



Department of
Job and Family Services

TO STRENGTHEN OHIO'S FAMILIES WITH SOLUTIONS TO TEMPORARY CHALLENGES

Ohio Workforce Dynamics: Job-to-Job Flows



Ohio Workforce Dynamics Job-to-Job Flows

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Executive Summary

Most traditional labor market information focuses on monthly or quarterly data for various measures, such as total nonfarm employment and the unemployment rate. While these measures are indicators of the health of the economy, they provide limited detail about many activities in the labor market. A new data set from the U.S. Census Bureau sheds light on some of those activities: job-to-job (J2J) flows.

The J2J flow data shows the number of workers moving from employer to employer, as well as workers moving in and out of the workforce. Many of these activities go unnoticed in traditional labor market data because they do not affect monthly or quarterly totals. For example, many workers who leave one employer for another simply fill an already existing job. These types of job changes do not add or subtract from total employment. However, they are indicators of the health of the labor market.

There are four job-to-job flow indicators: **job-to-job separations**, **job-to-job hires**, **separations to persistent non-employment**, and **hires from persistent non-employment**. Persistent non-employment is defined as more than six months without a job and includes those entering and leaving the labor market.

- The Great Recession slowed the flow of workers moving from one employer to another, but by 2014 the flow volumes were above prerecession levels.
- Among industry sectors, the administrative and support services and waste management and remediation services, and accommodation and food services sectors had both high J2J flow volumes and flow rates in 2014.
- Younger workers have high rates of all job flow types as they move in and out of the labor market.
- Job flow rates decline as workers get older, but separations to persistent non-employment increase for workers 55 and older.
- For workers 25 and older, job flow rates are highest among those with less than a high school diploma and lowest among those with a bachelor's degree or higher.
- From 2002 through 2014, more workers left Ohio jobs for jobs in other states than workers left jobs in other states for Ohio jobs. Most interstate J2J flows were with neighboring states; the highest volumes of J2J inflows and outflows was with Kentucky.

Introduction

Traditional labor force statistics and industry employment data are designed to track changes in employment levels over time. For example, the Local Area Unemployment Statistics program tracks monthly unemployment rates, and the Current Employment Statistics program tracks monthly industry employment. These data are necessary for monitoring the general state of the labor market, but they provide limited detail about many activities in the market.

New data from the U.S. Census' Longitudinal Employer-Household Dynamics (LEHD) program provide details about another data set that can increase our understanding of the labor market: job-to-job flows. The J2J data tracks the number of workers moving in and out of employment and moving from one employer to another. Job flows are indicators of the health of the labor market. Some job flows are the result of business activities, such as seasonal employment, other jobs that exist only for short periods, business expansions and contractions, and openings and closings. A growing business cycle can increase the number of jobs from expansion and openings, while recessions can increase the number of job losses from contractions and closings. Other job flows are the result of worker decisions, such as retiring or leaving the labor force. Job openings may be filled by workers entering the workforce or by workers moving from one employer to another. The latter job flow is important because such moves are often made to move up the career ladder. During good economic times, workers often move from lower-paying to higher-paying jobs.¹ As much as half of wage growth for younger workers may come from job change.²

The J2J data tracks job flows using a few pieces of information. The underlying J2J data records only that a worker was employed during a quarter. The quarter a worker starts with an employer is a hire; the quarter they last work for an employer is a separation. While some workers separate from an employer to be hired by another, other workers enter or leave the job market. Entering and leaving the job market is tracked using the amount of time a worker goes without substantial employment. If a worker moves from one employer to another, there could be a gap in employment ranging from zero days to six months. Workers without significant employment for two consecutive quarters are said to be in "persistent" non-employment.³ The types of job flows are presented in figures 1 through 4.

¹ Haltiwanger, J., Hyatt, H., & McEntarfer, E. (2015) Cyclical Reallocation of Workers across Employers by Firm Size and Firm Wage. NBER Working Paper (No. 21235). Kahn, L. B. & McEntarfer, E. (2014) Employment Cyclicity and Firm Quality. NBER Working Paper (No. 20698).

² Topel, R. H. & Ward, M. P. (1992) Job Mobility and the Careers of Young Men. *The Quarterly Journal of Economics*, Vol. 107 (No. 2), pp. 439-479.

³ J2J uses the term "non-employment" for a period without paid employment to distinguish it from "unemployment," which has a narrower definition in labor force statistics.

Figure 1. Ohio Job-to-Job Hires, Seasonally Adjusted

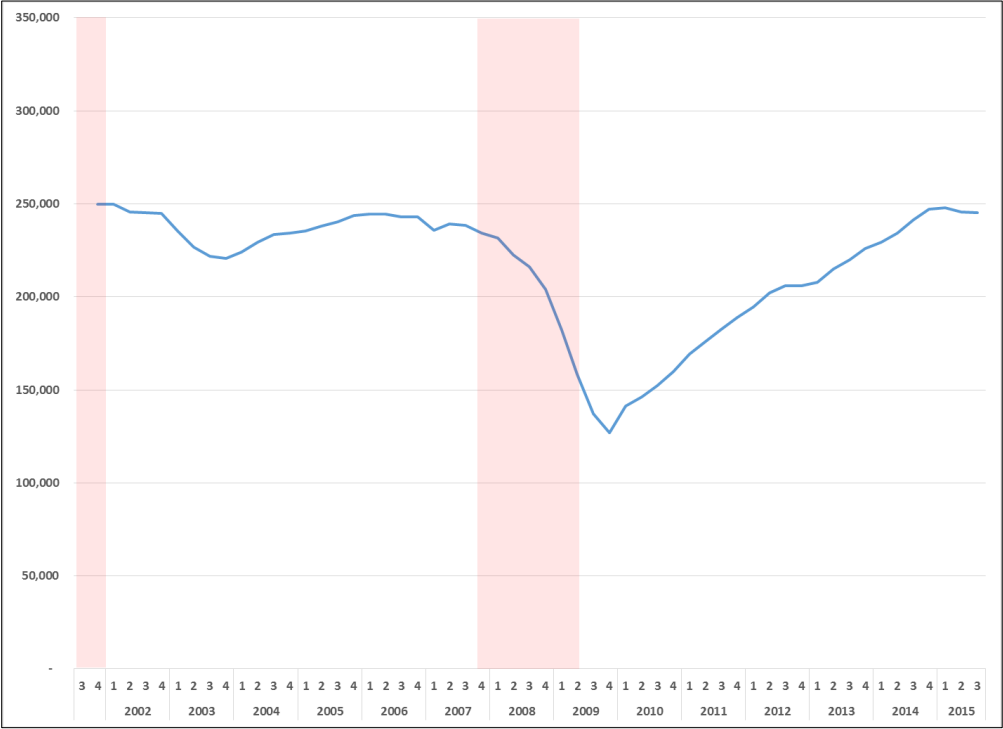


Figure 2. Ohio Job-to-Job Separations, Seasonally Adjusted

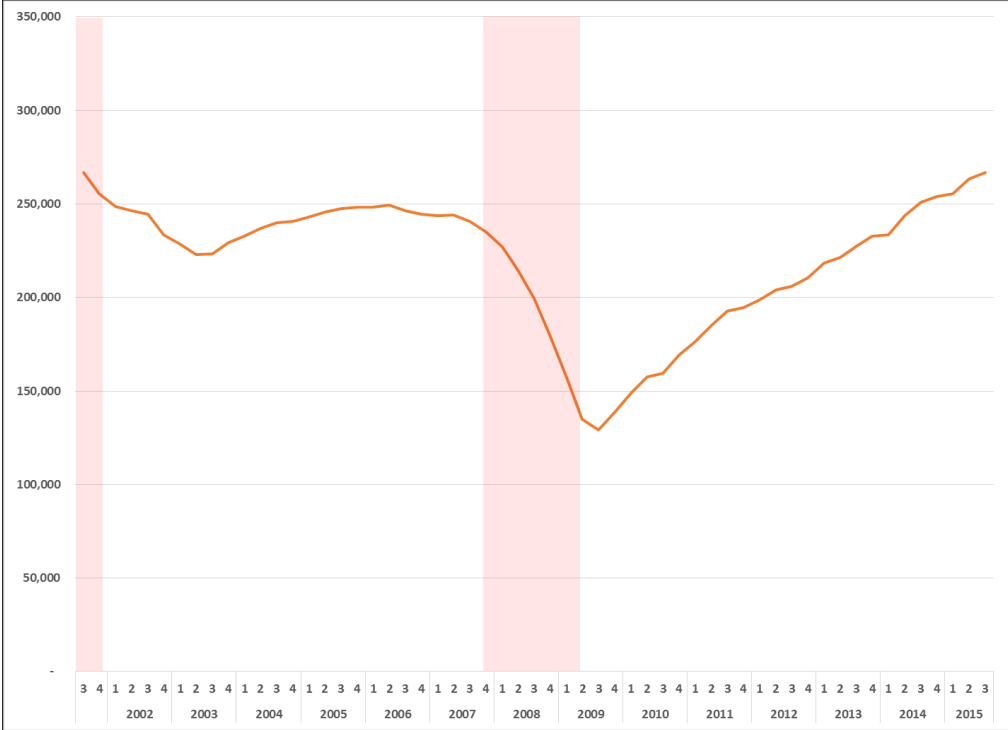


Figure 3. Ohio Hires from Persistent Non-Employment, Seasonally Adjusted

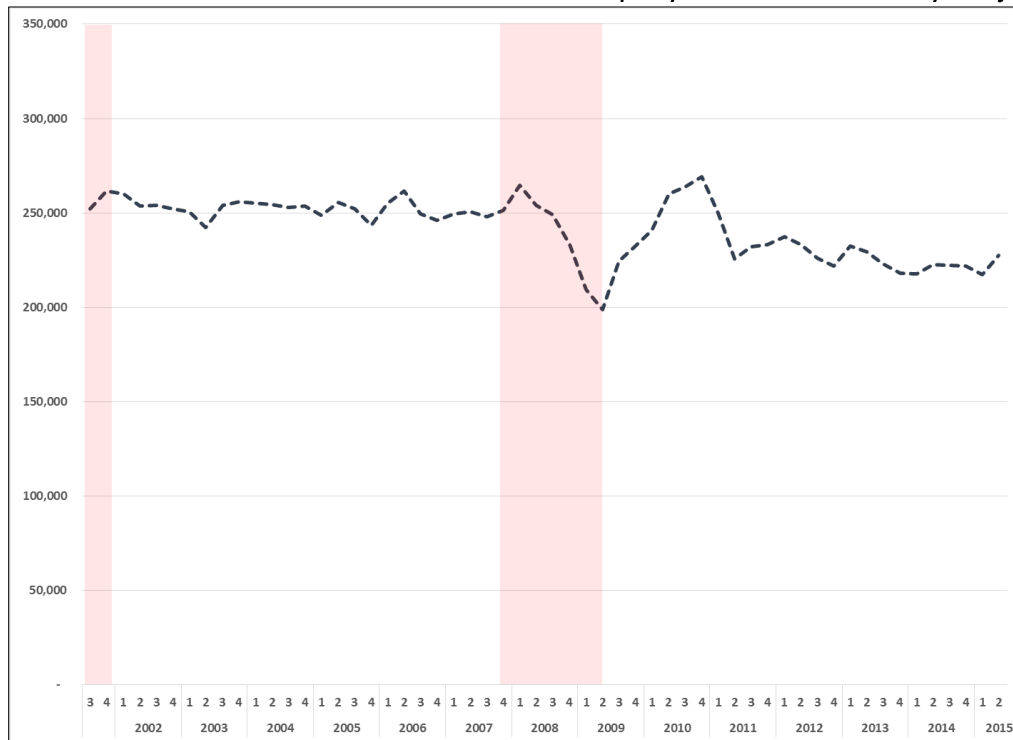


Figure 1 shows the seasonally adjusted⁴ quarterly counts of J2J hires in Ohio. These are workers hired by an employer after leaving another employer with zero to six months of non-employment between jobs. The shaded areas are recessions. Notice the decline in J2J hires associated with the Great Recession and the steady rise in J2J hires in the post-recession recovery.

Figure 2 shows the quarterly counts of J2J separations for workers who separated from one employer and moved to another with less than six months of non-employment between jobs. Each J2J separation has a matching J2J hire, which helps account for cross-industry and cross-state job flows.⁵ For example, a worker may separate from an employer in industry A, counting in on A's tally of separations, and is hired in industry B, counting in on B's hires.

Figure 3 shows the counts of workers hired from persistent non-employment, which is non-employment lasting six months or more. Hires from persistent non-employment include those entering the workforce for the first time, as well as those reentering the workforce after more than six months. This type of hire declined during the Great Recession but not as deeply as the J2J hires. Following the recession, hires from persistent non-employment rose sharply but have not recovered to pre-recession levels.

⁴ All quarterly data presented in this paper are seasonally adjusted.

⁵ Data on cross-state and cross-industry job flows are limited to workers with less than six months of non-employment between employers.

Figure 4. Figure 2. Ohio Separations to Persistent Non-Employment, Seasonally Adjusted

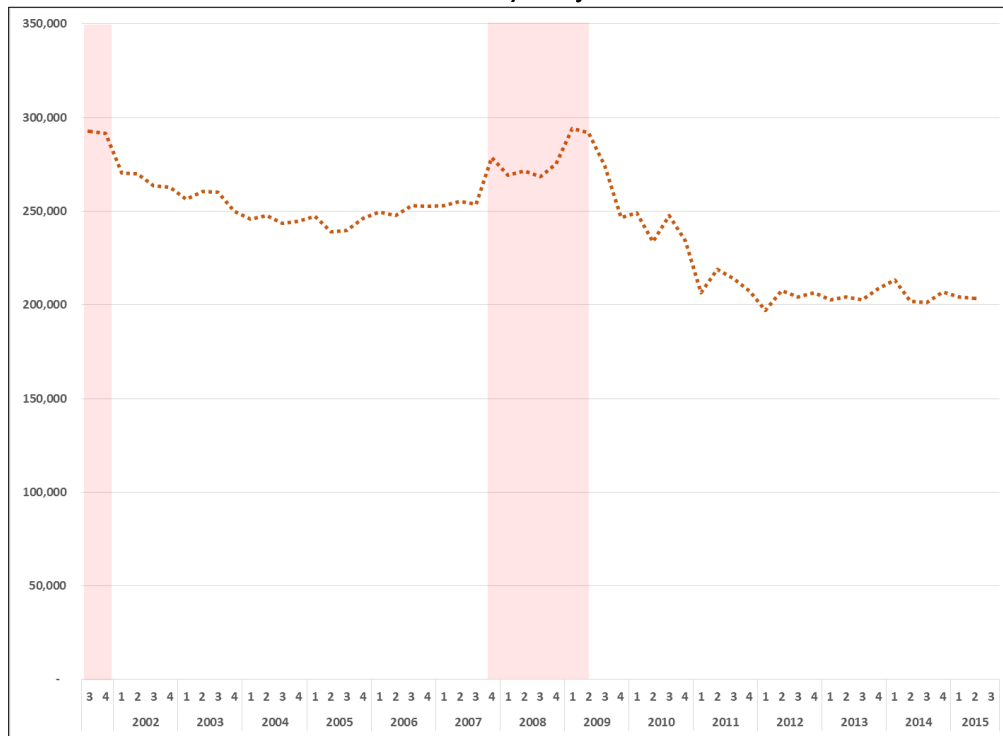


Figure 5. Ohio Job-to-Job Flows, Seasonally Adjusted

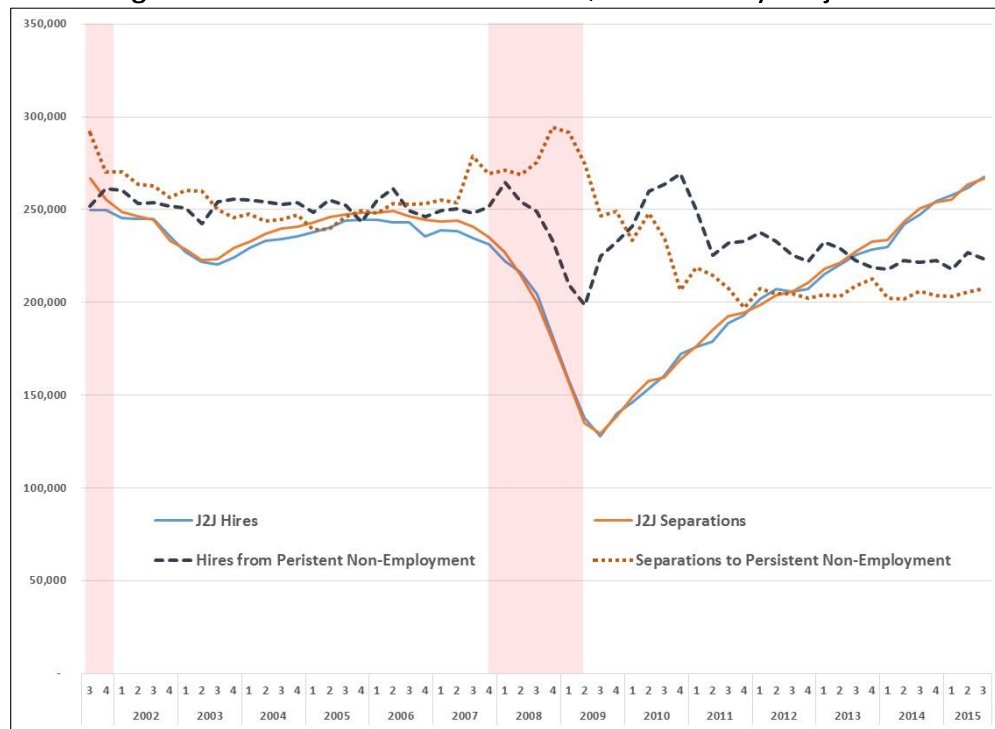


Figure 4 shows the quarterly counts of separations to persistent non-employment. These workers lost their jobs and were not reemployed within six months. Some left the workforce permanently. Separations to persistent non-employment increased with the recession and declined in the recovery; they have not returned to pre-recession levels.

Figure 5 shows the four seasonally adjusted job flows together. The number of J2J hires and separations in any given time period is similar but not exactly the same. This is because hires and separations involving employers in other states are not included in the Ohio data and also because each individual's separation and hire can occur in different quarters.

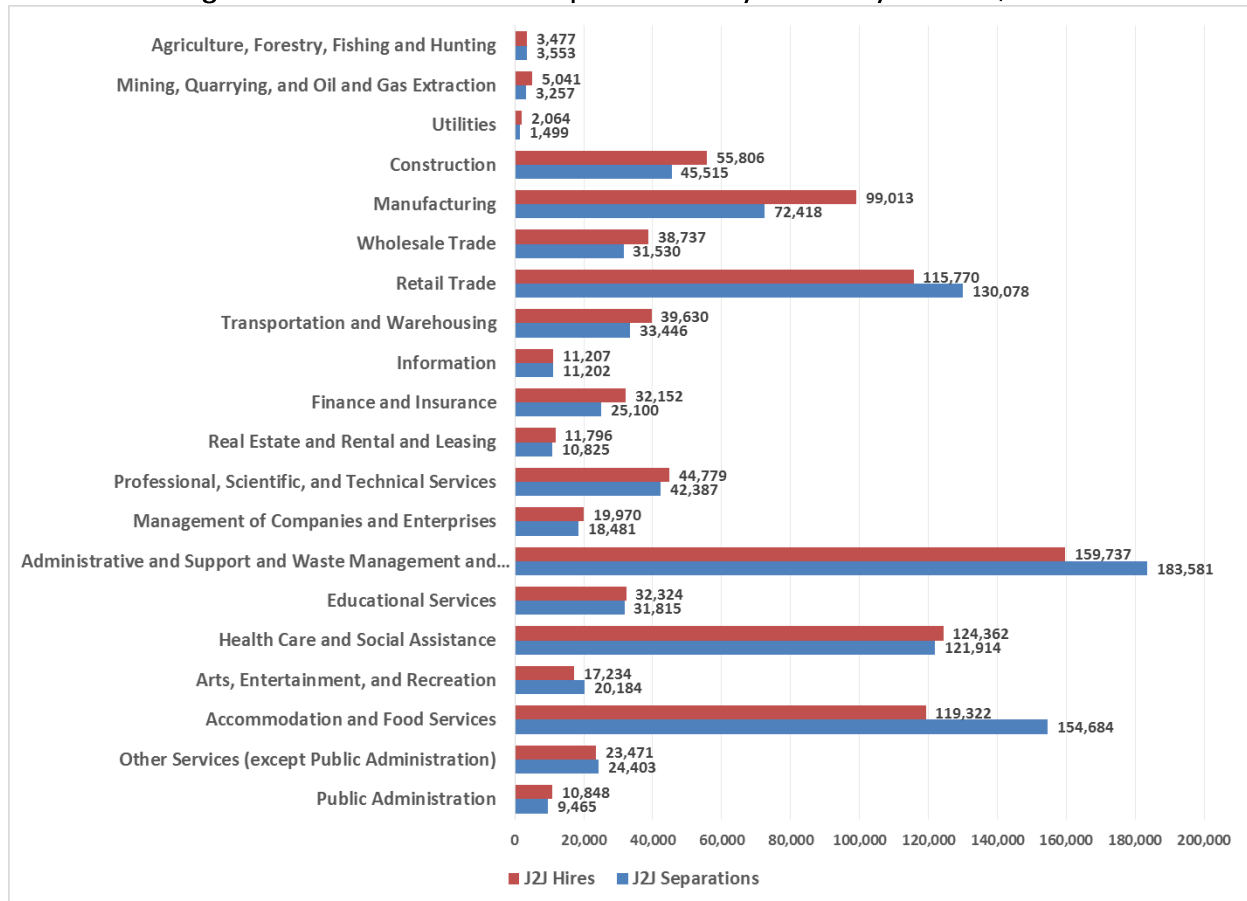
During the Great Recession, the total number of jobs declined sharply, which slowed the flow of workers hired from persistent non-employment, including the hiring of workers entering the labor market for the first time. The recession also slowed – but did not stop – the flow of workers moving from employer to employer. This may have caused some workers to stall their professional advancement, which may have slowed their wage growth.

The next few sections examine J2J flows by industry sector, worker demographics and overall state-to-state job flows. Historical and detailed flows by industry are in Appendix A, and detailed worker demographic flows are in Appendix B.

Industry Sectors

Each industry sector has unique job flow patterns. Figure 6 shows J2J hires and separations for a variety industry sectors in 2014, the latest year for which data were available.

Figure 6. J2J Hires and Separations by Industry Sector, 2014



The administrative and support and waste management and remediation services sector (hereafter referred to as “administrative and waste services”) had the highest volume of J2J hires and separations. This sector includes temporary help agencies, which generate a substantial number of hires and separations from short-term jobs. The sector with the second highest combined number of J2J hires and separations was accommodation and food services, which has a high volume of seasonal work. Health care and social assistance and retail trade also had a large number of J2J hires and separations. Health care and social assistance does not have significant seasonal employment but it is a steadily growing sector, which may encourage workers to change employers to move up the career ladder.

Figure 7. Hires from and Separations to Persistent Non-Employment by Industry Sector, 2014

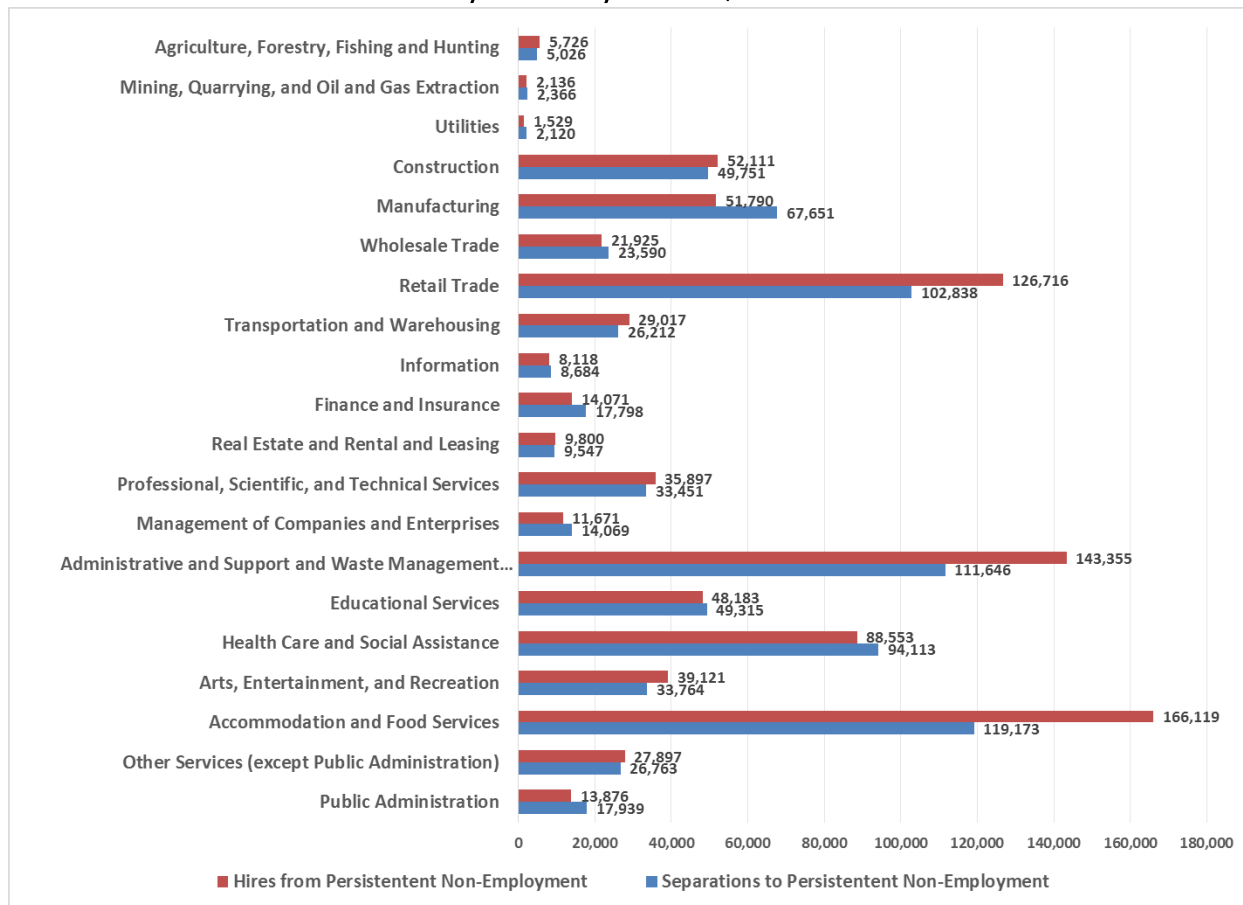


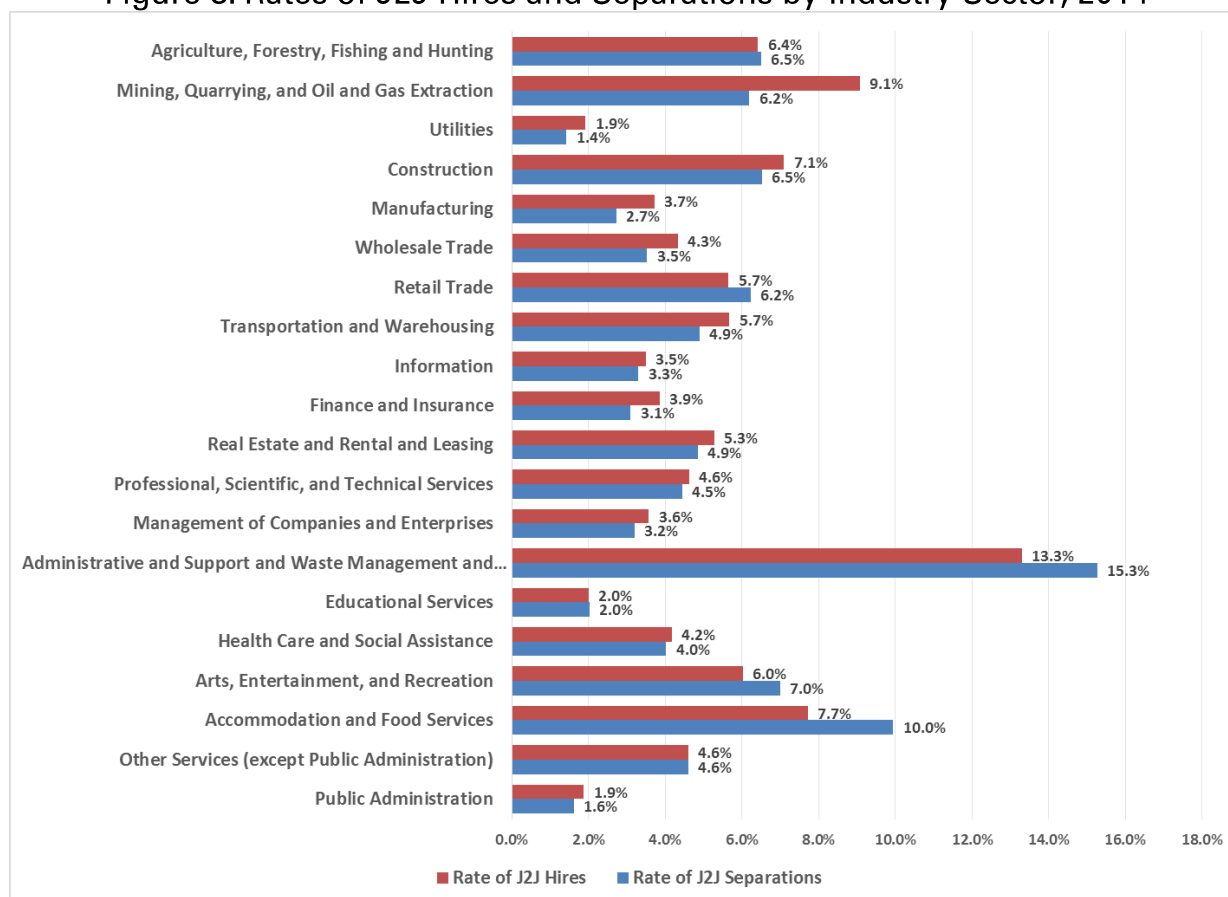
Figure 7 shows hires from and separations to persistent non-employment. The sector with the highest volume of hires from and separations to persistent non-employment was accommodation and food services, followed by administrative and waste services, retail trade, and health care and social assistance.

Health care and social assistance is different from the other high-volume sectors because it does not have significant seasonal employment. Many occupations in the sector require significant post-secondary education, and some hires from persistent non-employment may be workers hired from educational programs. At the same time, many workers in health care and social assistance are older and may be retiring, leading to high volumes of separations to persistent non-employment.

Figures 6 and 7 show that retail trade, administrative and waste services, and accommodation and food services had high flow volumes. For all three, the volumes of hires from persistent non-employment exceeded separations to persistent non-employment, and J2J separations exceeded J2J hires. This pattern

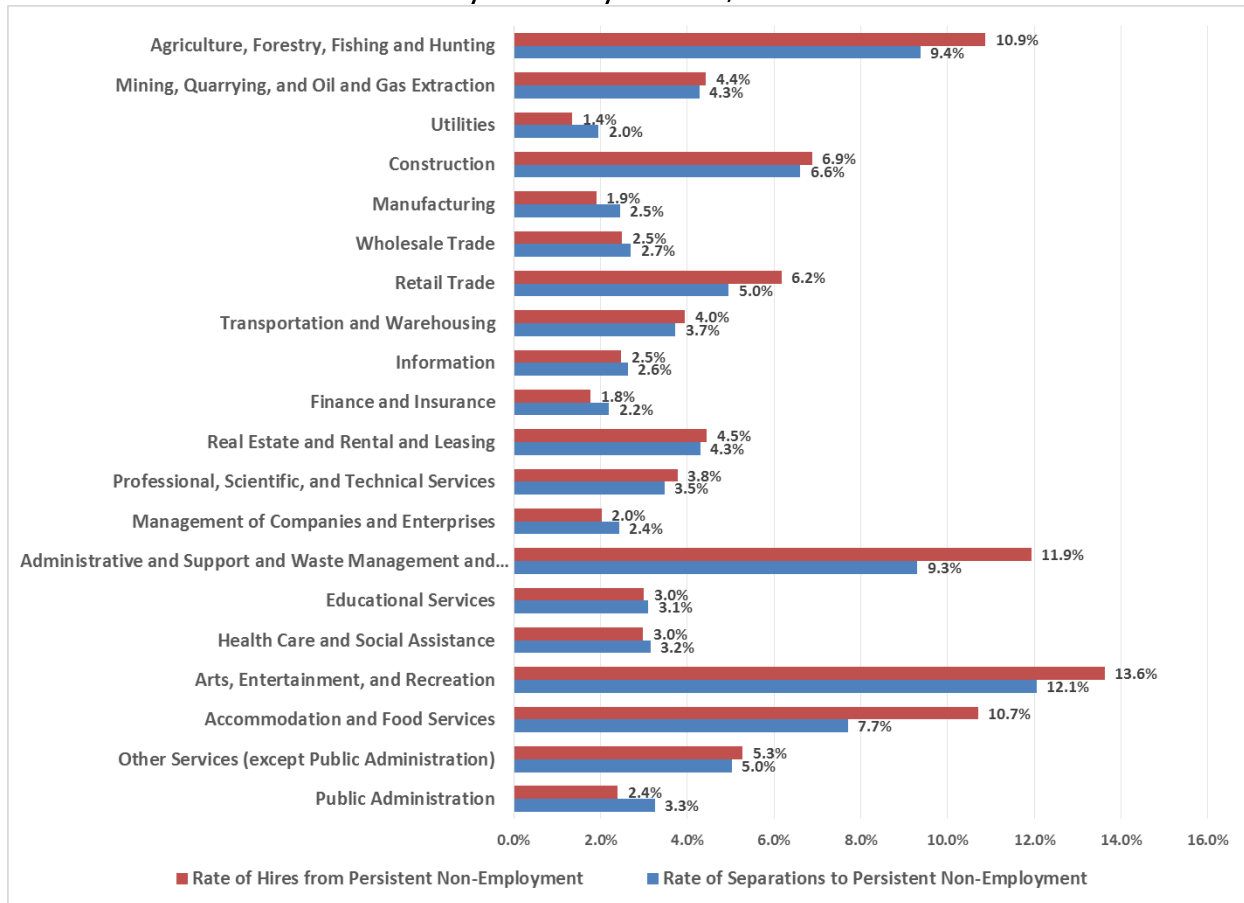
suggests that many workers join the workforce by getting jobs in these sectors, then move on to jobs with other employers.

