



Department of
Job and Family Services

TO STRENGTHEN OHIO'S FAMILIES THROUGH THE DELIVERY OF INTEGRATED SOLUTIONS TO TEMPORARY CHALLENGES

Labor Market Dynamics

The Effects of Job Postings and
Labor Market Activities on Total
Employment



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Executive Summary

The number of online job postings in Ohio has been growing steadily through the recovery from the recession of 2007-2009. In the last few months of 2013, Ohio had an average of 185,133 job postings. Total employment also increased during that time. Although the number of job ads provides insight into the labor market activity in a particular area or industry, the number of jobs ads is not the same as the number of new jobs. Total employment is driven by many factors, and it is important to remember the following:

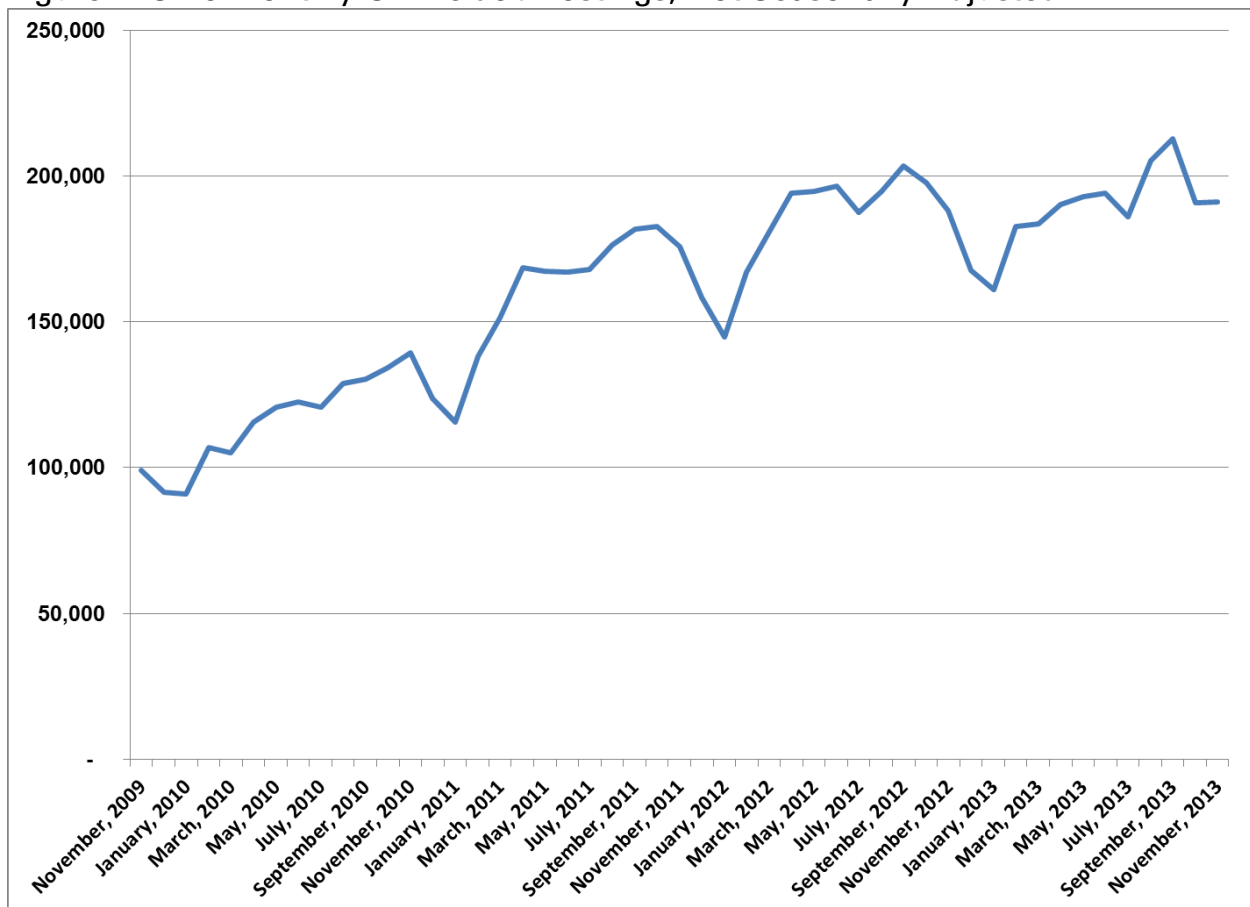
- Many industries have seasonal employment patterns. At predictable times of the year, they add positions when demand increases and shed them when demand declines.
- Individual firms expand or contract their workforces in response to economic conditions and changes in demand. Workforce expansions and contractions are partially but not entirely accountable for hirings and job separations activity.
- Some industries have substantially higher job turnover than others.
- Workers leave jobs for various reasons and frequently are replaced. Replacement hiring accounts for a significant portion of hiring activity and can exceed hiring based on workforce expansion.
- Online job postings are an indicator of labor demand. This demand could be driven by replacement hiring, seasonal factors and/or a workforce expansion.
- Separation activity is not reflected in online job postings. It could be driven by individual worker decisions, a seasonal need for fewer workers and/or a workforce contraction.
- Increased levels of hiring and separation activity in the labor market may be a sign of continued economic improvement for the following reasons:
 - Higher job turnover may improve the quality of job matches.
 - Increased replacement hiring may indicate more workers are retiring, which could open up jobs for unemployed workers or new entrants into the labor force.

Introduction

From October 14, 2013, through November 13, 2013, more than 191,100 jobs were posted online in Ohio. In the previous period, there were more than 190,700 online job postings.

The labor market is far more dynamic than it may seem, and the volume of online job postings is driven by several kinds of labor market activities, not just job growth. This report uses data¹ from Help Wanted OnLine®, Current Employment Statistics and the Quarterly Workforce Indicators to take a closer look at some of the dynamics of the labor market, particularly worker churn, to explore why thousands of job postings do not necessarily translate into fast-rising employment.

Figure 1. Ohio Monthly Online Job Postings, Not Seasonally Adjusted



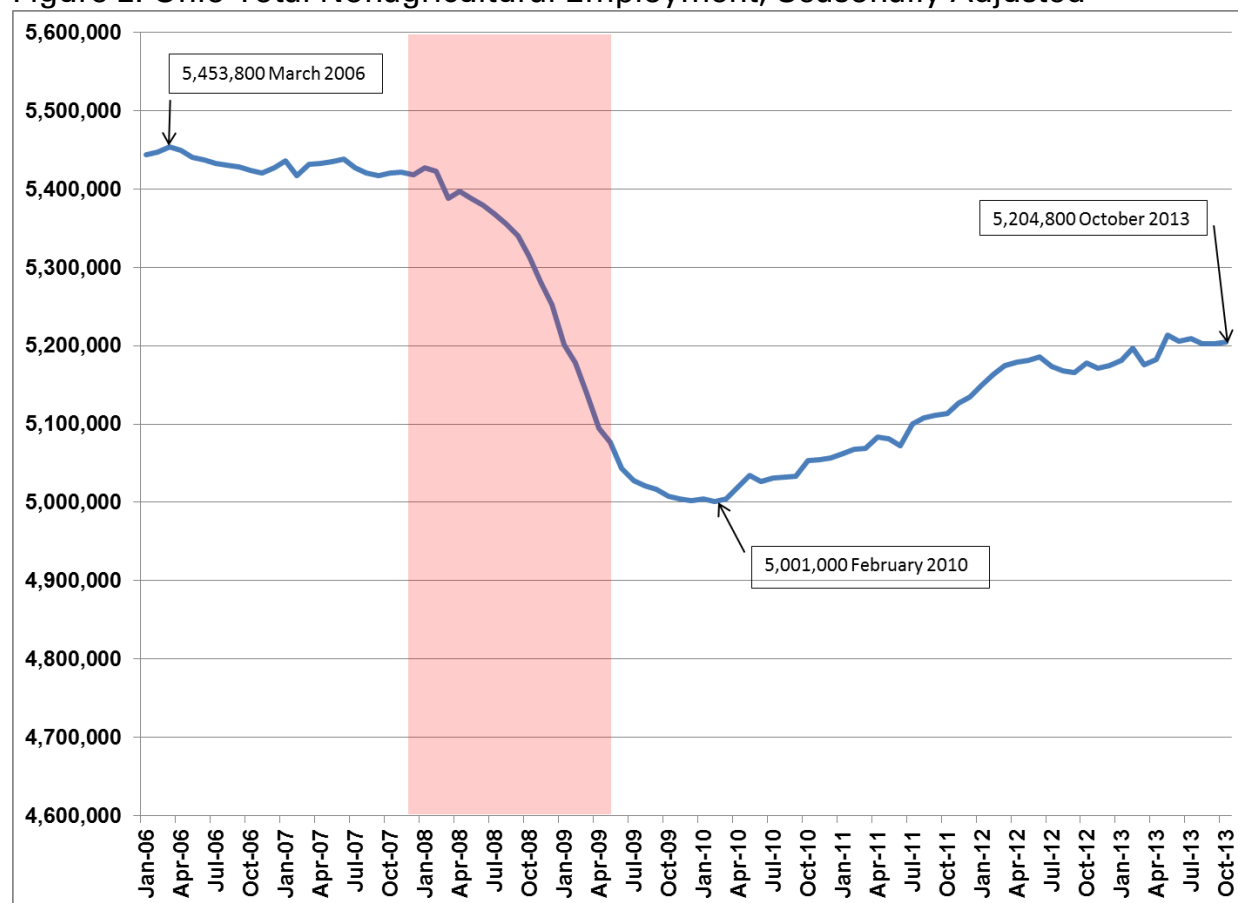
Source: The Conference Board, Help Wanted Online / Wanted Analytics

