

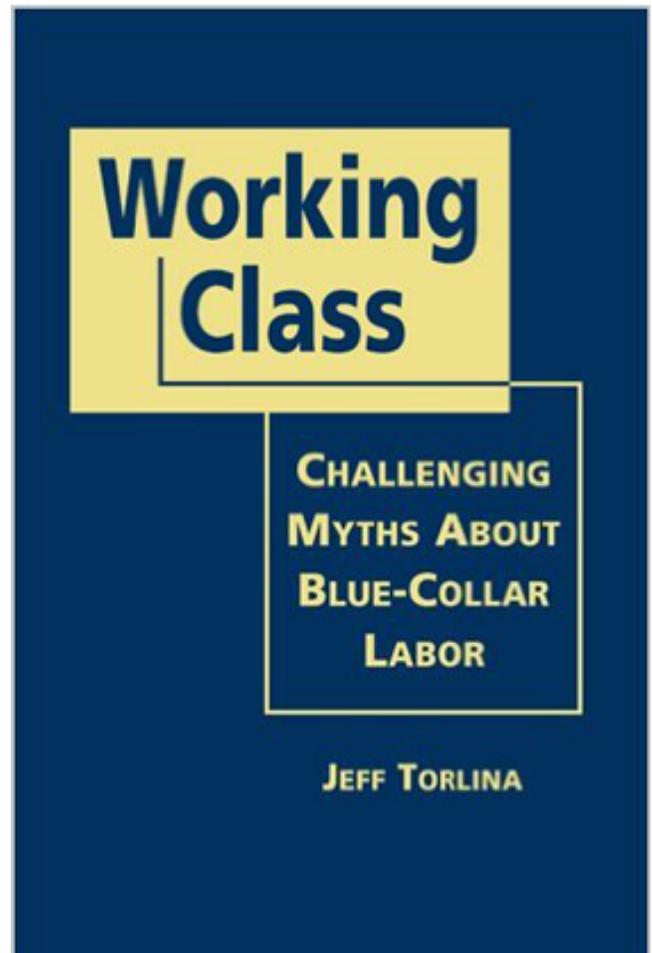
Navigating through a sea of blue-collar presuppositions

Working Class: Challenging Myths about Blue Collar Labor.

By Jeff Torlina. Boulder, CO: Lynne Rienner Publishers, Inc., 2011, 208 pp.

What comes to mind when you think of blue-collar workers? Which preconceived notions does the term “blue-collar work” evoke in society? Your answers to these questions may depend on the kind of work you do; but it could also be based on a larger societal stigma.

In his book *Working Class: Challenging Myths about Blue Collar Labor*, Jeff Torlina explores how different workers answer these questions, along with many others relating to blue- and white-collar workers, and seeks to provide ideas to form the basis for new norms from which a more equal class system may emerge. The language of the book is not purely academic, and the ideas apply to a wide range of thinkers—not just researchers, but anyone who is interested in learning about working-class distinctions in America. As he tells the stories of the workers—stories based on his interviews and personal research—it becomes clear that Torlina has a unique perspective. He has lived on both sides of the story: after becoming a skilled craftsman in construction, an industry in which he worked for 20 years, including the time he spent earning a Ph.D. in sociology, he went on to hold an academic position at Utah Valley University. As he worked in construction, he gained trust seldom given to other researchers. He then used that trust to interview other blue-collar workers, in the end obtaining a more realistic perspective than those provided by pure academicians. In sum, he has been able to use both aspects of his career to examine multiple perspectives of an issue that is often told from only one side.



Jenette Muhar

muhar.jenette@bls.gov

Jenette Muhar is an economist in the Office of Compensation and Working Conditions, U.S. Bureau of Labor Statistics

Anytime one can add a new perspective to a conversation, the conversation is improved. Torlina definitely has added a new perspective to the ongoing conversation about blue-collar vs. white-collar distinctions and their place in the social hierarchy. Through his interviews with blue-collar workers, he points out flaws in the current social hierarchy in the United States. That hierarchy is built on the idea that white-collar workers are more skilled than blue-collar workers, so the white-collar workers tend to get paid more and, because people prefer higher pay, a person would choose to do blue-collar labor only if no other options were available. After poring over Torlina's interviews with the blue-collar workers, one begins to question the merits of the system as well as see how the preferences of blue-collar and white-collar workers may differ. Torlina points out that much research into the social hierarchy is based on circular reasoning, or a closed loop. The reasoning goes as follows: Papers are published which say that blue-collar workers are less skilled, so employers start paying less in response. Then a scholar tries, in good faith, to reevaluate the skill level of blue-collar workers but includes the rate of pay as an explanatory variable. In sum, blue-collar workers are less skilled, so they get paid less, and because they are paid less, they must be less skilled.

Torlina believes that this circular thinking is one part of the problem with the current social hierarchy, yet he does not condemn the researchers. Instead, he turns the issue into the thought-provoking one of why so many academics fail to question the status quo. He provides a few possible answers, one in particular that renders suspect the motivations of academics: in the current social hierarchy, in which white-collar workers are on top, the researchers, who are themselves the very white-collar workers they write about, benefit by maintaining the status quo. Again, Torlina looks, not to condemn, but merely to explain why it is that society views blue-collar workers in a different light than blue-collar workers view themselves. Overall, he uses the interviews he has conducted to compare current blue-collar and white-collar stereotypes and then looks at history and past research to explain why the preconceived notions society has may not be accurate.

As the subtitle, *Challenging Myths about Blue Collar Labor*, suggests, Torlina's main point was to resolve the discrepancies between how academics describe blue-collar workers and what he has personally observed, and this he does exceptionally well. He is not under the illusion that the positive attitudes of the blue-collar workers he has spoken to are representative of all blue-collar workers—a smart approach, given the small sample of limited diversity that he is working with. Still, he believes that these blue-collar workers, who have chosen their line of work and who have not been forced into it by the absence of other options, are the norm rather than the exception. His experience as a blue-collar worker provides the reader with a very raw discussion about the thoughts and feelings of those workers—a discussion that one would not normally get in academic writing on the subject. His critiques of the traditional, longstanding sociological views are refreshing.

Looking at the book's topics through the lens of blue-collar workers and white-collar researchers, we read how workers feel about their job compared with other types of jobs and are shown the effects that these stereotypes have on the relationships among classes. Suggesting what needs to be done to correct this unbalanced perspective, Torlina delves into how social scientists have the power to change the perception of blue-collar work and help blue-collar workers be seen for the value they provide to society. He presents a compelling argument for the idea that white-collar workers should want to reconstruct the attitudes society holds toward traditional laborers. By moving away from seeing society as a hierarchy in which blue-collar workers are always below white-collar workers, to viewing it on a level in which all workers are superior or inferior to each other in one way or another but no one is entirely inferior to another, a more equal and just society can be created.

In short, *Working Class: Challenging Myths about Blue Collar Labor* is a fairly easy read with a wide variety of topics relating to social hierarchy in America and with well-defined sections that will appeal to readers of various backgrounds. Included are tables listing the characteristics of the sample the author used in his research and the schedule for the interviews he conducted. The book will challenge readers to think about their own views of blue-collar workers and whether those views are grounded in truth or myth.

Purchasing power: using wage statistics with regional price parities to create a standard for comparing wages across U.S. areas

The U.S. Bureau of Labor Statistics Occupational Employment Statistics (OES) program has long produced actual wages by occupation that allow data users to compare wages across geographic regions. For the purpose of this article, the OES program has produced price-adjusted wages, which incorporate the costs of goods and services in an area to produce a figure that more accurately represents the real value of earnings for cross-area comparisons. This article explores how measures of price-adjusted wages and employment concentration are used to compare employment across areas.

For jobseekers who wonder if they might earn higher wages by moving to a different area of the country, an important consideration is the relative value of wages earned. Even if wages in a new area are higher, a wage earner's purchasing power will decrease if the cost of living in the new area offsets the higher wage.¹ When actual wages are adjusted for regional prices, the resulting figures offer data users a more accurate representation of purchasing power for cross-area comparisons. This article will discuss how regional differences affect purchasing power in general, how price-adjusted wages are used to compare purchasing power across areas and occupations, and how specific occupations are affected by regional prices and employment concentrations in different areas.

The U.S. Bureau of Labor Statistics (BLS) Occupational Employment Statistics (OES) program produces employment and wage estimates for more than 800 occupations. OES wage data have long been the go-to source for jobseekers and employers who want to know the average (or range) of wages by occupation at the national, state, and area levels. These wages are generally expressed as actual wages, that is the actual amount that a worker is paid by their employer. Because costs for goods and services tend to fluctuate across different areas of the country, actual wages alone rarely provide a useful metric for comparing purchasing power across areas. But by incorporating regional price parities (RPPs) from the Bureau of Economic Analysis, OES can produce a price-adjusted wage that offers data users a standard for comparing wages across Metropolitan Statistical Areas (hereinafter referred to as *areas*).²

RPPs, expressed as a percentage of the overall national price level (equal to 100), measure the differences in the price levels of goods and services across areas for a given year. If an area's RPP is greater than 100, it means that goods and services are more expensive than the national average; if an area's RPP is less than 100, goods and services are less expensive than the national average. In areas where goods and services are more expensive, actual wages tend to be higher. By adjusting the actual wage based on an area's RPP, OES produces



Benjamin Cover

cover.benjamin@bls.gov

Benjamin Cover is an economist in the Office of Employment and Unemployment Statistics, U.S. Bureau of Labor Statistics.

a price-adjusted wage that gives data users a comparable standard for assessing purchasing power across different areas.

In May 2014, the average actual wage in San Jose–Sunnyvale–Santa Clara, CA (\$75,770), was much higher than the average wage in Durham–Chapel Hill, NC (\$55,840). But when the RPPs are taken into account to adjust for average price level, the gap between the two areas shrinks, producing price-adjusted wages of \$62,107 and \$58,779, respectively. (See table 1.) Data users comparing wages for San Francisco–Oakland–Fremont, CA, and the Durham area will notice the following: San Francisco area wages decrease after adjusting for average price level, while wages in the Durham area increase after the adjustment.

The San Jose and San Francisco areas, as well as New York–Northern New Jersey–Long Island, NY–NJ–PA, and Washington–Arlington–Alexandria, DC–VA–MD–WV, are among the areas where wages are highest. But when the actual wages are adjusted for average price level to show purchasing power, the rankings change. (See table 1.) The San Jose, San Francisco, and Washington areas remain among the highest paying areas, but the New York area is no longer among the highest paying. Despite the fact the New York area has high actual wages across the board, the cost of living is so high that the area’s price-adjusted wages are much lower. The San Jose area remains the highest paying, even with its relatively high RPP. Actual wages in the San Jose area are so high that they offset the high cost of living. The San Francisco area falls from 2 to 10 and the New York area falls to 61. Some areas with high price-adjusted wages that may surprise data users include the Durham area; Huntsville, AL; Hartford–West Hartford–East Hartford, CT; and Springfield, IL. Table 1 shows areas with the highest average price-adjusted wages in May 2014.

Table 1. Annual mean wage, regional price parity, and purchasing power for the 10 Metropolitan Statistical Areas with the highest purchasing power, May 2014

Area	Annual mean wage	Regional price parity	Purchasing power
San Jose–Sunnyvale–Santa Clara, CA	\$75,770	122.0	\$62,107
Durham–Chapel Hill, NC	55,840	95.0	58,779
Huntsville, AL	51,730	91.3	56,659
Hartford–West Hartford–East Hartford, CT	55,580	100.9	55,084
Boston–Cambridge–Quincy, MA–NH	60,540	111.6	54,247
Washington–Arlington–Alexandria, DC–VA–MD–WV	64,930	120.4	53,929
Springfield, IL	49,760	92.4	53,853
Trenton–Ewing, NJ	60,020	111.5	53,830
Seattle–Tacoma–Bellevue, WA	57,370	107.0	53,617
San Francisco–Oakland–Fremont, CA	64,990	121.3	53,578

Source: U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis.

Purchasing power by occupation

The relationship between wages and relative prices becomes even more interesting when occupational data is included in the analysis. Workers employed in the arts, design, entertainment, sports, and media occupational group earn higher wages in Los Angeles–Long Beach–Santa Ana, CA, and the New York, San Jose, and Washington areas than in any other areas of the United States. This remains true both before and after adjusting for prices. Computer and mathematical occupations have high wages in Seattle–Tacoma–Bellevue, WA, along with the San Jose and Durham areas both before and after adjusting the wages for regional prices. However, these occupational groups are the exceptions. Out of the 220 occupational groups in the 10 areas with the highest mean wages, the 18 occupational groups listed in table 2 are the only groups that remain among the 10 highest paying areas after adjusting wages for regional prices.

Table 2. Annual mean wage, regional price parity, and purchasing power for major occupational groups in the 10 Metropolitan Statistical Areas (MSAs) with the highest overall purchasing power, May 2014

Area and major occupational group	Annual mean wage	Regional price parity	Purchasing power
Durham–Chapel Hill, NC, all occupations	\$55,840	95.0	\$58,779

See footnotes at end of table.

Table 2. Annual mean wage, regional price parity, and purchasing power for major occupational groups in the 10 Metropolitan Statistical Areas (MSAs) with the highest overall purchasing power, May 2014

Area and major occupational group	Annual mean wage	Regional price parity	Purchasing power
Management occupations	131,080	95.0	137,979
Business and financial operations occupations	76,890	95.0	80,937
Computer and mathematical occupations	89,960	95.0	94,695
Education, training, and library occupations	70,780	95.0	74,505
Arts, design, entertainment, sports, and media occupations	57,860	95.0	60,905
Sales and related occupations	43,600	95.0	45,895
Office and administrative support occupations	36,870	95.0	38,811
San Jose–Sunnyvale–Santa Clara, CA, all occupations	75,770	122.0	62,107
Management occupations	160,080	122.0	131,213
Computer and mathematical occupations	123,910	122.0	101,566
Legal occupations	142,030	122.0	116,418
Arts, design, entertainment, sports, and media occupations	70,940	122.0	58,148
Office and administrative support occupations	47,380	122.0	38,836
Seattle–Tacoma–Bellevue, WA, all occupations	57,370	107.0	53,617
Computer and mathematical occupations	104,320	107.0	97,495
Trenton–Ewing, NJ, all occupations	60,020	111.5	53,830
Protective service occupations	68,310	111.5	61,265
Washington–Arlington–Alexandria, DC–VA–MD–WV, all occupations	64,930	120.4	53,929
Arts, design, entertainment, sports, and media occupations	74,860	120.4	62,176
New York–Northern New Jersey–Long Island, NY–NJ–PA, all occupations	59,060	122.2	48,331
Arts, design, entertainment, sports, and media occupations	76,110	122.2	62,283
Boulder, CO, all occupations	56,510	108.9	51,892
Sales and related occupations	49,230	108.9	45,207
Bridgeport–Stamford–Norwalk, CT, all occupations	61,650	121.5	50,741
Sales and related occupations	55,770	121.5	45,901
Boston–Cambridge–Quincy, MA–NH, all occupations	60,540	111.6	54,247
San Francisco–Oakland–Fremont, CA, all occupations	64,990	121.3	53,578

Note: The criterion for inclusion of a major occupational group under an MSA in the table required that the MSA was among the top 10 areas for purchasing power in the group. Accordingly, not all major occupational groups are included in the table and not all MSAs have a major occupational group listed.

Source: U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis.

Because wages for all occupations in an area are adjusted by the same RPP, relative rankings within an area remain the same after adjusting for prices. But because actual wages and RPPs differ across areas, pay rankings for specific occupations tend to fluctuate in cross-area comparisons, creating variances. For some occupations, adjusting for regional prices decreases the difference between the highest and lowest paying areas, while for others the difference increases. This holds true for two related occupations—bookkeepers and accountants.

After adjusting wages for regional prices, the difference between the highest and lowest paying areas decreases for bookkeepers and increases for accountants. In May 2014, the preadjustment difference in wages for bookkeepers was \$21,470 (a high of \$49,580 in San Jose and low of \$28,110 in Laredo, TX) and the postadjustment the difference was \$14,096 (a high of \$45,544 in Columbus, OH and low of \$31,448 in Jacksonville, NC.). For accountants, the preadjustment difference was \$43,920 (a high of \$93,160 in New York and

a low of \$49,240 in Danville, IL) and the postadjustment difference was \$54,162 (a high of \$105,859 in Dothan, AL, and a low of \$51,697 in Flagstaff, AZ).

The wages for detailed occupations by area before and after adjusting wages for regional purchasing power are available at https://www.bls.gov/oes/purchasing_power.xlsx. A sample of this listing is provided in table 3.

Table 3. Mean wage, regional price parity, and purchasing power for Metropolitan Statistical Areas with the highest purchasing power for cashiers, May 2014

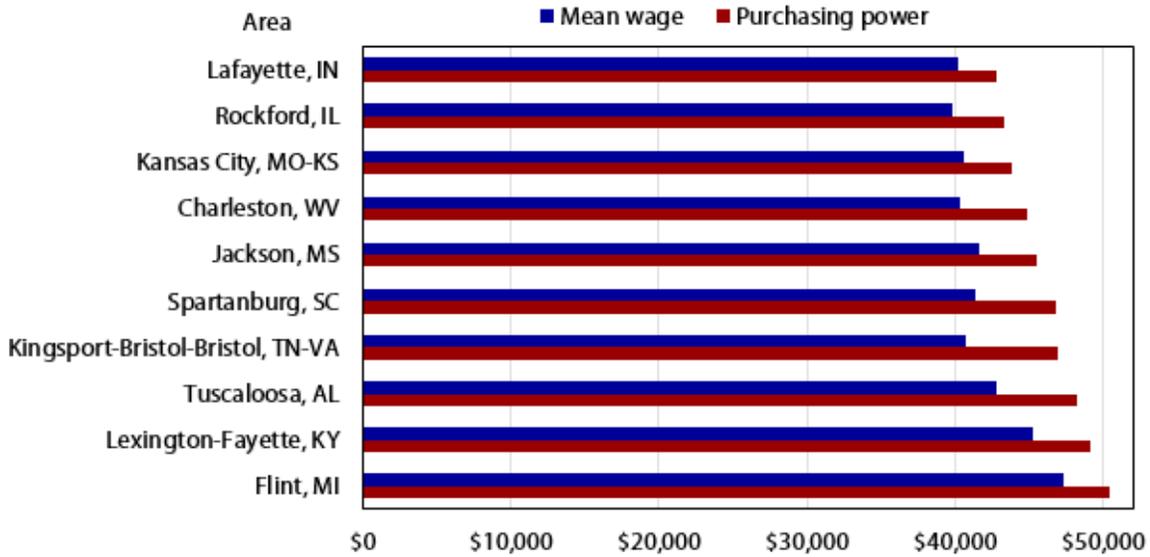
Area	Mean wage	Regional price parity	Purchasing power
Bremerton-Silverdale, WA	\$28,060	104.6	\$26,826
Spokane, WA	25,120	95.9	26,194
Mount Vernon-Anacortes, WA	25,780	98.7	26,120
Olympia, WA	27,140	104.6	25,946
Bellingham, WA	25,740	99.3	25,921
Seattle-Tacoma-Bellevue, WA	27,470	107.0	25,673
Yuba City, CA	24,940	98.3	25,371
Danville, IL	19,920	79.4	25,088
Medford, OR	24,580	98.0	25,082
Yakima, WA	23,700	94.8	25,000

Source: U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis.

Across most occupations, the highest actual wages are generally earned in areas with high RPPs, such as New York and San Francisco. But after adjusting wages for regional prices, occupational differences tend to have a more pronounced effect on purchasing power than geography alone. In particular, occupations with relatively low wages tend to exhibit the greatest pre and postadjustment change. For example, food-service workers and cashiers earn more in San Francisco and San Jose than most other areas of the country before adjusting for regional prices. But after adjusting wages for prices, these workers' wages are in the bottom 25 percent nationally. After price adjustments, purchasing power for fast-food workers tends to increase in areas of Illinois, Washington, and Colorado.

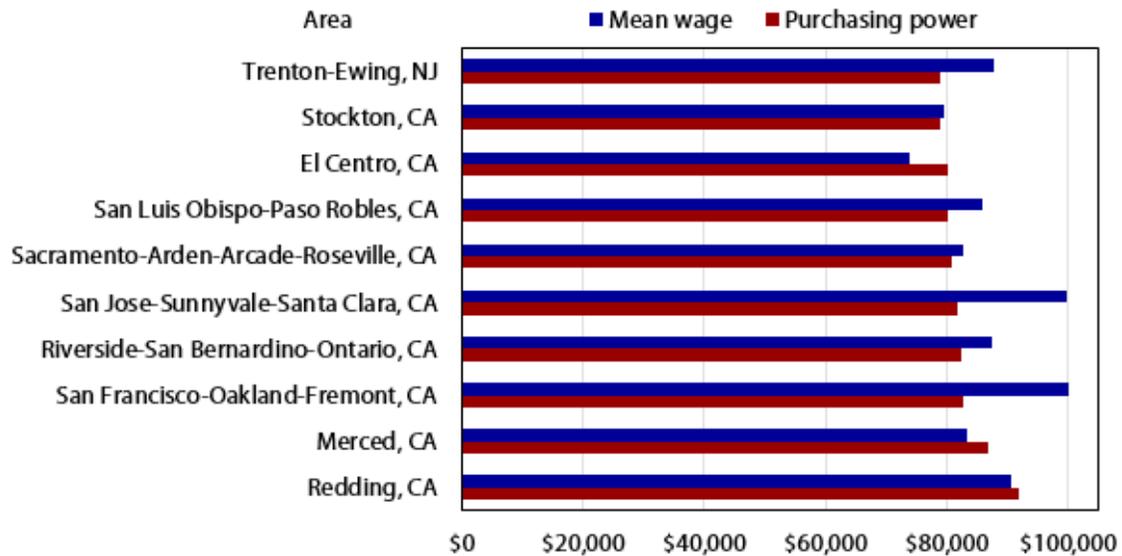
Figures 1 and 2 show purchasing power and mean wages for team assemblers³ and police officers, respectively, in selected areas. The areas in figure 1 all have an RPP of less than 100. Accordingly, the price-adjusted wage for all areas is higher than the mean wage, effectively increasing the purchasing power of team assemblers in these areas. Figure 2 includes a mix of areas, some with high RPPs and others with low RPPs. Most of the areas with high wages for police and sheriff's patrol officers had mean wages for all occupations well above the U.S. average, as well as high RPPs. For police and sheriff's patrol officers, the high occupational mean wage outweighs those factors and still produces a high rate of purchasing power. Simply put, police officers are often better off in high-wage, high-RPP areas. This differs from team assemblers, as they generally do better in low-wage, low-RPP areas.

Figure 1. Mean wage versus purchasing power (in dollars) for team assemblers in selected areas, May 2014



Source: U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis.

Figure 2. Mean wage versus purchasing power (in dollars) for police and sheriff's patrol officers in selected areas, May 2014



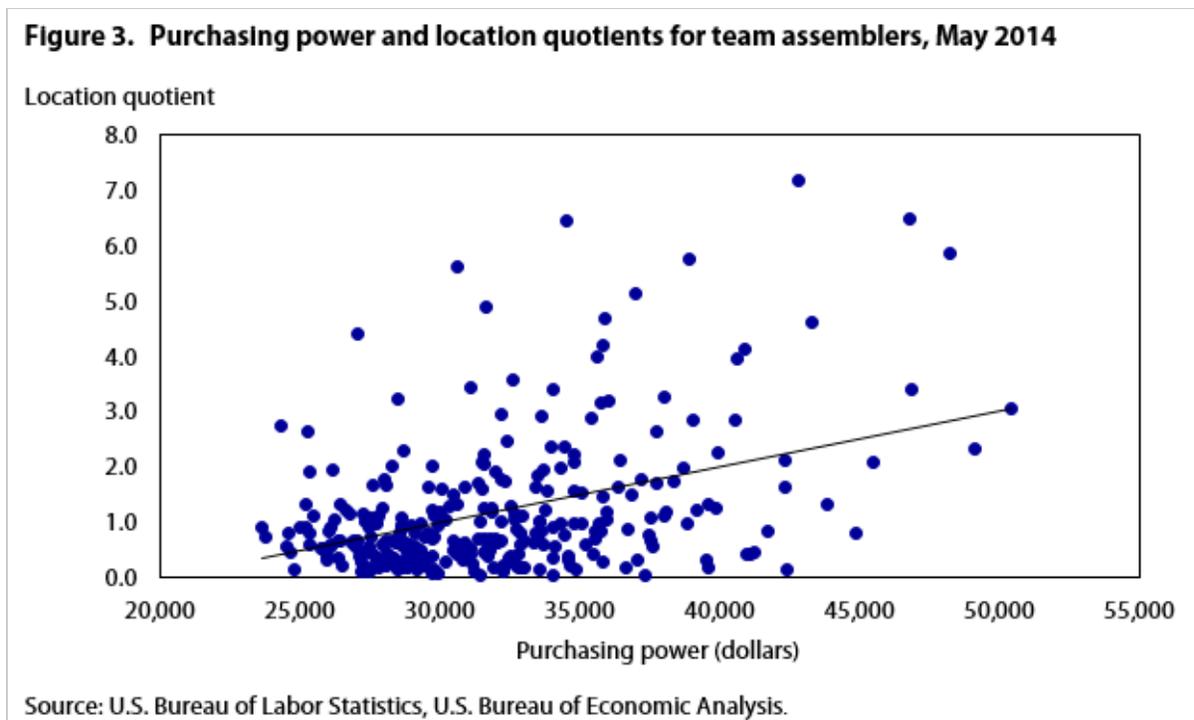
Source: U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis.

Employment effects on average wages before and after price adjustments

Data in tables 1 and 2 may appear to have some inconsistencies when compared. For instance, one may wonder why Boston–Cambridge–Quincy, MA–NH, and the San Francisco area are among the top-paying areas after price adjustments in table 1, but do not appear in the top paying areas for *any* of the 22 occupational groups in table 2. The reason for this lies in the employment composition of the areas. Boston and San Francisco have high wages because they have a higher share of workers in high-paying occupations, not because they have high wages after adjusting wages for prices. Similarly, Bridgeport–Stamford–Norwalk, CT, appears in table 2 with high price-adjusted wages for sales and related occupations not because the area has higher wages for low-paying sales occupations such as cashiers, but because the area has relatively few cashiers and a high share of financial services sales agents. Some areas have heavy concentrations of workers in particular fields. For some occupations, a correlation exists between employment concentration and wages.

Employers generally want to locate where labor costs are low and they can attract needed workers. Of course, not all employers can relocate. Service workers and employees of local government may need to stay near their customers or constituents. For employers who are able to relocate, the location quotient can be an invaluable tool for determining the best place to set up shop. The location quotient compares the employment of an occupation in an area relative to the average for the nation. Its formula is the share of employment in an area divided by the share of the U.S. employment. If an area’s location quotient for an occupation is higher than 1.0, it means that employment for the occupation is more highly concentrated in the area than the national average.

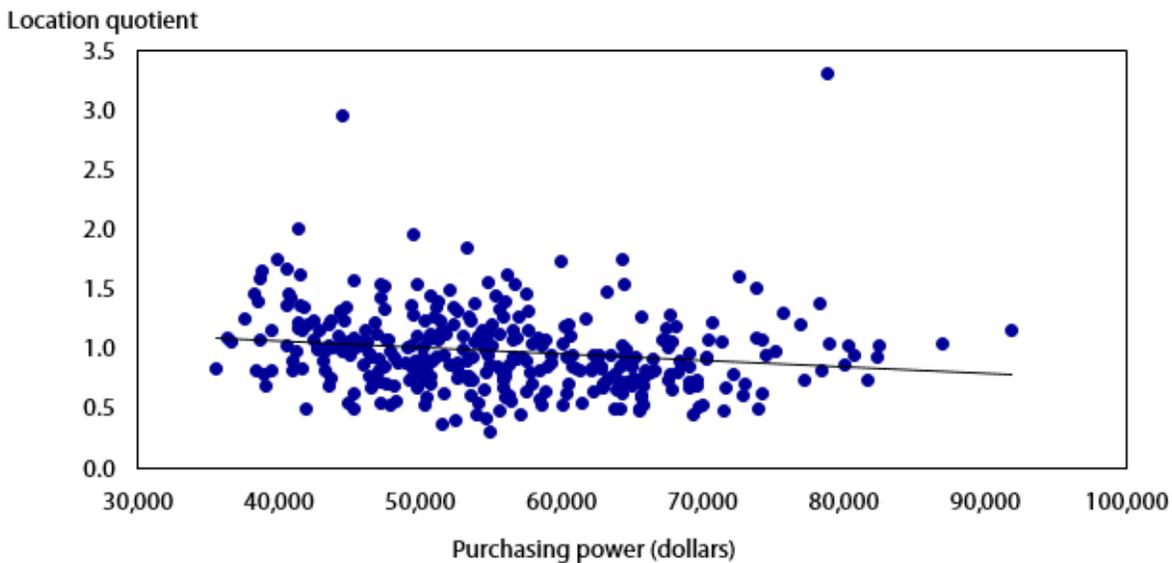
The areas in figure 1 all have location quotients greater than 1.0 for team assemblers. For example, in May 2014, the location quotient for team assemblers in Flint, MI, was 3.04 (see figure 3 data), indicating the area had 3 times the national average employment concentration for that occupation. This indicates a high concentration of team assemblers in Flint, MI, and greater purchasing power relative to team assemblers in other areas of the country. Figure 3 shows the location quotients relative to purchasing power for team assemblers.



In May 2014, the overall correlation between location quotient and purchasing power for team assemblers in the 297 areas in figure 3 was 0.42. The upward sloping line in the figure suggests that as employment concentration increases, the purchasing power of wages generally increases. For team assemblers, areas with high purchasing power and low price parities tend to have lower mean wages. For other occupations, areas with a high overall mean wage generally have higher regional prices.

Not all occupations show a relationship between location quotient and purchasing power. For example, the data for police and sheriff’s patrol officers suggest little to no correlation between purchasing power and location quotients. The overall correlation between the two variables was -0.17 . For this occupation, there is less variation in the location quotient when compared with team assemblers. Figure 4 shows the purchasing power and location quotients for police and sheriff’s patrol officers.

Figure 4. Purchasing power and location quotients for police and sheriff's patrol officers, May 2014



Source: U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis.

Summary

In summary, this article has introduced the use of RPPs to calculate the purchasing power of wages earned in different areas and explored the relationship between wages, price-adjusted wages, and employment concentrations. It might seem obvious high-priced urban areas would offer high wages, but the actual wages of an area only tell part of the story. When wages are adjusted to account for cost of living, low-wage areas often grant workers superior purchasing power. For jobseekers, the overall purchasing power of a wage in a given area is often more important than the wage itself. For employers, the concentration of labor in an area may be as important as the impact of wages on labor cost. Accordingly, some occupations may seem more attractive in different areas. The areas with highest and lowest price-adjusted wages for occupations depend on the occupation, as does the relationship between wages and employment concentrations. For some occupations, purchasing power increases with employment concentration, while for others, purchasing power may be unaffected by the concentration of employment in an area.

SUGGESTED CITATION

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NOTES

¹ Here, purchasing power is defined as the mean wage for an area divided by its regional price parity and multiplied by 100. Both the wage estimates and the RPP estimates are subject to sampling error, so the purchasing power estimates are subject to error as well. Because this error range has not been calculated, some of the rankings and differences in this article may not be statistically significant.

² Regional Price Parities are available online at the Bureau of Economic Analysis [website](#). Not all areas that have OES data have an exact regional price area. In some cases, an adjusted wage cannot be calculated. For regions where OES uses New England County and Town Areas, OES used wage data from the closest area match available to calculate the adjusted wage.

³ Team assemblers are defined as employees who work as part of a team having responsibility for assembling an entire product or component of a product.

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Strategic pairing of colleagues is an effective job-training method

Maureen Soyars

Public schools spend an average of \$18 billion a year on professional development for teachers, but researchers have found little evidence to suggest that any one formal training format consistently improves teacher performance. If formal training isn't reliably achieving results, what can school districts do to help teachers develop and improve skills?

A team of economists set out to discover if teachers can better develop their skills through informal on-the-job training. In [Learning job skills from colleagues at work: evidence from a field experiment using teacher performance data](#) (National Bureau of Economic Research working paper no. 21986, February 2016), John P. Papay, Eric S. Taylor, John H. Tyler, and Mary Laski study teachers who were strategically paired and were then asked to informally work on improving teaching skills.

The researchers tracked teachers in 14 Tennessee elementary and middle schools (7 control schools and 7 treatment schools) during the 2013–14 and 2014–15 school years. Teachers were paired on the basis of a skills assessment that measured 19 skill areas. A teacher with a particularly low score in one or more areas was teamed up with a teacher who had high scores in those same areas. School principals encouraged the pairs “to examine each other’s evaluation results, observe each other teaching in the classroom, discuss strategies for improvement” and then follow up “with each other’s commitments throughout the school year,” but otherwise no formal training was required.

After a year, the researchers found that students in target classrooms scored .12 standard deviations higher than students taught by teachers in a control school. For students, this improvement is like being assigned to a median teacher instead of a bottom-quartile teacher. Gains in teacher performance continued, and likely grew, in the following school year, when students in target classrooms scored 0.25 standard deviation higher on tests—perhaps double the improvement of the first year.

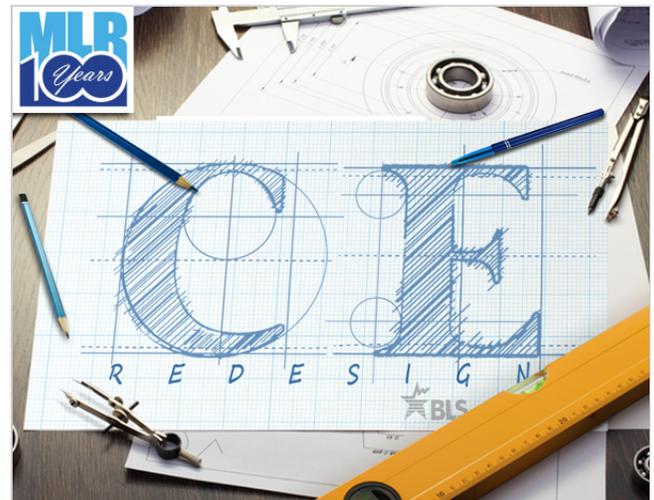
Do the skill improvements come solely from peer learning or are they also attributable to changes in teachers’ motivation or to the sharing of resources? The data suggest that the new job skills were acquired from the peer learning of the colleagues. Improvement, as measured by students’ test scores and by classroom observations, were concentrated in areas where there was a match between a teacher’s weak skills and the partner’s strong skills.

The economists suggest their research could prove meaningful to many professional occupations. Further study is needed on the topic, but informal on-the-job training might be a practical alternative to formal training, thereby saving money and delivering better results.

The Consumer Expenditure Survey redesign initiative

To help mark the Monthly Labor Review's centennial, the editors invited several producers and users of BLS data to take a look back at the last 100 years. This article highlights the past, present, and future of the Consumer Expenditure Survey (CE), an ongoing federal survey program designed in the 1970s to collect information on spending, income, and household characteristics. This paper also presents an overview of the Gemini Project, which was launched in 2009. The project's objectives are to reduce measurement error, improve overall data quality, enhance the analytic value of the CE data to users, and implement a new design that supports greater operational flexibility to respond to changes in the interviewing environment. This paper discusses the motivation, accomplishments, challenges, and expected benefits of the CE redesign.

The BLS mission statement states that BLS executes its mission by “. . . providing products and services that are accurate, objective, relevant, timely, and accessible.” The Consumer Expenditure Survey (CE) program supports this mission in its research and development projects. In particular, the CE program maintains the relevance of the surveys through research projects and regular biennial updates to the Consumer Expenditure Quarterly Interview (CEQ) questionnaire and improves data quality through methodological and data collection revisions. A team of economists, survey methodologists, and statisticians work together to identify and propose solutions for measurement error problems, develop new approaches to maintaining response rates and other data collection issues, streamline data processing procedures, and investigate and implement estimation methods that are more efficient.



Adam Safir

safir.adam@bls.gov

Adam Safir is a program manager in the Office of Prices and Living Conditions, U.S. Bureau of Labor Statistics.

