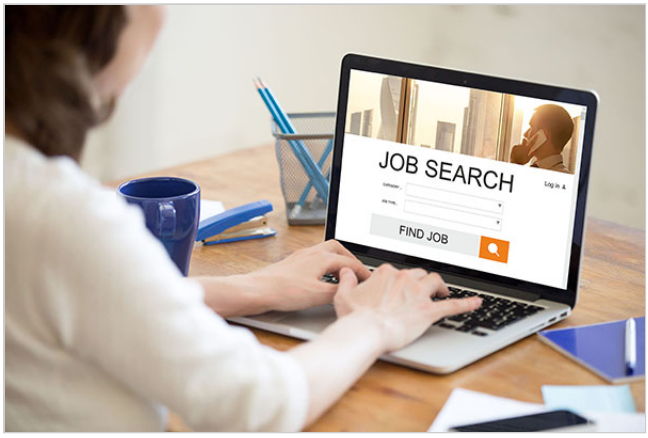
Monthly Labor Review

August 2017

Job openings, hires, and separations rise, but at a slower pace, in 2016

According to data from the U.S. Bureau of Labor Statistics Job Openings and Labor Turnover Survey (JOLTS), job openings and hires continued their upward climb in 2016, with job openings exceeding hires. Similarly, total separations rose, and quits surpassed prerecession levels.



Blanka M. Thibaud
thibaud.blanka@bls.gov

Blanka M. Thibaud is an economist in the Office of Employment and Unemployment Statistics, U.S. Bureau of Labor Statistics.

Data from the U.S. Bureau of Labor Statistics Job Openings and Labor Turnover Survey (JOLTS) continued to trend upward, showing increased labor market activity, but at a slower pace in 2016 than in 2015. Job openings rose to their highest monthly level since the series began in December 2000, reaching 6.0 million in July 2016; the average number of job openings in 2016 was 5.6 million a month. Hires, with an annual level of 62.7 million, increased for the seventh year in a row, growing by 1.1 percent in 2016. In contrast with historical patterns, job openings exceeded hires each month in 2016. Total separations, with an annual level of 60.4 million, increased for the sixth year in a row, growing by 1.9 percent in 2016. Within separations, quits increased by 7.0 percent in 2016, contributing more to the rise in total separations than layoffs and discharges. The annual level of quits was 36.1 million in 2016, surpassing prerecession levels.

Job Openings and Labor Turnover Survey

The JOLTS sample comprises about 16,000 nonfarm establishments from all 50 states and the District of Columbia. JOLTS data measure job openings, hires, total separations, quits, layoffs and discharges, and other separations on a monthly basis. The survey provides estimates of labor demand and worker flows by North American Industry Classification System (NAICS)[1] select two-digit supersector and by the four major census regions.[2]

This article discusses JOLTS estimates for 2016, compares them with estimates for 2015, and analyzes how these measures have performed since the most recent recession.[3] JOLTS data from 2016 are first compared with JOLTS data from previous years by data element: job openings, hires, total separations, quits, layoffs and discharges, and other separations. JOLTS data are then analyzed and compared with other statistical series. Comparisons

frequently include November 2007, the month before the most recent recession started, and June 2009, the last month of the most recent recession. Levels at or above 2007 values for procyclical data elements—job openings, hires, and quits—suggest the industry or region has recovered. Procyclical data elements generally increase during economic expansions and decline during economic contractions. Countercyclical series decline during expansions and increase during contractions. Levels at or below 2007 values for the countercyclical data elements—layoffs and discharges—suggest recovery as well.

Definitions of JOLTS terms[4]

Job openings

Job openings information is collected for the last business day of the reference month. A job opening requires that (1) a specific position exists and there is work available for that position, (2) work could start within 30 days whether or not the employer found a suitable candidate, and (3) the employer is actively recruiting from outside the establishment to fill the position. Included are full-time, part-time, permanent, short-term, and seasonal openings. Active recruiting means that the establishment is taking steps to fill a position by advertising in newspapers or on the Internet, posting help-wanted signs, accepting applications, or using other similar methods.

Jobs to be filled only by internal transfers, promotions, or recall from layoffs are excluded. Also excluded are jobs with start dates more than 30 days in the future, jobs for which employees have been hired but not yet reported for work, and jobs to be filled by employees of temporary help agencies, employee leasing companies, outside contractors, or consultants. The job openings rate is computed by dividing the number of job openings by the sum of employment and job openings and multiplying the quotient by 100.

Hires

The hires level is the total number of additions to the payroll occurring at any time during the reference month, including both new and rehired employees; full-time, part-time, permanent, short-term, and seasonal employees; employees recalled to the location after a layoff lasting more than 7 days; on-call or intermittent employees who returned to work after having been formally separated; and transfers from other locations. The hires count does not include transfers or promotions within the reporting site, employees returning after being on strike, employees of temporary help agencies or employee leasing companies, outside contractors, or consultants. The hires rate is computed by dividing the number of hires by employment and multiplying that quotient by 100.

Separations

The separations level is the total number of employment terminations occurring at any time during the reference month and is reported by type of separation: quits, layoffs and discharges, and other separations. (Some respondents are only able to report total separations.)

The *quits* count includes voluntary separations by employees (except for retirements, which are reported as other separations).

The *layoffs and discharges* count is made up of involuntary separations initiated by the employer and includes layoffs with no intent to rehire; formal layoffs lasting or expected to last more than 7 days; discharges resulting from mergers, downsizing, or closings; firings or other discharges for cause; terminations of permanent or short-term employees; and terminations of seasonal employees.

The *other separations* count includes retirements, transfers to other locations, deaths, and separations due to disability.

The separations count does not include transfers within the same location or employees on strike. The separations rate is computed by dividing the number of separations by employment and multiplying the resulting quotient by 100. The quits, layoffs and discharges, and “other separations” rates are computed similarly.

Job openings

Job openings is a procyclical measure of labor demand. During an economic expansion, employers demand more workers, and the number of job openings increases. By contrast, during an economic contraction, employers demand less labor, and the number of job openings decreases. Because job openings is a stock measure, JOLTS does not create job openings annual totals.[5] Instead, we use not seasonally adjusted data to calculate average monthly levels throughout the year.

In line with its procyclical nature, the level of job openings has increased since the end of the recession. Job openings reached a series high of 6.0 million in July 2016, indicating continued improvement on the demand side of the labor force. (See figure 1.) The 128.1-percent increase in job openings between June 2009 and December 2016 followed a 41.1-percent decline during the recession. Job openings was the first procyclical JOLTS measure to return to the prerecession level (4.2 million); this occurred in March 2014, and the data series has remained above that level since then. Average monthly levels of job openings have increased steadily each year since 2009, but the growth in 2016 slowed to 5.2 percent, compared with 17.6 percent in 2015.

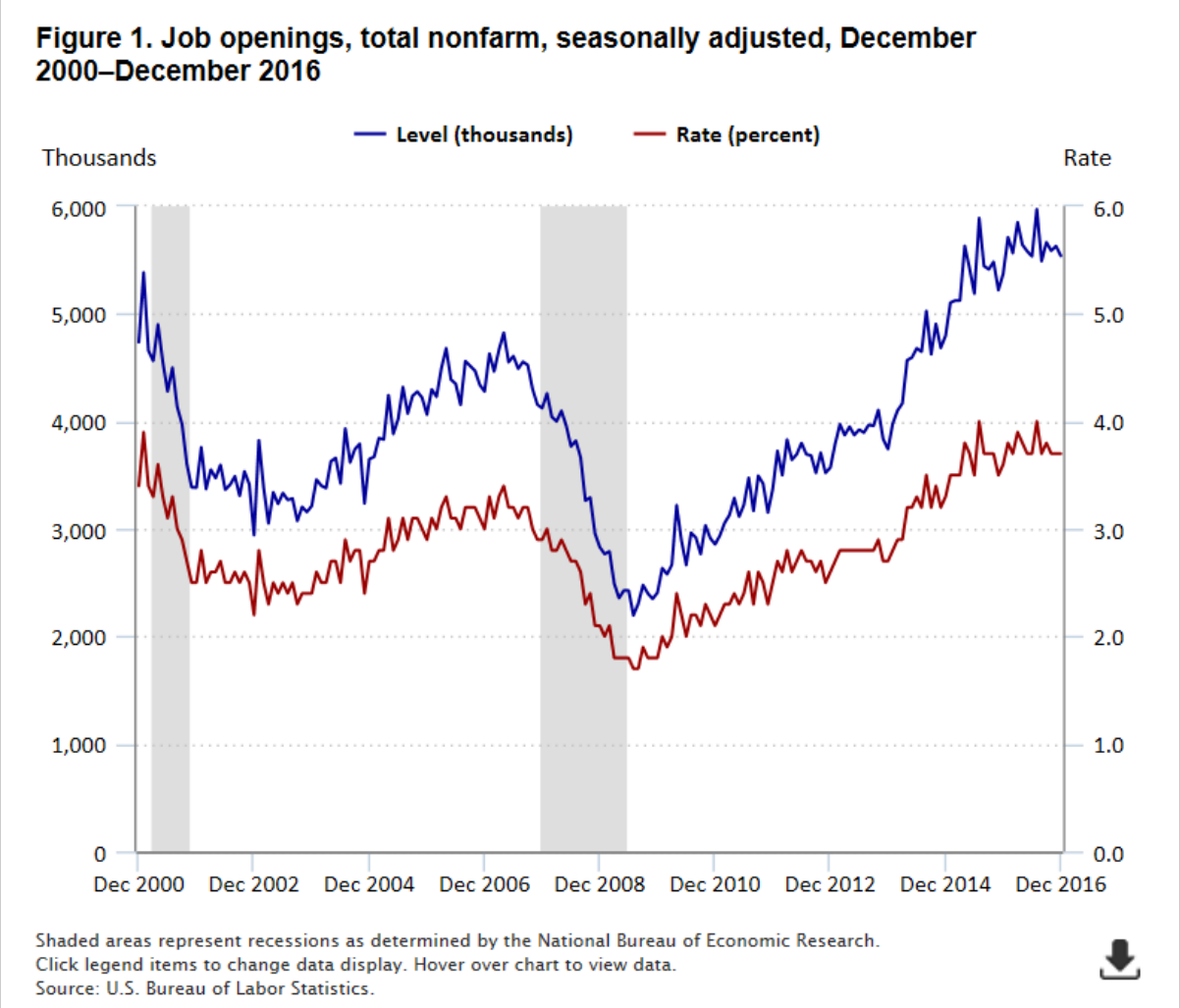


Figure 1. Job openings, total nonfarm, seasonally adjusted, December 2000–December 2016

Job openings by industry and region

At the industry level, the largest increases in average monthly job openings from 2015 to 2016 were in construction (32.0 percent); arts, entertainment, and recreation (26.7 percent); nondurable goods manufacturing (21.6 percent); federal government (21.6 percent); other services (18.8 percent); wholesale trade (14.1 percent); and retail trade (11.5 percent). Mining and logging and information experienced the largest decreases in job openings, 24.4 percent and 22.3 percent, respectively. In the regions, job openings increases ranged from 1.5 percent in the South to 8.3 percent in the West. (See table 1.)

