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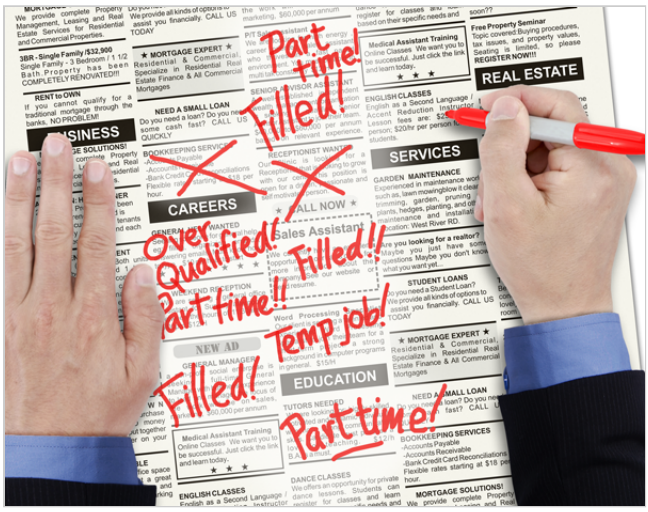
The increased supply of underutilized labor from 2006 to 2014

Four BLS measures of labor underutilization are used to analyze changes in the supply of labor from just before the 2007–2009 recession to June 2014; the results indicate that (1) the increase in the number of people marginally attached to the labor force over the period studied may have been due to either inadequate demand or structural factors but in either case had a small impact on the decline in the labor force participation rate and (2) the concomitant unprecedented increase in the number of long-term unemployed could result in structural unemployment if workers' skills erode because of their ongoing failure to find a job.



Gerald Mayer
gmayer1@comcast.net

Gerald Mayer is an analyst in labor policy at the Congressional Research Service, Library of Congress, Washington, DC.

The supply of labor and worker productivity are major sources of a nation's long-term growth in economic output. The supply of labor depends on the size of a country's population and the country's labor force participation rate.[1]

A country's population size can be affected by its fertility rate, life expectancy, and international migration. In 2012, the fertility rate in the United States was the lowest since data collection began in 1920.[2] But life expectancy at birth has been rising for a century or more, while the population has increased because of international migration.[3]

In the United States, the labor force participation rate for men has been falling for several decades. The participation rate for women increased for several decades until 1999, but has fallen since.

During a recession, a country's actual economic output typically falls below its long-term potential output; recovery from a recession generally brings the economy back to its potential output.[4] The recession that officially began in the United States in December 2007 and ended in June 2009 was the longest, and one of the deepest, since the Great Depression.[5] Because of a slow recovery, the unemployment rate was higher in mid-2014 than it was during the year before the recession, raising concerns about the effect of the recession and the subsequent slow recovery on long-term potential output.

Overview

This article uses four measures of labor underutilization from the U.S. Bureau of Labor Statistics (BLS) to analyze changes in the supply of labor from the years before the 2007–2009 recession to June 2014. The article characterizes people classified according to these four measures as the *supply of underutilized labor*.

Two of the four measures of labor underutilization encompass people who are not in the labor force. The article analyzes how changes in their number may have affected the labor force participation rate during and after the recession. The article also analyzes the main reasons for the increase in their number from the year before the recession to June 2014.

Finally, the article examines selected characteristics—including gender, age, education, and occupation—of the increased supply of underutilized labor.

Data

The data presented are from the monthly Current Population Survey (CPS), a household survey conducted by the U.S. Census Bureau for BLS. The CPS is the source of the monthly national unemployment rate and other labor market information.

The CPS asks those ages 15 and older about their activities during the survey reference week, which is generally the week that includes the 12th of the month. People are classified as either employed, unemployed, or not in the labor force.[6] People are classified as *employed* if they did at least 1 hour of work for pay, worked in their own business or profession, or worked 15 or more hours as an unpaid worker in a business operated by a member of the family, or if they were not working but had a job or business from which they were temporarily absent. People are classified as *unemployed* if they were not working, they actively looked for work, and they were available to work. People actively looked for work if they engaged in specific job search activities during the 4 weeks before they were interviewed. The *labor force* consists of the sum of those classified as either employed or unemployed.

Those who are neither employed nor unemployed are classified as *not in the labor force*. These people are asked if they want a job, if they are available to work, and if they looked for work at any time during the past year. If they want a job, they are asked why they did not look for work in the past 4 weeks. If they do not want a job, they are asked to describe their current situation. They may be retired, in school, taking care of family members, in poor health, or disabled.[7]

The data that are available to public users of the CPS may not be the same as the data used by BLS. To protect the confidentiality of those participating in the survey, the Census Bureau modifies (or “masks”) the age variable in the data that are available to public users.[8] As a result, some estimates produced by public users of the CPS may not match estimates published by BLS.

BLS measures of labor underutilization

BLS produces six measures of labor underutilization, called U-1 through U-6.[9] These measures include the official unemployment rate, as well as rates that incorporate people who are classified as either “marginally attached to the labor force” or “employed part time for economic reasons.”

This article analyzes changes in four of the BLS measures of labor underutilization: U-3 through U-6.[10] U-3 is the official unemployment rate: the number of people classified as unemployed, divided by the size of the civilian labor force.

U-4 and U-5 include those who are classified as "marginally attached to the labor force." These individuals are not in the labor force but want to work. They are available to work, and they looked for work sometime during the past year. They are not classified as unemployed because they did not actively look for work in the past 4 weeks.

BLS separates those who are marginally attached to the labor force into two subgroups. The first subgroup consists of "discouraged workers": people who give a *labor market* reason for not looking for work in the past 4 weeks. These individuals did not look for work because they believe that no job is available to them or they do not think that there are jobs in their occupation or where they live, or else they give another labor market reason for not looking for work. U-4 is the sum of discouraged and unemployed workers, divided by the sum of discouraged workers and the civilian labor force.

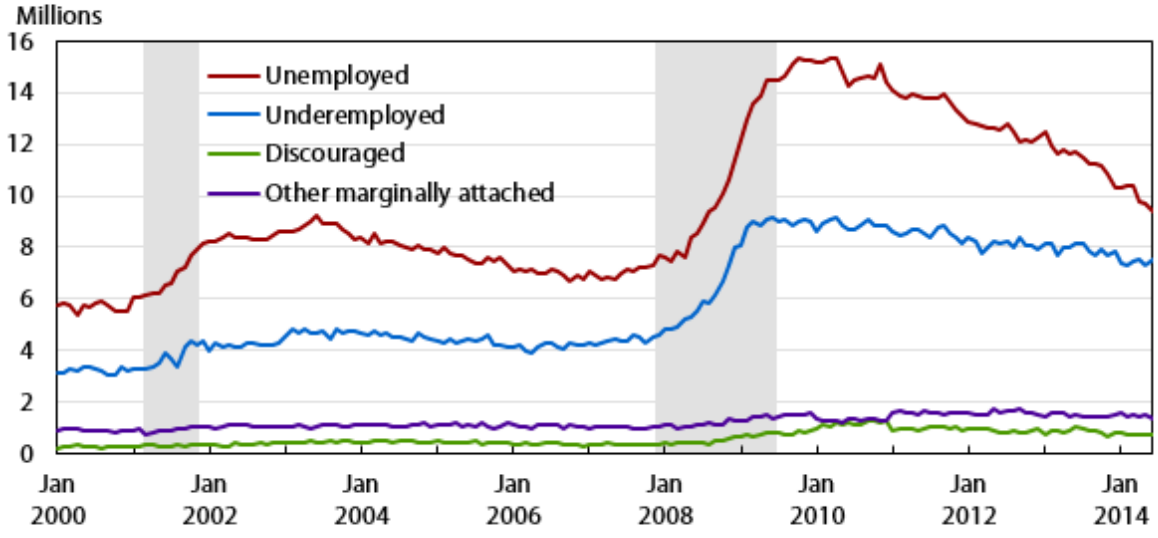
The second subgroup of those marginally attached to the labor force consists of "other" people who are so attached. These people give a *non–labor market* reason for not looking for work in the past 4 weeks. They may be in school or receiving training, they may be having difficulties finding childcare, or they give some other non–labor market reason for not looking for work. U-5 is the sum of people marginally attached to the labor force and unemployed workers, divided by the sum of people marginally attached to the labor force and the civilian labor force.