Jay Ryan

Jay Ryan is formerly a program manager in the Office of Prices and Living Conditions, U.S. Bureau of Labor Statistics.

Laura Erhard

erhard.laura@bls.gov

Laura Erhard is an economist in the Office of Prices and Living Conditions, U.S. Bureau of Labor Statistics.

Lindsay Jilk

The CE measures spending by consumers for the total U.S. noninstitutional population. The principal purpose of the survey is to provide the Consumer Price Index (CPI) program with the expenditure weights that the CPI program uses to generate an all-items index. The CPI is the primary measure of household inflation and is one of the most important economic measures of the U.S. economy. Accurate information on consumer spending habits—used to determine expenditure weights—is vital to the CPI. An expenditure weight is an estimate of consumer expenditure needed to weight the market basket of goods. In addition to collecting expenditure data, the CE collects information on family income, assets, liabilities, housing characteristics, and detailed demographic information, making the survey a unique data source for policy analysis and research.

The article comprises (1) an introduction to the CE program, (2) a history of the CE's methodological improvements, (3) an overview of the Gemini Project, and (4) highlights of recent research conducted in support of the redesign. The article concludes with a discussion of next steps for the CE as the Gemini Project transitions from development to implementation.

CE background

The CE program currently consists of two independent surveys, the Consumer Expenditure Quarterly Interview (CEQ) and the Consumer Expenditure Diary (CED). The geographic samples for the surveys are updated every 10 years using the decennial census to create the sampling frame, and new addresses are selected each year from a master address file that is updated with new addresses from a Postal Service file. The unit of measure is a consumer unit (CU), which consists of all members of a household who are related or who share expenditure decisions. The CE data are collected by the U.S. Census Bureau.

In the CED, respondents complete two 1-week expenditure diaries that capture all expenditures for everyone in the CU. The diaries span 2 consecutive weeks. The CED is designed primarily to collect expenditure data on small or frequently purchased items such as food, meals away from home, apparel, and personal care items. Interviewers visit the selected sample units to collect demographic and income information, leave the diaries, and ask the diary keeper to record expenditures daily. About 7,000 CUs participate in the CED per year and complete about 14,000 diaries.

The purpose of the CEQ is to capture expenditures for larger and less frequently purchased items and for items, such as rent or utilities, for which payments are made on a regular basis, such as monthly. The CEQ is a quarterly survey with a rotating panel design. Each CU is interviewed four times over the course of 10 months (although respondents are only in the sample for 10 months, the survey's recall period still covers a 12-month period). In the first interview, the interviewer collects demographic data for all CU members and establishes an inventory of items such as properties, vehicles, and insurance policies, which are updated in subsequent interviews. The interviewer collects data on all expenditures for the previous 3-month period and updates demographic and inventory data.

Lindsay Jilk is an economist formerly in the Office of Prices and Living Conditions, U.S. Bureau of Labor Statistics.

Lucilla Tan

tan.lucilla@bls.gov

Lucilla Tan is an economist in the Office of Prices and Living Conditions, U.S. Bureau of Labor Statistics.

Income data are collected in interviews 1 and 4 only; assets and liabilities are asked in the fourth interview. The CEQ produces usable interviews for about 28,000 CUs per year.

While there is some overlap in spending categories covered in the CED and CEQ, some items, such as personal care items, are not captured in the CEQ while others, such as food expenditures, are captured only at an aggregate level (i.e., not at finer levels of detail) in the CEQ.

The revision of the CPI biennial expenditure weights remains the primary reason for undertaking the CE. However, CE data are used by a wide variety of researchers, policy analysts, and government agencies that are interested in studying the economic well-being of America's families. The CE allows outside researchers to relate the expenditures and income of consumers to the characteristics of those consumers. Data from the CE are used by economic policymakers and others to evaluate the effects of tax or other policy changes on levels of well-being among diverse socioeconomic groups. Econometricians use the CE data in various ways. For example, some use it to construct economic models, such as structural models of optimal life-cycle consumption expenditures. Others use it to test whether people's spending is based on their current income or on what they expect to earn over a longer period of time, or to investigate the distributional effect of consumption taxes. Market researchers find CE data valuable in analyzing the demand for groups of goods and services. These are some specific uses of CE data:

On an exploratory research basis, CE data are used to determine poverty thresholds for the U.S. government's Supplemental Poverty Measure.¹

The U.S. Department of Agriculture uses CE data to estimate the cost of raising a child.² Policies on foster care and child support are based on the amounts parents spend on health care, education, transportation, and other expenses for their children.

The Department of Defense uses CE data to update cost-of-living adjustments for military families.

The Center for Medicare and Medicaid Services uses CE data to estimate American spending on health care. The CE is one of the few sources of data on out-of-pocket expenses for hospital care.

The Bureau of Economic Analysis uses information from homeowners to measure personal spending for its calculation of gross domestic product.

Evolution and change in the CE surveys

This section presents major changes that have been introduced into the CEQ and CED since 2000. Many of the changes are not visible to users of aggregate-level data, as the changes occur in detailed questions asked of respondents sometimes with, but often without, the creation of new expenditure category codes for analysis. The changes include efforts to reduce response burden by designing data collection instruments that are easier for respondents to complete and by phrasing questions so they are easier to understand and more accurately convey the intent of the question. Changes also address survey response through new field procedures and training materials. The 2009 paper by Karen Goldenberg and Jay Ryan, "Evolution and change in the Consumer Expenditure surveys: adapting methodologies to meet changing needs," provides additional documentation on many of the changes presented here.³

Consumer Expenditure Quarterly Interview

What follow are major innovations to the CEQ.

Automating the CEQ instrument: conversion to CAPI. In April 2003 the CEQ moved from a paper-and-pencil data collection form to a computer-assisted personal interview (CAPI) data collection instrument. The CAPI development project was an interagency effort with the Census Bureau that started in the late 1990s. It was the largest survey improvement project ever undertaken by the CE program, and was one of the first major government surveys to use CAPI data collection.

New field procedures for telephone interviewing. The CEQ questions were designed to be asked during a personal visit and had no provision for interviewing by telephone. The move to CAPI collection gave CE staff the ability to monitor collection mode for the first time. In response to analysis of these data, CE staff took two actions. First, they developed a set of procedures that specify the conditions under which it is acceptable to conduct a telephone interview, as well as the process—the mobility of cell phones means that interviewers must be sensitive to the fact that a respondent may not be at a convenient or appropriate place at the time an interviewer calls. Second, CE staff developed a new series of paradata items in the CAPI instrument to better measure the use of telephone interviewing.

CEQ biennial revisions. The CE program updates and revises the CEQ every 2 years, in conjunction with the CPI market-basket revision. The revision process begins shortly after the last set of biennial revisions goes into production, and is the mechanism by which the survey stays abreast of changes in the consumer environment. Research into potential changes includes

- a review of new or emerging products and services that are not currently collected;
- identification of changes in the ways existing products or services are marketed and billed (e.g., bundled utilities);
- a review of selected expenditure categories to determine whether products need their own category codes;
- a review of questionnaire content to correct any items that have been identified as problematic or confusing for respondents or difficult for interviewers to handle within the instrument; and
- solicitation of input from CPI and other BLS users, Census field staff, and others about needed or desired changes.

Other methodological improvements. The following improvements have already been made:

- Tax estimation: a new process was put in place for the 2013 data to estimate federal and state income taxes for the CEQ. The estimation process incorporates computer code from the National Bureau of Economic Research TAXSIM model, as well as a process to assign CUs into tax units.⁴ An analysis of the data was written and published as a *Monthly Labor Review* article in 2015.⁵
- Race edit imputation: when race data are missing, they are now imputed using current geographic population totals from the Census Bureau.

- Weighting for missing high-income CUs: a Conference on Research in Income and Wealth paper pointed out that the CE was underrepresenting high-income CUs.⁶ A new weighting process was developed to use Internal Revenue Service data to account for these missing units.

Bounding interview elimination. With the 2015 data collection cycle, the CEQ design was changed from a five-wave design to a four-wave design. In the five-wave design, the main intention of the first interview was to “bound” the interview period so that respondents didn’t “telescope,” which means bringing forward expenditure reports from outside the recall period. Analysis of the data showed that telescoping had little impact and that the bounding interview was unnecessary.⁷ Eliminating the first interview did cause the new first interview to take more time because additional questions were added. But the CE made an effort to streamline the survey in 2015 to reduce the overall length of the interview.

Consumer Expenditure Diary

What follow are major innovations to the CED.

The respondent-friendly diary. The design of the CED form had been reviewed and revised over the years but continued to be a challenging document for respondents. The goal of the diary redesign project was to improve response rates while maintaining the same level of data quality. Steps in this process included simplifying the form layout, improving navigation throughout the form, and reducing the number of major categories. Various prototype forms were tested and refined. One redesign version was selected for a major field test, which was conducted in the fall of 2002. Results from the successful field test of the new form led to some additional modifications of that form, which were implemented in production in January 2005.

The diary forms are shipped to the Census Bureau’s National Processing Center to be entered into a database. To support the redesign project, the National Processing Center introduced a new keying and item coding system. About 65 percent of the time, the system assigns the item code on the basis of the expenditure description recorded by the respondent. If a code cannot be assigned automatically, the system displays a list of likely expenditure categories and the keyer makes a selection. Data are keyed, first by one keyer and then by another. When the item code values assigned by the two keyers differ, a keying adjudicator determines the item code.

CAPI collection of demographic and household data. When the diary initially is provided to the household, the interviewer collects demographic data for the household. The interviewer also obtains CU income information at the time the second week diary is picked up. Following the conversion of the Interview Survey to CAPI, the interview portion of the Diary Survey was also converted to CAPI. The CAPI interview portion of the Diary Survey went into use in March 2004.

CEQ and CED Surveys

What follow are major innovations to both the CEQ and CED.

Asking better questions. The CE tests all new and revised questions in the cognitive laboratory operated by the BLS Office of Survey Methods Research. Laboratory staff maintain a pool of individuals from the local community who serve as test respondents. Research staff develop study protocols to test asking respondents alternative survey question wording, and then seek additional information to learn about the validity of response. In addition, research staff ask the respondents how they went about formulating their answers. Using a set of standard cognitive testing techniques, researchers identify any issues they discover about each question or question set

and propose solutions to address those issues. Revised questions are retested until the questions are understood properly, answered accurately, and function as intended.

Contact History Instrument. The Contact History Instrument (CHI) is one tool in the collection of approaches being developed to help staff understand and combat survey nonresponse. It is an automated module administered in conjunction with a CAPI survey instrument. The CHI is designed to record information about every attempted and actual interaction between an interviewer and a CU. For each in-person or telephone contact, interviewers record the nature of the contact or noncontact, any issues or concerns perceived by the interviewer as being problematic for the respondent that will affect response, and the strategies the interviewer used to reach the CU. The CHI was added to the CEQ in 2005 and to the CED in 2006.

Income imputation. Income is a key variable for the CE surveys, but it is also a sensitive item and one that is prone to item nonresponse. Beginning with publication of the 2004 data, the CE instituted a multiple imputation procedure to estimate values for income when respondents did not report precise values. Imputation allows the CE program to publish mean income that reflects all CUs. For respondents who provide a bracket value for income, the imputed values lie within the range described by the bracket. When respondents provide no information about their income, a regression-based multiple imputation method estimates their income. Essentially, a regression is run to provide coefficients for use in estimating values for missing data points on the basis of observed independent variables. Each coefficient is then “shocked” by adding random noise to it, and missing values are estimated using the shocked coefficients. This process is used to generate unbiased variances; the first shock is designed to account for the variance in the parameter estimates and the second shock is to account for the variance in the regression residual. To each of these estimated values, additional random noise is added to ensure that consumer units (or members) with identical characteristics (e.g., urban service worker ages 25 to 34) will not receive identical estimates for their income. The resulting values are used to fill in invalid blanks where they occur, whereas reported values are retained. This process is then repeated four times, so that a total of five imputed values are computed for each missing value. The filled-in value is the average of all five imputations.

Source selection for best estimates. As already noted, the CEQ is designed to capture major expenditure items, household characteristics, and income data, and the CED is designed to capture purchases that respondents are not likely to recall accurately over a long period of time. However, CED respondents are asked to report *all* expenses (except overnight travel) that their CU incurs during the survey week. As a result, the CED and CEQ overlap somewhat in their coverage of household expenditures. In a procedure known as integration, the CE chooses the CED or CEQ component of the CE as the most statistically reliable source for each expenditure item and uses data from that source for both the CE publications and data comparisons. A new selection of expenditures is done every other year in conjunction with the CPI staff to ensure that both programs use the same data source.

The Gemini Project to redesign the CE

Figure 1. Response rates for selected household surveys, February 2006–February 2016

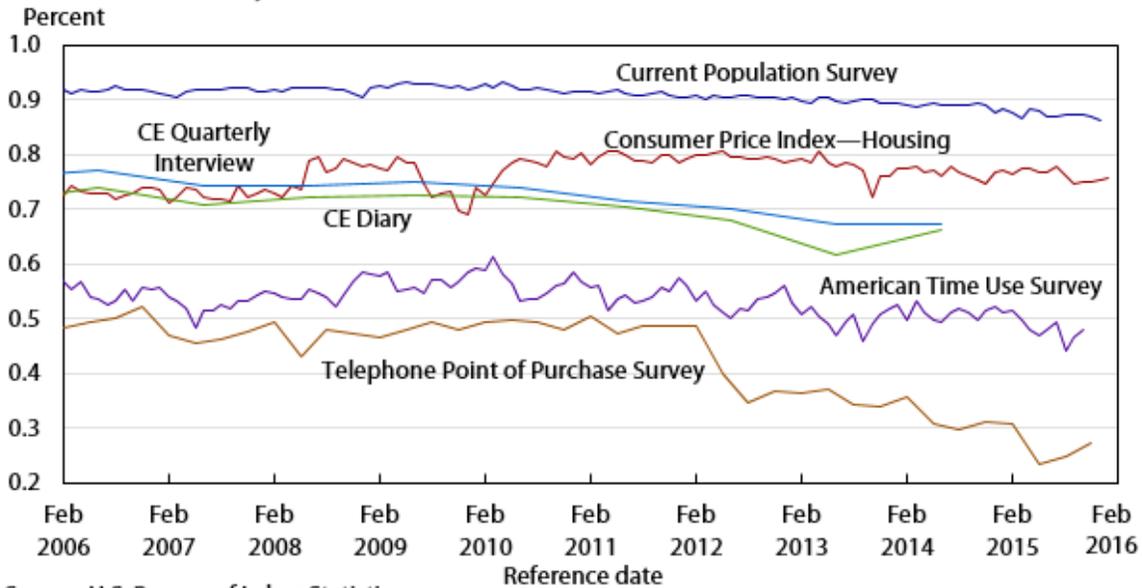
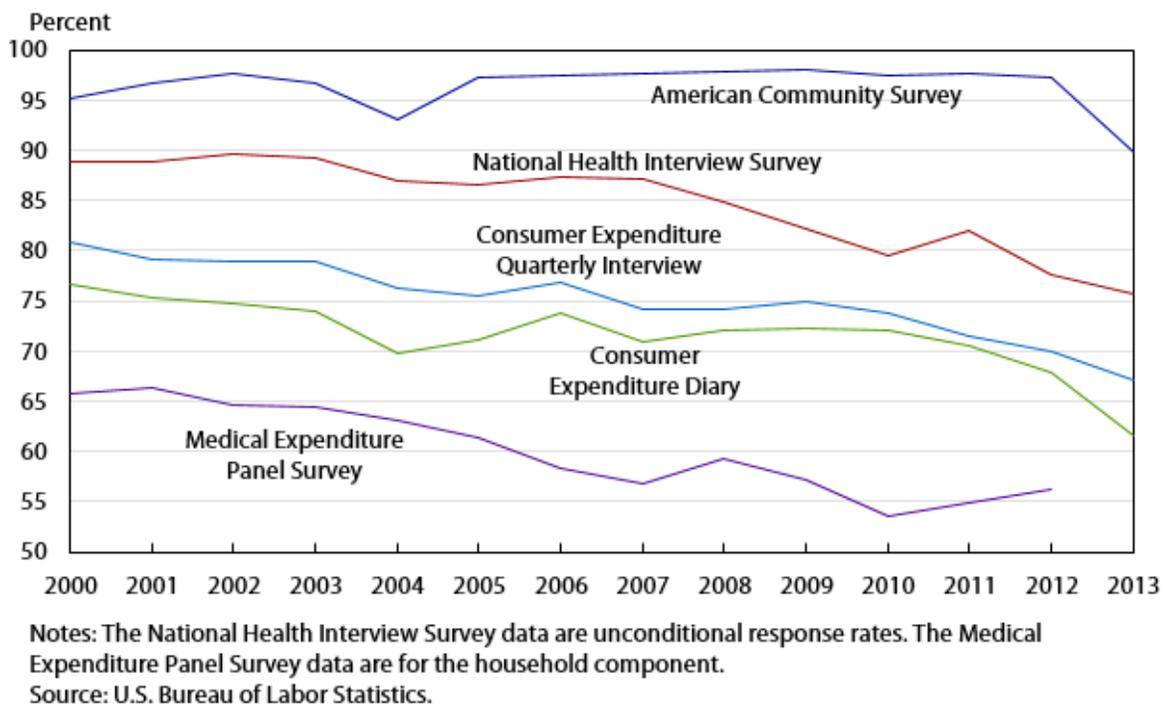


Figure 2. Response rates of selected household surveys, 2000–13



In 2009, the CE program initiated the Gemini Project to research, develop, and implement an improved survey design. The project name “Gemini,” Latin for “twins,” is a nod to the twin components of the current design—the CEQ and CED. In 2013, the CE redesign proposal was approved, outlining the future direction of the CE. As stated in the project’s vision document,⁸ the objective of the redesign is to improve data quality through a quantifiable reduction in measurement error, particularly error generally associated with underreporting. As secondary goals, the CE program seeks to reduce the burden for respondents and, to the extent possible, do no further harm to response rates, which have been trending downward for both BLS surveys and surveys in general (see figures 1

and 2). While earlier methodological improvements targeted specific components of the overall survey protocol, the Gemini Project is the first to pursue a comprehensive redesign. Complete background information on the Gemini Project, as well as associated materials, are publicly accessible from the project website.⁹

CNSTAT report

The CE program contracted with CNSTAT in 2011 to convene an expert panel that would analyze issues facing the CE and propose redesign options. The panel included nationally recognized experts in the fields of economics, statistics, and survey methodology. Their recommendations are detailed in a final report that synthesized information from past CE research projects, outreach to data users and industry experts, and independent papers into concrete design recommendations.¹⁰

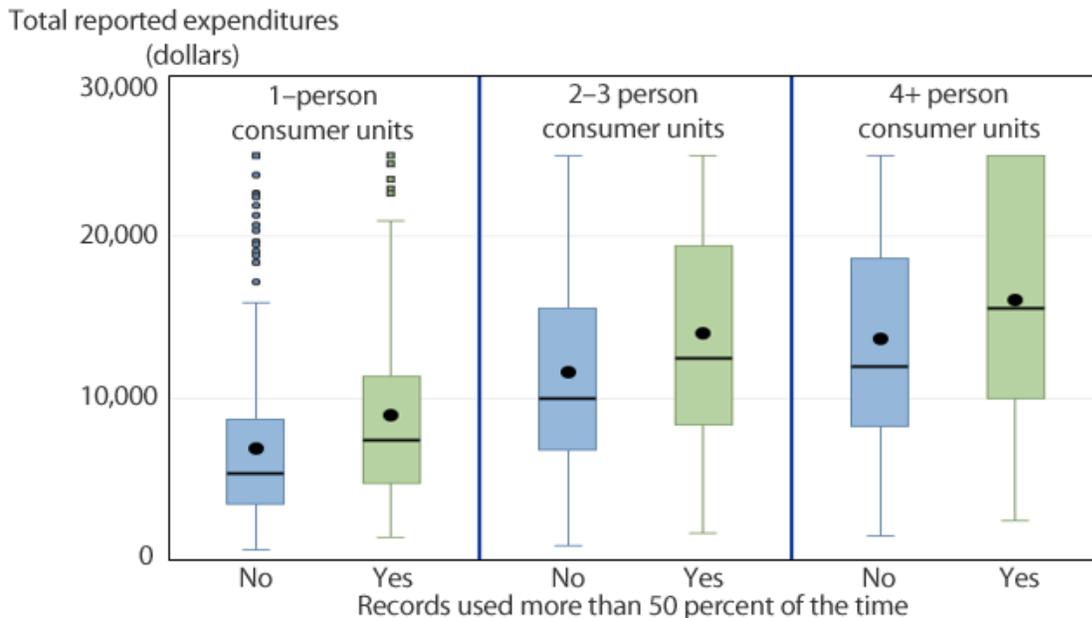
CNSTAT released its final report in late 2012, recommending that BLS support a major redesign of the CE. The CNSTAT final report also included a series of potential design options that would address some of the major issues that face the survey.

In 2013, the CE program developed a comprehensive redesign proposal—which relied heavily on the CNSTAT design recommendations that were approved in 2013—outlining the future direction of CE.¹¹ CNSTAT’s final report served as a key input to the redesign plan’s development and remains central to the ongoing CE redesign process. The redesign aims to modernize the survey to reflect changes in consumption behavior, such as the expansion of online shopping, the growth of large general merchandise stores, automatic bill paying, and other new modes of payment (e.g., smartphone apps). In addition, the redesign initiative aims to address the changing landscape of survey administration. These changes include less willingness on the part of households to respond to surveys, a greater number of competing surveys, and increased concerns about safeguarding information.

The following are CNSTAT recommendations that were incorporated into the redesign plan:

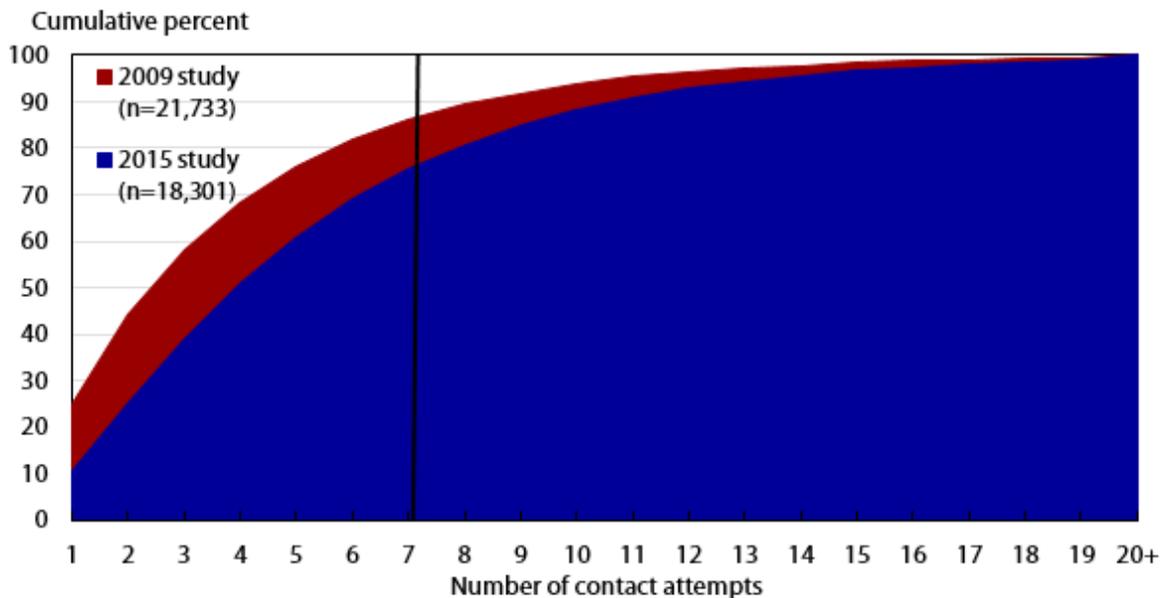
- A one-sample design (i.e., not separate samples for CEQ and CED)
- Fewer and shorter interviews to lessen respondent burden
- Increased use of technology, especially to facilitate “in-the-moment” (i.e., contemporaneous) reporting
- Increased record use to improve data quality (e.g., asking a respondent to refer to a utility bill rather than asking them to recall what they paid)
- Individual diaries to reduce proxy reporting
- Mixed-mode data collection
- Incentives to increase compliance and engagement

Figure 3. Consumer Expenditure Quarterly Interview survey record usage and reported expenditures (wave 5)

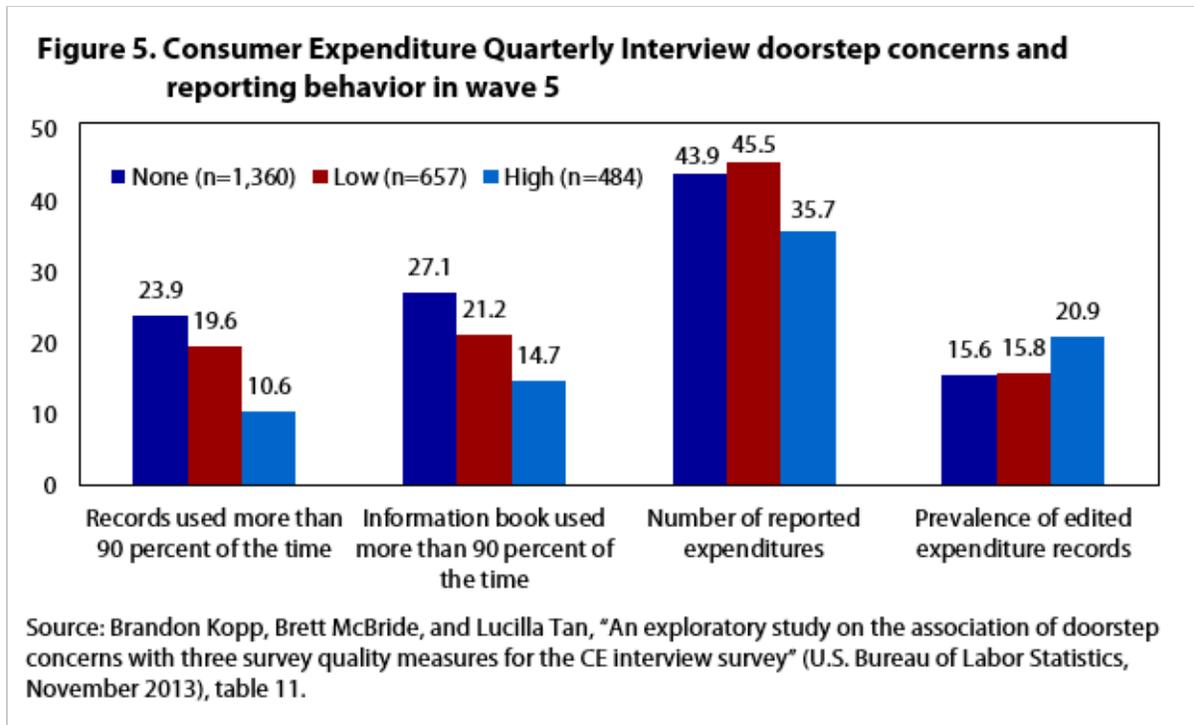


Notes: A black dot within each bar indicates the mean value. A black line within each bar indicates the median value. Dots outside the bar are outliers.
 Source: U.S. Bureau of Labor Statistics.

Figure 4. Number of contact attempts to obtain final disposition



Source: U.S. Bureau of Labor Statistics.



A single-sample design increases cost efficiencies and reduces overall respondent burden. After we control for other factors, including household size, increased record use has been shown to be associated with a higher level of expenditures that are reported (see figure 3). The design includes the use of incentives to increase respondent cooperation and engagement. Incentives help counterbalance both the increase observed in contact attempts needed to reach final disposition over time (see figure 4) and the lower level of expenditure reporting associated with respondent concerns (see figure 5).

Design overview

The redesign plan calls for a single sample of CUs participating in two waves of data collection set 12 months apart. Each wave is identical in structure: a wave consists of two visits with a single respondent serving as a proxy reporter for all CU members (although other members may be present at the interview and may contribute) and a 1-week diary for completion by every CU member 15 years and older. In addition, the redesign introduces a web diary (accessible via computer, smartphone, or other mobile device) and performance-based incentives.

The redesign plan attempts to increase the CE’s ability to collect high-quality data while maintaining response rates and stabilizing cost through the use of

- incentives to address respondent motivation;
- individual diaries to reduce proxy reporting;
- technology to encourage real-time data capture; and
- shortened interview length and increased record use to improve data quality.

An overview of the redesign is presented in table 1.

Table 1. Consumer Expenditure Survey redesign overview

Item	Type of record		
	Visit 1	Diary week	Visit 2
Interview type	Recall based	Contemporaneous recall	Records based
Mode	Personal visit	Self-administered web or paper form (respondent preference)	Personal visit
CU level or person level	CU-level interview with proxy respondent	All CU members ages 15 years and older	CU-level interview with proxy respondent
Reference period	3 months	1 week	3 months
Interview	Household roster, select large expenditure categories	All expenditures	Select large expenditure categories, diary review, paper diary pickup
Postinterview instructions	Respondent to collect records for select expenditure categories for visit 2, diary placed with respondent, provide training for web diary	Not applicable	Not applicable
Anticipated length of interview	45 minutes	20 minutes per day	45 minutes
Incentive conditional on completion	Yes	Yes	Yes
Level at which incentive is provided	CU	Person	CU
Value of incentive	\$20 debit card	\$20 debit card	\$20 debit card without records, or \$40 if records used

Note: In wave 1, a prepaid token \$5 cash incentive accompanies the survey advance letter. Wave 2 is repeated 1 year later. Nonmonetary household spending summary is sent upon completion of wave 2.

Source: Consumer Expenditure Survey program, U.S. Bureau of Labor Statistics.

Visit 1. Visit 1 is an in-person recall-based interview, with some reduction to the number of included items. During visit 1, the interviewer (i.e., field representative) establishes a household roster and conducts a recall interview to collect large, easily remembered household expenditures (e.g., such as cars and major appliances) from the previous 3 months. After the recall interview, the interviewer asks the respondent to collect records for select expenditures to be used in the visit 2 interview. Lastly, the interviewer places diaries and trains respondents on using the web diary. Visit 1 is expected to last approximately 45 minutes on average. Upon successful completion of visit 1, the CU receives a \$20 debit-card incentive.

Diary week. Beginning the day after the visit 1 interview, all CU members 15 years and older keep a diary of their expenditures for the next 7 days. A \$20 incentive in the form of a debit card is given to each CU member who completes the diary task. Any CU member unable or unwilling to use the web diary is given a paper diary form. This multimode diary allows respondents to use the technology they are most comfortable with. The diary portion of the survey is intended to capture items that are frequently purchased and might not be recalled accurately over a long period of time, in addition to more sensitive items and items that a proxy respondent may not know for other CU members.

Visit 2. Visit 2 takes place after the diary-keeping period, 1 week after visit 1. Visit 2 consists of a records-based interview, in which the interviewer collects expenditures on the basis of records requested in visit 1. This interview targets expenditures respondents tend not to remember accurately but keep records of—for example, mortgage

principal and interest and phone bills. In addition, the interviewer collects any paper diaries and enters any additional expenses missed by members during the diary week. Like visit 1, visit 2 is expected to last approximately 45 minutes on average. The incentive amount for visit 2 is \$20 awarded to the CU, or \$40 if records are used.

Wave 2. Twelve months later, each CU repeats the full process. The second wave of data collection follows the same structure as the first, with the visit 1 recall interview, the individual 1-week diaries, and the visit 2 records interview. The incentive structure also remains the same.

One advantage of having only two waves is the reduction in respondent burden. There is an additional risk, which is that of losing the FR–respondent rapport developed during the first wave. To offset this, a respondent engagement mailing is sent to CUs after the first wave. This mailing is envisioned as a postcard or email thanking the respondents for their time, reiterating the importance of their participation, and reminding them of the next wave.

Incentives. Each wave begins with an advance mailing that describes the survey and explains the importance of their participation (similar to the current CE design’s wave 1 advance letters). The letter also includes a token \$5 cash incentive and information about the promised incentives for successfully completing the household interview and diary components.

Under the redesign plan, incentives are performance based and awarded at the individual level. A single-household CU respondent receives \$20 for completing the visit 1 recall interview and \$20 or \$40 for the completion of the visit 2 records interview, depending on whether records are used. Each CU member, including the household CU respondent, receives \$20 for successfully completing the diary task. All monetary incentives are repeated for wave 2.

The final incentive is a nonmonetary “respondent experience package” awarded after each wave of data collection. This brochure package contains a personalized graph showing the household’s expenditures compared with national averages, as well as an information sheet listing helpful, relevant government websites about spending.

Redesign implementation and testing

After releasing the redesign plan in 2013, the Gemini Project entered a testing and development phase which will lead to implementation. A high-level timeline for redesign implementation is publicly accessible from the project website, with additional description provided here of the proof-of-concept test (POC), questionnaire design tests, and the large-scale feasibility test.¹² The timeline for redesign implementation is funding dependent; the CE’s goal is to implement a fully redesigned survey by the mid-2020s.

POC test. The purpose of the POC test is to mirror as closely as possible the design on a small scale, including the administration of one wave of the redesign plan. The POC’s main objective is to ensure that the basic underlying structure and components of the new design are feasible. The test will also provide information on the effectiveness of incentives, length of interviews, and respondents’ willingness and ability to complete each component of the survey. The POC incorporates the major factors of the redesign plan: the visit 1 recall interview, 1 week of individual diarykeeping and records collection, the visit 2 records interview, web diaries (with a paper backup), and incentives for each component. The POC test was fielded in 2015; results are pending.

Gemini content project. The Gemini design team reviewed required expenditure categories and determined whether each expenditure category was best collected via recall, records, or a diary. The design team identified 36 expenditure categories to be collected via recall during the visit 1 interview, 68 categories to be collected via the diary, and 36 categories to be collected via records in the visit 2 interview. Information collected in the recall interview includes home goods, improvements, and services; information and information services; transportation; pets; and recreation. Diary categories include clothing, food, personal care, and housekeeping supplies. For the records interview, categories such as utilities, housing, vehicles, medical expenses, insurance, and education are included. These designations are being tested and evaluated to ensure the best collection method is used. The Gemini content project was completed in 2014, with results summarized in a final report.¹³

Recall interview question development. The questionnaire for the visit 1 recall interview of the redesigned CE is in development. Through cognitive interviews, contracted Westat researchers are testing various aspects of the questionnaire, including question wording and the level of aggregation at which each question should be asked. For example, the category for educational expenses may be asked as a single question—“What did your household spend on education expenses in the past X months”—or as multiple questions—“In the past X months, what did your household spend on

- college tuition?
- tutoring and test preparation?
- educational books and supplies?”

The level of aggregation required for some expenditure categories may result in data provided by some lower level questions in the recall interview and by responses in the records-based interview, so that the category is spread across both interviews.

Recall interview protocol. Although the current CEQ has a protocol in place, this protocol has never been fully evaluated to identify possible improvements. To ensure that the redesigned recall interview uses the best method for collecting recall information, the CE tested two alternative protocols: (1) a respondent-driven versus interviewer-driven interview structure, and (2) a grouped versus interleaved question order.

The respondent-driven versus interviewer-driven dimension concerned interview order and flow. In the respondent-driven protocol, respondents were presented with a list of broad expenditure categories (e.g., trips and vacations, housing repairs and maintenance, education expenses) and controlled the order of the interview. The interviewer-driven protocol progressed with a set order and is the method used in the current CEQ.

The grouped versus interleaved dimension focused on how questions flowed within each section. For grouped sections, the respondents were presented with a list of items in the section and were asked to indicate all items for which they had an expense. Once a list of expenses was complete, followup questions were asked about each of those items. For the interleaved protocol, all followup questions were asked directly after an affirmative item expense—that is, before continuing on to the next item. The interleaved protocol is the procedure used in the current CEQ.

Through a series of cognitive interviews, contracted Census researchers found that the original structure—interviewer-driven with an interleaved question order—worked best for respondents and interviewers alike.

Records interview protocol. For the visit 2 records interview protocol test completed in 2015, CE program staff tested a track in which respondents handle their records and determine the order of the interview. The staff then compared the results with those from a track in which the interviewer organizes the records and follows a scripted interview order.