Table 1. Average monthly job openings, by industry and region, not seasonally adjusted, 2015 and 2016

Industry and region	Level (in thousands)		Change, 2015–16	
	2015	2016	Level (in thousands)	Percent
Total nonfarm	5,370	5,649	279	5.2
Total private	4,869	5,130	261	5.4

See footnotes at end of table.

Table 1. Average monthly job openings, by industry and region, not seasonally adjusted, 2015 and 2016

Industry and region	Level (in thousands)		Change, 2015–16	
	2015	2016	Level (in thousands)	Percent
Mining and logging	16	12	-4	-24.4
Construction	144	190	46	32
Manufacturing	314	342	28	8.8
Durable goods	191	192	1	0.4
Nondurable goods	123	150	27	21.6
Trade, transportation, and utilities	936	1,005	69	7.3
Wholesale trade	161	184	23	14.1
Retail trade	557	620	63	11.4
Transportation, warehousing, and utilities	218	200	-17	-8
Information	109	84	-24	-22.3
Financial activities	329	327	-2	-0.6
Finance and insurance	254	250	-4	-1.6
Real estate and rental and leasing	75	77	2	2.8
Professional and business services	1,090	1,109	18	1.7
Education and health services	1,021	1,098	78	7.6
Educational services	102	99	-3	-2.7
Health care and social assistance	919	1,000	80	8.7
Leisure and hospitality	731	751	20	2.7
Arts, entertainment, and recreation	67	85	18	26.7
Accommodation and food services	664	666	2	0.3
Other services	178	212	33	18.8
Government	501	519	18	3.6
Federal	75	91	16	21.6
State and local	426	428	2	0.4
State and local education	153	147	-6	-4.1
State and local, excluding education	273	281	8	3.1
Northeast	874	940	66	7.6
South	2,062	2,092	30	1.5
Midwest	1,199	1,278	79	6.6
West	1,236	1,339	103	8.3

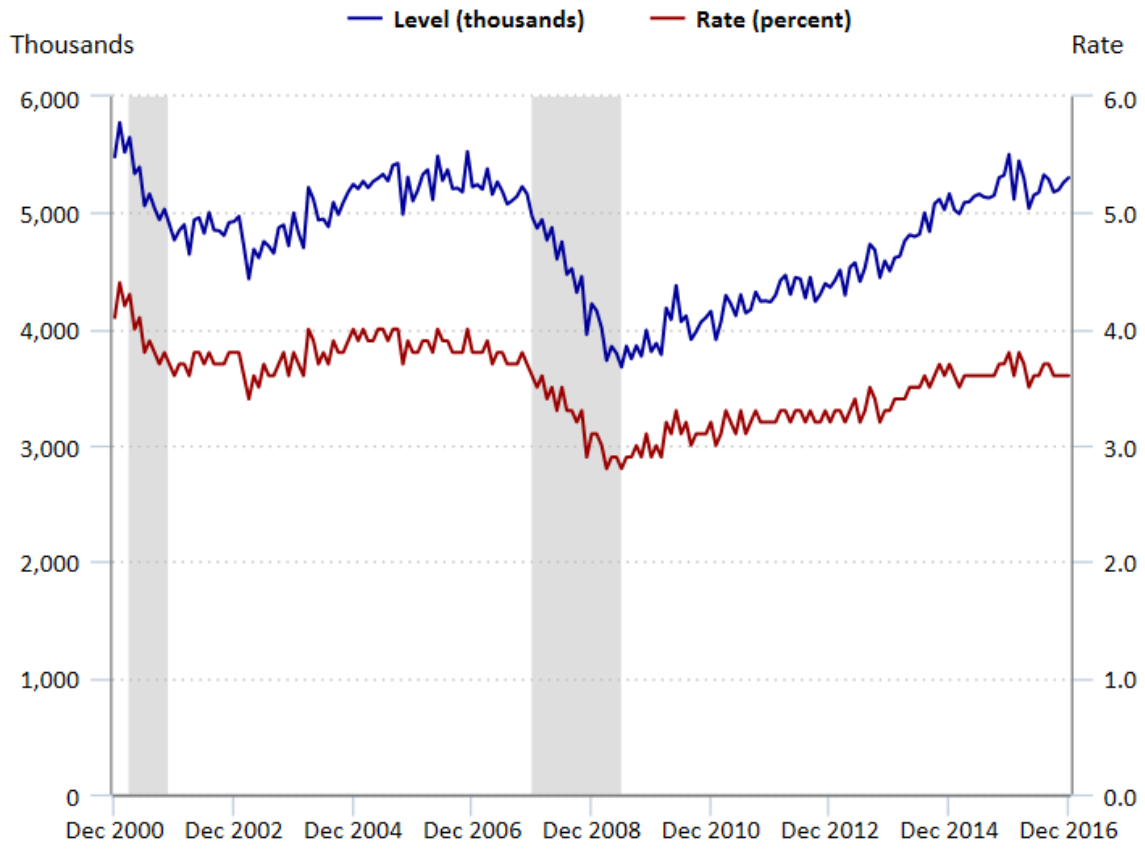
Notes: Average monthly job openings are the number of job openings on the last business day of the month. Details may not sum to totals because of rounding.

Source: U.S. Bureau of Labor Statistics.

Hires

Like job openings, hires is a procyclical measure whose level has increased each year since the end of the recession. Like the growth of openings, growth in hires slowed in 2016. (See figure 2.) Hires began dropping before the recession and continued to decline during the recession. Increases during the recovery caused the 2016 level to be about the same as the level before the decline began. In 2016, the number of hires surpassed the November 2007 level (5.2 million) and was at or above that level in 9 out of 12 months.

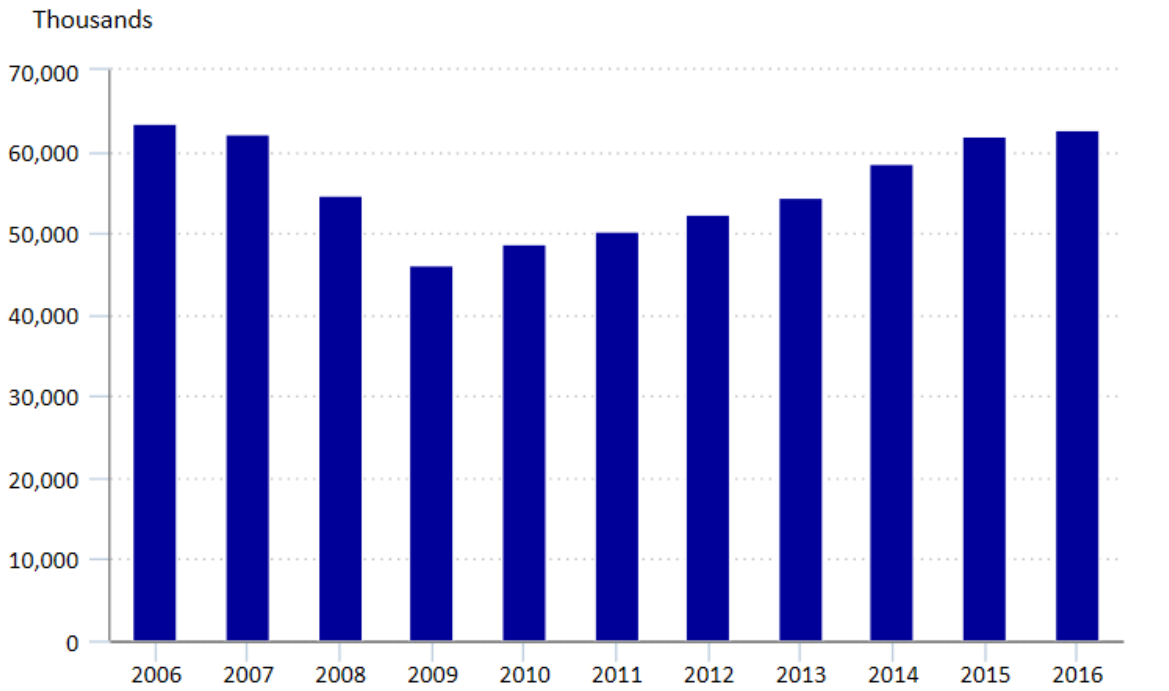
Figure 2. Hires, total nonfarm, seasonally adjusted, December 2000–December 2016



Shaded areas represent recessions as determined by the National Bureau of Economic Research.
Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

The count of hires is a flow measure, so the monthly hires (not seasonally adjusted) can be accumulated to create an annual total. In 2016, annual hires rose for the seventh consecutive year, reaching 62.7 million (43.5 percent of annual employment), an increase of 1.0 percent over the 2015 annual hires of 62.1 million. This growth showed a slower increase compared with the more robust 2015, when hires increased by 5.8 percent. (See figure 3.)

Figure 3. Annual hires, total nonfarm, not seasonally adjusted, 2007–16



Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Hires by industry and region

In 2016, the growth in hires varied by industry—13 out of 19 industries had more hires than in 2015. The largest increases in annual hires levels from 2015 to 2016 were in state and local government, excluding education (6.1 percent), professional and business services (4.9 percent), and state and local government education (4.1 percent). Annual hires levels from 2015 to 2016 dropped in five industries, with the largest declines occurring in other services (−11.5 percent), finance and insurance (−4.2 percent), and retail trade (−4.1 percent). Growth in hires in the four census regions varied from a 0.9-percent decline in the South to a 2.9-percent increase in the Northeast. (See table 2.)

Table 2. Annual hires, by industry and region, not seasonally adjusted, 2015 and 2016

Industry and region	Level (in thousands)		Change, 2015–16	
	2015	2016	Level (in thousands)	Percent
Total nonfarm	62,050	62,719	669	1.1
Total private	57,909	58,385	476	0.8
Mining and logging	299	299	0	0.0
Construction	3,931	3,953	22	0.6
Manufacturing	3,214	3,314	100	3.1

See footnotes at end of table.