Figure 8. Rates of J2J Hires and Separations by Industry Sector, 2014



Job flow volumes are affected by sector size and job flow rates. The job flow rates are the number of hires or separations per 100 jobs. Small sectors with low flow volumes could have high job flow rates, while larger sectors with high flow volumes could have low flow rates. Figure 8 shows the rates of J2J hires and separations by sector for 2014. The administrative and waste services sectors had the highest rates of J2J hires and separations. This sector also had the highest volumes of J2J hires and separations. Accommodation and food services had the next highest J2J hires and separation rates, followed by mining, quarrying, and oil and gas extraction; construction; arts, entertainment, and recreation; and agriculture, forestry, fishing and hunting. Health care and social assistance had average job flow rates; this sector's high J2J flow volumes were driven by its large size.

Figure 9. Rates of Hires from and Separations to Persistent Non-Employment by Industry Sector, 2014

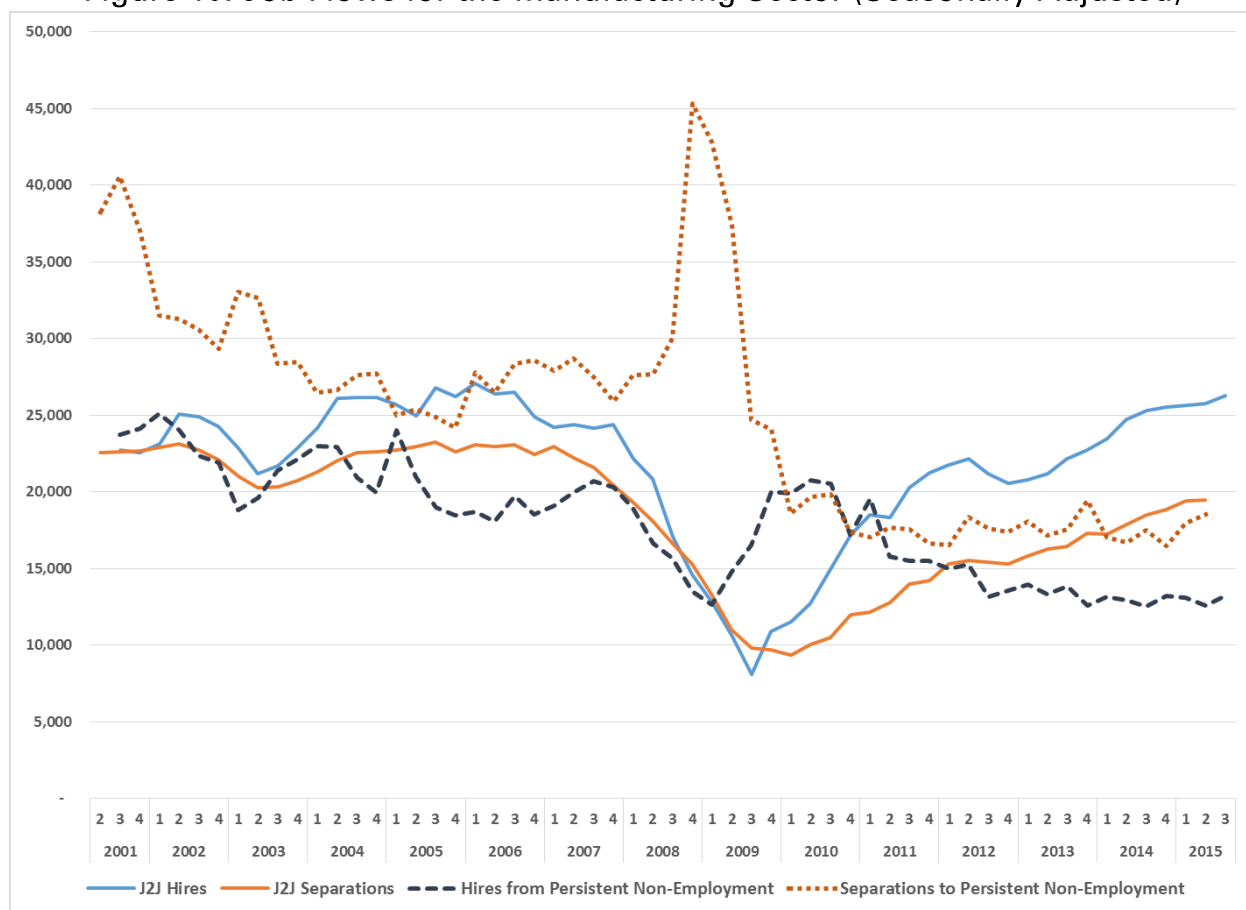


The arts, entertainment, and recreation sector had the highest rate of hires from and separations to persistent non-employment. This sector has a pattern of seasonal employment, with many young workers entering the labor force for the first time or during school breaks. Other sectors with high rates of hires from and separations to persistent non-employment were administrative and waste services; agriculture, forestry, fishing, and hunting; and accommodation and food services. These sectors also have significant seasonal work.

The Great Recession disrupted all job flows, but some industries were more strongly affected than others. Figure 10 shows the seasonally adjusted job flows for the manufacturing sector from the second quarter 2011 through the third quarter 2015. The most striking feature is the spike of separations to persistent non-employment, which peaked at 45,000 during the fourth quarter of 2008. This was the highest volume of separations to persistent non-employment among the sectors. At the same time, hires from persistent non-employment and J2J hires and separations declined, as a result of manufacturing employers downsizing. When manufacturing employment rose during the recovery, much of the increase was from hires from other industry sectors (J2J hires) and not hires from

persistent non-employment. Employers may have preferred workers already employed rather than laid-off or inexperienced workers.

Figure 10. Job Flows for the Manufacturing Sector (Seasonally Adjusted)

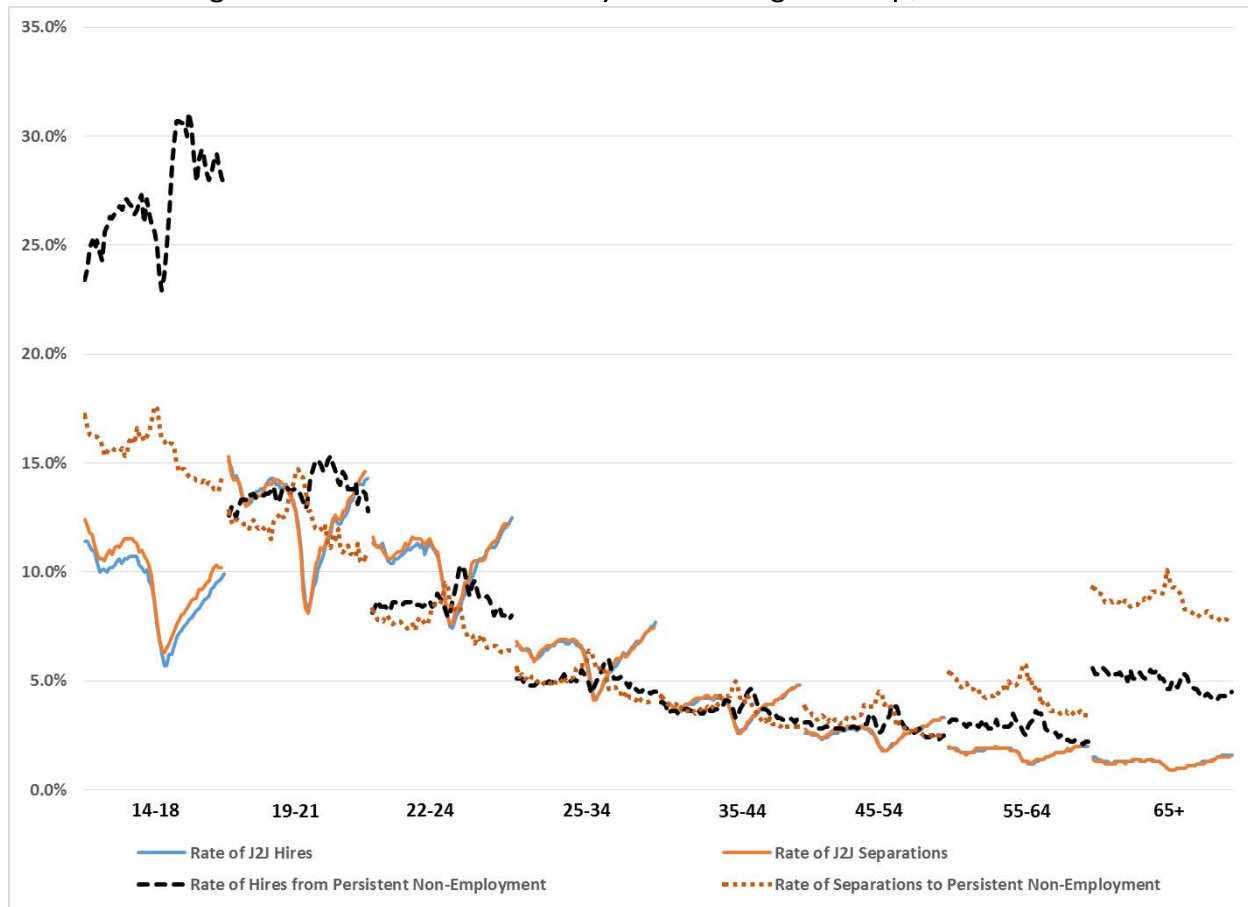


Appendix A has detailed job flow information for each industry sector.

Worker Demographics

Industry needs drive job flows. Seasonal business, expansions and contractions, and openings and closings create and end jobs. Workers respond to business needs, but some workers are more likely than others to start and end jobs or move from one employer to another. This section focuses on the job flow rates of several worker demographic subgroups.⁶

Figure 11. Job Flow Rates by Worker Age Group, 2001-2015



The graphs in Figure 11 show clear differences among age groups. Hire rates from persistent non-employment were highest for ages 14 to 18 and progressively lower for each age group until they increased for those 65 and older. Those hired from persistent non-employment include workers entering the workforce for the first time and workers reentering the workforce after retirement.

The rates of separations to persistent non-employment were also highest for the 14-18 age group and were progressively lower for the 19-21, 22-24, 25-34 and 35-

⁶ Appendix B contains detailed information for each subgroup category.

44 age groups. The 45-54 age group had the lowest rates. The rates increased for the 55-64 age group and those 65 and older. Younger workers may be more likely to work seasonally during school breaks, and older workers more likely to permanently leave the labor force.

Finally, rates of J2J hires and separations were highest for the 19-21 group and lowest for those 65 and older. The rates for the 14-18 age group were similar to those of the 22-24 group. The Great Recession had a stronger effect on J2J hires and separations among younger workers.

Figure 12. Job Flow Rates by Worker Sex, 2001-2015



Figure 12 shows job flow rates for men and women. The rates for J2J hires and separations were similar for men and women although men's rates were about 0.4 percentage points higher on average.

The rates of separations to persistent non-employment were much higher for men during the Great Recession. More men were employed in industries that had higher rates of layoffs and closures, such as construction and manufacturing. Rates of hires from persistent non-employment were higher for men early in the recovery period as laid-off workers returned to jobs.

Figure 13. Job Flow Rates by Worker Education Level (25 and Older), 2001-2015

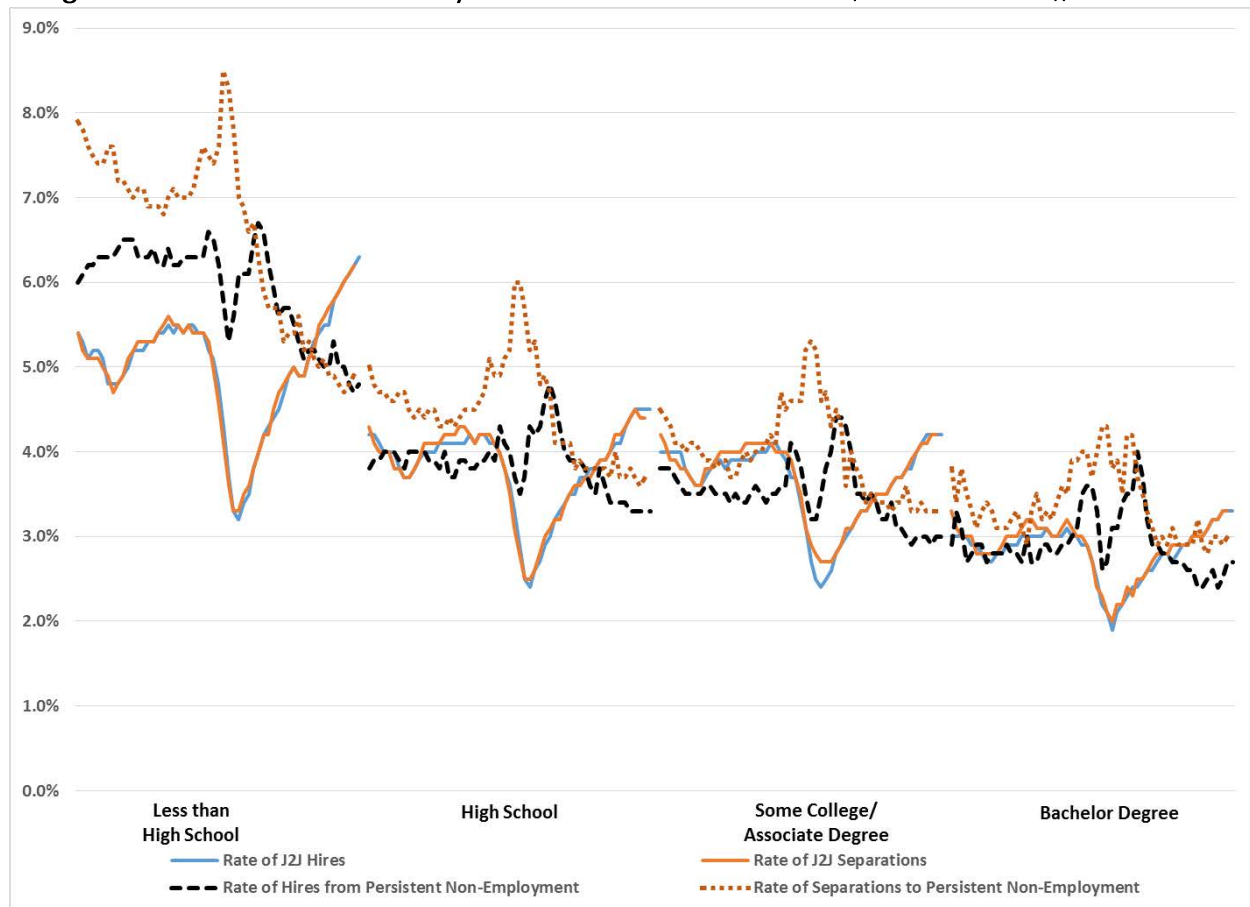
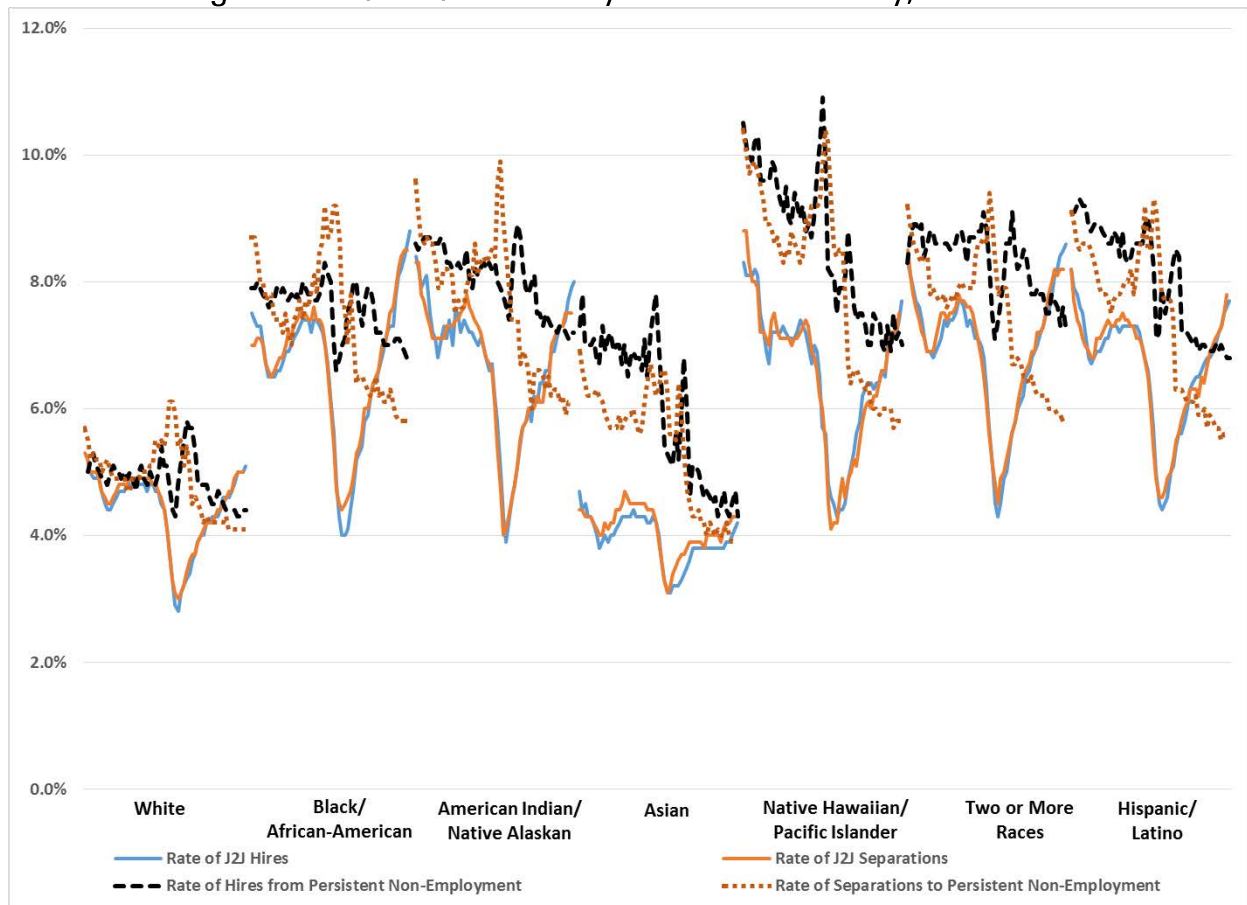


Figure 13 shows educational attainment for those 25 and older.⁷ As with age, there was a strong relationship between job flow rates and worker education. Job flow rates were highest for those with less than a high school diploma and lowest for those with a bachelor's degree or higher. The impact of the Great Recession also decreased as education increased. Those with less than a high school diploma had the largest changes in job flow rates, and separations to persistent non-employment peaked at about 8.4 percent. For those with a bachelor's degree or higher, separations to persistent non-employment peaked at about 4.2 percent.

⁷ Education level is recorded only for workers 25 and older based on the assumption that many of those under 25 may still be pursuing an education.

Figure 14. Job Flow Rates by Race and Ethnicity, 2001-2015



With minor exceptions, Figure 14 shows that job flow rates for white workers were lower on average than for other racial and ethnic groups. In addition, white worker job flow rates were less affected by the recession. Some of the job-flow differences among racial and ethnic groups may be explained by age and education. The median age for most minority groups is several years younger than the median age for whites, and young workers tend to have higher job flow rates (Figure 11). In addition, some minority groups have higher percentages of those 25 and older with less than a high school diploma, and those without high school diplomas tend to have higher job flow rates (Figure 13). Asians had the highest percentage with a bachelor's degree or higher, which may partially explain their low J2J hire and separation rates. Rates for American Indians/Native Alaskans and Native Hawaiians/Pacific Islanders are based on very low volumes of job flows.

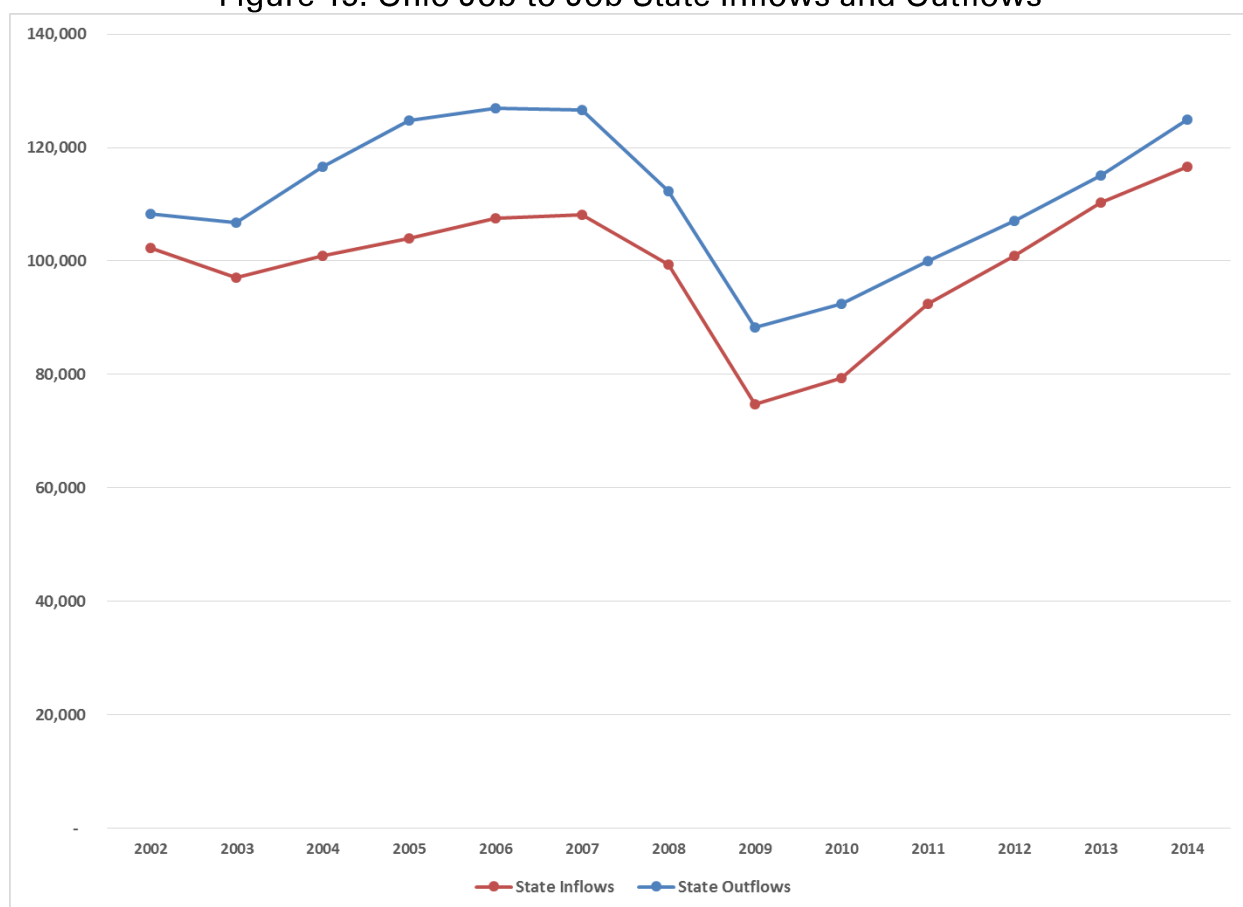
Appendix B has detailed job flow information by worker demographic.

State-to-State Job Flows

Changing employers usually requires a change in work location, and for some workers this means crossing state boundaries. In 2014, about 4 percent of all jobs in Ohio were held by workers living outside Ohio; about 4.1 percent of jobs held by Ohio workers were in other states.

Figure 15 shows annual Ohio J2J inflows and outflows from 2002 to 2014. The total volume of cross-state job flows ranged from a low of about 163,000 in 2009 to a high of almost 235,000 in 2007. There was a net outflow throughout the period, meaning that more Ohio workers⁸ took jobs with employers outside Ohio than non-Ohio workers took jobs in Ohio. The net outflow of workers was larger before the Great Recession than during the recovery.

Figure 15. Ohio Job-to-Job State Inflows and Outflows



⁸ J2J flow data uses work locations only, not worker home locations.

Figure 16. 2014 Top 10 States for Ohio Inflows and Outflows

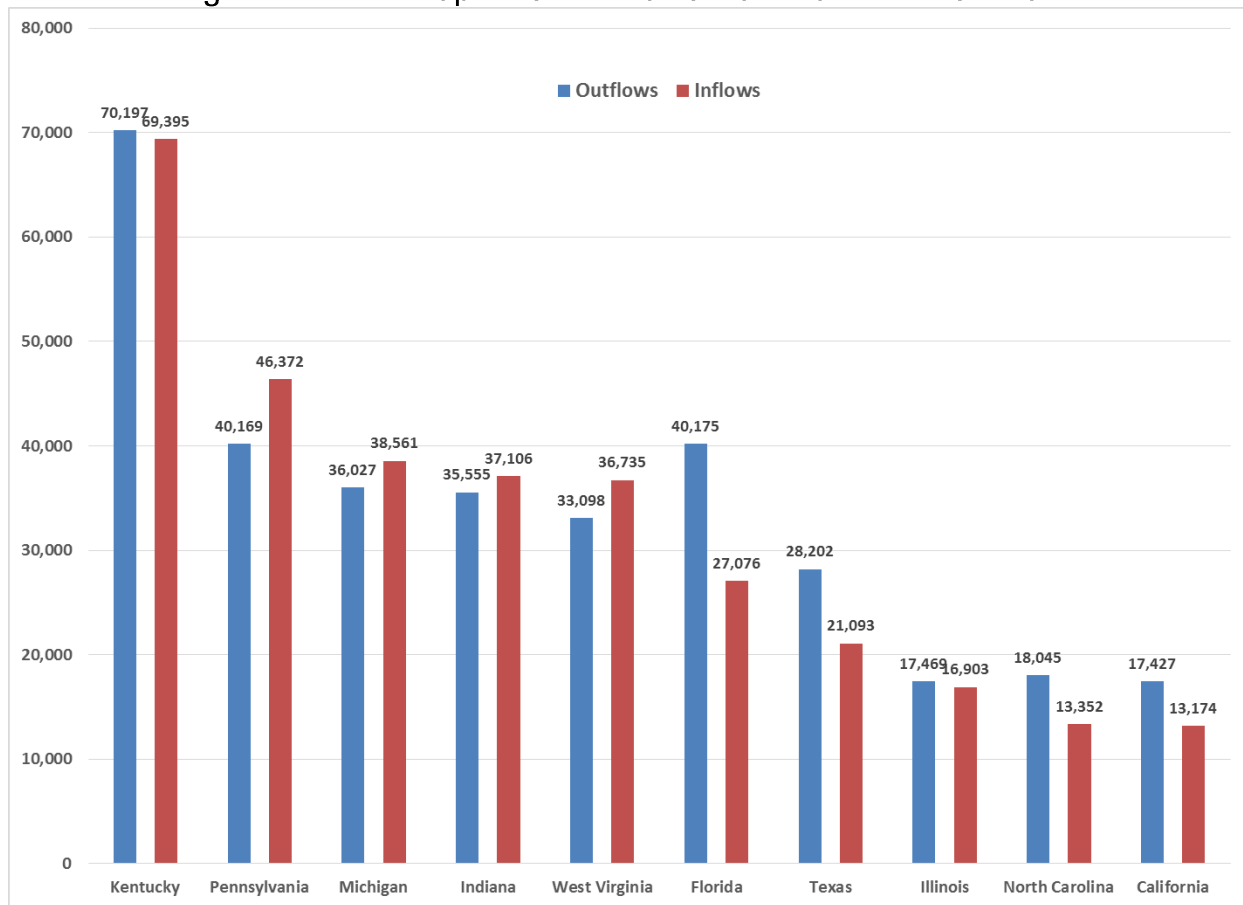


Figure 16 shows the top states for cross-state job flows with Ohio in 2014. These states accounted for 68 percent of all state-to-state job flows that year. The highest number of cross-state job flows was with Kentucky, with more than 139,000. Ohio had a net outflow of workers to Kentucky: 802. Ohio's largest net outflow was with Florida. Just over 13,000 more workers left Ohio for jobs in Florida than left Florida for jobs in Ohio. Ohio had net inflows from four states: Pennsylvania, West Virginia, Michigan and Indiana.

Figure 17. 2014 State-to-State Job Flows by Industry Sector

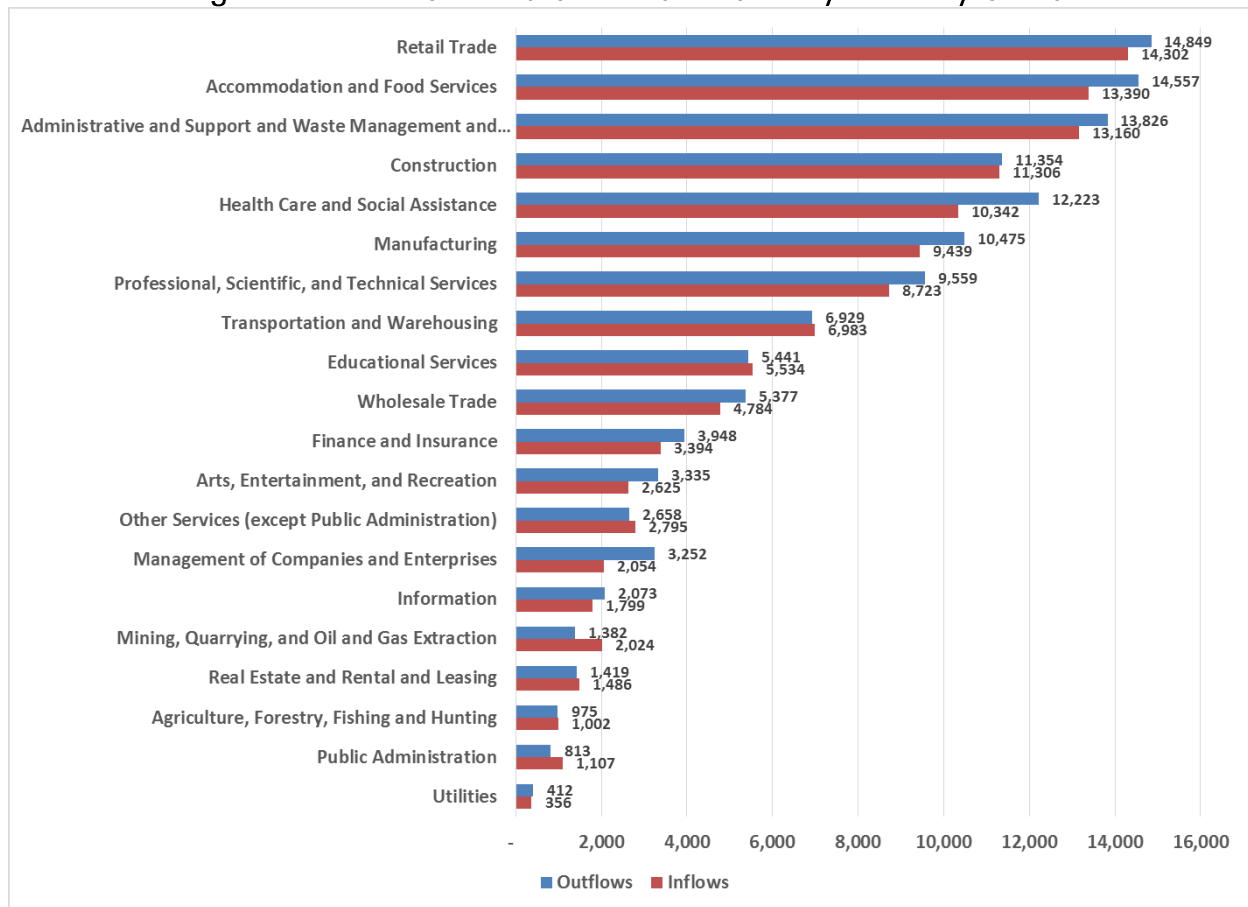


Figure 17 shows state-to-state job flows for 2014 by industry sector. Retail trade had the highest total volume of state-to-state job flows while utilities had the lowest. Volumes are driven the sector size and flow rates. Three sectors had high rates of cross-state jobs flows: construction (11.4 percent); agriculture, forestry, fishing and hunting (13.3 percent); and mining, quarrying, and oil and gas exploration (23.4 percent). The volume of agriculture cross-state job flows may be driven by migrant workers. The volume of mining job flows may be driven by shale employment; mining, quarrying, and oil and gas exploration has a significant net inflow of workers into Ohio.