U-6 includes those who are working part time for economic reasons. These individuals worked fewer than 35 hours in the CPS reference week, but they want, and are available, to work full time. People in this group are often described as "underemployed" or as "involuntary part-time workers."[11] U-6 is the sum of those working part time for economic reasons, those marginally attached to the labor force, and unemployed workers, divided by the sum of those marginally attached to the labor force and the civilian labor force.

The preceding four measures of labor underutilization leave out many people who are not in the labor force.[12] Mainly, those who do not want a job are not included. Also, people who say that they want a job are not included if they are not available to work or they did not look for work in the past year. Like changes in the number of people marginally attached to the labor force, changes in the sizes of these groups may affect the labor force participation rate.

Sources of changes in the supply of underutilized labor

Figure 1. Number of unemployed, underemployed, discouraged workers, and "others" marginally attached to the labor force, 16 years and older, seasonally adjusted, January 2000–June 2014



Source: U.S. Bureau of Labor Statistics and U.S. Census Bureau, Current Population Survey.

Using the four BLS measures of labor underutilization described in the previous section, figure 1 shows the changes in the supply of underutilized labor from January 2000 to June 2014. Because the figure shows monthly data over a period of several years, the data are seasonally adjusted.[13]

During and after the 2007–2009 recession, among the four measures of labor underutilization, the largest sources of the increased supply of underutilized labor were the greater numbers of unemployed workers and underemployed workers. Thus, most of the increase in the supply of underutilized labor was among those who were in the labor force.

Labor market conditions have improved since the end of the recession. The largest improvement has been the decline in the number of unemployed workers. Nevertheless, for each of the four measures of labor underutilization, the supply of underutilized labor was higher during the year ending June 2014 than during the 12-month period immediately preceding the recession (i.e., the period from December 2006 through November 2007).

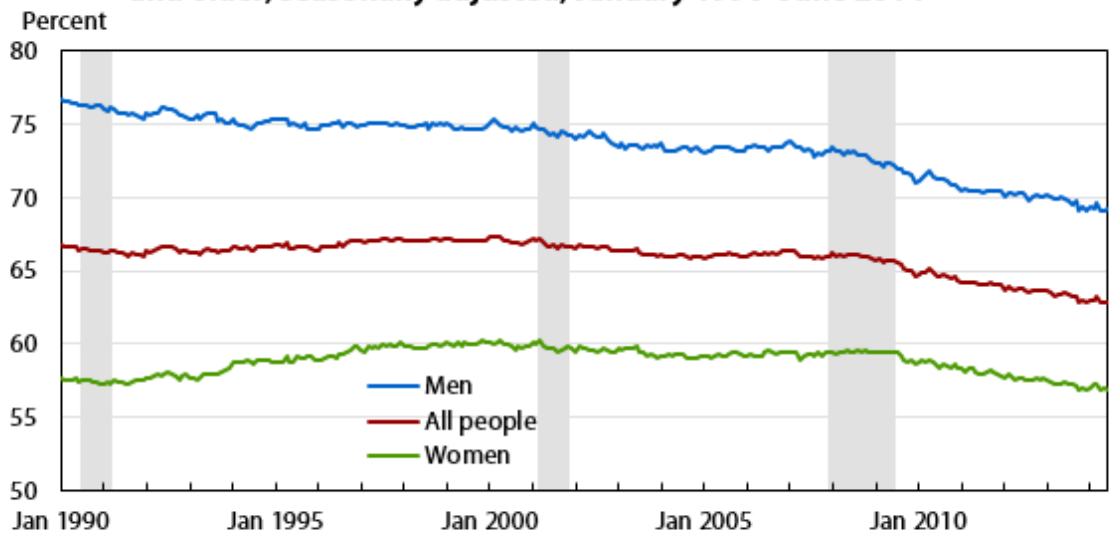
In the year ending June 2014, there were an estimated 3.5 million more unemployed workers than during the year before the recession. The number of underemployed workers was almost 3.3 million greater in the year ending June 2014 than during the year before the recession. As employment improved, the number of people working part time for economic reasons increased from 3.0 percent to 5.3 percent of the total number working.

For the year ending June 2014, there were an estimated 879,000 more people marginally attached to the labor force than during the year before the recession. About half (443,000) of the increase was due to a larger number of discouraged workers. The other half (436,000) was attributable to a greater number of "other" persons marginally attached to the labor force.

The marginally attached and the labor force participation rate

The labor force participation rate affects the supply of labor and, therefore, economic output. The U.S. participation rate may have changed because of longer term trends, such as the retirement of the baby-boom generation (the oldest of whom turned 65 in 2011). It may also have changed temporarily because of the 2007–2009 recession. If some workers permanently left the labor force because of the recession, their leaving may have altered the longer term trend in labor force participation.[14]

Figure 2. Labor force participation rate, all people, men, and women, 16 years and older, seasonally adjusted, January 1990–June 2014

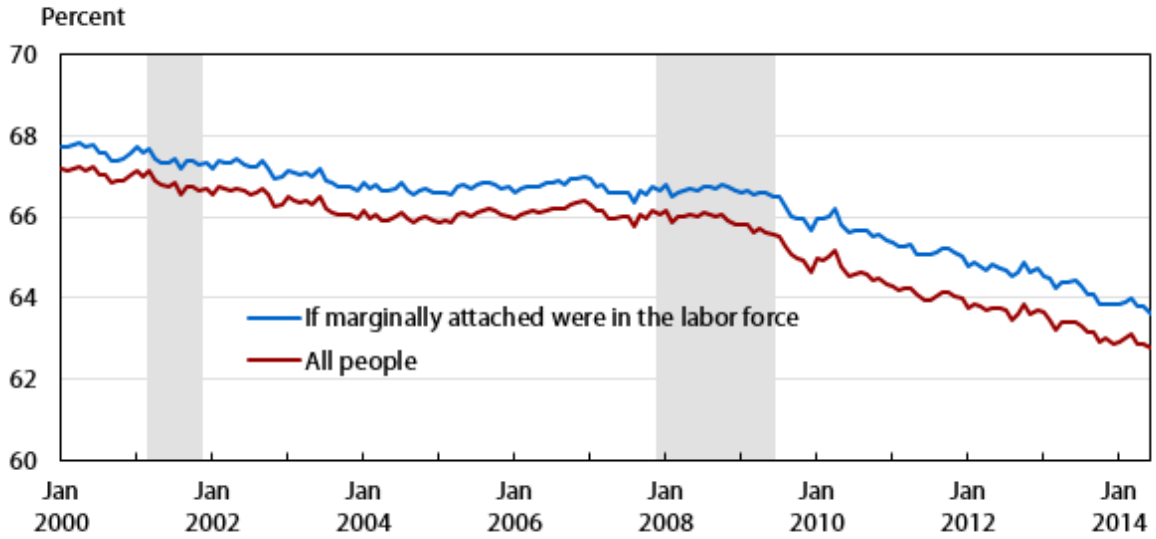


Source: *Labor force statistics from the Current Population Survey* (U.S. Bureau of Labor Statistics), http://stats.bls.gov/cps.

Figure 2 shows the monthly labor force participation rate for people ages 16 and older, as well as the separate participation rates for men and women. To indicate the change in the direction of the participation rate for women, the figure shows the monthly participation rates from January 1990 to June 2014.[15] The participation rate for men fell steadily over the period, while the rate for women increased until about 1999 but has fallen since.

The labor force participation rate fell during and after the 2007–2009 recession. From the year before the recession to the year ending June 2014, the rate declined by 3.1 percentage points. The rate for men dropped by 3.9 percentage points, while the rate for women decreased by 2.3 percentage points.