Table 2. Annual hires, by industry and region, not seasonally adjusted, 2015 and 2016

Industry and region	Level (in thousands)		Change, 2015–16	
	2015	2016	Level (in thousands)	Percent
Durable goods	1,876	1,934	58	3.1
Nondurable goods	1,334	1,381	47	3.5
Trade, transportation, and utilities	13,012	12,667	-345	-2.7
Wholesale trade	1,662	1,686	24	1.4
Retail trade	9,026	8,660	-366	-4.1
Transportation, warehousing, and utilities	2,328	2,320	-8	-0.3
Information	952	919	-33	-3.5
Financial activities	2,366	2,316	-50	-2.1
Finance and insurance	1,586	1,519	-67	-4.2
Real estate and rental and leasing	779	795	16	2.1
Professional and business services	12,590	13,209	619	4.9
Education and health services	7,434	7,599	165	2.2
Educational services	1,062	1,093	31	2.9
Health care and social assistance	6,373	6,505	132	2.1
Leisure and hospitality	11,624	11,912	288	2.5
Arts, entertainment, and recreation	1,811	1,833	22	1.2
Accommodation and food services	9,813	10,078	265	2.7
Other services	2,488	2,201	-287	-11.5
Government	4,139	4,335	196	4.7
Federal	487	496	9	1.8
State and local	3,650	3,840	190	5.2
State and local education	1,813	1,888	75	4.1
State and local, excluding education	1,838	1,951	113	6.1
Northeast	9,752	10,034	282	2.9
South	24,334	24,127	-207	-0.9
Midwest	13,847	14,115	268	1.9
West	14,116	14,446	330	2.3

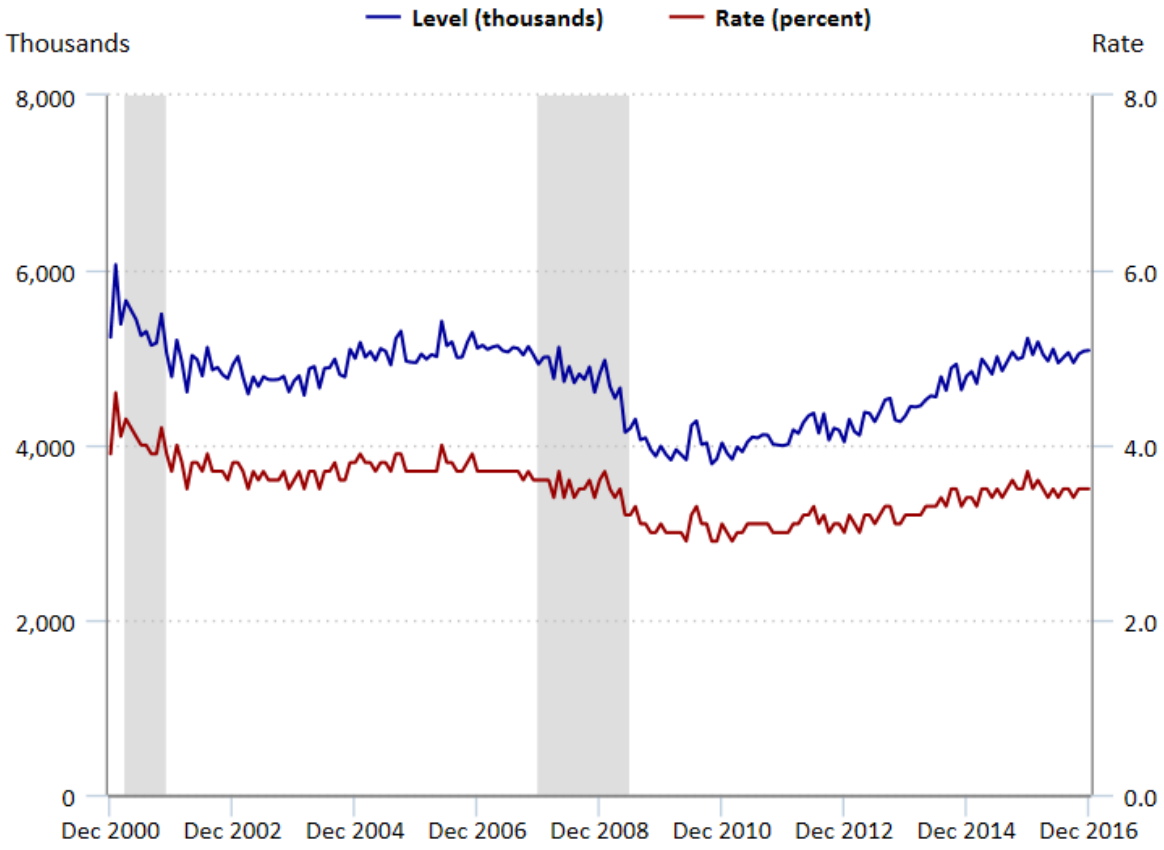
Notes: Annual hires are the total number of hires over the entire month for each month during the year. Details may not sum to totals because of rounding.

Source: U.S. Bureau of Labor Statistics.

Total separations

Total separations, which includes quits, layoffs and discharges, and other separations, have increased slowly since the end of the recession. (See figure 4.) After decreasing by 14.9 percent during the recession, total separations increased by 21.3 percent from June 2009 to December 2016. Total separations were at or near their November 2007 level (5.0 million) throughout 2016 and exceeded that level in 8 out of 12 months of the year. Like hires, total separations is a flow measure so we can calculate annual totals by using not seasonally adjusted data. The annual level of total separations has increased each year since 2010. (See figure 5.) The annual level of total separations in 2016 was 60.4 million (41.9 percent of annual employment), an increase of 1.9 percent over the 2015 annual level of 59.3 million. (See table 3.)

Figure 4. Total separations, total nonfarm, seasonally adjusted, December 2000–December 2016



Shaded areas represent recessions as determined by the National Bureau of Economic Research.
Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Figure 5. Annual total separations, total nonfarm, not seasonally adjusted, 2007–16

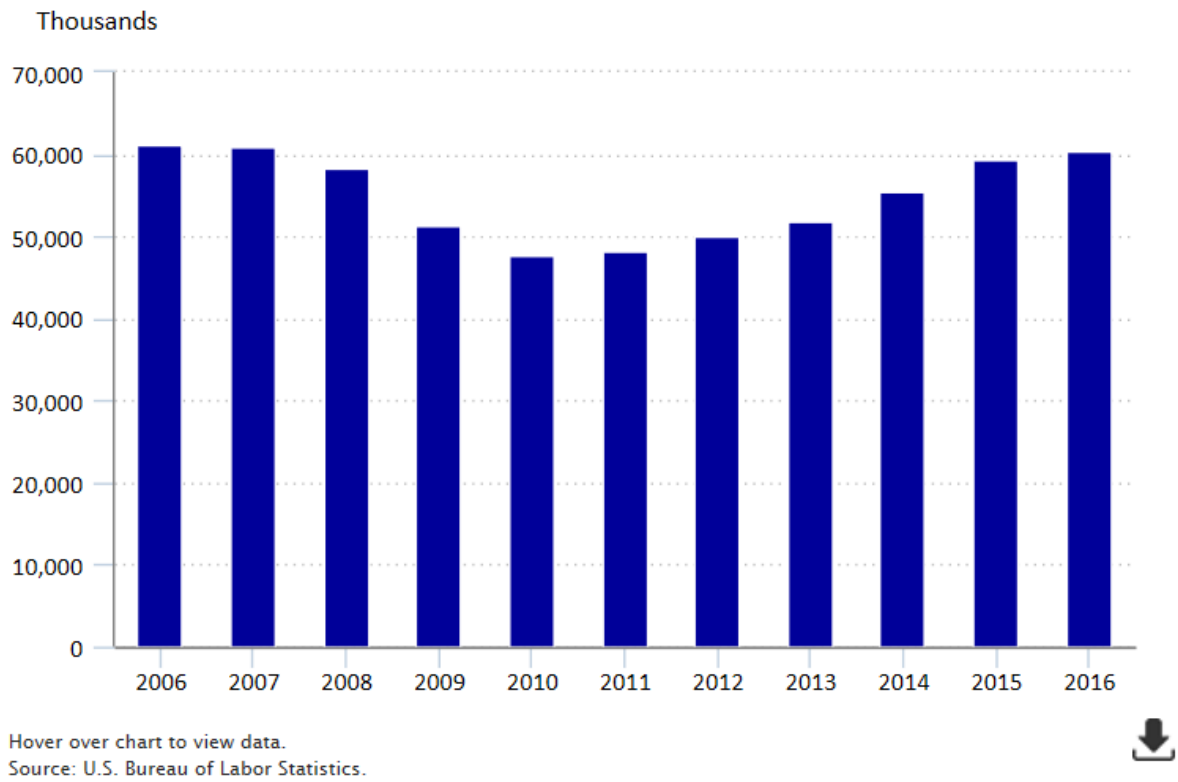


Table 3. Annual total separations, by industry and region, not seasonally adjusted, 2015 and 2016

Industry and region	Level (in thousands)		Change, 2015–16	
	2015	2016	Level (in thousands)	Percent
Total nonfarm	59,275	60,419	1,144	1.9
Total private	55,331	56,305	974	1.8
Mining and logging	451	377	-74	-16.4
Construction	3,587	3,841	254	7.1
Manufacturing	3,147	3,341	194	6.2
Durable goods	1,879	1,975	96	5.1
Nondurable goods	1,271	1,366	95	7.5
Trade, transportation, and utilities	12,599	12,276	-323	-2.6
Wholesale trade	1,650	1,642	-8	-0.5
Retail trade	8,829	8,440	-389	-4.4
Transportation, warehousing, and utilities	2,121	2,193	72	3.4
Information	928	919	-9	-1.0
Financial activities	2,218	2,130	-88	-4.0
Finance and insurance	1,479	1,398	-81	-5.5
Real estate and rental and leasing	740	730	-10	-1.4
Professional and business services	12,084	12,695	611	5.1

See footnotes at end of table.

Table 3. Annual total separations, by industry and region, not seasonally adjusted, 2015 and 2016

Industry and region	Level (in thousands)		Change, 2015–16	
	2015	2016	Level (in thousands)	Percent
Education and health services	6,791	7,064	273	4.0
Educational services	983	1,033	50	5.1
Health care and social assistance	5,807	6,031	224	3.9
Leisure and hospitality	11,098	11,526	428	3.9
Arts, entertainment, and recreation	1,717	1,767	50	2.9
Accommodation and food services	9,383	9,759	376	4.0
Other services	2,432	2,132	-300	-12.3
Government	3,943	4,114	171	4.3
Federal	452	455	3	0.7
State and local	3,489	3,656	167	4.8
State and local education	1,721	1,788	67	3.9
State and local, excluding education	1,768	1,869	101	5.7
Northeast	9,317	9,621	304	3.3
South	23,409	23,335	-74	-0.3
Midwest	12,918	13,446	528	4.1
West	13,630	14,014	384	2.8

Notes: Annual total separations are the number of separations over the entire month for each month during the year. Details may not sum to totals because of rounding.

Source: U.S. Bureau of Labor Statistics.

