, but if the natural rate is lower than CBO's estimates, future employment and output will tend to be higher.

A further source of uncertainty concerns the rate of labor force participation. One challenge in predicting that rate lies in interpreting how much of the decline in participation since 2007 will be reversed as labor market conditions improve. If more of the decline is permanent than CBO estimates, for example, employment will be lower in the long run than CBO projects. Another challenge lies in projecting the effect of the ACA on participation; if that legislation has more or less effect than CBO estimates, employment will differ in the long run from what CBO projects.

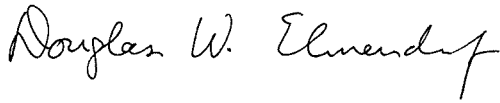
About This Document

Each year, the Congressional Budget Office (CBO) issues a series of reports on the state of the budget and the economy. This study provides background information that helps to explain the economic projections included in those reports. In keeping with CBO's mandate to provide objective, impartial analysis, this study makes no recommendations.

David Brauer and Charles Whalen of CBO's Macroeconomic Analysis Division prepared the study, with guidance from Robert Arnold, Kim Kowalewski, and Wendy Edelberg.

Christina Hawley Anthony, William Carrington, Devrim Demirel, Philip Ellis, Peter Fontaine, Daniel Fried, Joseph Kile, Mark Lasky, Joyce Manchester, Benjamin Page, Felix Reichling, Robert Shackleton, Emily Stern, David Weiner, and Christopher Williams—all of CBO—provided comments.

Alexander Arnon and Leah Loversky provided research assistance, Kate Kelly edited the report, and Maureen Costantino and Jeanine Rees prepared it for publication. An electronic version is available on CBO's Web site (www.cbo.gov/publication/45011).



Douglas W. Elmendorf
Director

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