

## Job openings and hires continue to show modest changes in 2011

*JOLTS data indicate that labor market increases continued to be modest in 2011 after a year of similarly slow growth in 2010; total separations remained at or near historic lows in 2011*

Guy L. Podgornik

**J**ob Openings and Labor Turnover Survey (JOLTS) data showed slight improvement in 2011, continuing a trend of modest gains since the recession ended in June 2009.<sup>1</sup> The seasonally adjusted number of job openings—a measure of labor demand—increased from 2.2 million in July 2009 and 2.9 million in December 2010 to 3.5 million in December 2011. While the level shows improvement, it is still well below the 4.3 million recorded in December 2007 at the onset of the recession. The hires level—a measure of worker flows—increased from 3.7 million at the end of the recession to 4.2 million in December 2011. The separations level, another worker-flow measure, decreased from 4.2 million in June 2009 to 4.0 million in December 2011; the series high was 4.7 million in February 2009. The number of quits—one of the components of total separations—edged up slightly in 2011, while the number of layoffs and discharges—another component of total separations—remained near historic lows for the second year in a row.

The JOLTS program measures job openings, hires, and separations on a monthly basis by industry<sup>2</sup> and geographic region. JOLTS measures labor demand by collecting data monthly from a sample of approxi-

mately 16,400 nonfarm business and government establishments. Published JOLTS data are available from December 2000 forward. Unless otherwise noted, JOLTS data used in this report are seasonally adjusted. This article analyzes trends in JOLTS data through December 2011.