Figure 3. Labor force participation rate, all people and all those who, if classified as marginally attached, were in the labor force, 16 years and older, seasonally adjusted, January 2000–June 2014



Source: U.S. Bureau of Labor Statistics and U.S. Census Bureau, Current Population Survey.

One reason for the decline in the labor force participation rate was the increased number of people classified as marginally attached to the labor force. Figure 3 compares the observed labor force participation rate with what the rate might have been if those who were marginally attached to the labor force were, instead, in the labor force.

Figure 3 suggests that, during the year before the recession, the labor force participation rate might have been 0.6 percentage point higher if those who were marginally attached to the labor force were in the labor force. For the year ending June 2014, the participation rate might have been 0.9 percentage point higher. Thus, the increase in the number of people marginally attached to the labor force might account for about 0.3 point (or 10.4 percent, after rounding) of the 3.1-percentage-point drop in the labor force participation rate from the year before the recession to June 2014.[16]

If the increase in the number of persons marginally attached to the labor force can account for only one-tenth of the drop in the labor force participation rate, then most of the decline was likely due to other factors, such as the aging of the population or people who left or did not enter the labor force but were not classified as marginally attached to it.[17] If not for the decline in the labor force participation rate for these other reasons, the increase in the supply of underutilized labor may have been greater. More people may have taken part-time jobs even though they wanted to work full time, and more people may have been classified as marginally attached to the labor force.

Why the marginally attached do not look for work

The CPS asks respondents who are marginally attached to the labor force to give the main reason they did not actively look for work during the 4 weeks before the survey. Again, if these people had actively looked for work and they were available to work, they would have been classified as unemployed.

Table 1 shows the main reasons that people who were marginally attached to the labor force did not actively look for work in the 4 weeks prior to the survey. The table also shows the main reasons the two subgroups of the marginally attached—discouraged workers and “other” persons marginally attached to the labor force—did not look

for work. The table compares monthly averages between two 12-month periods: the 12 months before the start of the 2007–2009 recession and the 12 months ending June 2014. The reason for using 12-month averages is to minimize the effects of month-to-month changes in estimates from the survey.

Table 1. Main reason that those 16 years and older marginally attached to the labor force did not actively look for work: change from the 12-month period before the 2007–2009 recession to the 12-month period ending June 2014, not seasonally adjusted (numbers in thousands)

Main reason	12-month period before the recession	12-month period ending June 2014	Change	Distribution of change (percent)
Total marginally attached	1,124	1,894	770	100.0
Believes no work available in occupation or area	82	218	137	17.8
Could not find any work	226	504	278	36.1
Lacks necessary schooling or training	31	40	9	1.2
Cannot arrange childcare	17	35	18	2.3
Family responsibilities	162	228	66	8.6
In school or other training	177	265	88	11.4
Poor health or physical disability	117	149	32	4.2
Transportation problems	46	57	11	1.4
Other	267	398	131	17.0
Total discouraged workers	362	804	442	100.0
Believes no work available in occupation or area	82	218	137	31.0
Could not find any work	226	504	278	63.0
Lacks necessary schooling or training	31	40	9	2.1
Other	24	41	17	4.0
Total others marginally attached to labor force	762	1,090	328	100.0
Cannot arrange childcare	17	35	18	5.4
Family responsibilities	162	228	66	20.2
In school or other training	177	265	88	26.7
Poor health or physical disability	117	149	32	9.8
Transportation problems	46	57	11	3.3
Other	243	357	113	34.6

Note: Details may not sum to totals because of rounding. For some persons classified as marginally attached to the labor force, information is not available on the main reason that they did not look for work in the past 4 weeks.

Source: U.S. Bureau of Labor Statistics and U.S. Census Bureau, Current Population Survey.

The data shown in table 1 are not seasonally adjusted and may not match the seasonally adjusted data discussed up to now.[18]

Following are the main reasons given by those classified as marginally attached to the labor force for why they did not actively look for work in the past 4 weeks:

- They could not find work (about 278,000, or 36.1 percent of the total), or they believed that there was no work available in their occupation or where they lived (about 137,000, or 17.8 percent of the total).

- They were in school or receiving other training (about 88,000, or 11.4 percent of the total).
- They had family responsibilities (about 66,000, or 8.6 percent of the total).
- They were in poor health or had a disability (about 32,000, or 4.2 percent of the total).

Discouraged workers

Discouraged workers are marginally attached to the labor force and give a labor market reason for not actively looking for work in the past 4 weeks. Table 1 shows that the number of discouraged workers increased by an estimated 442,000 from the year before the 2007–2009 recession to the year ending June 2014. The most important reason discouraged workers gave for not actively looking for work was that they could not find work (278,000, or 63.0 percent of the total). The second most important reason given was that they did not believe that there was work available in their occupation or where they lived (137,000, or 31.0 percent of the total). As employment continues to improve, these individuals may enter or reenter the labor force and find work. Even with greater demand for labor, however, they may not have the skills for the job vacancies that employers want to fill.

Others who are marginally attached

"Others" who are marginally attached to the labor force give a non–labor-market reason for not actively looking for work. From the year before the 2007–2009 recession to the year ending June 2014, the number of people in this group increased by an estimated 328,000. The main reason these individuals gave for not actively looking for work was that they were in school or receiving other training (88,000, or 26.7 percent of the total). Thus, the recession may have caused some people to improve their job skills by staying in school, returning to school, or participating in a job-training program.

The other reasons for not actively looking for work given by "other" people who are marginally attached to the labor force included family responsibilities (66,000, or 20.2 percent of the total) and poor health or physical disability (32,000, or 9.8 percent of the total).[19] Undoubtedly, these reasons also contributed to the increase in the number of individuals marginally attached to the labor force.

With greater demand for labor, "others" who are marginally attached to the labor force may enter or reenter the labor market and subsequently find work. But, again, the job prospects for some may depend on whether they have the requisite skills or whether they live where there are jobs available.

Demographic and social characteristics of the underutilized

To further understand changes in the U.S. labor market before and after the 2007–2009 recession, this section examines selected characteristics of the increased supply of underutilized labor. The increased supply of underutilized labor is compared with employment before the recession, by characteristic. The comparisons are between the 12-month period before the recession and the 12-month period ending June 2014—between the shares of employment in the year before the recession and the shares of the increased supply of underutilized labor. The comparisons provide information on changes in the labor force participation rate among different groups.

The data discussed in this section are shown in appendix tables A-1 and A-2. The data are not seasonally adjusted and may not match seasonally adjusted data analyzed earlier in the discussion.

Gender."From the year before the 2007-2009 recession to the year ending June 2014, men accounted for all of the decline in employment. But men did not account for a similar share of the increased supply of underutilized labor. The labor force participation rate fell by 3.9 percentage points among men and 2.2 percentage points among women. This difference suggests that more men than women left the labor force (and were not classified as marginally attached to the labor force).

During the period in question, the number of men employed fell by an estimated 1.4 million while the number of women employed increased by approximately 360,000.

Although men accounted for all of the reduction in employment, they were 55.4 percent of the estimated 3.5 million increase in the number of unemployed workers.[20] Men were 44.2 percent of the increased number of underemployed. Thus, women made up a majority (55.8 percent) of the almost 3.3 million increase in the number of people working part time for economic reasons.

Men accounted for 57.3 percent of the estimated 442,000 increase in the number of discouraged workers and 46.7 percent of the approximately 438,000 increase in "other" persons marginally attached to the labor force.

Age. From the year before the recession to the year ending June 2014, employment fell among younger workers (ages 16 to 24) but increased among older workers (ages 55 and older). Nevertheless, both younger and older workers accounted for disproportionate shares of the increased supply of underutilized labor. The labor force participation rate fell by 4.7 percentage points among younger people, but rose by 1.5 percentage points among older people. Because of the recession, participation rates for all age groups may have been lower in 2014 than they would have been otherwise. Younger people may have delayed their entry into the labor force, while older people may have left the labor force. Younger people who stayed in or returned to school because of the recession may become more productive and improve the participation rate when they enter the labor force. Older people who lost their jobs because of the recession may have retired earlier than they would have otherwise, a factor that may have lowered the participation rate in the short run.[21]

From the year before the recession to June 2014, employment fell by almost 1.9 million among younger workers but increased by almost 6.2 million among older workers.