¹ See the technical notes section for more information on these data sources.

Changes in Total Employment

When we think about the employment situation, we tend to think in terms of broad trends: Is the employment situation improving or worsening? How many jobs did we add or lose this month?

Figure 2. Ohio Total Nonagricultural Employment, Seasonally Adjusted



Source: Current Employment Statistics, 2012 benchmark

This kind of thinking is reinforced by the way employment data typically are reported. Figure 2 illustrates this. It shows Ohio's seasonally adjusted monthly total nonagricultural employment from January 2006 through October 2013. The shaded area represents the "Great Recession," which lasted from December 2007 until June 2009. From March 2006 to February 2010, Ohio had a seasonally adjusted net loss of 453,800 jobs, or about 8 percent of total nonagricultural employment. From February 2010 through October 2013, Ohio had a seasonally adjusted net gain of 201,600 jobs.

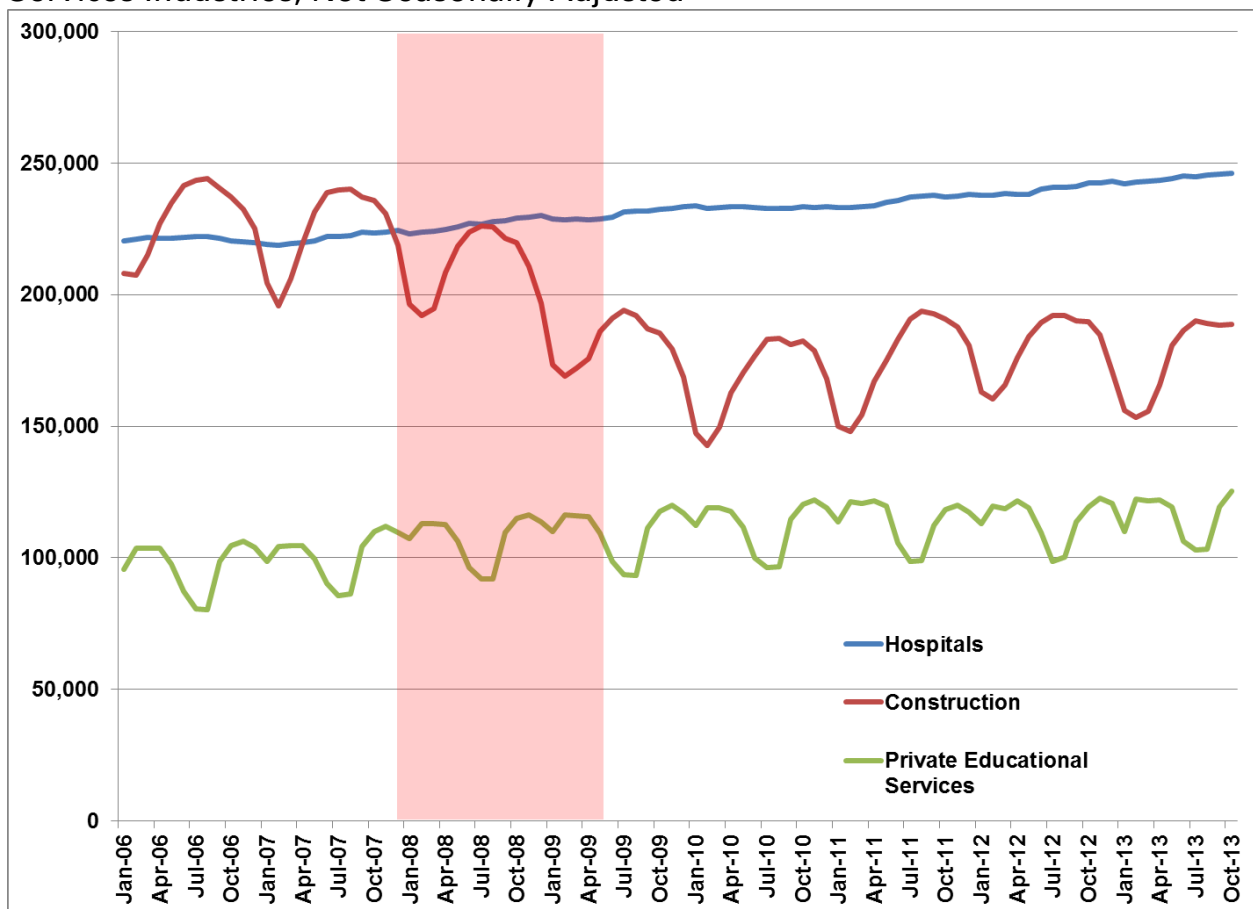
Figure 2 is a useful analytic tool for monitoring the overall employment situation. It simplifies labor market activity by focusing on net, seasonally adjusted changes in employment. By examining activities in the labor market, we can get a better idea of how job postings relate to changes in employment.

Seasonality

The employment data in Figure 2 were “seasonally adjusted,” meaning seasonal fluctuations in employment levels were smoothed to make the underlying trend in employment more visible. Many industries have seasonal employment patterns in which workers are added during periods of high demand or when the weather is good and workers are shed when demand drops or the weather turns bad.

Not all industries have seasonal employment patterns, and each industry’s seasonal pattern is unique. Figure 3 compares employment for the construction, hospitals and private education services industries. The hospitals industry has no seasonal employment pattern. The construction industry has a strong seasonal pattern with peaks in the summer and a low point usually in February. The private educational services season follows a typical school year: lower employment during the summer months followed by higher employment from October to May, with a dip in December and January.