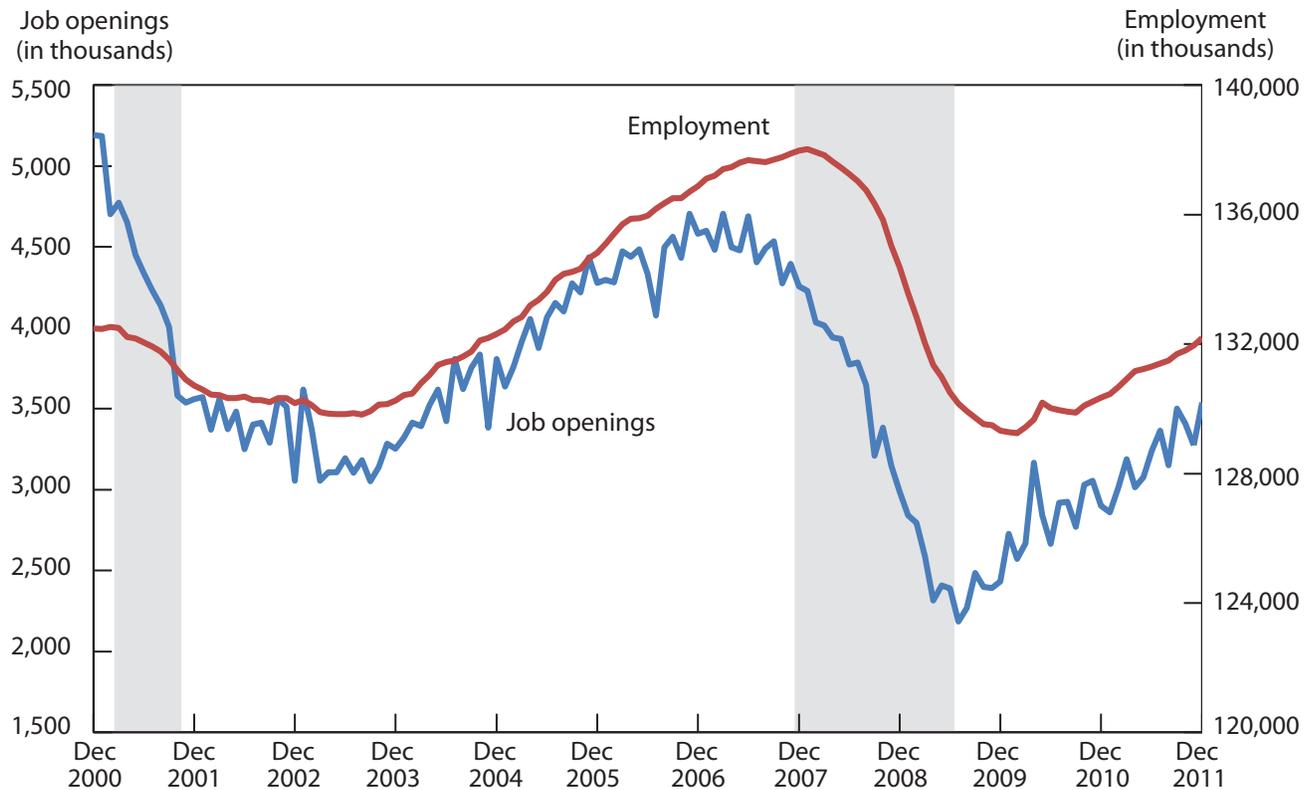
### Job openings

Job openings reflected a contraction in labor demand during the most recent recession. The number of total nonfarm job openings peaked at 4.7 million in March of 2007, several months before the beginning of the recession, while nonfarm payroll employment peaked at 138 million in January 2008. Job openings declined to a series trough of 2.2 million in July 2009, one month after the end of the recession. Total nonfarm employment reached a series trough of 129 million in February of 2010. Since the end of the recession, the number of job openings climbed steadily to 3.5 million in December 2011. Total nonfarm employment also increased throughout 2011; however, at the end of 2011 both series remained below their prerecession levels. (See chart 1.)

Between the last two recessions, job openings and nonfarm payroll employment had

Guy L. Podgornik is an economist in the Division of Administrative Statistics and Labor Turnover in the Office of Employment and Unemployment Statistics at the Bureau of Labor Statistics. Email: podgornik.guy@bls.gov.

**Chart 1. JOLTS total nonfarm job openings and CES total nonfarm employment, both seasonally adjusted, December 2000–December 2011**



NOTE: Shaded areas denote recessions as determined by the National Bureau of Economic Research.  
SOURCE: U.S. Bureau of Labor Statistics.

similar growth trends, with changes in job openings leading employment by a few months. As the 2007–2009 recession approached, job openings began to level off and then started to fall. Nonfarm employment had a similar trend but with a lag of a few months as companies reacted to the economic slowdown by cancelling hiring plans before cutting existing jobs.

Because of the cyclical sensitivity of the job openings series, the decline of job openings during the recent recession was much steeper than the drop in nonfarm employment. Similarly, the increase in job openings in the months just after the end of the recession was steeper than the increase in nonfarm employment. In 2010 and 2011, job openings and nonfarm employment trended fairly closely.

*Job openings by industry.* The monthly job openings level for all published industries trended downward during the recession, with all but two industries falling to series lows during 2009. (Job openings for both healthcare and

social assistance and state and local government trended downward during the recession and reached series lows in 2010.) Since reaching series lows, all published industries have seen increases in job openings levels in 2010 and 2011. Two industries—construction and manufacturing—have had much shallower growth in job openings than other industries.

*Job openings by region.* JOLTS data are published by geographical breakout for the Midwest, Northeast, South, and West regions. All four regions reported job openings trends similar to that of the nation leading up to and during the recession. In all four regions, job openings peaked in late 2006 through 2007 before the beginning of the recession and job openings fell to their lowest point just after the end of the recession. From their respective high point to their low point, job openings declined by 1,126,000 in the South (57.8 percent), 701,000 in the West (59.3 percent), 439,000 in the Midwest (50.4 percent), and 418,000 in the Northeast (49.0 percent).

From their respective series lows until December 2011, job openings have grown by 621,000 in the South (75.5 percent), 331,000 in the Midwest (76.6 percent), 259,000 in the West (53.8 percent), and 151,000 in the Northeast (34.0 percent).