With the respondent track, the respondent has a great deal of control over the interview. The interviewer asks the respondent to report expenses from the records gathered, in an order chosen by the respondent. An expected advantage of this design is that respondents can complete the interview in a manner that aligns with how they organize and think about their own records. A possible limitation of this design is that respondents may require more time to locate required information from their own records than would experienced interviewers who know where to look on receipts and other expense documents. Additionally, if a respondent's record collection is not well organized, the interviewer may be required to revisit categories multiple times to collect all the needed data.

Using the interviewer track, the field representative leads the participant through the interview in a defined order. The interviewer follows a predetermined question order and handles the records (with respondent permission). Expected strengths of this design are reductions to both interview length and respondent burden.

The project resulted in findings that both interviewer-driven and respondent-driven protocols were feasible for a records interview. However, the frequency of use of electronic records was significantly greater in the respondent-driven group, and some participants expressed reluctance to hand over records to the interviewer. The team recommended moving forward with a hybrid approach whereby interviewers control the order of the questions and respondents control their own records. The study also showed the importance of a checklist in managing respondent expectations of interview content.

Large-scale feasibility test. The CE program plans to field a large-scale feasibility test (LSF) in 2019. The purpose of the LSF test is to evaluate the effectiveness of the redesigned survey in terms of response rate, data quality, and expenditure reporting differences. The test will benefit from the statistical power of a larger sample size. The LSF test will be designed to reflect all of the redesign components in an environment closer to what the production survey will operate in than the current survey. For example, the most up-to-date questionnaire revisions will be included, and all materials used will be designed specifically for the test. The LSF test will employ new collection instruments and revised protocols based on inputs from all previous field tests and other research activities.

CE research highlights

This section offers a summary of recent research conducted in support of the redesign and is organized by which of the redesign objectives—reducing error, reducing burden, maintaining cost neutrality, or monitoring results—the study was developed to address. It concludes with a discussion of ongoing research challenges.

Reduce error

Reducing measurement error, particularly error generally associated with underreporting, is the primary objective of the redesign. To this end, the CE program is researching the linking of administrative data to respondent records. Recommended by the CNSTAT expert panel, supplementing respondent-provided data with relevant auxiliary data has the potential to both increase the accuracy of CE estimates and reduce data collection and

processing costs. This approach is currently being tested with CE housing data, for which there is some evidence of underreporting.

Additional measurement-error research focuses on proxy reporting. CE staff have long been concerned about underreporting due to proxy reporting. Research and development of individual-level diaries to replace household-level diaries offers the potential to address this issue in the CED. The path is less clear for the CEQ. On the basis of questions asked in a 2013 research section, respondents who reported being “very knowledgeable” of other CU member expenditures showed a 5-percent increase in total reported expenditures compared with those reporting less proxy knowledge.¹⁴ Work continues in this area via a recent cognitive lab study offering design recommendations for future proxy protocols to minimize such error.¹⁵

The CE program also seeks to reduce error due to nonresponse. Like other surveys, the CE has experienced a marked decline in response rates, leading to greater concern about nonresponse bias. Research in this area includes analysis of data from the CHI module, which provides a log of contact-attempt observations. Results have been remarkably consistent, particularly for interview observations related to respondent initial concerns.¹⁶ The type of respondent’s initial concerns regarding survey participation was found to be associated with both an increased likelihood of nonresponse and reduced reporting quality in the final survey wave. Given this, the CE program is exploring a responsive design approach, in which hostile or concerned respondents receive tailored contact attempt treatments.

Additionally, CE researchers are using text analysis tools to apply quantitative techniques to qualitative data.¹⁷ For example, analyzing interviewer refusal notes quantitatively can speed up the information loop and provide assistance in gaining cooperation in later waves by tailoring information to respondent concerns.

Reduce burden

Reducing burden is the secondary goal of the redesign. The CE program recognizes that participating in the survey requires a substantial commitment of time and energy from respondents. Therefore, the program seeks to strike a balance between the scope of data collected and the effort required from the respondent. In a 2013 research module, respondents identified interview length and number of interviews as the most burdensome aspects of the survey.¹⁸ Information like this assists the CE in evaluating redesign options.

Cost neutral

Though the Gemini Project will result in major changes to the survey, the redesign is a necessarily cost-neutral undertaking. Research into the optimal number of contact attempts and the elimination of the bounding interview has supported this goal by identifying potential means of cost savings.

Because analysis results suggest that seven is the optimal maximum number of contact attempts from a total survey error perspective (that is, attempting contact for sample units beyond this ceiling was costly, did not have a substantive impact on sample characteristics, did not reduce measurement error, and did not improve sample representativeness despite increasing the response rate),¹⁹ CE researchers have proposed implementing this threshold.

Similarly, because of evidence that the bounding interview may not be effective in minimizing telescoping errors, and also because its expenditure data were not used in the production of official estimates nor released as part of the microdata files, CE researchers suggested eliminating the bounding interview as a way to reduce data

collection costs without adversely affecting data quality. Starting with the 2015 production cycle, the bounding interview has been eliminated.

Monitor results

Along with undertaking projects in support of the redesign effort, CE researchers are developing ways to monitor the results of the redesign and verify its impact on measurement error. A set of data quality metrics is in development, which will be used to establish baselines for monitoring trends in the quality of routine survey production activities.²⁰ These metrics can also be used to evaluate the impact of survey design options under consideration as well as external interventions that affect the survey. From this process, an annual data quality profile will be available first to internal stakeholders, and then eventually to external stakeholders, making data quality assessment more transparent.

Also in development is a composite burden index, which will allow the CE to track respondent burden over time. The burden index draws from questions asked in a 2013 research module to assess perceived burden; the CE tentatively plans to implement a burden index by 2017 as a baseline measure.

Challenges and next steps

The CE program faces many challenges ahead. Specific challenges include

- reducing respondent burden due to data security requirements for online instruments,
- enabling interviewer handling of incentives,
- returning data of value to respondents through a spending summary report,
- accommodating acceptance of annotated grocery receipts, and
- incorporating innovations and lessons learned from administrative data linkage projects that use auxiliary housing and income data files from third party aggregators.

More broadly speaking, challenges include

- synthesizing test results into in-progress redesign testing and implementation,
- overcoming difficult limitations on research, testing, evaluation, and implementation because of ongoing budget constraints,
- achieving sufficient sample sizes in research tests,
- keeping up with the pace of technological change, and
- negotiating the promises and pitfalls of emergent private sector technologies, many which have limitations that are not yet fully understood or well suited to the federal government data-collection environment.

One example of the last challenge is balancing the tradeoffs between ease of access and data security in electronic survey instruments, as discussed in a recent paper by Brandon Kopp.²¹

However, through innovative design discussions, adherence to the CE’s planned redesign roadmap, iterative updates based on ongoing research and development, regular and interactive communication with stakeholders, and the support of a dedicated research and development staff, the CE program continues toward the successful implementation of a comprehensive survey redesign.

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Are older Americans healthy enough to work longer?

Charlotte M. Irby

Should people in the United States work longer since they are living longer, with women now living to be approximately 81 and men 76? Better yet, maybe the question that needs to be asked is, “Do older Americans have the health capacity to work longer?” Courtney Coile, Kevin S. Milligan, and David A. Wise discuss this question in their paper, “[Health capacity to work at older ages: evidence from the U.S.](#)” (National Bureau of Economic Research, working paper no. 21940, January 2016).

Currently, employment drops off rapidly once people reach their 60s, but, according to the authors, health tends to decline “steadily but quite gradually with age.” With increases in the Social Security retirement age and with some talk of a possible higher eligibility age for Medicare, the authors feel that older people’s health capacity to work longer is indeed a topic worth investigating.

They do so by considering two methods of analysis: first they calculate what the employment rate of today’s seniors would be if they were to work as much as people with their mortality rate did in the past—that is, the researchers apply the employment rate of somewhat younger people during an earlier time period to today’s seniors. The second method looks at how much older workers at a given health level could work if they worked as much as younger workers with the same health level. Results from both methods suggest “most people are healthy enough to work longer than they do now.” The authors also break down the second method into subcategories: education and self-assessed health (SAH) by education level. The education subcategory revealed that educated women have a greater capacity to work longer; the additional work capacity of men, however, did not vary much by education subcategory. SAH subcategory outcome showed that people with higher education self-assessed their health at substantially higher levels than did similarly educated people in the past, and thus have more capacity than the less educated to work longer.

More specifically, the authors conclude that the majority of older workers “are healthy enough to work another year or two if they must.” However, the authors note that before policymakers pass laws raising the age levels of various programs, they should consider not only healthy people but also those with disabilities and other health conditions. Provisions need to be included for those with poor health. Second, many people value their “leisure time” and may not want to work longer, so the authors intend their discussion to be about only “modest changes” to program policies.

Evolution of administrative practices in American unions: results from a 20-year study

This article provides insight into the internal administrative policies and practices of labor organizations. These administrative policies and practices are rarely considered in discussions about how unions have changed and adapted to remain relevant and effective. On the basis of surveys of national unions conducted in 1990, 2000, and 2010, study results of union administrative practices are reported. The findings suggest that over the last 20 years, unions have increasingly adopted more formal and systematic budgeting, strategic planning, program evaluation, and human resource policies and practices and have benefited substantially from the implementation of these practices.

For many decades, American unions have faced an increasingly difficult environment that has caused steady declines in their membership.¹ To address these challenges, unions have actively searched for new and innovative approaches to political action, organization of new members, and member mobilization. Some have undergone restructuring, and many have reached out to other unions and to like-minded organizations, both nationally and internationally, to form alliances. Observers both inside and outside the labor movement have analyzed these efforts and their effectiveness.

This article examines a less frequently studied part of union life, namely, the extent to which unions are improving their internal administrative policies and practices. The article investigates how unions conducted their internal operations with respect to human resources, budgeting, and planning—together, the kinds of activities that make organizations everywhere more effective.



Lois S. Gray

lsg7@cornell.edu

Lois S. Gray is professor of labor management relations, New York State School of Industrial and Labor Relations, Cornell University, Ithaca, NY.

Paul F. Clark

pfc2@psu.edu

Paul F. Clark is director and professor of the School of Labor and Employment Relations, Penn State University, State College, PA.

Paul Whitehead

pvw11@psu.edu

Paul Whitehead is professor of practice of the School of Labor and Employment Relations, Penn State University, State College, PA.

Administration, in any organization, is the set of practices and procedures through which work is done. The tools of administration in most modern organizations include

- the budgeting of income against projected expenditures, with detailed attention toward funding priority goals;
- strategic planning to assess the environment and set an overall course;
- the evaluation of programs to correct course and enhance desired results; and
- the management of human resources, such as recruiting and hiring qualified personnel, establishing policies and performance expectations, and rewarding employees to achieve maximum effectiveness.

In 1990 and 2000, two of the coauthors of this article asked U.S.-based national and international unions to complete surveys about their organization's administrative practices. In 2010, the authors of this article again asked these unions to complete a similar survey. The results of the 20-year study provide unusual insight into the internal operations of unions. This article reports the most substantial findings of the surveys regarding the budgeting, strategic planning, program evaluation, and human resource management practices in labor organizations.

Data collection

In 1990, questionnaires were mailed to all 110 American-based national and international unions. Forty-eight unions completed and returned the survey for a response rate of 44 percent. In 2000, a similar questionnaire was sent to 88 national and international unions (U.S. unions), all of which received surveys in 1990 (the drop in the number of unions receiving the survey is the result of mergers). Fifty-two percent (46 of 88) of the unions completed and returned the survey. And in 2010, 62 national and international unions received the survey; 36 of the unions, or 58 percent, returned completed surveys. Each of the three surveys inquired about budgeting practices, strategic planning, program evaluation, and human resource policies and hiring practices.

Of the 48 responses to the 1990 survey, 37 unions identified themselves. Membership of the 37 unions totaled 9.64 million, which represented 57.7 percent of that year's total membership in U.S. unions.² In 2000, 35 of the 46 unions responding identified themselves. Membership of the 35 unions totaled 11.38 million, or 69.8 percent of the total U.S. membership in that year.³ In 2010, 33 of the 36 respondents were identified. Membership of the 33 totaled 10.5 million, or 71.4 percent of the total U.S. membership.⁴ Note that these figures underreport members in the sample because several unions responding to each survey did not identify themselves and were not included in the calculations.

To determine the representativeness of the respondent sample by sector, we broke down the respondent unions for each of the three samples by the primary industry in which their members were employed. (See table 1.) The proportion of each sector in the sample as a whole was compared with the distribution of unions across sectors in the overall labor movement. The results indicate that the sector distribution of the sample generally represented the sector distribution of the unions within the labor movement. This comparison, along with the large number of unions in the three samples and the substantial percentage of overall U.S. union membership they included, suggests that the samples generally represented the labor movement as a whole.

Table 1. Percentage of unions by industry sector in sample and in overall labor movement, 1990, 2000, and 2010

Sector	1990		2000		2010	
	Sample	Overall	Sample	Overall	Sample	Overall
Industrial or manufacturing	25	31	15	19	17	18
Building trades	8	15	19	19	22	18
Transportation	17	18	19	17	19	22
Office or professional	12	7	4	2	0	3
Public or government	17	12	17	19	25	19
Service	15	10	7	11	3	7
Entertainment or sports	6	8	17	14	14	12
Total <i>n</i>	48	94 ⁽¹⁾	46	81 ⁽¹⁾	36	72 ⁽¹⁾

Notes:

⁽¹⁾ The overall category consists of all national or U.S.-based international unions with over 10,000 members listed in C. D. Gifford's *Directory of U.S. labor organizations* (Washington, DC: Bureau of National Affairs, 1991, 2001, 2011) for the designated years. *n* = sample size.

Source: Authors' calculations based on results of surveys and on data from D. C. Gifford's *Directory of U.S. labor organizations*.

Historical background

In the early 20th century, many labor unions were organized as loose-knit associations of working people with a staff of volunteers, most of whom lacked professional training in the management of organizational resources. By the 1950s, unions had grown to large organizations with significant annual revenues, many full-time employees, and operations of national and even international scope. Nonetheless, in the 1970s and 1980s, academic observers such as Derek Bok and John Dunlop pointed out that U.S. unions rarely engaged in the budgeting, strategic planning, program evaluation, and human resource management practices that characterized other organizations (government, business, and nonprofit).⁵ Subsequent studies, including those by Clark and Gray in the 1990s and 2008, documented the evolution of union administrative practices.⁶

Findings

General administrative practice. Each iteration of the survey focused on the budgeting, strategic planning, and program assessment practices of unions. As reflected in table 2, 65 percent of the union respondents in the 1990 survey indicated that they developed an annual budget with planned expenditures by function or department. The percentage of respondents increased to 76 percent in 2000 and to 80 percent in 2010.

Table 2. Percentage of union respondents adopting general administrative practices, maintaining human resource policies for headquarters and field staff, maintaining certain hiring policies, using outside consultants, and having unionized staff, 1990, 2000, and 2010

Survey topics of union respondents	1990	2000	2010
General administrative practices			
Developed an annual budget	65	76	80
Employed a formal strategic planning process	40	67	70

See footnotes at end of table.

Table 2. Percentage of union respondents adopting general administrative practices, maintaining human resource policies for headquarters and field staff, maintaining certain hiring policies, using outside consultants, and having unionized staff, 1990, 2000, and 2010

Survey topics of union respondents	1990	2000	2010
Had a systematic evaluation process for planned activities	22	50	71
Written human resource policies for headquarters staff			
All formal policies (mean)	38	49	51
Equal opportunity or affirmative action	46	59	58
Discipline and discharge	50	65	78
Hiring	42	48	61
Performance appraisal	33	50	33
Promotion	31	35	42
Salary review	35	37	39
Training	29	46	47
Written human resource policies for field staff			
All formal policies (mean)	34	45	50
Equal opportunity or affirmative action	42	54	56
Discipline and discharge	42	60	75
Hiring	40	41	56
Performance appraisal	25	41	33
Promotion	27	33	42
Salary review	35	37	39
Training	29	46	47
Hiring and consulting policies			
Made current membership a qualification for appointment to headquarters staff	38	16	22
Hired headquarters staff who have previously worked at another union	83	76	84
Hired field staff who have previously worked at another union	55	66	72
Hired headquarters staff who have no previous experience working for a union	—	80	89
Hired field staff who have no previous experience working for a union	—	56	50
Viewed college degrees for headquarters staff as very or somewhat important	—	80	83
Viewed college degrees for field staff as very or somewhat important	—	58	51
Outside consultant services unions used			
Computer services	69	83	80
Economic analysis	35	43	34
Financial planning	25	30	37
Health and welfare benefits	46	43	54
Personnel recruitment	10	23	17
Public relations	52	59	49
Training	35	50	31
Organizational analysis	29	46	21
Staff union-represented			
Headquarters	—	—	75
Field	—	—	44
Total <i>n</i>	48	46	36

Notes: Dash indicates these data were not collected for this year. *n* = sample size.

Source: Authors' calculations.

The results of the survey also indicate that an even greater increase occurred in the percentage of unions that employed a formal strategic planning process focusing on the future activities and work of the union. In 1990, only 40 percent of unions responding to the survey indicated that they had a planning process in place. In 2000, this figure increased to 67 percent. And in 2010, 70 percent reported that they engaged in strategic planning.

In addition, unions were asked whether they evaluated their programs and initiatives. The data indicate that they have been increasingly doing so. In 2010, 71 percent of unions responding to the survey indicated that they had such an evaluation process in place, up from 50 percent in 2000 and 22 percent in 1990. These percentages more than tripled over 20 years and illustrate the progress unions have made toward adopting a more systematic approach to organizational administration.

Management of human resources and hiring practices. On average, over the last 20 years, unions have increasingly adopted more formal, systematic human resource policies. The survey asked respondents whether they maintained written policies in seven areas of human resource management: equal employment opportunity, discipline and discharge, hiring, performance appraisal, promotion, salary review, and training. Table 2 indicates the percentages of unions maintaining such policies over the 20-year period for professional headquarters and field staff.⁷ Among all unions, the percentage of those having formal policies for professional headquarters staff—when averaged over the seven human resource areas—increased from 38 percent in 1990 to 49 percent in 2000 and to 51 percent in 2010. For 5 of the 7 individual policies, the percentage of unions having formal policies for headquarters staff steadily increased for each 10-year period. In another policy area, the percentage increased between 1990 and 2000, but fell to the same level in 2010 as in 1990.

Table 2 indicates similar growth in the percentages of unions having formal, systematic human resource policies for field staff. Over the 20-year period studied, the percentage of all unions having formal human resource policies for field staff—when averaged over the seven areas listed in table 2—increased from 34 percent in 1990, to 45 percent in 2000, and to 50 percent in 2010. The percentage of unions adopting formal policies for professional field staff increased between 1990 and 2010 for all seven individual areas of human resource management.

In written policies that respondent unions adopted, the human resource management areas that they most frequently addressed were equal opportunity/affirmative action, discipline and discharge, and hiring. In 2010, more than half of all reporting unions had formal policies on these topics for both headquarters and field staff. For discipline and discharge, a key issue in staff supervision, the percentage of adopting unions reached 78 percent for headquarters and 75 percent for field staff. Over the 20-year period, the percentage of unions with formal promotion policies increased notably. Formal policies on performance appraisal, a sensitive subject for union officials (as reported in our interviews), increased from 1990 to 2000, but dropped back in 2010 when only a third of the respondents reported having such a policy.⁸

Both the 1990 and 2010 surveys included questions that asked unions whether they had a personnel or human resources director and/or department to handle internal personnel matters. In 1990, only 44 percent of the respondents indicated that they had such a position or department. By 2010, this figure grew to 54 percent. This increase is consistent with the trend toward written policies (see table 2).

Each iteration of the survey examined the hiring practices of unions. In the 1970s, most labor organizations adhered to a “hiring from within” policy that only drew from applicant pools of members. As shown in table 2, 38 percent of unions in 1990 required that applicants for headquarters positions come from the ranks. By 2000, that

figure fell to 16 percent, and although it rose to 22 percent in 2010, it was nonetheless more than 40 percent below the 1990 level.

Complementing this trend, the results of our three surveys found a growing number of unions hiring from outside their ranks. Over the 20-year period, the percentages of unions hiring field staff from other labor organizations grew from 55 percent in 1990, to 66 percent in 2000, and to 72 percent in 2010. For headquarters positions, 83 percent of unions recruited from other labor organizations in 1990, 76 percent in 2000, and 84 percent in 2010.

The 2000 and 2010 questionnaires also asked whether unions were willing to hire from outside the labor movement altogether. In 2000, 56 percent of unions did so for field staff; this figure fell to 50 percent in 2010. In 2000, 80 percent of unions recruited individuals with nonlabor backgrounds for headquarters positions. By 2010, the figure had increased to 89 percent. Taken together, these findings point to a growing union openness to “outside talent,” a development that suggests a substantial cohort of professional unionists has emerged. Additional evidence of professionalization of union staff work is shown in the survey’s report on the growing importance given to education as a criterion for hiring (stronger for headquarters than field staff, but important for both), with many unions financially supporting staff education. As shown in table 2, in both 2000 and 2010, just over half of the union survey respondents considered a college degree “somewhat” or “very” important for new field staff (the 1990 survey did not include questions about this topic). Unions saw this requirement as even more important for headquarters staff. In both 2000 and 2010, 4 out of 5 unions viewed a college diploma as similarly important.

The 1990 union administrative practices survey also found that many unions hired outside consultants to supplement the expertise of in-house staff. The results suggest that unions continue to use consultants in many areas. Specifically, the surveys asked about the use of consultants in the eight areas shown in table 2: computer services, economic analysis, financial planning, cost containment in the pension or health programs for the union’s own employees, personnel recruitment, public relations, training, and organizational analysis. A comparison between 1990 and 2010 indicates that in four areas, unions have increased their use of consultants, and in four areas, they have decreased their use. For those unions who in the past turned to outside consultants for certain skills, followup interviews indicated that unions still require the skills but seek to reduce their costs by developing in-house capacity.

Discussion

The survey data suggest that unions are increasingly adopting more formal, systematic, and professional administrative practices. Interviews with union officials and observations by other researchers suggest that both external and internal pressures have caused American unions to seek ways to become more effective and efficient.⁹ The primary impetus comes from shrinking resources in the midst of a difficult political and economic environment.¹⁰ Against a backdrop of several decades of declining union density in the United States, labor organizations can be seen turning to modern tools of management as a necessary response to the effects of membership loss. The declining membership dues base that many unions have experienced has focused attention on budgets, strategic planning, program evaluation, and new ways to recruit, employ, and multiply the impact of human and financial resources.

Other external pressures facing modern unions that affect human resource practices include legislative mandates, for example, equal opportunity employment laws, legal and social proscription of sexual harassment in the workplace, and family and medical leave requirements. Changes to the Labor-Management Reporting and Disclosure Act reporting requirements with respect to expenditures also may have had an impact.

In the case of budgets, the findings suggest that, as recently as 1990, 35 percent of the unions responding to the survey did not employ an annual budget with planned expenditures by function or department. Administering a union that operates nationally, or even internationally, without a formal budget process would greatly reduce the capability of that union to efficiently use its financial resources. Apparently, unions have increasingly recognized the need for budgeting, because between 1990 and 2010, the percentage of unions not using formal budgeting had fallen from 35 percent to 20 percent.

The absence of strategic planning or a process to evaluate programs and initiatives would similarly reduce a union's organizational effectiveness. The survey indicates that, in 1990, only 40 percent of unions engaged in strategic planning and 22 percent employed program evaluation. Twenty years later, 7 out of 10 unions employed strategic planning and 71 percent systematically evaluated their programs and initiatives. Certainly, employing a formal process in deciding the union's mission, values, and goals and allocating resources to pursue those ends are improvements over the somewhat ad hoc decisionmaking that occurs in the absence of such a process. These planning practices, especially when combined with a formal budget process and assessment of programs, likely allow unions and union leaders to more effectively use the declining resources available to them in 2010.

In addition, the implementation of more formal, systematic human resource management practices has allowed unions to improve the effective use of one of their most important assets—their professional staff. The data suggest that many unions have expanded the pool from which they hire both professional headquarters and field staff. This finding means that unions can potentially increase the range of talents and backgrounds of their staff and, again, more effectively use the financial resources at their disposal. And the increasing use of formal human resource policies might facilitate the attracting and retaining of outside talent.

Innovations in administration have also been encouraged by labor's national federation, the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO), and the example of other unions. For many years, the meetings of the AFL-CIO executive board and its standing committees have provided a useful, if informal, forum for union leaders to exchange new programmatic and administrative ideas. Likewise, the federation regularly sponsors meetings of its affiliates' department heads responsible for such activities as organizing, political action, and legal representation to share information on productive internal practices. Perhaps most notably, in the 1990s, the AFL-CIO began the practice of bringing national secretary-treasurers together to discuss administration methods that are more effective. Today, this practice continues under the leadership of the current AFL-CIO secretary-treasurer. More recently, the human resource directors of AFL-CIO unions also have begun to hold periodic meetings to share information and best practices.

Historically, unionization has caused employers to accelerate their adoption of formal human resource practices.¹¹ Employers adopt these practices, in part, because unions can fairly point out to management how an absence of formal practices leads to inconsistent and unfair treatment of employees. Evidence suggests that staff unions (unions formed to represent the professional employees of unions) have grown across the labor movement (see table 2) and have placed pressure on labor organizations to standardize their human resource policies.¹²

An additional factor possibly responsible for unions adopting more sophisticated and effective administrative practices is that, over time, the proportion of national union leaders and staff who have attended college, and even graduate school or law school, has grown.¹³ As a result, more and more union leaders and administrators have been exposed, via higher and/or continuing education, to theories and principles of organizational management. This exposure increases the possibility that they will look outside their organizations for ideas about management and administration.

Conclusion

Using data from surveys conducted in 1990, 2000, and 2000, this article examines the internal administrative practices and policies of American unions. Specifically, the results indicate that, over the last 20 years, unions have increasingly adopted more formal and systematic human resource policies and practices, continued to turn to consultants to supplement their workforce, pursued more formal budgeting practices, and engaged more often in strategic planning and assessment. This study points to a need for future research to examine whether these advances in union administrative practices produce improved outcomes for unions. The documented experience of organizations in other sectors suggests that the use of modern management techniques can save unions money, help the individuals and departments conducting the programs of the union, reduce turnover, and encourage greater professionalism in all aspects of the organization.¹⁴ In one relevant study, Delaney et al. found that innovation in union administration leads to innovation in union strategy and practice.¹⁵ Future research needs to explore the specific ways that improvements in internal administration lead to better overall union performance.

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⁶ Paul F. Clark and Lois S. Gray, “The management of human resources in American unions,” Proceedings of 44th Annual Meeting of the Industrial Relations Research Association, New Orleans, LA, January 3–5, 1992 (Madison, WI: Industrial Relations Research Association, 1992), pp. 414–423; Paul F. Clark, Lois S. Gray, Kay Gilbert, and Norman Solomon, “Union administrative practices: a comparative analysis,” *Journal of Labor Research*, vol. 19, no. 1, March 1998, pp. 189–201, <http://link.springer.com/article/10.1007/s12122-998-1010-6>; and Paul F. Clark and Lois S. Gray, “Administrative practices in American unions: a longitudinal study,” *Journal of Labor Research*, vol. 29, no. 1, March 2008, pp. 42–55, <http://link.springer.com/article/10.1007/s12122-007-9022-1>.

⁷ Headquarters professional staff are typically full-time employees, usually located at the union’s headquarters, who work for unions in areas such as law, education and training, research, political action and lobbying, organizing, bargaining, communications, international affairs, and planning. Professional field staff are typically full-time employees, not located at the union’s headquarters, who work primarily in areas involving organizing, bargaining, contract administration, and other service work for local and regional affiliates. However, some field staff may work in areas that the headquarters staff more typically work.

⁸ In interviews, some union administrators reported meeting resistance to their attempts to implement performance appraisals. Their accounts recall how John T. Dunlop characterized the title of his book as an “oxymoron”: *The management of labor unions*, p. xi. For discussion of the difficulties of implementing managerial practices in unions, see Ken Margolies, “The challenge union leaders face when they assume the role of managers within a labor organization,” 63rd Annual Meeting of the Labor and Employment Relations Association, Denver, CO, January 7–9, 2011 (Champaign, IL: Labor and Employment Relations Association Series, 2011), <http://toc.proceedings.com/12874webtoc.pdf>.

⁹ John T. Delaney, Jack Fiorito, and Paul Jarley, “Union innovation and effectiveness: results from the National Union Survey,” Working Paper 91-01 (Iowa City, IA: Industrial Relations Institute, University of Iowa, 1991); and Martin Behrens, Richard Hurd, and Jeremy Waddington, “How does restructuring contribute to union revitalization?” in *Varieties of unionism: strategies for union revitalization in a globalizing economy*, Carola M. Frege and John E. Kelly, eds. (New York: Oxford University Press, 2004), pp. 117–136.

¹⁰ Lichtenstein, *State of the union*.

¹¹ Robert J. Flanagan, “Has management strangled unions,” *Journal of Labor Research*, vol. 26, no. 1, December 2005, pp. 33–63, <http://link.springer.com/article/10.1007/BF02812223>.

¹² Paul F. Clark, “Organizing the organizers: professional staff unionism in the American labor movement,” *Industrial and Labor Relations Review*, vol. 42, no. 4, July 1989, pp. 564–599; and Paul F. Clark, “Professional staff in American unions: changes, trends, implications,” *Journal of Labor Research*, vol. 13, no. 4, December 1992, pp. 381–392, <http://link.springer.com/article/10.1007/BF02685528>.

¹³ Lois S. Gray, “Union leadership,” presented in the “Workshop on union governance in a changing labor movement,” Industrial Relations Research Association Annual Meeting (Boston, MA, January 6, 2001).

¹⁴ Nicholas Bloom, Christos Genakos, Raffaella Sadun, and John Van Reenen, “Management practices across firms and countries,” *Academy of Management Perspectives*, vol. 26, no. 1, February 2012, pp. 12–33, <http://amp.aom.org/content/26/1/12.abstract>.

¹⁵ John T. Delaney, Paul Jarley, and Jack Fiorito, “Planning for change: determinants of innovation in U.S. national unions,” *Industrial and Labor Relations Review*, vol. 49, no. 4, July 1996, pp. 597–614, <http://ilr.sagepub.com/content/49/4/597.refs>.

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Fertility of women in the NLSY79

This article uses data from the National Longitudinal Survey of Youth 1979 (NLSY79)—a survey of people born between 1957 and 1964—to examine the fertility patterns of women up to age 46. Women in the NLSY79 cohort have two children, on average, and more than 80 percent of them give birth to at least one child by age 46. The bulk of first births occur before age 30. Fertility patterns differ markedly by education. Women with a college degree are more than twice as likely as those who never attended college to have no children, with this pattern being stronger among Black and Hispanic women. Fertility is delayed as education increases. Patterns of fertility related to labor market experience are evident, but they are weaker than those related to educational attainment.

Many changes in the last half century have affected women's decisions to have children. Increases in the availability of reliable birth control, in the rates of women's college attendance and completion, and in women's labor force participation have changed the costs and benefits of having a child and, hence, affected women's childbearing decisions. From the early 1970s to the late 1980s, the total fertility rate of women in the United States was remarkably stable, hovering around 1.9 children. Over the same period, however, female fertility shifted toward older ages, with the shift being most pronounced among college-educated women and those most attached to the labor force.¹

Using the National Longitudinal Survey of Youth 1979 (NLSY79)—a survey of people born during the 1957–64 period—this article examines the fertility patterns of women up to age 46. In general, women in the NLSY79 cohort are from a younger generation than that considered in other studies.² The article focuses on differences in fertility patterns by race/ethnicity, educational attainment (measured at age 46), and labor market experience. The analysis is descriptive and does not attempt to explain why fertility patterns differ across women. For example, it is unclear to what extent changes in fertility affect women's educational decisions or to what extent changes in



Alison Aughinbaugh

aughinbaugh.alison@bls.gov

Alison Aughinbaugh is a research economist in the Office of Employment and Unemployment Statistics, U.S. Bureau of Labor Statistics.

Hugette Sun

sun.hugette@bls.gov

Hugette Sun is a research economist in the Office of Employment and Unemployment Statistics, U.S. Bureau of Labor Statistics.

women's educational attainment affect fertility decisions. A woman may obtain more education because she delayed having children or she may delay motherhood because she completed more education.

About 83 percent of the women in the NLSY79 cohort have a child by age 46, with 2.0 being the average number of children born to women in this cohort. The bulk of first births occur before age 30, with relatively few first births occurring after age 34. Children born to mothers over 30 are most often second or higher order births.

Fertility patterns differ most markedly by education and labor market experience. Compared with their counterparts with fewer years of schooling, college-educated women are less likely to have children and more likely to have their first child at older ages. This pattern is stronger for Black and Hispanic women. In addition, women who are more attached to the labor force (who work full time in 75 percent or more of the years between ages 25 and 46) have their first child at older ages, have fewer children, and are less likely to have children than women who are less attached to the labor force.

Background

The NLSY79 is well suited for studying fertility patterns. It is a nationally representative sample of men and women who were ages 14 to 22 when first interviewed in 1979. Respondents were interviewed annually until 1994 and biennially thereafter. The NLSY79 collects detailed information on fertility, marital transitions, and employment, in a format suitable for determining the dates of these specific events.

Because the NLSY79 collects data on many aspects of respondents' lives—including employment, marriage, and income—many researchers have used it to examine the relationship between fertility and a variety of other outcomes. Young-Hee Yoon and Linda Waite, for example, used NLSY79 data to examine whether the racial differentials in women's employment after childbirth narrowed in the 1960s and 1970s, a period in which the gap in employment between Black and White women closed dramatically. They found that education, family income other than own earnings, and residence in an urban area affect the decision to return to work differently for Black and White mothers.³

Researchers also have used the NLSY79 to examine how fertility affects wages. Hiromi Taniguchi found that, compared with women who delay childbearing, those who give birth at young ages are more vulnerable to an adverse impact of children on wages.⁴ This is likely due to early childbearers facing career interruptions during critical early periods of career building. For those with more education, the magnitude of the wage penalty is reduced. Kasey Buckles used the NLSY79 to investigate the wage-earning implications of delaying first birth.⁵ She found that, in 2003, an annual 3-percent wage premium existed for each year of delayed motherhood. Delayed childbirth also correlated with high test scores, education, and professional status of the mother.

Others have used the NLSY79 to examine how households adjust fertility in response to other factors. Carol Lehr looked at how households adjust fertility in response to changes in the return to education.⁶ Using wage premiums to measure the return to education, she found that increases in the expected returns to college and high school result in fertility declines for parents with more education, but not for parents with lower levels of education. Dawn Upchurch et al. found that the likelihood of nonmarital conception increases immediately after a woman leaves school, with the effect being smaller for Black women than for women of other racial groups.⁷ Further, the likelihood is lower for previously married women than for never-married women, even when controlling for age, although this reduction is only significant for Black women. Dawn et al. also found that the probability of nonmarital

childbearing increases with the number of children a woman has, and that this pattern is more pronounced if earlier births occurred during a previous marriage.

Data and characteristics of the sample

In this article, we use NLSY79 data collected through 2010, when the youngest sample members were age 46. At each interview, survey respondents report whether they have had a child since the date of their last interview. Respondents who have had a child are asked to report the child’s gender and birthdate.

The sample for this article is restricted to respondents who are female, have participated in an NLSY79 interview at age 46 or older, and have reported a valid year of birth for all biological children, a valid year for marital changes, and highest degree completed in round 9 (1988) (or a later round) of data collection. To classify respondents by educational attainment, we use their most recent report of highest degree completed. To measure a woman’s attachment to the labor force, we use the percentage of years from age 25 to age 46 during which she worked full time (i.e., at least 1,750 hours in a given year).