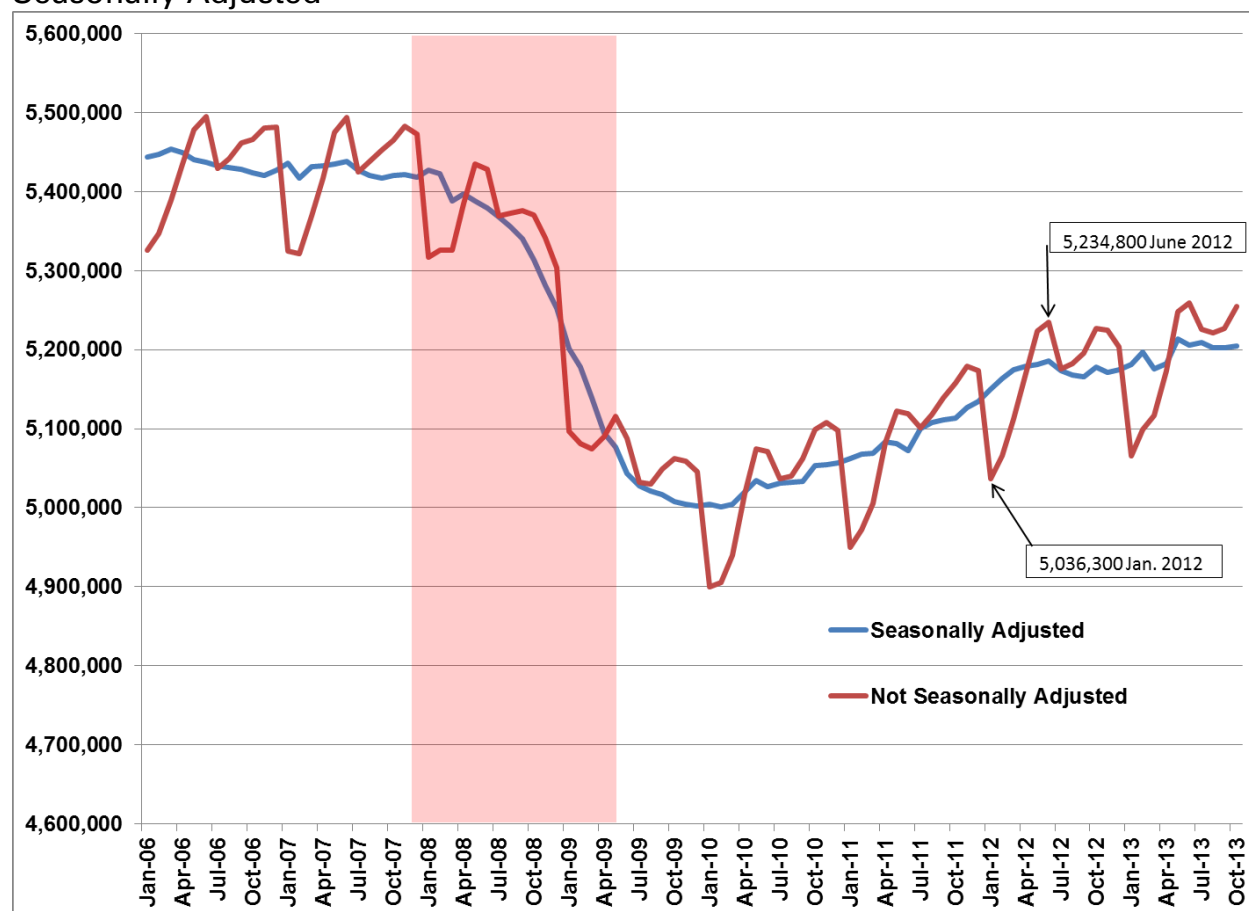
Figure 3. Ohio Employment in the Hospitals, Construction and Private Educational Services Industries, Not Seasonally Adjusted



Source: Current Employment Statistics, 2012 benchmark

The combined patterns of all industries give total employment a seasonal pattern as well. Figure 4 shows Ohio's monthly total nonagricultural employment with and without seasonal adjustment. Without seasonal adjustment, total nonagricultural employment is usually at its lowest in January with peaks in spring and fall.

Figure 4. Ohio Total Nonagricultural Employment, Seasonally Adjusted and Not Seasonally Adjusted



Source: Current Employment Statistics, 2012 benchmark

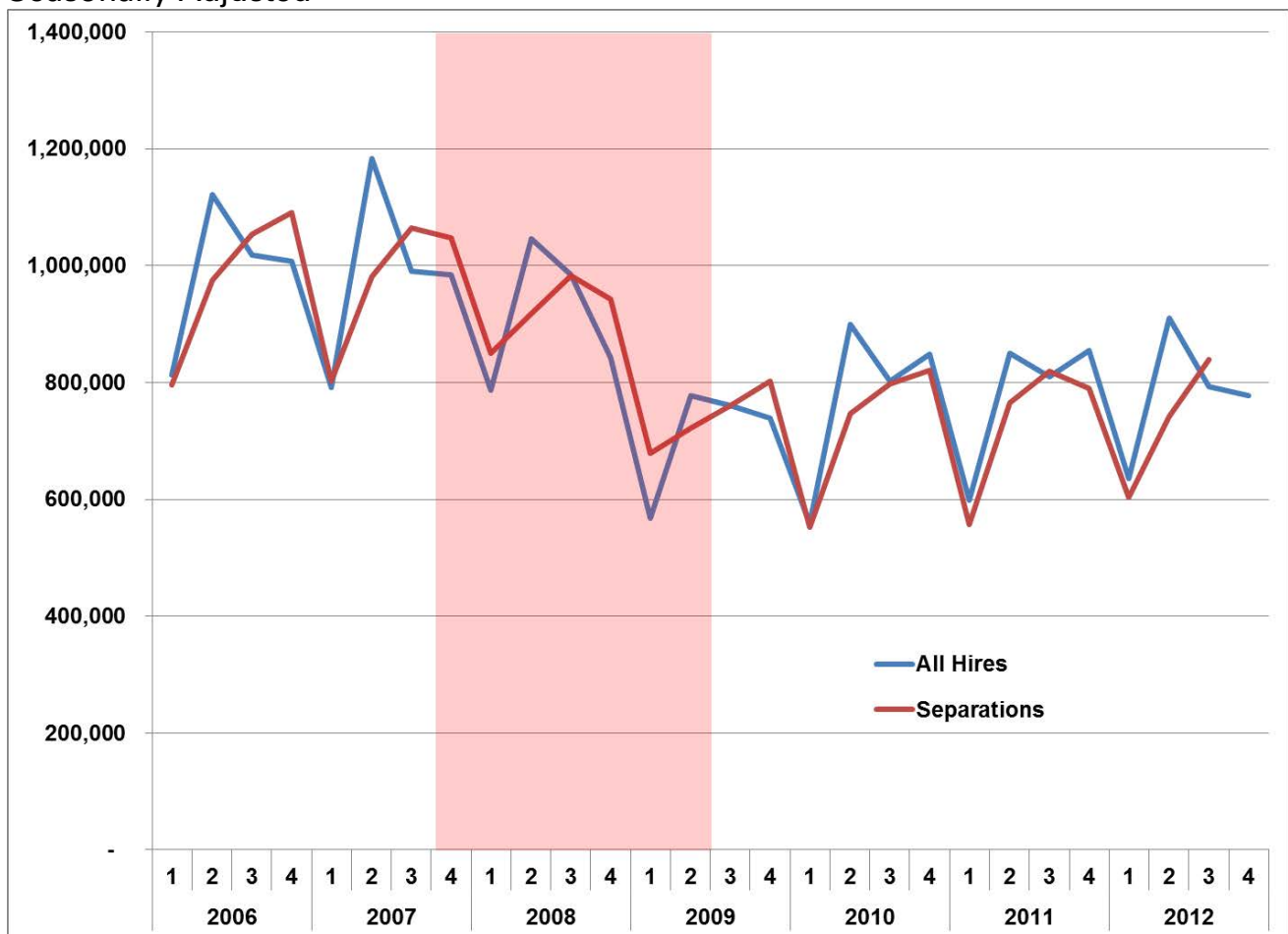
The seasonal fluctuations in employment levels indicate hiring and job separation activity. For example, between January and June in 2012, Ohio total nonagricultural employment increased by more than 198,500 jobs. Does this mean there were about 198,500 job hires? Not quite.

Hires, Separations and Job Turnover

From January 2012 to June 2012, Ohio's total nonagricultural employment increased by more than 198,500 jobs, but over the same period there were more

than 1,545,000 job hires². Total employment didn't increase by 1,545,000 because the same period saw more than 1,345,000 job separations — workers leaving employers. The net difference between hires and separations was just over 200,000, close to the 198,500 job increase in total employment over the same period.