Figure 18. 2014 State-to-State Job Flows by Worker Age Group

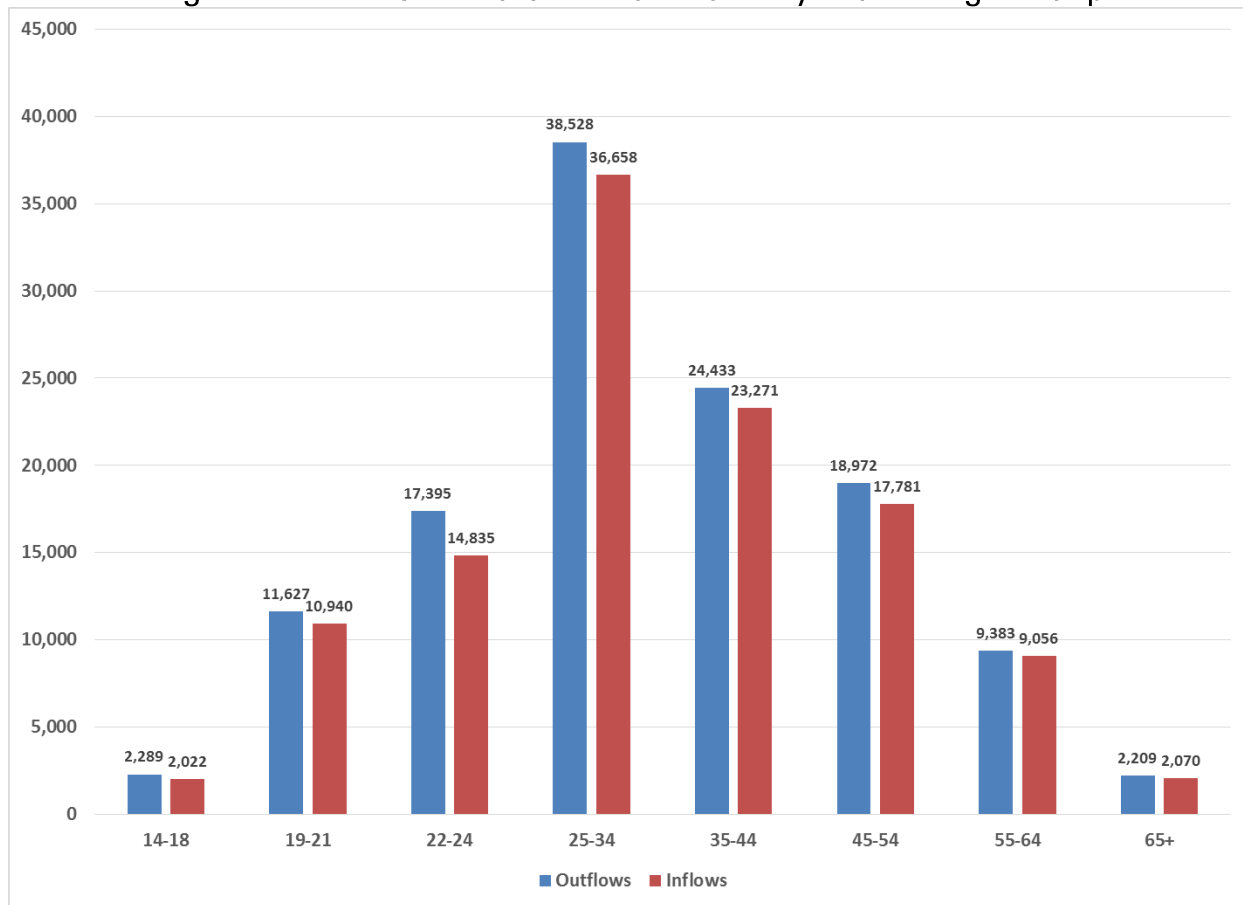
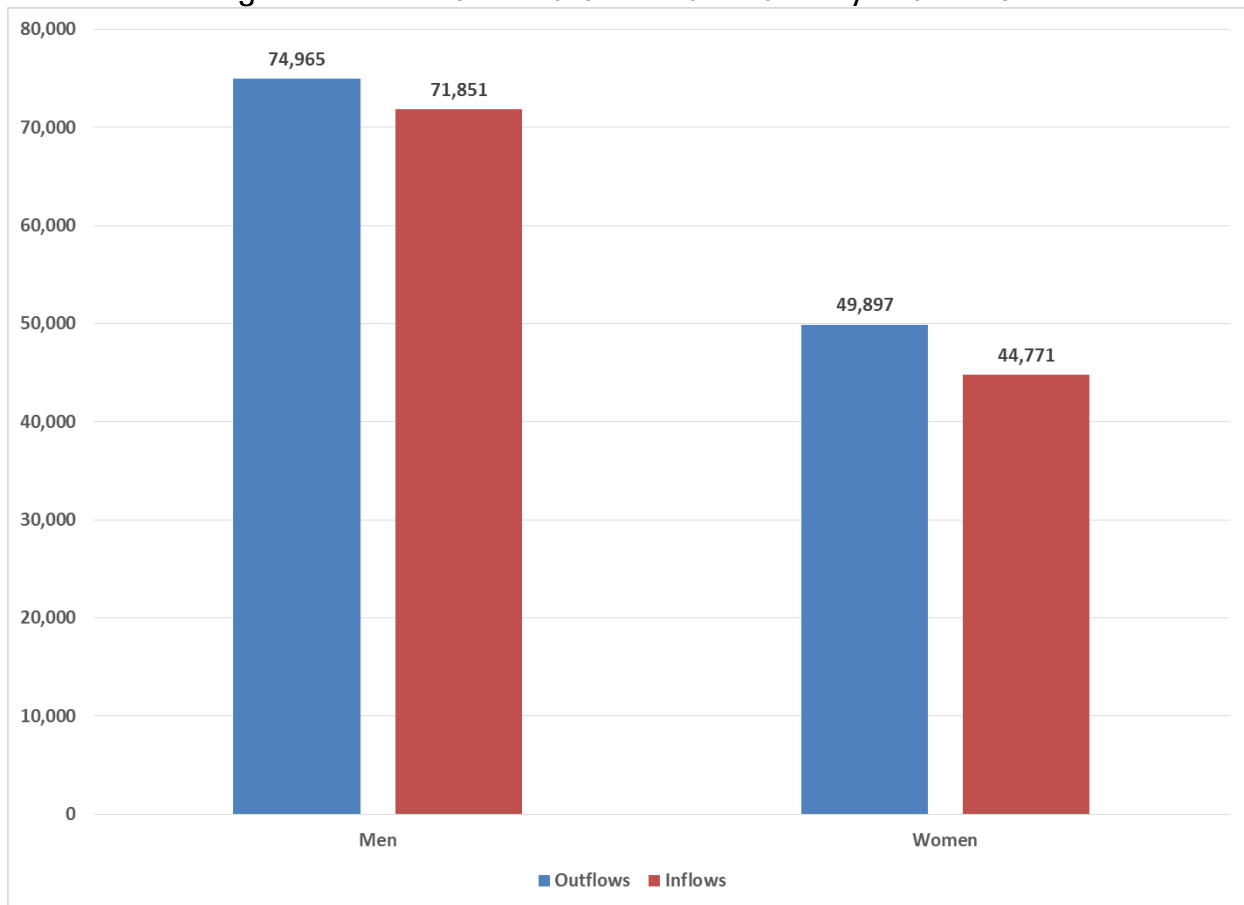


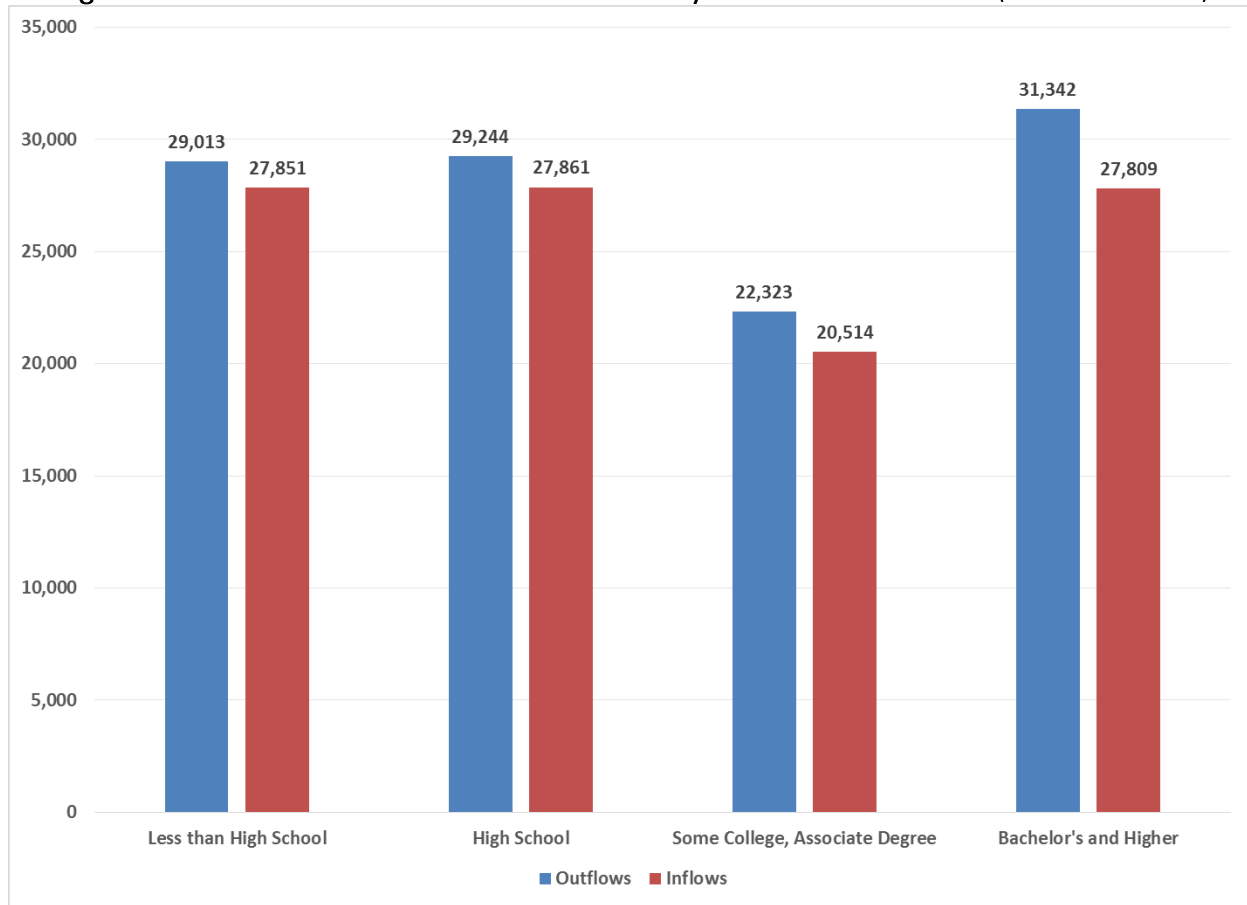
Figure 18 shows the age distribution of state-to-state job flows in 2014. Most of those who traveled to and from Ohio for jobs were ages 25 to 34. The 14-to-18 age group and the 65 and older group had the lowest volumes. All age groups had a net outflow; the 22-to-24 age group had the largest net outflow, followed by the 25-to-34 age group.

Figure 19. 2014 State-to-State Job Flows by Worker Sex



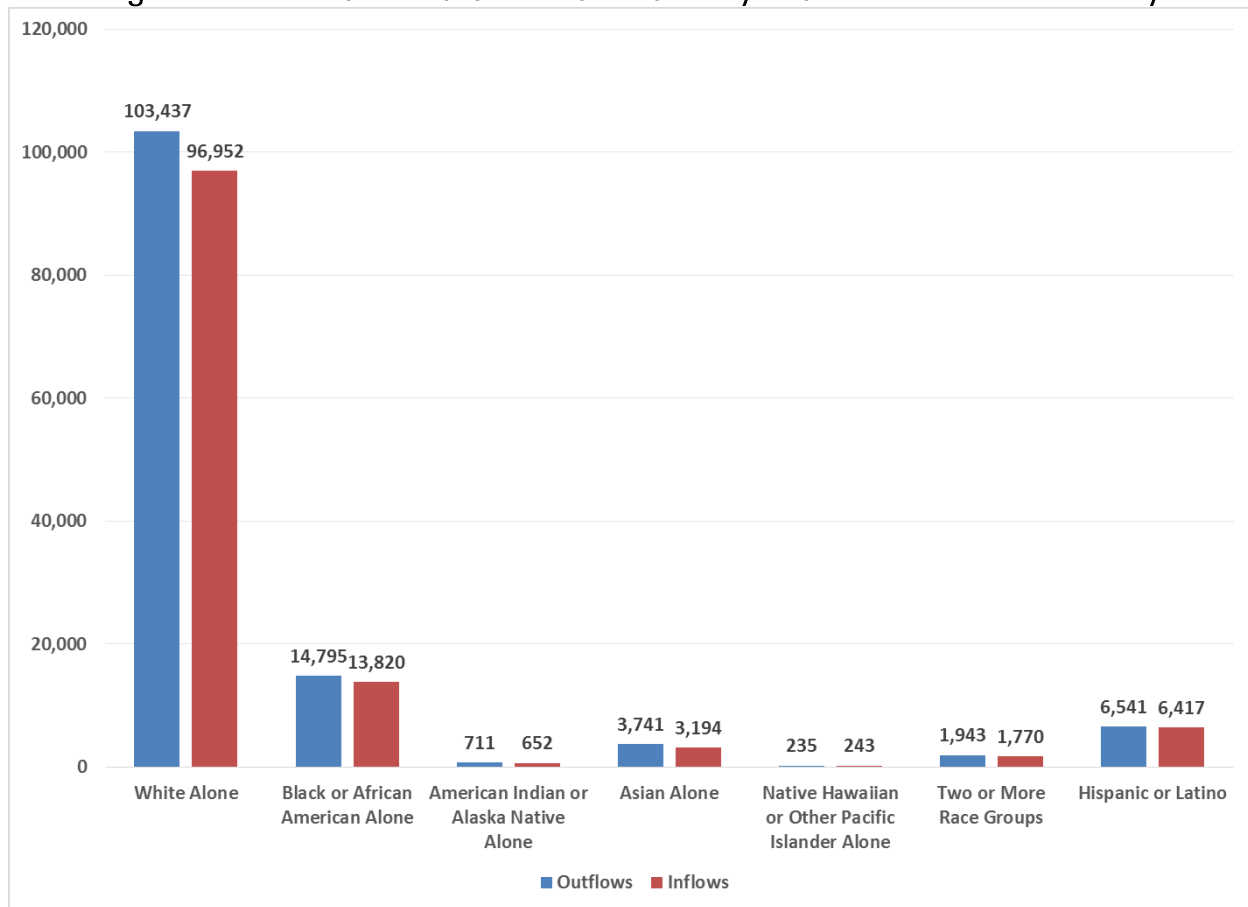
The volume of state-to-state job flows was much higher for men than for women, but women had a higher rate of net outflow than men.

Figure 20. 2014 State-to-State Job Flows by Worker Education (25 and Older)



The volume of state-to-state job flows was highest for those with a bachelor's degree or higher, but not by much. Those with a bachelor's degree or higher had the highest net outflow, followed by those with some college or an associate's degree, then those with a high school diploma, then those with less than a high school diploma. These data apply only to workers 25 and older.

Figure 21. 2014 State-to-State Job Flows by Worker Race and Ethnicity



All racial and ethnic groups had a net outflow in 2014 except for Native Hawaiian and other Pacific Islanders, who had a very small net inflow.

Summary

The J2Jflows data provide us with a new perspective on the labor market. Monthly labor force and industry totals tell us about employment growth or shrinkage, but the job flows data tell us about the movements of workers. The rates of job flows vary widely by worker age and education and by industry sector. Much of this job flow is driven by seasonal and temporary work. Ohio has had a net outflow of workers. Many workers are 'exchanged' with employers in neighboring states, but there are also significant flows of workers between Ohio and sun-belt states.

Ohio Workforce Dynamics

Job-to-Job Flows

Appendix A: Industry Sectors

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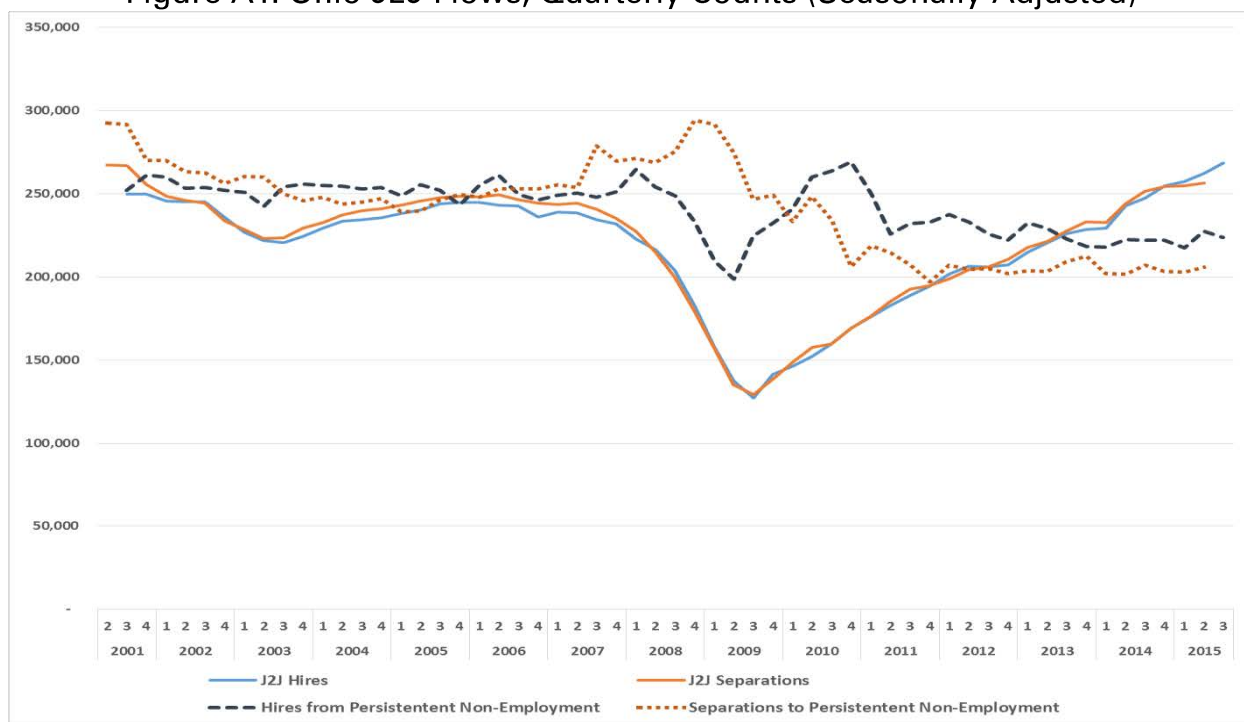
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Job-to-Job Flow Recap

The Job-to-Job (J2J) flow data provide a new perspective on labor market activity. Unemployment insurance records show whether a worker was employed at some point during a quarter. Workers who do not appear in the records for two quarters before they begin a job or two quarters after they leave a job are said to be in “persistent” non-employment.¹ This information is combined to create four types of job flow data: job-to-job separations, job-to-job hires, hires from persistent non-employment, and separations to persistent non-employment.

This appendix presents detailed job flow data for the industry sectors. There are three figures for each sector. The first figure shows the quarterly job flow volume. A sector’s job flow volumes are affected by the size of the sector and its job flow rates. The second figure for each sector shows the quarterly job flow rates. As a point of reference, Figure A1 shows total Ohio job flows from 2001 through 2015. Separations to persistent non-employment peaked at more than 294,000 per quarter during the recession, then declined to less than 205,000 per quarter late in the recovery.

Figure A1. Ohio J2J Flows, Quarterly Counts (Seasonally Adjusted)



J2J hires and separations declined to less than 130,000 per quarter during the recession, then rose to more than 250,000 per quarter in 2015.

¹ J2J uses the term “non-employment” to mean a period without paid employment, as opposed to “unemployment,” which has a narrower definition in labor force statistics.

Figure A2. Ohio J2J Flows, Quarterly Rates (Seasonally Adjusted)

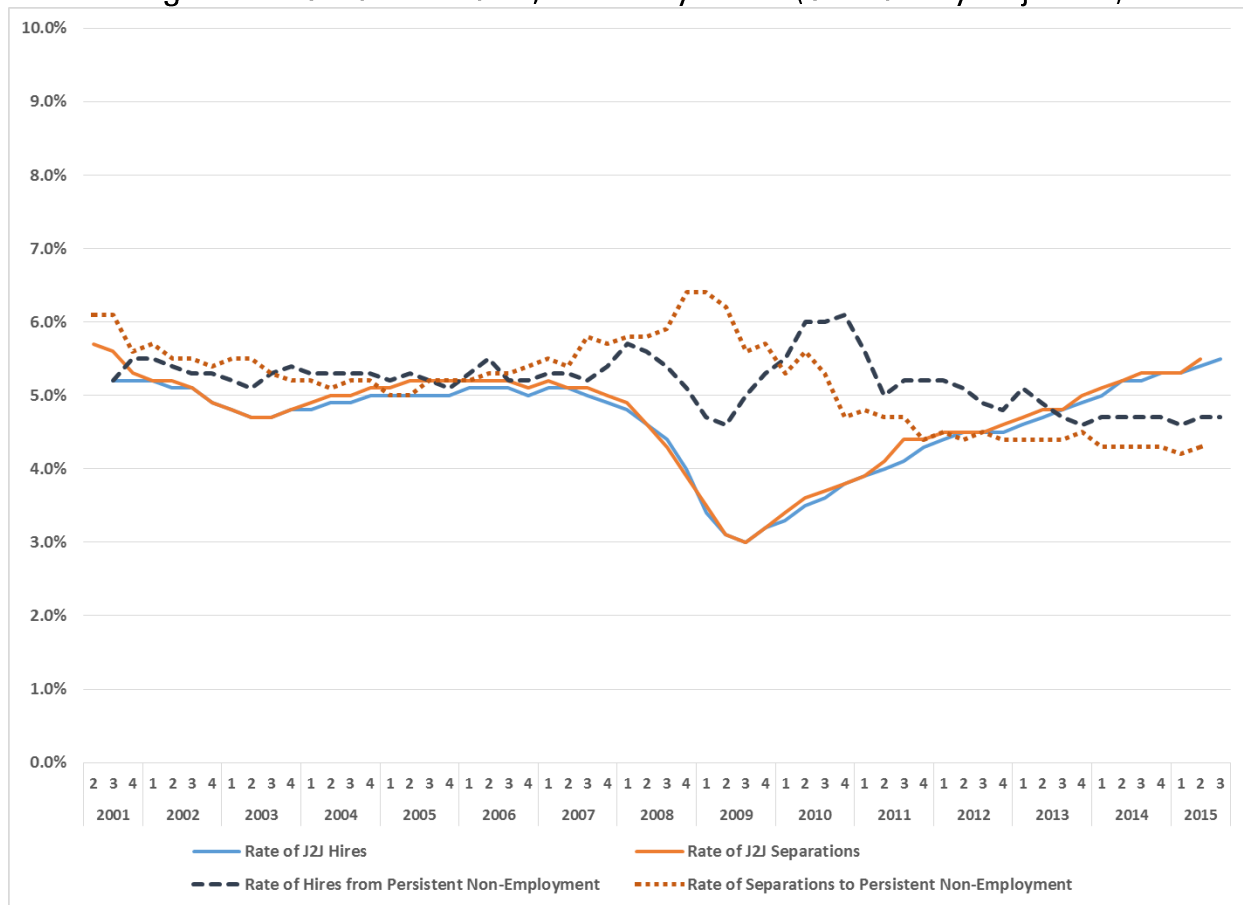


Figure A2 shows Ohio job flow rates from 2001 through 2015. The rates are averages across all population subgroups. Separations to persistent non-employment peaked at 6.4 percent during the Great Recession and declined to about 4.3 percent in the recovery. Hires from persistent non-employment peaked at about 6 percent early in the recovery, then declined to about 4.7 percent late in the recovery. J2J hires and separations declined to a low of 3 percent during the recession, then rose to about 5.4 percent in 2015.

The third figure for each sector shows J2J inflows and outflows for 2014. Many workers who move from one employer to another remain in the same sector. This strategy makes sense because the more time workers spend in a sector, the more sector-specific knowledge, skills and abilities they can develop, making them attractive to other employers in the sector. Other workers change sectors as well as employers. They may have transferable skills. For example, information technology and administrative support workers have skills useful in several sectors. Other workers might have limited skills and can move freely from sector to sector with little financial loss. This may be especially true for younger workers.

Agriculture, Forestry, Fishing and Hunting

Figure A3. Agriculture, Forestry, Fishing and Hunting, Job Flow Counts

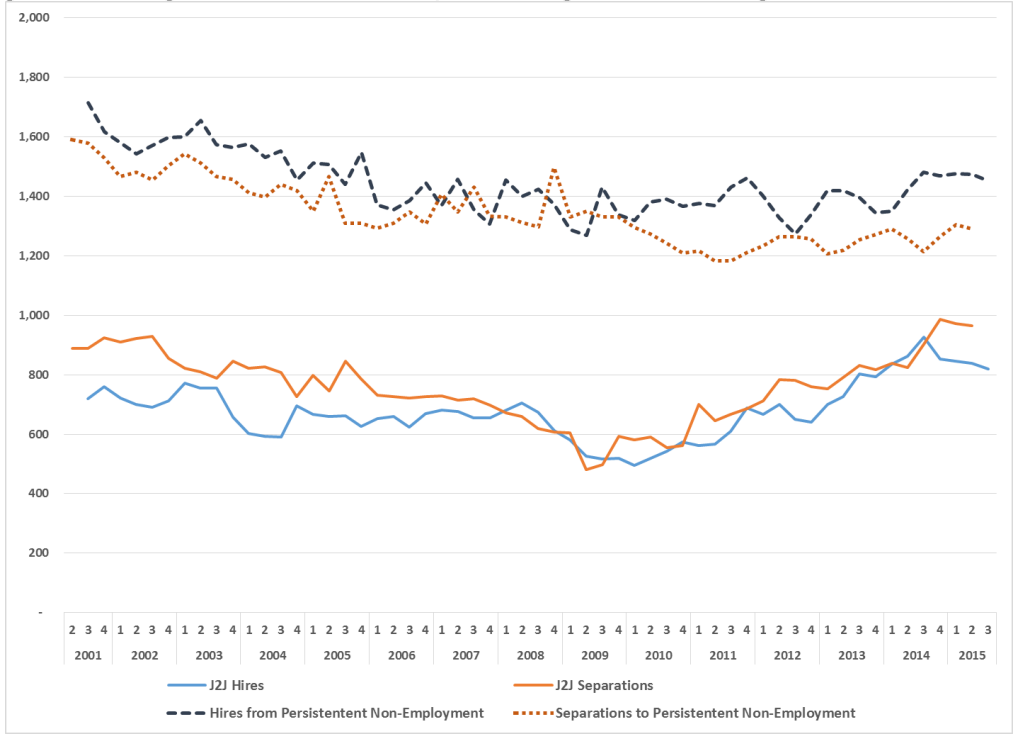


Figure A4. Agriculture, Forestry, Fishing and Hunting, Job Flow Rates

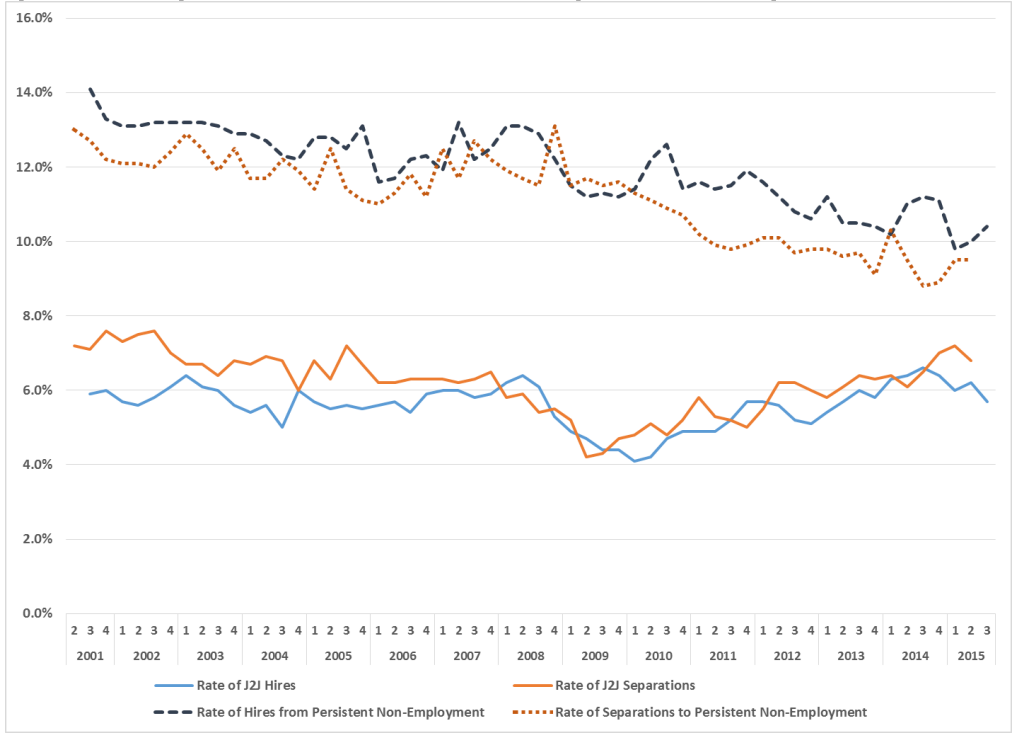
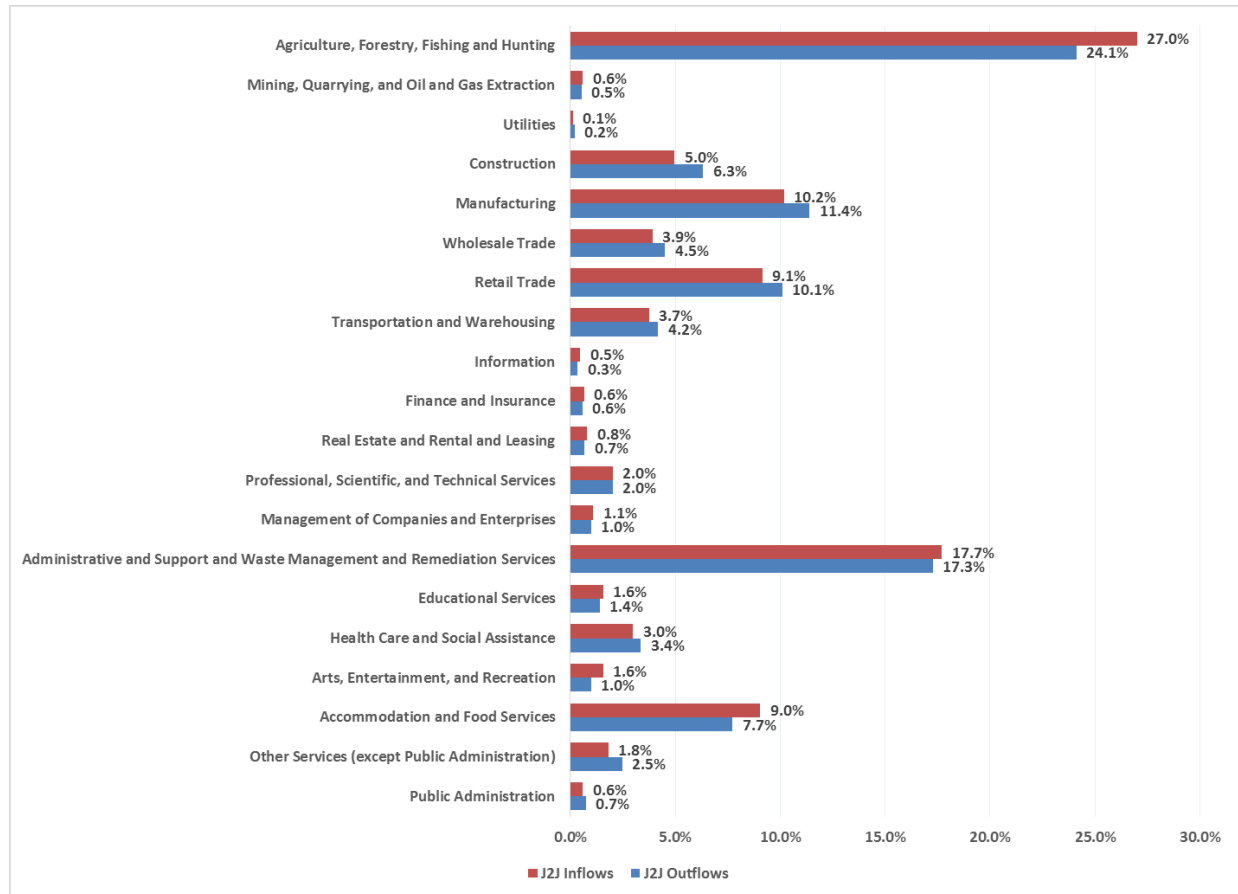


Figure A5. Agriculture, Forestry, Fishing and Hunting,
2014 J2J Inflows & Outflows



The agriculture, forestry, fishing and hunting sector had low levels of J2J flows, hires and separations: less than 1,000 each per quarter. Levels of separations to and hires from persistent non-employment were mostly under 1,600 each per quarter.

