Monthly Labor Review
September 2016

Job openings, hires, and separations return to prerecession levels in 2015

Job openings increased to their highest levels ever, and hires and separations exceeded their prerecession levels, in 2015, according to the BLS Job Openings and Labor Turnover Survey (JOLTS). The increase in both jobs and worker flows likely indicates growing confidence on the part of both employers and workers, with employers becoming more willing to hire and workers having sufficient incentives to leave their current positions.

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Data from the Job Openings and Labor Turnover Survey (JOLTS), conducted by the U.S. Bureau of Labor Statistics, showed labor market activity returning to prerecession levels in 2015 for several major indicators of the state of the economy, including hires, separations, and quits. Job openings reached 5.8 million in July, a series high for this indicator at the time; the average for the year was 5.3 million. Hires, with an average level of 5.1 million, exceeded their November 2007 prerecession level for the last 3 months of the year. In a reversal of historical patterns, job openings exceeded hires for 9 months in 2015. Total separations also approached their November 2007 prerecession level throughout the year and exceeded that level in December 2015; average total separations were 4.9 million for the year. The growth in total separations was pushed by a large increase in quits, which were up 11.5 percent in 2015. Quits averaged 2.8 million over 2015 and returned to prerecession levels for 4 of the last 5 months of the year.

Job Openings and Labor Turnover Survey

JOLTS measures job openings, hires, total separations, quits, layoffs and discharges, and other separations on a monthly basis. (See accompanying box.) Through a sample of approximately 16,000 nonfarm business establishments from all 50 states and the District of Columbia, JOLTS estimates labor demand and worker flows by industry[1] and geographic region.[2]

This article reviews JOLTS estimates from 2014 and 2015 and assesses how these measures have fared since the most recent recession. First, JOLTS data from 2015 are compared with JOLTS data from previous years by element (job openings, hires, total separations, quits, layoffs and discharges, and other separations). Also, the

JOLTS data elements are analyzed together and compared with data from other statistical series, including the Current Employment Survey (CES) and the Current Population Survey (CPS). The comparisons made will frequently include November 2007, the month before the most recent recession started, and June 2009, the last month of the most recent recession.[3] Except for annual data, all JOLTS data used in this report are seasonally adjusted.

Definitions of JOLTS terms

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, demotions, 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 have 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 that 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 and 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 from 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 comprised 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.

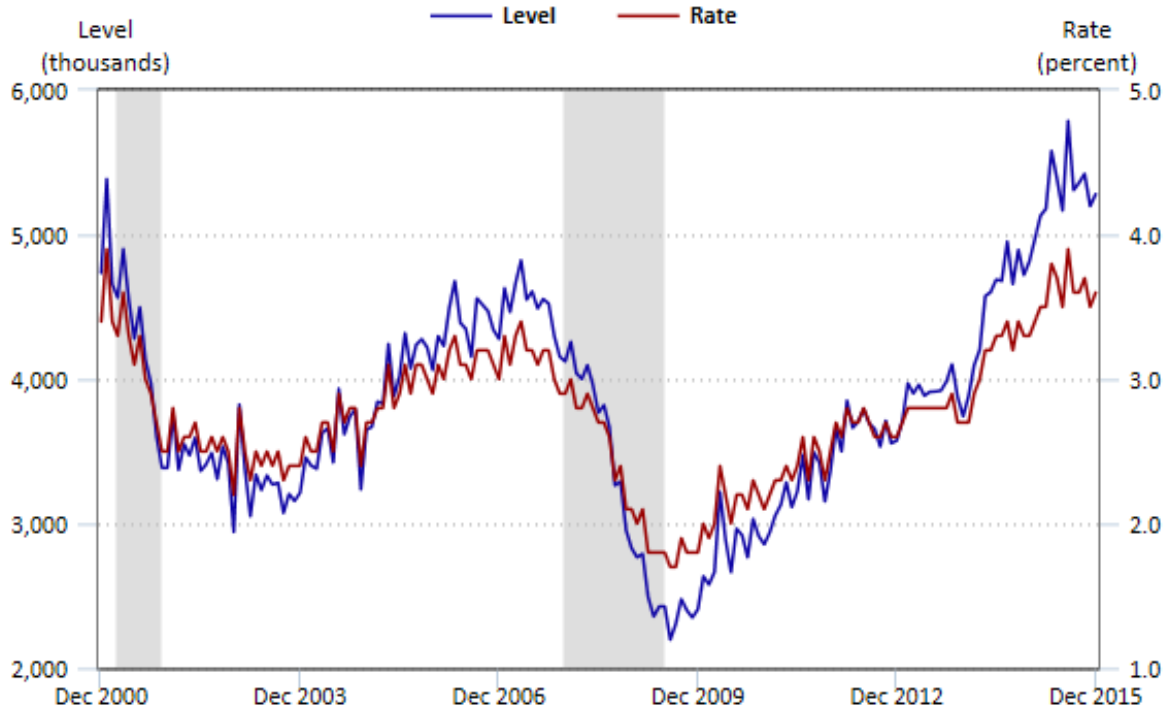
The *other separations* count includes retirements, transfers to other locations, deaths, and separations due to disability.

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 that quotient by 100. The quits, layoffs and discharges, and other separations rates are computed similarly.

Job openings

After increasing steadily since the end of the most recent recession, job openings levels reached a series high of 5.8 million in July 2015. (See figure 1.) Job openings rates also reached a series high (3.9 percent) in July 2015, matching a previous high reached in January 2001. Job openings levels decreased by 41.1 percent during the recession, but increased by 117.5 percent between June 2009 and December 2015. Job openings rates decreased by 37.9 percent during the recession, then increased by 100.0 percent between June 2009 and December 2015. The average level of job openings in 2015 was 5.3 million, an increase of 16.4 percent over the 2014 average of 4.6 million. (See table 1.) Annual levels of job openings have increased steadily each year since 2009. (See figure 2.)

Figure 1. Job openings, total nonfarm, seasonally adjusted, December 2000–December 2015



Note: Shaded areas represent recessions as designated by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

Table 1. Job openings,[1] by industry and region, not seasonally adjusted, in thousands, 2014 and 2015

Industry and region	Level		Change, 2014–15	
	2014	2015	Level	Percent
Total nonfarm	4,565	5,313	748	16.4
Total private	4,119	4,812	693	16.8
Mining and logging	28	16	-12	-42.6
Construction	131	144	13	10.3
Manufacturing	293	311	18	6.1
Durable goods	179	189	10	5.6
Nondurable goods	114	122	8	7.0
Trade, transportation, and utilities	802	913	111	13.8
Wholesale trade	148	163	16	10.5
Retail trade	485	546	61	12.7
Transportation, warehousing, and utilities	169	203	34	19.8
Information	105	107	2	1.9
Financial activities	278	327	49	17.5
Finance and insurance	224	253	28	12.6
Real estate and rental and leasing	54	74	20	37.8
Professional and business services	860	1,072	212	24.6
Education and health services	817	1,021	204	24.9

See footnotes at end of table.

Table 1. Job openings,[1] by industry and region, not seasonally adjusted, in thousands, 2014 and 2015

Industry and region	Level		Change, 2014–15	
	2014	2015	Level	Percent
Educational services	81	97	16	19.9
Health care and social assistance	736	924	188	25.5
Leisure and hospitality	657	726	70	10.6
Arts, entertainment, and recreation	72	65	-7	-9.0
Accommodation and food services	585	661	76	13.0
Other services	149	176	27	18.0
Government	446	501	55	12.3
Federal	62	72	10	16.1
State and local	383	429	46	11.9
State and local government education	132	153	21	15.7
State and local government, excluding education	252	276	24	9.7
Northeast	746	868	122	16.3
South	1,747	2,020	273	15.6
Midwest	1,020	1,195	176	17.2
West	1,052	1,229	177	16.8

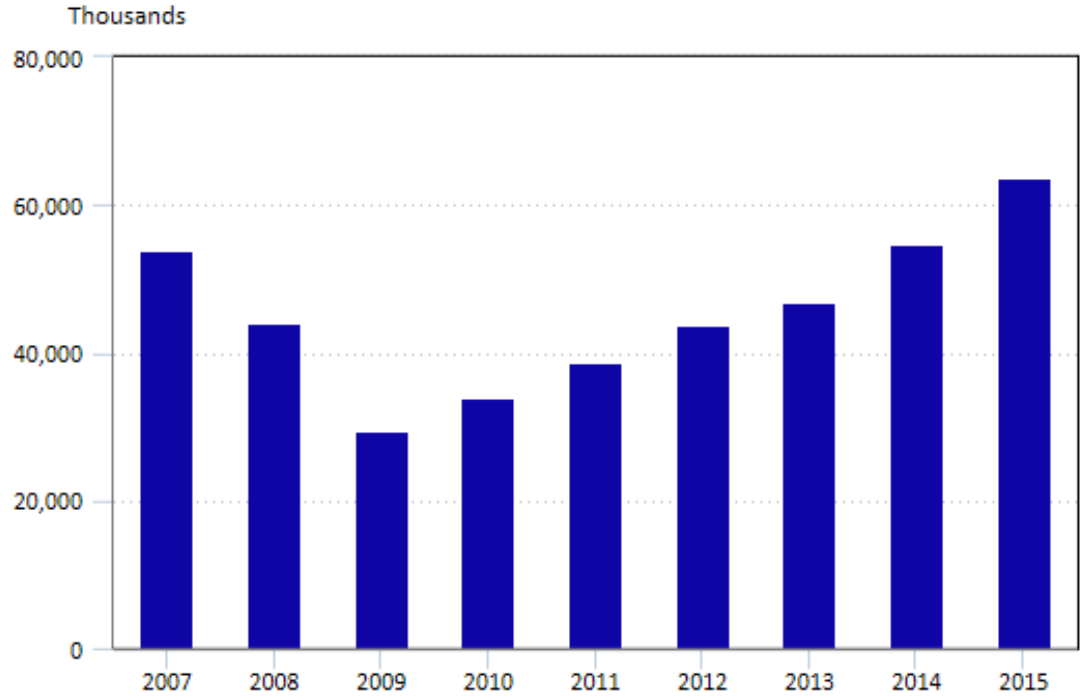
Notes:

[1] Average number of job openings on the last business day of each month during the year.