In the year before the recession, younger workers were an estimated 13.7 percent of those with jobs. But they made up 20.6 percent of the increased number of unemployed workers and 23.7 percent of the greater number of people working part time for economic reasons. At the same time, they accounted for 22.9 percent of the increase in the number of people marginally attached to the labor force.

In the year before the recession, older workers accounted for 17.6 percent of those employed. But they represented 22.8 percent of the increased number of unemployed, 21.1 percent of the greater number of underemployed, and 31.3 percent of the larger number of people marginally attached to the labor force.

Education. From the year before the recession to the year ending June 2014, employment fell among those with a high school education or less but increased among those with a bachelor's degree or higher. However, high school graduates and those with an associate's degree or some college accounted for disproportionate shares of the increased supply of underutilized labor. The labor force participation rate fell by 4.8 percentage points for people

with less than a high school education, 4.4 points among those with a high school degree, and 4.7 points among people with an associate's degree or some college. The participation rates for these groups may have fallen because some people stayed in school and delayed their entry into the labor force. Others may have left the labor force to return to school or receive other training. Some of those who left the labor force may not have returned.

From the year before the recession to June 2014, employment fell by almost 3.5 million among people with less than a high school education and by almost 3.6 million among people with a high school degree only. In contrast, employment increased by almost 2.7 million among those with a bachelor's degree and by more than 2.6 million among those with an advanced or professional degree.

In the year before the recession, high school graduates accounted for 29.3 percent of the employed, but they made up 33.1 percent of the increased number of unemployed and 32.9 percent of the increased number of underemployed. They also made up 39.1 percent of the increased number of discouraged workers (but a statistically insignificant 27.4 percent of the increased number of "other" persons marginally attached to the labor force).

Individuals with an associate's degree or some college accounted for 28.6 percent of the total number of employed persons before the recession, but they made up 36.8 percent of the increased number of unemployed and 36.1 percent of the greater number of underemployed. They also accounted for 38.7 percent of the increased number of "other" persons marginally attached to the labor force (but a statistically insignificant 29.2 percent of the higher number of discouraged workers).

Unlike those with a high school education, people with less than a high school education were underrepresented in the increased number of unemployed and underemployed. People with less than a high school education were 11.1 percent of the employed before the recession, but only 4.6 percent of the increased number of unemployed and 8.4 percent of the increased number of underemployed. These individuals were a statistically insignificant 12.0 percent of the increased number of people marginally attached to the labor force.

Marital status. From the year before the recession to the year ending June 2014, employment fell among married people but increased among those who had never been married. However, the never married were overrepresented in each of the four measures of labor underutilization. To some extent, changes in labor force status by marital status may be related to age and education. For some, the recession may have delayed marriage.

From the year before the recession to June 2014, employment fell by almost 3.6 million among married people but increased by almost 2.7 million among those who had never been married.

In the year before the recession, the never married made up 27.7 percent of jobholders. But they accounted for 53.2 percent of the increased number of unemployed, 52.6 percent of the greater number of underemployed, 47.4 percent of the higher number of discouraged workers, and 52.0 of the increase in "others" marginally attached to the labor force.

People who were widowed, divorced, or separated were 14.6 percent of the employed before the recession. They were overrepresented in the increased supply of underemployed people (15.9 percent) and the greater number of

marginally attached individuals (17.2 percent). But they were a statistically insignificant 14.0 percent of the increased number of unemployed.

Both age and educational attainment may be related to marital status. Married people and individuals who are widowed, divorced, or separated tend to be older than those who have never been married.[22] On average, married people have more years of education.[23]

Marital status may also be related to both education and family income. People with more education generally earn more than those with less education. Among married couples, there is a positive correlation between the educational attainment of husbands and wives.[24] Research also indicates that low-income men and women are less likely to marry than those with higher incomes.[25] Thus, being unemployed, underemployed, or outside the labor force may affect family income and act as a barrier to marriage.

Race and Hispanic origin. From the year before the recession to June 2014, employment increased among African Americans and Hispanics. Nevertheless, both groups were overrepresented in each of the four measures of labor underutilization.[26] Those who lost jobs may not have found new jobs or may have left the labor force. Some may be working part time but want full-time jobs. Likewise, some who have only recently entered or reentered the labor force may not have found full-time work.

Among African Americans, employment increased by an estimated 307,000. However, in the year before the recession, African Americans accounted for 11.0 percent of the employed but made up 23.5 percent of the increased number of unemployed, 17.0 percent of the greater number of underemployed, 22.8 percent of the higher number of discouraged workers, and 17.5 percent of the increased number of “other” persons marginally attached to the labor force.

Employment increased by almost 2.6 million among Hispanics. Before the recession, however, Hispanics accounted for 13.9 percent of the employed but made up 25.9 percent of the increased number of unemployed, 27.1 percent of the higher number of underemployed, 21.2 percent of the greater number of discouraged workers, and 28.9 percent of the increased number of “other” persons marginally attached to the labor force.

Occupation and industry of the underutilized

The CPS collects information on the occupation and industry of those who are currently employed.[27] For people who are unemployed, the CPS collects information on their last job. For those who are marginally attached to the labor force, the CPS collects information on the occupation and industry of their last job, provided that they worked at some time during the past year.[28]

CPS data are insufficient regarding the occupation and industry of those who are marginally attached to the labor force. Thus, this section examines changes in the number of employed, unemployed, and underemployed, by occupation and industry, from the year before the recession to the year ending June 2014. Because occupation and industry are not population characteristics, labor force participation rates are not calculated.

In what follows, the broad industry of educational and health services is divided into three subindustries: health services, educational services, and social assistance.[29] The data discussed are shown in appendix table A-2.

Occupation. From the 12-month period before the recession to the 12-month period ending June 2014, changes in employment by occupation did not always match the changes in the supply of underutilized labor. Some who lost jobs in one occupation may have found jobs in other occupations or may have left the labor force (and were not classified as marginally attached to the labor force). In some occupations in which employment grew, a majority of the increase was due to a greater number of people working part time for economic reasons.

From the year before the 2007–2009 recession to June 2014, the number of people employed in professional and related occupations increased by almost 2.3 million while the number employed in construction and extraction occupations fell by almost 2.2 million.[30] Both occupations were underrepresented in the increased supply of underutilized workers, probably for different reasons.

In the year before the recession, employment in professional and related occupations accounted for 20.6 percent of total employment. But employment in these occupations accounted for 15.2 percent of the increased number of unemployed and 14.3 percent of the increased number of underemployed. Slightly more than half (51.2 percent) of the increase in employment in professional and related occupations was due to a greater number of underemployed.

Employment in construction and extraction occupations accounted for 6.6 percent of total employment in the year before the recession but made up 4.7 percent of the increased number of unemployed and just 0.6 percent of the higher number of underemployed. In part, the differences between professional and related occupations, on the one hand, and construction and extraction occupations, on the other, may be related to education. On average, people in professional and related occupations have more years of education than individuals in construction and extraction occupations.[31] The unemployment rate is generally lower among those with a bachelor's degree or higher. Some who lost jobs in construction and extraction occupations may have found other jobs or left the labor force. Also, some who could not find work may have emigrated.[32]

Employment in service occupations increased by almost 1.8 million from the year before the recession to the year ending June 2014.[33] But, unlike professional and related occupations, which were underrepresented in the increased number of unemployed and underemployed, service occupations were overrepresented in the increased supply of underutilized labor. Service occupations accounted for 16.5 percent of employed people before the recession, but made up 23.4 percent of the increased number of unemployed and 40.1 percent of the greater number of underemployed. Moreover, the increased number of service workers employed part time for economic reasons accounted for 65.6 percent of the increased supply of underutilized labor (1.3 million out of a total increase of 2.0 million).