Figure 5. Ohio Quarterly Hire and Separation Activity for All Industries, Not Seasonally Adjusted



Source: Quarterly Workforce Indicators

The labor market has much more hiring and separation activity than indicated by changes in employment levels. Figure 5 shows quarterly³ hiring and job separation activity in Ohio across all industries; these data are not seasonally adjusted. The shaded area represents the recession. Hiring and separation activities follow seasonal patterns similar to the pattern for total employment. Both hires and separations are at their lowest levels during the first quarter of each calendar year. Hiring peaks in the second quarter of each year, and

² As defined by the Quarterly Workforce Indicators. See the technical notes for definitions.

³ These data are collected from employers on a quarterly basis, while employment data from the Current Employment Statistics are collected on a monthly basis.

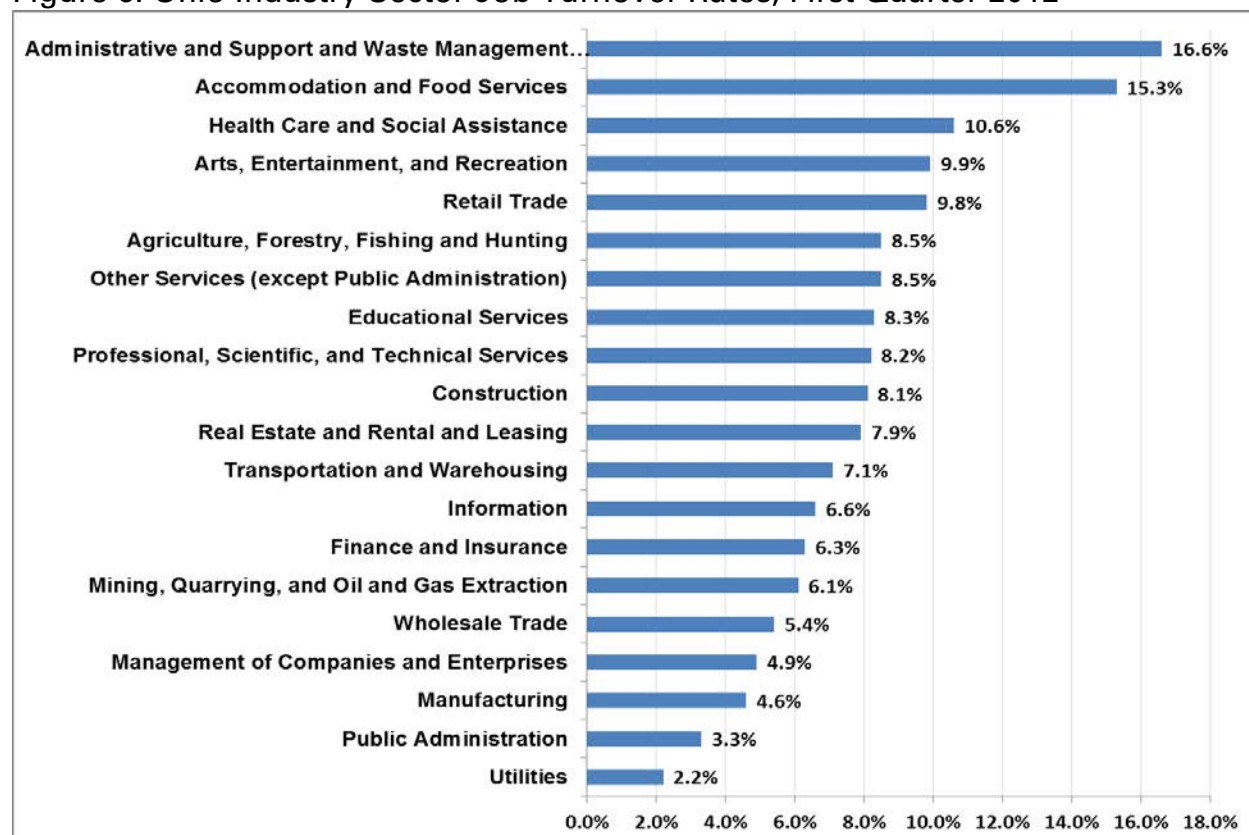
separations peak in either the third or fourth quarter. What is most important here is that the volumes of hires and separations are much higher than the month-to-month changes in employment levels.

The high levels of hiring and separations are from worker turnover. Workers begin and end jobs at higher rates than changes in total employment levels suggest. Some churn is driven by the needs of employers, some by workers.

The rate of job turnover — the rate at which stable jobs⁴ begin and end — varies across industries and over time. Long-term, overall employee turnover rates have been declining since 2000.⁵ Figure 6 shows industry sector turnover rates for the first quarter of 2012. The utilities sector was the most stable, with a turnover rate of only 2.2 percent. The highest turnover rate, at 16.6 percent, was in the administrative and support and waste management activities sector. This sector includes temporary work agencies, which have many short-term jobs.

Hiring and separation activities can be analyzed further to better understand labor market activities.

Figure 6. Ohio Industry Sector Job Turnover Rates, First Quarter 2012



Source: Quarterly Workforce Indicators

⁴ As defined by the U.S. Census using the Quarterly Workforce Indicators.

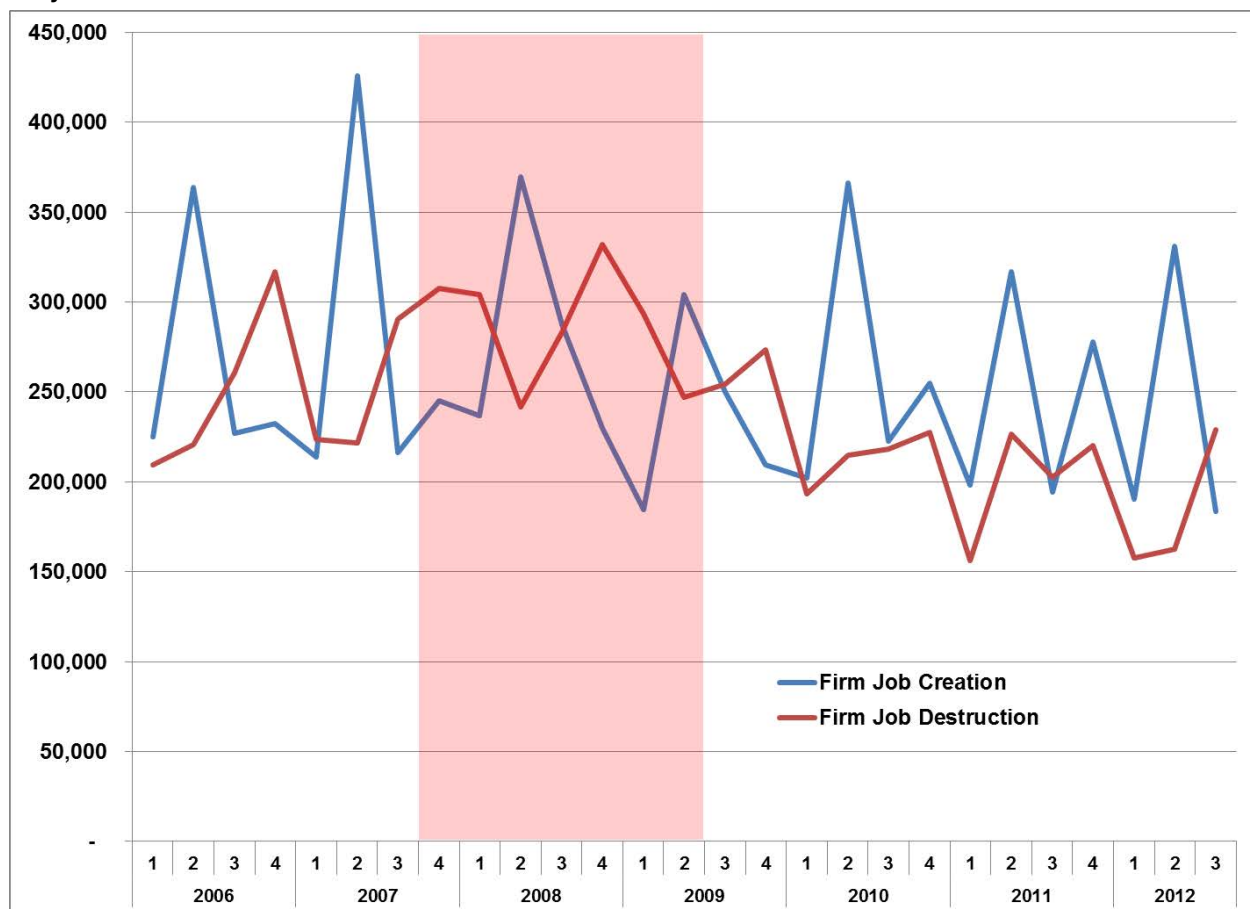
⁵ Hyatt, HR; Spletzer, JR. The recent decline in employment dynamics. *IZA Journal of Labor Economics* 2013, 2:5 (<http://www.izajole.com/content/2/1/5>).