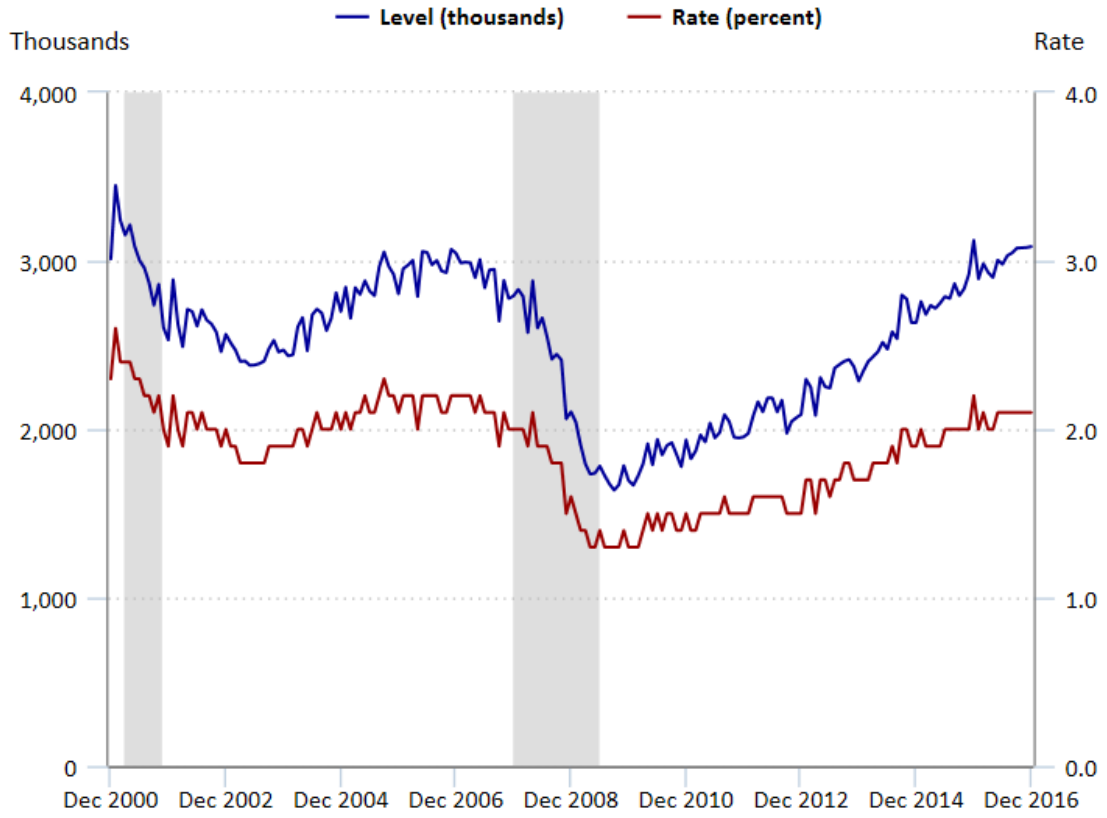
Total separations by industry and region

In 2016, the growth in total separations varied by industry—12 out of 19 industries had more total separations than in 2015, while 7 had fewer total separations. At the industry level, the largest increases in annual total separations between 2015 and 2016 were in nondurable goods manufacturing (7.5 percent) and construction (7.1 percent). From 2015 to 2016, the largest decreases in annual total separations occurred in mining and logging (−16.4 percent), other services (−12.3 percent), and finance and insurance (−5.5 percent). Changes in annual total separations in the four census regions varied from a decrease of 0.3 percent in the South to a 4.1-percent increase in the Midwest.

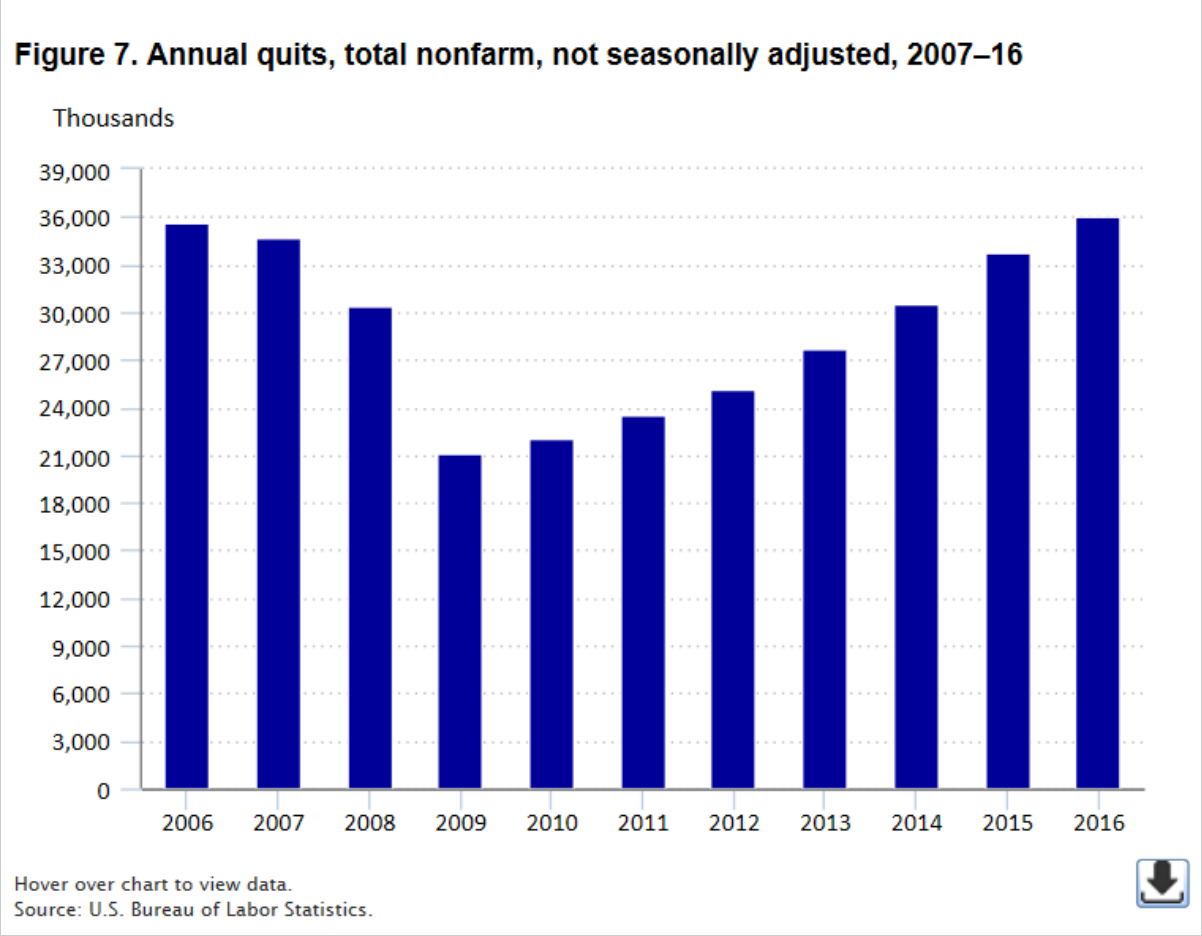
Quits

The quits measure is a procyclical one that showed strong growth since the end of the recession. After decreasing by 36.2 percent during the recession, quits increased by 73.1 percent between June 2009 and December 2016. With this growth, quits consistently remained above the November 2007 level (2.8 million) since August 2015. (See figure 6.) Quits rose for the seventh consecutive year, reaching 36.1 million (25.0 percent of annual employment) in 2016, an increase of 7.0 percent over the 2015 annual figure of 33.7 million. Quits rose by 10.3 percent in both 2015 and 2014. Quits rose, but at a slower pace, in 2016. (See figure 7.)

Figure 6. Quits, total nonfarm, seasonally adjusted, December 2000–December 2016



Shaded areas represent recessions as determined by the National Bureau of Economic Research.
Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.



Quits by industry and region

In 2016, the growth in quits varied by industry—15 out of 19 industries had more quits than in 2015, while 4 had fewer quits. Within the industries, the largest increases in annual quits levels between 2015 and 2016 were in arts, entertainment, and recreation (25.7 percent); professional and business services (15.1 percent); nondurable goods manufacturing (14.8 percent); and state and local government, excluding education (11.8 percent). The largest declines occurred in mining and logging (−9.6 percent), other services (−5.2 percent), and information (−4.4 percent). In the regions, increases in quits ranged from 3.7 percent in the South to 12.6 percent in the West. (See table 4.)

Table 4. Annual quits, by industry and region, not seasonally adjusted, 2015 and 2016

Industry and region	Level (in thousands)		Change, 2015–16	
	2015	2016	Level (in thousands)	Percent
Total nonfarm	33,718	36,091	2,373	7.0
Total private	31,837	34,051	2,214	7.0
Mining and logging	177	160	-17	-9.6
Construction	1,365	1,469	104	7.6
Manufacturing	1,637	1,799	162	9.9

See footnotes at end of table.

Table 4. Annual quits, by industry and region, not seasonally adjusted, 2015 and 2016

Industry and region	Level (in thousands)		Change, 2015–16	
	2015	2016	Level (in thousands)	Percent
Durable goods	936	1,000	64	6.8
Nondurable goods	698	801	103	14.8
Trade, transportation, and utilities	7,533	7,758	225	3.0
Wholesale trade	933	1,012	79	8.5
Retail trade	5,481	5,568	87	1.6
Transportation, warehousing, and utilities	1,119	1,181	62	5.5
Information	505	483	-22	-4.4
Financial activities	1,209	1,192	-17	-1.4
Finance and insurance	819	797	-22	-2.7
Real estate and rental and leasing	391	396	5	1.3
Professional and business services	6,283	7,234	951	15.1
Education and health services	4,507	4,680	173	3.8
Educational services	530	567	37	7.0
Health care and social assistance	3,976	4,113	137	3.4
Leisure and hospitality	7,276	7,993	717	9.9
Arts, entertainment, and recreation	657	826	169	25.7
Accommodation and food services	6,617	7,168	551	8.3
Other services	1,350	1,280	-70	-5.2
Government	1,882	2,038	156	8.3
Federal	150	161	11	7.3
State and local	1,729	1,877	148	8.6
State and local education	867	912	45	5.2
State and local, excluding education	863	965	102	11.8
Northeast	4,749	5,011	262	5.5
South	13,988	14,501	513	3.7
Midwest	7,421	8,072	651	8.8
West	7,561	8,512	951	12.6