The pattern of employment in production occupations was similar to that of construction and extraction occupations.[34] Employment in production occupations fell by approximately 1.0 million from the year before the recession to the year ending June 2014. Production occupations accounted 6.4 percent of employment before the recession, but they made up 2.2 percent of the increased number of underemployed and a statistically insignificant 5.3 percent of the greater number of unemployed.

The pattern of employment in management, business, and financial occupations was similar to that of professional and related occupations:[35] employment increased by an estimated 1.3 million from the year before the recession

to the year ending June 2014, but the occupations were underrepresented in the increased numbers of unemployed and underemployed.

Employment in office and administrative support occupations fell by almost 1.8 million from the year before the recession to the year ending June 2014.[36] The number of people employed in these occupations accounted for 13.3 percent of all employed individuals before the recession, but the occupations were overrepresented in the increased number of unemployed (14.3 percent). However, they were underrepresented among the increased number of underemployed (11.9 percent). Finally, employment in sales and related occupations fell by almost 1.1 million.[37]Although people employed in these occupations accounted for 11.5 percent of employment in the year before the recession, they were overrepresented in the increased number of underemployed (16.4 percent). In contrast, they accounted for a statistically insignificant 11.8 percent of the increased number of unemployed. Three-fifths (60.8 percent) of the increase in employment in sales and related occupations was due to a larger number of persons working part time for economic reasons.

Industry. An industry consists of multiple occupations. As with occupations, changes in employment by industry did not always match changes in the supply of underutilized labor.

From the year before the 2007–2009 recession to June 2014, employment fell significantly in three industries: construction, manufacturing, and wholesale and retail trades. The number employed in the construction industry fell by more than 2.3 million, and employment in manufacturing industries dropped by 1.2 million. Nevertheless, both industries were underrepresented in the increased numbers of unemployed and underemployed workers. Employment fell by more than 1.0 million in wholesale and retail trades, and the industry was overrepresented among the increased number of underemployed.

Before the recession, the construction industry accounted for 8.2 percent of total employment. But it made up 4.6 percent of the increased number of unemployed and 1.9 percent of the greater number of underemployed. Manufacturing accounted for 11.1 percent of total employment before the recession but made up a lesser 7.3 percent of the higher number of unemployed and just 1.9 percent of the increased number of underemployed.

Employment in wholesale and retail trades accounted for 14.4 percent of employment before the recession. Although the industry made up 24.4 percent of the greater number of underemployed, it accounted for a statistically insignificant 14.8 percent of the increased number of unemployed.

Despite significant increases in employment, two industries accounted for disproportionate shares of the increased supply of underutilized labor. First, in the professional and business services industries, employment increased by almost 1.3 million. These industries accounted for 10.7 percent of employment before the recession, but they made up 17.7 percent of an estimated 2.9 million increase in the number of unemployed workers and 11.9 percent of the approximately 3.3 million increase in the number of underemployed. Second, the number employed in the leisure and hospitality industries rose by almost 1.1 million. In the year before the recession, these industries accounted for 8.5 of all those with jobs. But they made up 13.3 percent of the increased number of unemployed and 23.7 percent of the greater number of underemployed. The supply of underutilized labor in leisure and hospitality increased by more than 1.1 million. Most of the increase (773,000, or 66.5 percent) was the result of a larger number of people working part time for economic reasons.

Finally, employment in the health services industry increased by almost 1.9 million. The industry accounted for 10.0 percent of employment before the recession. But it was overrepresented in the increase in underemployment (11.0 percent) and underrepresented in the increase in unemployment (9.3 percent).

Changes in the U.S. labor market

On the basis of the four BLS measures of labor underutilization discussed in this article, the supply of underutilized labor increased during and after the 2007–2009 recession. The numbers have fallen since, but still, by each measure, the supply of underutilized labor was greater in the year ending June 2014 than during the year before the recession.

The supply of underutilized labor may have been higher in 2013 if not for the decline in the labor force participation rate. Part of the decline may have been a continuation of longer term trends. The recession may have caused a temporary decline in the rate, but it may also have altered the longer term trend in labor force participation. For example, the number of applications and awards for Social Security Disability Insurance (SSDI) increased during and after the recession.[38] Most of those who receive SSDI benefits are not expected to reenter the labor force.[39] Some long-term unemployed may have permanently left the labor force. According to CBO, the recession and the subsequent slow recovery may have reduced both the longer term supply of labor and potential economic output.[40] CBO projects that, if that is so, then the labor force participation rate in 2017 will be 0.4 point lower than it would have been otherwise.[41]

Types of unemployment

This section briefly discusses how changes in the U.S. labor market may have affected the different types of unemployment. The section does not consider the fall in the labor force participation rate of any of the groups discussed, except for those marginally attached to the labor force.

Economists have identified different types of unemployment: cyclical, structural, and frictional. Cyclical unemployment generally occurs when there is insufficient demand for labor. Structural unemployment usually occurs when there is a mismatch between the skills or location of unemployed workers and the skills required by, or location of, available jobs. Frictional unemployment occurs when people are between jobs or when those who have entered or reentered the labor force have not yet found work.[42] This section considers cyclical and structural unemployment only.[43]

Estimates of the type of unemployment. Most economists attributed a majority of the increase in unemployment during and after the 2007–2009 recession to inadequate demand. However, as the national unemployment rate began to fall, some economists began to attribute more of the increase in unemployment to structural factors. For example, in a February 2012 report, CBO estimated that, in December 2011 (4 years after the start of the recession), 2.5 points of the 3.5-percentage-point increase in the unemployment rate were due to inadequate demand. Another 0.75 point was due to structural factors. CBO attributed the remaining one-quarter–point increase in unemployment to the effects of incentives from the extension of unemployment benefits.[44]

Five years after the start of the recession, CBO estimated that 1.0 point of the 2.8-percentage-point increase in the unemployment rate from December 2007 to December 2012 was due to structural factors.[45] A year later, CBO

estimated that, of the approximately 2.0-percentage-point increase in the unemployment rate from the end of 2007 to the end of 2013, 1.0 point was due to inadequate demand and 1.0 point was due to structural unemployment.[46]

People employed part-time for economic reasons. Some of the increase in the number of underemployed during and after the recession may have been due to inadequate demand. From the 12-month period before the recession to the year ending June 2014, the number of underemployed increased by an estimated 3.6 million. For two reasons, much of this increase may have been due to inadequate demand. First, the number of underemployed increased at the same time as the rise in the number of unemployed. (See figure 1.) Second, even though some people are working part time, they presumably have the skills for the jobs they hold. That is, there is no mismatch between their skills and their jobs. As demand for labor continues to increase, however, the skills of some of the underemployed or the locations in which they work may not match the skills or locations of openings for full-time jobs.

The marginally attached. The increase in the number of people marginally attached to the labor force may have been due to either inadequate demand or structural factors. Most discouraged workers (63.0 percent) said that they were not actively looking for work because they could not find work earlier. Another 31.0 percent said that they believed that there was no work available in their occupation or in the location where they lived. Among "others" marginally attached to the labor force, 26.7 percent said that they were not actively looking for work because they were in school or they were receiving other training. Another 20.2 percent said that they were not in the labor force because of family responsibilities. (See table 1.) With a greater demand for labor, those who are marginally attached to the labor force may enter or reenter the labor market. Many, if not most, of them may find work. But even with an increase in the demand for labor, some individuals may not find jobs that match their skills or may not live where employers are hiring.