The sample used here consists of 3,149 women who had 7,967 children by age 46. The data are weighted with the use of custom weights that make the sample representative of the population from which the NLSY79 was drawn.⁸

Table 1 presents some descriptive statistics for the sample. Non-Black non-Hispanics (hereafter, for simplicity, referred to as White non-Hispanics) make up almost 80 percent of the sample, and Blacks and Hispanics compose the remainder, with 14 percent and 6 percent, respectively.⁹ (Note that, in the NLSY79, more than 90 percent of non-Black non-Hispanics are White, but Asians, Pacific Islanders, and Native Americans are also included in this category.) The educational distribution shows that 12 percent of the women in the NLSY79 cohort did not complete high school, 35 percent completed high school but did not go to college, 26 percent attended some college or earned an associate’s degree, and 27 percent earned a bachelor’s degree or higher. The distribution of years of full-time employment shows that roughly a quarter of women fall into each of four categories: 26 percent of women worked full time in 25 percent or fewer of the years between ages 25 and 46, 25 percent worked full time in more than 25 percent and up to 50 percent of the years, 22 percent worked full time in more than half and up to 75 percent of the years, and 27 percent worked full time in more than 75 percent of the years.

Table 1. Sample characteristics

Characteristic	Weighted percentage
Race/ethnicity	
Hispanic or Latino	6.37
Black non-Hispanic	14.14
White non-Hispanic	79.49
Education	
Less than high school diploma	12.17
High school graduate, no college	34.52
Some college or associate’s degree	25.92
Bachelor’s degree or higher	27.39
Percentage of years worked full time between ages 25 and 46	
0 to 25 percent	25.55

See footnotes at end of table.

Table 1. Sample characteristics

Characteristic	Weighted percentage
More than 25 percent to 50 percent	24.88
More than 50 percent to 75 percent	22.18
More than 75 percent	27.39

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Educational attainment is as of the most recent survey. Full-time employment is defined as working at least 1,750 hours in a given year.

Source: U.S. Bureau of Labor Statistics.

In subsequent sections, we examine women's fertility outcomes along the three dimensions mentioned earlier: race/ethnicity, educational attainment, and percentage of years in full-time employment. Although we compare fertility outcomes separately for each of these dimensions, the three are related. The relationships can be seen in tables 2 through 4.

Tables 2 and 3 break down the sample by educational attainment and percentage of years in full-time employment, respectively, for each race/ethnicity group.¹⁰ Black and Hispanic women have lower educational attainment than White women. The minority groups are overrepresented among those with less than a high school diploma and underrepresented among those with a bachelor's degree. The opposite is true for Whites. Racial composition also varies with the percentage of years worked full time, but a consistent pattern does not emerge across employment categories. Both Blacks and Hispanics are overrepresented in the category with the least full-time employment, which consists of those who work full time in 25 percent or less of the years between ages 25 and 46. In addition, both groups are overrepresented among women who work full time in over 50 percent and up to 75 percent of the years. However, they are underrepresented among those working full time in more than 25 percent and up to 50 percent of the years. For the category with the most full-time employment, which includes those working full time in over 75 percent of the years, the racial distribution approximates that of the sample.

Table 2. Percentage in sample, by race/ethnicity and educational attainment

Race/ethnicity	Full sample	Less than high school diploma	High school graduate, no college	Some college or associate's degree	Bachelor's degree or higher
Hispanic or Latino	6.37	13.37	5.03	8.06	3.34
Black non-Hispanic	14.14	19.68	13.06	18.36	9.07
White non-Hispanic	79.49	66.95	81.91	73.58	87.59

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Educational attainment is as of the most recent survey.

Source: U.S. Bureau of Labor Statistics.

Table 3. Percentage in sample, by race/ethnicity and percentage of years in full-time employment between ages 25 and 46

Race/ethnicity	Full sample	0 to 25 percent	More than 25 percent to 50 percent	More than 50 percent to 75 percent	More than 75 percent
Hispanic or Latino	6.37	7.78	5.24	6.45	6.00
Black non-Hispanic	14.14	14.84	11.94	15.10	14.73
White non-Hispanic	79.49	77.38	82.82	78.45	79.28

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Full-time employment is defined as working at least 1,750 hours in a given year.

Source: U.S. Bureau of Labor Statistics.

Table 4 shows a cross-tabulation of the sample by education and percentage of years in full-time employment. Looking across the table reveals that the two dimensions are positively correlated. The proportion of women with less than a high school diploma decreases as the percentage of years in full-time employment increases; women with this level of education make up just 4 percent of the category with the most full-time employment. In addition, the share of women with less than a high school diploma is 2 times larger in the subsample with the least full-time employment than in the full sample. In contrast, the percentage of women with a bachelor’s degree or higher is about 40 percent higher in the subsample with the most full-time employment than in the full sample. The shares of women who have some college or a bachelor’s degree increase as time in full-time employment increases. Almost 35 percent of the highest employment category is composed of women with a bachelor’s degree or higher.

Table 4. Percentage in sample, by educational attainment and percentage of years in full-time employment between ages 25 and 46

Educational attainment	Full Sample	0 to 25 percent	More than 25 percent to 50 percent	More than 50 percent to 75 percent	More than 75 percent
Less than high school diploma	12.17	23.50	13.75	7.64	3.83
High school graduate, no college	34.52	37.51	38.33	30.19	31.79
Some college or associate’s degree	25.92	23.23	22.32	28.15	29.88
Bachelor’s degree or higher	27.39	15.76	25.60	34.02	34.50

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Educational attainment is as of the most recent survey. Full-time employment is defined as working at least 1,750 hours in a given year.

Source: U.S. Bureau of Labor Statistics.

It is important to stress that the characteristics by which we describe the women in our sample are related and change together. Women with a college degree tend to be White and to work full time in at least 50 percent of the years between ages 25 and 46. Black and Hispanic women tend to have less education, but their percentage of years in full-time work does not appear to be closely related to their race or ethnicity.

Fertility through age 46

As shown in table 5, by age 46, 83 percent of women have had at least one child, about 36 percent have had two children (the modal, most often observed, category), and over 30 percent have had three or more children, with the average number of children for the sample being 2.0.¹¹ Although the mean number of children does not vary much by race or ethnicity, there are some racial and ethnic differences in the distributions of number of children. Hispanic women are slightly more likely to have children than Black and White women. In addition, Black and Hispanic women are more likely to have larger families. While approximately 9 percent of White women have four or more children by age 46, 15 percent of Black women and 17 percent of Hispanic women do.

Table 5. Fertility outcomes of women from age 15 to age 46, by educational attainment, race, and Hispanic or Latino ethnicity

Characteristic	Percent distribution of people by number of children					Mean number of children
	No children	One child	Two children	Three children	Four or more children	
Total, up to 46	16.91	16.39	35.91	20.09	10.69	1.97
Less than high school diploma	10.09	14.70	31.53	24.91	18.77	2.47
High school graduate, no college	12.15	18.15	38.66	20.39	10.65	2.00
Some college or associate's degree	16.16	17.90	35.04	21.32	9.58	1.94
Bachelor's degree or higher	26.65	13.50	35.21	16.42	8.22	1.68
White non-Hispanic	17.29	16.38	37.30	19.67	9.36	1.92
Less than high school diploma	11.17	18.19	35.65	24.10	10.88	2.14
High school graduate, no college	12.11	18.48	39.85	19.96	9.60	2.03
Some college or associate's degree	16.28	17.67	35.31	21.63	9.11	1.92
Bachelor's degree or higher	26.29	12.26	36.45	16.28	9.72	1.71
Black non-Hispanic	16.93	17.05	29.19	21.48	15.35	2.15
Less than high school diploma	9.36	8.01	21.14	29.10	32.39	3.16
High school graduate, no college	14.10	17.48	29.79	23.39	15.24	2.18
Some college or associate's degree	15.91	18.72	35.45	18.03	11.88	1.99
Bachelor's degree or higher	31.30	21.80	23.90	17.28	5.72	1.47
Hispanic or Latino	12.10	15.14	33.44	22.26	17.06	2.29
Less than high school diploma	5.78	7.08	26.23	22.82	38.09	3.11
High school graduate, no college	7.79	14.58	42.43	19.58	15.62	2.33
Some college or associate's degree	15.63	18.13	31.61	26.04	8.59	1.97

See footnotes at end of table.

Table 5. Fertility outcomes of women from age 15 to age 46, by educational attainment, race, and Hispanic or Latino ethnicity

Characteristic	Percent distribution of people by number of children					Mean number of children
	No children	One child	Two children	Three children	Four or more children	
Bachelor's degree or higher	23.48	23.72	33.41	17.73	1.65	1.52

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Educational attainment is as of the most recent survey.

Source: U.S. Bureau of Labor Statistics.

The differences by educational attainment are apparent. The average number of children falls as education increases. Women with a bachelor’s degree have no children at rates more than twice as high (27 percent) as those of women who did not attend college (10 to 12 percent). These patterns are even stronger within the subsamples of Black and Hispanic women. For both subsamples, the mean number of children declines with education, from more than 3 children for women with less than a high school diploma to about 1.5 for women with a bachelor’s degree. Within these minority groups, women with a bachelor’s degree have no children at rates 2 to 3 times those of women who completed high school but did not attend college. In addition, Black women with a bachelor’s degree are substantially more likely to have no children than are White or Hispanic women with a bachelor’s degree.¹²

The number of children declines as the percentage of years spent in full-time employment increases. (See table 6.) Women who worked full time in more than 75 percent of the years between ages 25 and 46 have 1.4 children, on average, compared with 2.5 children for women who worked full time in 25 percent or less of the years. Moreover, women in the category with the most full-time employment are more likely to have no children or one child than are women who worked full time in fewer years. They are also less likely to have three or more children. Although these patterns are present for all three racial and ethnic groups considered, they are more pronounced for White women.

Table 6. Fertility outcomes of women from age 15 to age 46, by number of years in full-time employment between ages 25 and 46, race, and Hispanic or Latino ethnicity

Characteristic	Percent distribution of people by number of children					Mean number of children
	No children	One child	Two children	Three children	Four or more children	
Total, up to 46	16.91	16.39	35.91	20.09	10.69	1.97
0 to 25 percent	7.90	12.04	33.41	26.23	20.42	2.54
More than 25 percent to 50 percent	10.57	14.65	38.49	22.81	13.49	2.21
More than 50 percent to 75 percent	18.54	16.60	38.00	20.42	6.45	1.82
More than 75 percent	29.77	21.88	34.21	11.63	2.51	1.36

See footnotes at end of table.

Table 6. Fertility outcomes of women from age 15 to age 46, by number of years in full-time employment between ages 25 and 46, race, and Hispanic or Latino ethnicity

Characteristic	Percent distribution of people by number of children					Mean number of children
	No children	One child	Two children	Three children	Four or more children	
White non-Hispanic	17.29	16.38	37.30	19.67	9.36	1.92
0 to 25 percent	8.06	12.17	36.25	26.36	17.15	2.41
More than 25 percent to 50 percent	10.13	14.01	40.55	22.66	12.64	2.20
More than 50 percent to 75 percent	19.16	16.86	38.97	19.54	5.47	1.77
More than 75 percent	31.01	22.07	33.85	10.84	2.23	1.32
Black non-Hispanic	16.93	17.05	29.19	21.48	15.35	2.15
0 to 25 percent	8.08	11.81	24.31	24.99	30.81	2.98
More than 25 percent to 50 percent	13.64	20.56	23.01	25.62	17.18	2.22
More than 50 percent to 75 percent	17.26	15.37	33.69	23.21	10.46	2.00
More than 75 percent	27.40	20.80	34.61	13.71	3.49	1.45
Hispanic or Latino	12.10	15.14	33.44	22.26	17.06	2.29
0 to 25 percent	5.98	11.20	22.50	27.32	33.00	3.00
More than 25 percent to 50 percent	10.39	11.22	41.13	18.73	18.54	2.34
More than 50 percent to 75 percent	13.96	16.31	36.31	24.51	8.92	2.01
More than 75 percent	19.26	22.00	38.10	16.99	3.66	1.65

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Full-time employment is defined as working at least 1,750 hours in a given year.

Source: U.S. Bureau of Labor Statistics.

Fertility outcomes at selected ages

This section describes total fertility at selected ages of the respondent, by race/ethnicity, educational attainment, and percentage of years in full-time employment. As seen in table 7, at age 18, almost 15 percent of the women in the NLSY79 cohort have at least one child. This quickly changes with age. About 23 percent of the women move out of childlessness between ages 18 and 22, and another 18 percent do so between ages 22 and 26. At age 26, more than half (55 percent) of the women have at least one child, with 24 percent having one child, 21 percent two children, 8 percent three children, and 2 percent four or more children. Between ages 26 and 30, another 15 percent of women move out of childlessness, shrinking the ranks of those without a child by age 30 to 30 percent. By age 34, two children becomes the modal number, as opposed to no children, as was the case at the younger ages examined. The chances of having a child after 34 are low for women who have not yet had one, with just over 4 percent of women having their first child between ages 34 and 46.

Table 7. Fertility outcomes at selected ages, by race and Hispanic or Latino ethnicity

Race/ethnicity and age	Percent distribution of people by number of children				
	No children	One child	Two children	Three children	Four or more children
Total	16.91	16.39	35.91	20.09	10.69
18	85.77	11.47	2.42	.33	.01
22	62.47	21.82	12.41	2.57	.74
26	44.56	24.26	20.88	8.01	2.28
30	29.79	22.40	29.60	13.41	4.81
34	21.25	19.36	34.07	17.36	7.96
38	18.26	16.54	35.86	19.64	9.70
42	17.00	16.33	36.21	19.80	10.66
46	16.91	16.39	35.91	20.09	10.69
White non-Hispanic	17.29	16.38	37.30	19.67	9.36
18	88.97	9.20	1.60	.23	—
22	66.78	19.72	11.13	2.03	.33
26	48.06	23.58	20.11	6.91	1.33
30	31.33	22.90	30.12	12.02	3.62
34	22.03	19.33	35.56	16.48	6.60
38	18.72	16.49	37.38	19.11	8.29
42	17.40	16.33	37.71	19.34	9.22
46	17.29	16.38	37.30	19.67	9.36
Black non-Hispanic	16.93	17.05	29.19	21.48	15.35
18	71.19	22.31	5.70	.74	.06
22	43.67	31.13	17.95	4.80	2.46
26	30.94	26.53	23.78	13.01	5.74
30	24.67	21.11	25.77	19.08	9.36
34	19.03	20.93	25.96	21.27	12.81
38	17.55	17.76	28.50	21.54	14.66
42	16.99	17.37	28.97	21.43	15.24
46	16.93	17.05	29.19	21.48	15.35
Hispanic or Latino	12.10	15.14	33.44	22.26	17.06
18	78.27	15.82	5.32	.60	—
22	50.38	27.30	15.96	4.26	2.09
26	31.21	27.81	23.98	10.60	6.41
30	21.83	18.98	31.69	18.19	9.31
34	16.45	16.31	33.40	19.76	14.08
38	14.16	14.36	33.21	22.02	16.25
42	12.10	15.28	33.59	21.97	17.06
46	12.10	15.14	33.44	22.26	17.06

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics.

Source: U.S. Bureau of Labor Statistics.

At least three differences across racial and ethnic groups emerge from examining the patterns of fertility at selected ages. First, comparable percentages of White and Black women have children (83 percent for both), whereas slightly more Hispanic women have children (88 percent). Second, Black and Hispanic women have children at younger ages than White women, with 69 percent of these minority women having a first child by age

26, compared with 52 percent of White women. Third, higher order births also occur at younger ages for Black and Hispanic women. At age 26, 28 percent of White women have two or more children, compared with 43 percent of Black women and 41 percent of Hispanic women.

Table 8 shows that fertility is delayed as education increases.¹³ As seen in the table, age at first birth rises with educational attainment. Among women without a high school diploma, 47 percent have a child by age 18 and 75 percent have one or more children by age 22. Women in this educational group complete the bulk of their childbearing by age 30. Among women whose highest level of education is a high school diploma, 46 percent have a child by age 22 and 67 percent by age 26. Their childbearing is mostly complete by age 34, with 15 percent of them having no children at that age, 21 percent having one child, 37 percent two children, 19 percent three children, and 9 percent four or more children.

Table 8. Fertility outcomes at selected ages, by educational attainment

Educational attainment and age	Percent distribution of people by number of children				
	No children	One child	Two children	Three children	Four or more children
Total	16.91	16.39	35.91	20.09	10.69
Less than high school diploma	10.09	14.70	31.53	24.91	18.77
18	53.01	33.43	11.79	1.77	—
22	25.04	32.42	27.32	11.25	3.97
26	16.18	24.67	29.94	20.54	8.67
30	12.36	18.46	32.92	22.72	13.55
34	11.35	15.72	33.66	22.02	17.25
38	10.45	14.54	32.24	24.28	18.49
42	10.09	14.70	32.13	24.32	18.76
46	10.09	14.70	31.53	24.91	18.77
High school graduate, no college	12.15	18.15	38.66	20.39	10.65
18	84.69	13.08	2.10	.11	.02
22	53.71	28.33	15.46	2.05	.45
26	33.33	29.05	26.73	9.01	1.88
30	20.51	24.04	36.22	13.99	5.24
34	14.88	20.73	36.99	18.72	8.67
38	12.57	18.76	38.22	20.49	9.96
42	12.15	18.25	38.71	20.27	10.62
46	12.15	18.15	38.66	20.39	10.65
Some college or associate's degree	16.16	17.90	35.04	21.32	9.58
18	89.45	9.73	.68	.15	—
22	61.59	25.33	11.37	1.62	.19
26	40.44	27.13	23.24	7.70	1.49
30	27.22	23.36	28.82	17.01	3.58
34	20.36	20.79	31.96	19.33	7.55
38	17.88	17.91	34.71	20.64	8.85
42	16.19	17.93	35.69	20.63	9.55
46	16.16	17.90	35.04	21.35	9.55
Bachelor's degree or higher	26.65	13.50	35.21	16.42	8.22
18	98.21	1.34	.31	.13	—
22	90.97	5.67	2.91	.25	.19

See footnotes at end of table.

Table 8. Fertility outcomes at selected ages, by educational attainment

Educational attainment and age	Percent distribution of people by number of children				
	No children	One child	Two children	Three children	Four or more children
26	75.24	15.33	7.25	1.49	.70
30	51.65	21.17	20.53	5.13	1.52
34	34.50	17.89	32.55	11.72	3.33
38	29.28	13.32	35.58	15.56	6.26
42	26.95	13.39	35.39	16.43	7.84
46	26.65	13.50	35.21	16.42	8.22

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Educational attainment is as of the most recent survey.

Source: U.S. Bureau of Labor Statistics.

Women with some college have their first child at older ages, with about 49 percent of them having their first child between ages 22 and 34. Most of these women complete their childbearing by age 38. Those with a bachelor’s degree have their first child at still older ages, with only about 25 percent of them having a child by age 26 and about another 24 percent having a child between ages 26 and 30. An additional 17 percent give birth to a first child between ages 30 and 34, so that about 65 percent of these women have had at least one child by age 34. As is the case for women with some college, the bulk of childbearing for women with a bachelor’s degree is complete by age 38.

Examining fertility patterns at selected ages on the basis of the percentage of years in full-time employment reveals some key differences across groups. (See table 9.) Women with the smallest percentage of years in full-time employment (25 percent or less) tend to start their families at younger ages, with about 50 percent of them having their first child by age 22. Among those who work full time in more than 25 percent and up to 50 percent of the years, over 60 percent have their first child by age 26. Of women who are most attached to the labor force (those who work full time in more than 75 percent of the years), about 38 percent transition into motherhood by age 26 and about 54 percent do so by age 30. Only 3 percent of women in this employment category have four or more children.

Table 9. Fertility outcomes at selected ages, by percentage of years in full-time employment

Employment and age	Percent distribution of people by number of children				
	No children	One child	Two children	Three children	Four or more children
Total	16.91	16.39	35.91	20.09	10.69
None to 25 percent	7.90	12.04	33.41	26.23	20.42
18	78.25	16.22	4.81	.69	.03
22	50.10	26.99	16.93	4.03	1.95
26	26.26	26.96	27.73	13.86	5.20
30	13.08	18.73	35.69	21.70	10.79
34	9.86	13.92	33.68	25.94	16.60
38	8.50	12.37	33.14	26.98	19.00
42	7.90	12.25	33.19	26.43	20.22

See footnotes at end of table.

Table 9. Fertility outcomes at selected ages, by percentage of years in full-time employment

Employment and age	Percent distribution of people by number of children				
	No children	One child	Two children	Three children	Four or more children
46	7.90	12.04	33.41	26.23	20.42
More than 25 percent to 50 percent	10.57	14.65	38.49	22.81	13.49
18	87.02	10.11	2.32	.55	—
22	59.03	23.81	13.17	3.19	.80
26	38.37	26.41	23.45	9.55	2.22
30	24.35	24.02	32.23	14.40	5.00
34	13.35	20.27	37.33	20.22	8.82
38	10.88	15.95	39.09	22.43	11.65
42	10.57	14.69	39.28	22.21	13.25
46	10.57	14.65	38.49	22.81	13.49
More than 50 percent to 75 percent	18.54	16.60	38.00	20.42	6.45
18	88.64	9.57	1.72	.08	—
22	65.67	20.19	12.02	1.94	.19
26	51.38	21.91	19.63	5.55	1.53
30	35.17	22.68	28.58	10.91	2.66
34	23.68	19.83	36.66	14.71	5.12
38	20.07	17.02	37.03	19.71	6.17
42	18.54	16.72	37.88	20.42	6.45
46	18.54	16.60	38.00	20.42	6.45
More than 75 percent	29.77	21.88	34.21	11.63	2.51
18	89.33	9.82	.85	—	—
22	74.55	16.50	7.80	1.14	—
26	61.75	21.71	13.17	3.15	.22
30	45.95	24.12	22.36	6.79	.78
34	37.08	23.23	29.36	8.91	1.42
38	32.61	20.57	34.51	10.20	2.11
42	30.10	21.59	34.90	10.91	2.51
46	29.77	21.88	34.21	11.63	2.51

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Full-time employment is defined as working at least 1,750 hours in a given year.

Source: U.S. Bureau of Labor Statistics.

Age at birth and birth spacing

Table 10 shows that a woman’s age at first birth falls with her total fertility. The average age at first birth is 27 years for women with one child, 25 years for women with two children, and 22 years for women with three or more children. The births of women in the latter group are spaced more closely than those of women with two children. On average, the time between first and second births is 4.3 years for women with two children, compared with 3.2 years for those with three or more children. These patterns generally hold for Black, White, and Hispanic women. However, the age at first birth for Hispanic women falls more precipitously as total fertility increases. On average, Hispanic women who have only one child are age 28 at the birth of their child. Hispanic women who have three or more children are age 20 at their first birth.

Table 10. Period between births by age 46, by number of children, race/ethnicity, educational attainment, and percentage of years in full-time employment

Characteristic	All	Race/ethnicity			Education				Percentage of years in full-time employment			
		Black non-Hispanic	White non-Hispanic	Hispanic	Less than high school diploma	High school graduate, no college	Some college or associate's degree	Bachelor's degree or higher	0 to 25 percent	More than 25 percent to 50 percent	More than 50 percent to 75 percent	More than 75 percent
Among those with one child												
Average age at first birth	27.25	24.74	27.64	28.26	22.19	25.94	27.09	32.09	25.42	25.32	28.48	28.60
Among those with two children												
Average age at first birth	24.57	22.36	24.98	23.26	20.16	23.28	24.28	28.40	23.33	24.56	25.31	25.06
Average age at second birth	28.81	27.99	28.96	28.37	24.83	27.74	28.85	31.85	27.46	28.90	29.18	29.63
Years between first and second child	4.25	5.62	3.99	5.15	4.69	4.50	4.52	3.46	4.17	4.37	3.90	4.52
Among those with three or more children												
Average age at first birth	22.08	19.27	22.91	20.26	17.99	21.38	22.18	26.29	21.18	22.87	22.19	22.83
Average age at second birth	25.27	22.93	25.97	23.69	21.36	24.62	25.48	29.14	24.23	25.57	26.18	26.42
Average age at third birth	29.25	26.81	29.94	27.95	25.56	28.86	29.23	32.78	27.89	29.71	30.30	30.73
Years between first and second child	3.19	3.67	3.06	3.43	3.41	3.25	3.28	2.85	3.07	2.71	3.93	3.57
Years between second and third child	3.95	3.87	3.94	4.27	4.20	4.24	3.69	3.62	3.66	4.10	4.11	4.28
Years between first and third child	7.15	7.55	7.00	7.69	7.60	7.49	6.97	6.47	6.73	6.81	8.04	7.85

See footnotes at end of table.

Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Educational attainment is as of the most recent survey. Full-time employment is defined as working at least 1,750 hours in a given year.

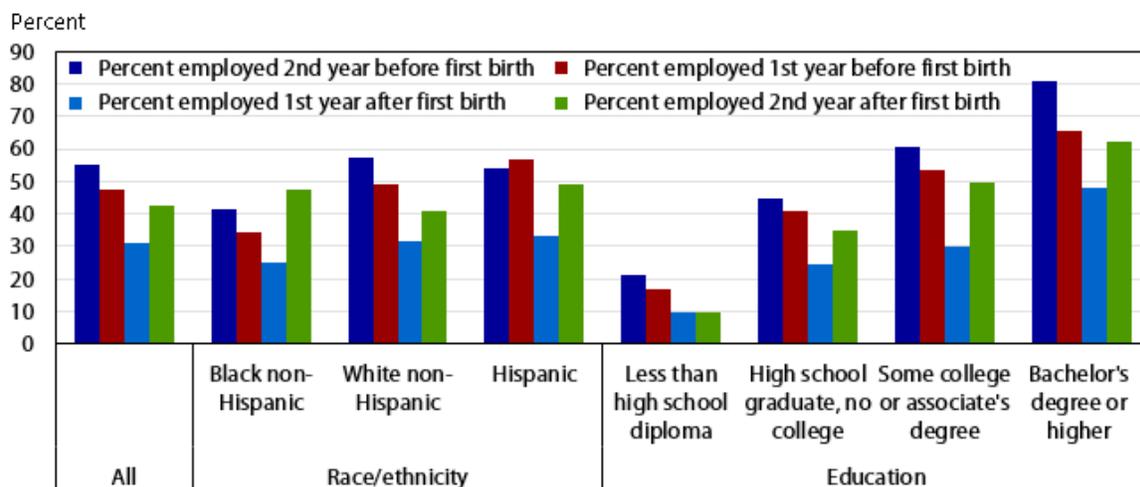
Source: U.S. Bureau of Labor Statistics.

As is the case with other aspects of fertility, a strong gradient for age at first birth emerges by education. Women with a bachelor’s degree tend to give first birth at significantly older ages. These ages are 32 for women with one child, 28 for women with two children, and 26 for women with three or more children. At first birth, for a given number of children, women with a bachelor’s degree are 8 to 10 years older than those with less than a high school diploma and 4 to 5 years older than those with some college but no bachelor’s degree. In addition, women with a bachelor’s degree and multiple children space their births more closely together than do their counterparts with less education.¹⁴ For instance, among women with three or more children, the spacing between first and third births is 6.5 years for those with a bachelor’s degree and 7 to 8 years for those with less education.

Age at birth increases with the percentage of years a woman spends working full time, with this pattern being strongest among women who have one child. Birth spacing, on the other hand, does not vary consistently with the percentage of years in full-time employment.

Employment around births

Figure 1. Employment around births, women with one child

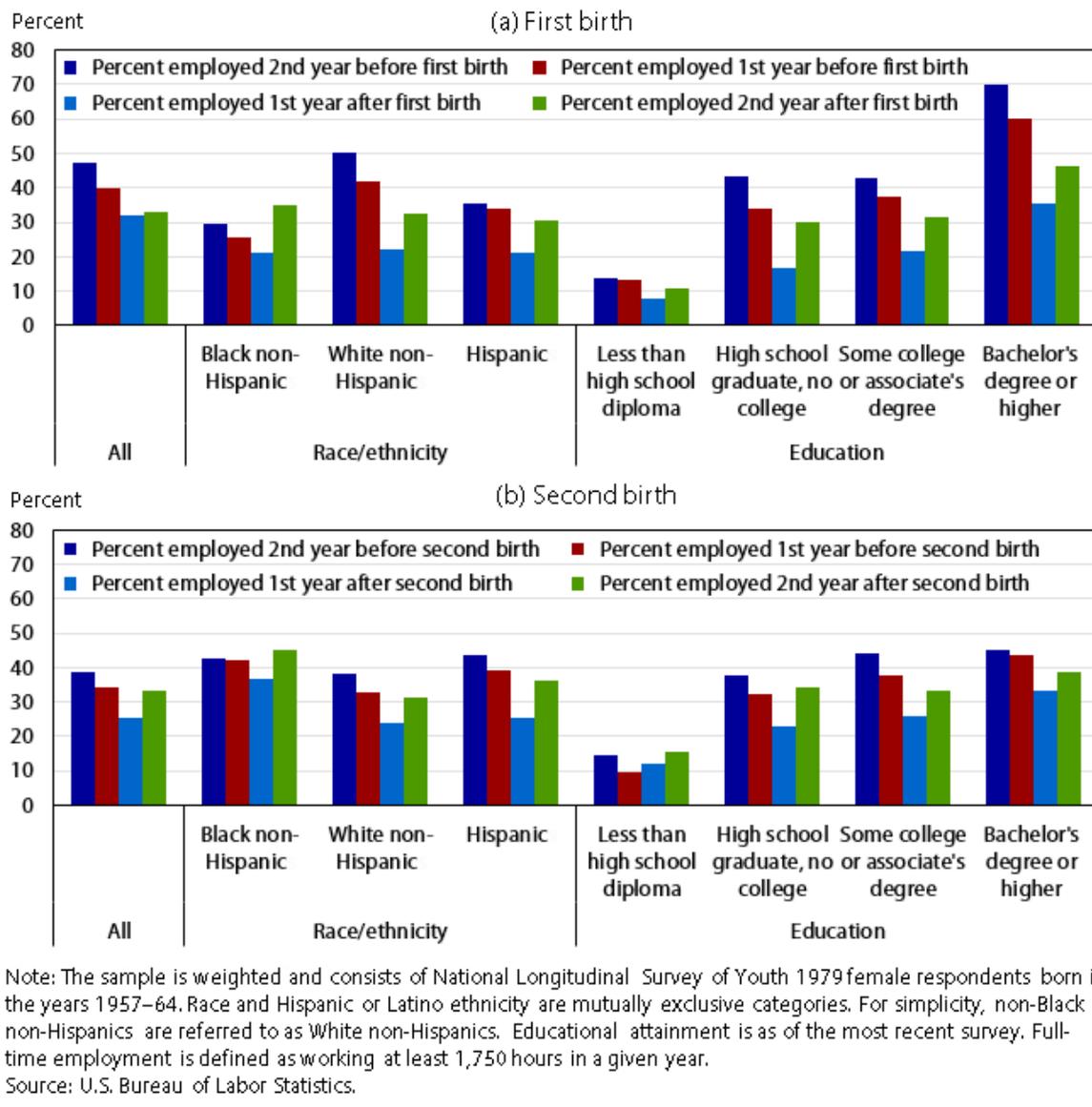


Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Educational attainment is as of the most recent survey. Full-time employment is defined as working at least 1,750 hours in a given year.

Source: U.S. Bureau of Labor Statistics.

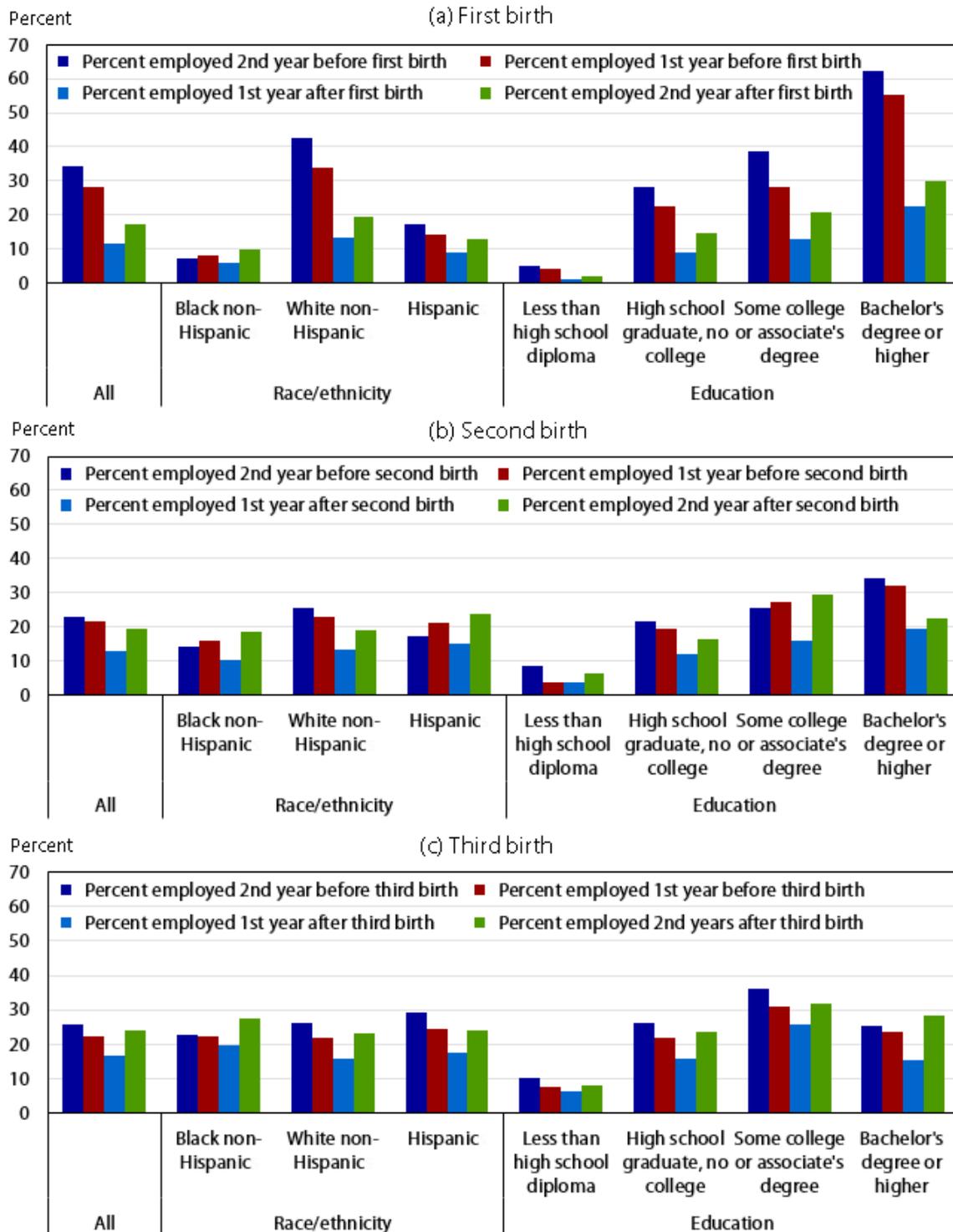
Figures 1 through 3 present the percentage of women working full time in the years preceding and following the births of their children. Each figure consists of up to three panels, with the first panel showing the rates of full-time employment around first births, the second around second births, and the third around third births.

Figure 2. Employment around births, women with two children



Women’s full-time employment falls after the birth of a child. For women with one child, the likelihood of working full time falls by almost 17 percentage points from the year preceding the child’s birth to the year following it. For women with multiple children, the greatest decline in full-time employment is seen around first births. The levels of full-time employment in the 2 years preceding higher order births are lower than they are following first births. However, full-time employment climbs faster after second and third births and approaches levels observed 2 years before those births.

Figure 3. Employment around births, women with three or more children



Note: The sample is weighted and consists of National Longitudinal Survey of Youth 1979 female respondents born in the years 1957–64. Race and Hispanic or Latino ethnicity are mutually exclusive categories. For simplicity, non-Black non-Hispanics are referred to as White non-Hispanics. Educational attainment is as of the most recent survey. Full-time employment is defined as working at least 1,750 hours in a given year.
 Source: U.S. Bureau of Labor Statistics.