Job flow rate averages were higher than those for their all-industry counterparts. The J2J hires and separations were 1 and 1.5 percentage points above the all-industry averages. Hires from and separations to persistent non-employment were 6.8 and 6 percentage points above the all-industry averages. This sector has significant seasonal employment, which may account for the high rates of hires from and separations to persistent non-employment.

Major J2J inflows were from the sector itself, as well as from administrative and waste services and manufacturing. Major outflows were to the sector itself, as well as to administrative and waste services, manufacturing, and retail trade. The high rates of inflows and outflows are most likely driven by the seasonal nature of the work.

Mining, Quarrying, and Oil and Gas Extraction

Figure A6. Mining, Quarrying, and Oil and Gas Extraction, Job Flow Counts

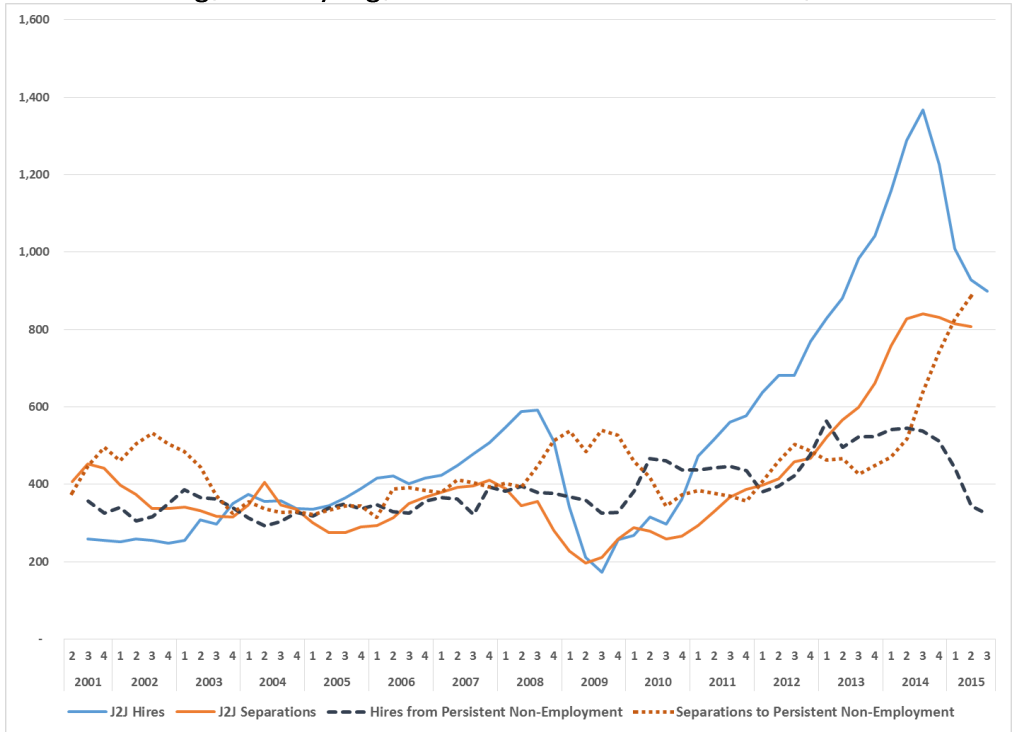


Figure A7. Mining, Quarrying, and Oil and Gas Extraction, Job Flow Rates

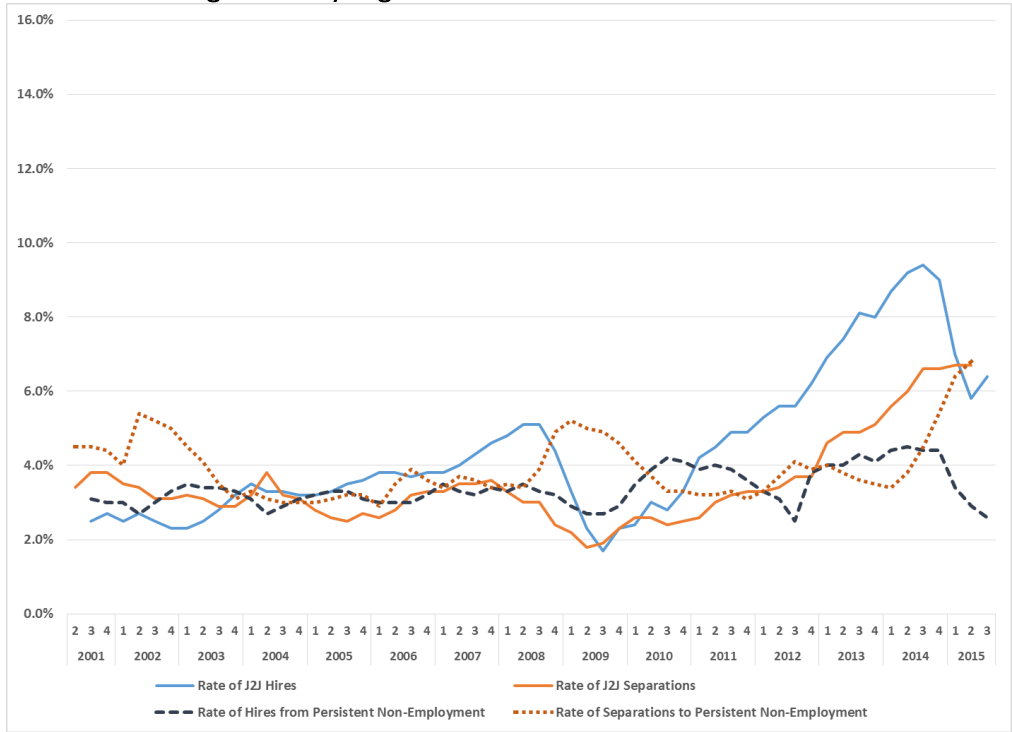
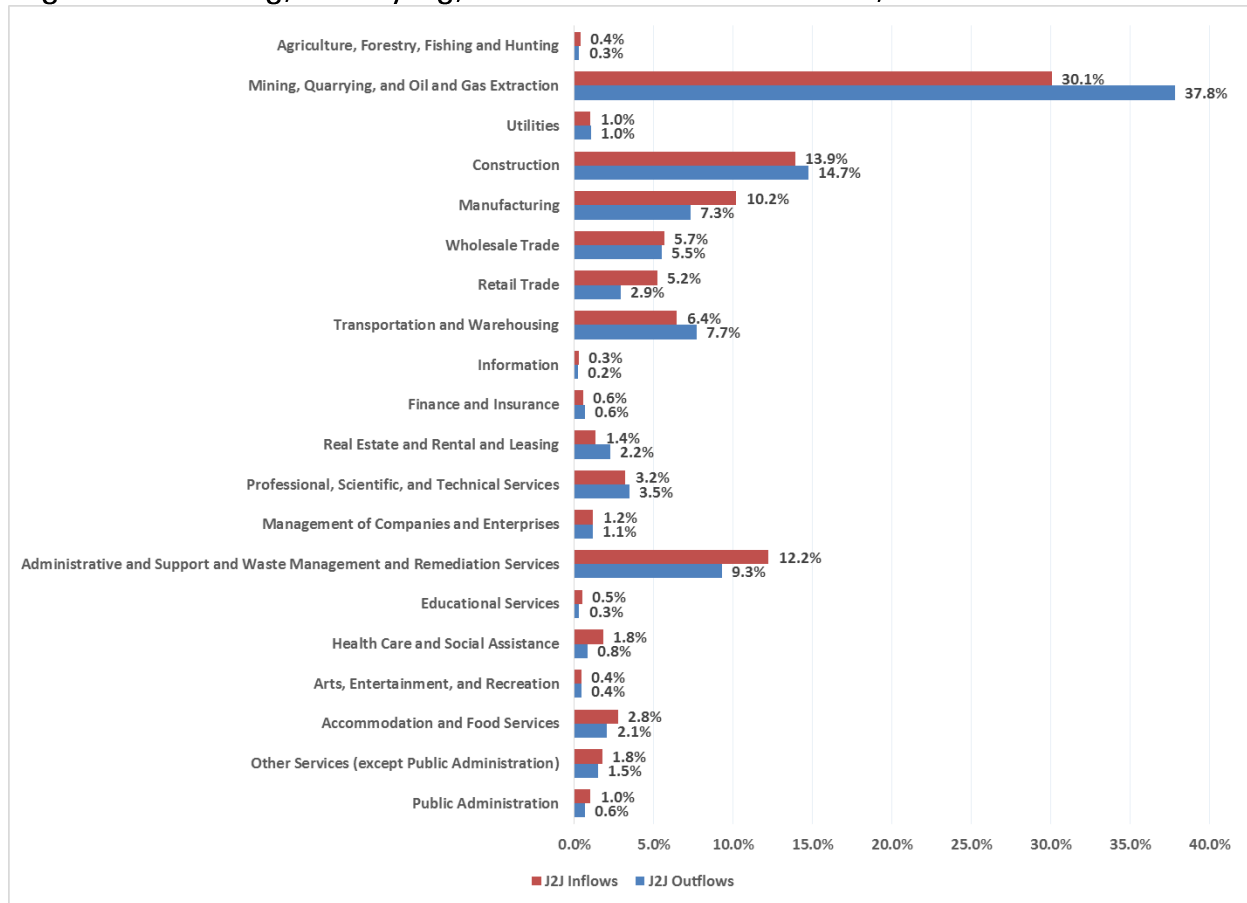


Figure A8. Mining, Quarrying, and Oil and Gas Extraction, J2J Inflows & Outflows



The mining, quarrying, and oil and gas extraction sector has relatively low job flow volumes. J2J hires dropped with the recession, then increased from mid-2009 through mid-2014. They peaked at under 1,400 J2J hires per quarter. In mid-2014, J2J hires sharply decreased, while separations to persistent non-employment increased. In late 2014, the number of operating oil and gas rigs began to decline nationally.

The rate of J2J flows tended to stay below the state all-industry average until the boom in shale gas drilling. At the shale gas drilling industry's peak in 2014, J2J hires had a rate of 9.4 percent. J2J separations and separations to persistent non-employment rose to over 6.0 percent in 2015 when drilling was scaled back because of low oil and gas prices.

About 30.1 percent of J2J inflows were from employers in the sector, and 37.8 percent of the outflows were to employers in the sector. Construction was the second most common sector for both inflows and outflows, followed by administrative and waste services, then manufacturing.

Utilities

Figure A9. Utilities, Job Flow Counts

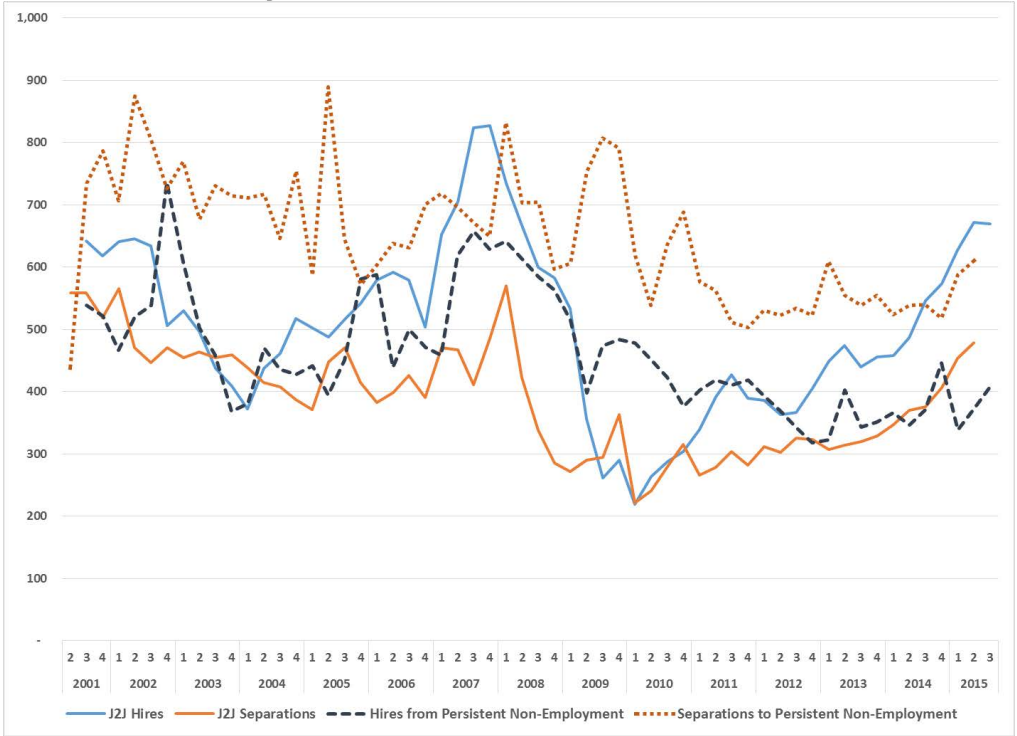


Figure A10. Utilities, Job Flow Rates

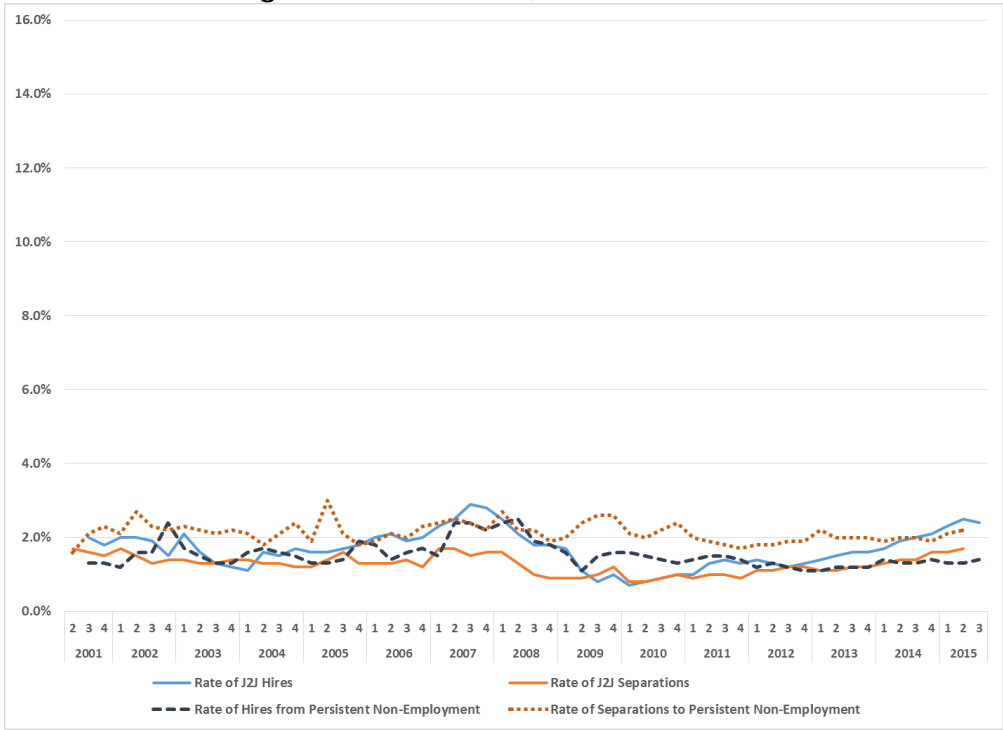
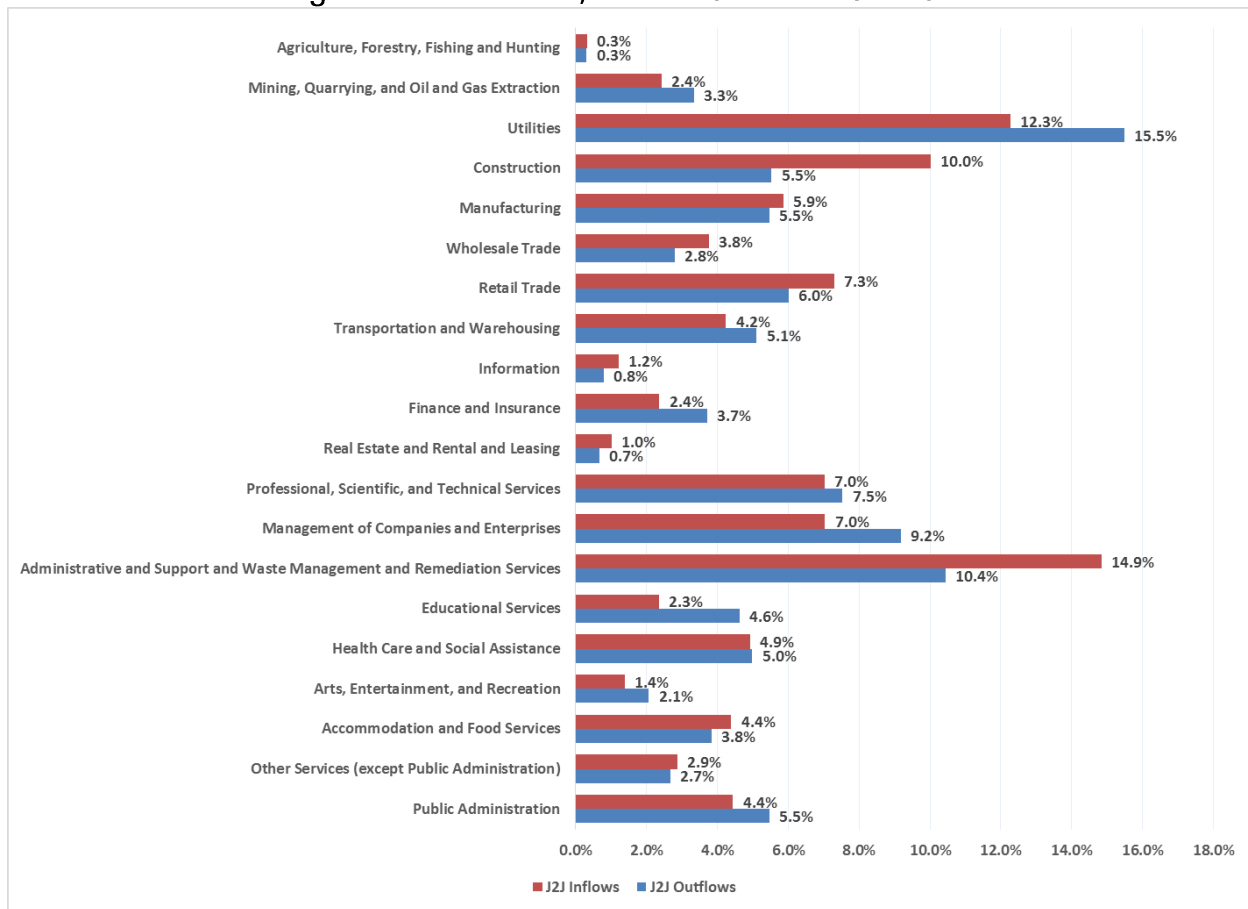


Figure A11. Utilities, J2J Inflows and Outflows



Job flows in the utilities sector appear volatile, but the volumes were low — less than 900 per quarter at their highest volume. The volatility decreased somewhat after the recession when sector employment declined. J2J hires increased after the recession, but hires from persistent non-employment did not.

Utilities sector job flow rates were low and fairly steady through the period. The rate of separations to persistent non-employment peaked at 3.0 percent in 2005; the J2J hire rate bottomed out at 0.7 percent in 2010. The rates averaged 3.0 to 3.7 percentage points below the all-industry averages.

The largest J2J inflows were from the administrative and waste services sector, which includes temporary help agencies. The next largest were from utilities and construction. The largest outflows were to the utilities sector itself, followed by administrative and waste services and management of companies and enterprises.

Construction

Figure A12. Construction, Job Flow Counts

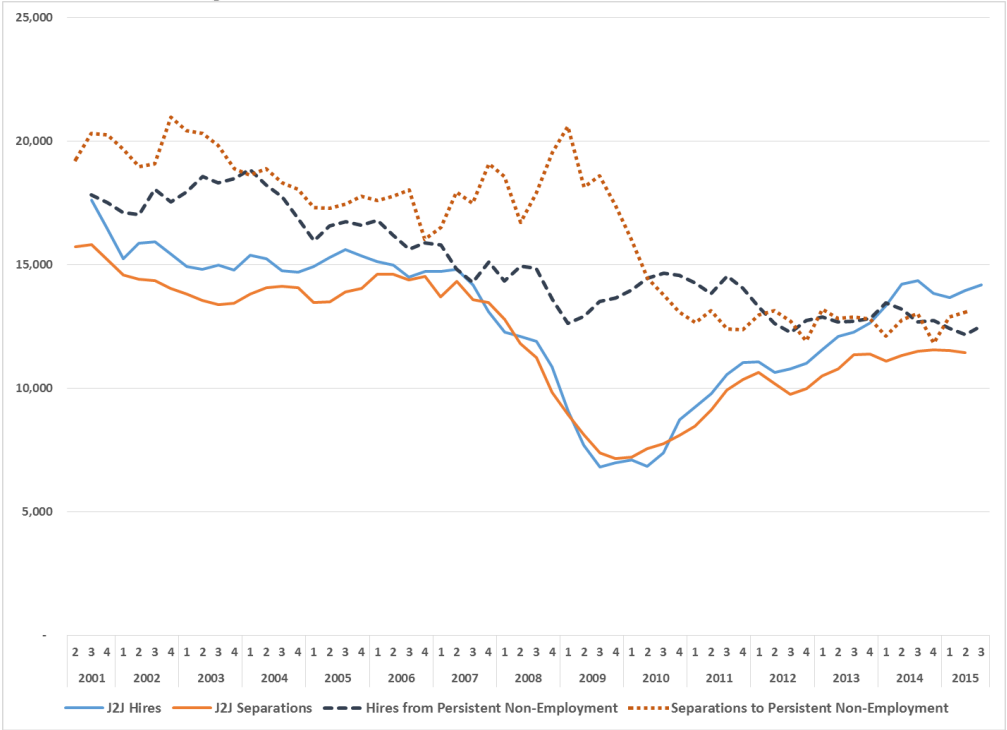


Figure A13. Construction, Jobs Flow Rates

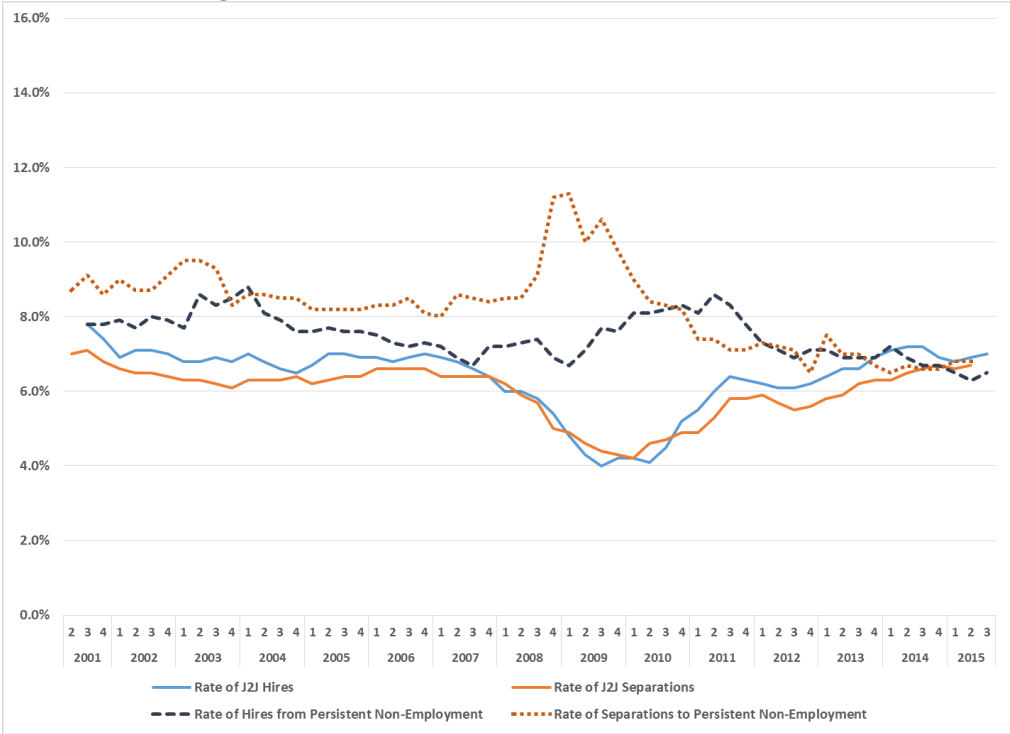
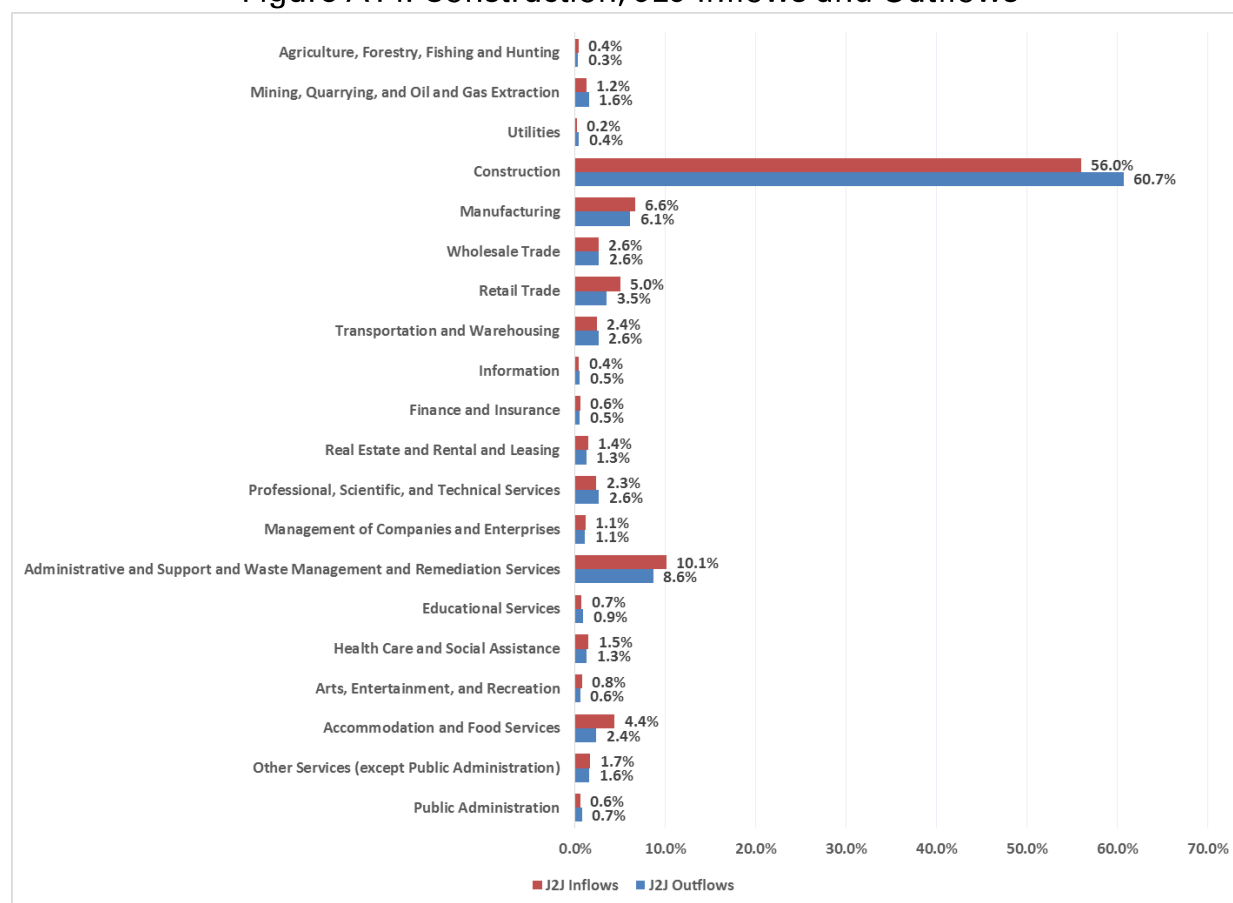


Figure A14. Construction, J2J Inflows and Outflows



Prior to the recession, J2J hires and separations hovered around 15,000 and 14,000 per quarter, respectively. During the recession, both dropped to around 7,000 per quarter. By 2015, they had not quite recovered to pre-recession levels. Separations to persistent non-employment peaked at just over 20,000 during the recession, and during the recovery they dropped to below pre-recession levels.

As might be expected, job flow rates for the construction sector were higher than the all-industry average. The rate of separations to persistent non-employment peaked at 11.3 percent, well above the all industry peak of 6.4 percent. The rate of separations to and hires from persistent non-employment dropped below their pre-recession rates. The construction job flow rates ranged from 1.3 to 3.1 percentage points above the all-industry rates.

The majority of J2J inflows and outflows were to and from the construction sector itself. This is probably because of the seasonal and project-based nature of the work.