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

Source: U.S. Bureau of Labor Statistics.

Figure 2. Job openings, total nonfarm, not seasonally adjusted, 2007–15



Source: U.S. Bureau of Labor Statistics.

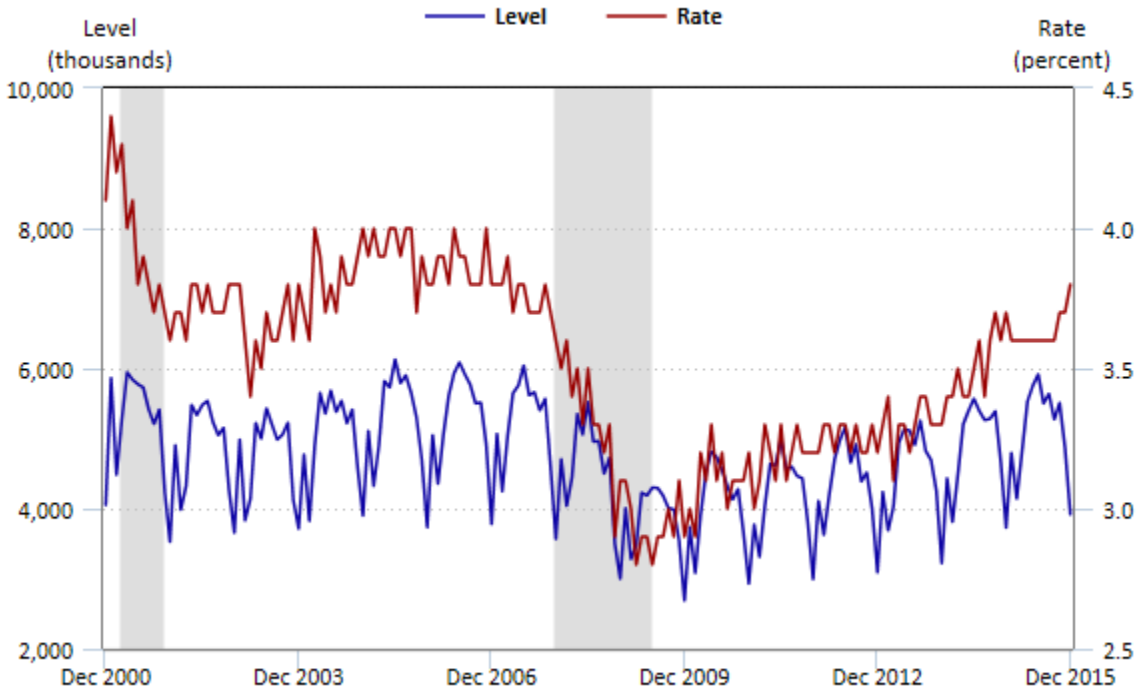
Job openings by industry and region

Within the industries, the largest increases in average annual job openings levels between 2014 and 2015 were in real estate and rental and leasing (37.8 percent); health care and social assistance (25.5 percent); professional and business services (24.6 percent); educational services (19.9 percent); and transportation, warehousing, and utilities (19.8 percent). All other industries also posted increases in job openings, except for mining and logging (–42.6 percent) and arts, entertainment, and recreation (–9.0 percent). Increases were similar in all four census regions, ranging from 15.6 percent in the South to 17.2 percent in the Midwest.

Hires

Hires have increased steadily each year since the end of the recession. (See figure 3.) After decreasing by 26.0 percent during the recession, hires levels increased by 47.0 percent between June 2009 and December 2015. Hires rates decreased by 22.2 percent during the recession and then increased by 35.7 percent between June 2009 and December 2015. Hires levels reached their November 2007 level of 5.2 million in December 2014 and were at or above that level for the last 3 months of 2015. Hires rates returned to the November 2007 rate of 3.7 percent in October 2014 and were between 3.6 percent and 3.8 percent for all of 2015. In 2015, hires averaged 5.1 million, an increase of 5.2 percent over the 2014 average of 4.9 million. (See table 2.) Annual levels of hires have increased every year since 2009. (See figure 4.)

Figure 3. Hires, total nonfarm, seasonally adjusted, December 2000–December 2015



Note: Shaded areas represent recessions as designated by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

Table 2. Hires,[1] by industry and region, not seasonally adjusted, in thousands, 2014 and 2015

Industry and region	Level		Change, 2014–15	
	2014	2015	Level	Percent
Total nonfarm	4,886	5,140	254	5.2
Total private	4,582	4,796	215	4.7
Mining and logging	33	26	-7	-21.4
Construction	313	326	13	4.2
Manufacturing	261	264	3	1.2
Durable goods	152	154	2	1.3
Nondurable goods	108	109	1	1.2
Trade, transportation, and utilities	1,068	1,084	17	1.6
Wholesale trade	146	140	-6	-4.2
Retail trade	738	757	20	2.7
Transportation, warehousing, and utilities	185	188	3	1.8
Information	74	79	5	6.1
Financial activities	193	197	5	2.3
Finance and insurance	126	133	7	5.2
Real estate and rental and leasing	67	65	-2	-2.9
Professional and business services	1,005	1,048	43	4.3
Education and health services	573	611	39	6.8
Educational services	82	82	-1	-.8

See footnotes at end of table.

Table 2. Hires,[1] by industry and region, not seasonally adjusted, in thousands, 2014 and 2015

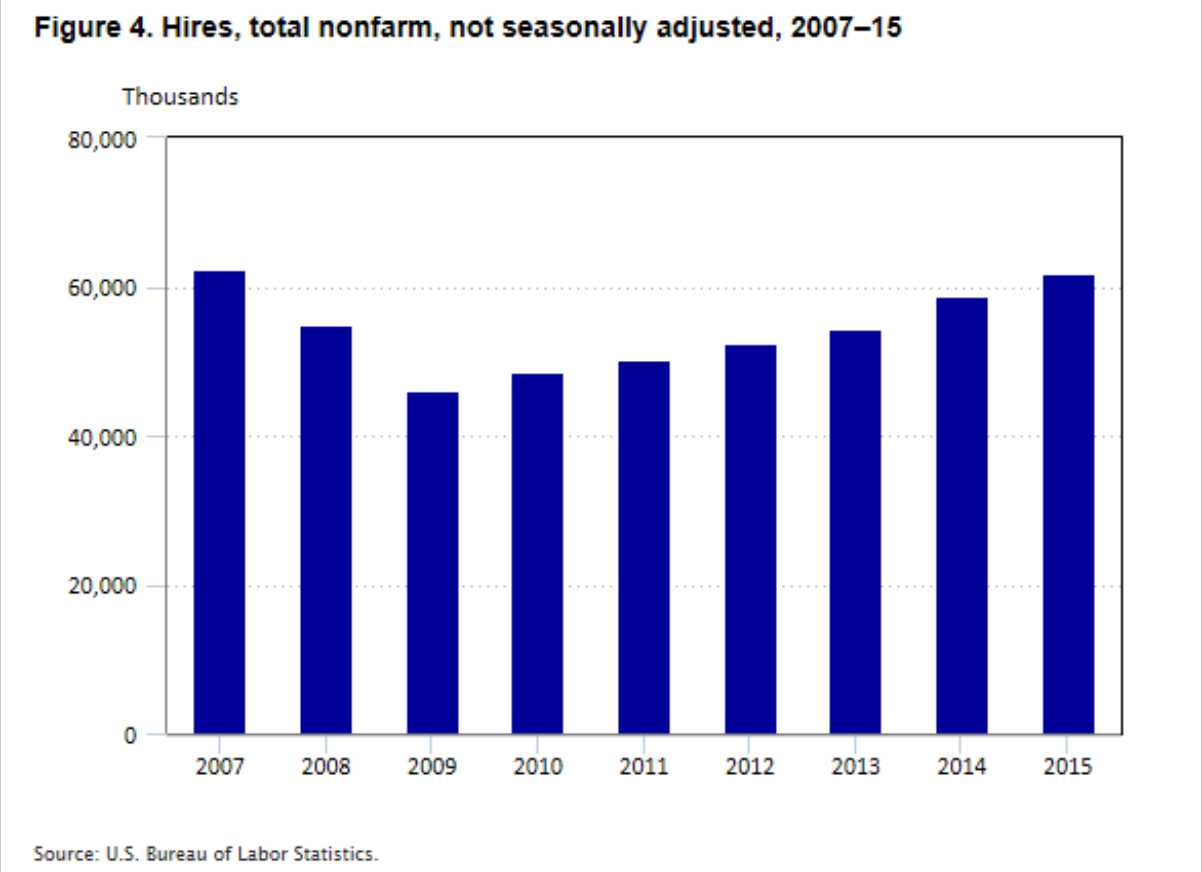
Industry and region	Level		Change, 2014–15	
	2014	2015	Level	Percent
Health care and social assistance	491	530	39	8.0
Leisure and hospitality	877	954	78	8.8
Arts, entertainment, and recreation	148	148	0	.2
Accommodation and food services	729	807	77	10.6
Other services	187	206	20	10.7
Government	304	344	39	12.9
Federal	33	40	7	22.8
State and local	272	304	32	11.7
State and local government education	130	150	20	15.6
State and local government, excluding education	142	154	12	8.4
Northeast	739	808	68	9.2
South	1,935	2,014	78	4.1
Midwest	1,091	1,153	62	5.7
West	1,121	1,166	45	4.0

Notes:

[1] Average number of hires over the entire month, for each month during the year.

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

Source: U.S. Bureau of Labor Statistics.