Black and Hispanic women differ from White women in that, for a given number of children, their full-time employment increases with each successive child. In contrast, the full-time employment of White women never returns to prebirth levels. Two years before first births, the full-time employment of White women is much higher than that for Black or Hispanic women, but the difference shrinks after the births of children. For example, among those who have two children, 50 percent of White women work full time during the second year before their first birth, compared with 30 percent of Black women and 36 percent of Hispanic women. Two years after the first birth, these rates range from 31 to 35 percent across the three groups. However, while the rates for Black and Hispanic women return to those observed 2 years before the first birth, the rates for White women do not. For White women, the full-time employment rates following higher order births approximate the rates preceding those births, but remain well below what they were in the 2 years before the first birth.¹⁵

In general, full-time employment rates, both before and after the births of children, increase with educational attainment. Regardless of education, rates decline with parity. The full-time employment rates of women with a bachelor's degree exceed 60 percent 2 years before the birth of a first child and 55 percent a year before it. In contrast, the rates of women with a high school diploma but no college range from 28 to 45 percent 2 years before the birth of a first child and from 23 to 41 percent a year before it. Like White women, for a given number of children, women with a bachelor's degree see their full-time employment rates decline as subsequent children are born; this pattern does not hold for women with less education.

Conclusion

More than 80 percent of women in the NLSY have at least one child by age 46; two children is the average for the cohort. Fertility patterns differ by educational attainment. Women with a college degree are more than twice as likely as those who never attended college to have no children; this pattern is stronger among Black and Hispanic women. Fertility is delayed as education increases. For example, at age 26, 84 percent of women without a high school diploma and 66 percent of women with a high school diploma but no college have at least one child, compared with just 25 percent of women with a college degree.

Patterns of fertility related to race/ethnicity and percentage of time spent in full-time work are present, but they are weaker than those related to educational attainment. The mean number of children does not vary by race/ethnicity, although Hispanic women are slightly less likely to have no children. The number of children falls as the percentage of years a woman spends in full-time work rises. Women in the category with the highest percentage of years in full-time employment have 1.4 children, on average, compared with 2.5 children for women in the lowest employment category. Those most attached to the labor force are also more likely to be childless and to delay childbearing.

Although fertility patterns are examined separately by race/ethnicity, educational attainment, and attachment to the labor force, these characteristics do not change in isolation from one another. Because education is more closely related to women's fertility than either race/ethnicity or years in full-time work and because some of the patterns by education are stronger for Black and Hispanic women, it may be that the relationship between education and fertility outcomes underlies the patterns between fertility and these other characteristics.

Alison Aughinbaugh and Hugette Sun, "Fertility of women in the NLSY79," *Monthly Labor Review*, U.S. Bureau of Labor Statistics, April 2016, <https://doi.org/10.21916/mlr.2016.17>.

NOTES

- [1](#) Ronald R. Rindfuss, S. Philip Morgan, and Kate Offutt, "Education and the changing age pattern of American fertility: 1963–1989," *Demography*, vol. 33, no. 3, August 1996, pp. 277–290.
- [2](#) Adam Isen and Betsey Stevenson, "Women's education and family behavior: trends in marriage, divorce, and fertility," Working Paper 15725 (National Bureau of Economic Research, February 2010); David E. Bloom and James Trussell, "What are the determinants of delayed childbearing and permanent childlessness in the United States?" *Demography*, vol. 21, no. 4, November 1984, pp. 591–611; and Steven Martin, "Diverging fertility among U.S. women who delay childbearing past age 30," *Demography*, vol. 37, no. 4, November 2000, pp. 523–533.
- [3](#) Young-Hee Yoon and Linda J. Waite, "Converging employment patterns of Black, White, and Hispanic women: return to work after first birth," *Journal of Marriage and Family*, vol. 56, no. 1, February 1994, pp. 209–217.
- [4](#) Hiromi Taniguchi, "The timing of childbearing and women's wages," *Journal of Marriage and Family*, vol. 61, no. 4, November 1999, pp. 1009–1019.
- [5](#) Kasey S. Buckles, "Understanding the returns to delayed childbearing for working women," *American Economic Review*, vol. 98, no. 2, May 2008, pp. 403–407.
- [6](#) Carol Scotese Lehr, "Fertility and education premiums," *Journal of Population Economics*, vol. 16, no. 3, August 2003, pp. 555–578.
- [7](#) Dawn M. Upchurch, Lee A. Lillard, and Constantijn W.A. Panis, "Nonmarital childbearing: influences of education, marriage, and fertility," *Demography*, vol. 39, no. 2, May 2002, pp. 311–329.
- [8](#) For more information on the custom weights, see Jay Zagorsky, "Custom weighting program documentation," <http://www.nlsinfo.org/pub/usersvc/CustomWeight/CustomWeightingProgramDocumentation.htm>.
- [9](#) As defined in this article, race and Hispanic or Latino ethnicity are mutually exclusive categories. The NLSY79 sample was drawn such that it was representative of Blacks, Hispanics, and non-Black non-Hispanics living in the United States in 1979. In this article, these are the three race/ethnic groups considered.
- [10](#) The smallest subsamples are those for college-educated Hispanics (90 women) and for Hispanic, Black non-Hispanic, and White women who did not have a year of full-time employment (52, 69, and 77 women, respectively).
- [11](#) These numbers closely match those for women ages 45 to 50 as of June 2012; a Census Bureau report by Lindsey M. Monte and Renee E. Ellis, "Fertility of women in the United States: June 2012," *Current Population Reports*, P20-575 (U.S. Census Bureau, 2014), shows that 83 percent of women in that age group had a child, with 18 percent having one child, 35 percent two children, and 30 percent three or more children. The women in the NLSY79 sample are somewhat older, ages 47 to 56 in 2012.
- [12](#) Similarly, using the NLSY79, Jennie E. Brand and Dwight Davis ("The impact of college education on fertility: evidence for heterogeneous effects," *Demography*, vol. 48, no. 3, August 2011, pp. 863–887) showed that the finding that college decreases fertility is concentrated among women from comparatively disadvantaged social backgrounds and low levels of early achievement. The effects of college on fertility attenuate as women from backgrounds more predictive of college attendance and completion are observed.
- [13](#) Daniel Aaronson, Fabian Lange, and Bhashkar Mazumder ("Fertility transitions along the extensive and intensive margins," *American Economic Review*, vol. 124, no. 3, November 2014, pp. 3701–3724) have examined how improved education affects fertility. Using data for a large-scale school construction program, they found that women who obtained more schooling because of the program delayed childbearing along both the extensive and intensive margins.

[14](#) Using evidence from natural experiments, Rafael Lalive and Josef Zweimüller (“How does parental leave affect fertility and return to work? Evidence from two natural experiments,” *The Quarterly Journal of Economics*, vol. 124, no. 3, August 2009, pp. 1363–1402) found that improved education and earnings result in compressing the time between births.

[15](#) Lalive and Zweimüller (“How does parental leave affect fertility and return to work?”) also found that increases in job-protected parental leave affect both return to work postbirth and the likelihood of having additional children. Mothers who gave birth to first children immediately after reform were more likely to have second children, and extended parental leave significantly reduced return to work.

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Employment continued to expand in 2015

Nonfarm employment continued to expand in 2015. Private service-providing industries accounted for the vast majority of job gains. Despite a slowdown in the overall rate of job growth in 2015, the gains were a continuation of an expansion that started in May 2014, when employment recovered to its previous peak level of January 2008.

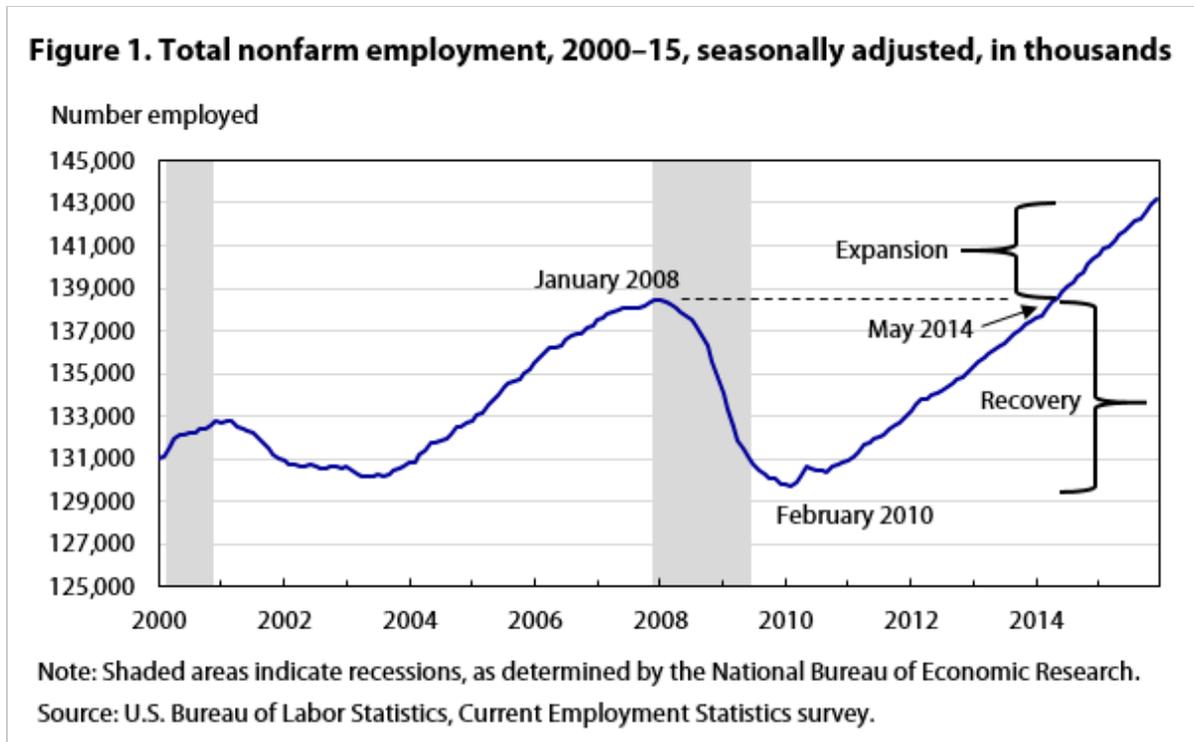
Nonfarm businesses and government agencies added a combined 2.7 million jobs in 2015, after adding 3.0 million in 2014, according to data from the Current Employment Statistics (CES) survey.¹ Over the year, service-providing industries led job growth, with the largest gains occurring in professional and business services, health care, and leisure and hospitality. Among goods-producing industries, construction accounted for most of the employment gains while mining lost jobs. (See table 1.)

The U.S. economy has been adding payroll jobs since employment last reached a trough following the Great Recession.² Net job losses totaled 8.7 million between January 2008 and February 2010. Employment then started to grow and, in May 2014, recovered to the level of the previous peak. After that, payroll employment expanded by an additional 4.6 million as of December 2015.³ (See figure 1.)



Joseph Stuart, Jr.
stuart.joseph@bls.gov

Joseph Stuart, Jr., is an economist in the National Estimates Branch, Office of Employment and Unemployment Statistics, U.S. Bureau of Labor Statistics.



Employment trends across industries reflected the variations observed in major economic indicators. (See table 2.) In 2015, real gross domestic product increased by 2.4 percent, the same rate as in 2014. Real gross private domestic investment and industrial production grew more slowly, likely indicating employment weakness. The trade-weighted dollar rose about 4 times faster in 2015 than during the previous year, making U.S. goods more expensive to export and creating an incentive for importing foreign goods into the United States. Falling energy prices hurt employment in mining and related industries. Lower energy prices combined with relatively stagnant consumer prices to help boost both real personal income and consumer expenditures on goods and services. Home sales strengthened over the year, helping to lift employment in construction and related industries.

Table 2. Percent change in selected economic indicators, 2013–15

Indicator	Over-the-year percent change		
	2013	2014	2015
Real gross domestic product ⁽¹⁾	1.5	2.4	2.4
Personal consumption expenditures ⁽²⁾	3.1	4.2	3.4
Real gross private domestic investment ⁽¹⁾	4.5	5.4	5.0
Real disposable personal income ⁽¹⁾	-1.4	2.7	3.4
Industrial Production Index ⁽²⁾	1.9	3.7	1.3
Trade-weighted U.S. dollar index (broad index) ⁽¹⁾	1.2	3.1	12.6
Crude-oil prices: West Texas Intermediate (WTI), Cushing, Oklahoma ⁽¹⁾	11.1	-39.3	-37.3
30-Year Fixed-Rate Mortgage Average in the United States © ⁽¹⁾	8.7	4.8	-7.7
Existing Home Sales © ⁽¹⁾	9.2	-2.9	6.3
New one-family houses sold in the United States ⁽²⁾	16.8	2.3	14.1

Notes:

See footnotes at end of table.

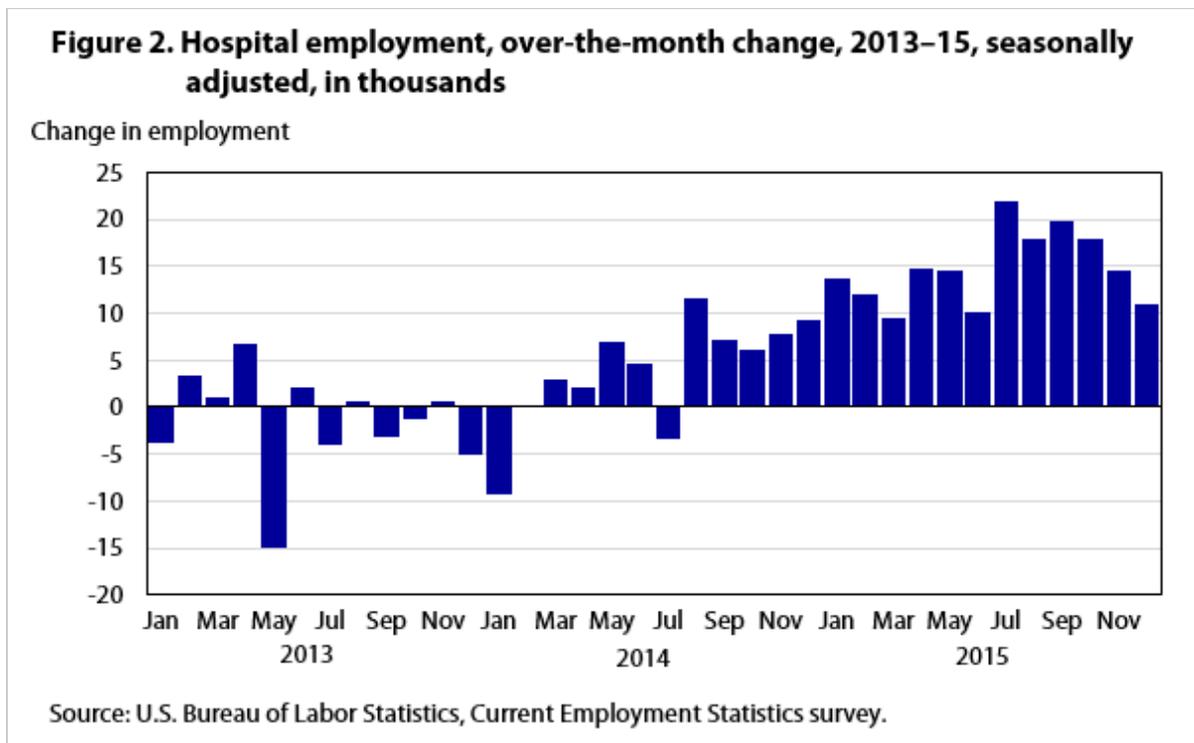
- (1) Annual, not seasonally adjusted.
- (2) Annual, seasonally adjusted.

Sources: U.S. Bureau of Economic Analysis, Board of Governors of the Federal Reserve System, U.S. Energy Information Administration, Federal Home Loan Mortgage Corporation (Freddie Mac), National Association of Realtors, and U.S. Census Bureau.

Leading employment growth in 2015

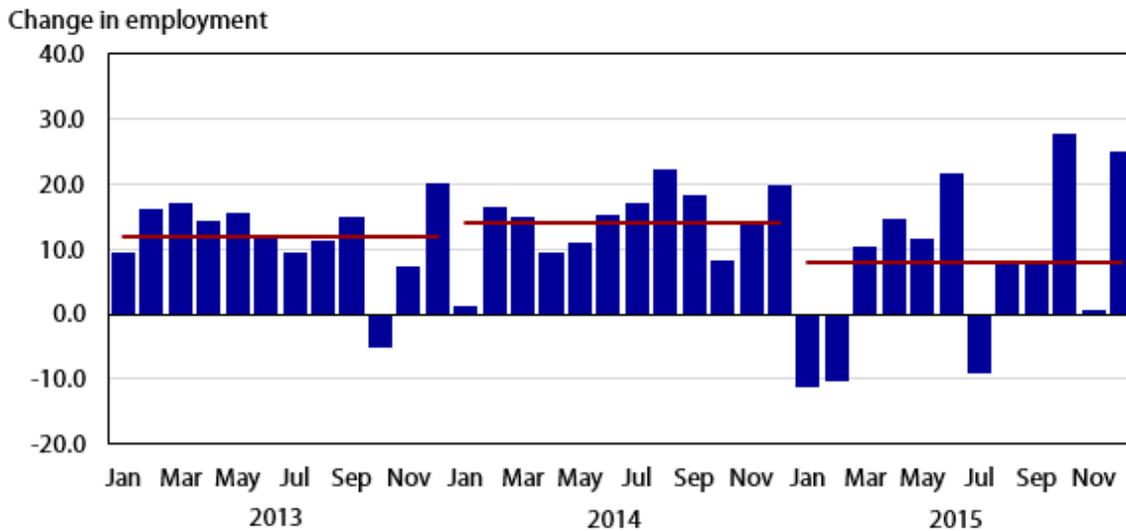
Private education and health services, professional and business services, leisure and hospitality, and construction contributed the largest numbers to job growth in 2015.

The private education and health services sector added 701,000 jobs over the year, accounting for 1 in 4 nonfarm jobs gained. Health care gained 472,000 jobs in 2015, and over-the-year employment growth in the industry accelerated to 3.2 percent, from 1.9 percent in the previous year. Ambulatory health care services and hospitals accounted for most of the job growth. Hospitals ranked among those industries with the most notable improvements in 2015, as employment in the industry rose by 177,000—nearly 4 times more than in 2014. (See figure 2.) Social assistance and private education added about the same number of jobs in 2015 as in 2014.



Job growth continued in professional and business services in 2015. Growth was strong across most industries in the sector, relative to the pace of job growth for all nonfarm industries combined. Still, slowing did occur in several industry components, compared with 2014 growth. In the professional and technical services component of the professional and business services industry, employment continued to rise in 2015 and job gains were widespread. Within professional and technical services, computer systems design and related services added the greatest number of jobs (104,000) over the year; however, this increase reflected a slight deceleration from the previous year's growth. Computer systems design and related services, along with management and technical consulting services, have exhibited some of the most consistent job growth over the past several years.

Figure 3. Temporary help services employment, over-the-month change, 2013–15, seasonally adjusted, in thousands

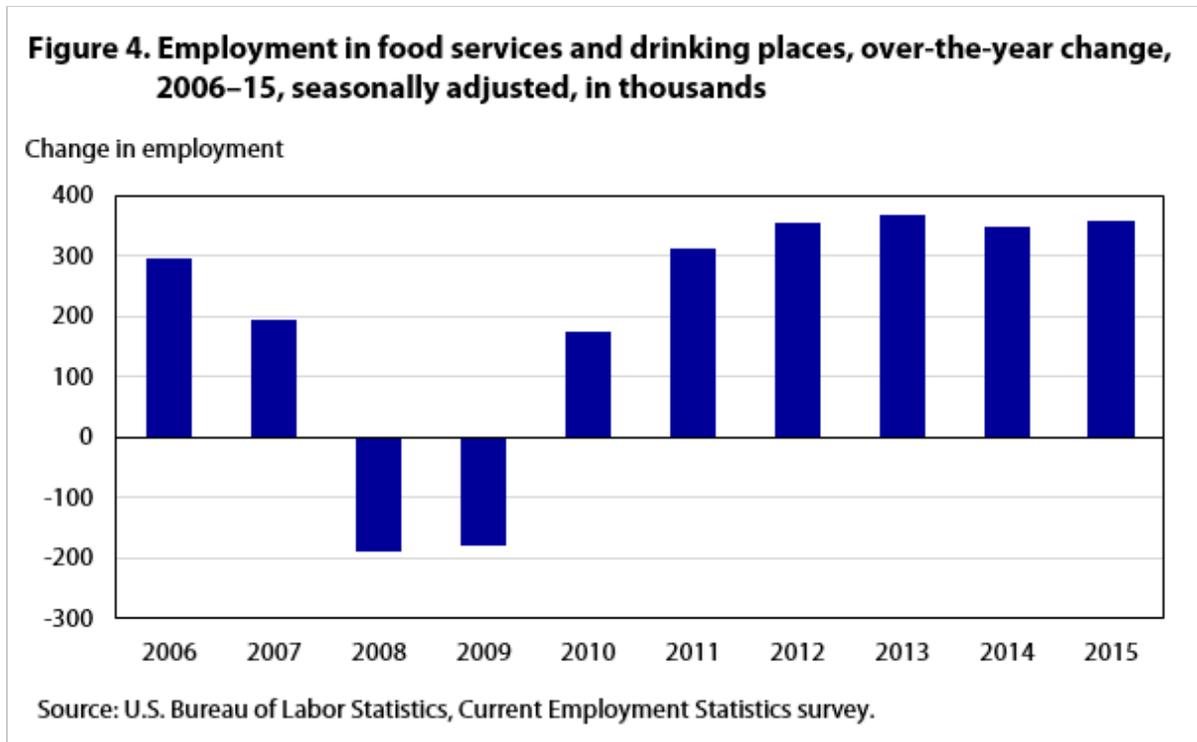


Note: Horizontal red line represents average over-the-month changes in employment for each calendar year.

Source: U.S. Bureau of Labor Statistics, Current Employment Statistics survey.

Elsewhere in professional and business services, employment growth slowed by 0.6 percentage point in administrative and waste services. Temporary help services, an industry that typically drives employment trends in two administrative industries—administrative and waste services, and administrative and support services—saw more volatile and slower job growth over the year: the industry added 96,000 jobs in 2015, compared with 168,000 in 2014. (See figure 3.) Even with the deceleration, employment growth in temporary help was still relatively stronger than total nonfarm employment growth.

Achieving a 3-percent increase in 2015, leisure and hospitality saw its employment continue to rise faster than total nonfarm employment. In fact, the change in leisure and hospitality employment has outperformed that in total nonfarm employment in percentage terms every year since 1998.

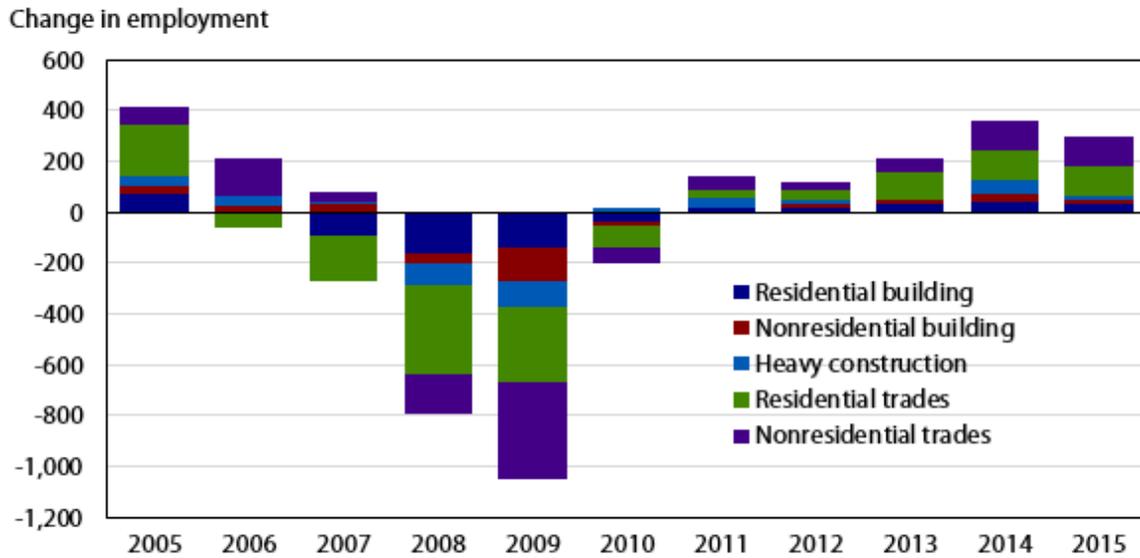


Within leisure and hospitality, food services and drinking places accounted for most of the job growth in 2015. The industry has achieved annual job gains of more than 300,000 in each of the past 5 years. (See figure 4.) Employment grew by 65,000 over the year in arts, entertainment, and recreation and was little changed in accommodation.

An industry still recovering from the last recession, construction added 296,000 jobs in 2015, accounting for almost all the overall employment gain in the goods-producing sector. Employment growth over the year, 4.7 percent, was relatively faster than that of all other major industry sectors, but still reflected a deceleration from the 2014 pace.

Employment rose by more than 100,000 each in residential and nonresidential specialty trade contractors in 2015, a gain similar to that achieved the previous year. Residential building also added jobs over the year, while employment changed little elsewhere in construction. (See figure 5.) The change in heavy and civil engineering construction reflected a deceleration from the previous year’s increase of 51,000.

Figure 5. Employment in construction, over-the-year change, 2005–15, seasonally adjusted, in thousands



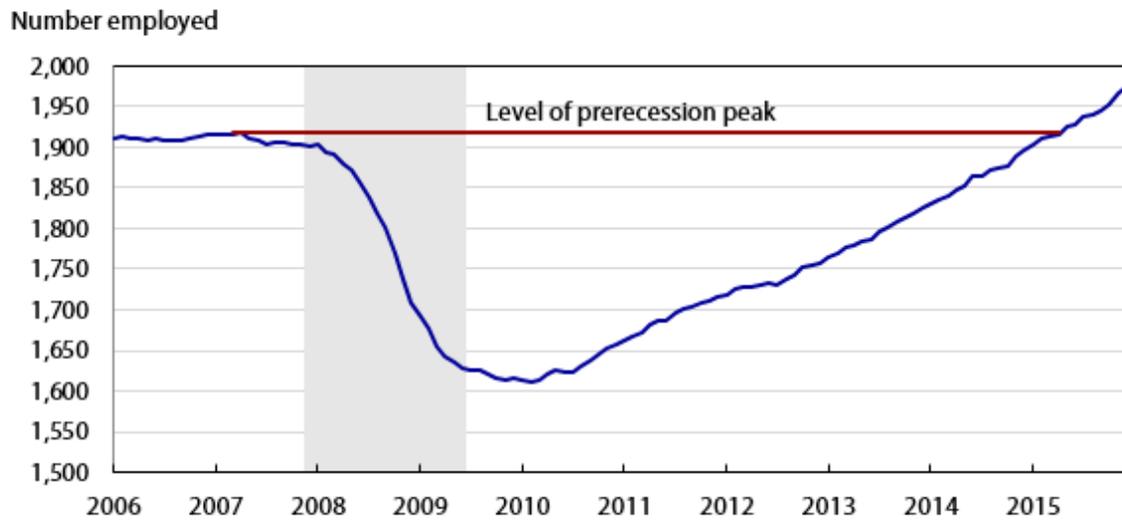
Source: U.S. Bureau of Labor Statistics, Current Employment Statistics survey.

With employment losses that started in residential industries more than a year and a half before the official start of the recession in December 2007, construction led the Great Recession in shedding jobs. The industry continued to lose jobs until January 2011. From peak to trough, employment in the industry declined by 2.3 million, or 29.8 percent. As 2015 came to a close, construction employment was still 1.1 million short of a full recovery.

Keeping pace with overall employment

Retail trade added 284,000 jobs in 2015, roughly keeping pace with total nonfarm growth. Employment in the industry reached an important milestone, recovering about 1.3 million jobs lost during the Great Recession. By December, retail employment had expanded by 185,000 above the last peak in November 2007.

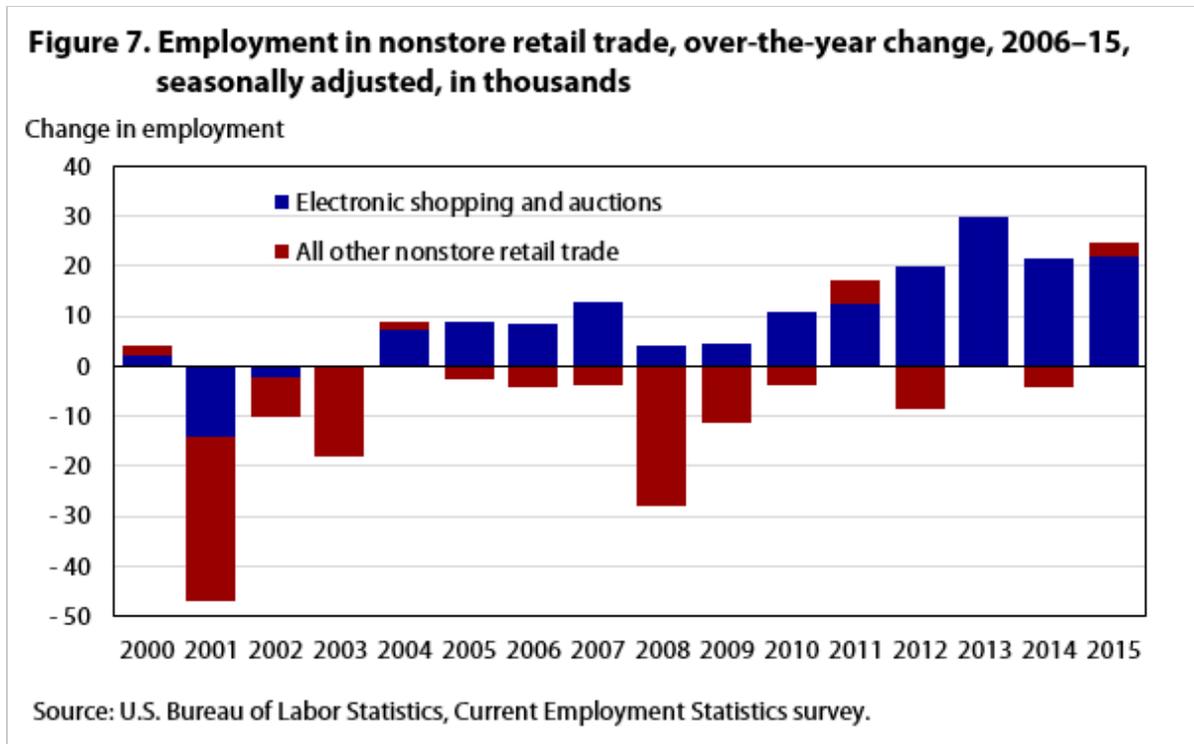
Figure 6. Employment in motor vehicle and parts dealers, 2006–15, seasonally adjusted, in thousands



Note: Shaded area indicates recession, as determined by the National Bureau of Economic Research.
 Source: U.S. Bureau of Labor Statistics, Current Employment Statistics survey.

Within retail trade, motor vehicle and parts dealers added 79,000 jobs in 2015. Bolstered by strong auto sales, employment in the component, as in the larger sector, also reached the recovery milestone during the year (see figure 6): by December, employment had expanded by 57,000 beyond an April 2007 peak. Automobile dealers accounted for 72 percent of the gain in motor vehicle and parts dealers in 2015.

General merchandise stores added 53,000 jobs over the year. The increase was more than accounted for by the 71,000 jobs added by warehouse clubs and supercenters. The other components of general merchandise stores combined to lose jobs, with department stores shedding 30,000 jobs over the year, the fourth successive year of declining employment in that component. By contrast, the warehouse clubs and supercenters component has added jobs in each of the past 6 years.



Employment in nonstore retailers expanded by 4.9 percent in 2015. Among the component industries, electronic shopping and auctions, the primary driver of employment trends in nonstore retailers, added 22,000 jobs over the year. (See figure 7.) This component has added jobs every year since 2004, increasing its share of nonstore retail employment from 14 percent that year to 41.1 percent in 2015.

Elsewhere in retail trade, electronics and appliance stores, building material and garden supply stores, and gasoline stations added jobs in 2015.

Employment in financial activities grew at roughly the same pace as overall employment (1.9 percent). Insurance carriers contributed the largest number of jobs, followed by real estate and security and commodity industries. Employment increases in nondepository credit intermediation and in activities related to credit intermediation more than offset losses in commercial banking over the year.

Although growth slowed to about half the pace set in 2014, employment continued to rise in transportation and warehousing. While couriers and messengers, truck transportation, and support activities for transportation added fewer jobs in 2015, employment in warehousing and storage accelerated and accounted for more than half of the jobs gained in the transportation and warehousing sector. Railroads lost jobs over the year, offsetting job gains in 2014.

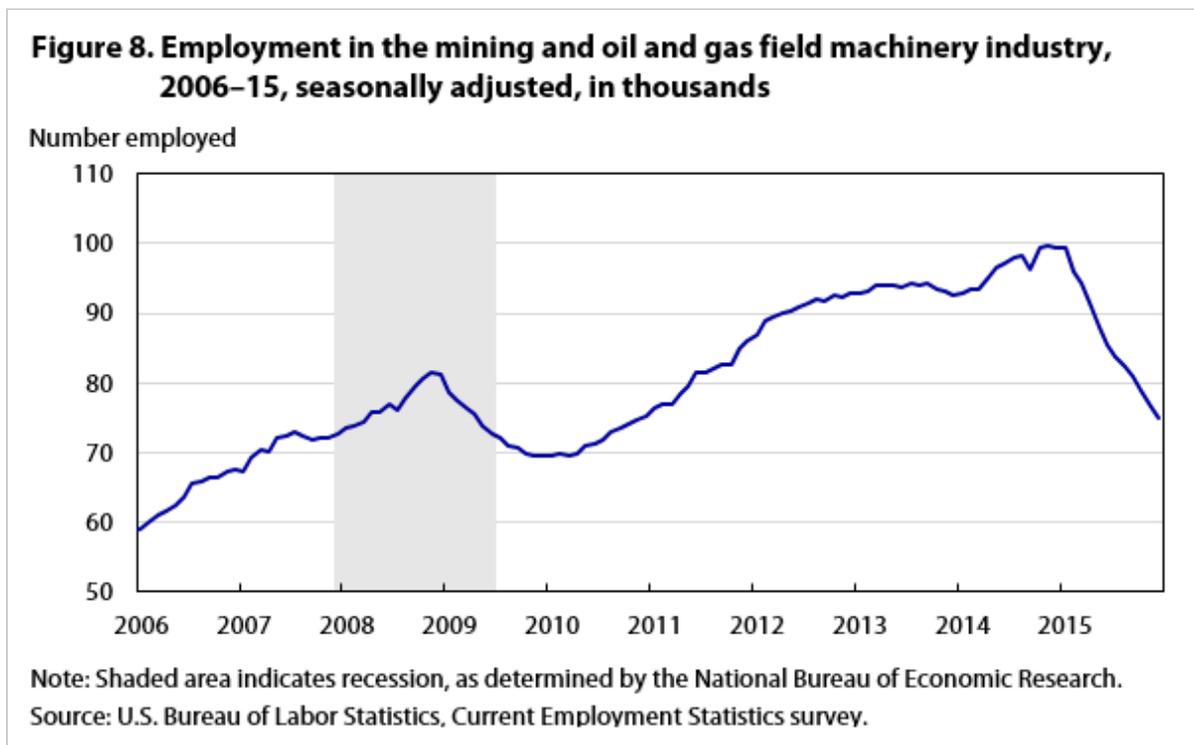
Employment growth decelerates

After gaining 208,000 jobs in 2014, manufacturing employment saw little change in employment in 2015, adding just 26,000 jobs. Nondurable goods added 49,000 jobs, while employment in durable goods was down by 23,000 over the year.

The expansion in nondurable goods employment in 2015 was mostly in food manufacturing and miscellaneous nondurable goods manufacturing. The majority of the gains in food manufacturing occurred during the last few months of the year. Miscellaneous nondurable goods manufacturing, which includes the tobacco and beverages industry, increased payroll employment by 8.5 percent over the year.