Manufacturing

Figure A15. Manufacturing, Job Flow Counts

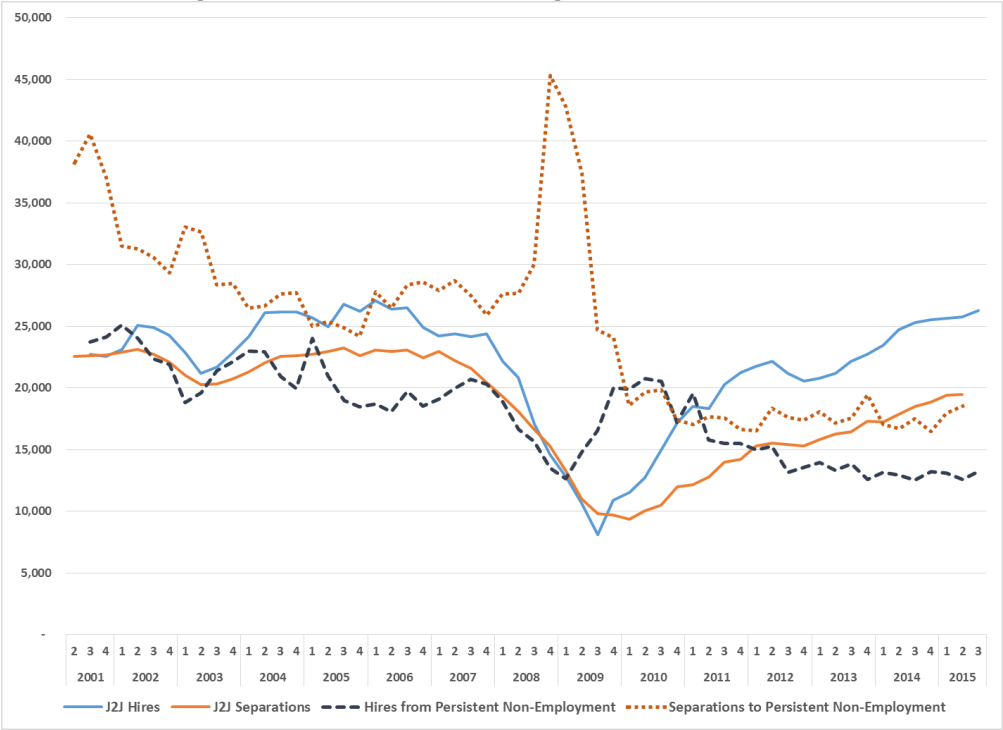


Figure A16. Manufacturing, Job Flow Rates

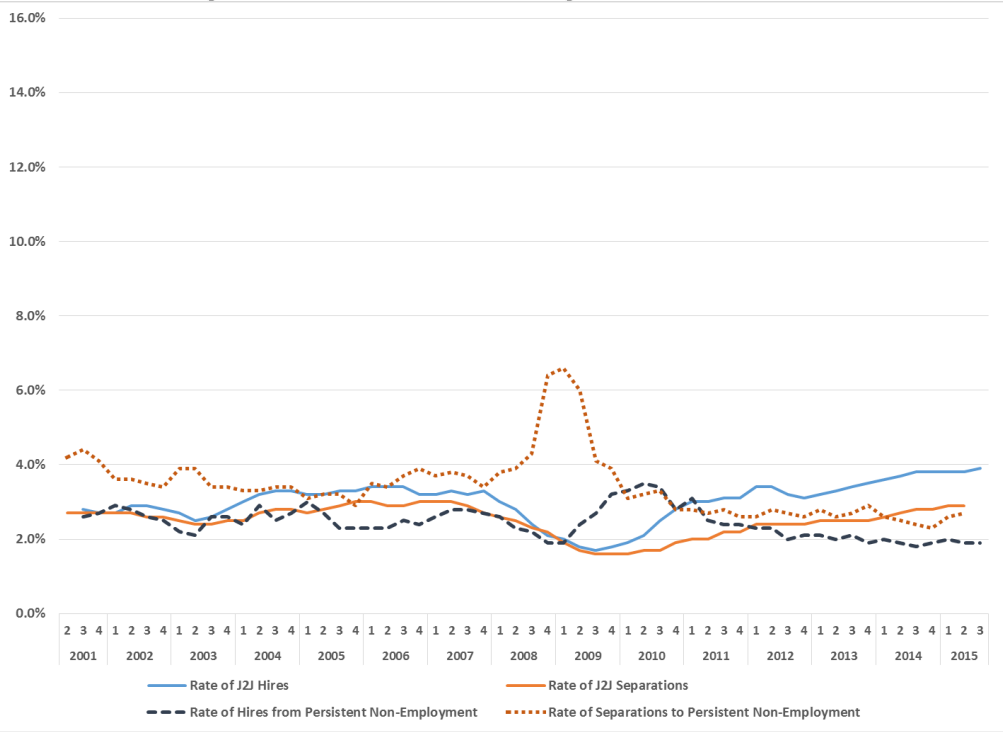
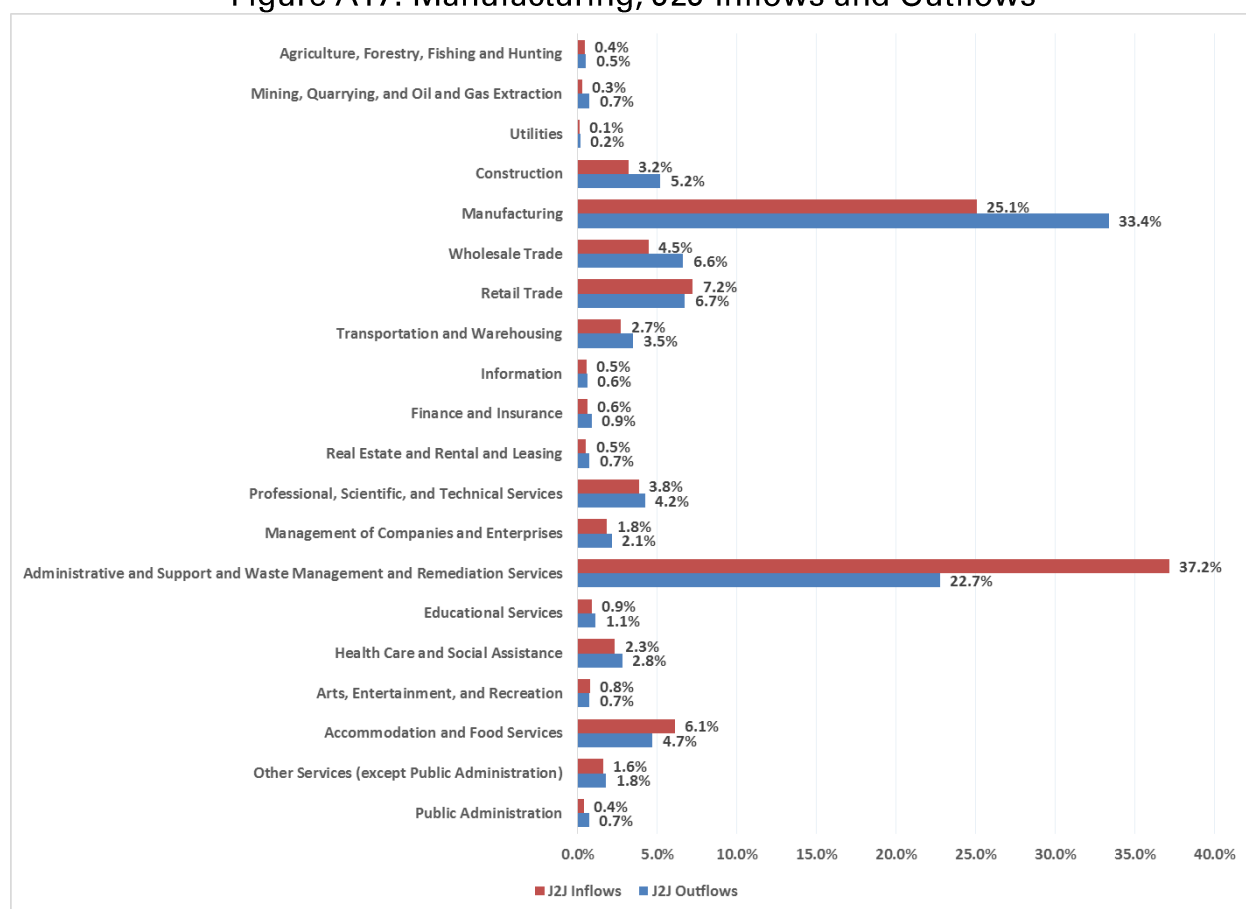


Figure A17. Manufacturing, J2J Inflows and Outflows



Manufacturing job flow data were dominated by spikes in separations to persistent non-employment during two recessions. During the 2001 recession, separations to persistent non-employment reached 40,000; during the Great Recession of 2007 to 2009, they peaked at about 45,000. After the recovery, they dropped to less than 20,000 per quarter. J2J hires and separations increased following the Great Recession, with J2J hires approaching pre-recession levels by 2015.

Despite large volumes of job flows, on average manufacturing job flow rates were 1.6 to 2.7 percentage points below their all-industry counterparts.

The bulk of manufacturing J2J flows were between manufacturing and administrative and waste services. About 37.2 percent of manufacturing job inflows were from administrative and waste services, which is more than from manufacturing itself (25.1 percent). About 34.3 percent of manufacturing J2J outflows were to manufacturing, and 22.7 percent were to administrative and waste services.

Wholesale Trade

Figure A18. Wholesale Trade, Job Flow Counts

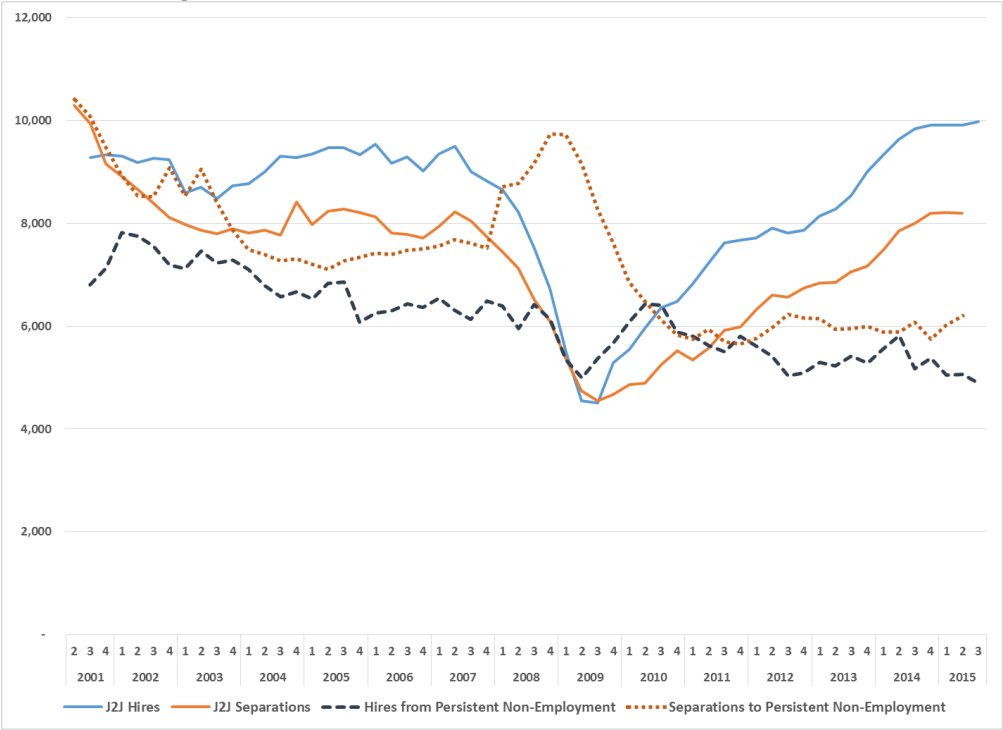


Figure A19. Wholesale Trade, Job Flow Rates

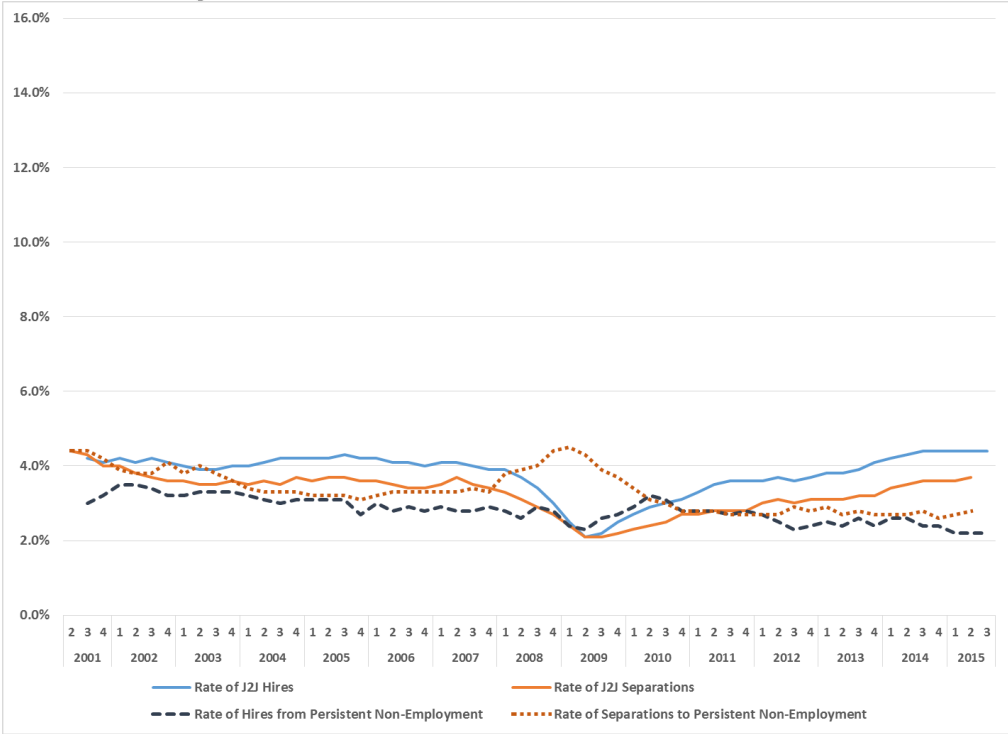
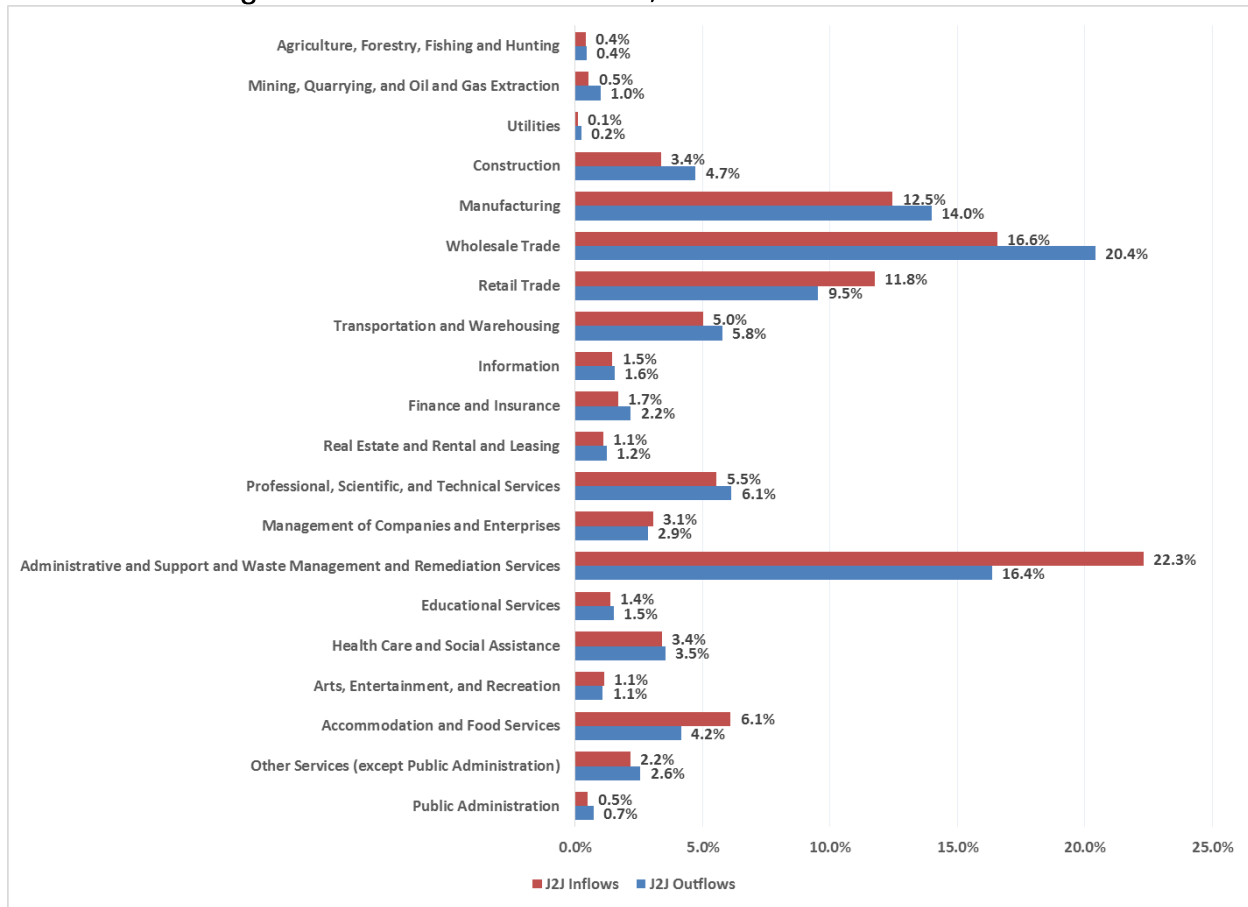


Figure A20. Wholesale Trade, J2J Inflows and Outflows



Wholesale trade J2J hire flows ranged from about 8,400 to 9,400 per quarter prior to the recession, then dropped to a low of about 4,500. By late, 2015 they increased to around 9,900 per quarter. Separations to persistent non-employment peaked to more than 10,000 in 2001 and more than 9,700 in late 2008; they fluctuated around 5,900 from 2011 through 2015.

The rates of the wholesale trade job flows ranged from an average of 0.8 percentage points above the all-industry rate for J2J hires to an average of 2.4 percentage points above the all-industry rate for hires from persistent non-employment.

Major J2J inflows were from administrative and waste services, wholesale trade, manufacturing, and retail trade. Major J2J outflows were to wholesale trade, administrative and waste services, manufacturing, and retail sales. Wholesale trade involves selling to other businesses. It's possible some workers move between wholesale trade and the industries being served by wholesalers.

Retail Trade

Figure A21. Retail Trade, Job Flow Counts

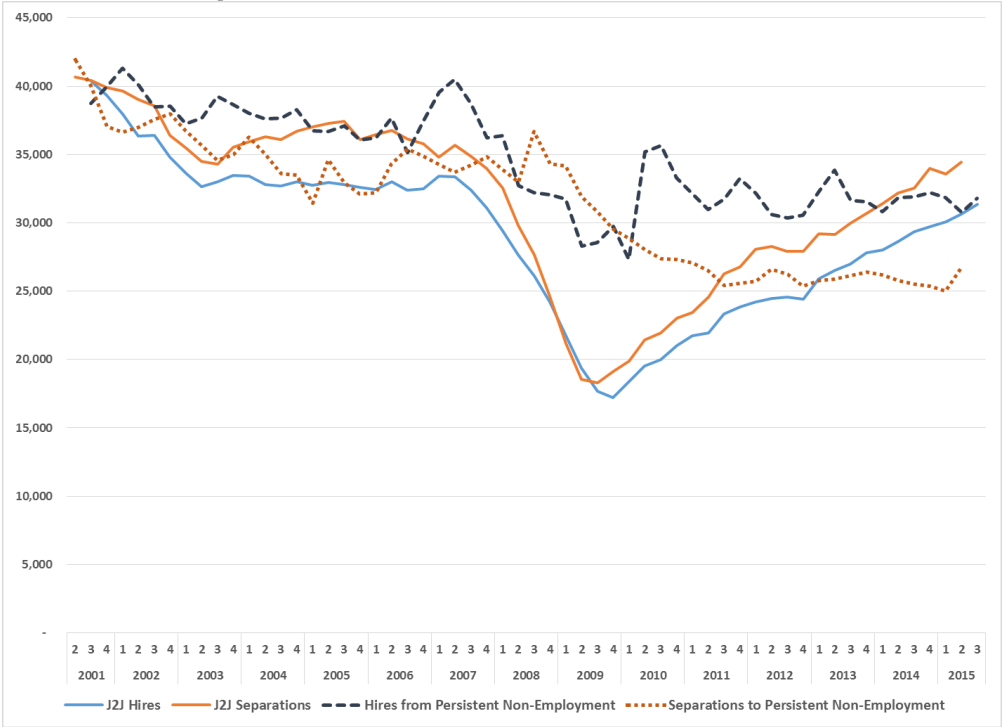


Figure A22. Retail Trade, Job Flow Rates

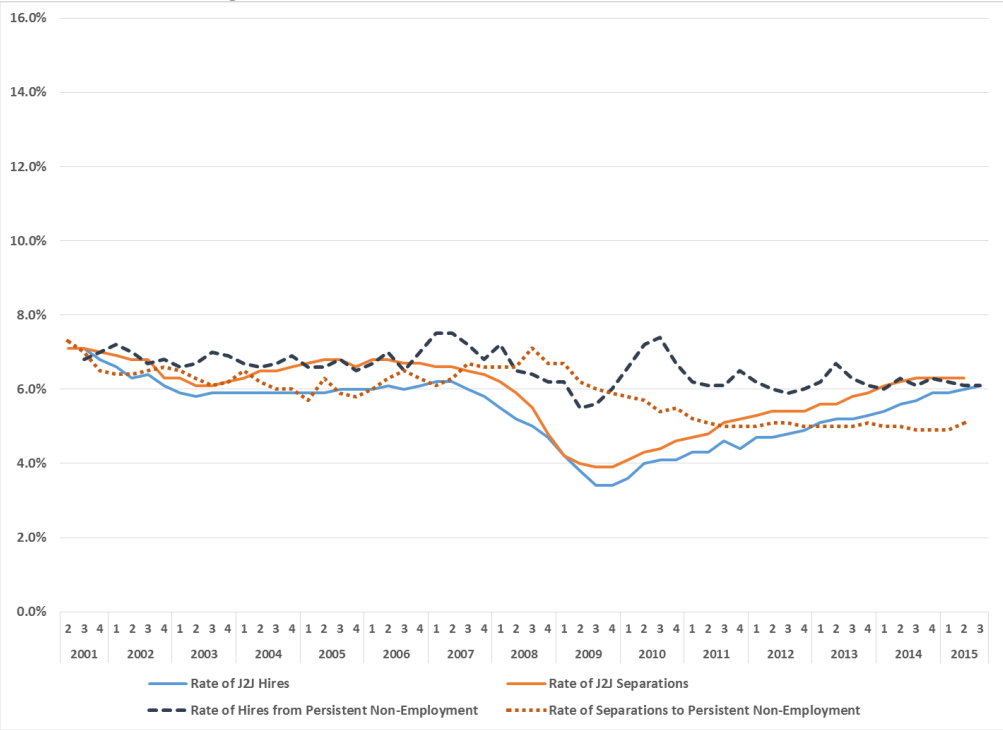
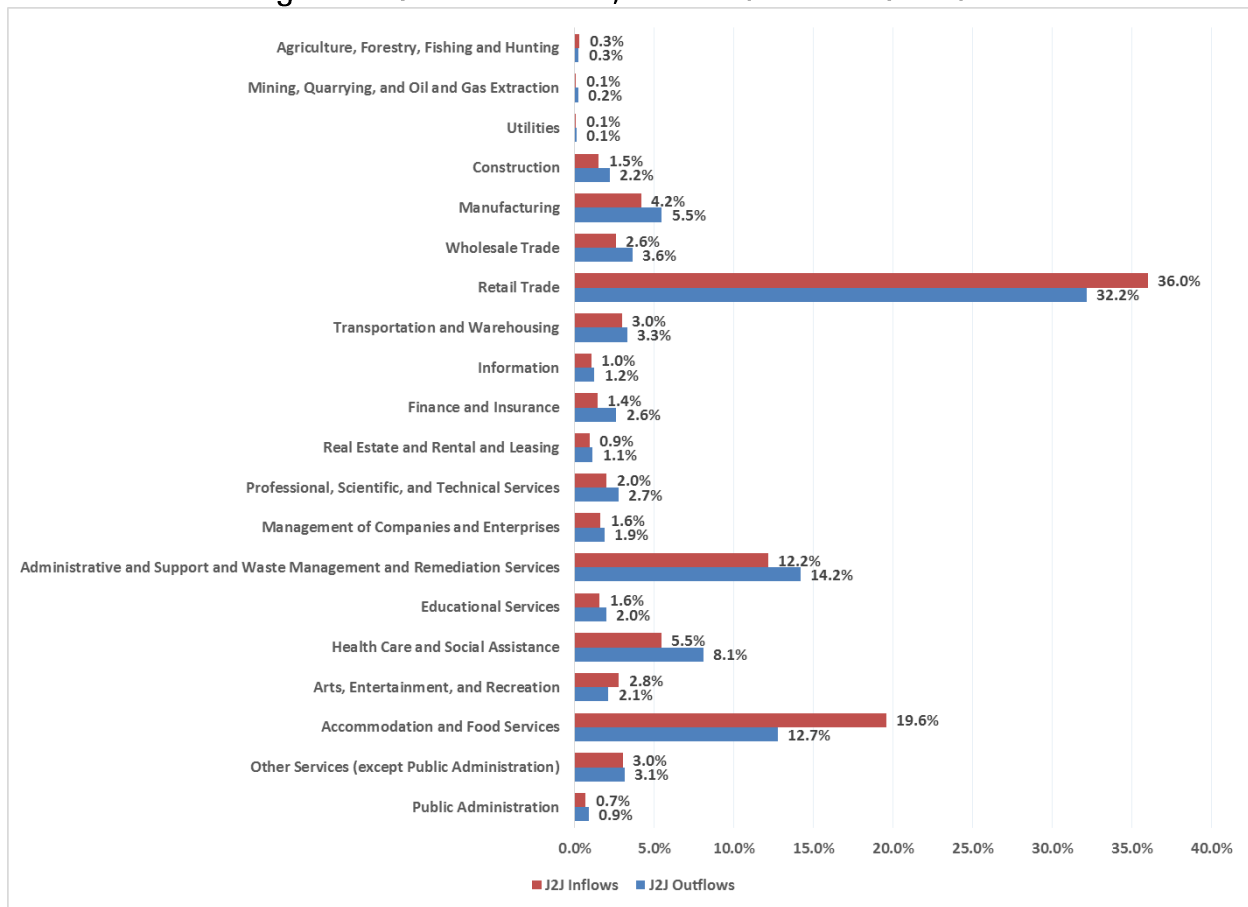


Figure A23. Retail Trade, J2J Inflows and Outflows



Retail trade job flows ranged from 33,000 to 38,000 per quarter until they began to decline in 2007. J2J hires and separations dropped to below 20,000 per quarter. They slowly climbed during the recovery, although they have not returned to pre-recession levels.

Retail trade job flow rates ranged from an average of 0.7 percentage points above the all-industry rate for separations to persistent non-employment to an average of 1.4 percentage points above the all-industry rate for hires from persistent non-employment.

Major J2J inflows were from retail trade itself, accommodation and food services, and administrative and waste services. Major J2J outflows were to retail trade, administrative and waste services, and accommodation and food services.

Transportation and Warehousing

Figure A24. Transportation and Warehousing, Job Flow Counts

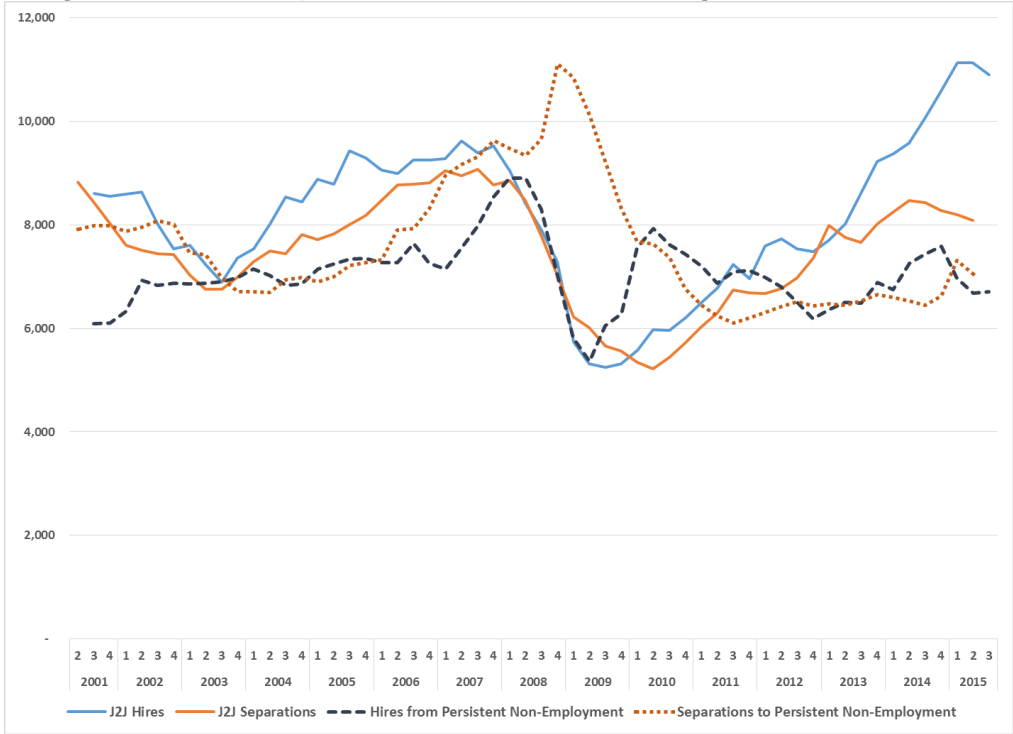


Figure A25. Transportation and Warehousing, Job Flow Rates

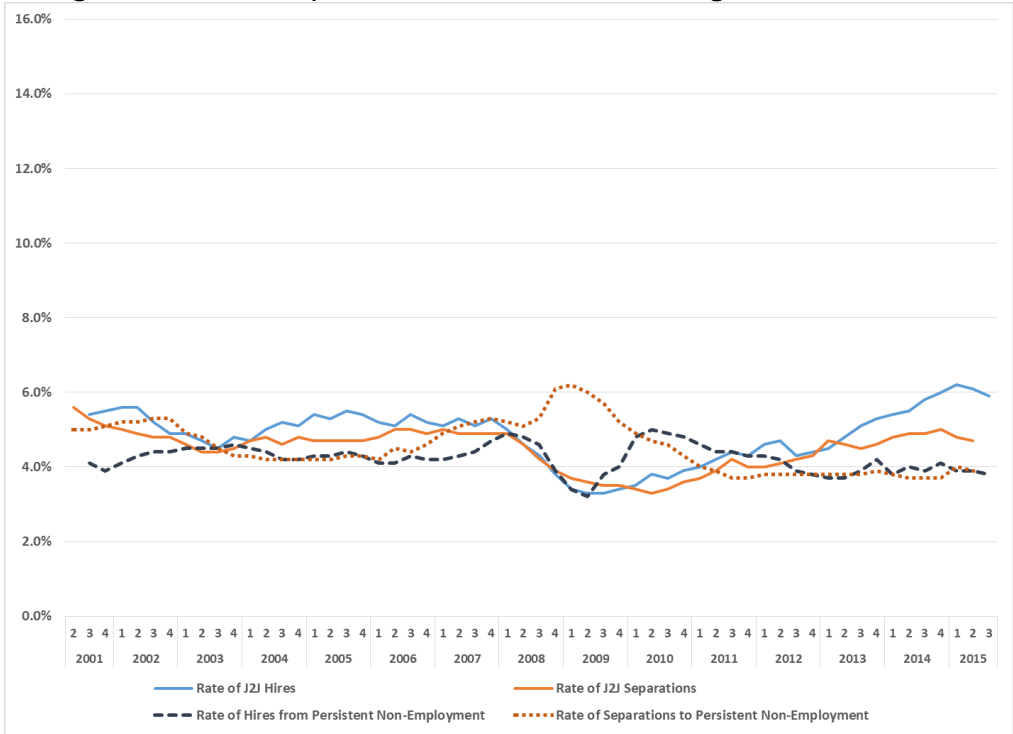
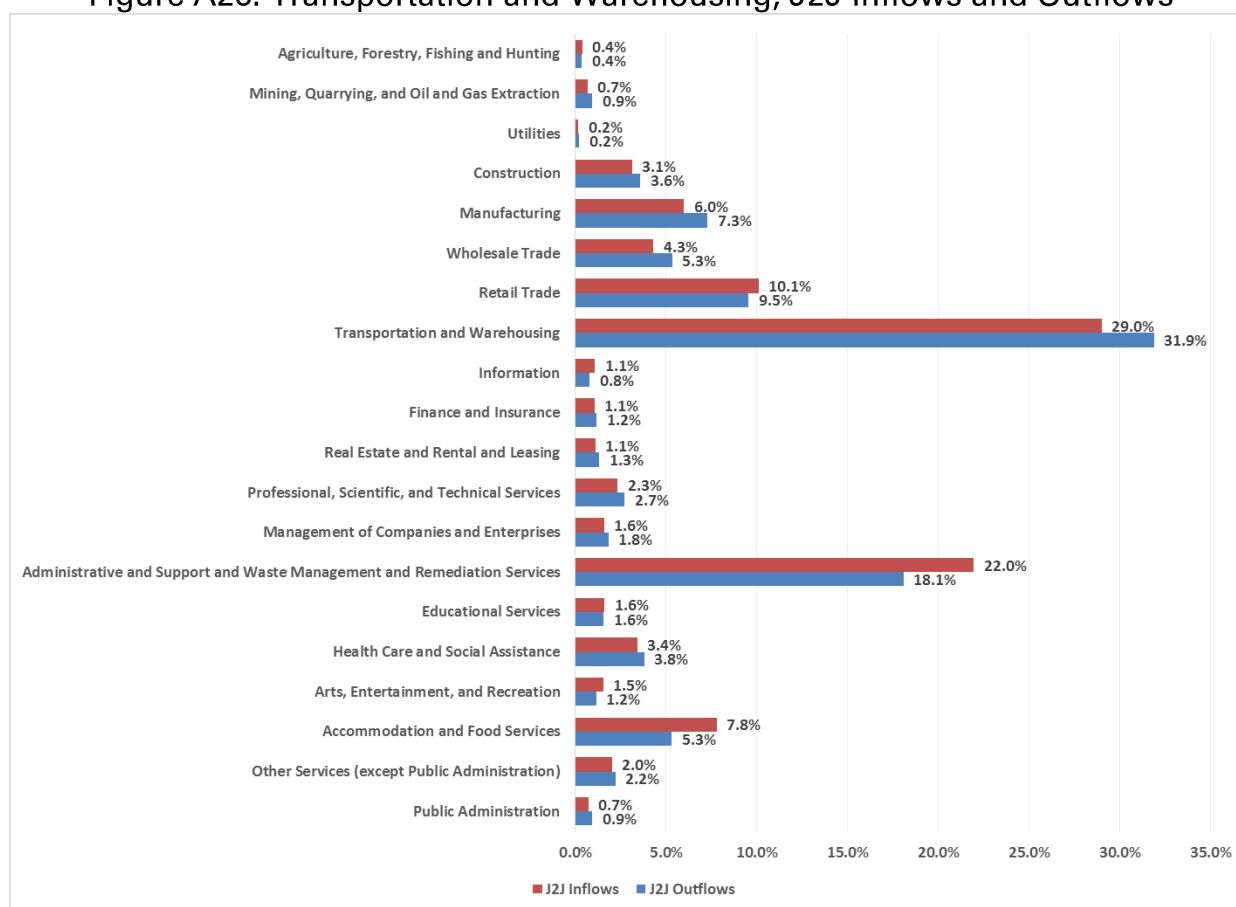


Figure A26. Transportation and Warehousing, J2J Inflows and Outflows



Prior to the Great Recession, J2J hires ranged from about 8,500 to 9,500 per quarter. With the recession, they declined to about 5,200 to 5,300 per quarter. During the recovery, they increased to more than 11,000 per quarter in 2015. During the recovery, hires to and separations from persistent non-employment generally dropped to below pre-recession levels.