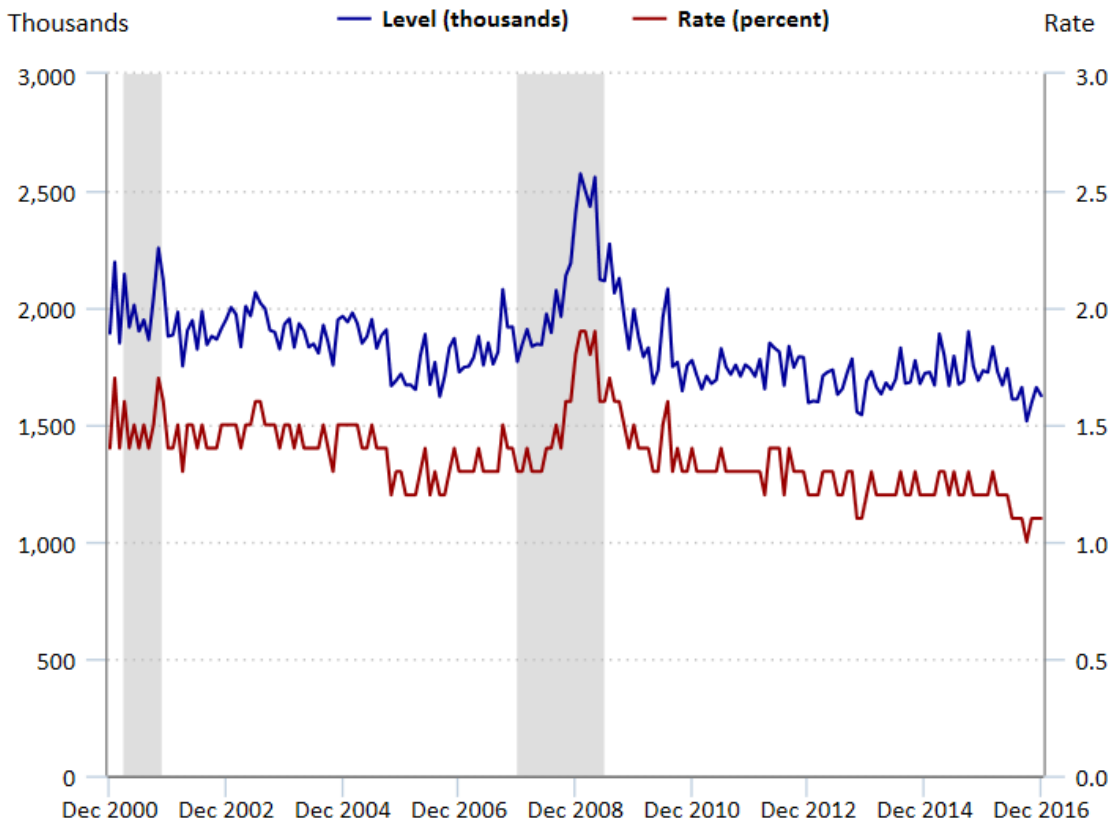
Notes: Annual quits are the total number of quits over the entire month for each month during the year. Details may not sum to totals because of rounding.

Source: U.S. Bureau of Labor Statistics.

Layoffs and discharges

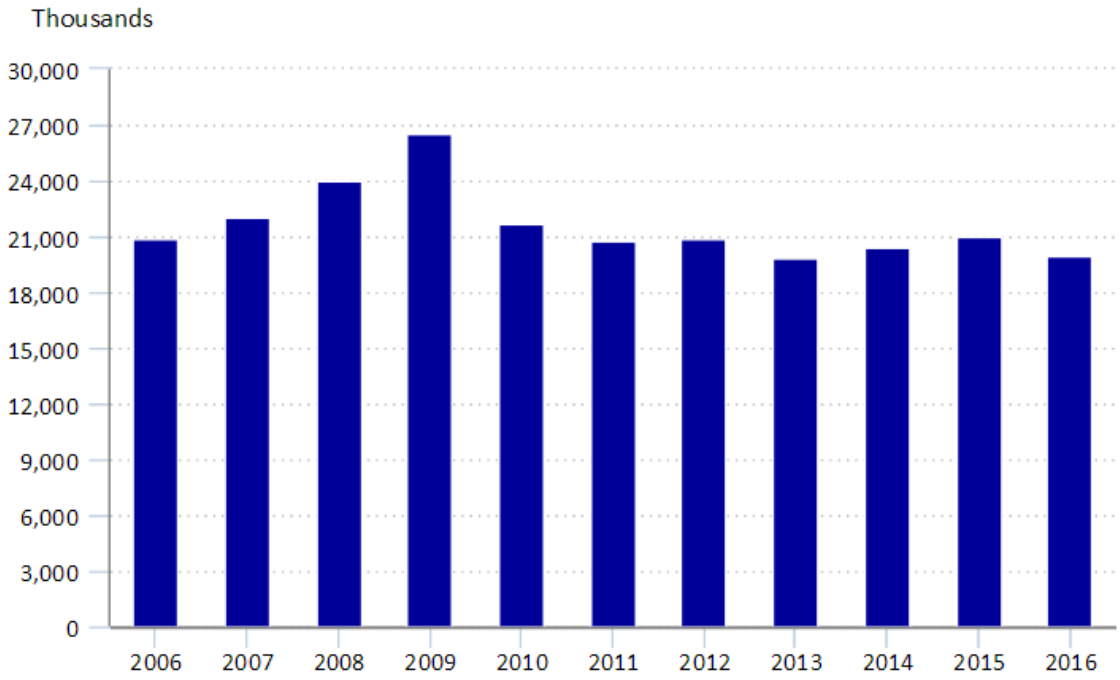
Being countercyclical, layoffs and discharges rose during the recession but decreased toward the end of the recession and have leveled off since mid-2011. After increasing by 19.5 percent during the recession, the layoffs and discharges level decreased by 23.2 percent between June 2009 and December 2016. (See figure 8.) Annual levels of layoffs and discharges have been steady since 2010, with a small decrease during 2016. (See figure 9.) After edging up the past 2 years, the layoffs and discharges annual level declined in 2016 to 19.9 million (13.8 percent of annual employment), a decrease of 5.0 percent from 21.0 million in 2015. (See table 5.)

Figure 8. Layoffs and discharges, total nonfarm, seasonally adjusted, December 2000–December 2016



Shaded areas represent recessions as determined by the National Bureau of Economic Research.
Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Figure 9. Annual layoffs and discharges, total nonfarm, not seasonally adjusted, 2007–16



Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Table 5. Annual layoffs and discharges, by industry and region, not seasonally adjusted, in thousands, 2015 and 2016

Industry and region	Level (in thousands)		Change, 2015–16	
	2015	2016	Level (in thousands)	Percent
Total nonfarm	20,954	19,911	-1,043	-5.0
Total private	19,658	18,585	-1,073	-5.5
Mining and logging	242	170	-72	-29.8
Construction	2,073	2,188	115	5.5
Manufacturing	1,232	1,254	22	1.8
Durable goods	767	792	25	3.3
Nondurable goods	464	459	-5	-1.1
Trade, transportation, and utilities	3,836	3,418	-418	-10.9
Wholesale trade	585	487	-98	-16.8
Retail trade	2,437	2,105	-332	-13.6
Transportation, warehousing, and utilities	815	824	9	1.1
Information	304	304	0	0.0
Financial activities	699	650	-49	-7.0
Finance and insurance	416	369	-47	-11.3
Real estate and rental and leasing	285	281	-4	-1.4

See footnotes at end of table.

Table 5. Annual layoffs and discharges, by industry and region, not seasonally adjusted, in thousands, 2015 and 2016

Industry and region	Level (in thousands)		Change, 2015–16	
	2015	2016	Level (in thousands)	Percent
Professional and business services	5,073	4,780	-293	-5.8
Education and health services	1,734	1,915	181	10.4
Educational services	382	400	18	4.7
Health care and social assistance	1,352	1,514	162	12.0
Leisure and hospitality	3,506	3,142	-364	-10.4
Arts, entertainment, and recreation	1,015	909	-106	-10.4
Accommodation and food services	2,492	2,231	-261	-10.5
Other services	956	766	-190	-19.9
Government	1,297	1,326	29	2.2
Federal	163	153	-10	-6.1
State and local	1,134	1,173	39	3.4
State and local education	558	576	18	3.2
State and local, excluding education	578	597	19	3.3
Northeast	3,659	3,851	192	5.2
South	7,618	7,086	-532	-7.0
Midwest	4,617	4,472	-145	-3.1
West	5,061	4,504	-557	-11.0

Notes: Annual layoffs and discharges are the total number of layoffs and discharges over the entire month for each month during the year. Details may not sum to totals because of rounding.

Source: U.S. Bureau of Labor Statistics.

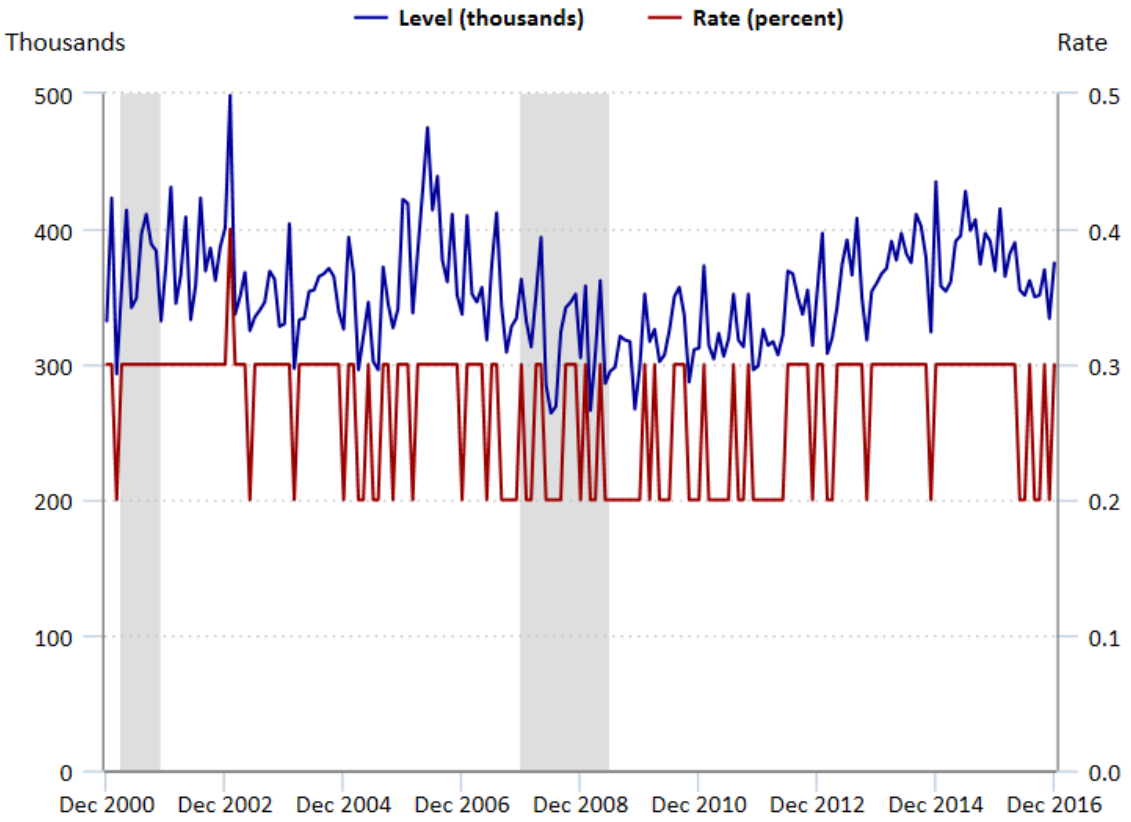
Layoffs and discharges by industry and region

In 2016, the growth in layoffs and discharges varied by industry—7 out of 19 industries had more layoffs and discharges than in 2015. Within the industries, the largest increases in annual layoffs and discharges levels between 2015 and 2016 were in health care and social assistance (12.0 percent) and construction (5.5 percent). The largest decreases were exhibited by mining and logging (−29.8 percent), other services (−19.9 percent), and wholesale trade (−16.8 percent). Changes in layoffs and discharges varied by census region, increasing by 5.2 percent in the Northeast while declining in the other regions, with the greatest decrease in the West (−11.0 percent). (See table 5.)