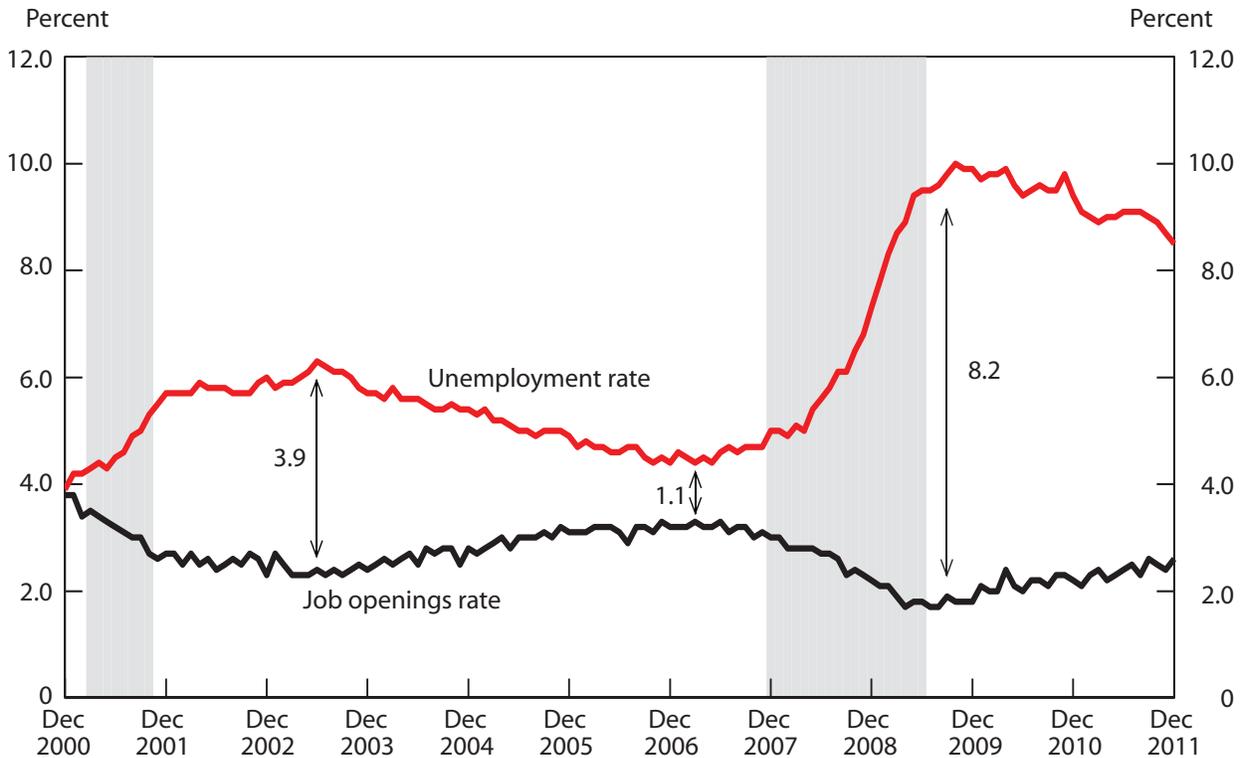
*Job openings and unemployment.* The JOLTS total non-farm job openings rate<sup>3</sup> and the national unemployment rate from the Current Population Survey move inversely. During an economic expansion, the unemployment rate drops while the job openings rate climbs. Conversely, during an economic contraction, the unemployment rate increases while the job openings rate decreases. Chart 2 illustrates the inverse relationship between these two series; the rates generally move towards each other during expansions and away from each other during contractions. The difference between the two series was 1.1 percentage points in March 2007, just prior to the beginning of the recession. After that point, the unemployment rate began to climb and the job openings rate began to fall.

The difference between the two series grew during the recession, reaching a high of 8.2 percentage points in October 2009. From October 2009 until December 2011, the unemployment rate declined gradually while the job openings rate increased gradually. In December 2011, the difference between the two series had narrowed to 5.9 percentage points.

As shown in chart 3, the ratio of unemployed persons per job opening reached its most recent low in March 2007 at 1.4 persons per job opening and began to climb through the onset of the recession. The ratio began to increase more steeply beginning in April 2008 until it reached a series high of 6.7 unemployed persons per job opening in July 2009. Since that time the ratio has fallen steadily, declining to 3.7 in December 2011.