Rates of J2J hires were slightly above the all-industry average for the period, while J2J separations were slightly below the all-industry average. The rate of hires from persistent non-employment averaged 1 percentage point below the all-industry average, and separations to persistent non-employment averaged 0.6 percentage points below the all-industry average.

Major J2J inflows were from transportation and warehousing itself, administrative and waste services, retail trade, and accommodation and food services. Major J2J outflows were to transportation and warehousing, administrative and waste services, retail trade, and manufacturing.

Information

Figure A27. Information, Job Flow Counts

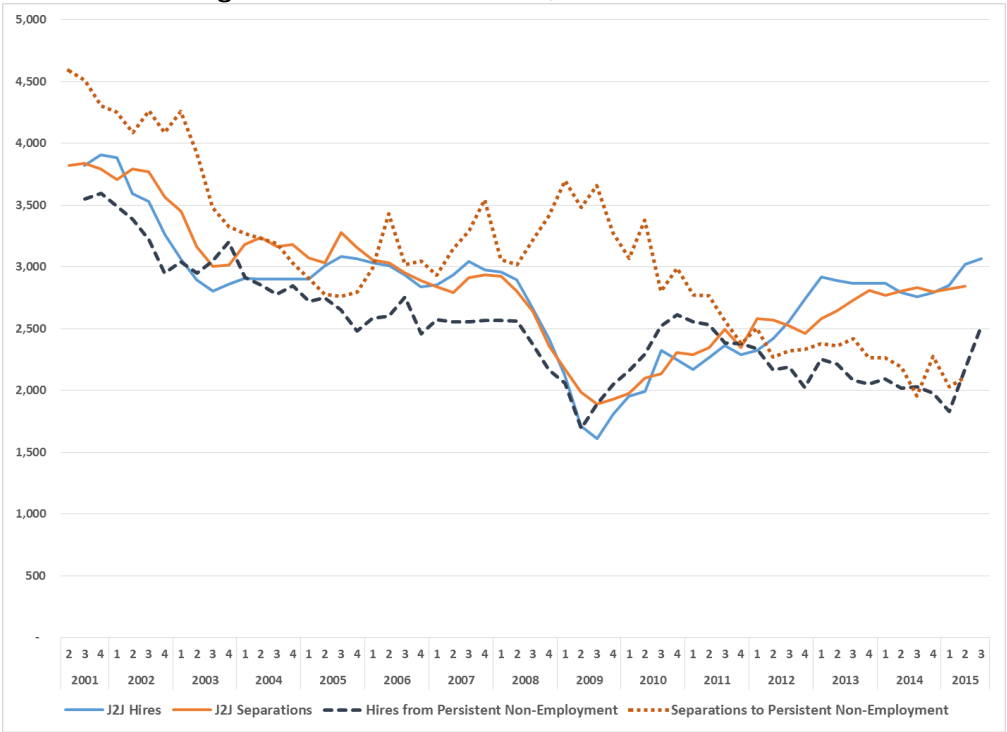


Figure A28. Information, Job Flow Rates

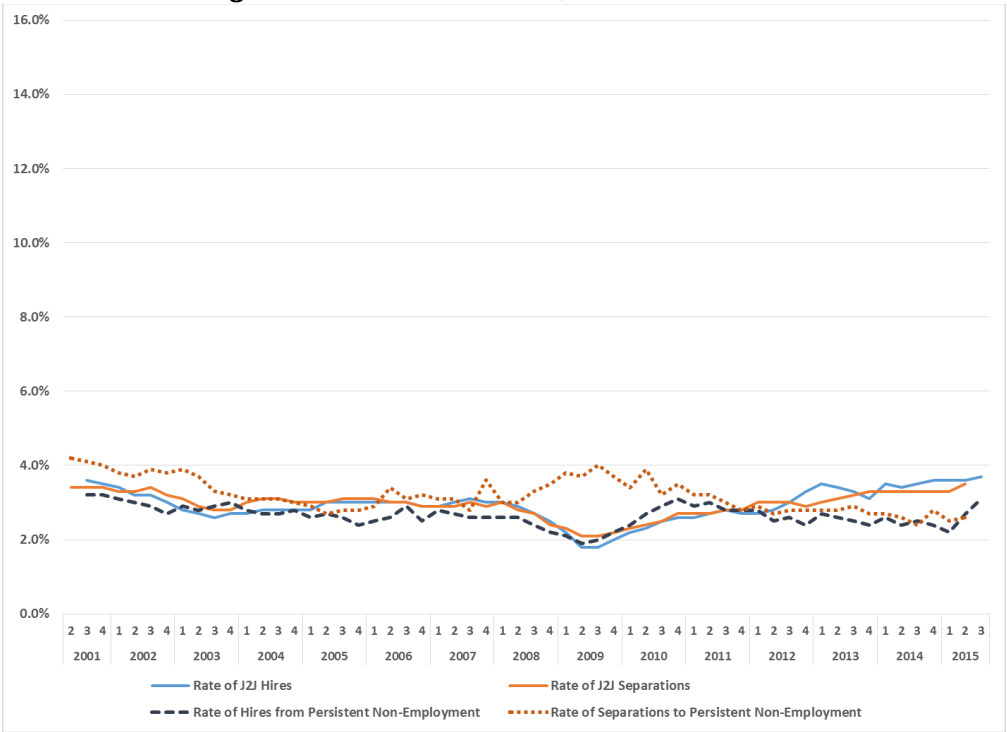
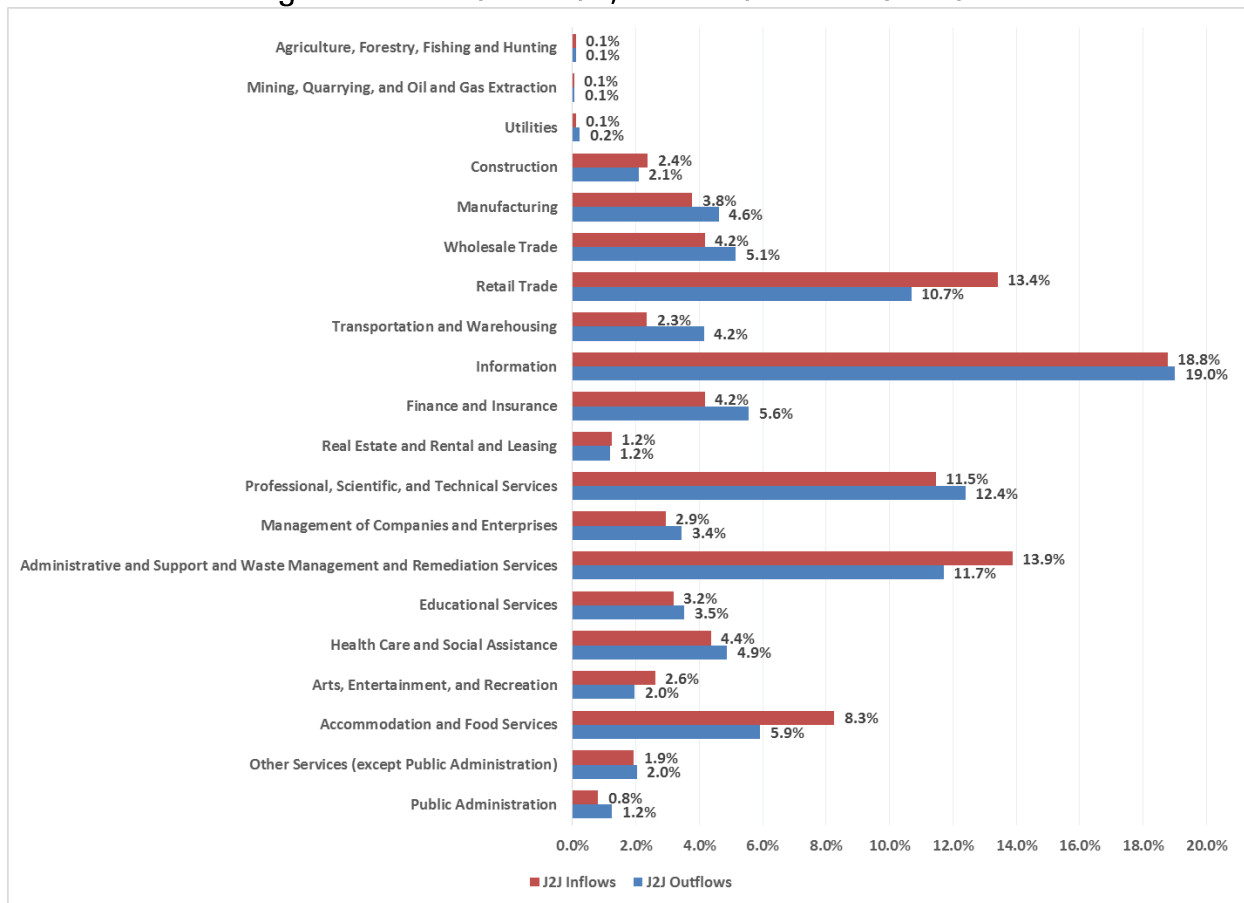


Figure A29. Information, J2J Inflows and Outflows



J2J hires and separations in the information sector were at their highest shortly after the 2001 recession. They dropped to under 2,000 per quarter at the peak of the recession. After the Great Recession, they increased slowly to pre-recession levels. Hires from and separations to persistent non-employment have slowly declined over time.

The job flow rates for the information sector were below the all-industry averages for the period. J2J hires and separations were 1.7 and 1.8 percentage points below the all-industry rates; hires to and separations from persistent non-employment were 2.6 and 2 percentage points below the all-industry averages.

The information sector itself led the J2J inflows, followed by administrative and waste services; retail trade; professional, scientific, and technical services; and accommodation and food services. Major outflows were to the information sector itself, as well as to professional, scientific, and technical services; administrative and waste services; and retail trade.

Finance and Insurance

Figure A30. Finance and Insurance, Job Flow Counts

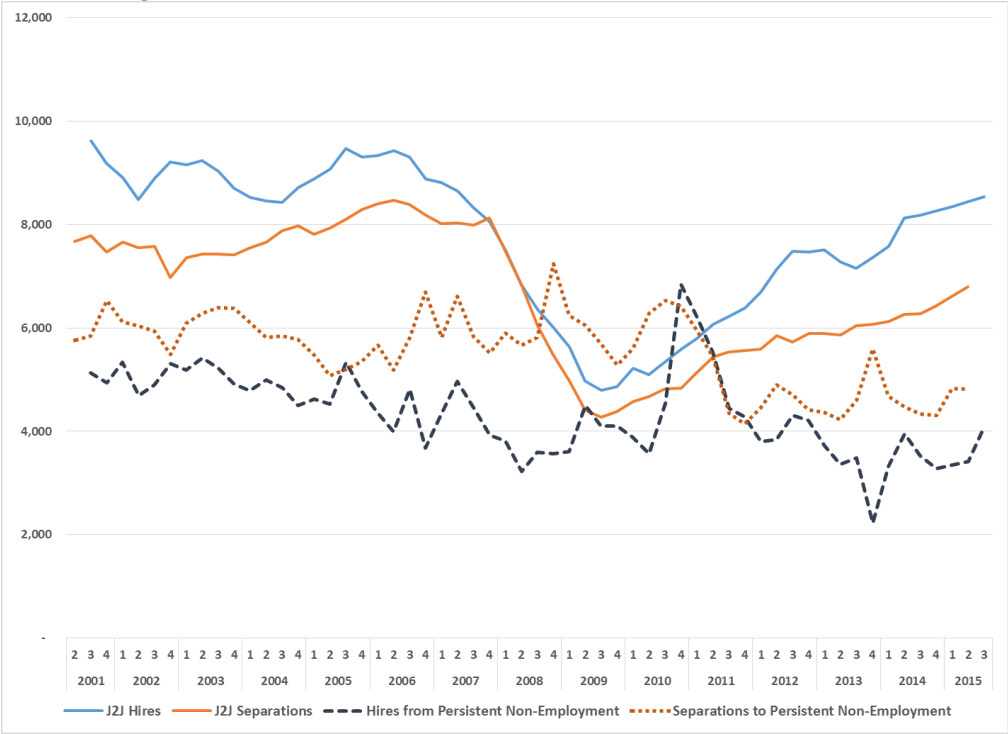


Figure A31. Finance and Insurance, Job Flow Rates

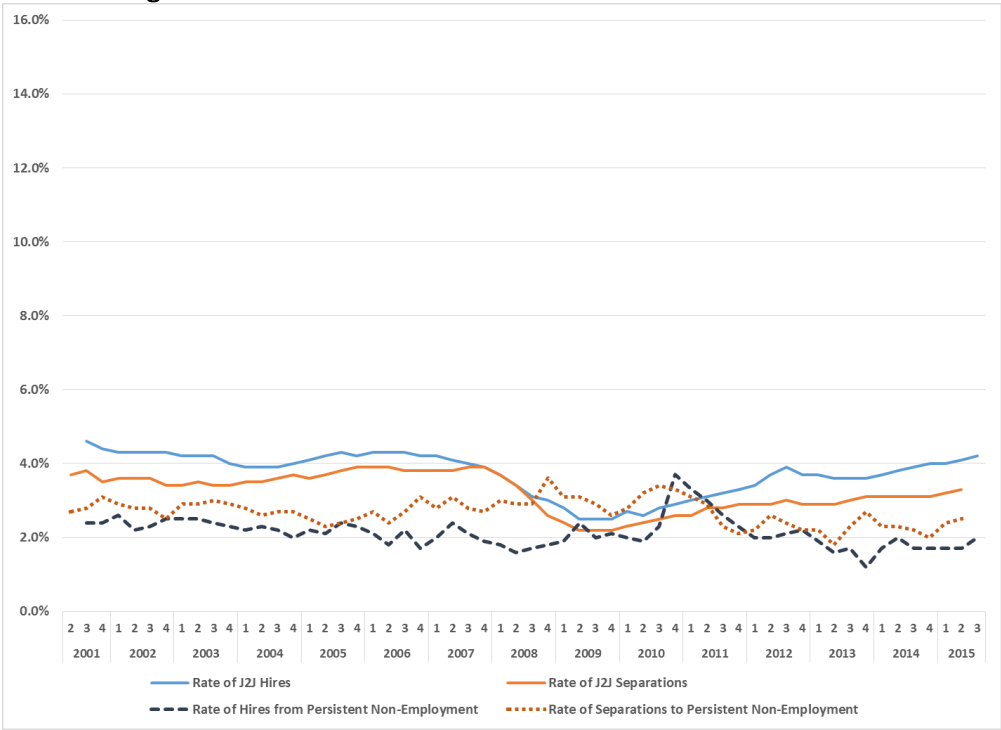
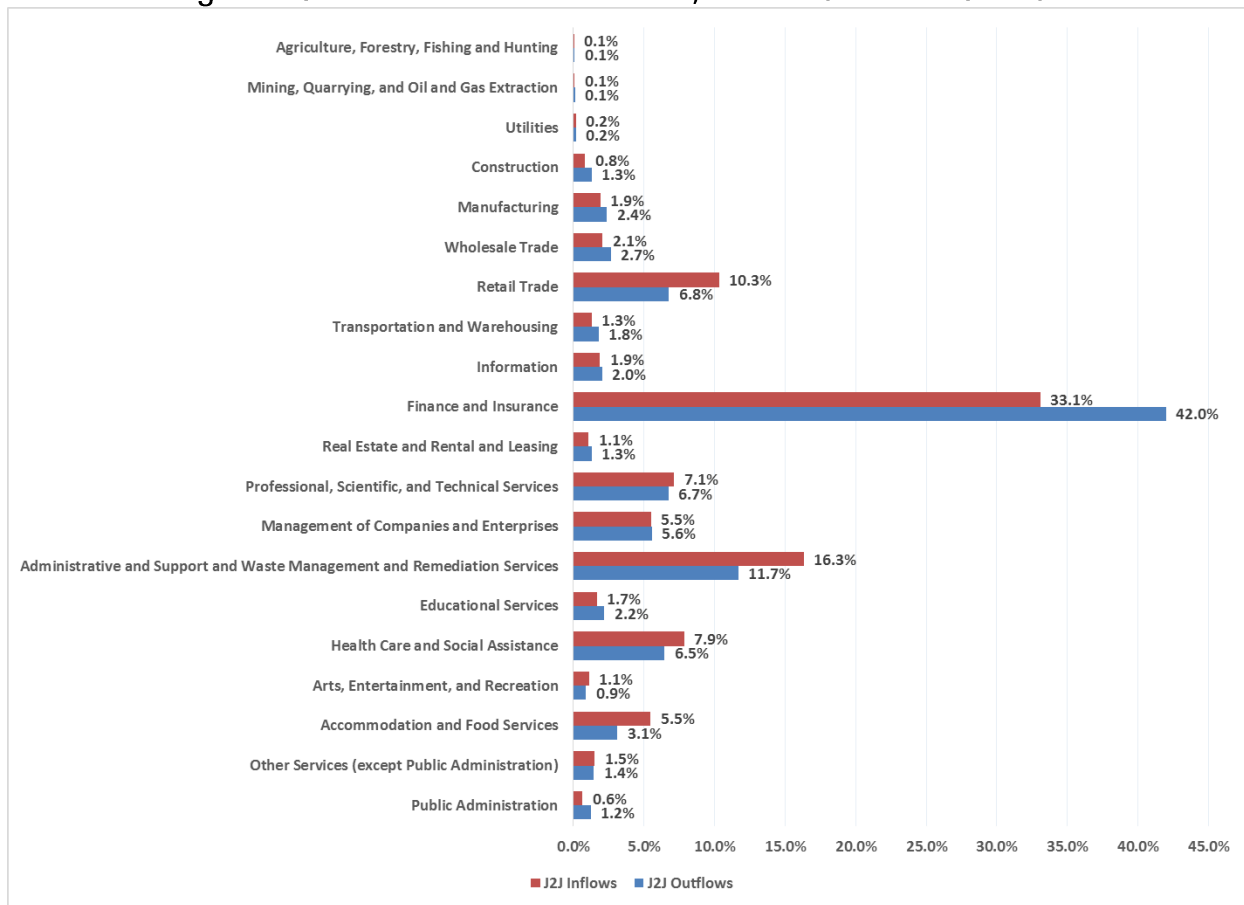


Figure A32. Finance and Insurance, J2J Inflows and Outflows



J2J hires and separations were around 8,900 and 7,800 per quarter, respectively, prior to the Great Recession. With the recession, they declined to under 5,000 per quarter. By 2015 they had not recovered to pre-recession levels. Hires from and separations to persistent non-employment were slightly lower after than Great Recession than before it.

Job flow rates for the finance and insurance sector were below the all-industry averages for the period. J2J hires and separations were 0.9 and 1.5 percentage points below the all-industry rates. Hires to and separations from persistent non-employment were 3.1 and 2.5 percentage points below the all-industry averages.

The top three sectors for J2J inflows and outflows were finance and insurance, administrative and waste services, and retail trade.

Real Estate and Rental and Leasing

Figure A33. Real Estate and Rental and Leasing, Job Flow Counts

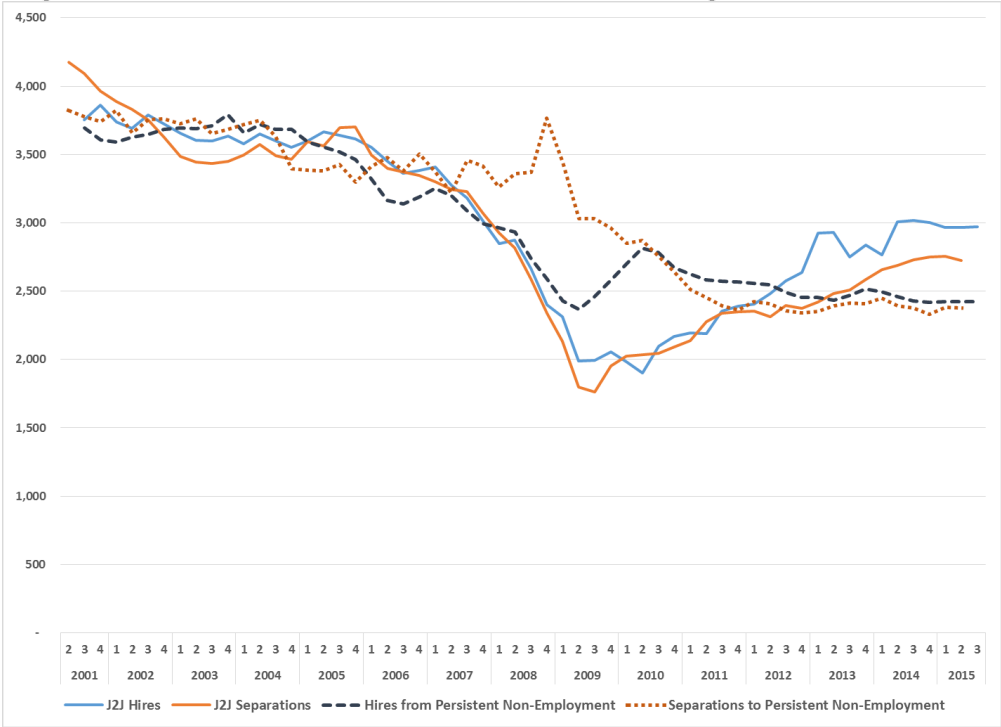


Figure A34. Real Estate and Rental and Leasing, Job Flow Rates

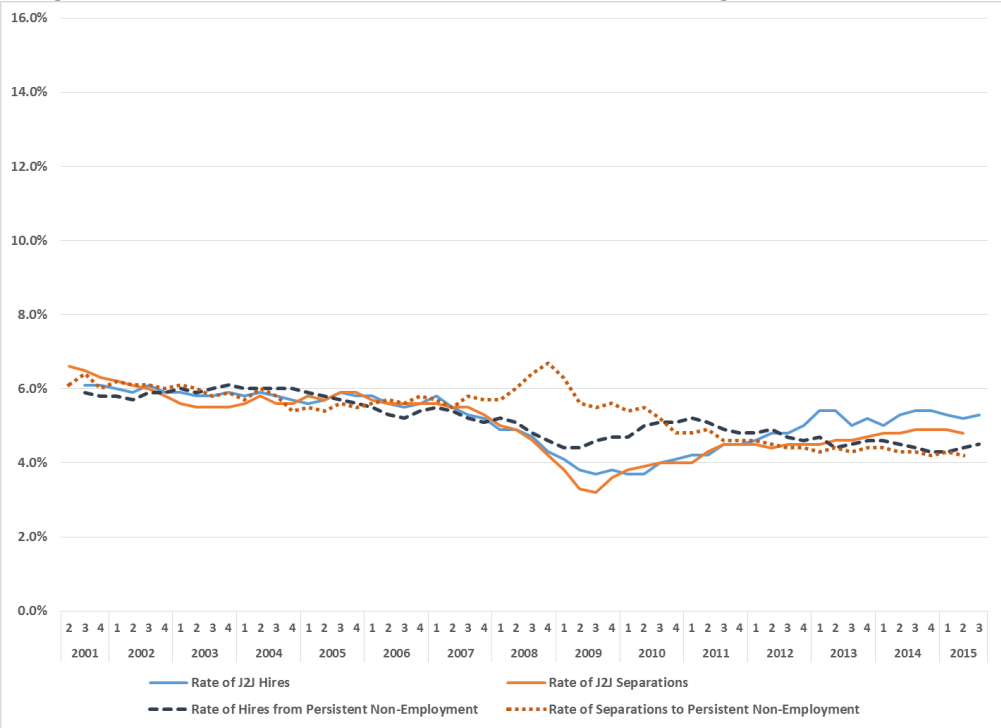
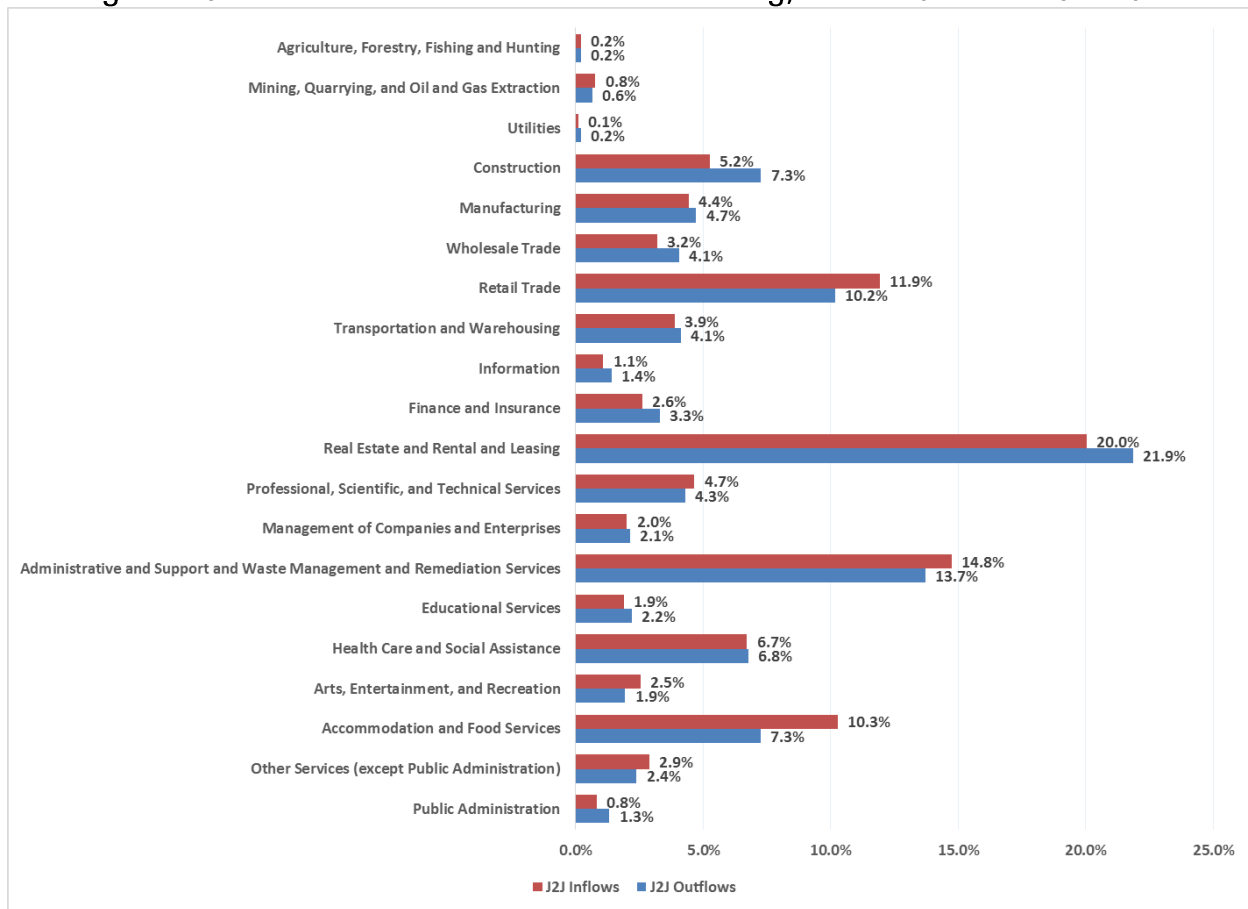


Figure A35. Real Estate and Rental and Leasing, J2J Inflows and Outflows



Job flows in real estate and rental and leasing were under 4,000 per quarter from 2002 through 2007. J2J separations and hires dropped to 2,000 or fewer per quarter with the recession, then slowly increased to between 2,500 and 3,000 per quarter. Hires from and separations to persistent non-employment declined in the recovery to under 2,500.

Job flow rates for the real estate and rental and leasing sector were slightly above or equal to all-industry averages. J2J hires and separations averaged 0.5 and 0.3 percentage points above the all-industry averages. Separations to persistent non-employment were 0.2 percentage points above the all-industry average; hires from persistent non-employment equaled the all-industry average.

Major J2J inflows were from real estate and rental and leasing, administrative and waste services, retail trade, and accommodation and food services. Major J2J outflows were to real estate and rental and leasing, administrative and waste services, and retail trade.