The long-term unemployed. One of the features of the 2007–2009 recession was the unprecedented increase in the number of long-term unemployed. From the year before the recession to the year ending June 2014, the number of unemployed who had been out of work for 27 or more weeks increased from 1.2 million (17.5 percent of all unemployed) to 3.8 million (36.1 percent of all unemployed). The number of people who had been looking for work for 2 or more years rose from 0.2 million (3.2 percent of all unemployed) to 1.3 million (12.2 percent of all unemployed).[47]

Long-term unemployment may result in structural unemployment if workers' skills erode. In addition, it may become more difficult for the long-term unemployed to find work if employers prefer to hire workers who are currently employed or who are only recently unemployed.[48] An increase in the demand for labor may reduce the number of long-term unemployed.[49] But some long-term unemployed may lack the skills that employers want, or they do not live where there are jobs available. Long-term unemployment may cause some of the long-term unemployed to leave the labor force, lowering the labor force participation rate.

Appendix: data

Appendix table A-1. Social and demographic characteristics: change from the 12-month period before the 2007–2009 recession to the 12-month period ending June 2014, not seasonally adjusted (numbers in thousands)

Characteristic	Percentage-point change in the labor force participation rate	Employed		Unemployed		Underemployed		Total marginally attached		Marginally attached			
										Discouraged workers		Others who are marginally attached	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Gender:													
Total	-3.1	-1,056	100.0	3,509	100.0	3,264	100.0	880	100.0	442	100.0	438	100.0
Men	-3.9	-1,416	134.1	1,943	55.4	1,443	44.2	458	52.0	253	57.3	205	46.7
Women	-2.2	360	-34.1	1,566	44.6	1,821	55.8	422	48.0	189	42.7	233	53.3
Age:													
Total	-3.1	-1,056	100.0	3,509	100.0	3,264	100.0	880	100.0	442	100.0	438	100.0
16–24	-4.7	-1,690	160.0	724	20.6	775	23.7	201	22.9	92	20.8	109	25.0
25–34	-2.2	15	-1.4	855	24.4	794	24.3	161	18.3	76	17.1	85	19.4
35–44	-1.5	-3,506	332.0	502	14.3	421	12.9	115	13.1	63	14.4	52	11.9
45–54	-2.4	-2,073	196.4	630	18.0	583	17.9	127	14.4	75	17.1	51	11.7
55–64	.3	3,957	-374.7	589	16.8	536	16.4	164	18.6	87	19.6	77	17.6
65 and older	2.6	2,242	-212.3	209	6.0	154	4.7	112	12.7	49	11.1	63	14.4
Marital status:													
Total	-3.1	-1,056	100.0	3,509	100.0	3,264	100.0	880	100.0	442	100.0	438	100.0
Married	-2.8	-3,574	338.5	1,151	32.8	1,028	31.5	291	33.1	154	34.8	137	31.4
Widowed, divorced, or separated	-3.4	-171	16.2	492	14.0	520	15.9	151	17.2	79	17.8	73	16.6
Never married	-3.0	2,689	-254.7	1,866	53.2	1,715	52.6	437	49.7	210	47.4	228	52.0
Education:													
Total	-3.1	-1,056	100.0	3,509	100.0	3,264	100.0	880	100.0	442	100.0	438	100.0
Less than high school	-4.8	-3,499	331.3	162	4.6	273	8.4	105	12.0	56	12.6	50	11.4
High school graduate	-4.4	-3,567	337.8	1,161	33.1	1,072	32.9	293	33.3	173	39.1	120	27.4

See footnotes at end of table.

Appendix table A-1. Social and demographic characteristics: change from the 12-month period before the 2007–2009 recession to the 12-month period ending June 2014, not seasonally adjusted (numbers in thousands)

Characteristic	Percentage-point change in the labor force participation rate	Employed		Unemployed		Underemployed		Total marginally attached		Marginally attached			
										Discouraged workers		Others who are marginally attached	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Associate's degree or some college	-4.7	709	-67.2	1,291	36.8	1,178	36.1	299	33.9	129	29.2	169	38.7
Bachelor's degree	-2.4	2,687	-254.5	632	18.0	545	16.7	124	14.1	61	13.9	63	14.3
Advanced or professional degree	-2.9	2,614	-247.5	262	7.5	195	6.0	59	6.7	23	5.2	36	8.3
Race:													
Total	-3.1	-1,056	100.0	3,509	100.0	3,264	100.0	880	100.0	442	100.0	438	100.0
White	-3.1	-3,758	355.9	2,176	62.0	2,344	71.8	575	65.4	293	66.3	282	64.4
African American	-2.9	307	-29.1	824	23.5	555	17.0	177	20.1	101	22.8	77	17.5
Other	-2.6	2,396	-226.9	509	14.5	364	11.2	127	14.5	48	10.9	79	18.1
Hispanic origin:													
Total	-3.1	-1,056	100.0	3,509	100.0	3,264	100.0	880	100.0	442	100.0	438	100.0
Non-Hispanic	-3.2	-3,652	345.9	2,601	74.1	2,378	72.9	660	75.0	348	78.8	312	71.1
Hispanic	-2.9	2,596	-245.9	908	25.9	885	27.1	220	25.0	94	21.2	126	28.9

Source: U.S. Bureau of Labor Statistics and U.S. Census Bureau, Current Population Survey.

Appendix table A-2. Occupation and industry: changes from the 12-month period before the 2007–2009 recession to the 12-month period ending June 2014, not seasonally adjusted (numbers in thousands)

Occupation or industry	Employed		Unemployed		Working part time for economic reasons	
	Number	Percent	Number	Percent	Number	Percent
Occupation:						
Total	-1,056	100.0	2,927	100.0	3,264	100.0
Management, business, and financial occupations	1,256	-118.9	360	12.3	166	5.1
Professional and related occupations	2,268	-214.8	446	15.2	468	14.3
Service occupations	1,780	-168.6	685	23.4	1,308	40.1
Sales and related occupations	-1,059	100.3	344	11.8	534	16.4
Office and administrative support occupations	-1,790	169.5	420	14.3	389	11.9
Farming, fishing, and forestry occupations	44	-4.1	37	1.3	29	.9
Construction and extraction occupations	-2,191	207.5	139	4.7	20	.6
Installation, maintenance, and repair occupations	-346	32.8	68	2.3	59	1.8
Production occupations	-1,013	95.9	154	5.3	70	2.2
Transportation and material-moving occupations	-4	.4	274	9.4	219	6.7
Industry:						
Total	-1,056	100.0	2,927	100.0	3,264	100.0
Agriculture, forestry, fishing, and hunting	62	-5.9	66	2.3	26	.8
Mining	323	-30.6	32	1.1	7	.2
Construction	-2,334	221.1	133	4.6	63	1.9
Manufacturing	-1,213	114.8	215	7.3	61	1.9
Wholesale and retail trade	-1,034	97.9	432	14.8	797	24.4
Transportation and utilities	-179	16.9	180	6.2	101	3.1
Information	-531	50.3	66	2.2	40	1.2
Financial activities	-643	60.8	133	4.5	57	1.7
Professional and business services	1,292	-122.3	518	17.7	388	11.9
Social assistance	-75	7.1	83	2.8	87	2.7
Leisure and hospitality	1,067	-101.1	389	13.3	773	23.7
Other services	162	-15.3	173	5.9	219	6.7
Public administration	-57	5.4	82	2.8	61	1.9
Education	215	-20.3	153	5.2	225	6.9
Health services	1,889	-178.9	271	9.3	360	11.0

Source: U.S. Bureau of Labor Statistics and U.S. Census Bureau, Current Population Survey.

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NOTES

[1] The labor force participation rate is defined as the labor force as a percentage of the civilian noninstitutional population. (See *Labor force statistics from the Current Population Survey* (U.S. Bureau of Labor Statistics, September 5, 2014), http://stats.bls.gov/cps.)

[2] In 2012, the U.S. fertility rate was 63.0 births per 1,000 women ages 15 to 44. (See Joyce A. Martin, Brady E. Hamilton, Michelle J. K. Osterman, Sally C. Curtin, and T. J. Mathews, *Births: final data for 2012* (U.S. Department of Health and Human Services, National Center for Health Statistics, December 30, 2013), p. 1 and figure 2, http://www.cdc.gov/nchs/data/nvsr/nvsr62/nvsr62_09.pdf#table01.)