Other separations

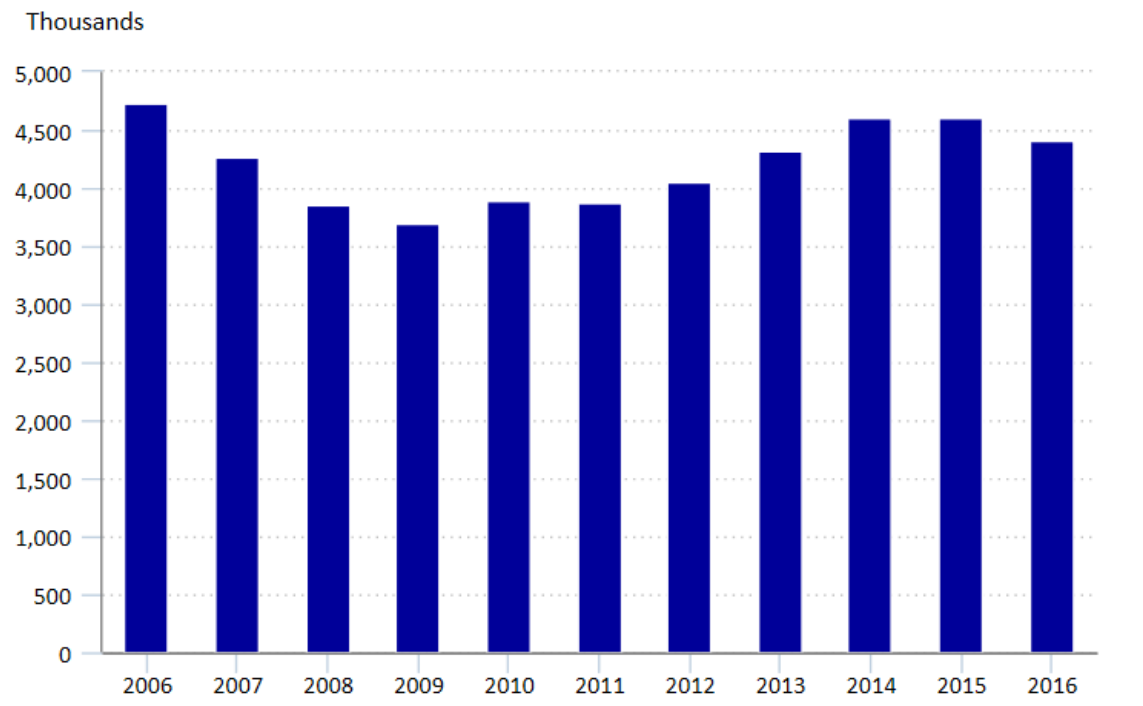
Other separations levels have shown variation throughout JOLTS history, ranging from 264,000 to 499,000. Other separations levels decreased by 18.7 percent during the recession and increased by 27.1 percent between June 2009 and December 2016. (See figure 10.) The annual level of other separations declined by 4.0 percent, from 4.6 million in 2015 to 4.4 million in 2016 (3.1 percent of annual employment). (See figure 11.)

Figure 10. Other separations, total nonfarm, seasonally adjusted, December 2000–December 2016



Shaded areas represent recessions as determined by the National Bureau of Economic Research.
Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Figure 11. Annual other separations, total nonfarm, not seasonally adjusted, 2007–16



Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Other separations by industry and region

In 2016, the growth in other separations varied by industry—8 out of 19 industries had more other separations than in 2015. Within the industries, the largest increases in the annual level of other separations between 2015 and 2016 were in mining and logging (37.1 percent), accommodation and food services (31.1 percent), and construction (21.9 percent). The largest decreases were in other services (−29.0 percent); arts, entertainment, and recreation (−20.5 percent); and real estate and rental and leasing (−16.1 percent). Changes in other separations varied by census region, with an increase in the Midwest (2.5 percent) and the largest decrease in the Northeast (−16.3 percent). (See table 6.)

Table 6. Annual other separations, by industry and region, not seasonally adjusted, 2015 and 2016

Industry and region	Level (in thousands)		Change, 2015–16	
	2015	2016	Level (in thousands)	Percent
Total nonfarm	4,603	4,418	-185	-4.0
Total private	3,835	3,670	-165	-4.3
Mining and logging	35	48	13	37.1
Construction	151	184	33	21.9

See footnotes at end of table.

Table 6. Annual other separations, by industry and region, not seasonally adjusted, 2015 and 2016

Industry and region	Level (in thousands)		Change, 2015–16	
	2015	2016	Level (in thousands)	Percent
Manufacturing	277	289	12	4.3
Durable goods	175	182	7	4.0
Nondurable goods	104	107	3	2.9
Trade, transportation, and utilities	1,228	1,099	-129	-10.5
Wholesale trade	128	144	16	12.5
Retail trade	908	768	-140	-15.4
Transportation, warehousing, and utilities	189	186	-3	-1.6
Information	120	132	12	10.0
Financial activities	309	287	-22	-7.1
Finance and insurance	244	237	-7	-2.9
Real estate and rental and leasing	62	52	-10	-16.1
Professional and business services	730	681	-49	-6.7
Education and health services	548	468	-80	-14.6
Educational services	69	66	-3	-4.3
Health care and social assistance	477	401	-76	-15.9
Leisure and hospitality	319	393	74	23.2
Arts, entertainment, and recreation	44	35	-9	-20.5
Accommodation and food services	273	358	85	31.1
Other services	124	88	-36	-29.0
Government	766	748	-18	-2.3
Federal	143	140	-3	-2.1
State and local	625	607	-18	-2.9
State and local education	297	298	1	0.3
State and local, excluding education	333	311	-22	-6.6
Northeast	910	762	-148	-16.3
South	1,805	1,752	-53	-2.9
Midwest	882	904	22	2.5
West	1,007	1,002	-5	-0.5

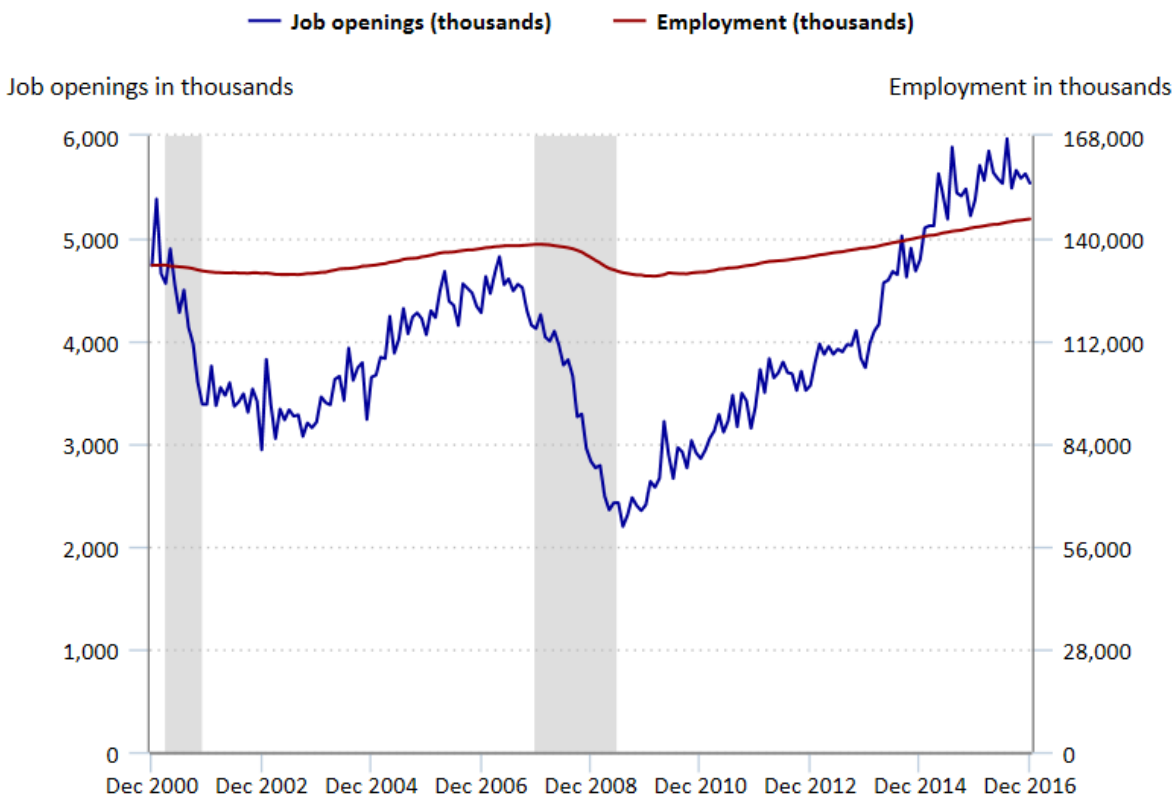
Notes: Annual other separations is the total number of other separations over the entire month for each month during the year. Details may not sum to totals because of rounding.

Source: U.S. Bureau of Labor Statistics.

Job openings and employment

Job openings and nonfarm payroll employment from the Current Employment Statistics (CES) survey tend to follow a similar pattern, rising and falling together during upturns and downturns of the business cycle, because of their procyclical nature.[6] (See figure 12.)

Figure 12. Job openings and employment, total nonfarm, seasonally adjusted, December 2000–December 2016



Shaded areas represent recessions as determined by the National Bureau of Economic Research.
Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Before the most recent recession, job openings peaked at 4.8 million in April 2007, and CES employment peaked at 138.4 million in January 2008. Both measures then declined rapidly during the recession: job openings reached a low of 2.2 million in July 2009, and employment continued to decline to a low of 129.7 million in February 2010. Since then, both job openings and employment have experienced robust growth and exceed their prerecession levels.

On an over-the-year basis, job openings in 2016 rose by 165,000, or 9.3 percent, to reach 5.5 million. Similarly, CES employment continued to rise in 2016, ending the year at 145.3 million.