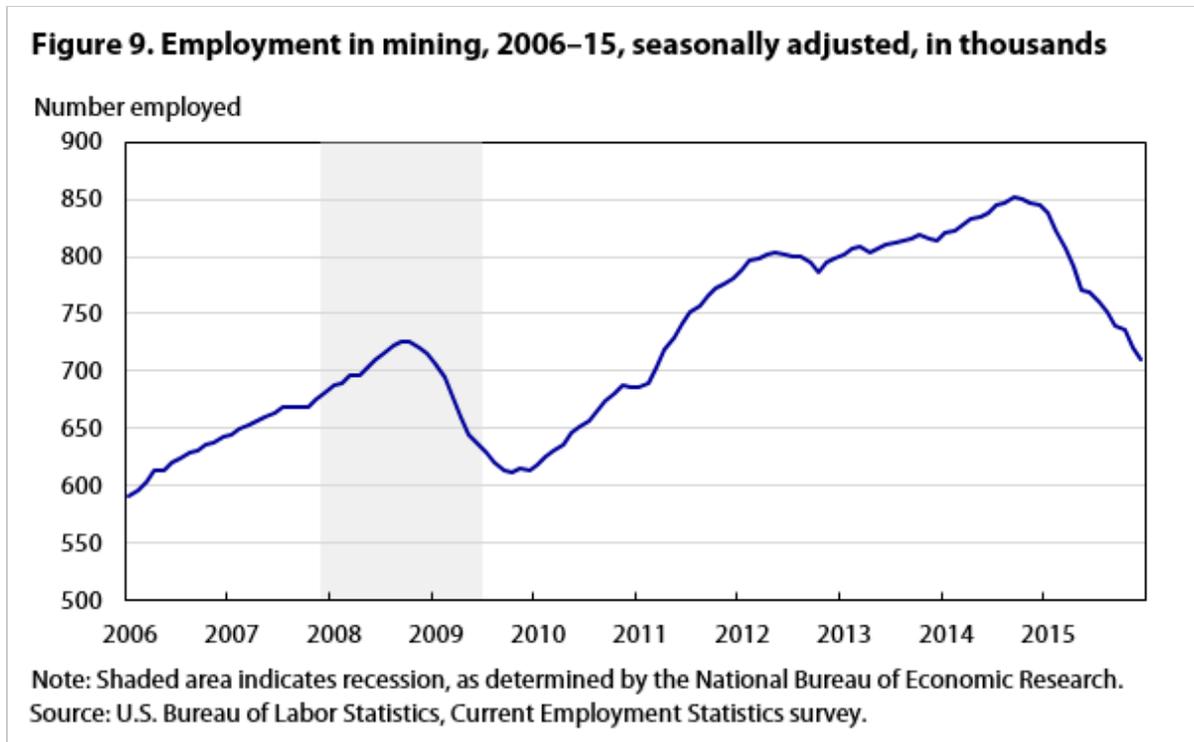
Durable goods manufacturing industries exhibited disparate employment trends in 2015. Transportation equipment added 23,000 jobs, primarily on the strength of motor vehicle and parts dealers, an industry in which strong auto sales and lower fuel prices helped drive job growth.⁴ Likely driven by strength in construction, both wood products and nonmetallic mineral products (cement, glass, bricks, etc.) added jobs over the year as well.

In contrast, machinery, fabricated metal products, and primary metals, industries that produce industrial supplies and materials, lost jobs over the year. Several factors may explain the weaknesses in these durable goods industries. A strong dollar made U.S. goods more expensive to foreign markets, and exports of goods decreased by \$119.6 billion in 2015,⁵ largely for industrial supplies and materials. Furthermore, although low fuel prices helped spur job growth in motor vehicle and parts dealers, the same low prices likely also contributed to losses in machinery, primarily in the mining and oil and gas field machinery industry. Employment in this small component industry decreased by 24.7 percent over the year. (See figure 8.)



As in manufacturing, job growth in wholesale trade slowed. Of the industry’s components, nondurable goods exhibited faster employment growth in 2015 while durable goods and electronic markets and agents and brokers saw employment growth decelerate over the year.

Mining employment sinks

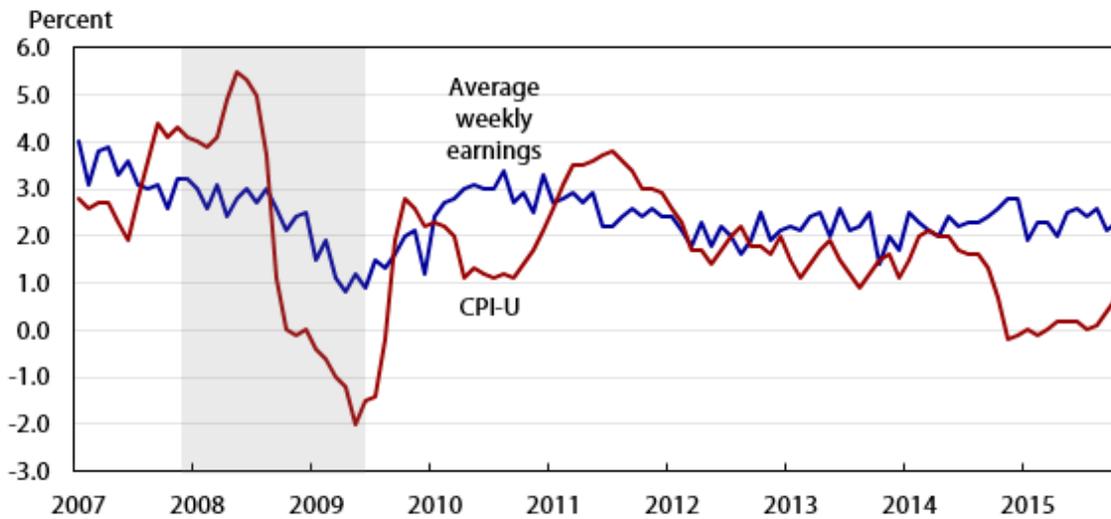


Job losses were particularly severe in mining during 2015. Employment decreased by 135,000, or 15.9 percent. (See figure 9.) All mining components suffered losses, but employment in support activities for mining registered the largest relative decrease—23.3 percent over the year—across all nonfarm industries. Employment in coal mining continued its long-run trend by shedding 9,000 jobs in 2015. The industry has lost 29,000 jobs since 2011.

Crude oil prices fluctuated between about \$91 and \$108 per barrel during the first half of 2014, but then started to fall, declining to \$37 in December 2015.⁶ Mining activities related to oil and gas followed a similar trend: employment peaked in September 2014 and declined each month through December 2015. Support activities for mining, an industry that includes support activities for oil and gas operations, reduced payroll employment by 111,000, with most of the decrease (102,000) occurring in 2015. Oil and gas extraction lost 18,000 jobs in 2015.

Real earnings accelerate in 2015

Figure 10. Average weekly earnings and Consumer Price Index for All Urban Consumers (CPI-U), 12-month percent change, March 2007–December 2015



Note: Shaded area indicates recession, as determined by the National Bureau of Economic Research.
 Source: U.S. Bureau of Labor Statistics, Current Employment Statistics survey.

Average weekly hours of all private sector employees edged down by 0.1 hour in 2015, while employees earned 2.6 percent more per hour. As a result of these changes, average weekly earnings were up 2.3 percent over the year. (See figure 3.10.) With prices, as measured by the Consumer Price Index for all Urban Consumers (CPI-U), rising 0.7 percent on an annualized basis, real weekly earnings rose 1.7 percent in 2015, improving overall buying power for payroll workers.

Recovery, expansion, and loss

Although the overall rate of job growth slowed in 2015, the employment gain represented a continuation of an expansion that started in May 2014, when employment recovered to its previous peak level of January 2008. Employment trends varied not only by industry, but also by where they stood relative to the last business cycle peak. Health care typically adds jobs even during recessions, making it the most recessionproof of industries with regard to employment. Employment in the industry expanded during both the Great Recession and the recovery period, with growth accelerating in 2015. Some industries lost jobs during the last recession, but recovered relatively early. Employment in leisure and hospitality and in professional and business services recovered as early as 2012 and continued to expand through 2015. Retail trade saw employment recover during 2015, while recovery continued in construction, financial activities, manufacturing, and government. Mining began a new cycle in 2014, with employment peaking in September of that year and then declining throughout 2015.

Tables

Table 1. Employment and annual change in employment, by industry, 2013–15 (in thousands)

Industry	Employment, December			Over-the-year change, December			Over-the-year percent change, December		
	2013	2014	2015	2013	2014	2015	2013	2014	2015
Total nonfarm	137,387	140,402	143,146	2,311	3,015	2,744	1.7	2.2	2.0
Total private	115,570	118,455	121,106	2,378	2,885	2,651	2.1	2.5	2.2
Goods-producing	18,892	19,492	19,678	355	600	186	1.9	3.2	1.0
Mining and logging	867	897	761	18	30	-136	2.1	3.5	-15.2
Logging	52	52	51	1	0	-1	1.9	-.6	-2.3
Mining	814	845	710	17	30	-135	2.1	3.7	-15.9
Oil and gas extraction	193	201	183	2	7	-18	.9	3.7	-8.8
Mining, except oil and gas	206	206	191	-8	0	-15	-3.7	.1	-7.1
Coal mining	77	70	61	-2	-7	-9	-2.4	-9.0	-13.4
Metal ore mining	43	44	40	-3	1	-4	-5.9	2.8	-10.0
Nonmetallic mineral mining and quarrying	86	92	91	-4	6	-1	-3.9	6.9	-.9
Support activities for mining	415	438	336	23	23	-102	5.9	5.5	-23.3
Construction	5,939	6,301	6,597	211	362	296	3.7	6.1	4.7
Construction of buildings	1,316	1,389	1,439	52	73	50	4.1	5.6	3.6
Residential building	630	674	708	35	43	34	5.9	6.9	5.0
Nonresidential building	685	715	731	17	30	16	2.5	4.4	2.2
Heavy and civil engineering construction	877	928	944	-1	51	16	-.1	5.8	1.7
Specialty trade contractors	3,746	3,985	4,214	160	239	230	4.5	6.4	5.8
Residential specialty trade contractors	1,609	1,726	1,843	107	117	117	7.1	7.3	6.8
Nonresidential specialty trade contractors	2,137	2,259	2,371	53	122	112	2.5	5.7	5.0
Manufacturing	12,086	12,294	12,320	126	208	26	1.1	1.7	.2
Durable goods	7,593	7,754	7,731	89	161	-23	1.2	2.1	-.3
Wood products	361	376	386	15	15	10	4.3	4.1	2.6
Nonmetallic mineral products	376	392	401	8	16	9	2.1	4.2	2.3
Primary metals	396	403	384	-2	7	-19	-.4	1.8	-4.8
Fabricated metal products	1,443	1,471	1,440	25	28	-31	1.8	1.9	-2.1
Machinery	1,107	1,139	1,102	4	33	-37	.4	3.0	-3.2
Computer and electronic products	1,055	1,052	1,042	-21	-3	-9	-2.0	-.3	-.9
Electrical equipment and appliances	377	380	384	1	3	5	.4	.7	1.2
Transportation equipment ⁽¹⁾	1,530	1,583	1,605	44	52	23	2.9	3.4	1.4
Motor vehicles and parts ⁽²⁾	852	892	918	56	40	26	7.1	4.7	2.9
Furniture and related products	366	376	387	13	10	12	3.8	2.7	3.1
Miscellaneous durable goods manufacturing	582	583	599	1	1	16	.2	.1	2.7
Nondurable goods	4,493	4,540	4,589	37	47	49	.8	1.0	1.1
Food manufacturing	1,487	1,493	1,512	23	7	19	1.5	.4	1.3
Textile mills	118	117	115	1	-1	-2	.8	-.8	-1.7
Textile product mills	114	117	117	-3	3	0	-2.3	2.9	-.2
Apparel	144	138	136	-3	-6	-1	-2.0	-4.3	-1.0
Paper and paper products	376	372	373	-3	-4	1	-.8	-1.0	.2
Printing and related support activities	452	452	449	-3	0	-4	-.7	.1	-.9
Petroleum and coal products	109	114	117	-4	5	3	-3.3	4.8	2.4
Chemicals	795	810	815	8	15	5	1.1	1.8	.6

See footnotes at end of table.

Table 1. Employment and annual change in employment, by industry, 2013–15 (in thousands)

Industry	Employment, December			Over-the-year change, December			Over-the-year percent change, December		
	2013	2014	2015	2013	2014	2015	2013	2014	2015
Plastics and rubber products	667	682	691	17	15	9	2.6	2.3	1.2
Miscellaneous nondurable goods manufacturing	232	245	266	5	13	21	2.0	5.7	8.5
Private service providing	96,678	98,963	101,428	2,023	2,285	2,465	2.1	2.4	2.5
Trade, transportation, and utilities	26,135	26,656	27,114	516	521	458	2.0	2.0	1.7
Wholesale trade	5,765	5,845	5,901	63	81	56	1.1	1.4	1.0
Durable goods	2,872	2,924	2,946	19	52	22	.7	1.8	.7
Nondurable goods	1,999	2,017	2,050	21	19	33	1.1	.9	1.6
Electronic markets and agents and brokers	894	904	905	23	10	1	2.6	1.1	.1
Retail trade	15,267	15,477	15,761	368	210	284	2.5	1.4	1.8
Motor vehicle and parts dealers	1,826	1,895	1,974	68	69	79	3.8	3.8	4.2
Automobile dealers	1,161	1,215	1,271	48	54	57	4.3	4.6	4.7
Other motor vehicle dealers	138	141	151	8	3	10	5.8	2.0	6.8
Auto parts, accessories, and tire stores	526	539	552	12	13	13	2.2	2.5	2.4
Furniture and home furnishings stores	451	460	467	10	9	7	2.2	2.1	1.6
Electronics and appliance stores	503	506	525	5	3	18	.9	.6	3.6
Building material and garden supply stores	1,226	1,229	1,258	42	3	29	3.5	.3	2.4
Food and beverage stores	2,968	3,045	3,068	77	77	23	2.7	2.6	.7
Health and personal care stores	1,025	1,030	1,033	19	5	4	1.9	.5	.3
Gasoline stations	875	890	915	22	15	25	2.6	1.7	2.8
Clothing and clothing accessories stores	1,398	1,354	1,359	-15	-44	5	-1.1	-3.1	.4
Sporting goods, hobby, book, and music stores	619	634	628	50	14	-5	8.8	2.3	-.8
General merchandise stores	3,091	3,111	3,164	61	20	53	2.0	.6	1.7
Miscellaneous store retailers	803	823	844	1	20	22	.1	2.5	2.6
Nonstore retailers	483	500	524	30	17	25	6.6	3.5	4.9
Transportation and warehousing	4,552	4,779	4,889	86	227	110	1.9	5.0	2.3
Air transportation	442	448	462	-11	6	14	-2.4	1.4	3.0
Rail transportation	231	244	229	0	13	-15	-.1	5.5	-6.1
Water transportation	66	68	62	1	2	-6	1.7	2.9	-9.3
Truck transportation	1,392	1,443	1,464	25	51	21	1.8	3.7	1.4
Transit and ground passenger transportation	460	474	474	16	14	0	3.6	3.0	.0
Pipeline transportation	46	48	50	2	2	3	5.3	4.1	5.2
Scenic and sightseeing transportation	30	31	30	1	1	-1	3.8	2.3	-3.6
Support activities for transportation	608	635	655	15	27	19	2.6	4.5	3.1
Couriers and messengers	553	614	624	19	61	10	3.5	11.0	1.6
Warehousing and storage	725	775	841	17	51	66	2.4	7.0	8.4
Utilities	551	555	564	-1	4	9	-.1	.7	1.6
Information	2,724	2,733	2,763	51	9	30	1.9	.3	1.1
Publishing industries, except Internet	729	726	724	-5	-3	-2	-.7	-.4	-.3
Motion picture and sound recording industries	381	389	406	23	8	18	6.3	2.0	4.6
Broadcasting, except Internet	281	281	280	-4	-1	-1	-1.3	-.2	-.4
Telecommunications	854	820	804	7	-34	-16	.9	-4.0	-1.9
Data processing, hosting and related services	274	287	299	12	12	12	4.7	4.5	4.2

See footnotes at end of table.

Table 1. Employment and annual change in employment, by industry, 2013–15 (in thousands)

Industry	Employment, December			Over-the-year change, December			Over-the-year percent change, December		
	2013	2014	2015	2013	2014	2015	2013	2014	2015
Other information services	204	232	250	17	27	18	9.1	13.4	7.8
Financial activities	7,914	8,041	8,190	87	127	149	1.1	1.6	1.9
Finance and insurance	5,900	5,972	6,085	43	72	113	.7	1.2	1.9
Monetary authorities—central bank	18	18	18	0	0	0	-.5	-1.1	-.6
Credit intermediation and related activities	2,587	2,559	2,573	-26	-27	13	-1.0	-1.1	.5
Depository credit intermediation ⁽¹⁾	1,720	1,688	1,676	-22	-32	-12	-1.3	-1.8	-.7
Commercial banking	1,305	1,283	1,264	-16	-22	-19	-1.2	-1.7	-1.5
Nondepository credit intermediation	580	582	599	-9	3	17	-1.6	.4	2.9
Activities related to credit intermediation	287	289	297	5	2	8	1.9	.6	2.8
Securities, commodity contracts, investments, and funds and trusts	871	891	921	15	20	30	1.7	2.3	3.3
Insurance carriers and related activities	2,423	2,503	2,573	54	80	70	2.3	3.3	2.8
Real estate and rental and leasing	2,015	2,069	2,105	45	55	36	2.3	2.7	1.7
Real estate	1,471	1,501	1,538	39	30	37	2.7	2.0	2.5
Rental and leasing services	520	545	544	6	25	-2	1.2	4.8	-.3
Lessors of nonfinancial intangible assets	24	24	24	0	0	0	-.8	.0	.0
Professional and business services	18,721	19,360	19,981	555	639	621	3.1	3.4	3.2
Professional and technical services	8,188	8,465	8,757	186	277	292	2.3	3.4	3.4
Legal services	1,122	1,117	1,124	-10	-5	7	-.9	-.4	.6
Accounting and bookkeeping services	923	959	1,004	10	36	45	1.1	3.9	4.7
Architectural and engineering services	1,356	1,392	1,425	22	36	34	1.6	2.6	2.4
Specialized design services	125	129	140	3	4	11	2.0	3.4	8.3
Computer systems design and related services	1,735	1,847	1,951	72	112	104	4.3	6.4	5.6
Management and technical consulting services	1,207	1,253	1,300	69	46	47	6.0	3.8	3.8
Scientific research and development services	629	647	662	-8	18	15	-1.2	2.9	2.3
Advertising and related services	465	476	491	24	11	15	5.4	2.4	3.0
Other professional and technical services	627	646	660	5	19	14	.8	3.0	2.2
Management of companies and enterprises	2,135	2,189	2,247	74	54	58	3.6	2.5	2.7
Administrative and waste services	8,398	8,707	8,978	295	308	271	3.6	3.7	3.1
Administrative and support services	8,019	8,316	8,574	290	298	258	3.8	3.7	3.1
Office administrative services	455	464	482	20	9	18	4.6	2.0	3.9
Facilities support services	132	135	144	0	3	9	-.2	2.5	6.4
Employment services ⁽¹⁾	3,321	3,503	3,620	144	182	117	4.5	5.5	3.3
Temporary help services	2,680	2,848	2,944	143	168	96	5.6	6.3	3.4
Business support services	867	886	897	34	19	11	4.1	2.1	1.3
Travel arrangement and reservation services	195	200	202	3	6	2	1.6	2.9	1.0
Investigation and security services	844	862	883	25	18	20	3.1	2.2	2.3
Services to buildings and dwellings	1,910	1,960	2,030	63	50	70	3.4	2.6	3.6
Other support services	294	306	316	1	11	10	.3	3.8	3.4
Waste management and remediation services	380	390	404	5	11	13	1.4	2.8	3.4
Education (private) and health services	21,197	21,677	22,378	261	480	701	1.2	2.3	3.2
Educational (private) services	3,375	3,435	3,502	38	60	67	1.1	1.8	2.0

See footnotes at end of table.

Table 1. Employment and annual change in employment, by industry, 2013–15 (in thousands)

Industry	Employment, December			Over-the-year change, December			Over-the-year percent change, December		
	2013	2014	2015	2013	2014	2015	2013	2014	2015
Health care and social assistance	17,822	18,242	18,876	224	420	634	1.3	2.4	3.5
Health care ⁽³⁾	14,555	14,831	15,303	158	276	472	1.1	1.9	3.2
Ambulatory health care services	6,537	6,736	6,992	147	199	256	2.3	3.0	3.8
Offices of physicians	2,444	2,485	2,569	28	41	84	1.1	1.7	3.4
Offices of dentists	877	897	926	18	20	29	2.1	2.3	3.3
Offices of other health practitioners	763	798	827	24	35	30	3.2	4.6	3.7
Outpatient care centers	695	728	761	34	33	33	5.1	4.7	4.5
Medical and diagnostic laboratories	245	254	260	5	9	6	2.1	3.6	2.3
Home health care services	1,242	1,290	1,356	36	48	66	3.0	3.9	5.1
Other ambulatory health care services	272	284	294	3	13	9	1.0	4.6	3.2
Hospitals	4,775	4,821	4,999	-18	46	177	-.4	1.0	3.7
Nursing and residential care facilities	3,243	3,274	3,312	29	31	38	.9	1.0	1.2
Nursing care facilities	1,648	1,649	1,660	-13	1	10	-.8	.1	.6
Residential mental health facilities	600	605	609	10	6	3	1.8	1.0	.6
Community care facilities for the elderly	836	857	881	31	20	24	3.8	2.4	2.8
Other residential care facilities	159	163	163	1	4	0	.5	2.3	-.1
Social assistance	3,268	3,411	3,574	66	144	162	2.1	4.4	4.8
Individual and family services	1,938	2,060	2,193	82	123	133	4.4	6.3	6.5
Emergency and other relief services	150	153	156	6	3	3	4.1	2.2	1.8
Vocational rehabilitation services	336	335	336	-20	-1	1	-5.5	-.3	.1
Child daycare services	844	863	889	-3	19	26	-.3	2.3	3.0
Leisure and hospitality	14,460	14,901	15,342	479	441	441	3.4	3.0	3.0
Arts, entertainment, and recreation	2,070	2,131	2,196	76	61	65	3.8	2.9	3.0
Performing arts and spectator sports	431	448	464	21	17	17	5.1	4.0	3.7
Museums, historical sites, and similar institutions	144	149	153	5	5	3	3.9	3.8	2.2
Amusements, gambling, and recreation	1,496	1,534	1,579	50	38	45	3.4	2.5	2.9
Accommodation and food services	12,390	12,770	13,146	403	380	377	3.4	3.1	2.9
Accommodation	1,878	1,909	1,926	37	31	17	2.0	1.7	.9
Food services and drinking places	10,512	10,861	11,220	367	349	359	3.6	3.3	3.3
Other services	5,527	5,595	5,660	74	68	65	1.4	1.2	1.2
Repair and maintenance	1,230	1,256	1,291	22	26	35	1.9	2.1	2.8
Personal and laundry services	1,351	1,387	1,417	20	37	30	1.5	2.7	2.1
Membership associations and organizations	2,946	2,952	2,952	32	6	1	1.1	.2	.0
Government	21,817	21,947	22,040	-67	130	93	-.3	.6	.4
Federal	2,740	2,746	2,768	-66	6	22	-2.4	.2	.8
Federal, except U.S. Postal Service	2,148	2,148	2,164	-60	-1	17	-2.7	.0	.8
U.S. Postal Service	592	598	604	-5	6	6	-.9	1.0	.9
State government	5,052	5,088	5,108	5	36	20	.1	.7	.4
State government education	2,405	2,416	2,435	16	11	19	.7	.5	.8
State government, excluding education	2,647	2,672	2,673	-11	25	1	-.4	.9	.0
Local government	14,025	14,113	14,164	-6	88	51	.0	.6	.4
Local government education	7,761	7,818	7,814	-11	57	-5	-.1	.7	-.1

See footnotes at end of table.

Table 1. Employment and annual change in employment, by industry, 2013–15 (in thousands)

Industry	Employment, December			Over-the-year change, December			Over-the-year percent change, December		
	2013	2014	2015	2013	2014	2015	2013	2014	2015
Local government, excluding education	6,264	6,295	6,350	5	31	56	.1	.5	.9

Notes:

(1) Includes other industries not shown separately.

(2) Includes motor vehicles, motor vehicle bodies and trailers, and motor vehicle parts.

(3) Includes ambulatory health care services, hospitals, and nursing and residential care facilities.

Source: U.S. Bureau of Labor Statistics, Current Employment Statistics survey.

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Joseph Stuart, Jr., "Employment continued to expand in 2015," *Monthly Labor Review*, U.S. Bureau of Labor Statistics, April 2016, <https://doi.org/10.21916/mlr.2016.18>.

NOTES

¹ The Current Employment Statistics (CES) program, which provides detailed industry data on employment, hours, and earnings of workers on nonfarm payrolls, is a monthly survey of about 146,000 businesses and government agencies representing approximately 623,000 individual worksites. For more information on the program's concepts and methodology, see "Technical notes for the Current Employment Statistics survey," *Current Employment Statistics—CES (national)* (U.S. Bureau of Labor Statistics, February 8, 2016), <https://www.bls.gov/web/empsit/cestn.htm>. To access CES data, see *Current Employment Statistics—CES (national)* (U.S. Bureau of Labor Statistics), <https://www.bls.gov/ces/>. The CES data are seasonally adjusted unless otherwise noted. Over-the-year changes are calculated from December of the previous year through December of the reference year.

² Recessions are identified by the National Bureau of Economic Research (NBER). According to NBER, the most recent recession began in December 2007 and ended in June 2009. The previous two recessions were from March 2001 to November 2001 and from July 1990 to March 1991. For a complete list of business cycle dates, see "U.S. business cycle expansions and contractions" (National Bureau of Economic research, April 1, 2016), <http://www.nber.org/cycles/cyclesmain.html>.

³ For CES program definitions of peaks, troughs, recovery, and expansion, see "CES peak–trough tables," *Current Employment Statistics—CES (national)* (U.S. Bureau of Labor Statistics, December 10, 2012), <https://www.bls.gov/ces/cespeaktrough.htm>.

⁴ See "U.S. car sales set record in 2015," *The Wall Street Journal*, January 5, 2016, <http://www.wsj.com/articles/u-s-car-sales-poised-for-their-best-month-ever-1451999939>.

⁵ See "Time series/trend charts," *Business and industry* (U.S. Census Bureau), <https://www.census.gov/econ/currentdata/dbsearch?program=FTD&startYear=1992&endYear=2016&categories=BOPGS&dataType=EXP&geoLevel=US&adjusted=1&submit=GET+DATA&releaseScheduleId=>.

⁶ U.S. Energy Information Administration, *Crude oil prices: West Texas Intermediate (WTI)—Cushing, Oklahoma* (Federal Reserve Bank of St. Louis), <https://research.stlouisfed.org/fred2/series/DCOILWTICO>.

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Unemployment rate nears prerecession level by end of 2015

Unemployment continued to trend downward and employment expanded in 2015; long-term joblessness and involuntary part-time employment both declined over the year but remained high by historical standards.

The U.S. labor market logged another year of recovery in 2015 as the national unemployment rate continued to trend downward and employment expanded. In the fourth quarter of the year, 7.9 million people were unemployed and the unemployment rate declined to 5.0 percent, about half its peak following the 2007–09 recession. Total employment, as measured by the Current Population Survey (CPS; see accompanying box), expanded by 2.1 million in 2015, reaching 149.5 million by year’s end. Employment growth, however, occurred at a slower pace than in 2014, when employment expanded by 3.1 million. The employment–population ratio was 59.4 percent in the fourth quarter of 2015, little changed from what it was the previous year. In 2015, the civilian labor force—the sum of the employed and the unemployed—rose to 157.4 million but the overall labor force participation rate declined to 62.5 percent.¹

This article reviews changes in major labor market indicators from the CPS in 2015. The article also examines changes in labor force status flows and usual weekly earnings, and summarizes the employment situations of veterans, people with a disability, and the foreign born. Data are seasonally adjusted unless otherwise noted.



Janie-Lynn Kang

kang.janie-lynn@bls.gov

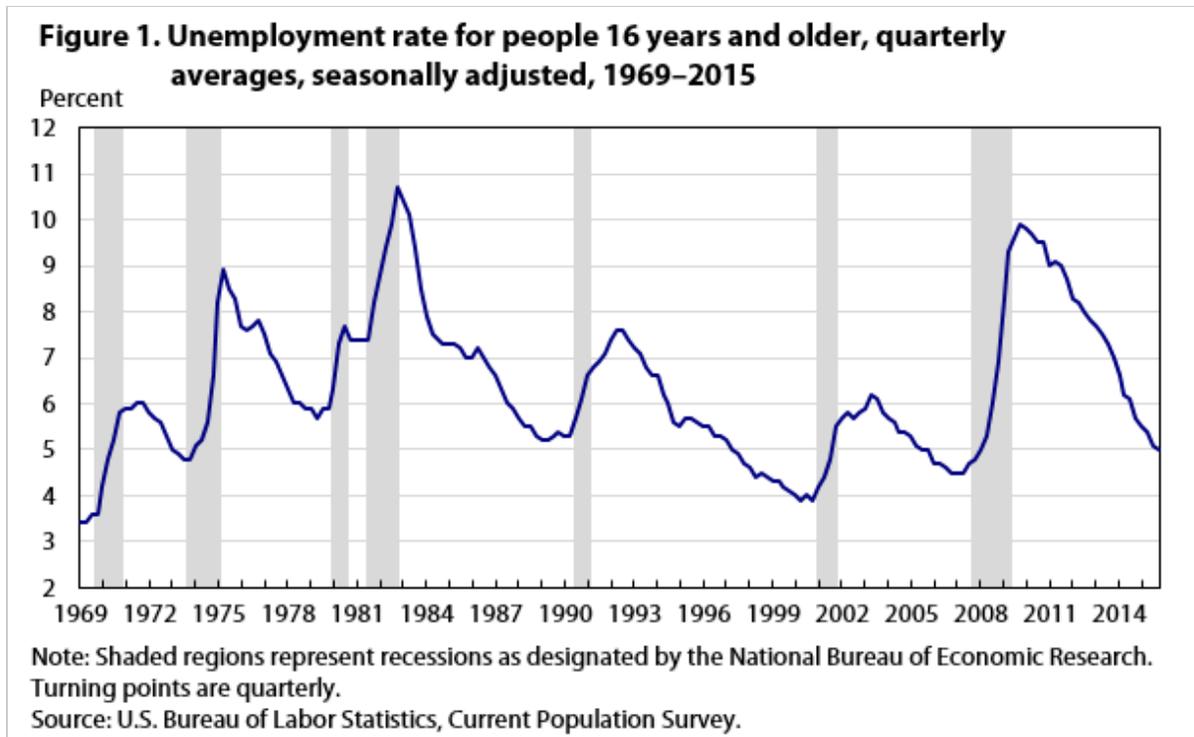
Janie-Lynn Kang is an economist in the Division of Labor Force Statistics, Office of Employment and Unemployment Statistics, U.S. Bureau of Labor Statistics.

Lisa M. Williamson

williamson.lisa@bls.gov

Lisa Williamson is an economist in the Division of Labor Force Statistics, Office of Employment and Unemployment Statistics, U.S. Bureau of Labor Statistics.

Unemployment



National unemployment declined by 1.0 million during the year, to 7.9 million in the fourth quarter of 2015. The decrease was about half that experienced the previous year. The unemployment rate declined by 0.7 percentage point over the year, to 5.0 percent in the fourth quarter of 2015. The rate reached a quarterly peak of 9.9 percent in the wake of the most recent recession and has been trending downward for the past 5 years. The rate at the start of the recent recession was 4.8 percent.² (See figure 1 and table 1.)

Table 1. Employment status of the civilian noninstitutional population 16 years and older, by age and selected characteristics, quarterly averages, seasonally adjusted, 2014–15 (levels in thousands)

Characteristic	2014	2015				Change, fourth quarter 2014 to fourth quarter 2015
	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	
Total, 16 years and older						
Civilian labor force	156,316	156,931	157,128	157,014	157,432	1,116
Participation rate	62.8	62.8	62.7	62.5	62.5	-.3
Employed	147,400	148,223	148,659	148,950	149,523	2,123
Employment–population ratio	59.2	59.3	59.4	59.3	59.4	.2
Unemployed	8,915	8,708	8,468	8,064	7,909	-1,006
Unemployment rate	5.7	5.5	5.4	5.1	5.0	-.7
Men, 20 years and older						
Civilian labor force	80,182	80,746	80,780	80,657	80,737	555
Participation rate	71.7	72.0	71.8	71.5	71.4	-.3
Employed	75,958	76,565	76,780	76,837	76,933	975
Employment–population ratio	68.0	68.2	68.2	68.1	68.0	.0

See footnotes at end of table.

Table 1. Employment status of the civilian noninstitutional population 16 years and older, by age and selected characteristics, quarterly averages, seasonally adjusted, 2014–15 (levels in thousands)

Characteristic	2014	2015				Change, fourth quarter 2014 to fourth quarter 2015
	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	
Unemployed	4,224	4,181	4,000	3,820	3,804	-420
Unemployment rate	5.3	5.2	5.0	4.7	4.7	-.6
Women, 20 years and older						
Civilian labor force	70,333	70,397	70,607	70,756	71,014	681
Participation rate	58.4	58.1	58.2	58.2	58.2	-.2
Employed	66,668	66,902	67,150	67,431	67,809	1,141
Employment–population ratio	55.3	55.3	55.3	55.4	55.6	.3
Unemployed	3,665	3,494	3,458	3,325	3,205	-460
Unemployment rate	5.2	5.0	4.9	4.7	4.5	-.7
Total, 16 to 19 years						
Civilian labor force	5,800	5,788	5,740	5,602	5,681	-119
Participation rate	34.9	34.8	34.5	33.7	34.2	-.7
Employed	4,775	4,756	4,730	4,682	4,781	6
Employment–population ratio	28.8	28.6	28.5	28.2	28.8	.0
Unemployed	1,026	1,032	1,010	920	900	-126
Unemployment rate	17.7	17.8	17.6	16.4	15.8	-1.9
White						
Civilian labor force	123,302	123,856	123,625	123,381	123,562	260
Participation rate	62.9	63.1	62.9	62.6	62.6	-.3
Employed	117,306	117,945	117,867	117,863	118,129	823
Employment–population ratio	59.9	60.1	59.9	59.8	59.9	.0
Unemployed	5,996	5,911	5,759	5,518	5,432	-564
Unemployment rate	4.9	4.8	4.7	4.5	4.4	-.5
Black or African American						
Civilian labor force	19,030	19,078	19,392	19,351	19,430	400
Participation rate	61.4	61.1	61.9	61.6	61.6	.2
Employed	16,992	17,133	17,499	17,559	17,690	698
Employment–population ratio	54.8	54.9	55.9	55.9	56.1	1.3
Unemployed	2,039	1,945	1,893	1,792	1,740	-299
Unemployment rate	10.7	10.2	9.8	9.3	9.0	-1.7
Asian						
Civilian labor force	8,791	8,954	9,088	9,088	9,085	294
Participation rate	63.4	62.7	63.2	62.5	62.7	-.7
Employed	8,382	8,619	8,717	8,750	8,740	358
Employment–population ratio	60.5	60.4	60.6	60.2	60.3	-.2
Unemployed	409	335	371	338	345	-64
Unemployment rate	4.7	3.7	4.1	3.7	3.8	-.9
Hispanic or Latino ethnicity						
Civilian labor force	25,689	26,040	26,137	26,097	26,231	542

See footnotes at end of table.