Hires by industry and region

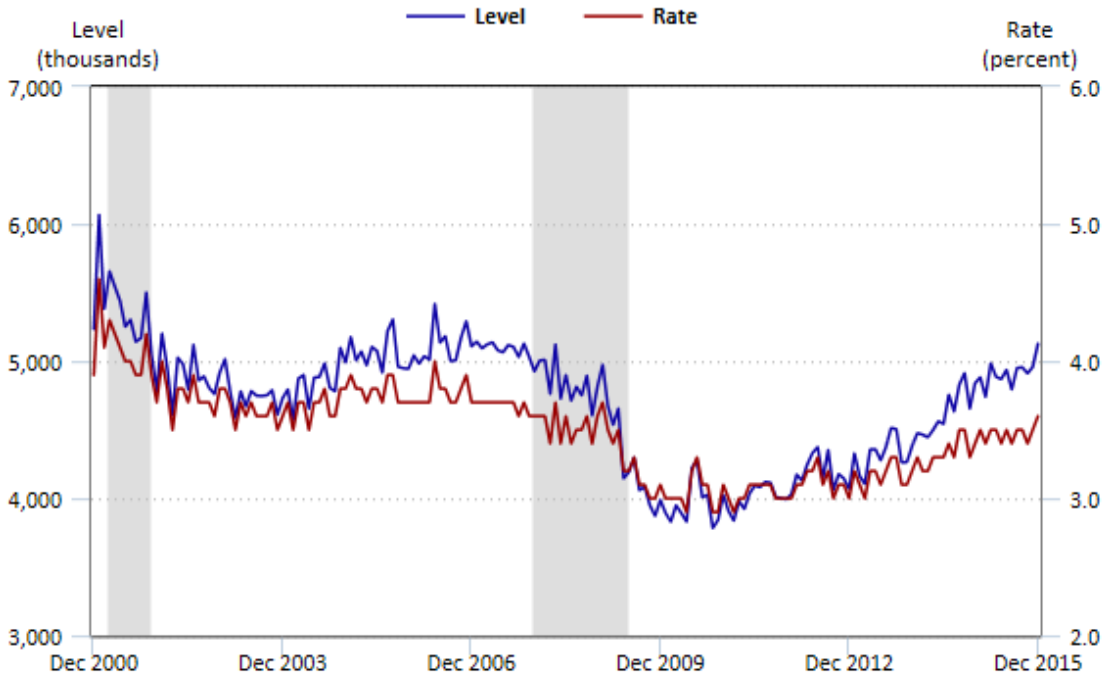
Within the industries, the largest increases in average annual hires levels between 2014 and 2015 were in federal government (22.8 percent), state and local government education (15.6 percent), other services (10.7 percent), and accommodation and food services (10.6 percent). All other industries experienced growth as well, except for mining and logging (–21.4 percent), wholesale trade (–4.2 percent), real estate and rental and leasing (–2.9 percent), and educational services (–0.8 percent). Increases in hires varied from a low of 4.0 percent in the West to 9.2 percent in the Northeast.

Total separations

Total separations, a measure that includes quits, layoffs and discharges, and other separations, have increased slowly compared with both job openings and hires since the end of the recession. (See figure 5.) After decreasing by 14.9 percent during the recession, total separations levels increased by 22.3 percent between June 2009 and December 2015. Total separations rates decreased by 11.1 percent during the recession and increased by 12.5 percent between June 2009 and December 2015. Total separations were at or near their November 2007 level (5.0 million) throughout 2015 and exceeded that level in December 2015. Rates were close to their November 2007 rate of 3.6 percent throughout 2015, ranging from 3.4 percent to 3.5 percent each month before reaching 3.6 percent in December 2015. The average monthly level of total separations in 2015 was 4.9 million, an increase of

6.0 percent over the 2014 average of 4.6 million. (See table 3.) Annual levels of separations have increased each year since 2010. (See figure 6.)

Figure 5. Total separations, total nonfarm, seasonally adjusted, December 2000–December 2015



Note: Shaded areas represent recessions as designated by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

Table 3. Total separations,[1] by industry and region, not seasonally adjusted, in thousands, 2014 and 2015

Industry and region	Level		Change, 2014–15	
	2014	2015	Level	Percent
Total nonfarm	4,635	4,912	277	6.0
Total private	4,342	4,580	238	5.5
Mining and logging	30	37	7	23.4
Construction	286	302	15	5.4
Manufacturing	244	262	18	7.3
Durable goods	139	156	17	12.0
Nondurable goods	105	106	1	1.1
Trade, transportation, and utilities	1,016	1,045	28	2.8
Wholesale trade	139	134	-5	-3.5
Retail trade	713	733	20	2.8
Transportation, warehousing, and utilities	164	178	13	8.1
Information	74	77	3	4.2
Financial activities	184	185	1	.7
Finance and insurance	121	123	2	1.4
Real estate and rental and leasing	62	62	0	-.5
Professional and business services	953	998	44	4.7

See footnotes at end of table.

Table 3. Total separations,[1] by industry and region, not seasonally adjusted, in thousands, 2014 and 2015

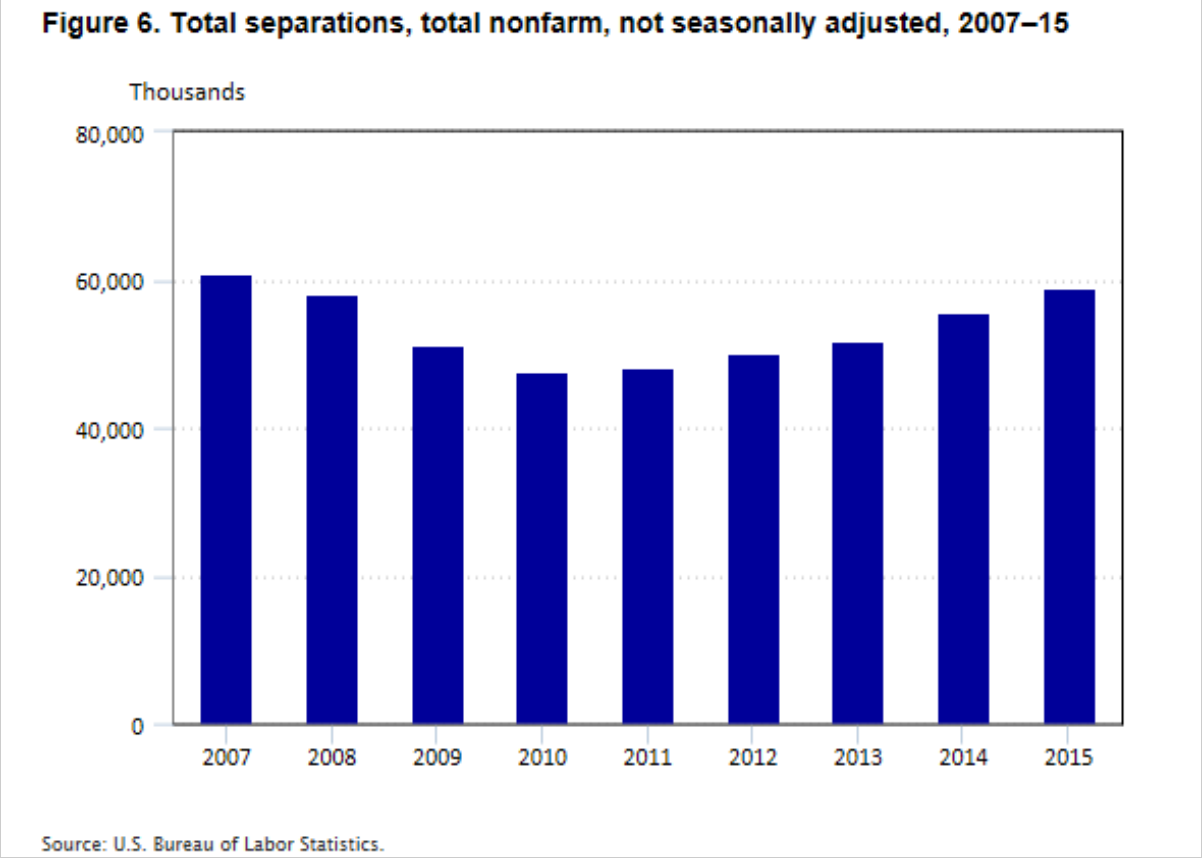
Industry and region	Level		Change, 2014–15	
	2014	2015	Level	Percent
Education and health services	530	554	24	4.6
Educational services	75	77	3	3.7
Health care and social assistance	455	477	21	4.7
Leisure and hospitality	843	921	77	9.2
Arts, entertainment, and recreation	143	142	-1	-.9
Accommodation and food services	700	779	79	11.2
Other services	182	201	20	10.7
Government	294	332	38	13.0
Federal	32	39	7	20.9
State and local	262	294	32	12.1
State and local government education	123	145	21	17.2
State and local government, excluding education	139	149	10	7.4
Northeast	728	767	39	5.4
South	1,829	1,946	117	6.4
Midwest	1,021	1,081	60	5.9
West	1,058	1,117	60	5.7

Notes:

[1] Average number of total separations over the entire month, for each month during the year.

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

Source: U.S. Bureau of Labor Statistics.



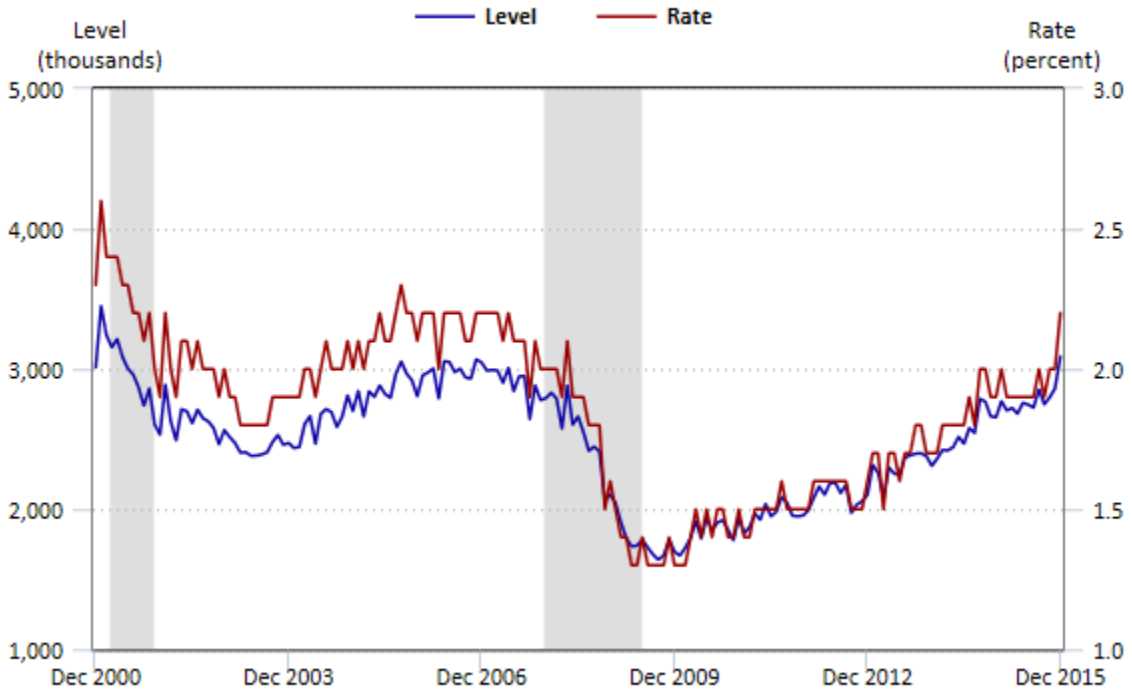
Total separations by industry and region