Unemployed people per job opening

Job openings and unemployment levels generally move in opposite directions. The ratio of the number of unemployed people per job opening is calculated by dividing the number of unemployed people from the Current Population Survey by the number of job openings. During expansionary times, unemployment is low and the job openings level is high, causing the ratio to decrease, and vice versa. Because of this countercyclical behavior, the ratio of unemployed people to job openings provides a metric that helps to describe the state of the economy. (See figure 13.)

Figure 13. Ratio of unemployed people to job openings, total nonfarm, seasonally adjusted, December 2000–December 2016

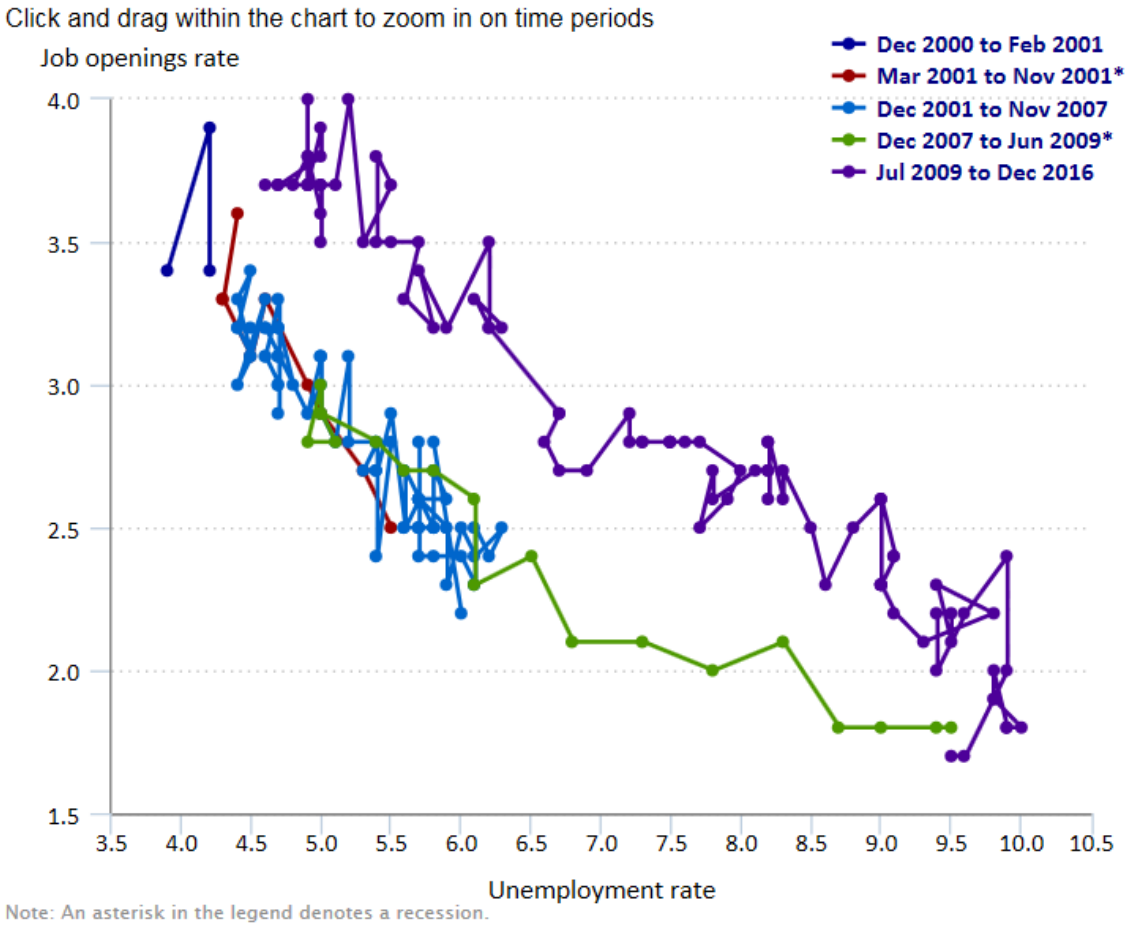
Shaded areas represent recessions as determined by the National Bureau of Economic Research.
Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

When the most recent recession began in December 2007, the number of unemployed people per job opening was 1.9, rising to a high point of 6.6 in July 2009. It has trended steadily down since then, ranging from 1.3 to 1.4 in each month in 2016.

Beveridge Curve

The Beveridge Curve shows the inverse relationship between job openings and unemployment.[7] Because of this relationship, the curve provides a way for us to study the link between unfilled labor demand (measured by job openings) and excess labor supply (measured by the unemployment rate) over time. Each month corresponds to a point on the downward-sloping curve, where the unemployment rate is plotted on the *x* axis and the job openings rate is plotted on the *y* axis. For any given unemployment rate, the rate of job openings is a reflection of the efficiency of the labor market. A higher job openings rate signals a problem with matching jobseekers to job openings. During an economic expansion, the unemployment rate is low and the job openings rate is high, so the monthly point on the curve is expected to be high and to the left on the graph. During an economic contraction, the unemployment rate is high and the job openings rate is low, so the monthly point on the curve is expected to fall and move to the right as happened during the most recent recession. (See figure 14.)

Figure 14. The Beveridge Curve (job openings versus unemployment rate), seasonally adjusted, December 2000–December 2016



Note: An asterisk in the legend denotes a recession.
Source: U.S. Bureau of Labor Statistics.

Between December 2000, when the JOLTS program began, and August 2009, the Beveridge Curve followed a fairly constant pattern. From the start of the most recent recession in December 2007 through the end of 2009, the position of the economy along the Beveridge Curve trended lower and to the right as the job openings rate declined and the unemployment rate rose. However, in September 2009, the curve began to shift up and to the right of the historical curve, following a new path as the job openings rate increased and the unemployment rate decreased. The trajectory continued to the right of the original curve throughout 2016. In 2016, points on the Beveridge Curve moved slightly to the left because job openings were 3.8 in January and 3.7 in December. However, the unemployment rate edged down from 4.9 percent in January to 4.7 percent in December, indicating that the economy is still in an expansionary period.

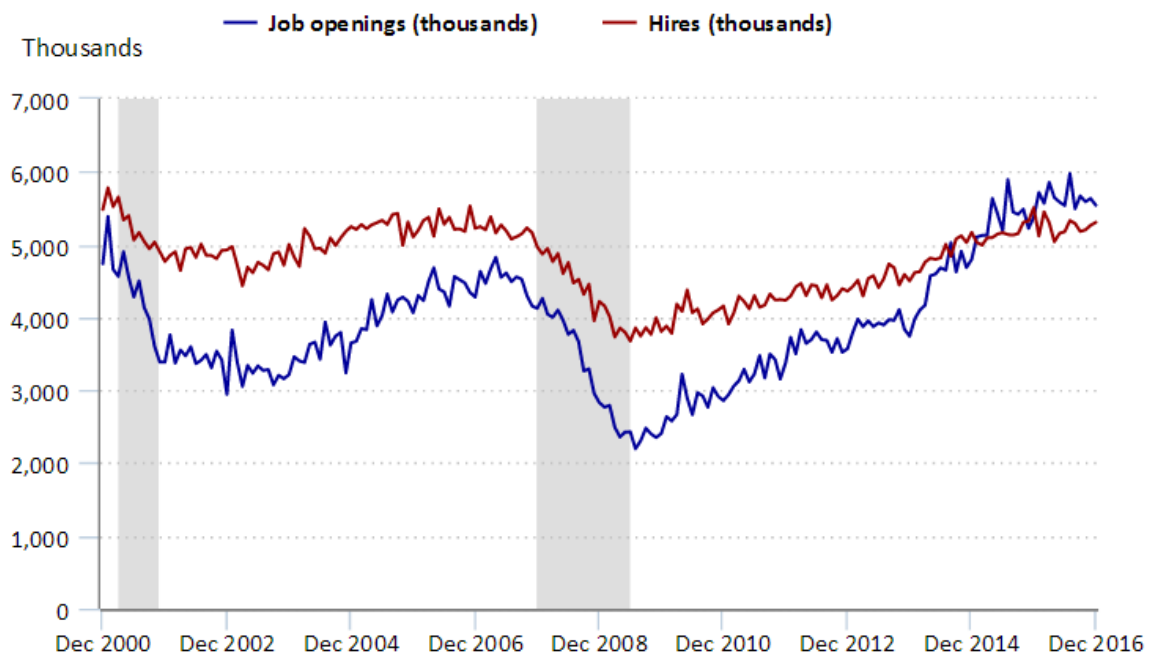
The shift of the Beveridge Curve since September 2009 might be due to both cyclical and structural factors. In 2012, Bart Hibijn and Ayşegül Şahin found that the displacement of a large part of the labor force during the recession resulted in a decline in efficiency in matching workers with jobs.[8] This decline, together with the extension of unemployment insurance benefits during the recession, led to the shift.[9] In 2014, Alan Krueger, Judd Cramer, and David Cho found that long-term unemployment increased because of fewer job openings during the recession. These authors theorized that the long-term unemployed have a historically slower rate of

reemployment, accounting for the shift.[10] Conversely, Peter A. Diamond and Şahin reasoned that a shift in the Beveridge Curve following a recession is natural and should be interpreted as a cyclical pattern.[11] The consensus among these researchers is that the current shift is temporary and will eventually return to the original curve as long-term unemployment falls.

Job openings and hires

The monthly levels and rates of total nonfarm hires have exceeded those of job openings for most of JOLTS history because hires is a full-month measure and job openings is a 1-day snapshot. (See figure 15.) However, following steady growth after the end of the recession, job openings started to grow rapidly in early 2014. At the same time, hires also grew, but at a slower pace than job openings. Job openings exceeding hires may suggest that employers have unmet needs for workers. During the entire year of 2016, job openings exceeded hires while the job openings rate was at or above the hires rate for 11 months of 2016.