The Beveridge curve is the economic model used to examine the inverse relationship between labor demand (as measured by job openings) and labor supply (as measured by the number of unemployed people) over time.<sup>4</sup> The curve plots the job openings rate with respect to

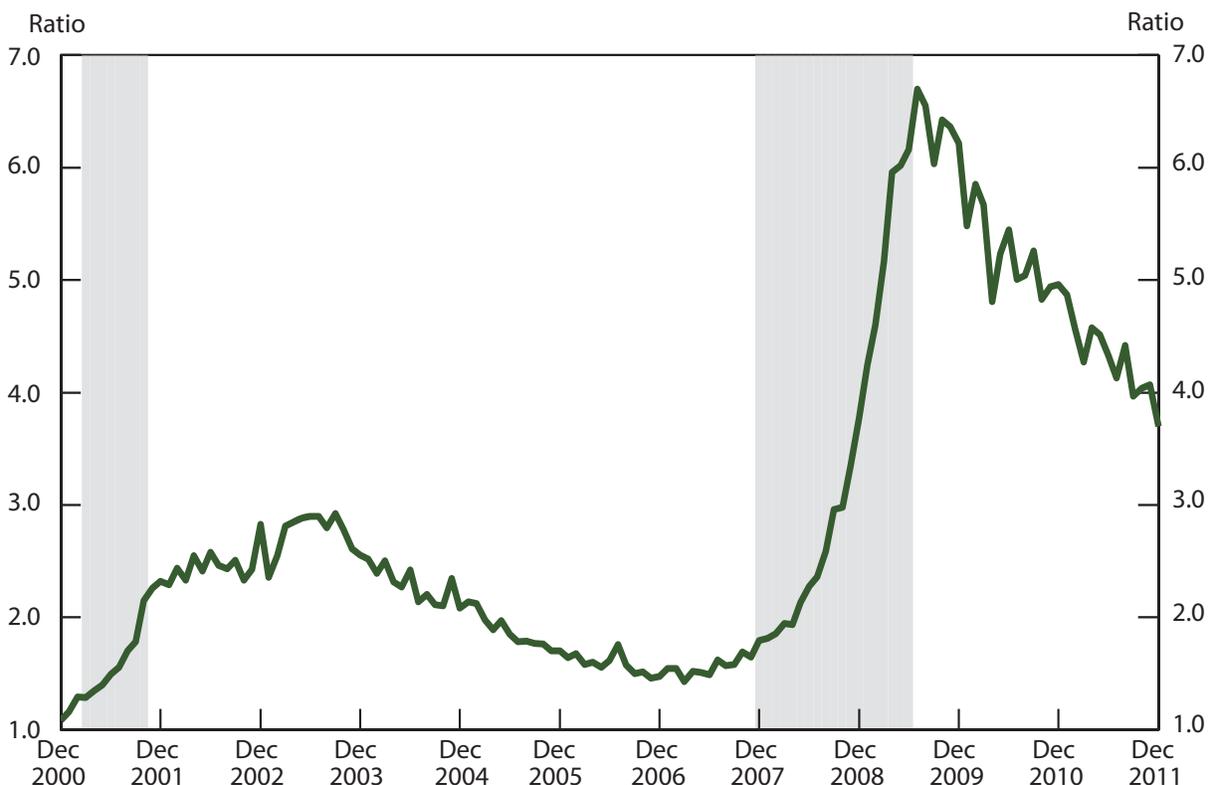
**Chart 2. JOLTS job openings rate and CPS unemployment rate, both seasonally adjusted, December 2000–December 2011**



NOTE: Shaded areas denote recessions as determined by the National Bureau of Economic Research.

SOURCE: U.S. Bureau of Labor Statistics.

**Chart 3. Unemployed persons per job opening, seasonally adjusted, December 2000–December 2011**



NOTE: Shaded areas denote recessions as determined by the National Bureau of Economic Research.  
SOURCE: U.S. Bureau of Labor Statistics.

the unemployment rate, producing a downward sloping curve. (See chart 4.) High job openings coupled with low unemployment result in a position high and to the left on the curve. This generally occurs during economic expansions. Low job openings coupled with high unemployment result in a position low and to the right on the curve. This generally occurs during economic contractions. Points can shift along the curve, or, if points move off the curve altogether, the curve itself is said to move. Shifts along the curve are attributed to cyclical changes in the economy. Movements of the curve itself are attributed to structural changes in the economy.

From the start of the recession in December 2007 through the middle of 2009, the intersection of the job openings rate and the unemployment rate moved lower and further to the right as the job openings rate declined and the unemployment rate rose. In the remaining months of 2009 and into 2010, job openings increased while unemployment remained high. This produced a vertical movement in the Beveridge curve. From mid-2010 to the end of 2011, the curve has moved erratically

towards the left.