Within the industries, the largest increases in average annual total separations levels between 2014 and 2015 were in mining and logging (23.4 percent), federal government (20.9 percent), state and local government education (17.2 percent), durable goods manufacturing (12.0 percent), accommodation and food services (11.2 percent), and other services (10.7 percent). All other industries also had higher total separations in 2015 than in 2014, except for wholesale trade (–3.5 percent); arts, entertainment, and recreation (–0.9 percent); and real estate and rental and leasing (–0.5 percent). Increases in total separations ranged from 5.4 percent in the Northeast to 6.4 percent in the South.

Quits

Quits have shown strong growth since the end of the recession. (See figure 7.) After decreasing by 36.2 percent during the recession, quits levels increased by 73.3 percent between June 2009 and December 2015. Quits rates decreased by 30.0 percent during the recession, but increased by 57.1 percent between June 2009 and December 2015. With this growth, in September 2014 quits reached their November 2007 level of 2.8 million for the first time since the recession. Quits levels were at or above their November 2007 level for 4 months during 2015. Quits reached their November 2007 rate of 2.0 percent in September 2014 and were at or above that rate for 5 months during 2015. The average monthly quits level in 2015 was 2.8 million, an increase of 9.2 percent over the 2014 figure of 2.6 million. (See table 4.) Annual levels of quits have increased each year since 2009. (See figure 8.)

Figure 7. Quits, total nonfarm, seasonally adjusted, December 2000–December 2015



Note: Shaded areas represent recessions as designated by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

Table 4. Quits,[1] by industry and region, not seasonally adjusted, in thousands, 2014 and 2015

Industry and region	Level		Change, 2014–15	
	2014	2015	Level	Percent
Total nonfarm	2,550	2,785	235	9.2
Total private	2,409	2,627	218	9.1
Mining and logging	15	14	-1	-6.0
Construction	109	115	6	5.7
Manufacturing	121	137	16	13.3
Durable goods	67	78	11	16.8
Nondurable goods	54	59	5	9.0
Trade, transportation, and utilities	585	625	41	6.9
Wholesale trade	76	77	1	1.4
Retail trade	429	456	27	6.2
Transportation, warehousing, and utilities	80	93	13	15.9
Information	41	42	2	3.9
Financial activities	97	101	4	4.1
Finance and insurance	62	68	6	9.5
Real estate and rental and leasing	34	33	-2	-4.9
Professional and business services	468	516	48	10.3
Education and health services	321	366	45	14.0
Educational services	38	41	4	10.4

See footnotes at end of table.

Table 4. Quits,[1] by industry and region, not seasonally adjusted, in thousands, 2014 and 2015

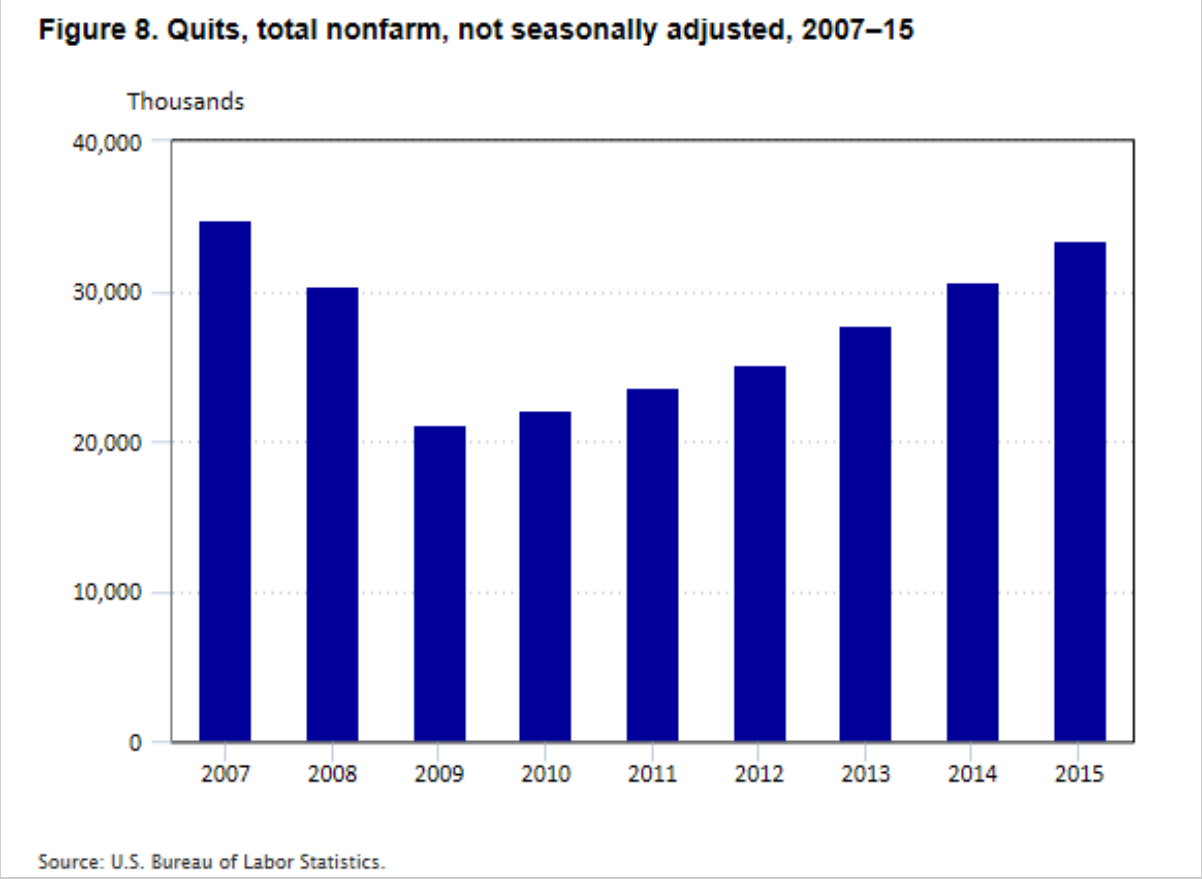
Industry and region	Level		Change, 2014–15	
	2014	2015	Level	Percent
Health care and social assistance	284	325	41	14.4
Leisure and hospitality	547	598	52	9.4
Arts, entertainment, and recreation	52	55	3	6.6
Accommodation and food services	495	543	48	9.7
Other services	106	112	7	6.2
Government	141	157	17	11.8
Federal	10	13	2	21.8
State and local	130	145	15	11.1
State and local government education	63	73	11	16.9
State and local government, excluding education	68	72	4	5.8
Northeast	347	392	45	13.0
South	1,064	1,154	90	8.5
Midwest	569	619	50	8.8
West	570	620	50	8.7

Notes:

[1] Average number of quits over the entire month, for each month during the year.

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

Source: U.S. Bureau of Labor Statistics.



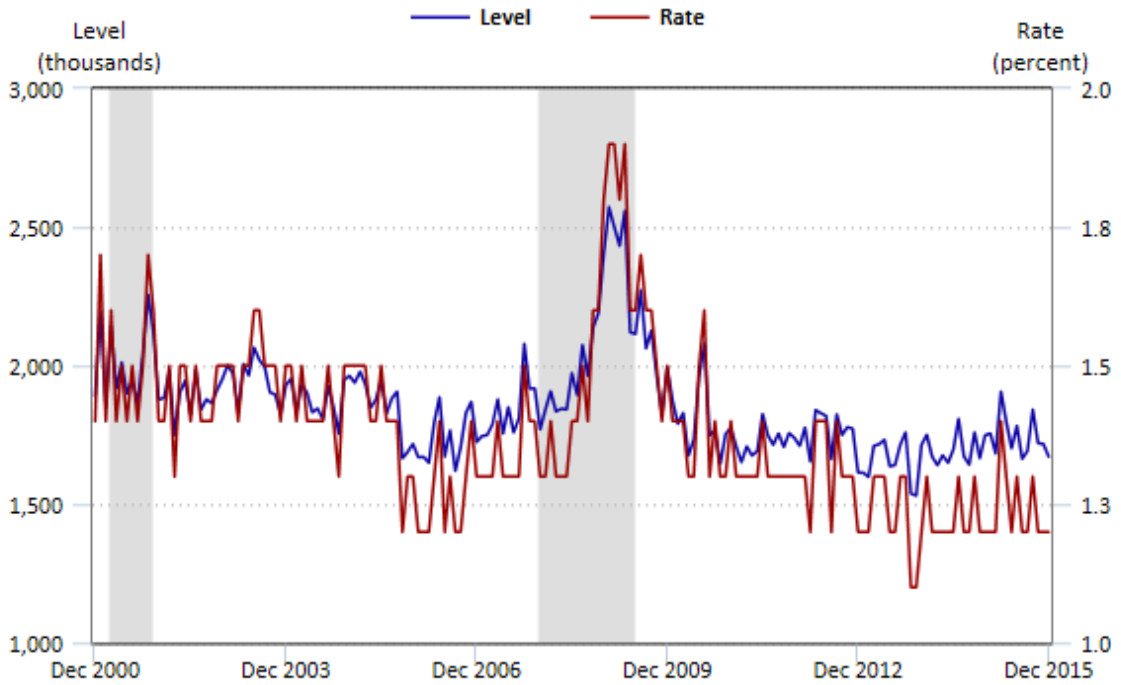
Quits by industry and region

Within the industries, the largest increases in average annual quits levels between 2014 and 2015 were in federal government (21.8 percent); state and local government education (16.9 percent); durable goods manufacturing (16.8 percent); and transportation, warehousing, and utilities (15.9 percent). Other industries experienced a rising number of quits as well, except for mining and logging (–6.0 percent) and real estate and rental and leasing (–4.9 percent). Increases in quits ranged from 8.5 percent in the South to 13.0 percent in the Northeast.