Job Creation and Elimination

Some hiring and separation activity in the labor market is the result of individual firms reacting to labor market conditions and either adding jobs (job creation) or reducing jobs (job elimination). Firm-level job creation and elimination is defined as the increase or decrease in the number of jobs at a firm from the beginning to the end of a quarter⁶. It includes seasonal increases and decreases in employment, as well as longer-term business expansion and contraction.

Figure 7 shows Ohio quarterly firm-level job creation and elimination activity for all industries. The pattern for job creation is similar to the hiring pattern; both peaked in the second quarter of the calendar years. The pattern for job elimination is similar to the pattern for separations, although it is less distinct. Job eliminations and separations tend to be higher during the third and fourth quarters of the year.

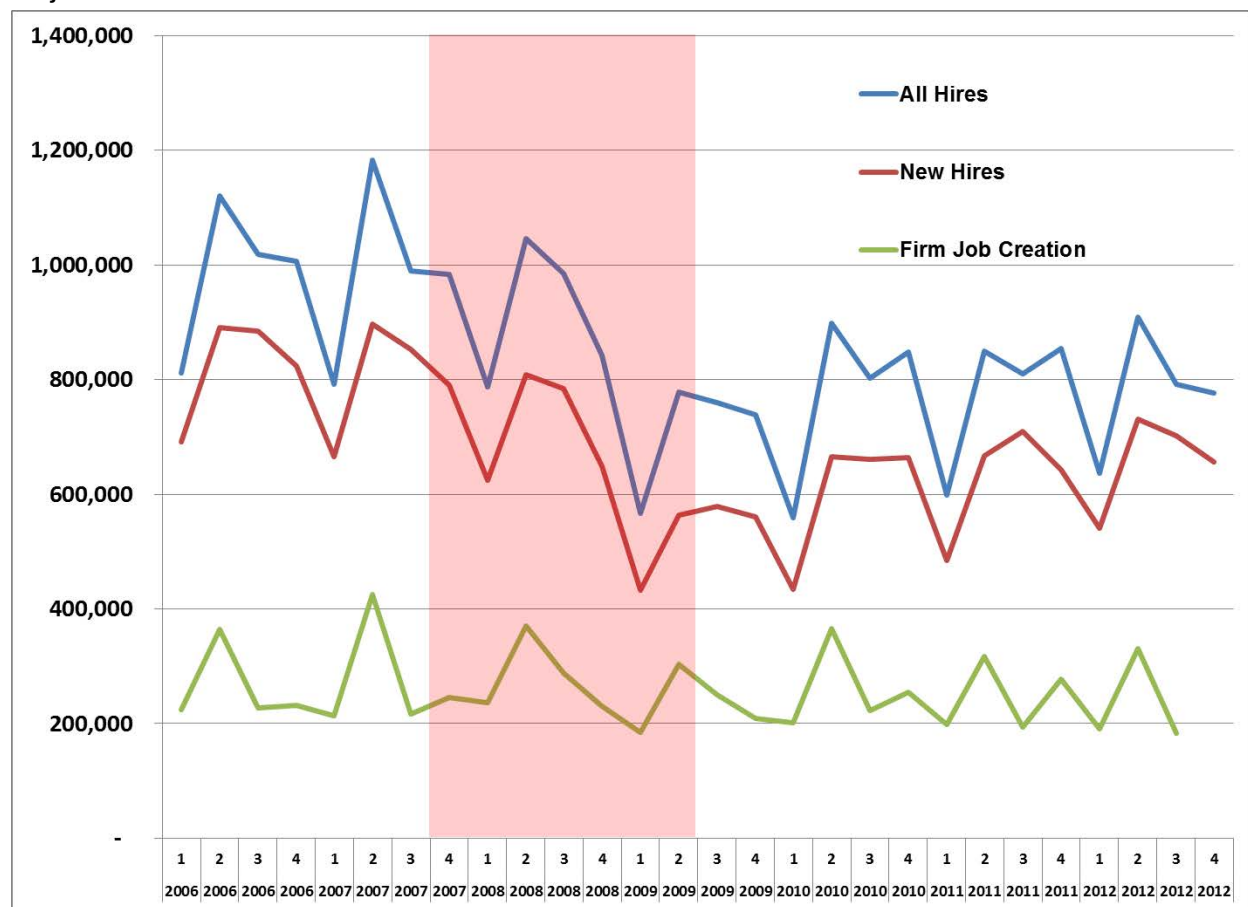
Figure 7. Ohio Quarterly Firm Job Creation and Elimination, Not Seasonally Adjusted



Source: Quarterly Workforce Indicators

⁶ From the Quarterly Workforce Indicators. See the technical notes for definitions.

Figure 8. Ohio Quarterly All Hires, New Hires and Firm Job Creation, Not Seasonally Adjusted



Source: Quarterly Workforce Indicators

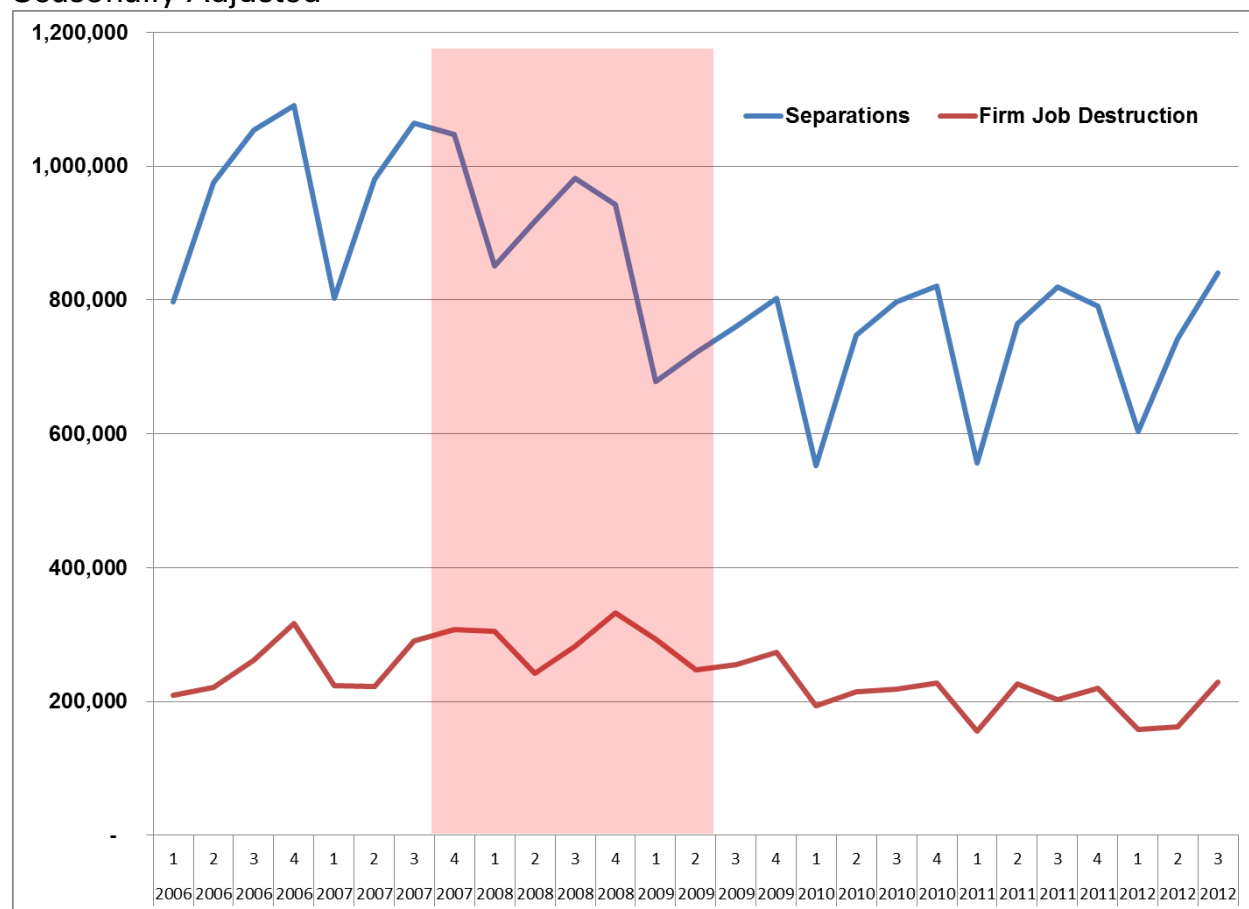
Figure 8 compares all hires, new hires and firm job creation. New hires⁷ are workers who joined a firm and did not work for that firm during the previous four quarters. Hires that are not new are considered recalls because they worked for their hiring companies at some point during the previous four quarters. The all-hires data is composed of new hires plus recalls.