The movement of the curve in the last couple of years

### Definitions of JOLTS terms

*Job openings.* Monthly job openings are defined as the number of openings on the last business day of the reference month.

*Hires.* Monthly hires are all additions of personnel to the payroll during the reference month, and annual hires are all additions to the payroll during a given year. The annual hires rate is calculated by dividing the total number of hires for the year by the average monthly employment for the year, and then multiplying the result by 100.

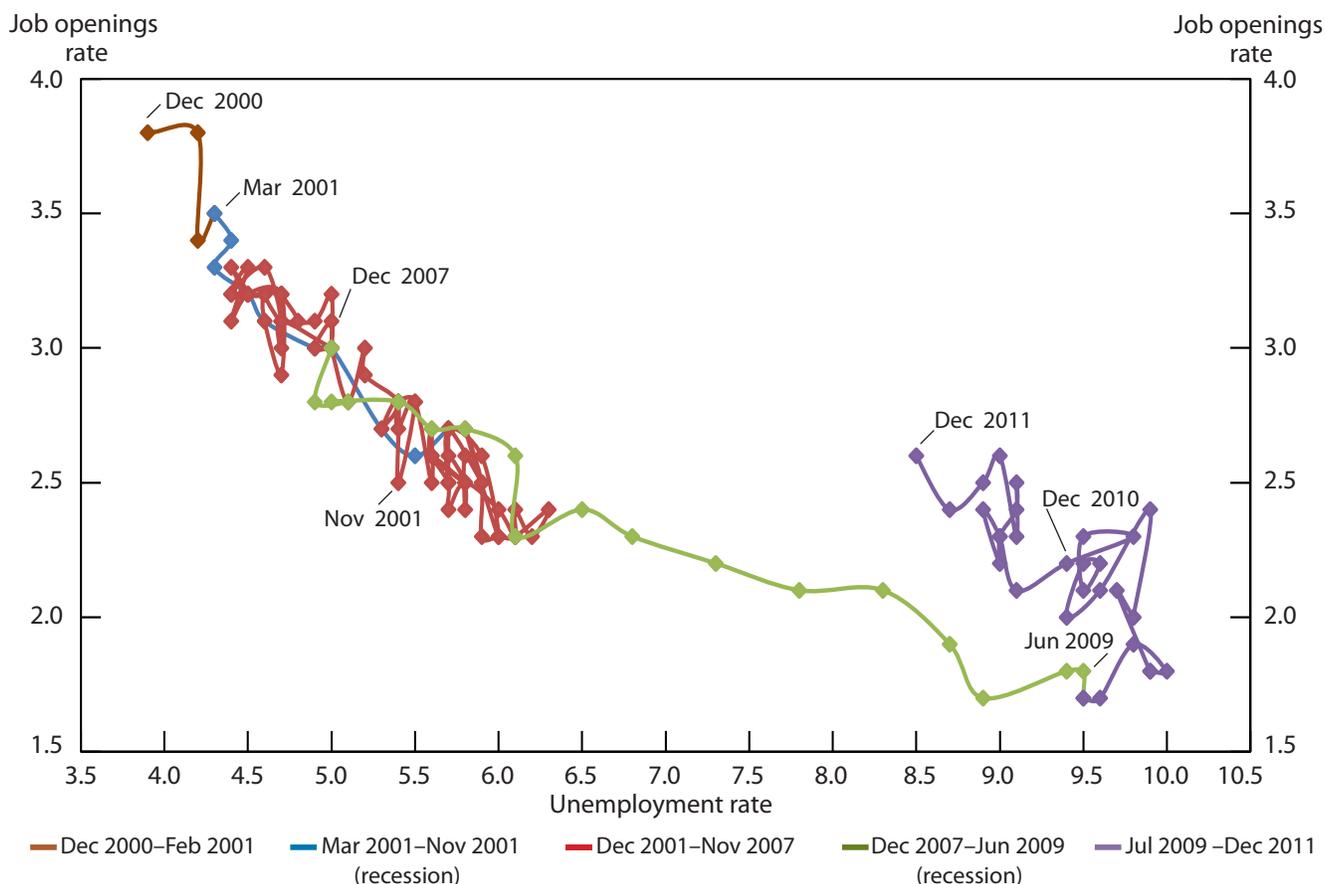
*Total separations.* Monthly total separations are defined as the number of employees separated from the payroll during the reference month, and annual total separations is the number separated during a given year. Separations are classified as quits, layoffs and discharges, and other separations. The annual total separations rate is calculated by dividing the number of total separations for the year by the average monthly employment for the year, and then multiplying the result by 100.