[3] Elizabeth Arias, "United States life tables, 2009," *National Vital Statistics reports*, vol. 62, no. 7 (U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System, January 6, 2014), table 21, http://www.cdc.gov/nchs/data/nvsr/nvsr62/nvsr62_07.pdf; Irene B. Taeuber and Conrad Taeuber, *People of the United States in the 20th century* (U.S. Census Bureau, 1971), pp. 95–96; and "Components of population change," *Statistical abstract of the United States* (U.S. Census Bureau, various years), https://www.census.gov/library/publications/time-series/statistical_abstracts.html.

[4] *CBO's method for estimating potential output: an update* (U.S. Congressional Budget Office, August 2001), p. 1, http://www.cbo.gov/publication/13250.

[5] *U.S. business cycle expansions and contractions* (National Bureau of Economic Research), http://www.nber.org/cycles/cyclesmain.html.

[6] *Current Population Survey: design and methodology*, Technical Paper 66 (U.S. Bureau of Labor Statistics and U.S. Census Bureau, October 2006), p. 5-2, https://www.census.gov/prod/2006pubs/tp-66.pdf.

[7] *Current Population Survey interviewing manual* (U.S. Census Bureau, June 2013), pp. C4-3, C4-5, C4-14, C4-23 to C4-26, C4-29 to C4-32, https://www.census.gov/prod/techdoc/cps/CPS_Manual_June2013.pdf.

[8] *Analysis of perturbed and unperturbed age estimates: 2008* (U.S. Census Bureau), https://www.census.gov/cps/user_note_age_estimates.html.

[9] BLS began to produce its current measures of labor underutilization in 1994. These measures replaced other measures of labor underutilization that had been in use since 1976. (See Steven E. Haugen, *Measures of labor underutilization from the Current Population Survey*, BLS Working Paper 424 (U.S. Bureau of Labor Statistics, March 2009), p. 4, www.bls.gov/osmr/research-papers/2009/pdf/ec090020.pdf.)

[10] U-1 measures the number of people who have been unemployed for 15 or more weeks. U-2 measures the number of job losers and those who completed temporary jobs. Both are expressed as a percentage of the civilian labor force. (Ibid., p. 9.)

[11] In this article, the term "underemployed" means "working part time involuntarily" or "working part time for economic reasons." That is, the underemployed are either involuntary part-time workers or those working part time for economic reasons.

[12] Some researchers use a measure of labor supply that is broader than U-6. One such measure includes those who are not in the labor force but who want a job. However, these people are not classified as marginally attached to the labor force because they either did not look for work in the past year or are not available to work. (See Andrew Sum and Ishwar Khatiwada, "The Nation's underemployed in the 'Great Recession' of 2007–09," *Monthly Labor Review*, November 2010, pp. 3–15, especially p. 4, https://www.bls.gov/opub/mlr/2010/11/art1full.pdf; and *Monetary policy report to the Congress* (Board of Governors of the Federal Reserve System, February 11, 2003), p. 18, http://www.federalreserve.gov/boarddocs/hh/2003/february/FullReport.pdf.) A different measure of the underemployed includes those who are working in jobs for which they may be overqualified. (See Frances M. McKee-Ryan and Jaron Harvey, "'I have a job, but...': a review of underemployment," *Journal of Management*, July 2011, pp. 962–996.)

[13] The data for all three figures in this article were seasonally adjusted with procedures developed by the Census Bureau and used by BLS. (See *The X-12-ARIMA seasonal adjustment program* (U.S. Census Bureau), https://www.census.gov/srd/www/x12a.)

[14] For a discussion of longer term trends that may affect U.S. economic growth, see Robert J. Gordon, *The demise of U.S. economic growth: restatement, rebuttal, and reflections* Working Paper 19895 (Cambridge, MA: National Bureau of Economic Research, February 2014), http://www.nber.org/papers/w19895.

[15] In addition to the 18-month recession that lasted from December 2007 to June 2009, the United States experienced two other recessions during the period from January 1990 to June 2014: an 8-month recession that began in July 1990 and ended in March 1991 and another 8-month recession that lasted from March 2001 to November 2001. (See *U.S. business cycle expansions and contractions*.)

[16] The increase in the number of people marginally attached to the labor force might explain 8.8 percent of the 3.9-percentage-point decline in the labor force participation rate for men and 13.1 percent of the 2.3-percentage-point drop in the rate for women.

[17] People who are marginally attached to the labor force want a job, looked for work sometime in the past year, and are available to work. Some individuals who say they want a job are not marginally attached to the labor force because they did not look for work in the past year, are not available to work, or both. This group is not included in the BLS measures of labor underutilization. However, from the year before the recession to the year ending June 2014, the group increased by an estimated 618,000 (seasonally adjusted). If these people had been in the labor force, the labor force participation rate might have been 1.4 percentage points higher in the year before the recession and 1.6 points higher in the year ending June 2014. Thus, the increase in the number of those who want a job but are not marginally attached to the labor force might account for about 0.2 percentage point (or 5.3 percent, after rounding) of the 3.1-percentage-point drop in the labor force participation rate from the year before the recession to the year ending June 2014. Together, the increase in the number of people marginally attached to the labor force and the number of people not marginally attached to the labor force could account for 15.7 percent of the 3.1-percentage-point decrease in the labor force participation rate.

[18] In addition, some of those classified as marginally attached to the labor force did not give a reason that they did not look for work in the past 4 weeks. Thus, the estimated number of people marginally attached to the labor force shown in table 1 may not match the number shown in appendix table A-1.

[19] According to a report by the Pew Research Center, in 2012 6.0 percent of mothers who were not working for pay outside the home and who had children under the age of 18 at home said that they were not working because they could not find a job. This percentage was up from 1.0 percent in 2000. (See D'Vera Cohn, Gretchen Livingston, and Wendy Wang, "After decades of decline, a rise in stay-at-home mothers," *Pew Research social and demographic trends* (Washington, DC: Pew Research Center, April 8, 2014), pp. 2, 6, http://www.pewsocialtrends.org/2014/04/08/after-decades-of-decline-a-rise-in-stay-at-home-mothers.)

[20] Unless otherwise stated, the statistical comparisons discussed in this section are significant at the 90-percent confidence level or higher.

[21] By contrast, older workers who experienced a loss of wealth as a result of the recession may have stayed in the labor force longer than they would have otherwise.

[22] In the year before the recession, among persons who were employed, 78.0 percent of married people and 86.1 percent of people who were widowed, divorced, or separated were ages 35 or older, compared with 25.8 percent of those who had never been married.

[23] In the year before the recession, among employed persons, 35.8 percent of married people had a bachelor's degree or higher, compared with 24.1 percent of those who were widowed, divorced, or separated and 24.6 percent of those who had never been married.

[24] See Jeremy Greenwood, Nezih Guner, Georgi Kocharkov, and Cezar Santos, *Marrying your like: assortative mating and income inequality*, Working Paper 19829 (Cambridge, MA: National Bureau of Economic Research, January 2014), p. 1, http://www.nber.org/papers/w19829; and Lasse Eika, Magne Mogstad, and Basit Zafar, *Educational assortative mating and household income inequality*, Working Paper 20271 (Cambridge, MA: National Bureau of Economic Research, July 2014), pp. 13–14, www.nber.org/papers/w20271.

[25] See, for example, Kathryn Edin and Joanna M. Reed, "Why don't they just get married? Barriers to marriage among the disadvantaged," *Future of Children*, Fall 2005, pp. 117–137.

[26] Hispanics are people who identify themselves as Spanish, Hispanic, Latino, or Latina. Hispanics may be of any race. (See *Current Population Survey: design and methodology*, p. 5-2.)

[27] People with more than one job are classified according to the job at which they worked the most hours. (Ibid., p. 5-3.)

[28] *Current Population Survey interviewing manual*, pp. B4-3, C4-31.

[29] From 2000 to 2013, the number of jobs in educational and health services increased by 5.9 million (from 15.2 million to 21.1 million). Employment growth in health services accounted for 3.7 million, or 62.4 percent, of these jobs. (See *Current Employment Statistics – CES (National)* (U.S. Bureau of Labor Statistics), http://stats.bls.gov/ces.