The volume of hires is greater than the volume of firm job creation. For example, in the second quarter of 2007, firm job creation was about 425,000 jobs while new hires totaled more than 1,183,000 — about 897,000 new hires and 286,000 recalls. Firm job creation is an increase in firms' total employment from the beginning to the end of the quarter. Firm job creation numbers may not reflect total hires due to job separations (not shown in Figure 8) offsetting many of the hires.

⁷ The new hires reported here are from the Quarterly Workforce Indicators, not from the new hires data collected for child support enforcement. See the technical notes for definitions.

The situation is similar when comparing job separations to firm job eliminations. The number of workers leaving firms, or separating from their jobs, is higher than the number of jobs firms eliminate. Figure 9 shows that the volume of separations is higher than the volume of job elimination. Firm job elimination peaked in the fourth quarter 2008 with more than 332,000 jobs shed, while in the same quarter job separations totaled more than 942,000. The reason separations are greater than job elimination is because many of the separations are offset by hires.

Figure 9. Ohio Quarterly Job Separations and Firm Job Elimination, Not Seasonally Adjusted



Source: Quarterly Workforce Indicators

There are two possible explanations for the differences between the hires/job creation data and the separations/job elimination data.

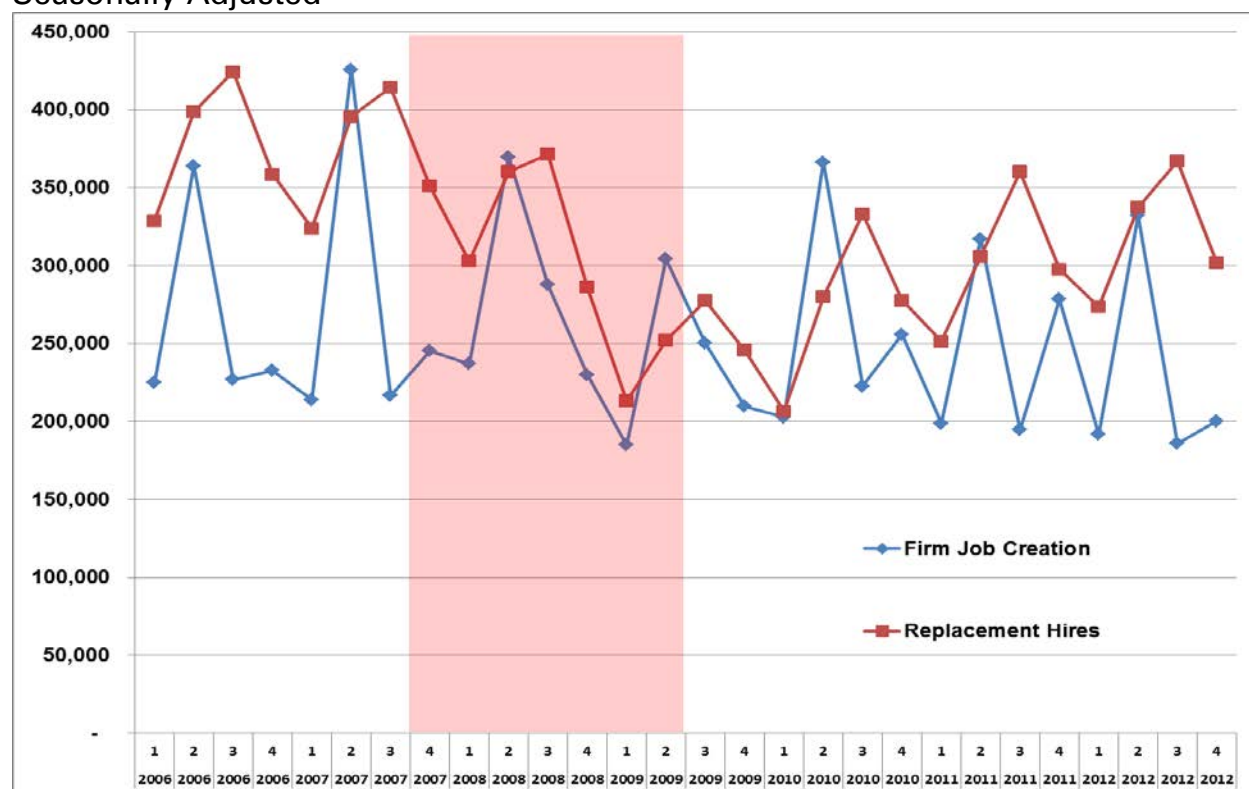
One explanation is that the definition of job creation and elimination used here does not capture all jobs created or eliminated. It is possible a firm may have short-term jobs that do not change its employment level from one quarter to the next. Such jobs would be counted in the hires and separations data, but not in the job creation and elimination data. At this time, no data are available to examine this explanation. The second explanation for the difference between the hires/separations and job creation/elimination data is worker replacement.

Worker Replacement

Workers leave jobs for reasons other than job elimination. Some take jobs with other employers; others leave the workforce entirely, often for retirement. The U.S. Bureau of Labor Statistics estimates that two-thirds of annual occupational openings⁸ are for replacement needs, mostly due to retirements. This suggests that a high percentage of separations are followed by replacement hires.

Figure 10 compares quarterly replacement hiring⁹ and firm-level job creation. Replacement hires follow a pattern. As with other types of job activity, replacement hires are lowest during the first quarter of each year. Given the seasonal shedding of jobs that typically occurs in the first quarter, employers probably have less need to replace workers this time of year. Replacement hiring peaks in the third quarter of a calendar year and trails job creation, which tends to peak during the second quarter.

Figure 10. Ohio Quarterly Firm Job Creation and Replacement Hires, Not Seasonally Adjusted



Source: Quarterly Workforce Indicators

⁸ An occupational opening occurs when a new job is created or a worker leaves an occupation. It does not include job switching in which workers change jobs but remain in the same occupation.