Layoffs and discharges

Layoffs and discharges began to decrease toward the end of the recession and have leveled off since mid-2011. (See figure 9.) After increasing by 19.5 percent during the recession, layoffs and discharges levels decreased by 20.9 percent between June 2009 and December 2015. Rates of layoffs and discharges increased by 23.1 percent during the recession and then decreased by 25.0 percent between June 2009 and December 2015. Average monthly layoffs and discharges were 1.7 million in 2015, similar to the 2014 figure. (See table 5.) Annual levels of layoffs and discharges have been fairly steady since 2010, with small increases during the last 2 years. (See figure 10.)

Figure 9. Layoffs and discharges, total nonfarm, seasonally adjusted, December 2000–December 2015



Note: Shaded areas represent recessions as designated by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

Table 5. Layoffs and discharges,[1] by industry, not seasonally adjusted, in thousands, 2014 and 2015

Industry and region	Level		Change, 2014–15	
	2014	2015	Level	Percent
Total nonfarm	1,702	1,745	44	2.6
Total private	1,613	1,635	23	1.4
Mining and logging	12	20	8	69.0
Construction	165	172	7	4.3
Manufacturing	98	102	4	4.5
Durable goods	58	64	6	10.2
Nondurable goods	40	39	-1	-2.9
Trade, transportation, and utilities	325	319	-7	-2.0
Wholesale trade	52	47	-5	-9.0
Retail trade	206	202	-3	-1.5
Transportation, warehousing, and utilities	68	69	2	2.3
Information	26	25	-1	-2.6
Financial activities	56	59	3	5.5
Finance and insurance	34	35	1	3.0
Real estate and rental and leasing	23	25	2	8.9
Professional and business services	432	423	-9	-2.0
Education and health services	167	142	-25	-15.0
Educational services	32	31	-2	-4.9

See footnotes at end of table.

Table 5. Layoffs and discharges,[1] by industry, not seasonally adjusted, in thousands, 2014 and 2015

Industry and region	Level		Change, 2014–15	
	2014	2015	Level	Percent
Health care and social assistance	135	112	-23	-17.3
Leisure and hospitality	268	294	26	9.7
Arts, entertainment, and recreation	88	83	-5	-6.0
Accommodation and food services	179	211	31	17.5
Other services	64	79	15	22.6
Government	89	110	21	23.1
Federal	11	12	1	12.5
State and local	78	98	19	24.5
State and local government education	38	48	10	26.3
State and local government, excluding education	41	50	10	23.6
Northeast	311	303	-8	-2.5
South	614	639	25	4.0
Midwest	372	387	15	4.1
West	405	417	12	3.0

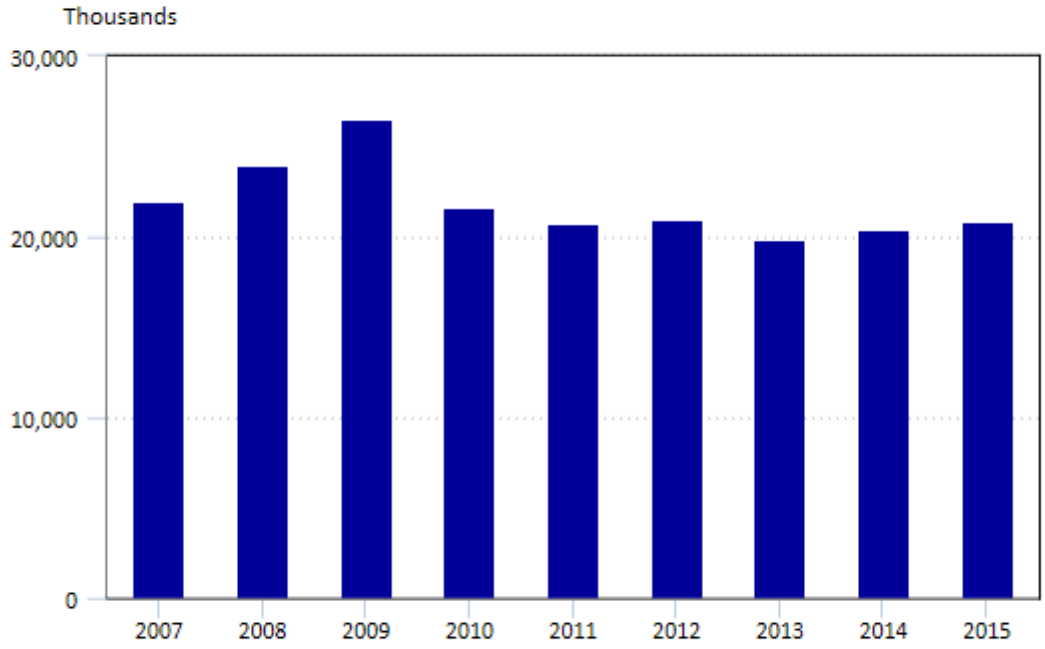
Notes:

[1] Average number of layoffs and discharges over the entire month, for each month during the year.

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

Source: U.S. Bureau of Labor Statistics.

Figure 10. Layoffs and discharges, total nonfarm, not seasonally adjusted, 2007–15



Source: U.S. Bureau of Labor Statistics.

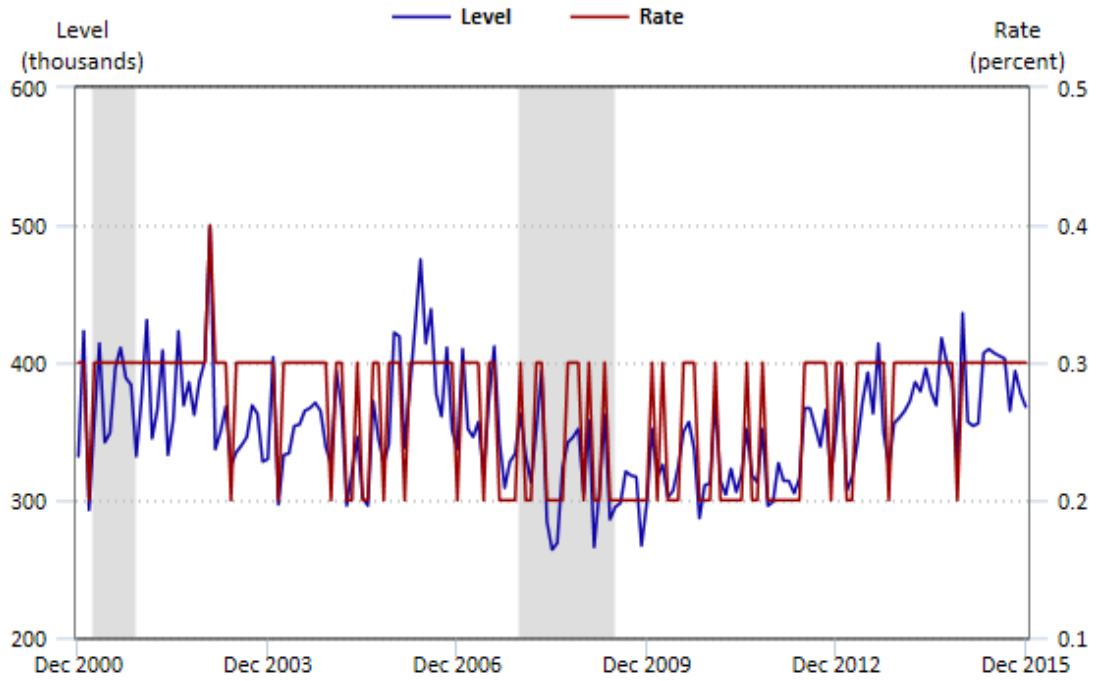
Layoffs and discharges by industry and region

Within the industries, the largest increases in average annual layoffs and discharges levels between 2014 and 2015 were in mining and logging (69.0 percent); state and local government education (26.3 percent); state and local government, excluding education (23.6 percent); other services (22.6 percent); and accommodation and food services (17.5 percent). Other industries had a mix of increases and decreases, with the largest decreases exhibited by health care and social assistance (–17.3 percent); wholesale trade (–9.0 percent); and arts, entertainment, and recreation (–6.0 percent). Changes in layoffs and discharges varied by region: layoffs and discharges decreased by 2.5 percent in the Northeast, while the other regions experienced increases in this measure, with a high of 4.1 percent in the Midwest.

Other separations

Other separations levels have shown little variation throughout JOLTS history, ranging from about 250,000 to 500,000 (see figure 11), with a series average of 353,000. Rates have also shown little variation, generally ranging from 0.2 percent to 0.3 percent. Other separations levels decreased by 18.7 percent during the recession and increased by 24.7 percent between June 2009 and December 2015, while rates decreased by 33 percent during the recession and increased by 50 percent between June 2009 and December 2015. Average monthly levels of other separations numbered 382,000 in 2015, close to the measure's 2014 average. (See table 6.) Annual levels of other separations have increased since 2011, but dropped slightly between 2014 and 2015. (See figure 12.)

Figure 11. Other separations, total nonfarm, seasonally adjusted, December 2000–December 2015



Note: Shaded areas represent recessions as designated by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

Table 6. Other separations,[1] by industry and region, not seasonally adjusted, in thousands, 2014 and 2015

Industry and region	Level		Change, 2014–15	
	2014	2015	Level	Percent
Total nonfarm	384	382	-2	-0.4
Total private	320	317	-3	-.8
Mining and logging	3	3	-1	-16.2
Construction	12	14	2	17.4
Manufacturing	25	23	-3	-10.6
Durable goods	15	14	0	-2.3
Nondurable goods	11	8	-2	-22.2
Trade, transportation, and utilities	106	101	-5	-5.1
Wholesale trade	11	10	-1	-10.9
Retail trade	78	75	-3	-4.2
Transportation, warehousing, and utilities	16	16	-1	-4.6
Information	7	9	2	23.6
Financial activities	31	25	-6	-18.4
Finance and insurance	26	21	-5	-19.9
Real estate and rental and leasing	5	5	-1	-10.9
Professional and business services	53	58	5	9.1
Education and health services	42	46	4	9.6
Educational services	5	6	1	11.7

See footnotes at end of table.