*Quits.* These are cases in which people left a job voluntarily but did not retire or transfer.

*Layoffs and discharges.* These are involuntary separations initiated by employers.

*Other separations.* These are defined as retirements, transfers, deaths, and separations caused by disability.

**Chart 4. The Beveridge curve (job openings versus unemployment rate), seasonally adjusted, December 2000–December 2011**



SOURCE: U.S. Bureau of Labor Statistics.

has raised the question of whether the changes in the postrecession labor market are cyclical or structural in nature. Economists at the Federal Reserve have been studying this matter and have concluded that while there may be a small structural component, the majority of the shift in the Beveridge curve is due to cyclical changes in the labor market.<sup>5</sup>

### Hires

Hires tend to rise during economic expansions and fall during contractions. Hires reached a high point of 5.5 million in November of 2006. At the beginning of the recession in December 2007, hires began to drop rapidly and reached a series trough of 3.7 million hires in June 2009, the end of the recession. Since the recession, hires have increased to 4.2 million in December 2011. While hires have been increasing, the level of hires at the end of

2011 was still below the prerecession series trough of 4.4 million reached in March 2003. (See chart 5.)

*Hires by industry.* Hires within industries show trends similar to that of total nonfarm hires during the recession. Since the end of the recession, hires have increased within all industries published on a seasonally adjusted basis, although some industries have had stronger growth than others. Hires within construction, manufacturing, retail trade, and government were relatively flat in 2011. Arts, entertainment, and recreation and accommodation and food services exhibited the strongest growth in hires in 2011.

*Hires by region.* Hires within regions also show trends similar to that of total nonfarm hires during the recession. Since the end of the recession, all four regions have shown increases in hires, with the Midwest and South showing the strongest growth in hires in 2011. In spite of

increases in hires since the recession ended, hires remain below prerecession lows in all four regions.