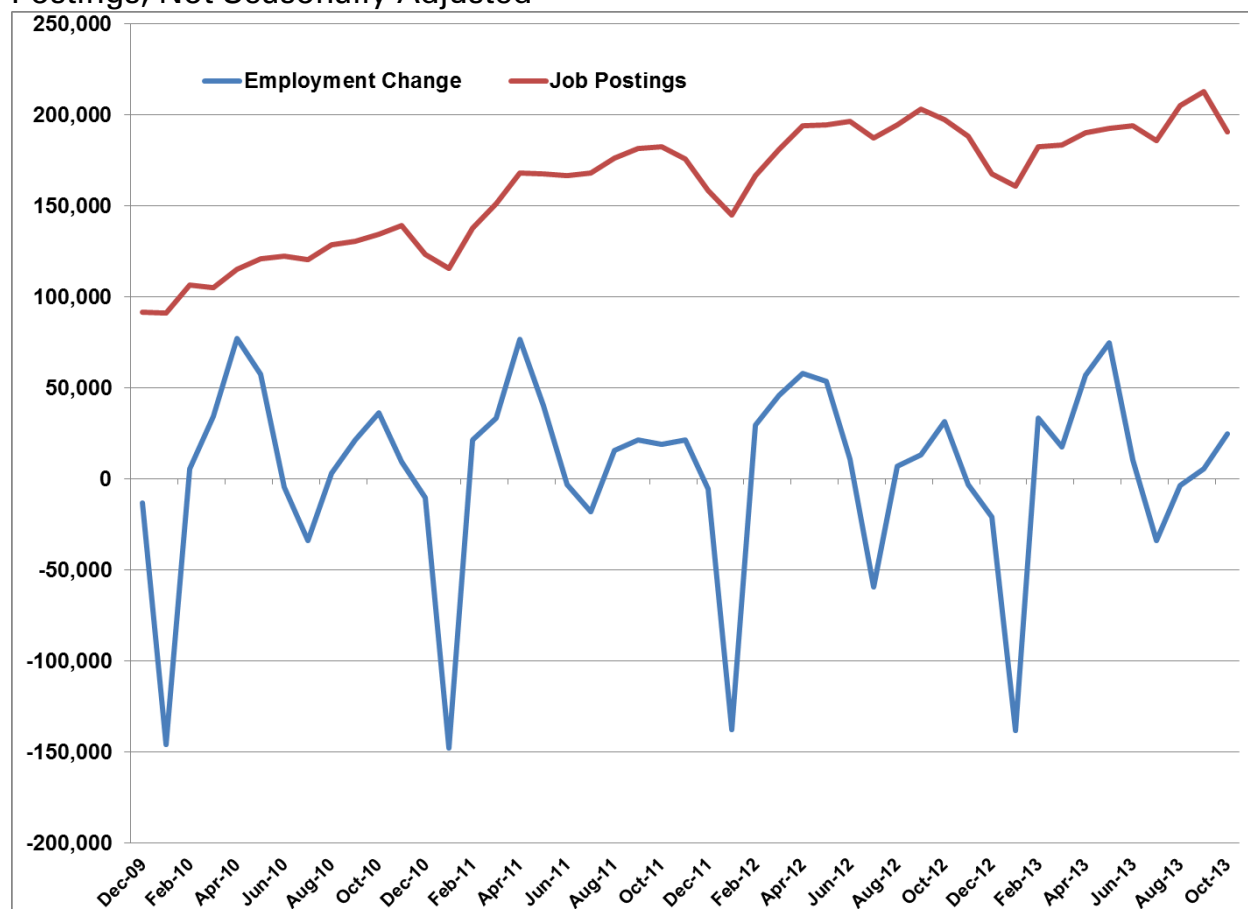
⁹ Quarterly Workforce Indicators. See the technical notes for definitions.

Replacement hiring exceeded job creation in 23 of 28 quarters in Figure 10. Job creation exceeded replacement hiring only in the second quarter of a year, the quarter in which job creation typically peaks.

Job Postings and the Labor Market

When we compare the number of online job postings to the month-to-month changes in total employment in Figure 11, the number of job postings clearly exceeds job growth. A large number of online job postings doesn't necessarily lead to faster job growth because labor demand is largely driven by worker turnover. Turnover happens for many reasons. Industries add jobs for seasonal needs, and many of these jobs will be shed when seasonal needs ebb. Businesses grow and add jobs; others shrink and reduce staff. Workers leave jobs to take other jobs or to leave the labor force; others are hired to replace them. Job postings provide an indicator of demand that leads to hiring activity, but there is no indicator for separations as a counterforce.

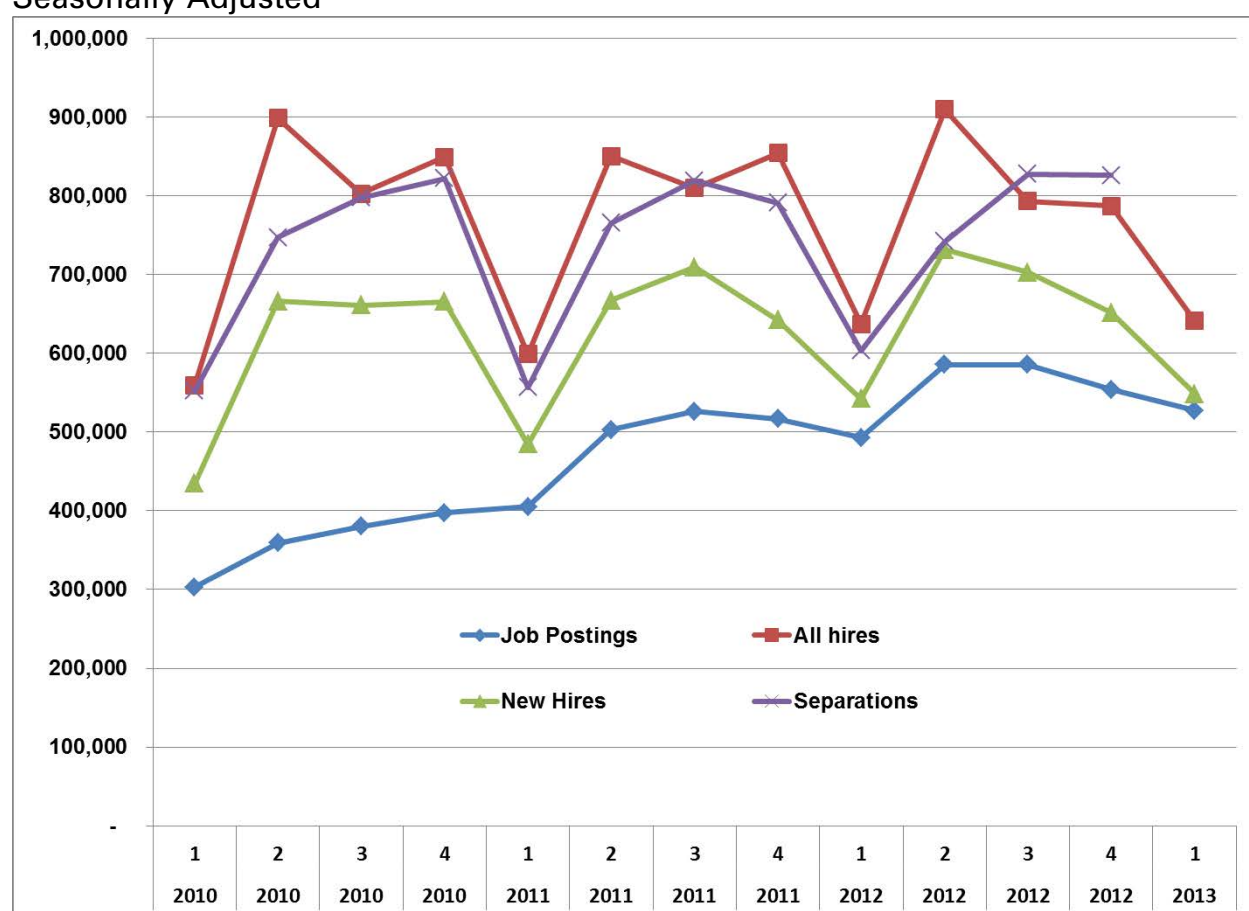
Figure 11. Ohio Change in Total Nonagricultural Employment and Online Job Postings, Not Seasonally Adjusted



Sources: Quarterly Workforce Indicators and The Conference Board Help Wanted Online (HWOL) / Wanted Analytics

Figure 12 compares quarterly online job postings¹⁰ to hiring and separation activities. The total number of hires (all hires) exceeds the number of online job postings. We know some hires are recall hires which means they returned to companies that employed them at some point in the previous four quarters. Perhaps businesses see little reason to post this type of job opening. However, the number of new hires exceeds the number of online job postings, as well. More jobs are being filled than indicated by the online job postings data. The hires are largely being offset by separations, which also exceed the number of online job postings.