Table 6. Other separations,[1] by industry and region, not seasonally adjusted, in thousands, 2014 and 2015

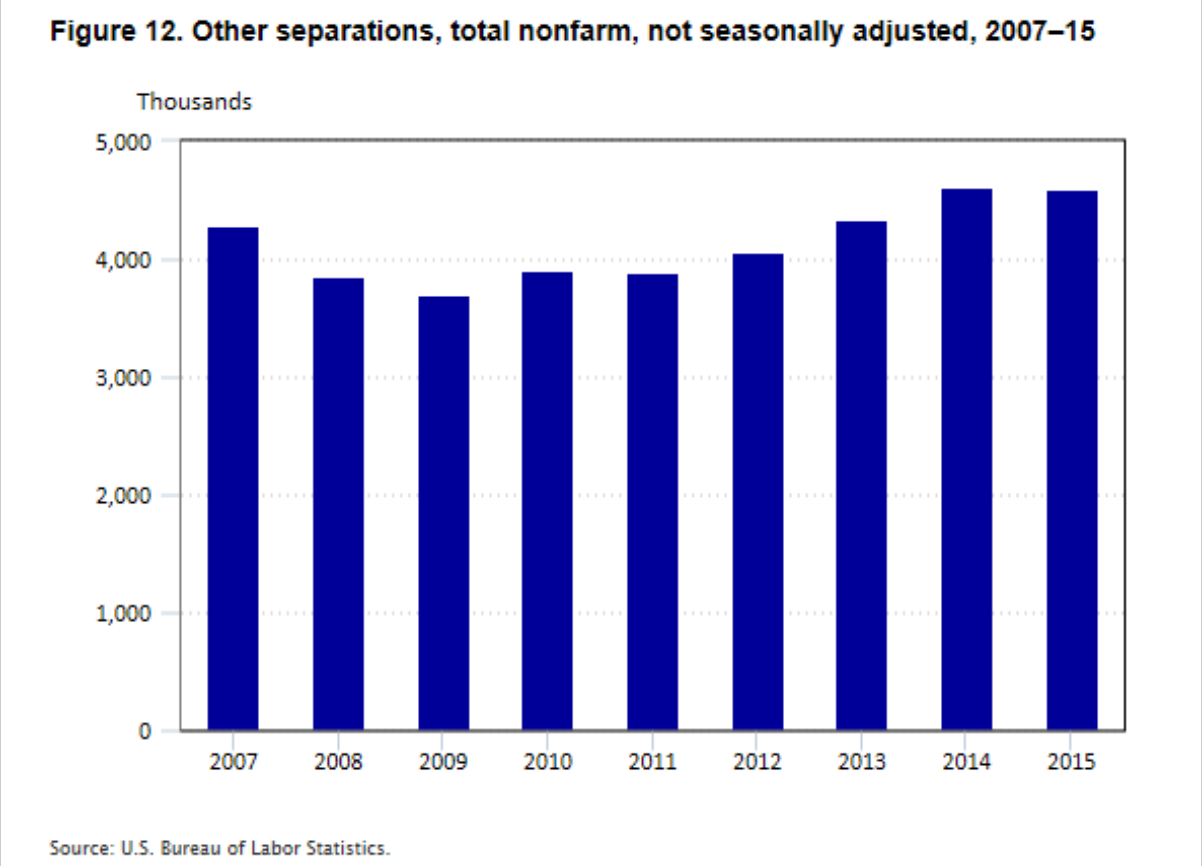
Industry and region	Level		Change, 2014–15	
	2014	2015	Level	Percent
Health care and social assistance	37	40	3	9.3
Leisure and hospitality	29	29	0	-.6
Arts, entertainment, and recreation	3	4	1	25.0
Accommodation and food services	26	25	-1	-2.9
Other services	12	10	-2	-13.0
Government	64	65	1	1.2
Federal	11	14	3	27.7
State and local	54	51	-2	-4.4
State and local government education	23	24	1	4.0
State and local government, excluding education	30	27	-3	-9.4
Northeast	70	73	3	3.8
South	151	154	3	1.9
Midwest	80	75	-5	-6.4
West	83	81	-2	-2.0

Notes:

[1] Average number of other separations over the entire month, for each month during the year.

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

Source: U.S. Bureau of Labor Statistics.



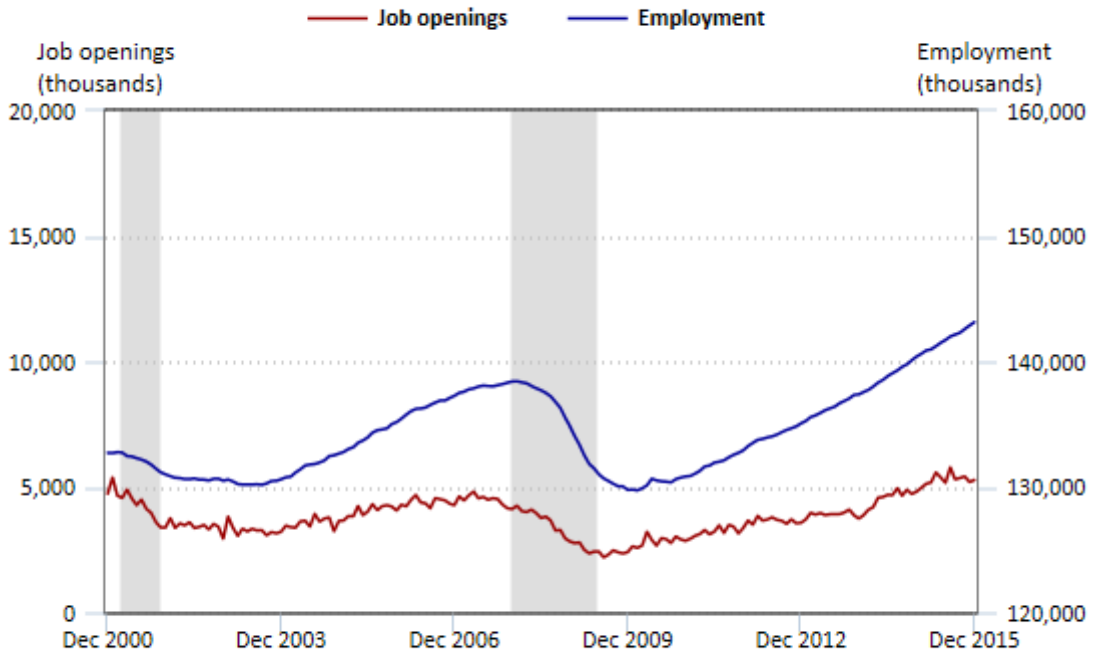
Other separations by industry and region

Within the industries, the largest increases in the average annual level of other separations between 2014 and 2015 were in federal government (27.7 percent); arts, entertainment, and recreation (25.0 percent); information (23.6 percent); and construction (17.4 percent). Other industries had a mix of increases and decreases, with the largest decreases posted in nondurable goods manufacturing (–22.2 percent), finance and insurance (–19.9 percent), and mining and logging (–16.2 percent). Changes in other separations varied by region, with increases in the Northeast (3.8 percent) and the South (1.9 percent) and decreases in the Midwest (–6.4 percent) and the West (–2.0 percent).

Job openings and employment

Job openings are a *procyclical*[4] measure of labor demand. During an economic expansion, employers demand more labor, increasing the number of job openings while adding to employment levels. By contrast, during an economic contraction, employers demand less labor, reducing the number of job openings while subtracting from employment levels. As a result of procyclicality, job openings and CES[5] employment figures tend to follow a similar pattern, with job openings leading employment slightly during both upturns and downturns of the business cycle. (See figure 13.)

Figure 13. Job openings and employment, total nonfarm, seasonally adjusted, December 2000–December 2015



Note: Shaded area represents recession as determined by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

This dynamic can be seen during the most recent recession. Job openings peaked at 4.8 million in April 2007, but declined to 4.1 million in December 2007, the first month of the recession. CES employment peaked later, at 138.4 million in January 2008. Both then declined rapidly during the recession. Job openings reached a low of 2.2 million in July 2009, the month following the end of the recession, but then began to increase, although employment continued to decline, to a low of 129.7 million in February 2010.

Unemployed people per job opening

Another way to analyze job openings and unemployment is to consider the ratio of unemployed people per job opening. This ratio is calculated by dividing the number of unemployed from the CPS[6] by the number of job openings. Job openings and unemployment levels generally move in opposite directions. That is, when the economy is strong, job openings are high and unemployment is low, and the ratio decreases. The situation reverses during a contraction, as the economy weakens and unemployment increases while job openings decrease, leading to a higher ratio. 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 14.)