Figure 15. Job openings and hires, total nonfarm, seasonally adjusted, December 2000–December 2016



Shaded areas represent recessions as determined by the National Bureau of Economic Research.
Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

The historical dynamic between hires and job openings levels has varied by industry. Hires have almost always been greater than job openings in mining and logging; construction; retail trade; real estate and rental and leasing; professional and business services; arts, entertainment, and recreation; accommodation and food services; and other services. In other industries (durable goods manufacturing; wholesale trade; transportation, warehousing, and utilities; and educational services), the dynamic has gone back and forth over time, with hires exceeding job

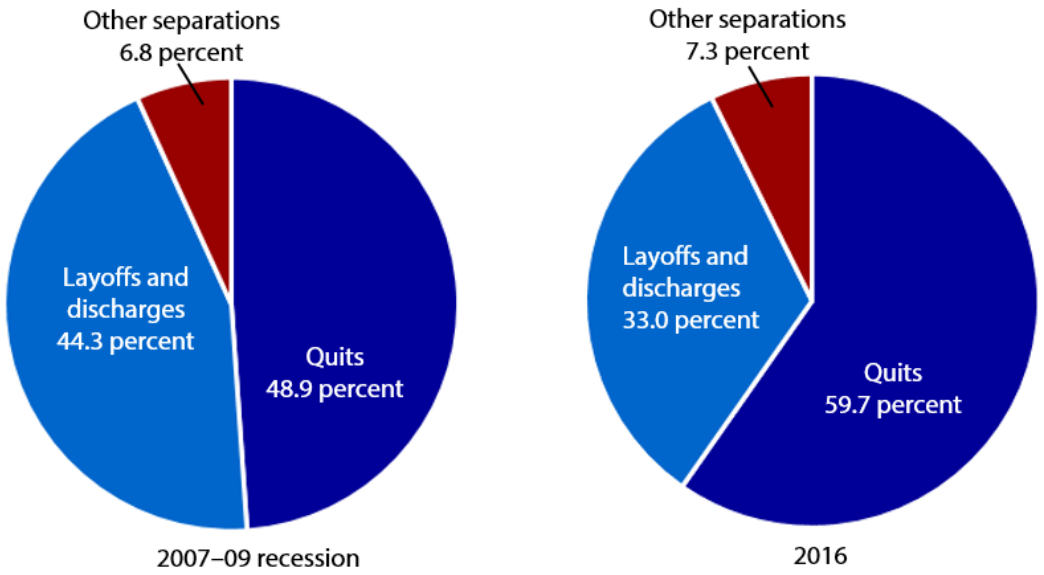
openings in some months and job openings exceeding hires in other months. Job openings has regularly exceeded hires in information; finance and insurance; and health care and social assistance.

Job openings grew at a faster rate than hires in 10 out of 19 industries from 2015 to 2016. The largest difference was in construction, where job openings increased by 32.0 percent and hires increased by only 0.6 percent. (See table 7.) Other industries had mixed increases and decreases in job openings, such as other services, where job openings increased by 18.8 percent and hires decreased by 11.5 percent. Mining and logging had the largest decrease in job openings—24.4 percent—no change in hires.

Hires and separations

We see a more complete picture by analyzing hires and separations together than analyzing each separately, because the combined analysis shows gross worker flows.[12] Hires are a procyclical measure, rising during periods of economic growth and decreasing during periods of economic contraction. Total separations are more intricate; each component of total separations can provide information about the economic climate. Quits, which are voluntary separations, measure workers' ability or willingness to leave their jobs and are procyclical. Layoffs and discharges, which are involuntary separations initiated by the employer, are countercyclical. "Other separations" are a relatively small part of total separations and are unlikely to influence any overall trend in total separations. Quits are usually greater than layoffs and discharges. The only period in which layoffs and discharges outnumbered quits since the inception of the data series was during and just following the most recent recession. The composition of total separations can be seen in figure 16. Since the recession, quits have made up a larger proportion of total separations each year, while layoffs and discharges made up a smaller proportion of total separations each year.

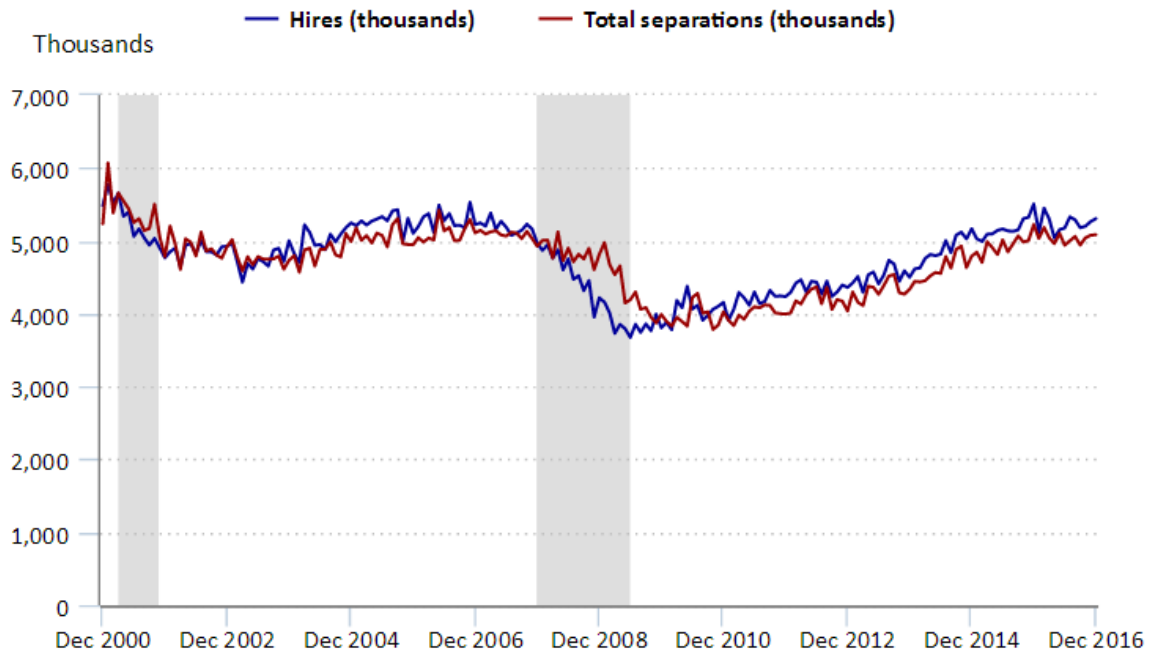
Figure 16. Composition of total separations during the 2007–09 recession and in 2016



Source: U.S. Bureau of Labor Statistics.

Hires have outnumbered total separations for most of JOLTS history, but during the recession, separations exceeded hires. (See figure 17.) Although both hires and total separations declined during the recession, hires declined at a faster pace and fell below separations in mid-2008. By November 2009, hires had increased and total separations decreased, bringing the two series to about the same level. In 2016, hires and total separations both trended upward: hires increased 3.6 percent, and total separations increased 1.0 percent.

Figure 17. Hires and total separations, total nonfarm, seasonally adjusted, December 2000–December 2016



Shaded areas represent recessions as determined by the National Bureau of Economic Research.
Click legend items to change data display. Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

Conclusion

JOLTS data for 2016 show that the labor market continued to improve, but at a slower pace than in 2015 and 2014. The number of job openings increased to the highest levels since the series began in 2000, indicating a rise in the demand for labor. However, in 2016 the growth in average monthly job openings slowed to 5.2 percent, compared with 17.6 percent in 2015. Annual hires also had smaller increases, up by 1.1 percent in 2016 versus 5.8 percent in 2015. Annual quits grew steadily over the year, increasing by 7.0 percent, which was slightly less than the 10.3-percent increase in 2015. Layoffs and discharges fell slightly and remained below prerecession levels. Although the increases were smaller in 2016, the growth of jobs and worker flows signaled continued confidence among employers and workers. Employers laid off fewer workers and hired additional workers. Workers were assured enough of job prospects and had sufficient incentives to leave their current positions.

SUGGESTED CITATION

Blanka M. Thibaud, "Job openings, hires, and separations rise, but at a slower pace, in 2016," *Monthly Labor Review,* U.S. Bureau of Labor Statistics, August 2017, https://doi.org/10.21916/mlr.2017.20.

NOTES

1 The North American Industrial Classification System (NAICS) is the standard used by federal statistical agencies in classifying business establishments. JOLTS, however, excludes agricultural establishments (NAICS 11) except logging (NAICS 1133) and private households (NAICS 814110).

2 The JOLTS sample provides data for four census regions: Northeast, South, Midwest, and West.

3 National Bureau of Economic Research, “U.S. business cycle expansions and contractions,” http://www.nber.org/cycles/.

4 From U.S. Bureau of Labor Statistics, *Handbook of methods*, chapter 18, “Job Openings and Labor Turnover Survey,” p. 2, https://www.bls.gov/opub/hom/pdf/homch18.pdf.

5 According to the *Handbook of methods*, “Job openings are a stock, or point-in-time, measurement on the last business day of each month. Only jobs still open on the last day of the month are counted. For the same reason that job openings are not be cumulated throughout each month, annual figures for job openings are not created by summing the monthly estimates. Because hires and separations are flow measures and are cumulated over the month with a total reported for the month, these annual figures are calculated by summing the monthly estimates.” From *Handbook of methods*, chapter 18, “Job Openings and Labor Turnover Survey,” p. 7, https://www.bls.gov/opub/hom/pdf/homch18.pdf.

6 For data on employment levels, see U.S. Bureau of Labor Statistics, “Current Employment Statistics—CES (National),” https://www.bls.gov/ces/.

7 Named for the British economist William Beveridge (1879–1963).

8 Bart Hobijn and Ayşegül Şahin, “Beveridge curve shifts across countries since the Great Recession,” paper presented at the 13th Jacques Polak Annual Research Conference, Washington, DC, November 8 and 9, 2012, https://www.imf.org/external/np/res/seminars/2012/arc/pdf/HS.pdf.

9 Regis Barnichon, Michael Elsby, Bart Hobijn, and Ayşegül Şahin, “Which industries are shifting the Beveridge curve?” *Monthly Labor Review*, June 2012, https://www.bls.gov/opub/mlr/2012/06/art2full.pdf.

10 Alan Krueger, Judd Cramer, and David Cho, “Are the long-term unemployed on the margins of the labor market?” *Brookings papers on economic activity*, Spring 2014, https://www.brookings.edu/bpea-articles/are-the-long-term-unemployed-on-the-margins-of-the-labor-market/.

11 Peter A. Diamond and Ayşegül Şahin, “Shifts in the Beveridge curve,” staff report no. 687 (Federal Reserve Bank of New York, August 2014), https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr687.pdf.

12 Gross worker flows refer to the net changes in the number of people employed and unemployed from month to month. See U.S. Bureau of Labor Statistics, Current Population Survey, https://www.bls.gov/cps/cps_flows.htm.

RELATED CONTENT

Related Articles

Employed workers leaving the labor force: an analysis of recent trends, *Monthly Labor Review*, May 2017.

Employment expansion continues but at a slower pace, *Monthly Labor Review*, April 2017.

Unemployment holds steady for much of 2016 but edges down in the fourth quarter, *Monthly Labor Review*, March 2017.

Job openings, hires, and separations return to prerecession levels in 2015, *Monthly Labor Review*, September 2016.

Job openings reach a new high, hires and quits also increase, *Monthly Labor Review*, June 2015.

Job openings continue to rise in 2013, *Monthly Labor Review*, May 2014.

Examination of state-level labor turnover survey data, *Monthly Labor Review*, January 2014.

Related Subjects

Labor dynamics | Separations | Unemployment | Employment | Layoffs | Jobseekers | Job mobility