Professional, Scientific, and Technical Services

Figure A36. Professional, Scientific, and Technical Services, Job Flow Counts

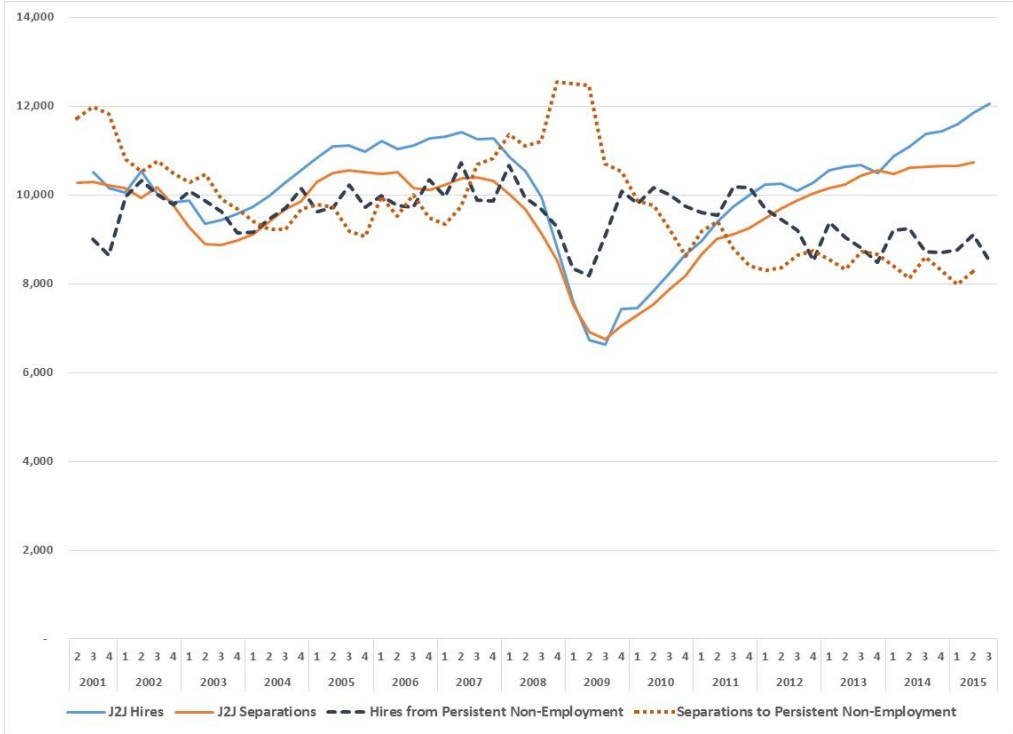


Figure A37. Professional, Scientific, and Technical Services, Job Flow Rates

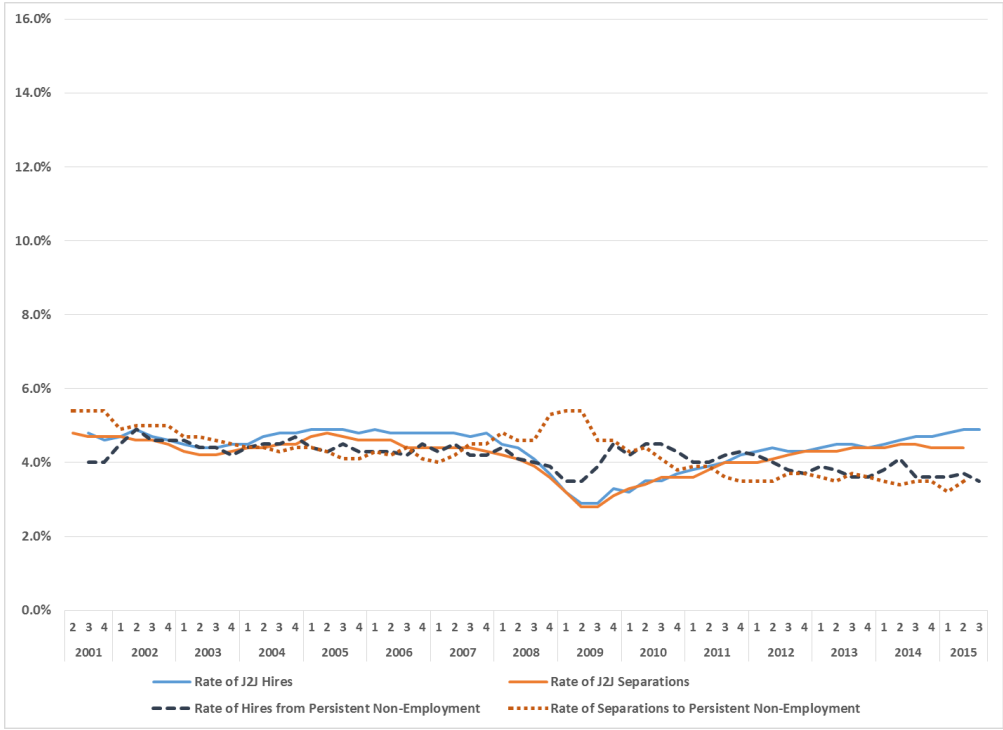
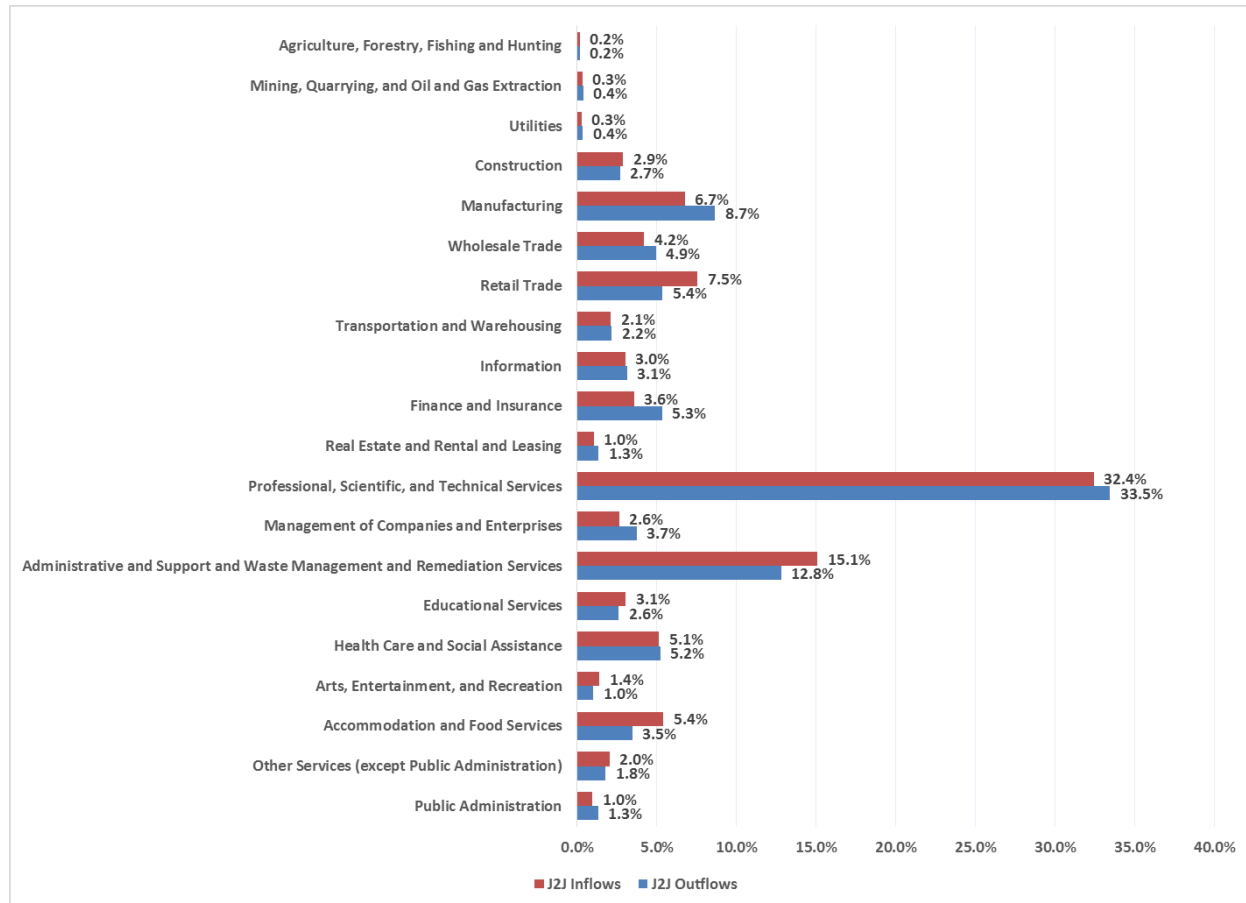


Figure A38. Professional, Scientific, and Technical Services,
J2J Inflows and Outflows



Just prior to the Great Recession, J2J hires were under 11,500 per quarter, and J2J separations were under 10,400. With the recession, they dropped to about 6,600 and 6,800 per quarter respectively. Separations to persistent non-employment peaked at over 12,500 per quarter during the recession, but dropped to the mid-8,000 range during the recovery. Throughout the period, hires from persistent non-employment averaged about 9,500 per quarter, with a maximum of about 10,700 and a minimum of about 8,200 per quarter.

J2J hires and separations averaged 0.3 and 0.5 percentage points below the averages of their all-industry counterparts. Hires from and separations to persistent non-employment averaged 1.0 and 0.9 percentage points below the averages of their all-industry counterparts.

Major J2J inflows were from professional, scientific, and technical services and administrative and waste services. Major J2J outflows were to professional, scientific, and technical services and administrative and waste services.

Management of Companies and Enterprises

Figure A39. Management of Companies and Enterprises, Job Flow Counts

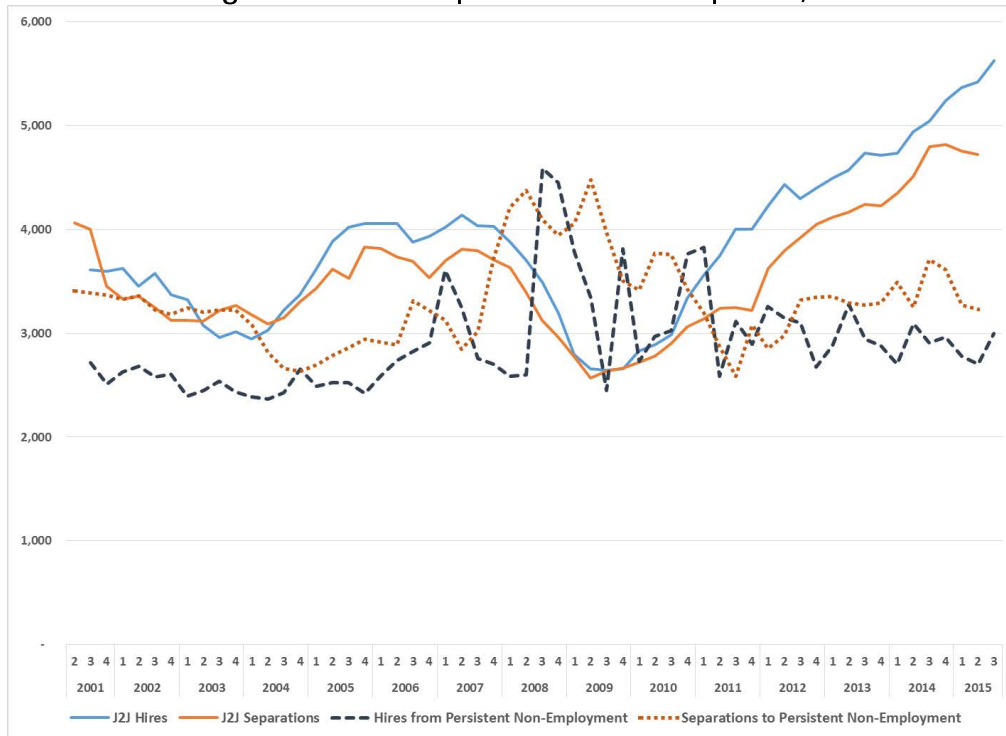


Figure A40. Management of Companies and Enterprises, Job Flow Rates

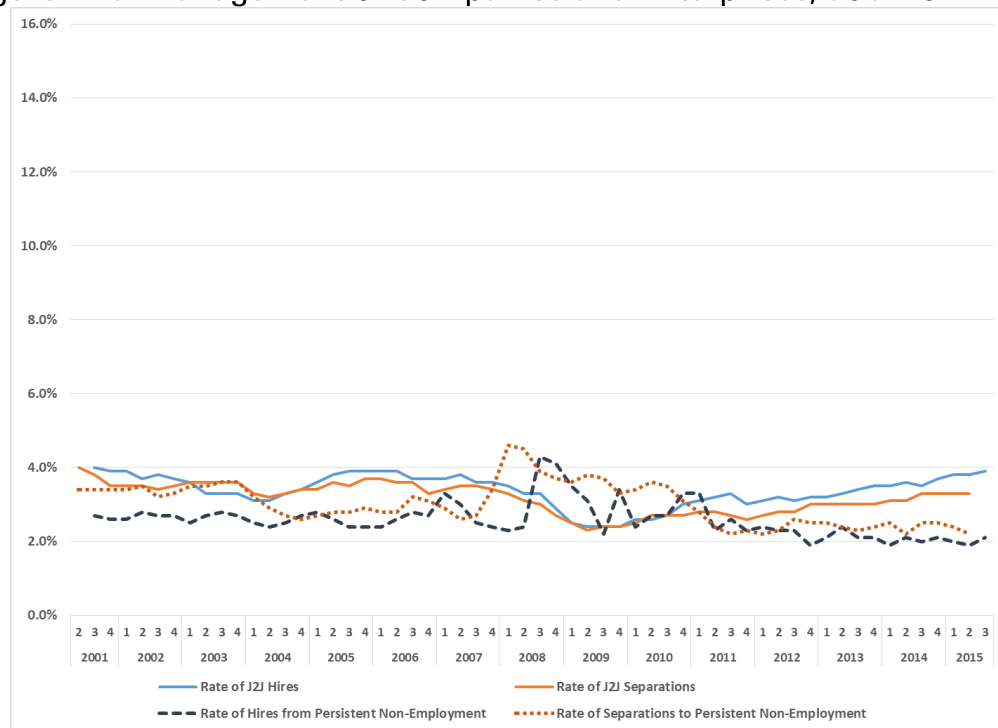
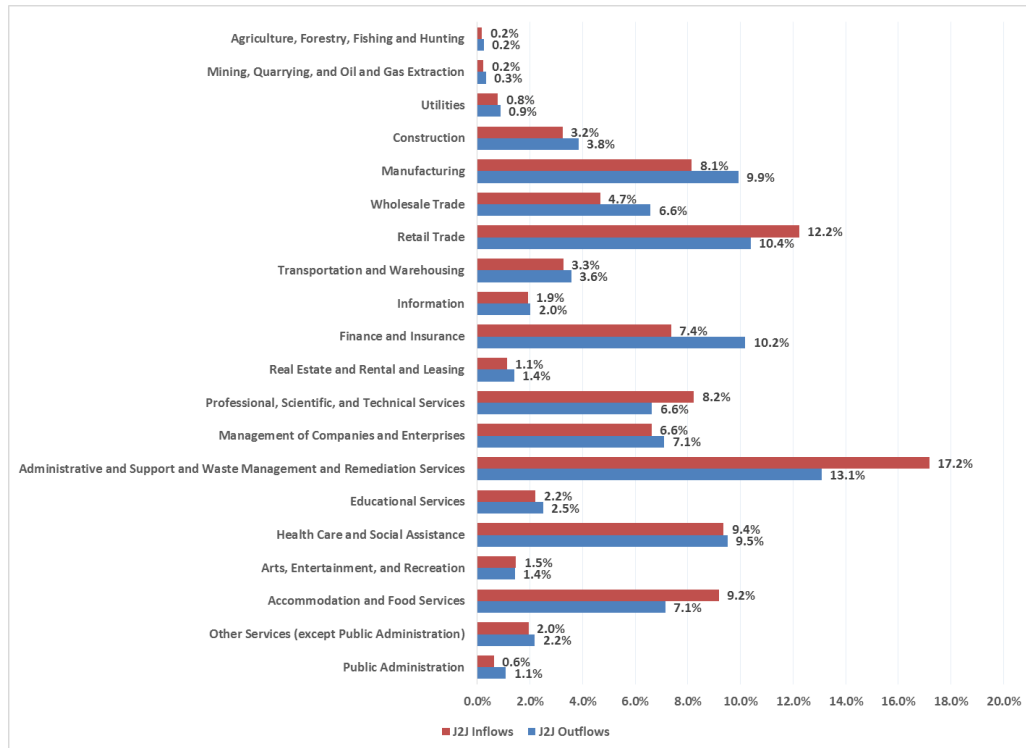


Figure A41. Management of Companies and Enterprises,
J2J Inflows and Outflows



J2J hires and separations were about 4,000 and 3,800 per quarter just before the Great Recession. After a drop to just under 2,700 per quarter during the recession, they increased to around 5,300 and 4,700 per quarter by 2015. Hires from persistent non-employment were under 3,000 per quarter before the recession, then increased to as much as 4,600 during the recession. Separations to persistent non-employment peaked at just under 4,500 per quarter during the recession; in the recovery, the volume ranged from 2,600 to 3,700 per quarter.

On average, J2J flow rates were below the all-industry averages. J2J hires and separations averaged 1.3 and 1.5 percentage points below the averages of their all-industry counterparts; hires from and separations to persistent non-employment averaged 2.6 and 2.1 percentage points below the averages of their all-industry counterparts.

Businesses in the management of companies and enterprises sector can manage other businesses in a variety of industries, which may explain its J2J inflows and outflows. Major J2J inflows were from administrative and waste services, retail trade, health care and social assistance, and accommodations and food services. Major J2J outflows were to administrative and waste services, retail trade, finance and insurance, and manufacturing. Management of companies and enterprises was the only sector that did not lead its own J2J inflows and outflows.

Administrative & Support and Waste Management & Remediation Services

Figure A42. Administrative & Support and Waste Management & Remediation Services, Job Flow Counts

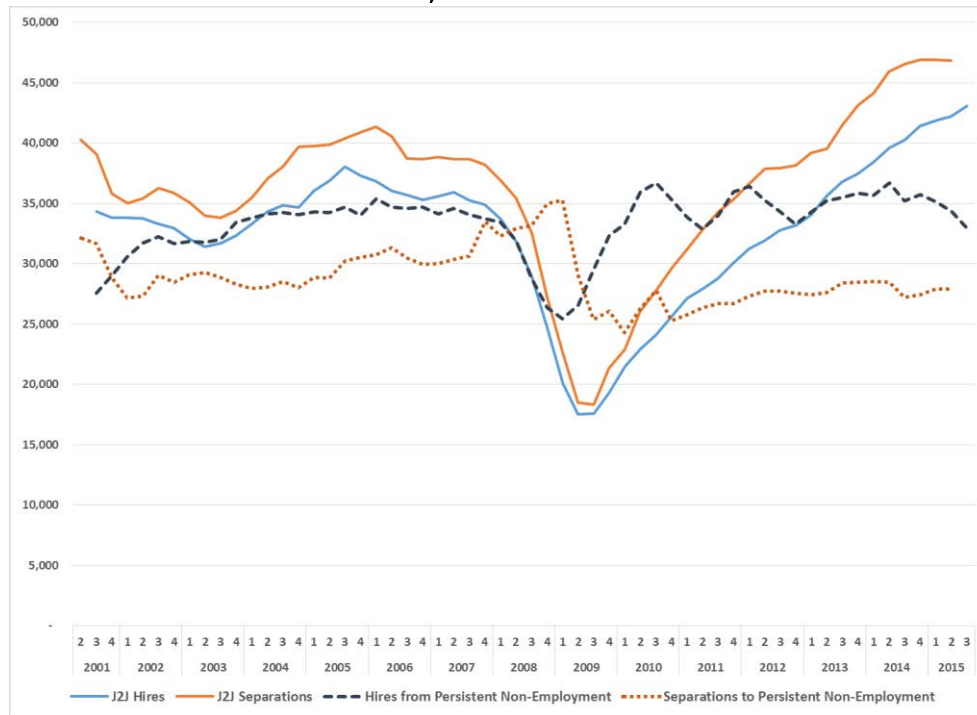


Figure A43. Administrative & Support and Waste Management & Remediation Services, Job Flow Rates

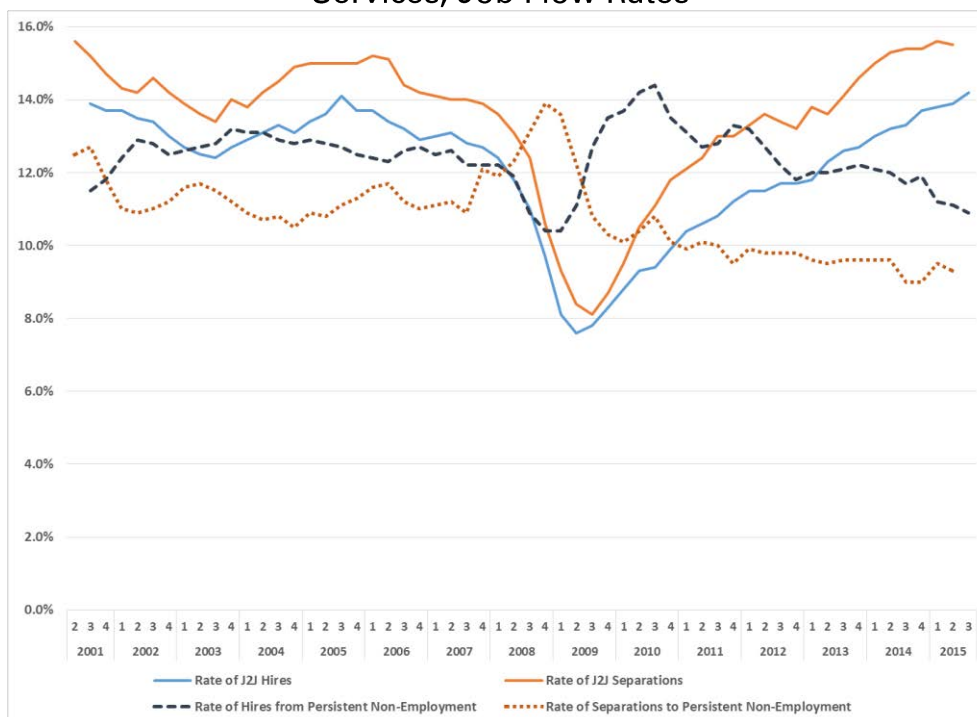
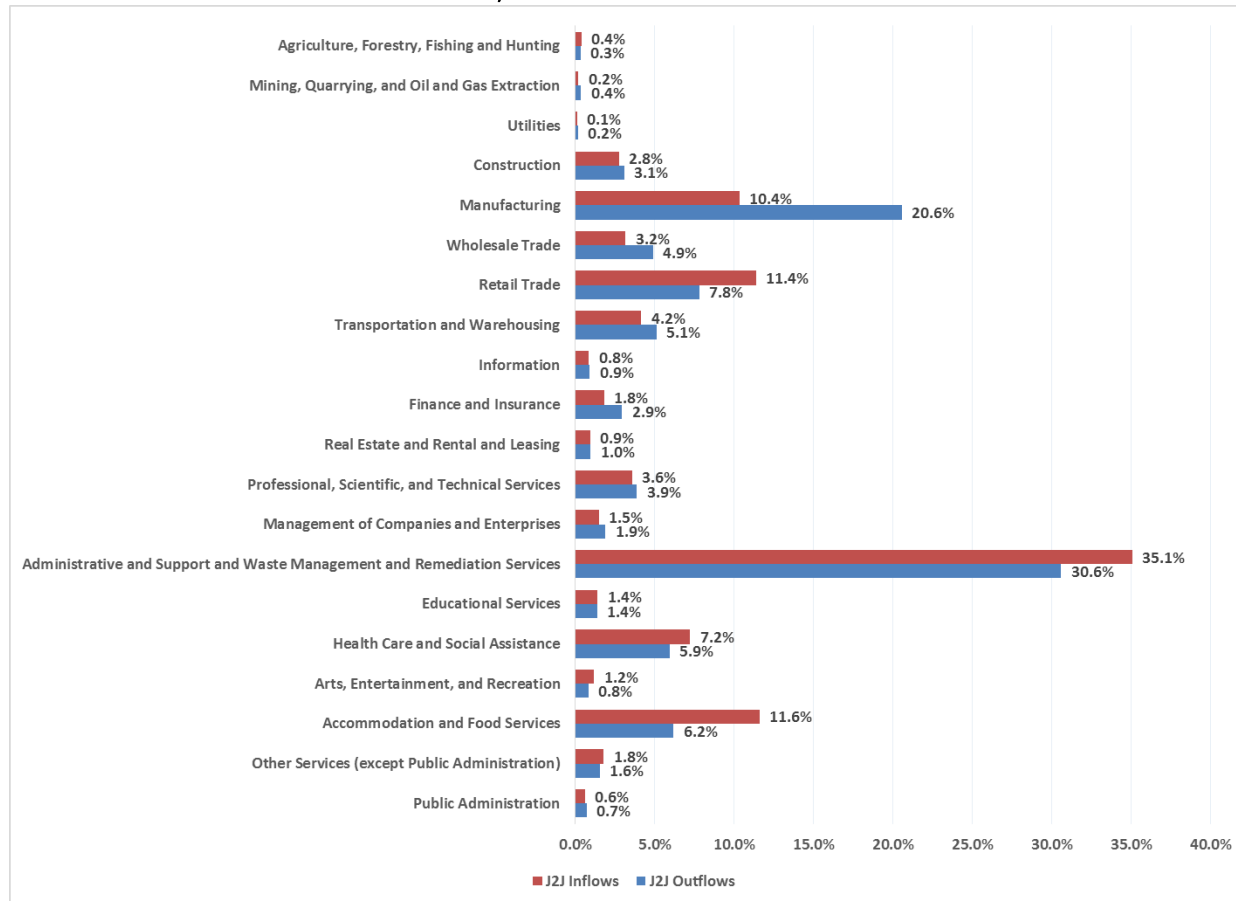


Figure A44. Administrative & Support and Waste Management & Remediation Services, J2J Inflows and Outflows



The administrative and waste services sector includes temporary help agencies, which probably account for most of the job flow volume. J2J separations peaked at more than 42,000 per quarter before the recession; after the recession, they increased to more than 46,000 per quarter. J2J hires followed a similar pattern, peaking at 36,000 per quarter before the recession and 38,000 after. Hires from and separations to persistent non-employment hovered around 35,000 and 28,000 per quarter in the recovery.

Job flow rates were substantially above the all-industry averages. J2J hires and separations averaged 7.5 and 8.8 percentage points above the averages of their all-industry counterparts. Hires from and separations to persistent non-employment averaged 7.2 and 5.7 percentage points below the averages of their all-industry counterparts.

J2J inflows and outflows were highly concentrated in the sector itself. Major J2J inflows were from administrative and waste services, accommodations and food services, retail trade, and manufacturing. Major J2J outflows were to administrative and waste services and manufacturing.

Educational Services

Figure A45. Educational Services, Job Flow Counts

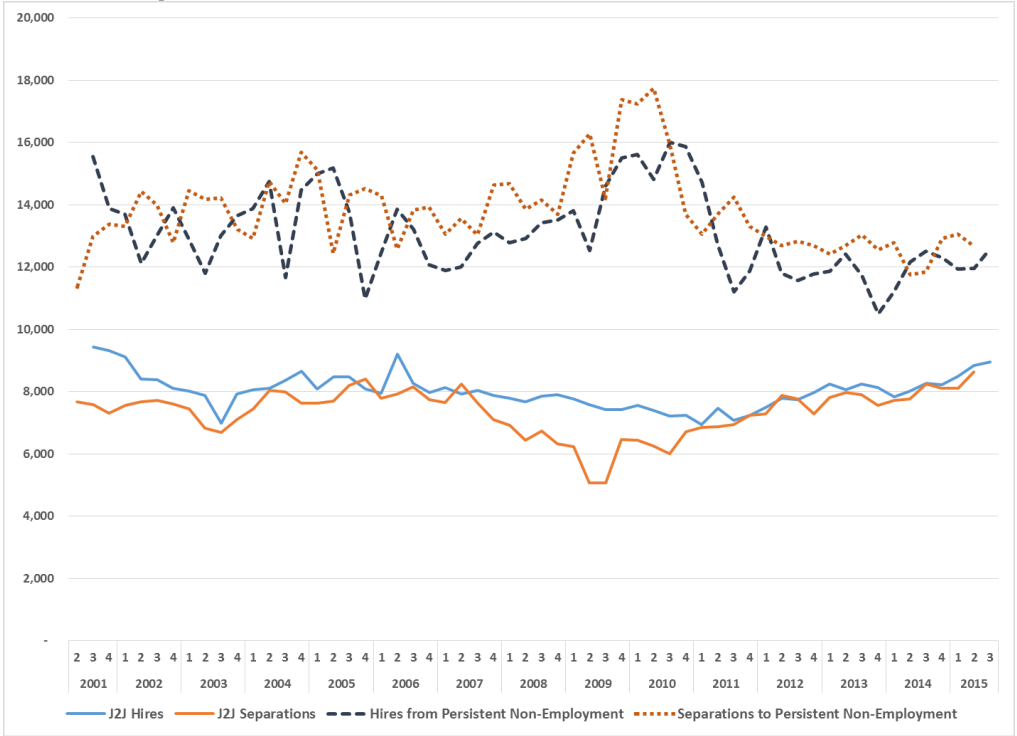


Figure A46. Educational Services, Job Flow Rates

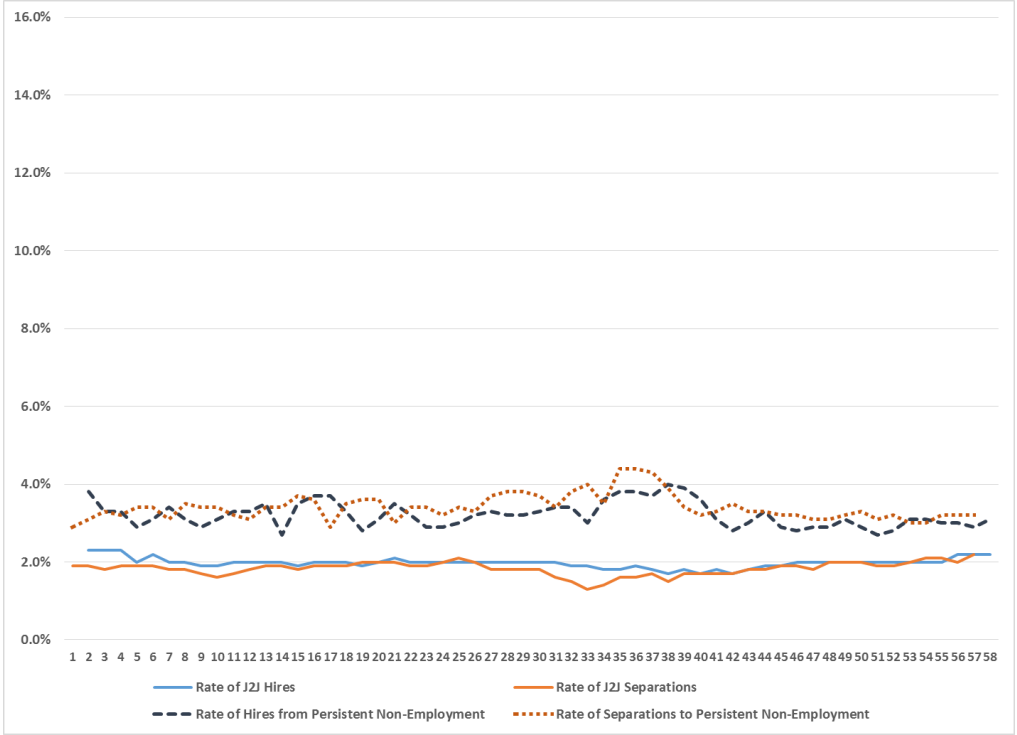
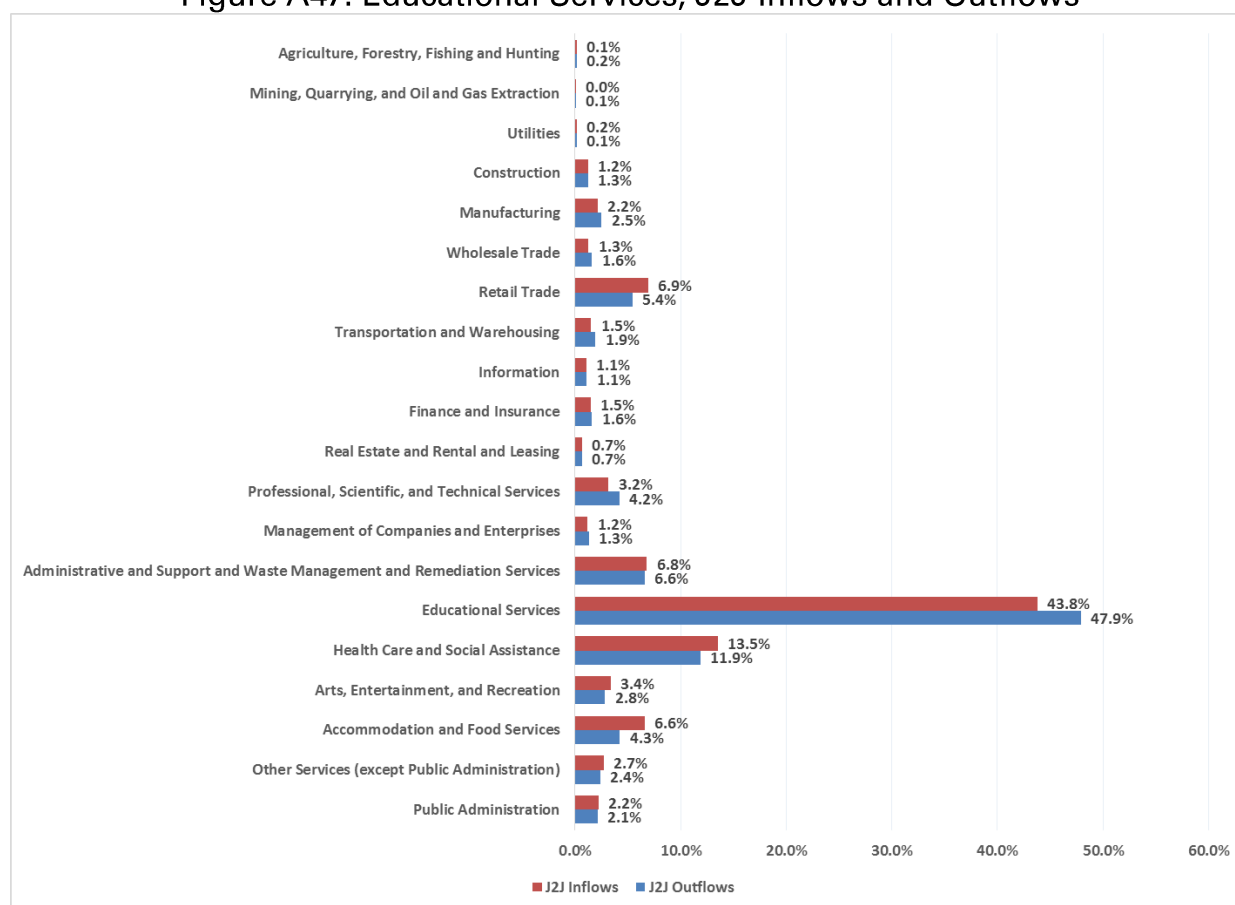


Figure A47. Educational Services, J2J Inflows and Outflows



For educational services, the volumes of hires from and separations to persistent non-employment were higher than for the J2J flows. Separations to brief non-employment fluctuated around 13,700 before the recession; they dropped to around 12,800 in the recovery. Hires from persistent non-employment were somewhat lower. J2J hires and separations fluctuated around 8,000 per quarter before and after the recession.