## Separations

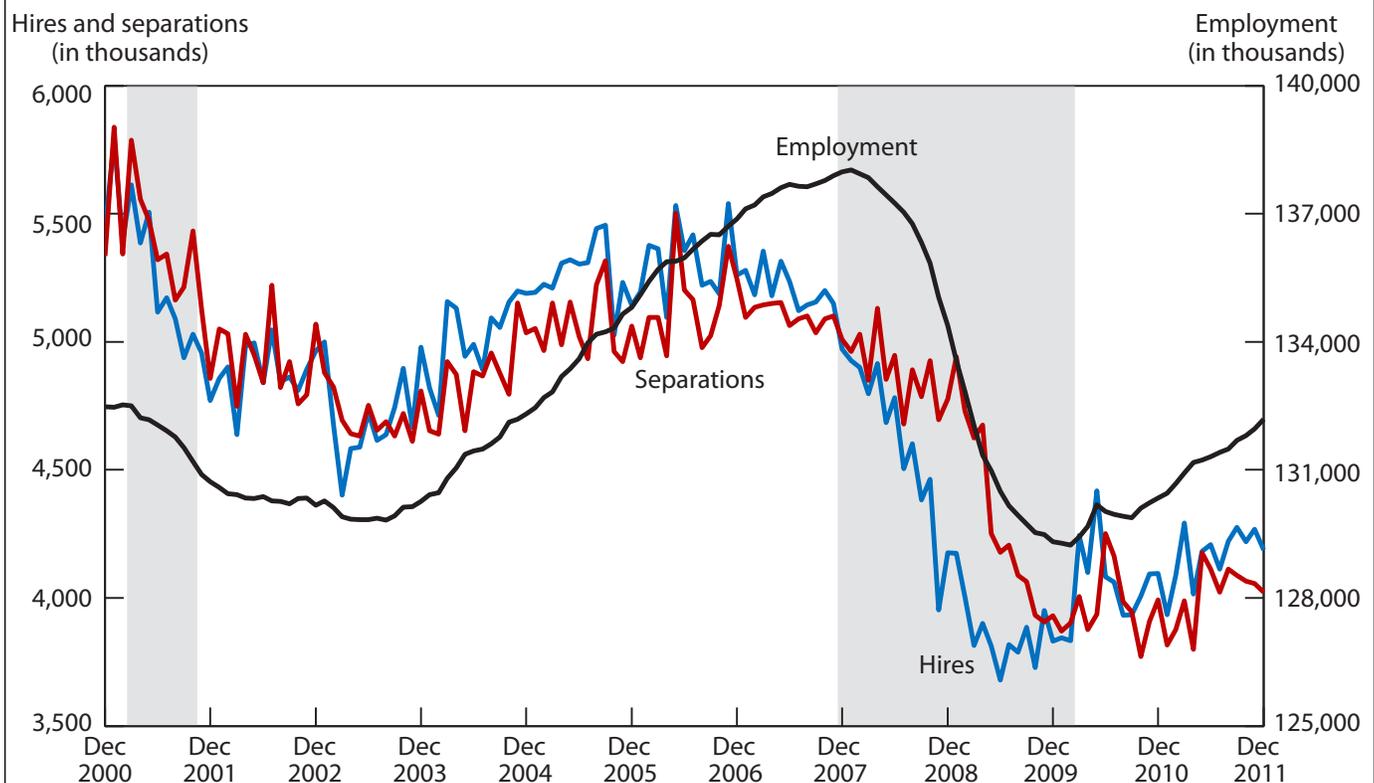
The “total separations” series is composed of quits, layoffs and discharges, and other separations. Each of these series has its own unique trends and cyclical movements. Total separations reached a series peak of 5.5 million in May 2006 and declined fairly steadily until April 2009. In May 2009 the series began a steeper decline, reaching a series trough of 3.8 million in October 2010. In 2011, the number of separations slowly increased to 4.0 in December. (See chart 5.)

*Quits.* Quits are generally voluntary separations initiated by the employee. Therefore, quits can serve as a measure of workers’ willingness or ability to leave jobs. During economic expansions quits tend to increase, while during economic contractions quits tend to decrease. The number of

quits increased much of the time between the last two recessions, reaching a series peak of 3.1 million in November of 2006. Quits began to decrease slowly from November 2006 to April 2008 when the number of quits began to rapidly decrease. Quits declined until reaching a series trough of 1.6 million in September 2009. Since then, quits have increased to 2.0 million in December 2011. (See chart 5.)

*Layoffs and discharges.* Layoffs and discharges are involuntary separations initiated by the employer. These kinds of separations tend to increase during economic contractions. The level of layoffs and discharges was fairly flat for most of the time between the last two recessions, with a series trough of 1.6 million reported in August 2006. Layoffs and discharges began to slowly increase leading up to and into the first few months of the recession. Involuntary separations accelerated rapidly a few months into the recession, reaching a series peak of 2.6 million in January 2009. Since reaching that peak, the number of layoffs and discharges has decreased. Invol-