Figure 14. Ratio of unemployed people to job openings, total nonfarm, seasonally adjusted, December 2000–December 2015

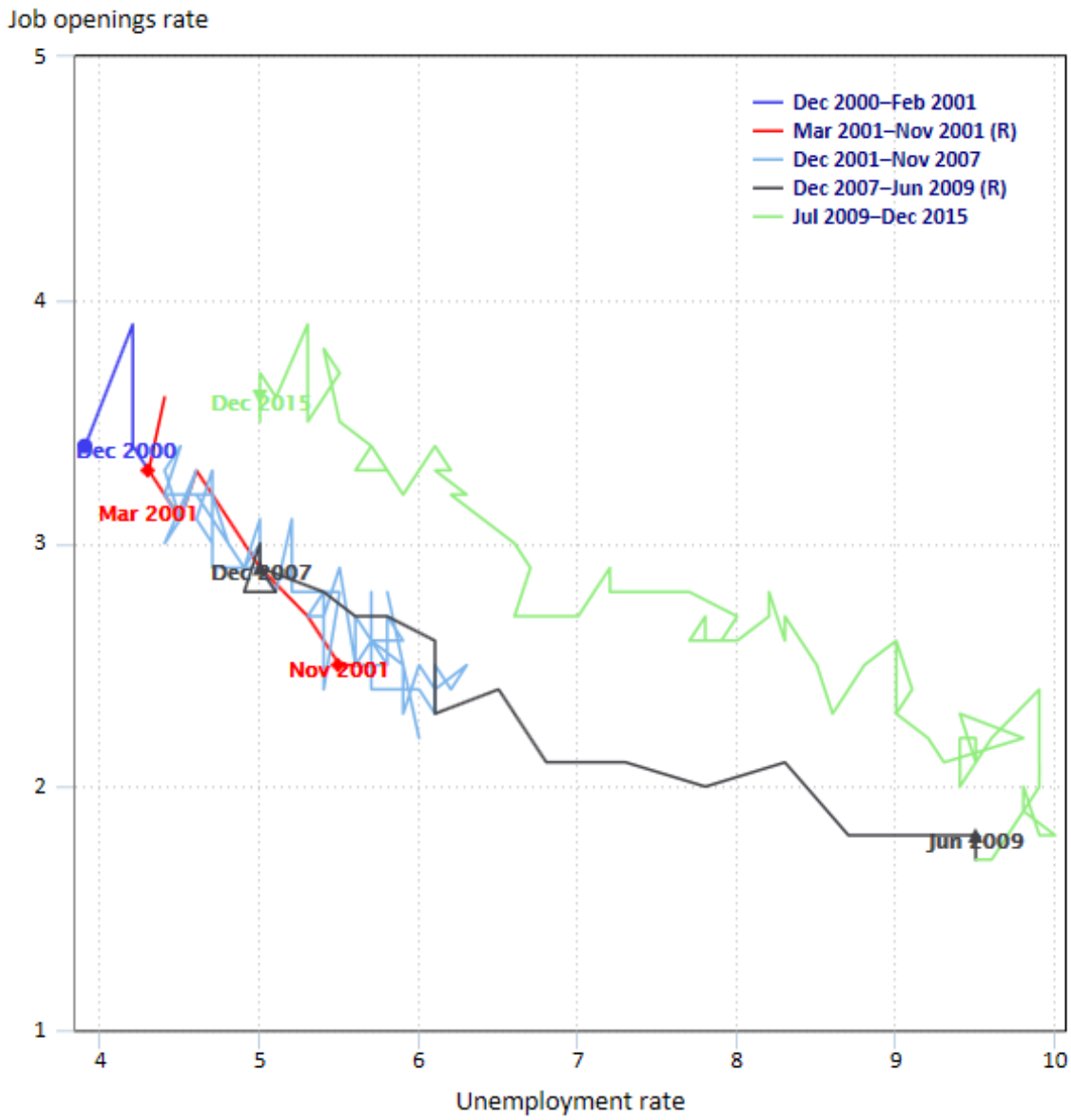
Note: Shaded area represents recession as determined by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

When the most recent recession began in December 2007, the number of unemployed people per job opening was 1.9. The ratio peaked at 6.6 unemployed people per job opening in July 2009, the month after the recession ended, and has trended down since. In 2015, the ratio of unemployed people per job opening ranged from a high of 1.8 to a low of 1.4. The average monthly ratio was 1.6 in 2015, down from 2.1 in 2014.

Beveridge curve

The Beveridge curve[7] plots the intersection of the job openings rate and the unemployment rate. Each point on the downward-sloping curve reflects the state of the business cycle, with the unemployment rate plotted on the *x*-axis and the job openings rate plotted on the *y*-axis. During an expansion, the unemployment rate is low and the job openings rate is high, so the monthly point on the curve is expected to be up and to the left on the graph. Conversely, during a contraction, the unemployment rate is high and the job openings rate is low, so the monthly point on the curve is expected to be down and to the right. (See figure 15.)

Figure 15. The Beveridge curve (job openings rate versus unemployment rate), seasonally adjusted, December 2000–December 2015



Note: R= recession.
Source: U.S. Bureau of Labor Statistics.

The Beveridge curve provides a way to analyze the inverse relationship between unfilled labor demand (measured by job openings) and excess labor supply (measured by the unemployment rate), because the position of the curve is determined by the efficiency of the labor market. Between December 2000, when the JOLTS program began, and August 2009, the Beveridge curve followed a relatively constant pattern. With the start of the most recent recession in December 2007, through the end of 2009, the series trended predictably lower and further 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, away from the historical trend. Since then, the curve has stayed up and to

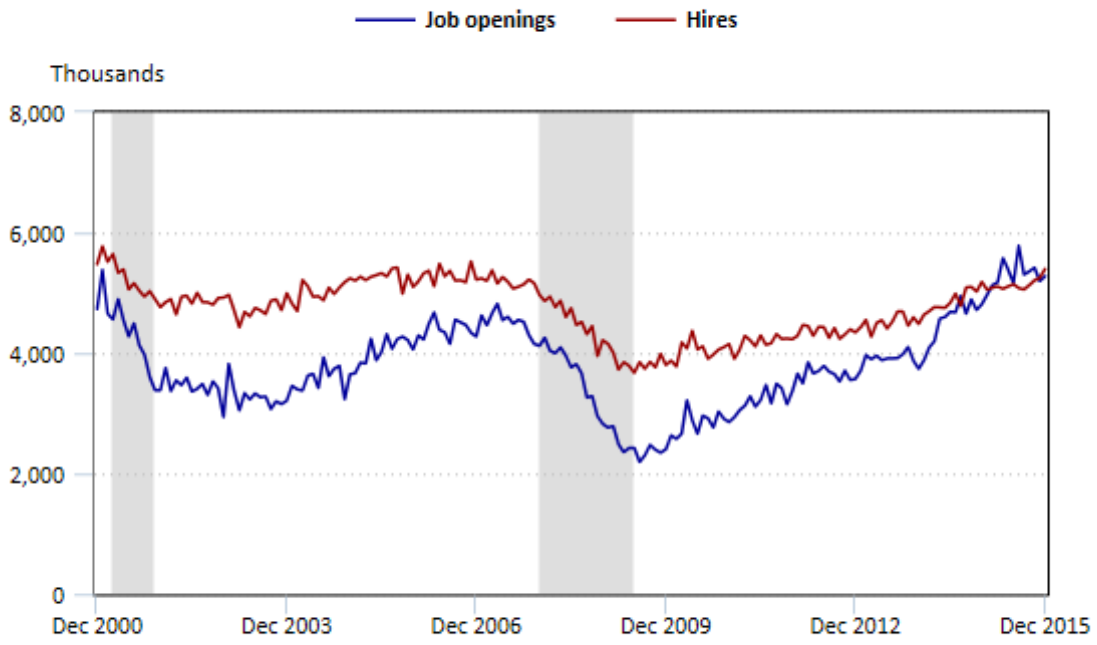
the right of the historical curve, following a new trajectory as the job openings rate has increased and the unemployment rate has decreased. The trajectory continued to the right of the original curve throughout 2015.

The shift of the Beveridge curve since September 2009 is a result of employers hiring fewer workers per job opening than would be expected from historical patterns. The cause of the shift, however, is subject to debate and includes cyclical, structural, and other factors. In 2012, Bart Hobijn 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. This decline, together with the extension of unemployment insurance (UI) benefits during the recession, led to the shift.[8] Also in 2012, Regis Barnichon, Michael Elsby, Hobijn, and Şahin hypothesized that a mismatch in skills required by employers and skills possessed by employees, along with a decline in recruiting intensity by employers facing uncertainty and search intensity by employees with longer periods of UI benefits, could have contributed to the shift.[9] Two years later, another study, by Alan Krueger, Judd Cramer, and David Cho, found that long-term unemployment increased during the recession, and the authors theorized that the slower rate of reemployment of the long-term unemployed could account for the shift.[10] That same year, Peter Diamond and Şahin argued that historical evidence indicates that a shift in the Beveridge curve following a recession is natural and should be interpreted as a cyclical pattern.[11] The general consensus among these papers is that the current shift is temporary and the points will eventually move back toward the original curve.

Job openings and hires

The monthly levels and rates of total nonfarm hires have exceeded those of job openings for most of JOLTS history. (See figure 16.) The primary reason is that job openings are a stock measure, meaning that they are counted only on the last business day of the month, whereas hires are a flow measure that includes the entire month of activity. 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. As a result, job openings levels exceeded hires for the first time in August 2014. Also in August 2014, the job openings and hires rates were the same for the first time in the series history. Periods during which job openings exceed hires may indicate that employers have unmet demand for workers. In February 2015, job openings levels exceeded hires and remained elevated for most of the year while the job openings rate was at or above the hires rate for 6 months of 2015.

Figure 16. Job openings and hires, total nonfarm, seasonally adjusted, December 2000–December 2015



Note: Shaded area represents recession as determined by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

Within the industries, the historical dynamic between hires and job openings levels has varied. Hires have almost always been greater than job openings in mining and logging; construction; nondurable goods manufacturing; 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 staying below them in other months. Job openings have regularly exceeded hires in information, finance and insurance, and health care and social assistance.

Job openings grew at a faster rate than hires in almost all industries between 2014 and 2015. (See table 7.) The largest difference was in real estate and rental and leasing, with hires decreasing by 2.9 percent and job openings increasing by 37.8 percent. Hires also decreased (by 4.2 percent), and job openings increased (by 10.5 percent), in wholesale trade. In most industries, both hires and job openings increased, with job openings recording the larger increase. The largest increases in job openings that were not offset by an increase in hires were in educational services; professional and business services; transportation, warehousing, and utilities; and health care and social assistance.