[30] Construction and extraction occupations comprise laborers, carpenters, electricians, plumbers, painters, equipment operators, roofers, and others. Professional and related occupations consist of teachers, nurses, lawyers, doctors, engineers, computer professionals, and others.

[31] In the year before the recession, 68.1 percent of people in professional and related occupations had a bachelor's, advanced (master's degree or Ph.D.), or professional degree, compared with 6.4 percent of those in construction and extraction occupations.

[32] According to a 2012 report from the Pew Research Center, the number of Mexicans moving from Mexico to the United States from 2005 to 2010 may have been about the same as the number of Mexicans moving from the United States to Mexico (about 1.4 million adults and children) over the same period. During the last 1 to 2 years of that period, the return flow to Mexico may even have exceeded the inflow from Mexico. (See Jeffrey Passel, D'Vera Cohn, and Ana Gonzalez-Barrera, *Net migration from Mexico falls to zero—and perhaps less* (Washington, DC: Pew Research Center, April 23, 2012), pp. 7–8, www.pewhispanic.org/2012/04/23/net-migration-from-mexico-falls-to-zero-and-perhaps-less.)

[33] Service occupations comprise waiters and waitresses, janitors, health aides, cooks, maids, groundskeepers, and others.

[34] Production occupations consist of assemblers and fabricators, inspectors and testers, welders and solderers, machinists, metalworkers, machine operators, butchers, bakers, and others.

[35] Management, business, and financial occupations comprise managers, accountants and auditors, management analysts, loan counselors, personal financial advisors, and others.

[36] Office and administrative support occupations consist of secretaries, clerks, customer service representatives, receptionists, and others.

[37] Sales and related occupations comprise cashiers, retail salespersons, real estate brokers, financial services agents, and others.

[38] *Selected data from Social Security's disability program* (U.S. Social Security Administration), http://www.ssa.gov/oact/STATS/dibStat.html. The SSDI program provides income to disabled workers before their retirement age if they have worked in the past and they are unable to work because of a medical condition that is expected to last for more than a year or to result in death.

[39] According to the Congressional Budget Office (CBO), the number of former workers receiving SSDI benefits in 2010 was an estimated 400,000 higher than was projected before the start of the 2007–2009 recession. CBO projects that, because of the recession, the number of workers receiving SSDI will continue to rise, peaking at about 750,000 in 2014. (See *Policy options for the Social Security Disability Insurance program*, pp. 1, 5 (U.S. Congressional Budget Office, July 16, 2012), http://www.cbo.gov/publication/43421.)

[40] According to CBO, "the 2007–2009 recession and the ensuing weak recovery will reduce the level of potential output through the 2017–2024 period by roughly 1¾ percent...." Approximately 0.7 percentage point of this decline will be due to reduced labor supply. The remainder will be due to the effects of the recession on investment and productivity. (See *The budget and economic outlook: 2014 to 2024* (U.S. Congressional Budget Office, February 4, 2014), pp. 40–41, http://www.cbo.gov/publication/45010.)

[41] *Revisions to CBO's projection of potential output since 2007* (U.S. Congressional Budget Office, February 2014), p. 6, http://www.cbo.gov/sites/default/files/cbofiles/attachments/45150-PotentialOutput.pdf.

[42] See Lloyd G. Reynolds, Stanley H. Masters, and Colletta H. Moser, *Labor economics and labor relations*, 10th ed. (Englewood Cliffs, NJ: Prentice-Hall, 1991), pp. 278–284; and Ronald G. Ehrenberg and Robert S. Smith, *Modern labor economics: theory and public policy*, 7th ed. (Reading, MA: Addison-Wesley, 2000), pp. 574, 581. For a discussion of alternative ways to define structural unemployment, see Edward P. Lazear and James R. Spletzer, *The United States labor market: status quo or a new normal?* Working Paper 18386 (Cambridge, MA: National Bureau of Economic Research, September 2012), pp. 1–3, http://www.nber.org/papers/w18386. For a discussion of methodological issues in measuring structural unemployment, see Peter A. Diamond, *Cyclical unemployment, structural unemployment*, Working Paper 18761 (Cambridge, MA: National Bureau of Economic Research, February 2013), http://www.nber.org/papers/w18761.

[43] For a discussion of different explanations for the persistence of unemployment after the past three recessions, see Olivier Coibion, Yuriy Gorodnichenko, and Dmitri Koustas, *Amerisclerosis? The puzzle of rising U.S. unemployment persistence*, Working Paper 19600 (Cambridge, MA: National Bureau of Economic Research, October 2013), http://www.nber.org/papers/w19600.

[44] *Understanding and responding to persistently high unemployment* (U.S. Congressional Budget Office, February 16, 2011), p. 8, http://www.cbo.gov/publication/42989. For a discussion of the effects of receiving unemployment benefits on unemployment, see Henry S. 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 (Cambridge, MA: National Bureau of Economic Research, May 2013), http://www.nber.org/papers/w19048; *The slow recovery of the labor market* (U.S. Congressional Budget Office, February 2014), pp. 9–10, https://www.cbo.gov/sites/default/files/45011-LaborMarketReview.pdf; and Jesse Rothstein, *The labor market four years into the crisis: assessing structural explanations*, Working Paper 17966 (Cambridge, MA: National Bureau of Economic Research, March 2012), pp. 27–28, http://www.nber.org/papers/w17966.

Increased spending on other safety net programs, such as the Supplemental Nutrition Assistance Program (SNAP, formerly known as Food Stamps) and Medicaid, during and after the 2007–2009 recession also may have affected work incentives. (See Casey B. Mulligan, *Do welfare policies matter for labor market aggregates? Quantifying safety net work incentives since 2007*, Working Paper No. 18088 (Cambridge, MA: National Bureau of Economic Research, May 2012), http://www.nber.org/papers/w18088.)

[45] *The budget and economic outlook: fiscal years 2013 to 2023* (U.S. Congressional Budget Office, February 5, 2013), p. 38, http://www.cbo.gov/publication/43907.

[46] *The budget and economic outlook: fiscal years 2014 to 2024* (U.S. Congressional Budget Office, February 4, 2014), p. 37, http://www.cbo.gov/publication/45010.

[47] Based on 12-month-average data from the monthly CPS.

[48] For research on the effects of long-term unemployment on workers, see Rand Ghayad, *The jobless trap*, Job Market Paper, Working paper, 2013, http://media.wix.com/ugd/576e9a_f7ade4b6632949349fd75921699294fa.pdf; Rand Ghayad, "Long-term unemployment in the great recession" (Ph.D dissertation, Northeastern University, 2014), http://iris.lib.neu.edu/econ_diss/17/; and Alan B. Krueger, Judd Cramer, and David Cho, *Are the long-term unemployed on the margins of the labor market?* Paper presented at the Brookings Panel on Economic Activity, March 20–21, 2014, Washington, DC, http://www.brookings.edu/~/media/projects/bpea/spring%202014/2014a_krueger.pdf.

[49] In a March 2012 speech, former Federal Reserve Chairman Ben Bernanke argued that the rise in long-term unemployment was likely due more to cyclical than structural factors. However, he added the following:

> If structural factors are the predominant explanation for the increase in long-term unemployment, it will become even more important to take the steps needed to ensure that workers are able to obtain the skills needed to meet the demands of our rapidly changing economy.

(See Ben S. Bernanke, *Recent developments in the labor market*, Remarks to the National Association of Business Economists, March 26, 2012, Arlington, Virginia, http://www.federalreserve.gov/newsevents/speech/bernanke20120326a.pdf, pp. 1, 15; and Michael Konczal, "What's the best way to help the long-term unemployed? Full employment," *Next New Deal: The Blog of the*

Roosevelt Institute, April 24, 2013, http://www.nextnewdeal.net/rortybomb/whats-best-way-help-long-term-unemployed-full-employment.)

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