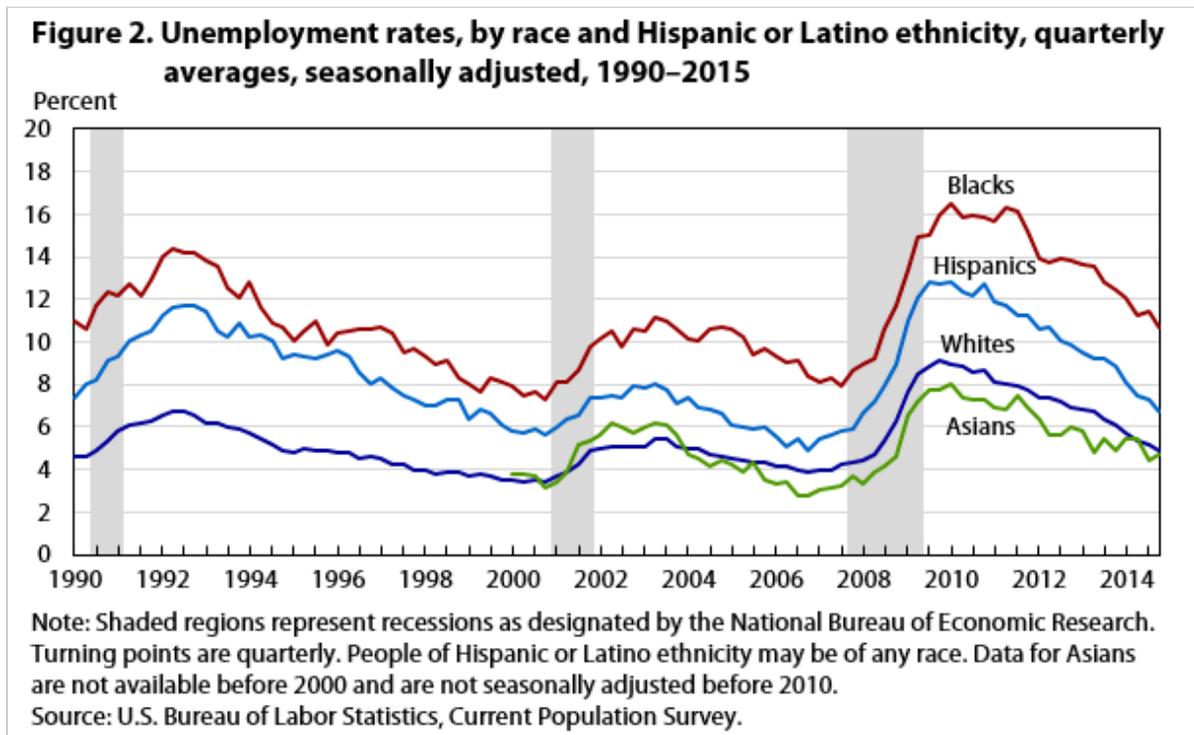
Table 1. Employment status of the civilian noninstitutional population 16 years and older, by age and selected characteristics, quarterly averages, seasonally adjusted, 2014–15 (levels in thousands)

Characteristic	2014	2015				Change, fourth quarter 2014 to fourth quarter 2015
	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	
Participation rate	66.3	66.4	66.2	65.7	65.6	-.7
Employed	23,976	24,286	24,373	24,376	24,564	588
Employment–population ratio	61.9	61.9	61.7	61.3	61.4	-.5
Unemployed	1,713	1,754	1,764	1,721	1,668	-45
Unemployment rate	6.7	6.7	6.7	6.6	6.4	-.3

Note: Race and Hispanic ethnicity totals do not sum to the overall total for 16 years and older because data are not presented for all races and because people of Hispanic ethnicity may be of any race and are also included in the race groups. Updated population controls are introduced annually with the release of January data.

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

Both the number of unemployed people and the unemployment rate declined in 2015 for adult men, adult women, and teenagers (16 to 19 years of age). By the fourth quarter, the jobless rate for adult men had declined by 0.6 percentage point, to 4.7 percent, and the rate for adult women had declined by 0.7 percentage point, to 4.5 percent. The unemployment rate for teenagers decreased over the year by 1.9 percentage points, to 15.8 percent in the fourth quarter of 2015.



Unemployment rates continued to decline for most of the major race and ethnicity groups in 2015. The jobless rate for Blacks dropped by 1.7 percentage points over the year, to 9.0 percent in the fourth quarter, but the rate for Blacks remained much higher than the rates for the other major race and ethnicity groups. Up until the second

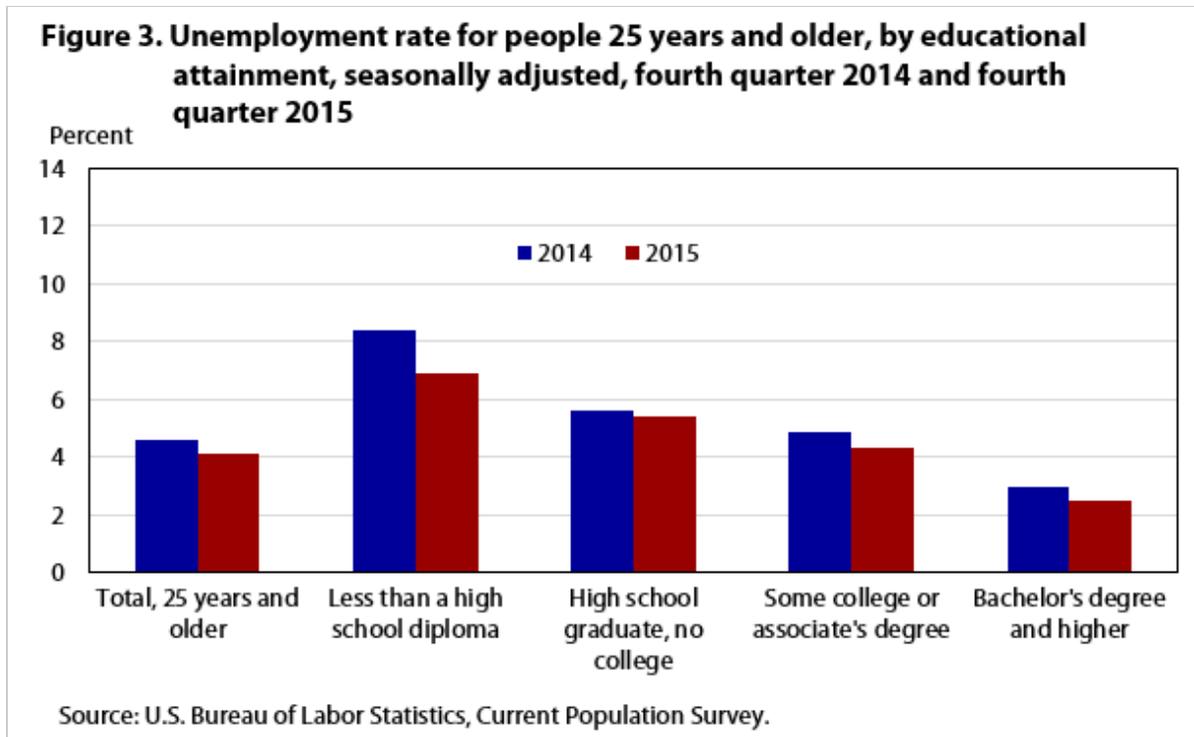
quarter of 2015, the jobless rate for Blacks had been at double-digit levels for about 7 consecutive years. (See figure 2.) The jobless rate for Whites declined by 0.5 percentage point over the year, to 4.4 percent, and the rate for Asians declined by 0.9 percentage point, to 3.8 percent. By comparison, the jobless rate for Hispanics, 6.4 percent in the fourth quarter of 2015, was little changed over the year.³

The CPS and the CES

The Bureau of Labor Statistics (BLS) produces two monthly employment series obtained from two different surveys: the estimate of total nonfarm jobs, derived from the Current Employment Statistics (CES) survey, also called the establishment or payroll survey; and the estimate of total civilian employment, based on the Current Population Survey (CPS), also called the household survey. The two surveys use different definitions of employment, as well as different survey and estimation methods. The CES program is a survey of employers that provides a measure of the number of payroll jobs in nonfarm industries. The CPS is a survey of households that provides a measure of employed people ages 16 and older in the civilian noninstitutional population. Employment estimates from the CPS provide information about workers in both the agricultural and nonagricultural sectors and in all types of work arrangements: workers with wage and salary jobs (including employment in a private household), those who are self-employed, and those doing unpaid work for at least 15 hours a week in a business or farm operated by a family member. CES payroll employment estimates are restricted to nonagricultural wage and salary jobs and exclude private household workers. As a result, employment estimates from the CPS are higher than those from the CES survey. In the CPS, however, those who hold multiple jobs (referred to as “multiple jobholders”) are counted only once, regardless of how many jobs they held during the survey reference period. By contrast, because the CES survey counts the number of jobs rather than the number of people, each nonfarm job is counted separately even when two or more jobs are held by the same person.

The reference periods for the surveys also differ. In the CPS, the reference period is generally the calendar week that includes the 12th day of the month. In the CES survey, employers report the number of workers on their payrolls for the pay period that includes the 12th of the month. Because pay periods vary in length among employers and may be longer than 1 week, the CES employment estimates can reflect longer reference periods.

BLS publishes a monthly report with the latest trends and comparisons of employment as measured by the CES survey and the CPS. (See “Employment from the BLS household and payroll surveys: summary of recent trends” (U.S. Bureau of Labor Statistics), www.bls.gov/web/empstat/ces_cps_trends.htm.) This report includes a summary of possible causes of differences in the surveys’ employment trends, as well as links to additional research on the topic.



In 2015, workers with less education continued to experience a higher unemployment rate than those with more education. The jobless rate for people 25 years and older with less than a high school diploma declined by 1.5 percentage points, to 6.9 percent, in 2015, and the rate for those with some college decreased by 0.6 percentage point, to 4.3 percent. The jobless rate for those with at least a bachelor’s degree declined over the year by 0.5 percentage point, to 2.5 percent in the fourth quarter—still 0.7 percentage point above the prerecession low of 1.8 percent in the fourth quarter of 2006. The rate for high school graduates, 5.4 percent, was essentially unchanged over the year. (See figure 3 and table 2.)

Table 2. Employment status of the civilian noninstitutional population 25 years and older, by educational attainment, quarterly averages, seasonally adjusted, 2014–15 (levels in thousands)

Characteristic	2014	2015				Change, fourth quarter 2014 to fourth quarter 2015
	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	
Less than a high school diploma						
Civilian labor force	11,021	11,193	11,130	10,715	10,845	-176
Participation rate	45.5	45.7	44.7	45.5	45.6	.1
Employed	10,093	10,238	10,198	9,873	10,093	0
Employment–population ratio	41.7	41.8	41.0	41.9	42.5	.8
Unemployed	927	956	932	843	751	-176
Unemployment rate	8.4	8.5	8.4	7.9	6.9	-1.5
High school graduate, no college						
Civilian labor force	35,535	35,564	35,310	35,291	35,107	-428
Participation rate	57.6	57.6	57.2	57.0	57.1	-.5
Employed	33,557	33,649	33,358	33,379	33,206	-351

See footnotes at end of table.

Table 2. Employment status of the civilian noninstitutional population 25 years and older, by educational attainment, quarterly averages, seasonally adjusted, 2014–15 (levels in thousands)

Characteristic	2014	2015				Change, fourth quarter 2014 to fourth quarter 2015
	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	
Employment–population ratio	54.4	54.5	54.0	53.9	54.0	-.4
Unemployed	1,978	1,914	1,951	1,912	1,901	-77
Unemployment rate	5.6	5.4	5.5	5.4	5.4	-.2
Some college or associate's degree						
Civilian labor force	37,339	37,442	37,565	37,314	37,647	308
Participation rate	66.9	67.1	67.0	66.0	66.5	-.4
Employed	35,510	35,570	35,903	35,689	36,033	523
Employment–population ratio	63.6	63.7	64.0	63.1	63.6	.0
Unemployed	1,830	1,872	1,662	1,624	1,615	-215
Unemployment rate	4.9	5.0	4.4	4.4	4.3	-.6
Bachelor's degree and higher						
Civilian labor force	51,121	51,481	51,684	52,533	52,836	1,715
Participation rate	74.6	74.4	74.8	74.4	74.0	-.6
Employed	49,591	50,112	50,310	51,224	51,521	1,930
Employment–population ratio	72.4	72.4	72.8	72.6	72.2	-.2
Unemployed	1,530	1,369	1,374	1,308	1,314	-216
Unemployment rate	3.0	2.7	2.7	2.5	2.5	-.5

Note: Updated population controls are introduced annually with the release of January data.

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

Only a few of the major occupation groups exhibited noteworthy declines in unemployment in 2015. This situation contrasts with that of the previous 2 years, when unemployment rates declined for all major occupation groups. The jobless rate for sales and office occupations declined over the year, to 4.6 percent. The rate for management, professional, and related occupations also continued to decline in 2015; this occupation group continued to have the lowest unemployment rate among the major occupation groups, 2.1 percent in the fourth quarter.⁴ The jobless rates were little changed over the year for natural resources, construction, and maintenance occupations (6.7 percent); service occupations (6.6 percent); and production, transportation, and material moving occupations (5.8 percent). (See table 3.)

Table 3. Unemployment rates, by occupation group, quarterly averages, not seasonally adjusted, 2014–15 (in percent)

Occupation group	Total			Men			Women		
	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015
Management, professional, and related occupations	2.7	2.1	-0.6	2.8	2.0	-0.8	2.7	2.2	-0.5
Management, business, and financial operations occupations	2.6	2.1	-.5	2.3	1.8	-.5	3.1	2.4	-.7
Professional and related occupations	2.8	2.1	-.7	3.2	2.1	-1.1	2.5	2.2	-.3
Service occupations	7.0	6.6	-.4	6.8	6.7	-.1	7.1	6.5	-.6
Health care support occupations	5.8	5.4	-.4	6.4	2.5	-3.9	5.8	5.7	-.1
Protective service occupations	4.4	4.4	.0	4.3	4.2	-.1	4.6	5.1	.5
Food preparation and serving related occupations	8.2	7.3	-.9	7.4	7.5	.1	8.8	7.1	-1.7
Building and grounds cleaning and maintenance occupations	8.1	8.1	.0	7.9	8.0	.1	8.3	8.3	.0
Personal care and service occupations	5.9	5.7	-.2	6.7	6.6	-.1	5.7	5.5	-.2
Sales and office occupations	5.1	4.6	-.5	4.6	4.6	.0	5.4	4.6	-.8
Sales and related occupations	5.2	5.1	-.1	4.0	4.2	.2	6.3	5.9	-.4
Office and administrative support occupations	5.1	4.2	-.9	5.6	5.2	-.4	4.9	3.8	-1.1
Natural resources, construction, and maintenance occupations	7.2	6.7	-.5	7.1	6.4	-.7	10.4	12.6	2.2
Farming, fishing, and forestry occupations	13.4	13.1	-.3	12.3	11.2	-1.1	17.1	19.0	1.9
Construction and extraction occupations	8.4	7.8	-.6	8.3	7.7	-.6	9.3	13.2	3.9
Installation, maintenance, and repair occupations	4.0	3.3	-.7	4.1	3.4	-.7	2.6	3.2	.6
Production, transportation, and material moving occupations	6.2	5.8	-.4	5.6	5.5	-.1	8.1	7.1	-1.0
Production occupations	6.2	5.0	-1.2	5.2	4.6	-.6	8.7	6.0	-2.7

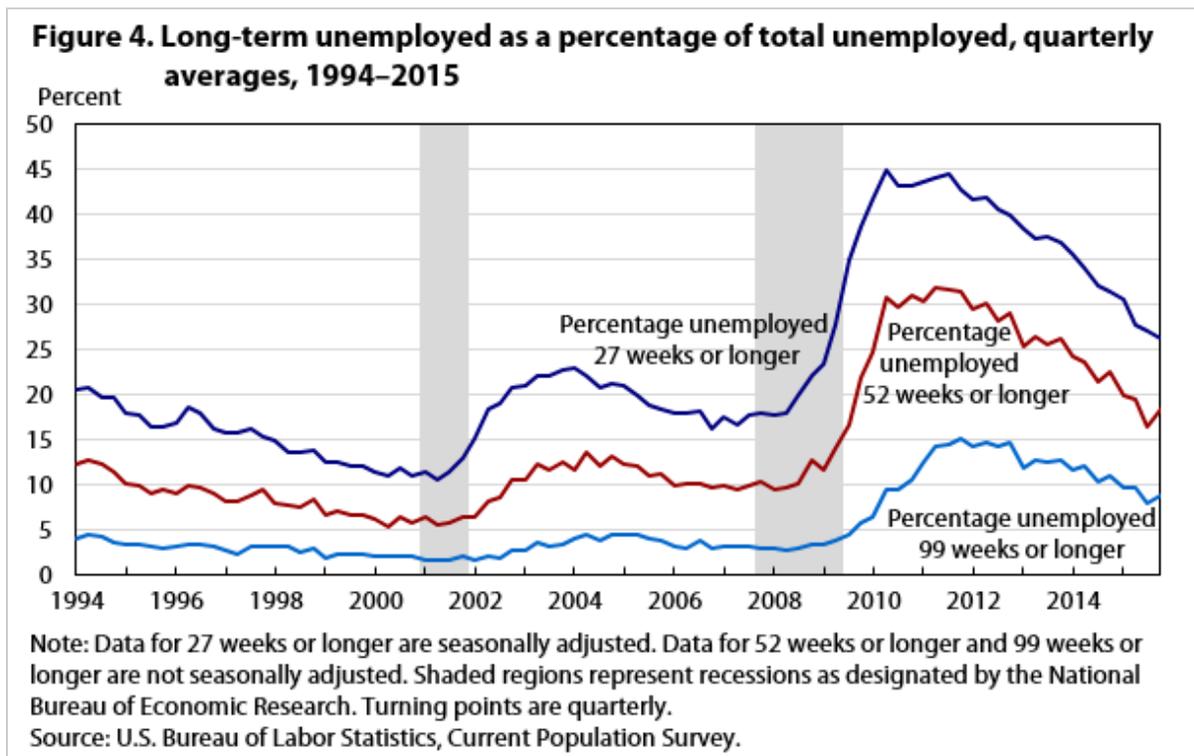
See footnotes at end of table.

Table 3. Unemployment rates, by occupation group, quarterly averages, not seasonally adjusted, 2014–15 (in percent)

Occupation group	Total			Men			Women		
	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015
Transportation and material moving occupations	6.1	6.6	.5	6.0	6.2	.2	6.9	8.8	1.9

Note: Updated population controls are introduced annually with the release of January data.

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



The proportion of the unemployed who had been jobless for 27 weeks or longer—a population also described as long-term unemployed—declined in 2015, although it remained high by historical standards.⁵ In the fourth quarter of 2015, there were about 2.1 million individuals who were long-term unemployed—742,000 fewer than in 2014. The long-term unemployed had reached a quarterly peak of 6.3 million in the fourth quarter of 2010, accounting for almost half of the unemployed at that time. The long-term unemployed’s share of the total has been declining since then, and in the fourth quarter of 2015 they made up about one-fourth of the total unemployed, down 5.4 percentage points over the year. (See figure 4 and table 4.)

Table 4. Unemployed people, by reason and duration of unemployment, quarterly averages, seasonally adjusted, 2014–15 (levels in thousands)

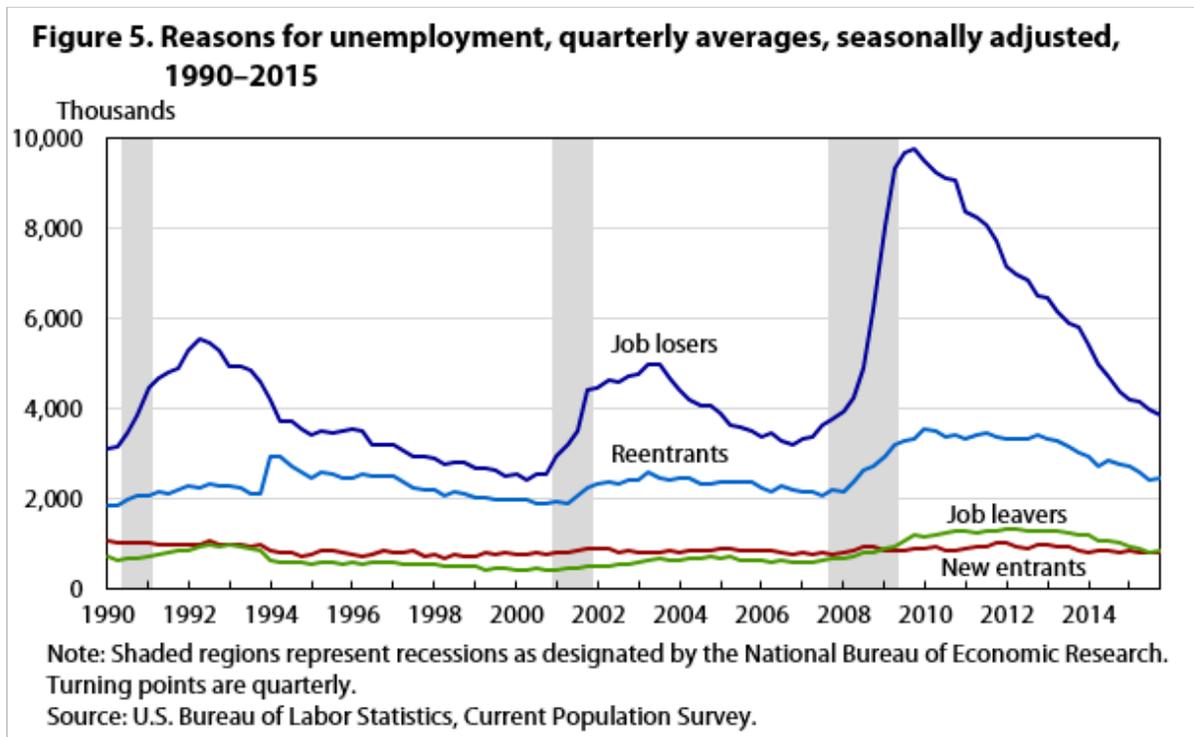
Reason and duration	2014	2015				Change, fourth quarter 2014 to fourth quarter 2015
	Fourth quarter	First quarter	Second quarter	Third quarter	Fourth quarter	
Reason for unemployment						
Job losers and people who completed temporary jobs	4,380	4,205	4,151	4,004	3,871	-509
On temporary layoff	967	983	1,013	953	938	-29
Not on temporary layoff	3,414	3,222	3,138	3,052	2,934	-480
Permanent job losers	2,433	2,264	2,187	2,165	2,090	-343
People who completed temporary jobs	980	958	950	886	843	-137
Job leavers	808	867	805	803	804	-4
Reentrants	2,764	2,711	2,573	2,409	2,454	-310
New entrants	1,022	929	920	835	839	-183
Percent distribution						
Job losers and people who completed temporary jobs	48.8	48.3	49.1	49.7	48.6	-.2
On temporary layoff	10.8	11.3	12.0	11.8	11.8	1.0
Not on temporary layoff	38.0	37.0	37.1	37.9	36.8	-1.2
Job leavers	9.0	9.9	9.5	10.0	10.1	1.1
Reentrants	30.8	31.1	30.5	29.9	30.8	.0
New entrants	11.4	10.7	10.9	10.4	10.5	-.9
Duration of unemployment						
Less than 5 weeks	2,448	2,437	2,484	2,317	2,385	-63
5 to 14 weeks	2,329	2,304	2,399	2,271	2,247	-82
15 weeks or longer	4,194	3,981	3,652	3,384	3,334	-860
15 to 26 weeks	1,363	1,314	1,278	1,221	1,244	-119
27 weeks or longer	2,832	2,666	2,374	2,163	2,090	-742
Average (mean) duration in weeks	32.7	31.3	29.7	27.6	27.8	-4.9
Median duration, in weeks	12.9	12.8	11.5	11.6	10.8	-2.1
Percent distribution						
Less than 5 weeks	27.3	27.9	29.1	29.1	29.9	2.6
5 to 14 weeks	26.0	26.4	28.1	28.5	28.2	2.2
15 weeks or longer	46.8	45.6	42.8	42.4	41.9	-4.9
15 to 26 weeks	15.2	15.1	15.0	15.3	15.6	.4
27 weeks or longer	31.6	30.6	27.8	27.1	26.2	-5.4

Note: Updated population controls are introduced annually with the release of January data.

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

The number of people unemployed for a year or longer—1.4 million in the fourth quarter of 2015, not seasonally adjusted—continued to decline in 2015. These individuals made up 18.5 percent of the total unemployed in the fourth quarter of 2015.⁶ The number of people who were jobless for 99 weeks or longer (about 2 years)—671,000 in the fourth quarter of 2015, not seasonally adjusted—declined by 278,000 over the year. About 9 percent of unemployed people had been jobless for about 2 years or longer at the end of 2015; in contrast, the percentage prior to the most recent recession was about 3 percent.

The number of job losers, or those unemployed as a result of losing their jobs, also continued to decline in 2015. The number fell by 509,000, to 3.9 million by year’s end. Job losers are categorized into two groups: (1) people on temporary layoff who expect to be recalled to their jobs and (2) those not on temporary layoff. People in the latter group do not expect to be recalled; they are further categorized in the survey as either permanent job losers or people who have completed temporary jobs. In 2015, permanent job losers accounted for virtually all of the decline in the total number of job losers. (See table 4 and figure 5.)

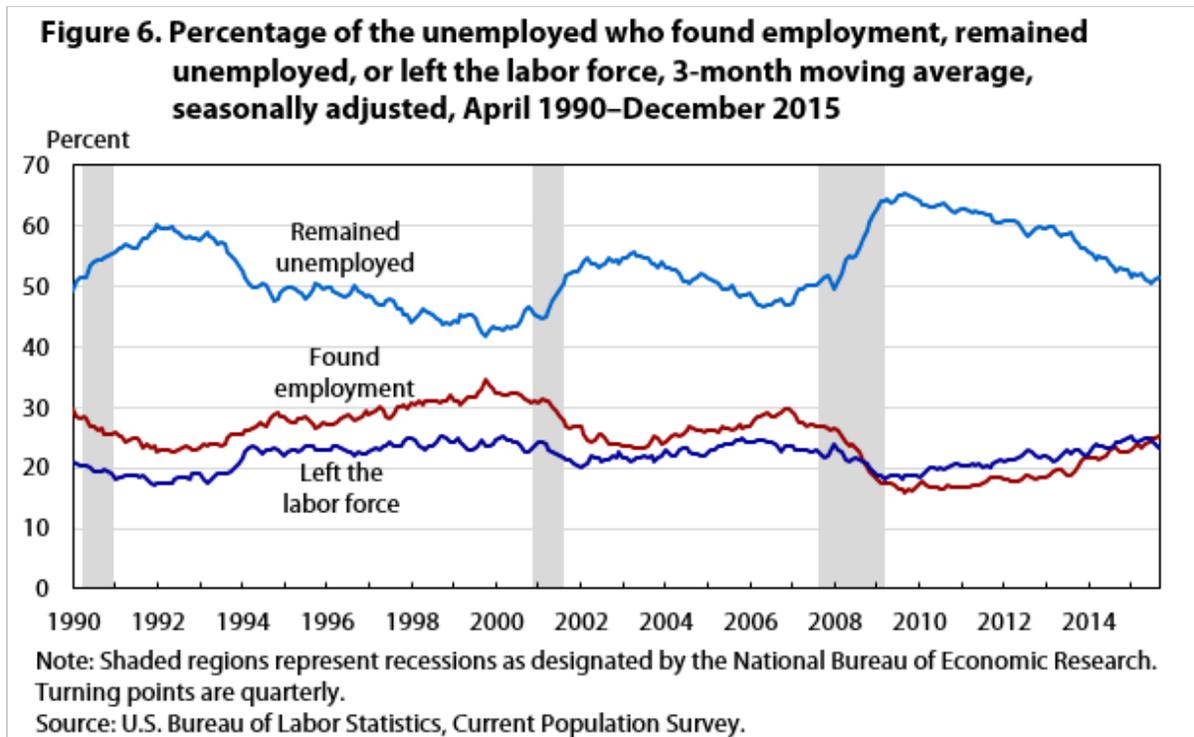


In the CPS, people who had previously worked but were not in the labor force prior to starting their current job search are classified as unemployed reentrants. There were 2.5 million unemployed reentrants in the fourth quarter of 2015, down by 310,000 over the year, the third year in a row this series showed a decline. The number of new entrants—that is, jobseekers who have never worked before—also declined in 2015 for the third consecutive year, this time by 183,000. The number of job leavers (unemployed people who voluntarily left their job), 804,000 in the fourth quarter, held fairly steady in 2015.

Labor force status flows

Labor force status flows measure the underlying movements between the monthly point-in-time numbers of people employed, unemployed, and not in the labor force. Each month, millions of people move between employment and unemployment while millions of others leave or enter the labor force.⁷ In 2015, 16.8 million people, or 6.7 percent

of the population ages 16 and older, changed their labor force status in an average month; the 6.7-percent figure was the same as the percentage of the population that changed their labor force status in an average month prior to the last recession. The series peak was 7.5 percent of the population, in 2010.



To get a better understanding of the unemployment level in 2015, one can examine flow data by the current employment status (employed, unemployed, or not in the labor force) of people who were unemployed in the previous month. Figure 6 shows the proportions of the unemployed who found employment, remained unemployed, or left the labor force over the month, all calculated as a 3-month moving average. The likelihood of an unemployed person becoming employed increased over the year, to 25.3 percent in December 2015; prior to the onset of the last recession, the rate was 26.9 percent. By the end of 2015, the rate of unemployed people becoming employed exceeded the rate of people leaving the labor force. The share of the unemployed leaving the labor force, 23.4 percent in December 2015, was close to its prerecession rate of 23.0 percent in November 2007. (See figure 6.)

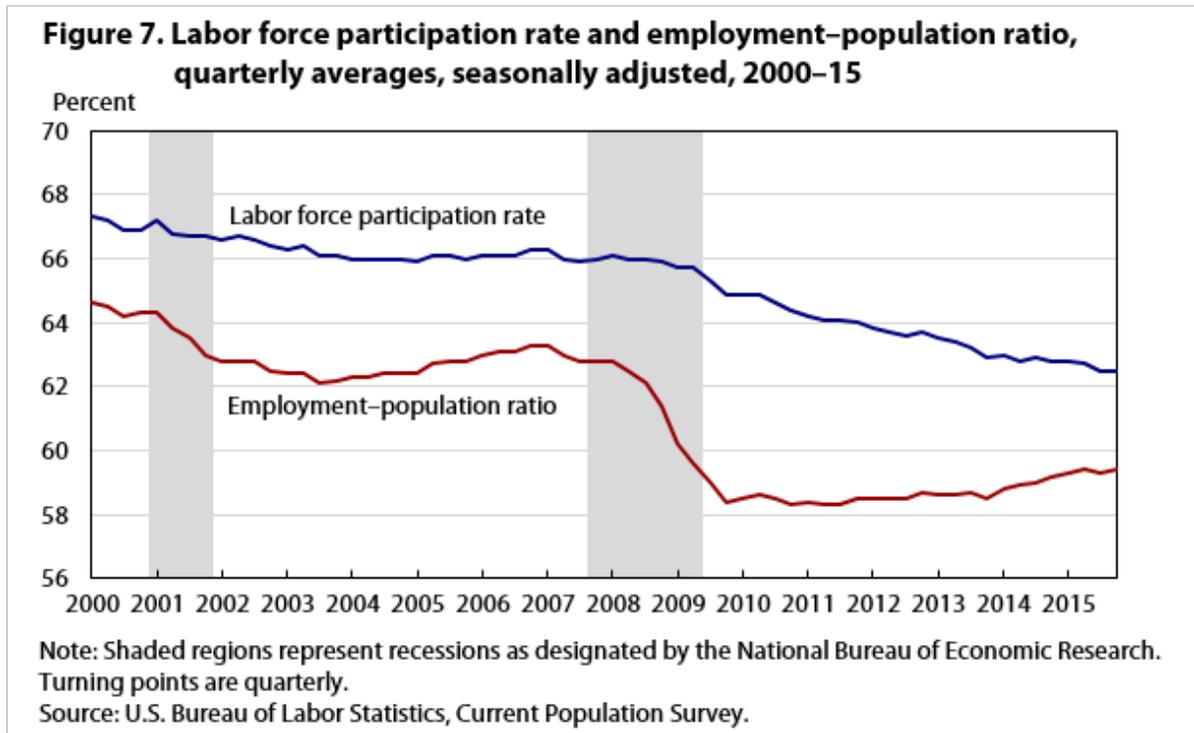
In December 2015, the share of those who remained unemployed from one month to the next was 51.3 percent, down 1.0 percentage point over the year. The share of the unemployed remaining unemployed from one month to the next was close to its prerecession percentage of 50.1 percent in November 2007.

Employment

Employment grew at a slower pace in 2015 than in 2014. As measured by the CPS, the number of employed people grew by 2.1 million over the year, reaching 149.5 million in the fourth quarter of 2015. Unlike the pattern in 2014, overall employment growth was slightly more concentrated among adult women than adult men in 2015. The number of employed adult women rose by 1.1 million, to 67.8 million; the number of employed adult men rose by

975,000, to 76.9 million. The number of employed teenagers 16 to 19 years of age was 4.8 million at year's end, virtually unchanged from a year earlier. (See table 1.)

Among the major race and ethnicity groups, Blacks saw their employment rise by 698,000 over the year, to 17.7 million by year's end. The 698,000 figure accounted for about one-third of overall employment growth in 2015. This year was the second year in a row in which Blacks experienced a disproportionately large share of employment growth. The number of employed Whites increased by 823,000 during the year, to 118.1 million, and Asian employment rose by 358,000, to 8.7 million. At 24.6 million in the fourth quarter of 2015, Hispanic employment grew by 588,000 over the year; the figure posted was less than half their employment gain in 2014.



In the CPS, the employment–population ratio represents the proportion of the civilian noninstitutional population that is employed. The employment–population ratio for all people ages 16 and older stood at 59.4 percent in the fourth quarter of 2015 and was little changed over the year (up 0.2 percentage point). The ratio had increased by 0.7 percentage point in 2014. (See figure 7.) The employment–population ratios for adult men (68.0 percent), adult women (55.6 percent), and teenagers (28.8 percent) showed little or no change over the year. (See table 1.)

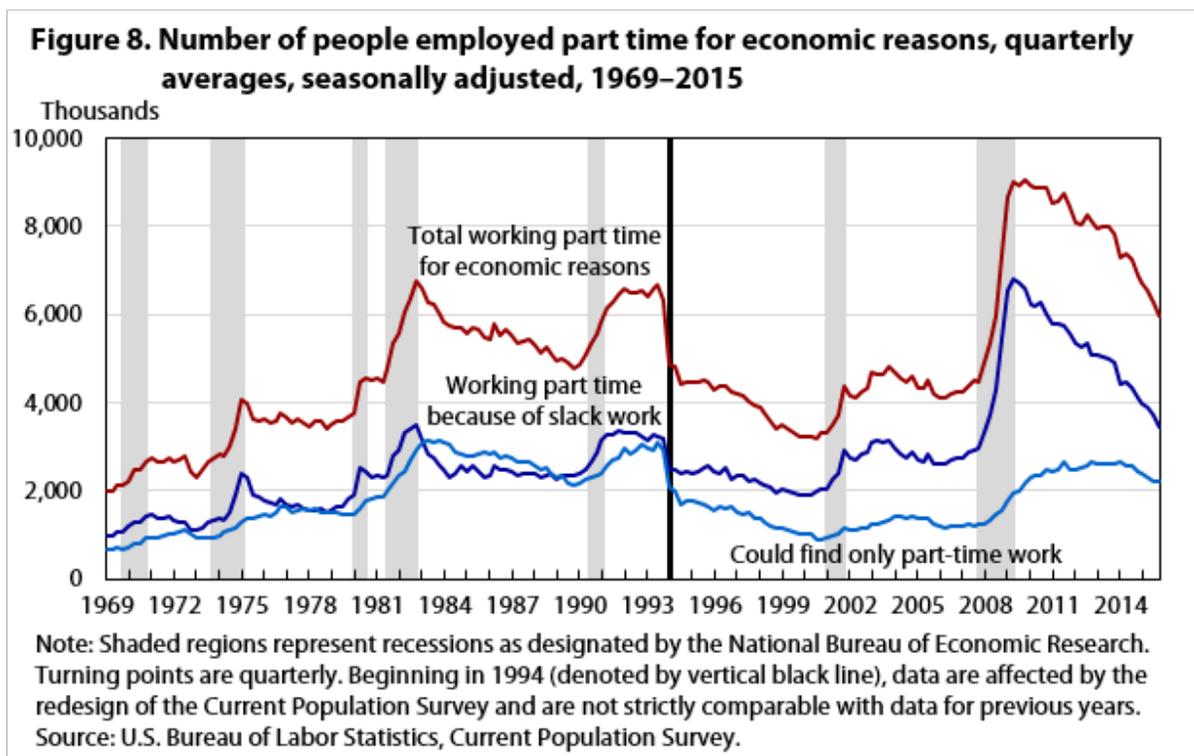
Whereas employment–population ratios had increased for nearly all race and ethnicity groups in 2014, only Blacks saw a noteworthy increase in their employment–population ratio in 2015 (up 1.3 percentage points, to 56.1 percent). The increase reflected a strong growth in Black employment. In 2015, the employment–population ratio for Whites, 59.9 percent, was unchanged; the ratios for Asians, 60.3 percent, and Hispanics, 61.4 percent, showed little change over the year.