Figure 12. Ohio Quarterly Online Job Postings, Hires and Separations, Not Seasonally Adjusted



Sources: Current Employment Statistics and The Conference Board Help Wanted Online (HWOL) / Wanted Analytics

¹⁰ For this report, three months' worth of jobs postings were summed to create a proxy for total quarterly job postings. This is an overestimate of the number of quarterly HWOL job postings because postings lasting more than one month were counted more than once. Based on an analysis of recent data, it is possible that more than half of all job postings remain posted for more than 60 days, which would inflate the quarterly HWOL estimate. Although HWOL is an excellent indicator of online job postings, it does not represent the entire universe of job postings.

Discussion

Since early 2012, between 150,000 and 200,000 online jobs have been posted each month in Ohio. As mentioned in the Executive Summary, the number of job ads provides insight into the labor market activity in a particular area or industry. However, the data does not take into consideration the full range of labor market activities, in which high volumes of hires and separations largely offset each other, and net total employment increases more slowly.

Statewide total employment data as reported in various formats focus on net, seasonally adjusted changes in employment from one point in time to another. Although these data are useful for understanding employment trends over time, they can understate the level of labor market activity caused by predictable seasonal hiring and separations. Many industries respond to seasonal changes in demand for products and services by adding positions as demand increases and shedding them as demand recedes. The combined seasonal labor market activities of several industries causes total employment to fluctuate seasonally, and these fluctuations make it difficult to see total employment trends. Seasonal adjustment smooths the data to reveal overarching employment trends, effectively “hiding” most of the seasonal hiring and separation activities. Current analyses of online jobs postings are not seasonally adjusted¹¹. Furthermore, these analyses show increases and declines in the number of online job postings, including seasonal fluctuations, but they do not show the shedding of jobs that occurs when seasonal demands decline.

Data show that hires and separations occur in excess of seasonal demands. Some hiring and separation activities are in response to changing economic conditions. Firms may expand to meet new demands. Declining demand, changes in business strategies or economic difficulty may cause some firms to contract and shed jobs. Many of these hiring and separation activities offset each other; the residual, non-offsetting hiring or separation activities increase or decrease the total employment levels. Another factor that drives hiring and separation activity is the need to replace workers who take other jobs or retire. Worker replacement accounts for a significant portion of hiring and separation activity, and it has little or no effect on the total employment if workers are replaced relatively quickly. An interesting aspect of replacement hiring is that workers create vacancies when they change jobs, which might result in additional replacement hires.

Both firm expansions and worker replacement needs can generate online job postings, but job postings data do not reflect separation activity occurring at the same time, which may partially or completely offset any hiring arising from the postings. However, it should be noted that a large number of separations also could be a sign of continued economic improvement. Some economists think

¹¹ For an example, see a “Snapshot” report of Ohio online job ads at <http://ohiolmi.com/asp/omj/hw.htm>.

high job turnover may improve the quality of matches between employers and workers¹². More replacement hiring also could indicate that more workers are retiring, which could mean more jobs for unemployed workers or new entrants into the labor force.

More jobs are being created as part of the economic recovery, generating more job postings. However, other reasons may explain the increase in online job postings. More employers may have started using online sites instead of traditional job-posting methods. Some occupations may be hard to fill, and employers may create multiple postings in an effort to fill those positions. There also is evidence that replacement hiring is increasing with the recovery (see Figure 10 on page 12).

¹² Jovanic and Moffit (1990) and Foster, Haltiwanger, and Krizan (2001), cited in Hyatt and Spletzer (2013).

Technical Notes and Indicator Definitions

This analysis used data from three sources. The Help Wanted OnLine® (HWOL) was used for monthly summaries of online job postings. Monthly employment data are from the Current Employment Statistics (CES) program. Employment dynamics data, such as estimates of hires and separations, are from the Quarterly Workforce Indicators (QWI) data. The analysis and interpretations here are solely the responsibility of the author.

The Conference Board's HWOL data series is designed to cover the full universe of all online advertised vacancies that are posted directly on internet job boards. For its national series, HWOL collects data from more than 16,000 online job-board sources, including corporate job boards. HWOL data are based on a mid-month reference period. For example, data for January would be the sum of all posted ads from December 14 through January 13. This reference period is aligned to the U.S. Bureau of Labor Statistics unemployment "job search" time period to provide a more accurate comparison of labor supply and demand in the U.S. economy. Total ads are unduplicated ads appearing in the reference period. This includes both new ads and those reposted from the previous month. HWOL data are collected and processed by Wanted Technologies Corporation. Ohio data are available at <http://ohiolmi.com/asp/omj/hw.htm>.

The CES is a cooperative program between the U.S. Bureau of Labor Statistics and the states, which provides monthly estimates of total nonagricultural and other industry employment. In Ohio, the CES program collects detailed data on employment, hours and earnings in goods-producing and service-providing industries through a monthly survey of more than 18,000 employers. Initial monthly employment estimates are preliminary and may be revised later. CES data are annually benchmarked using data from the Quarterly Census of Employment and Wages (QCEW); CES data used in this report are based on the 2012 benchmark. Ohio CES data and information are available at <http://ohiolmi.com/ces/lmr.htm>.

The QWI are a set of such economic indicators as employment, job creation, earnings and other measures of employment flows. The QWI are reported using detailed firm characteristics (geography, industry, age and size) and worker demographics (sex, age, education, race and ethnicity). QWI data are produced as part of the Longitudinal Employer-Household Dynamics program of the U.S. Census Bureau, in cooperation with the states. States provide the Census Bureau with wage record data from unemployment insurance administrative files and industry data from the QCEW. Those data are combined with other data to produce job-level data. The next page lists terms used in this paper along with their QWI variable names and definitions.

This analysis used several QWI indicators. The following are the definitions and U.S. Department of Labor identifier labels for those indicators:

- All Hires (*HirA*) is the estimated number of workers who started a new job during a specific quarter; it is the sum of new hires and recalls.
- New Hires (*HirM*) is the estimated number of workers who started new jobs during a specific quarter and did not work for that employer during any of the previous four quarters.
- Recalls (*HirR*) is the estimated number of workers who returned to the same employer for which they had worked within the previous four quarters.
- Separations (*Sep*) is the estimated number of workers whose jobs ended during a specific quarter.
- Stable Jobs (*EmpS*) are jobs held on both the first and the last day of the quarter with the same employer; the work may have been intermittent rather than continuous through the quarter.
- Stable Turnover (*TurnOverS*) is the rate at which stable jobs begin and end. It is calculated by adding stable hires and stable separations and dividing the sum by the number of stable jobs.
- Firm Job Creation (*FrmJbGn*) is the estimated number of jobs gained at firms throughout a quarter. It counts the total employment increase at firms that grew over the course of a quarter.
- Firm Job Elimination (*FrmJbLs*) is the estimated number of jobs lost at firms throughout a quarter. It counts the total employment decrease at firms that shrank over the course of a quarter.
- Replacement Hires (*HirAEndRepl*) is an estimate of the number of workers hired to replace leaving workers during a quarter.
- More information about the QWI is available at http://lehd.ces.census.gov/applications/qwi_online/. The QWI data can be downloaded using the Longitudinal Employer-Household Dynamics Extraction Tool at <http://ledextract.ces.census.gov/>.

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