Table 7. Comparison of job openings [1] and hires,[2] levels and changes, by industry, seasonally adjusted, in thousands, 2014 and 2015

Industry	Level				Percent change, 2014–15		Difference in growth
	Job openings		Hires		Job openings	Hires	
	2014	2015	2014	2015			
Total nonfarm	4,565	5,313	4,886	5,140	16.4	5.2	11.2
Total private	4,119	4,812	4,582	4,796	16.8	4.7	12.1
Mining and logging	28	16	33	26	-42.6	-21.4	-21.2
Construction	131	144	313	326	10.3	4.2	6.1
Manufacturing	293	311	261	264	6.1	1.2	4.9
Durable goods	179	189	152	154	5.6	1.3	4.3
Nondurable goods	114	122	108	109	7.0	1.2	5.8
Trade, transportation, and utilities	802	913	1,068	1,084	13.8	1.6	12.2
Wholesale trade	148	163	146	140	10.5	-4.2	14.7
Retail trade	485	546	738	757	12.7	2.7	10.0
Transportation, warehousing, and utilities	169	203	185	188	19.8	1.8	18.0
Information	105	107	74	79	1.9	6.1	-4.1
Financial activities	278	327	193	197	17.5	2.3	15.2
Finance and insurance	224	253	126	133	12.6	5.2	7.4
Real estate and rental and leasing	54	74	67	65	37.8	-2.9	40.7
Professional and business services	860	1,072	1,005	1,048	24.6	4.3	20.3
Education and health services	817	1,021	573	611	24.9	6.8	18.2
Educational services	81	97	82	82	19.9	-.8	20.7
Health care and social assistance	736	924	491	530	25.5	8.0	17.5
Leisure and hospitality	657	726	877	954	10.6	8.8	1.7
Arts, entertainment, and recreation	72	65	148	148	-9.0	.2	-9.3
Accommodation and food services	585	661	729	807	13.0	10.6	2.4
Other services	149	176	187	206	18.0	10.7	7.3
Government	446	501	304	344	12.3	12.9	-.6
Federal	62	72	33	40	16.1	22.8	-6.7
State and local	383	429	272	304	11.9	11.7	.1
State and local government education	132	153	130	150	15.7	15.6	.2
State and local government, excluding education	252	276	142	154	9.7	8.4	1.3

Notes:

[1] Average number of job openings on the last business day of each month during the year.

[2] Average number of hires over the entire month, for each month during the year.

Source: U.S. Bureau of Labor Statistics.

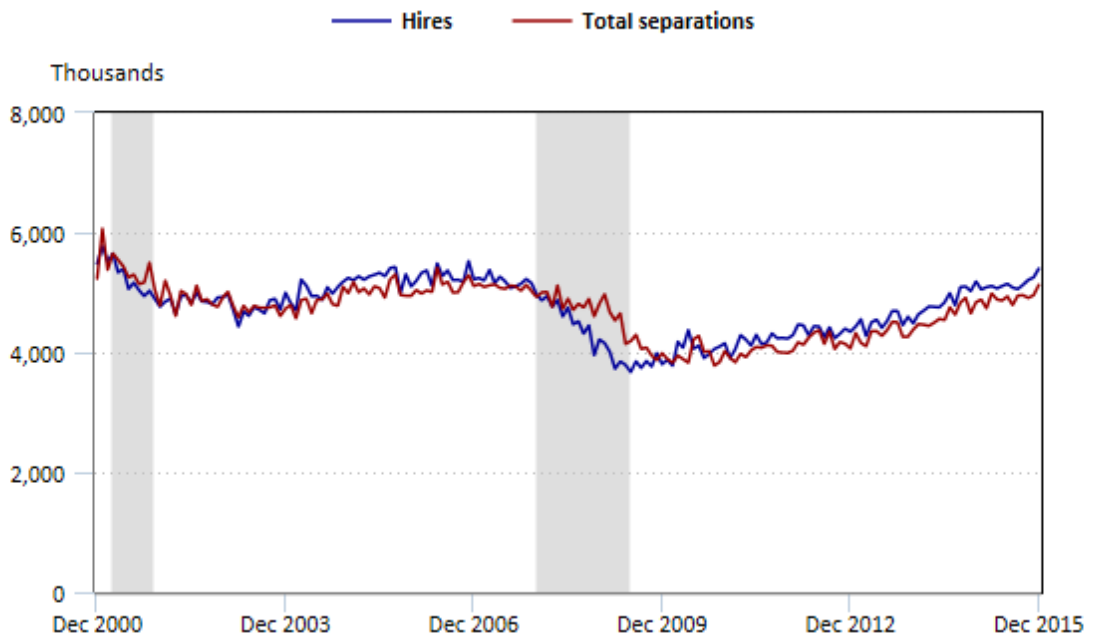
Hires and separations

Analyzing hires and separations together provides a more complete picture than analyzing each separately, because the combined analysis demonstrates worker flows. Hires are a procyclical measure, increasing during expansions and decreasing during recessions. Total separations are more complex, and each component can provide information about the economic climate. Quits, which are voluntary separations and measure workers'

ability or willingness to leave their jobs, are also 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.

Hires have generally outnumbered total separations, except during the recession, when there were more separations than hires. (See figure 17.) The reason for the reversal was a combined decrease in hires and increase in layoffs and discharges, with the latter leading to an increase in total separations despite a decrease in quits. In 2015, hires and total separations showed similar patterns: hires increased 6.9 percent, and total separations increased 5.0 percent, between January and December.

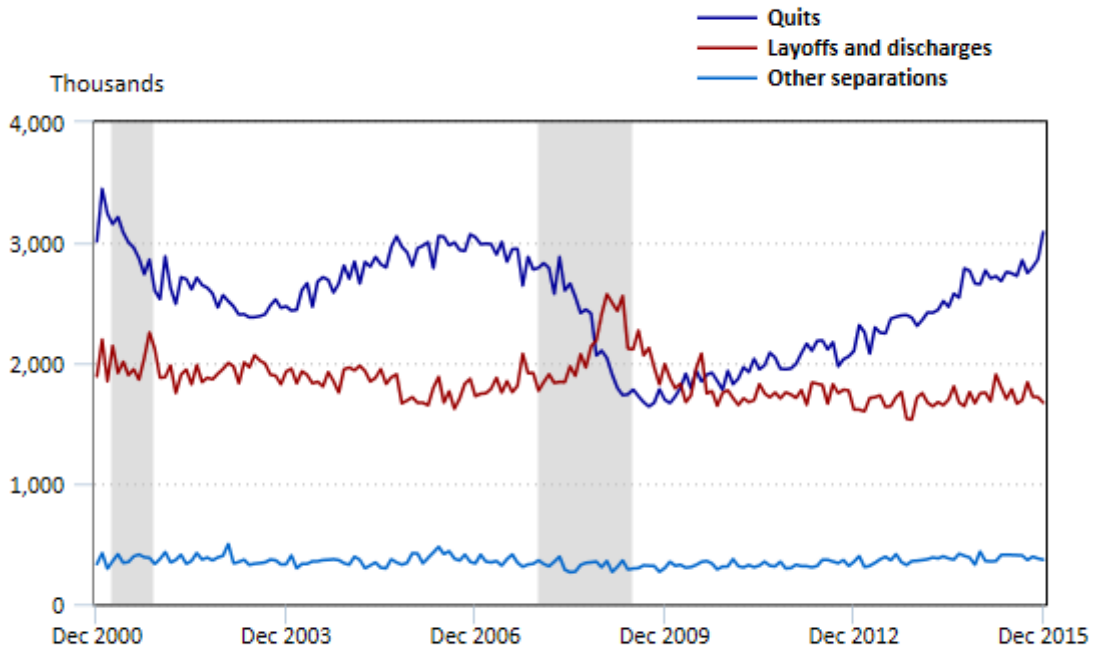
Figure 17. Hires and total separations, total nonfarm, seasonally adjusted, December 2000–December 2015



Note: Shaded area represents recession as determined by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

Within total separations, quits are generally greater than layoffs and discharges. (See figure 18.) The only year during JOLTS history in which average layoffs and discharges outnumbered quits was 2009. Since then, quits (as a percentage of total separations) have increased each year while layoffs and discharges (also as a percentage of total separations) have decreased each year. In 2015, the difference between quits and layoffs grew: quits increased 11.5 percent, and layoffs and discharges decreased 4.8 percent, between January and December.

Figure 18. Quits, layoffs and discharges, and other separations, total nonfarm, seasonally adjusted, December 2000–December 2015



Note: Shaded area represents recession as determined by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

Conclusion

JOLTS data for 2015 show that the labor market continued to improve throughout the year. Job openings increased to the highest levels seen since the series began in 2000, indicating further increases in demand for labor. Hires and quits grew steadily over the year, with both returning to levels last seen in November 2007 by the end of the year. This increase in jobs and worker flows is likely indicative of growing confidence on the part of employers and workers, with employers becoming more willing to hire and workers having sufficient incentives to leave their current positions.

SUGGESTED CITATION

Ainslie MacLeod, "Job openings, hires, and separations return to prerecession levels in 2015," *Monthly Labor Review,* U.S. Bureau of Labor Statistics, September 2016, https://doi.org/10.21916/mlr.2016.40.

NOTES

[1] The North American Industrial Classification System (NAICS) is the standard used by federal statistical agencies in classifying business establishments. For JOLTS, NAICS industries that are out of scope are establishments engaged in agriculture, forestry, fishing, and hunting (NAICS 11), except for logging (NAICS 1133); and private households (NAICS 814110). JOLTS publishes at the two-digit supersector level.

[2] The JOLTS sample provides data for four geographical regions defined by the U.S. Census Bureau: Northeast, South, Midwest, and West.

[3] See "US business cycle expansions and contractions" (National Bureau of Economic Research, updated daily), http://www.nber.org/cycles/.

[4] "Procyclic is a condition of positive correlation between the value of a good, a service or an economic indicator and the overall state of the economy. In other words, the value of the good, service or indicator tends to move in the same direction as the economy, growing when the economy grows and declining when the economy declines." (*Investopedia*, http://www.investopedia.com/terms/p/procyclical.asp.)

[5] For data on employment levels, see "Current Employment Statistics – CES (National)" (U.S. Bureau of Labor Statistics), https://www.bls.gov/ces/.

[6] For data on unemployment levels, see "Labor force statistics from the Current Population Survey" (U.S. Bureau of Labor Statistics), https://www.bls.gov/cps/.

[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, pp. 25–37, 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, hhttps://www.brookings.edu/wp-content/uploads/2016/07/2014a_Krueger.pdf

[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.

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