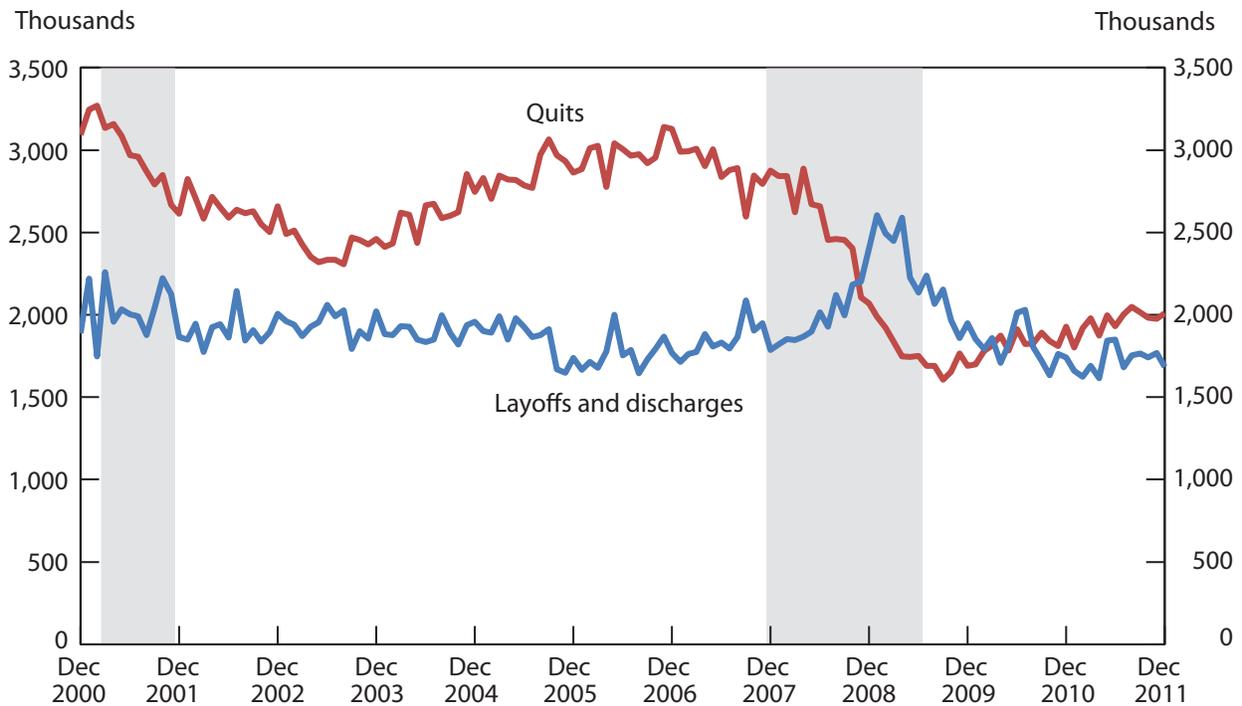
**Chart 5. Total nonfarm hires, separations, and employment, seasonally adjusted, December 2000–December 2011**



NOTE: Shaded areas denote recessions as determined by the National Bureau of Economic Research. Separations include layoffs and discharges.

SOURCE: U.S. Bureau of Labor Statistics.

**Chart 6. Total nonfarm layoffs and discharges and quits, seasonally adjusted, December 2000–December 2011**



NOTE: Shaded areas denote recessions as determined by the National Bureau of Economic Research.  
 SOURCE: U.S. Bureau of Labor Statistics.

untary separations reached a series trough of 1.6 million in April 2011, and closed out the year at 1.7 million in December 2011.

For most of the 11-year history of the JOLTS program, the number of quits has exceeded the number of layoffs and discharges. However, with quits decreasing and layoffs and discharges increasing because of the recession, the number of layoffs and discharges exceeded the number of quits from November 2008 to March 2010. Since that time, quits have increased steadily and layoffs and discharges have remained flat, causing a return of the two

series' historical pattern. (See chart 6.)

JOLTS DATA SHOW THAT THE RECOVERY in the labor market has been slow since the end of the 2007–2009 recession. Both job openings and hires have slowly increased since the recession ended in June 2009, but remain beneath the levels recorded just prior to the recession. Total separations were low throughout 2011 compared with historical levels. Quits have increased somewhat since the end of the recession, while layoffs and discharges have stayed fairly steady. □

**Notes**

<sup>1</sup> See September 20, 2010 report of the Business Cycle Dating Committee of the National Bureau of Economic Research, in which June 2009 was announced as a business cycle trough and the end of the recession that had begun in December 2007, <http://www.nber.org/cycles/sept2010.html>.

<sup>2</sup> The term “industry” can refer to a supersector, sector, or subsector, depending on the context. In analyzing “industries,” the JOLTS program follows the North American Classification System.

<sup>3</sup> The job openings rate is the number of job openings on the last

business day of the month divided by the sum of the number of employees who worked during or received pay for the pay period that includes the 12th of the month and the number of job openings on the last business day of the month.

<sup>4</sup> See speech by Federal Reserve Governor Daniel K. Tarullo at the World Leaders Forum, Columbia University, New York, on October 20, 2011, <http://www.federalreserve.gov/newsevents/speech/tarullo20111020a.htm>.

<sup>5</sup> Ibid.