The number of workers holding more than one job edged up by 130,000 in 2015, to 7.5 million; the gain in the previous year was a more robust 555,000. In the fourth quarter of 2015, multiple jobholders accounted for 5.0 percent of the total employed, about the same as in 2014. The percentage of multiple jobholders in the labor force

has ranged between 4.7 percent and 5.1 percent in the past 4 years. Before the recession, the rate was a slightly higher 5.3 percent.

The total number of self-employed workers, including both those whose businesses were incorporated and those whose businesses were not, edged down by 164,000 in 2015. In the fourth quarter, 15.0 million workers (not seasonally adjusted) were self-employed. The self-employment rate—the proportion of total employment made up of the self-employed—edged down from the previous year, to 10.0 percent in the fourth quarter of 2015. Of all self-employed people, about two-thirds had unincorporated businesses.

The number of people employed part time for economic reasons—that is, they wanted full-time work but could find only a part-time job or they had their hours reduced to part time—continued to decline in 2015, dropping by 942,000, to 6.0 million. Also referred to as those employed part time involuntarily, these individuals saw their numbers rise sharply during the 2007–09 recession (reaching a peak of 9.1 million in 2009); since then, however, their number has been trending downward.⁸ Still, even with the decline in 2015, the number of people employed part time for economic reasons remained relatively high by historical standards. Slack work or unfavorable business conditions, rather than an inability to find full-time work, remained the primary reason for involuntary part-time employment in 2015, accounting for more than half of all people employed part time for economic reasons. (See figure 8.)



Employment rose substantially in just 1 out of 5 major occupation groups in 2015. Employment in management, professional, and related occupations grew by a total of 1.8 million, to 58.7 million, over the year, accounting for the bulk of the increase in overall CPS employment in 2015. Within this major occupation group, which accounts for nearly 40 percent of all workers, employment in management, business, and financial operations expanded by 1.1 million over the year and the number of workers in professional and related occupations grew by 709,000. Employment was little changed in the other four major occupation groups: service occupations; sales and office

occupations; natural resources, construction, and maintenance occupations; and production, transportation, and material moving occupations. (See table 5.)

Table 5. Employment, by occupation group and gender, quarterly averages, not seasonally adjusted, 2014–15 (in thousands)

Occupation group	Total			Men			Women		
	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015
Total, 16 years and older	147,597	149,728	2,131	78,318	79,293	975	69,279	70,435	1,156
Management, professional, and related occupations	56,919	58,718	1,799	27,374	28,200	826	29,545	30,517	972
Management, business, and financial operations occupations	23,254	24,344	1,090	12,985	13,632	647	10,269	10,712	443
Professional and related occupations	33,665	34,374	709	14,389	14,568	179	19,276	19,806	530
Service occupations	26,007	25,849	-158	11,263	11,301	38	14,744	14,548	-196
Health care support occupations	3,395	3,464	69	449	426	-23	2,947	3,039	92
Protective service occupations	2,980	3,130	150	2,339	2,499	160	641	631	-10
Food preparation and serving related occupations	8,225	8,177	-48	3,706	3,760	54	4,519	4,417	-102
Building and grounds cleaning and maintenance occupations	5,982	5,885	-97	3,554	3,461	-93	2,427	2,424	-3
Personal care and service occupations	5,425	5,193	-232	1,215	1,155	-60	4,210	4,038	-172
Sales and office occupations	33,283	33,592	309	12,818	12,736	-82	20,466	20,856	390
Sales and related occupations	15,669	15,572	-97	7,981	7,823	-158	7,688	7,749	61
Office and administrative support occupations	17,614	18,020	406	4,836	4,913	77	12,778	13,106	328

See footnotes at end of table.

Table 5. Employment, by occupation group and gender, quarterly averages, not seasonally adjusted, 2014–15 (in thousands)

Occupation group	Total			Men			Women		
	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015
Natural resources, construction, and maintenance occupations	13,604	13,872	268	13,014	13,189	175	591	684	93
Farming, fishing, and forestry occupations	988	1,055	67	781	812	31	207	242	35
Construction and extraction occupations	7,701	7,756	55	7,498	7,526	28	202	230	28
Installation, maintenance, and repair occupations	4,916	5,062	146	4,734	4,850	116	181	212	31
Production, transportation, and material moving occupations	17,783	17,697	-86	13,850	13,867	17	3,934	3,830	-104
Production occupations	8,606	8,358	-248	6,162	5,966	-196	2,444	2,392	-52
Transportation and material moving occupations	9,177	9,340	163	7,688	7,901	213	1,489	1,438	-51

Note: Data may not sum to totals because of rounding.

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

Labor force participation

The civilian labor force increased by 1.1 million, to 157.4 million, in 2015, and the labor force participation rate—the proportion of the civilian noninstitutional population 16 years and older that is in the labor force—declined by 0.3 percentage point, to 62.5 percent. The labor force participation rate has been trending downward and is generally projected to continue on that path for some time in the future.⁹ (See table 1 and figure 7.)

By the end of 2015, the labor force participation rate had declined for two major race and ethnicity groups: the participation rate for Whites had declined by 0.3 percentage point, to 62.6 percent, and the rate for Hispanics had declined by 0.7 percentage point, to 65.6 percent. The rate for Blacks, 61.6 percent, and the participation rate for Asians, at 62.7 percent, changed little in 2015.

People not in the labor force

People who are neither employed nor unemployed are considered “not in the labor force.” In the fourth quarter of 2015, the number of people not in the labor force increased by 1.7 million, to 94.4 million (not seasonally adjusted). All of the increase occurred among people who indicated in the survey that they did not want a job. On net, the number of people not in the labor force who indicated in the survey that they *did* want a job fell by 609,000, to 5.6 million, in 2015, after increasing by 503,000 in 2014.¹⁰ (See table 6.) The remaining share of people not in the labor force, 88.9 million (or 94.1 percent) in 2015, was made up of people who did not want a job.¹¹

Table 6. Number of people not in the labor force, quarterly averages, not seasonally adjusted, 2011–15 (in thousands)

Category	Fourth quarter 2011	Fourth quarter 2012	Fourth quarter 2013	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015
Total not in the labor force	86,717	88,957	91,774	92,698	94,442	1,744
People who do not currently want a job ⁽¹⁾	80,621	82,567	86,090	86,511	88,864	2,353
People who currently want a job	6,096	6,390	5,684	6,187	5,578	-609
People marginally attached to the labor force ⁽²⁾	2,562	2,517	2,269	2,187	1,822	-365
Discouraged workers ⁽³⁾	1,002	953	831	736	641	-95
Other people marginally attached to the labor force ⁽⁴⁾	1,559	1,564	1,438	1,451	1,181	-270

Notes:

(1) Includes some people who are not asked if they want a job.

(2) Data refer to people who want a job, have searched for work during the previous 12 months, and were available to take a job during the reference week but had not looked for work in the past 4 weeks.

(3) Includes those who did not actively look for work in the previous 4 weeks for reasons such as they thought that no work was available, they could not find work, they felt that they lacked schooling or training, they believed that their employer thought that they were too young or too old, and they thought that they might have been the recipient of other types of discrimination.

(4) Includes those who did not actively look for work in the previous 4 weeks for reasons such as school or family responsibilities, ill health, and transportation problems, as well as a number for whom the reason for their nonparticipation was not determined.

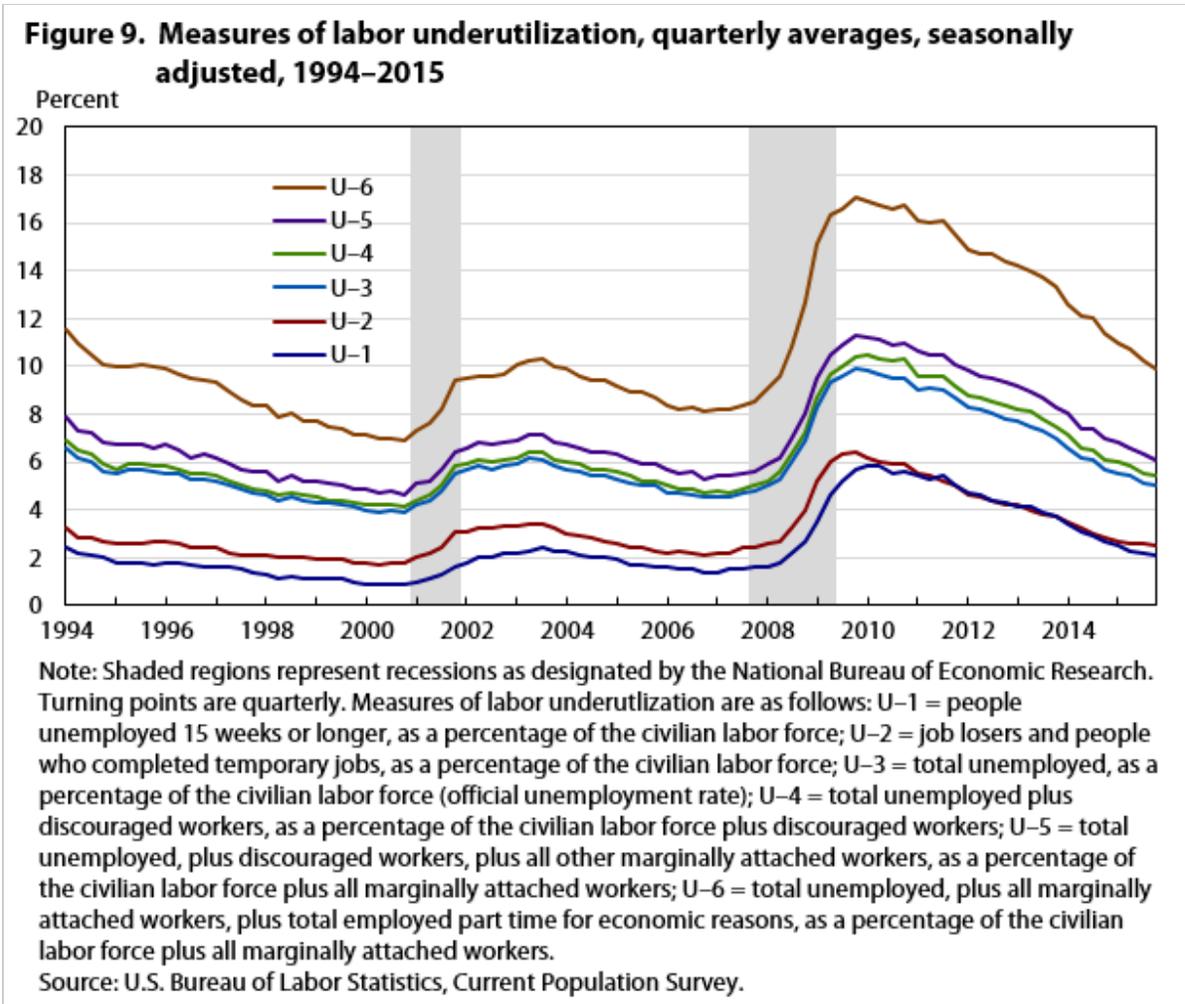
Source: U.S. Bureau of Labor Statistics, Current Population Survey.

Among people not in the labor force who currently want a job, the number defined as marginally attached to the labor force, 1.8 million in the fourth quarter of 2015 (not seasonally adjusted), fell by 365,000. This decline was more than 4 times larger than the previous year’s decline. These individuals wanted a job, had searched for work sometime in the previous year, and were available to work had a job been offered to them. Still, they are not counted as unemployed, because they had not actively searched for work in the 4 weeks preceding the survey. Among the marginally attached, individuals currently not looking for work specifically because they felt that no jobs were available for them are defined as “discouraged workers.” By the fourth quarter of 2015, the number of discouraged workers had declined by 95,000, to 641,000.

The remaining 1.2 million people who were marginally attached to the labor force in 2015 had not searched for work in the 4 weeks preceding the survey for reasons such as school attendance, family responsibilities, health-related issues, and transportation problems. Those whose reason for nonparticipation was not identified in the survey also are included in the remaining 1.2 million people who are marginally attached. The number of these individuals declined by 270,000 in 2015.

Alternative measures of labor underutilization

BLS has defined several measures of labor underutilization. Known as U-1, U-2, and U-4 through U-6 (U-3 is the official unemployment rate), these metrics are used to gain insight into the degree to which labor resources are being underutilized, besides that obtained from U-3.¹² Like the official unemployment rate, the alternative measures are presented as a percentage of the labor force (adjusted as necessary). Alternative measures U-1 and U-2 are narrower than the official unemployment measure: U-1 denotes the number of individuals unemployed 15 weeks or longer as a percentage of the labor force, while U-2 designates job losers and people who completed temporary jobs as a percentage of the labor force. U-4 through U-6 are broader than the official unemployment measure: to the unemployed, U-4 adds discouraged workers; U-5 adds all people marginally attached to the labor force (including discouraged workers); and U-6 adds all people marginally attached to the labor force, plus people employed part time for economic reasons.



In 2015, all six alternative measures of labor underutilization declined. U-1 declined to 2.1 percent and U-2 declined to 2.5 percent. U-3 declined to 5.0 percent.¹³ Among the remaining three measures, U-4 declined to 5.4 percent by the end of 2015 and U-5 to 6.1 percent. The broadest measure, U-6, declined by 1.5 percentage points, to 9.9 percent. (See figure 9.)

Earnings



In 2015, median weekly earnings for men increased by 2.8 percent over the year, to \$895, and women’s earnings increased by 1.0 percent, to \$726.¹⁴ The increase in earnings for both men and women outpaced the change in the Consumer Price Index for all Urban Consumers (CPI-U), which was 0.1 percent from 2014 to 2015. (The data in this section are annual averages.) Women’s earnings averaged 81.1 percent of men’s earnings in 2015. This proportion has been in the 80-percent to 82-percent range since 2004. (See figure 10 and table 7.)

Table 7. Median usual weekly earnings of full-time wage and salary workers, by selected characteristics, annual averages, 2014–15

Characteristic	Current dollars		
	2014	2015	Percent change, 2014–15
Total, 16 years and older	\$791	\$809	2.3
CPI-U (1982–84 = 100)	236.74	237.02	.1
Men	\$871	\$895	2.8
Women	719	726	1.0
White	816	835	2.3
Men	897	920	2.6
Women	734	743	1.2
Black or African American	639	641	.3
Men	680	680	.0
Women	611	615	.7
Asian	953	993	4.2
Men	1,080	1,129	4.5
Women	841	877	4.3
Hispanic or Latino ethnicity	594	604	1.7
Men	616	631	2.4
Women	548	566	3.3

See footnotes at end of table.

Table 7. Median usual weekly earnings of full-time wage and salary workers, by selected characteristics, annual averages, 2014–15

Characteristic	Current dollars		
	2014	2015	Percent change, 2014–15
Total, 25 years and older	839	860	2.5
Less than a high school diploma	488	493	1.0
High school graduate, no college	668	678	1.5
Some college or associate's degree	761	762	.1
Bachelor's degree or higher	1,193	1,230	3.1

Source: U.S. Bureau of Labor Statistics, Current Population Survey and Consumer Price Index.

Asians and Whites continued to have higher median usual weekly earnings (\$993 and \$835, respectively) in 2015 than Blacks (\$641) and Hispanics (\$604). The difference in median weekly earnings between Blacks and Hispanics has narrowed in recent years, reflecting relatively strong growth in earnings of Hispanic workers. (See table 7.)

In 2015, among full-time workers ages 25 and older, those with higher levels of educational attainment continued to have higher median weekly earnings than those with less education. Workers with at least a bachelor's degree reported median weekly earnings of \$1,230, an increase of 3.1 percent over the previous year's figure. Workers with some college or an associate's degree had earnings that were little different from 2014 earnings (\$762 per week). Earnings of workers with only a high school diploma rose 1.5 percent, to \$678 per week, while workers without a high school diploma had median weekly earnings of \$493, a 1.0-percent increase from 2014 earnings. (See table 7.)

Veterans

In the fourth quarter of 2015, the unemployment rate (not seasonally adjusted) for veterans was 4.1 percent, little changed from the rate a year earlier, while the rate for nonveterans declined to 4.7 percent. In the CPS, veterans are defined as men and women 18 years and older who previously served on active duty in the U.S. Armed Forces and who were civilians at the time the survey was conducted. Veterans are categorized as having served in the following periods of service:¹⁵ (1) Gulf War era II (September 2001 to the present), (2) Gulf War era I (August 1990 to August 2001), (3) World War II (December 1941 to December 1946), (4) Korean War (July 1950 to January 1955), (5) Vietnam era (August 1964 to April 1975), and (6) other service period (all other periods). (See table 8.)

Table 8. Employment status of people 18 years and older, by veteran status, period of service, and gender, quarterly averages, not seasonally adjusted, 2014–15 (levels in thousands)

Employment status, veteran status, and period of service	Total			Men			Women		
	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015
Veterans, 18 years and older									
Civilian labor force	10,784	10,760	-24	9,462	9,517	55	1,322	1,243	-79
Participation rate (percent)	50.7	51.0	.3	49.3	49.9	.6	63.6	62.0	-1.6
Employed	10,291	10,317	26	9,049	9,128	79	1,242	1,190	-52
Employment–population ratio	48.3	48.9	.6	47.1	47.8	.7	59.8	59.4	-.4
Unemployed	493	442	-51	414	389	-25	80	53	-27
Unemployment rate (percent)	4.6	4.1	-.5	4.4	4.1	-.3	6.0	4.3	-1.7
Gulf War–era II veterans									
Civilian labor force	2,738	3,067	329	2,270	2,552	282	468	515	47
Participation rate (percent)	78.6	82.3	3.7	80.7	84.2	3.5	69.5	73.9	4.4
Employed	2,558	2,918	360	2,130	2,436	306	427	482	55
Employment–population ratio	73.4	78.3	4.9	75.8	80.4	4.6	63.4	69.2	5.8
Unemployed	180	149	-31	140	116	-24	41	33	-8
Unemployment rate (percent)	6.6	4.9	-1.7	6.1	4.5	-1.6	8.7	6.4	-2.3
Gulf War–era I veterans									
Civilian labor force	2,720	2,691	-29	2,331	2,345	14	389	346	-43
Participation rate (percent)	82.4	79.4	-3.0	84.0	80.6	-3.4	73.9	72.1	-1.8
Employed	2,645	2,588	-57	2,269	2,251	-18	376	337	-39
Employment–population ratio	80.1	76.3	-3.8	81.8	77.3	-4.5	71.3	70.2	-1.1
Unemployed	75	104	29	62	94	32	13	9	-4
Unemployment rate (percent)	2.8	3.8	1.0	2.7	4.0	1.3	3.4	2.7	-.7
World War II, Korean War, and Vietnam-era veterans									
Civilian labor force	2,508	2,261	-247	2,418	2,191	-227	90	70	-20
Participation rate (percent)	27.3	25.9	-1.4	27.3	26.0	-1.3	27.1	22.5	-4.6
Employed	2,398	2,185	-213	2,315	2,123	-192	84	62	-22
Employment–population ratio	26.1	25.0	-1.1	26.2	25.2	-1.0	25.1	20.0	-5.1
Unemployed	110	76	-34	104	68	-36	6	8	2

See footnotes at end of table.

Table 8. Employment status of people 18 years and older, by veteran status, period of service, and gender, quarterly averages, not seasonally adjusted, 2014–15 (levels in thousands)

Employment status, veteran status, and period of service	Total			Men			Women		
	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015
Unemployment rate (percent)	4.4	3.4	-1.0	4.3	3.1	-1.2	7.1	11.3	4.2
Veterans of other service periods									
Civilian labor force	2,818	2,741	-77	2,443	2,429	-14	374	312	-62
Participation rate (percent)	53.0	52.4	-.6	51.2	51.5	.3	68.7	60.5	-8.2
Employed	2,690	2,627	-63	2,335	2,318	-17	355	308	-47
Employment–population ratio	50.6	50.2	-.4	48.9	49.2	.3	65.1	59.9	-5.2
Unemployed	128	114	-14	108	111	3	19	3	-16
Unemployment rate (percent)	4.5	4.2	-.3	4.4	4.6	.2	5.2	1.1	-4.1
Nonveterans, 18 years and older									
Civilian labor force	143,383	144,683	1,300	72,447	72,978	531	70,936	71,706	770
Participation rate (percent)	65.6	65.2	-.4	75.1	74.5	-.6	58.1	57.9	-.2
Employed	135,675	137,843	2,168	68,471	69,403	932	67,204	68,439	1,235
Employment–population ratio	62.1	62.2	.1	71.0	70.9	-.1	55.0	55.3	.3
Unemployed	7,708	6,841	-867	3,977	3,574	-403	3,731	3,266	-465
Unemployment rate (percent)	5.4	4.7	-.7	5.5	4.9	-.6	5.3	4.6	-.7

Note: Veterans served on active duty in the U.S. Armed Forces and were not on active duty at the time of the survey. Nonveterans never served on active duty in the U.S. Armed Forces. Veterans could have served anywhere in the world during these periods of service: Gulf War era II (September 2001–present), Gulf War era I (August 1990–August 2001), Vietnam era (August 1964–April 1975), Korean War (July 1950–January 1955), World War II (December 1941–December 1946), and other service periods. Veterans who served in more than one wartime period are classified as being only in the most recent one. Veterans who served during one of the selected wartime periods and another period are classified only into the wartime period selected. Updated population controls are introduced annually with the release of January data.

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

The unemployment rate for male veterans was 4.1 percent in the fourth quarter of 2015, and the rate for female veterans was 4.3 percent. These rates were little different from those of the previous year. Among male Gulf War–era II veterans (those who had served since September 2001), the unemployment rate declined 1.6 percentage points in 2015, to 4.5 percent. The unemployment rate for female veterans from this era, 6.4 percent, was little changed.

Overall, 49.9 percent of male veterans were in the labor force in the fourth quarter of 2015, as opposed to 74.5 percent of their nonveteran counterparts. This disparity is due in large part to the age distribution of male veterans compared with that of male nonveterans: the percentage of male veterans in older age brackets is greater, and older individuals tend to have low labor force participation rates. In the fourth quarter, the participation rate for veterans of Gulf War II was 84.2 percent for men and 73.9 percent for women. Participation rates for both male and female veterans of Gulf War II rose from the rates posted a year earlier.

People with a disability

Over the year, there was little change in the employment situation for people with a disability. In the fourth quarter of 2015, the labor force participation rate for people with a disability edged down to 19.2 percent (not seasonally adjusted), and the rate for people without a disability edged down to 68.3 percent. (See table 9.) The lower participation rate among people with a disability reflects, in part, the fact that a large proportion of this group is 65 years and older, an age cohort with a low rate of labor force participation. Barriers to employment, limited assistance, and other labor-related issues also may contribute to low participation rates among people with a disability.¹⁶ In the fourth quarter of 2015, men and women ages 16 to 64 years with a disability were also much less likely to be in the labor force than their counterparts with no disability: for men in this age group, the labor force participation rate was 31.9 percent, compared with 81.9 percent for men without a disability; for women in the same age group, the participation rate at the end of 2015 was 28.2 percent for those with a disability and 70.4 percent for those without a disability.

Table 9. Employment status of the civilian noninstitutional population, by gender, age, and disability status, quarterly averages, not seasonally adjusted, 2014–15 (levels in thousands)

Employment status, gender, and age	People with a disability			People with no disability		
	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015
Total, 16 years and older						
Civilian labor force	5,935	5,715	-220	150,209	151,585	1,376
Participation rate (percent)	20.0	19.2	-.8	68.5	68.3	-.2
Employed	5,275	5,087	-188	142,322	144,642	2,320
Employment– population ratio	17.8	17.1	-.7	64.9	65.1	.2
Unemployed	660	628	-32	7,887	6,943	-944
Unemployment rate (percent)	11.1	11.0	-.1	5.3	4.6	-.7
Men, 16 to 64 years						
Civilian labor force	2,576	2,438	-138	75,679	76,081	402
Participation rate (percent)	33.0	31.9	-1.1	82.1	81.9	-.2
Employed	2,272	2,133	-139	71,611	72,424	813
Employment– population ratio	29.1	27.9	-1.2	77.7	78.0	.3

See footnotes at end of table.

Table 9. Employment status of the civilian noninstitutional population, by gender, age, and disability status, quarterly averages, not seasonally adjusted, 2014–15 (levels in thousands)

Employment status, gender, and age	People with a disability			People with no disability		
	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015
Unemployed	303	305	2	4,068	3,657	-411
Unemployment rate (percent)	11.8	12.5	.7	5.4	4.8	-.6
Women, 16 to 64 years						
Civilian labor force	2,347	2,275	-72	67,069	67,570	501
Participation rate (percent)	29.1	28.2	-.9	70.4	70.4	.0
Employed	2,055	2,004	-51	63,551	64,536	985
Employment– population ratio	25.5	24.9	-.6	66.7	67.2	.5
Unemployed	292	272	-20	3,518	3,035	-483
Unemployment rate (percent)	12.4	11.9	-.5	5.2	4.5	-.7
Total, 65 years and older						
Civilian labor force	1,012	1,002	-10	7,461	7,933	472
Participation rate (percent)	7.3	7.2	-.1	23.5	23.9	.4
Employed	947	950	3	7,161	7,682	521
Employment– population ratio	6.9	6.8	-.1	22.6	23.2	.6
Unemployed	65	52	-13	301	251	-50
Unemployment rate (percent)	6.4	5.2	-1.2	4.0	3.2	-.8

Note: A person with a disability has at least one of the following conditions: is deaf or has serious difficulty hearing; is blind or has serious difficulty seeing even when wearing glasses; has serious difficulty concentrating, remembering, or making decisions because of a physical, mental, or emotional condition; has serious difficulty walking or climbing stairs; has difficulty dressing or bathing; has difficulty doing errands alone, such as visiting a doctor's office or shopping, because of a physical, mental, or emotional condition. Updated population controls are introduced annually with the release of January data.

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

The unemployment rate for people with a disability, 11.0 percent, was about unchanged over the year. The rate for people without a disability declined by 0.7 percentage point, to 4.6 percent, in 2015.

Foreign-born workers

In 2015, unemployment rates continued to decline for both foreign-born and native-born individuals. By the fourth quarter, the jobless rate for the foreign born was 4.5 percent (not seasonally adjusted), a decrease of 0.8 percentage point over the 2014 rate. The jobless rate for native-born workers was 4.9 percent, a decline of 0.6 percentage point. (See table 10.) Foreign-born workers are workers who reside in the United States but were born outside the country or one of its outlying areas (such as Puerto Rico or Guam) to parents, neither of whom was a

U.S. citizen. The foreign born comprise legally admitted immigrants; refugees; temporary residents, such as students and temporary workers; and undocumented immigrants.

Table 10. Employment status of the foreign- and native-born populations, by gender, quarterly averages, not seasonally adjusted, 2014–15 (levels in thousands)

Employment status and nativity	Total			Men			Women		
	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015	Fourth quarter 2014	Fourth quarter 2015	Change, fourth quarter 2014 to fourth quarter 2015
Foreign born, 16 years and older									
Civilian labor force	26,396	26,537	141	15,446	15,426	-20	10,949	11,112	163
Participation rate (percent)	66.2	65.7	-.5	78.7	78.2	-.5	54.1	53.8	-.3
Employed	24,994	25,347	353	14,697	14,813	116	10,297	10,534	237
Employment–population ratio	62.7	62.8	.1	74.9	75.1	.2	50.9	51.0	.1
Unemployed	1,402	1,191	-211	750	613	-137	652	578	-74
Unemployment rate (percent)	5.3	4.5	-.8	4.9	4.0	-.9	6.0	5.2	-.8
Native born, 16 years and older									
Civilian labor force	129,749	130,762	1,013	67,457	67,997	540	62,292	62,765	473
Participation rate (percent)	62.1	61.9	-.2	67.1	66.8	-.3	57.5	57.3	-.2
Employed	122,603	124,382	1,779	63,622	64,480	858	58,982	59,901	919
Employment–population ratio	58.7	58.8	.1	63.3	63.3	.0	54.4	54.7	.3
Unemployed	7,146	6,380	-766	3,835	3,517	-318	3,310	2,864	-446
Unemployment rate (percent)	5.5	4.9	-.6	5.7	5.2	-.5	5.3	4.6	-.7

Note: The foreign born are those residing in the United States who were not U.S. citizens at birth. That is, they were born outside the United States or one of its outlying areas, such as Puerto Rico or Guam, and neither parent was a U.S. citizen. The native born are people who were born in the United States or one of its outlying areas, such as Puerto Rico or Guam, or who were born abroad to at least one parent who was a U.S. citizen. Updated population controls are introduced annually with the release of January data.

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

In the fourth quarter of 2015, foreign-born workers accounted for 16.9 percent of the U.S. civilian labor force. The labor force participation rate for the foreign born changed little over the year, while the rate for the native born edged down over the year. In the fourth quarter of 2015, foreign-born men continued to have higher participation rates (78.2 percent) than native-born men (66.8 percent), while native-born women were more likely to be in the labor force (57.3 percent) than women who were foreign born (53.8 percent).

Summary

CPS data indicate that the U.S. labor market continued to grow in 2015. Both the number of unemployed and the unemployment rate declined. The unemployment rate ended the year at 5.0 percent, down 0.7 percentage point over the year, but still slightly above the cyclical low that predated the 2007–09 recession. The proportion of unemployed people who had been jobless for long periods also continued to decline but remained well above prerecession levels. Employment, as measured by the CPS, expanded over the year, although growth was considerably slower than in 2014, and there still were a sizable number of people working part time even though they would have preferred full-time jobs. The employment–population ratio was little changed in 2015, while the labor force participation rate continued to trend downward. Of particular note, median weekly earnings of full-time wage and salary workers rose at a faster rate than inflation in 2015.

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NOTES

¹ The data in this article are based on information collected in the Current Population Survey (CPS), also called the household survey. The CPS is a monthly sample survey of about 60,000 households nationwide that the U.S. Census Bureau conducts for the U.S. Bureau of Labor Statistics. Although the CPS is a monthly survey, the data analyzed in the article are seasonally adjusted quarterly averages unless otherwise noted. All over-the-year changes are comparisons of fourth-quarter data from 2014 with fourth-quarter data from 2015 unless otherwise noted. Effective with the data for January 2015, updated population estimates were used in the household survey. Each year, the Census Bureau updates its population estimates to reflect new information and assumptions about the growth of the population during the decade. In accordance with usual practice, BLS did not revise the official household survey estimates for December 2014 and earlier months. For additional information on the population adjustments and their effect on national labor force estimates, see "Adjustments to household survey population estimates in January 2015" (U.S. Bureau of Labor Statistics, February 2015), <https://www.bls.gov/cps/cps15adj.pdf>.

² The Great Recession officially began in December 2007 and ended in June 2009, according to the National Bureau of Economic Research (NBER), which determines the start and end dates of U.S. recessions on the basis of a range of economic indicators. Turning points for recessions are quarterly in this article.

³ People whose ethnicity is identified as Hispanic or Latino may be of any race. In the CPS, about 90 percent of people of Hispanic or Latino ethnicity are White.

⁴ Unemployment rates by occupation are based on the last job an individual held. Unemployed people who have no previous work experience are excluded.

⁵ The duration of joblessness is the length of time (through the current reference week) that people classified as unemployed have been looking for work. This measure refers to the duration of the current spell of unemployment, rather than to that of a completed spell.

⁶ For additional information, see Thomas Luke Spreen, "Ranks of those unemployed for a year or more up sharply," *Issues in Labor Statistics*, Summary 10-10 (U.S. Bureau of Labor Statistics, October 2010), <https://www.bls.gov/opub/ils/pdf/opbils87.pdf>.

⁷ For additional information and analysis of data, see Randy E. Ilg and Eleni Theodossiou, "Job search of the unemployed by duration of unemployment," *Monthly Labor Review*, March 2012, pp. 41–49, <https://www.bls.gov/opub/mlr/2012/03/art3full.pdf>; Randy E. Ilg, "How long before the unemployed find jobs or quit looking?" *Issues in Labor Statistics*, Summary 11-1 (U.S. Bureau of Labor Statistics, May 2011), <https://www.bls.gov/opub/ils/pdf/opbils89.pdf>; "Labor force flows in the most recent recession," *Issues in Labor Statistics*, Summary 10-08 (U.S. Bureau of Labor Statistics, July 2010), <https://www.bls.gov/opub/ils/pdf/opbils85.pdf>; and Harley J.

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[8](#) For additional information, see Emy Sok, “Involuntary part-time work on the rise,” *Issues in Labor Statistics*, Summary 08-08 (U.S. Bureau of Labor Statistics, December 2008), <https://www.bls.gov/opub/iils/pdf/opbils71.pdf>.

[9](#) For additional information, see Mitra Toossi, “Labor force projections to 2024: the labor force is growing, but slowly,” *Monthly Labor Review*, December 2015, <https://www.bls.gov/opub/mlr/2015/article/labor-force-projections-to-2024.htm>.

[10](#) The number of people not in the labor force who want a job is a measure of those who reported wanting a job without necessarily having looked for one; conceptually, this group includes all people who are not in the labor force and who reported that they currently want a job.

[11](#) For additional information, see Steven Hipple, “People who are not in the labor force: why aren’t they working?” *Beyond the Numbers*, December 2015, <https://www.bls.gov/opub/btn/volume-4/people-who-are-not-in-the-labor-force-why-arent-they-working.htm>.

[12](#) For further information on the underutilization of labor, see Vernon Brundage, “Trends in unemployment and other labor market difficulties,” *Beyond the Numbers*, November 2014, <https://www.bls.gov/opub/btn/volume-3/trends-in-unemployment-and-other-labor-market-difficulties.htm>; and Steven E. Haugen, “Measures of labor underutilization from the Current Population Survey,” Working Paper 424 (U.S. Bureau of Labor Statistics, March 2009), <https://www.bls.gov/osmr/research-papers/2009/pdf/ec090020.pdf>.

[13](#) Also known as the “national unemployment rate,” U–3 measures the total number of unemployed people as a percentage of the civilian labor force. In 2015, U–2 once again exceeded U–1, resuming the pattern that existed for most of the history of the six measures. For a number of years following the 2007–09 recession, U–1 exceeded U–2. (For more information, see Eleni Theodossiou Sherman and Janie-Lynn Kang, “Continued improvement in U.S. labor market in 2014,” *Monthly Labor Review*, April 2015, <https://www.bls.gov/opub/mlr/2015/article/continued-improvement-in-u-s-labor-market-in-2014.htm>.)

[14](#) Comparisons of earnings in this article are on a broad level and do not control for many factors—such as occupation, education, geographic location, and firm size—that can be important in explaining earnings differences.

[15](#) Veterans who served in more than one wartime period are classified into only the most recent one.

[16](#) For more information on these issues, see “Persons with a disability: barriers to employment, types of assistance, and other labor-related issues,” USDL-13-0729 (U.S. Bureau of Labor Statistics, April 24, 2013), <https://www.bls.gov/news.release/pdf/dissup.pdf>; and John Robertson and Ellyn Terry, “Shrinking labor market opportunities for the disabled?” (Federal Reserve Bank of Atlanta, January 29, 2016), <http://macroblog.typepad.com/macroblog/2016/01/shrinking-labor-market-opportunities-for-the-disabled.html>.

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