Job flow rates were below the all-industry averages. J2J hires and separations averaged 2.7 and 2.9 percentage points below the averages of their all-industry counterparts; hires from and separations to persistent non-employment averaged 2.0 and 1.7 percentage points below the averages of their all-industry counterparts.

Although not all jobs in the educational service sector are teaching positions, the specialized skills of educators may help explain the sector's highly concentrated J2J flows with itself. Major J2J outflows and inflows were to and from educational services and health care and social assistance.

Health Care and Social Assistance

Figure A48. Health Care and Social Assistance, Job Flow Counts

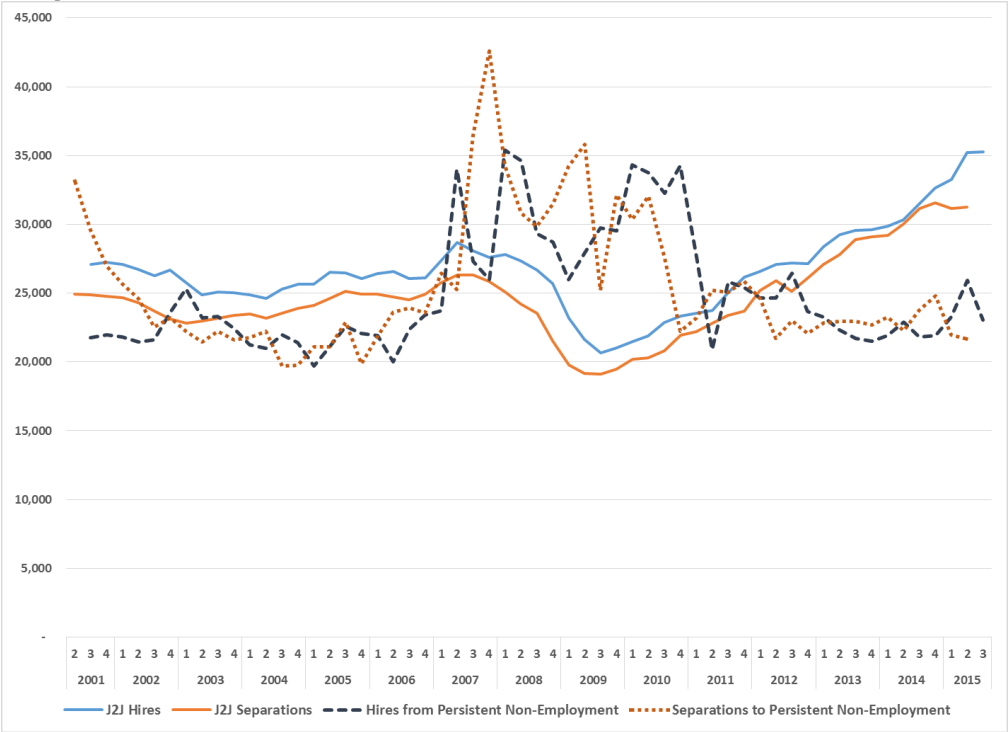


Figure A49. Health Care and Social Assistance, Job Flow Rates

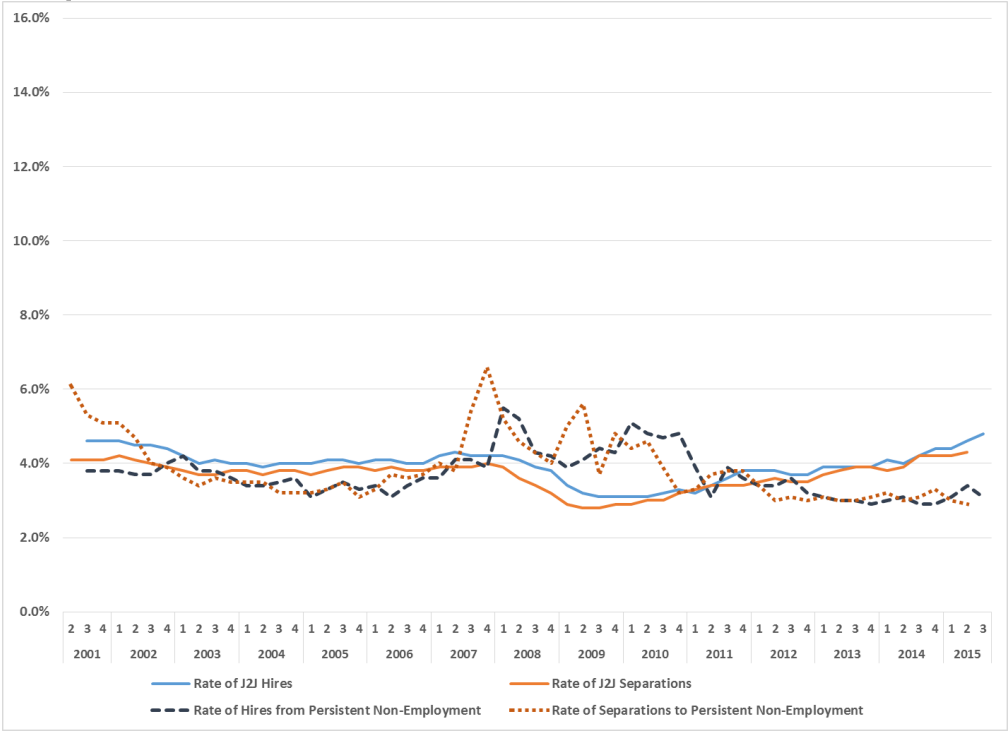
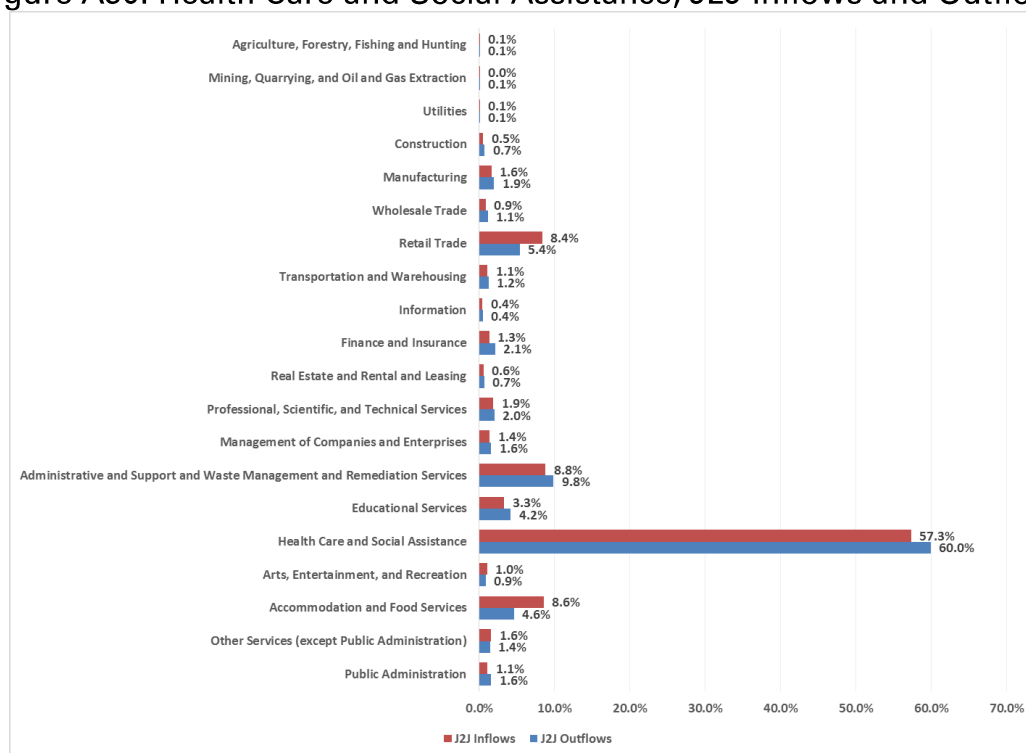


Figure A50. Health Care and Social Assistance, J2J Inflows and Outflows



Health care and social assistance J2J hires and separations peaked at about 28,000 and 26,000 per quarter just before the recession. After dropping during the recession, they climbed to 35,000 and 31,000 per quarter, respectively. Hires from and separations to persistent non-employment were under 25,000 per quarter before the recession and later in the recovery. During the recession, they increased to between 30,000 and 35,000 per quarter. Separations to persistent non-employment peaked at more than 42,000 at the beginning of the recession.

The health care and social assistance sector is large; even with high volumes of job flows, the job flow rates were lower than the all-industry averages. J2J hires and separations averaged 0.7 and 1.0 percentage points below the averages of their all-industry counterparts; hires from and separations to persistent non-employment averaged 1.5 and 1.3 percentage points below the averages of their all-industry counterparts.

Because those in this sector have specialized occupational skills, most job inflows and outflows were within the sector. Health care and social assistance accounted for 57.3 percent of J2J inflows and 60 percent of J2J outflows.

Arts, Entertainment, and Recreation

Figure A51. Arts, Entertainment, and Recreation, Job Flow Counts

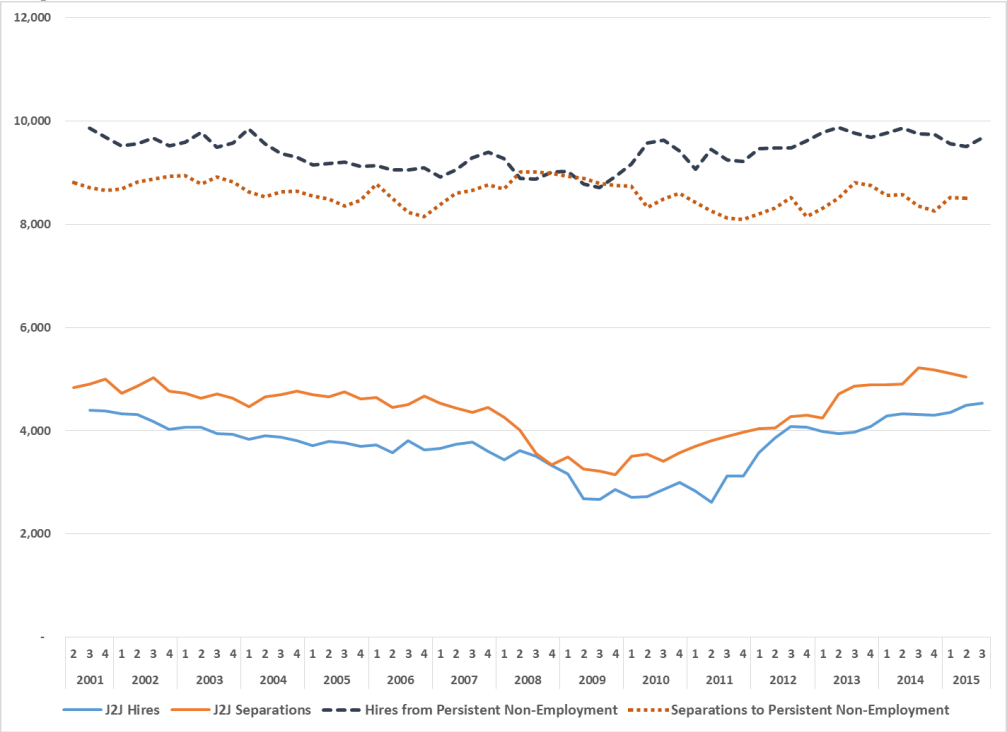


Figure A52. Arts, Entertainment, and Recreation, Job Flow Rates

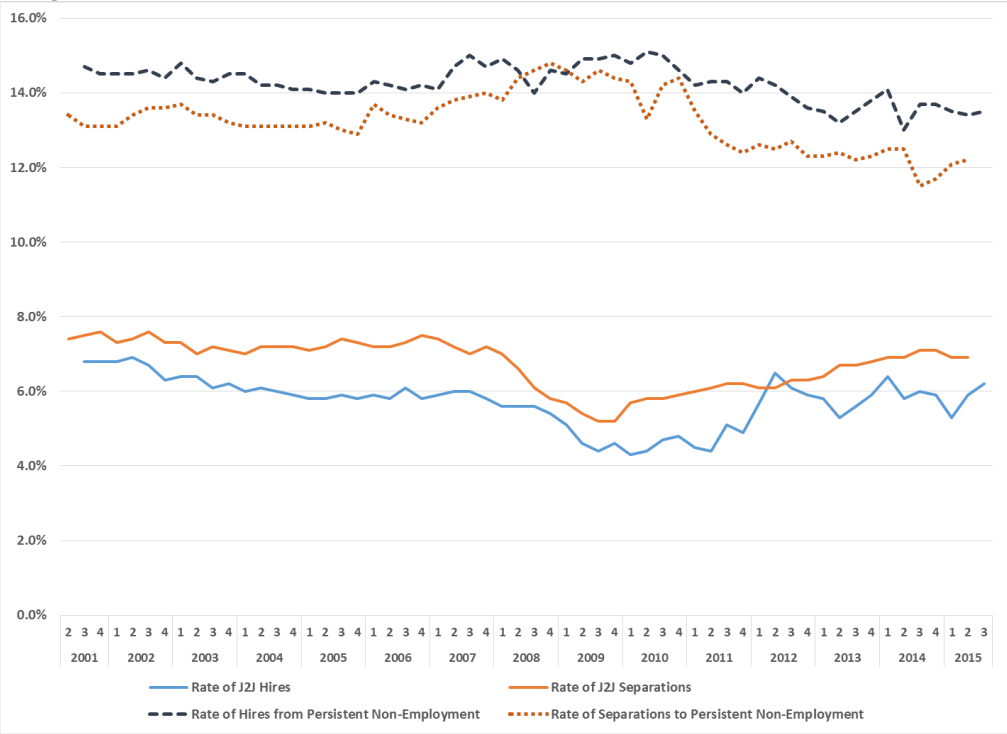
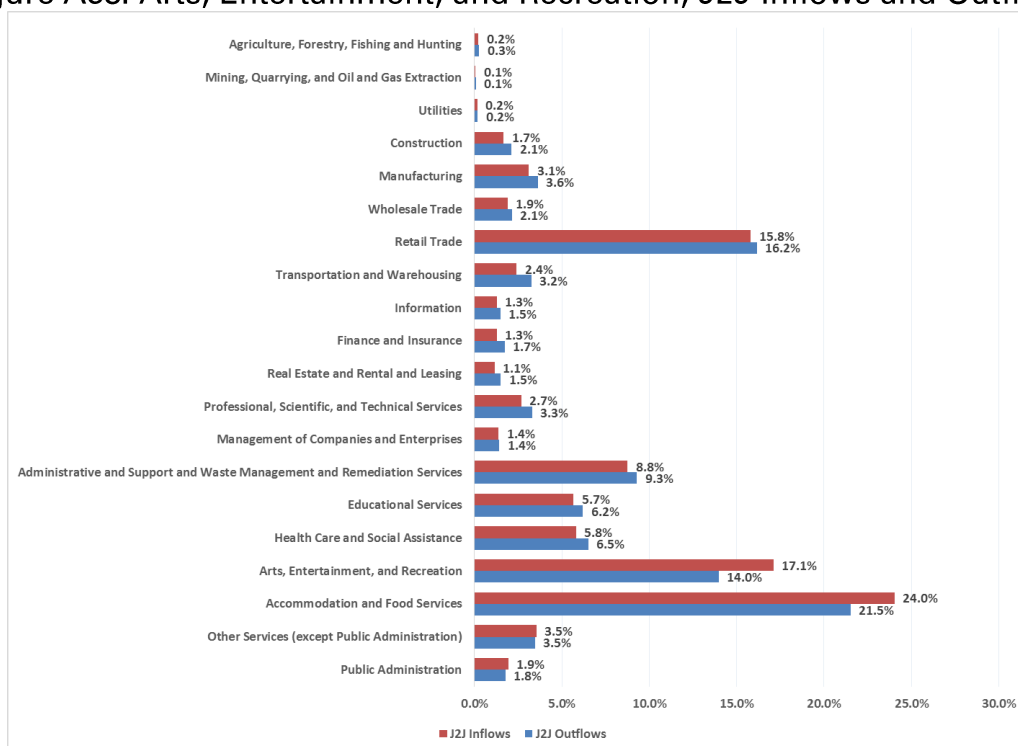


Figure A53. Arts, Entertainment, and Recreation, J2J Inflows and Outflows



Arts, entertainment, and recreation job flows were fairly flat throughout the period. Hires from and separations to persistent non-employment averaged about 9,400 and 8,600 per quarter respectively. J2J hires and separations averaged about 3,700 and 4,400 per quarter.

While rates of J2J hires and separations were above the all-industry averages, rates of hires from and separations to persistent non-employment were substantially higher than the all-industry averages. J2J hires and separations averaged 1.1 and 2.0 percentage points above the averages of their all-industry counterparts. Hires from and separations to persistent non-employment averaged 9.1 and 8.1 percentage points above the averages of their all-industry counterparts.

Major J2J inflows were from accommodation and food services; arts, entertainment, and recreation; and retail trade. Major J2J outflows were to accommodation and food services; retail trade; and arts, entertainment, and recreation.

Accommodation and Food Services

Figure A54. Accommodation and Food Services, Job Flow Counts

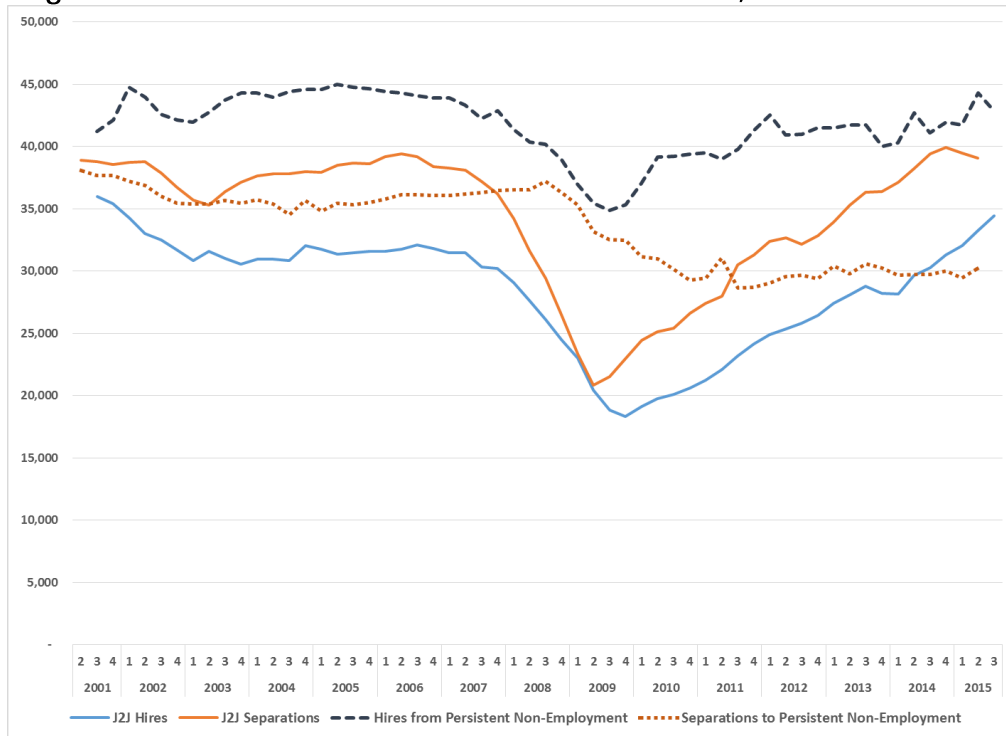


Figure A55. Accommodation and Food Services, Job Flow Rates

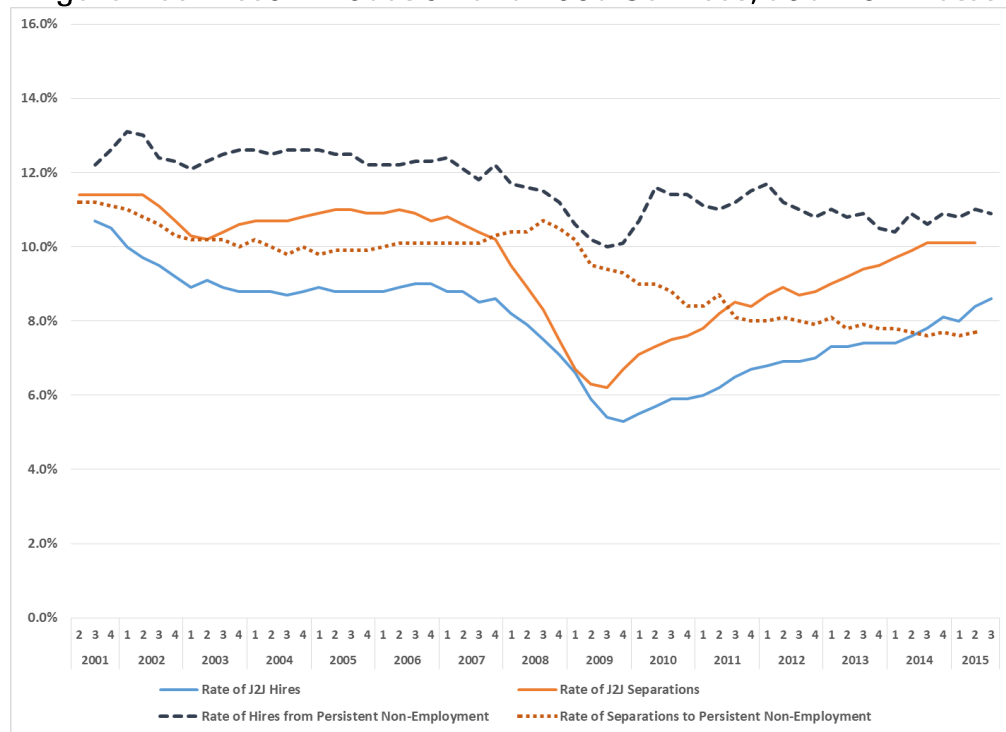
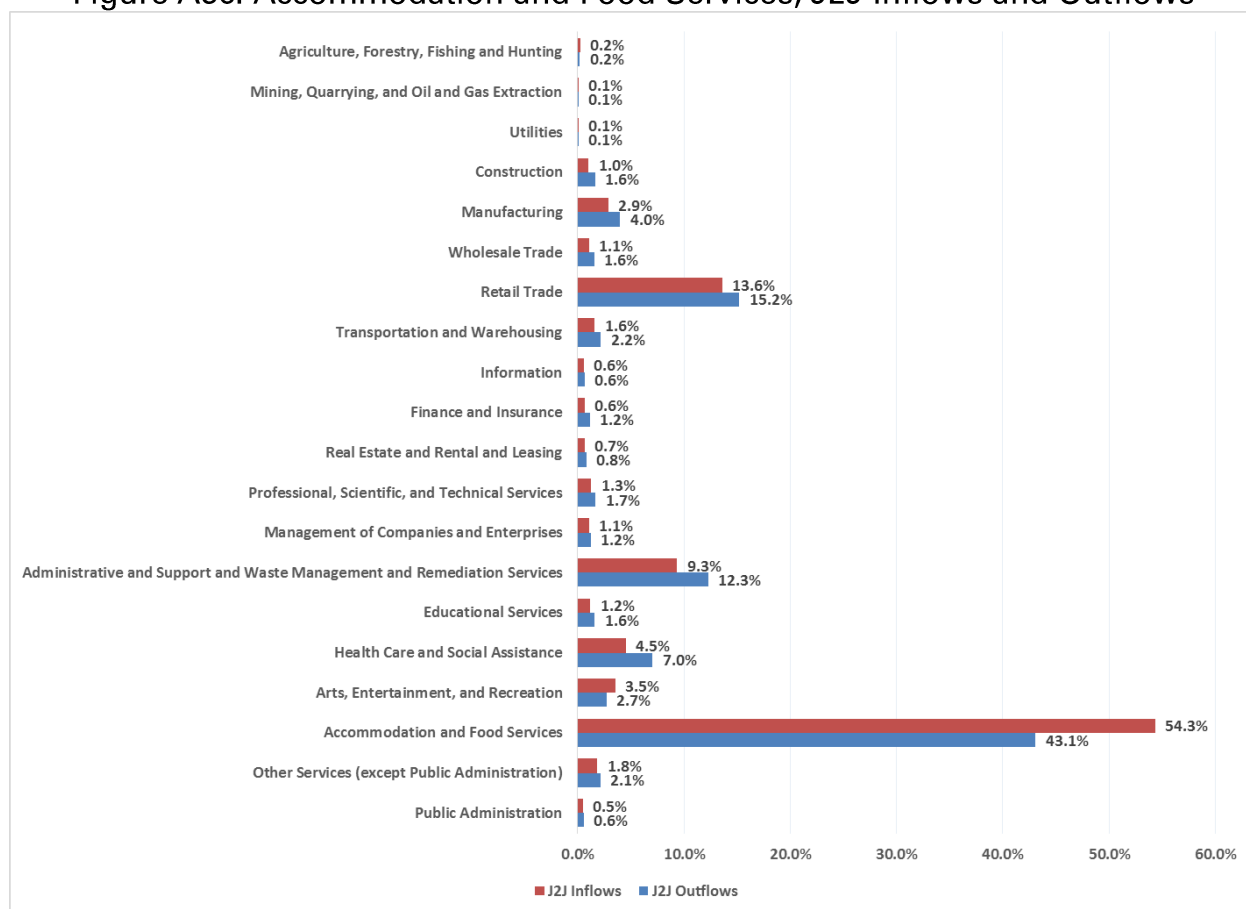


Figure A56. Accommodation and Food Services, J2J Inflows and Outflows



Hires from persistent non-employment had the highest volume of the four job flows, which suggests many people take jobs in the accommodations and food service sector after they have been out of work for a significant amount of time or when they first enter the workforce. Hires from persistent non-employment were above 40,000 per quarter before the recession. At the peak of the recession, they dropped to 35,000 per quarter. In the recovery, they rose to more than 40,000. Separations to persistent non-employment declined from around 35,000 per quarter before the recession to about 30,000 in the recovery.

Job flow rates for accommodation and food services were higher than the all-industry averages. J2J hires and separations averaged 3.3 and 4.9 percentage points above the averages of their all-industry counterparts. Hires from and separations to persistent non-employment averaged 6.4 and 4.2 percentage points above the averages of their all-industry counterparts.

Major J2J inflows were from accommodation and food services and retail trade. Major J2J outflows were to accommodation and food services, retail trade, and administrative and waste services.

Other Services (Except Public Administration)

Figure A57. Other Services (except Public Administration), Job Flow Counts

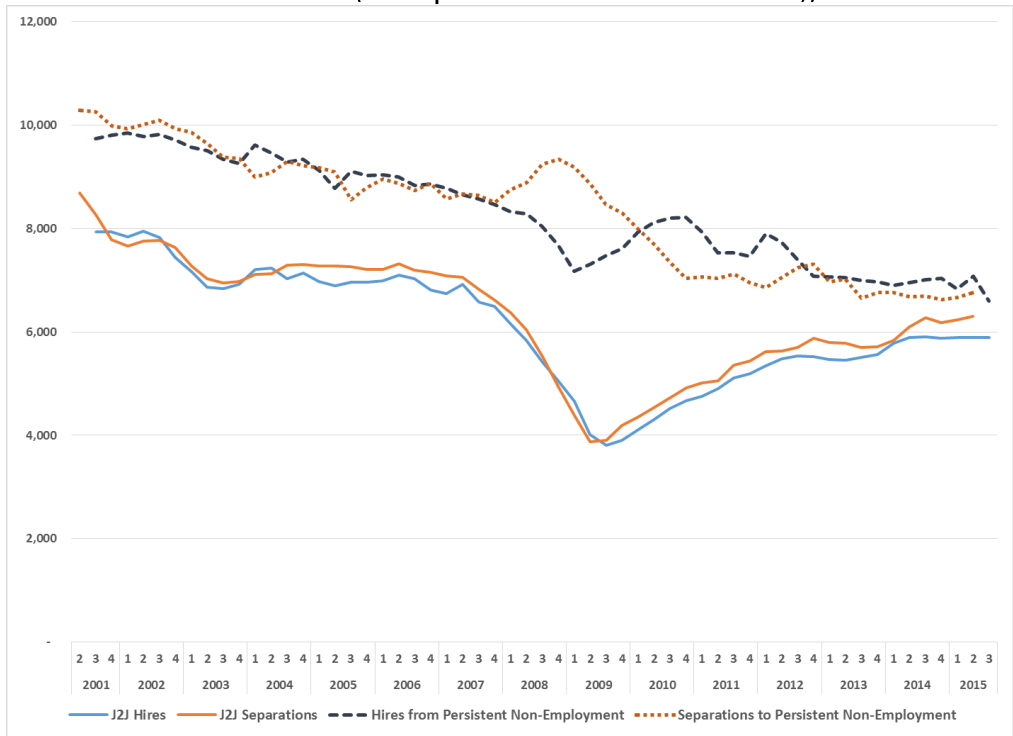


Figure A58. Other Services (except Public Administration), Job Flow Rates

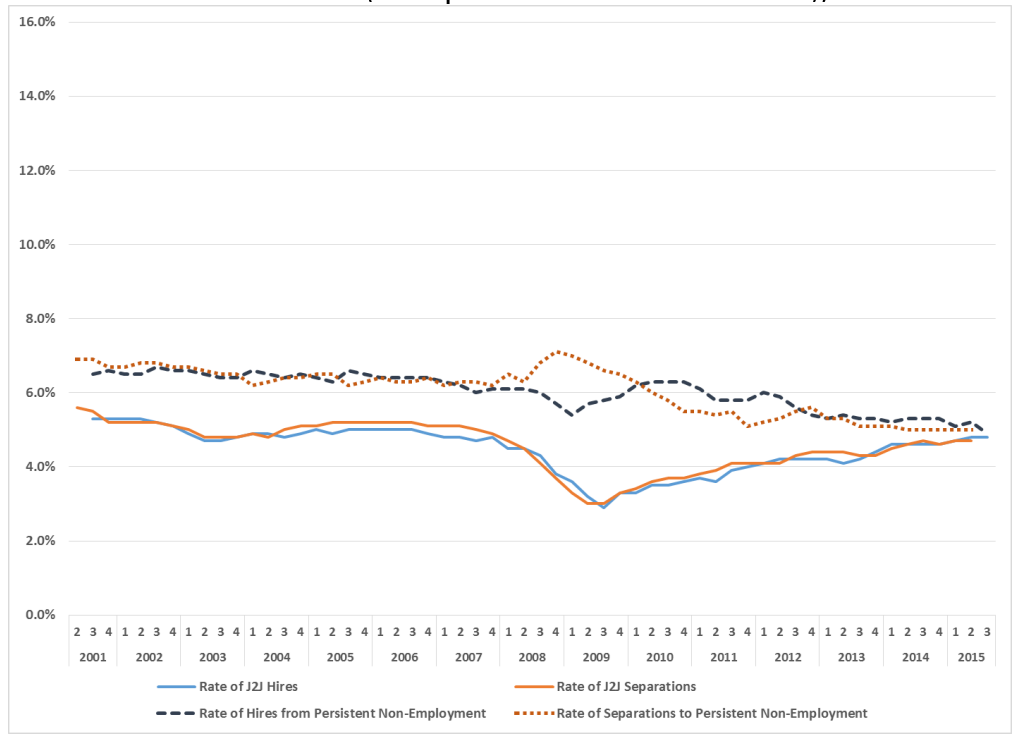
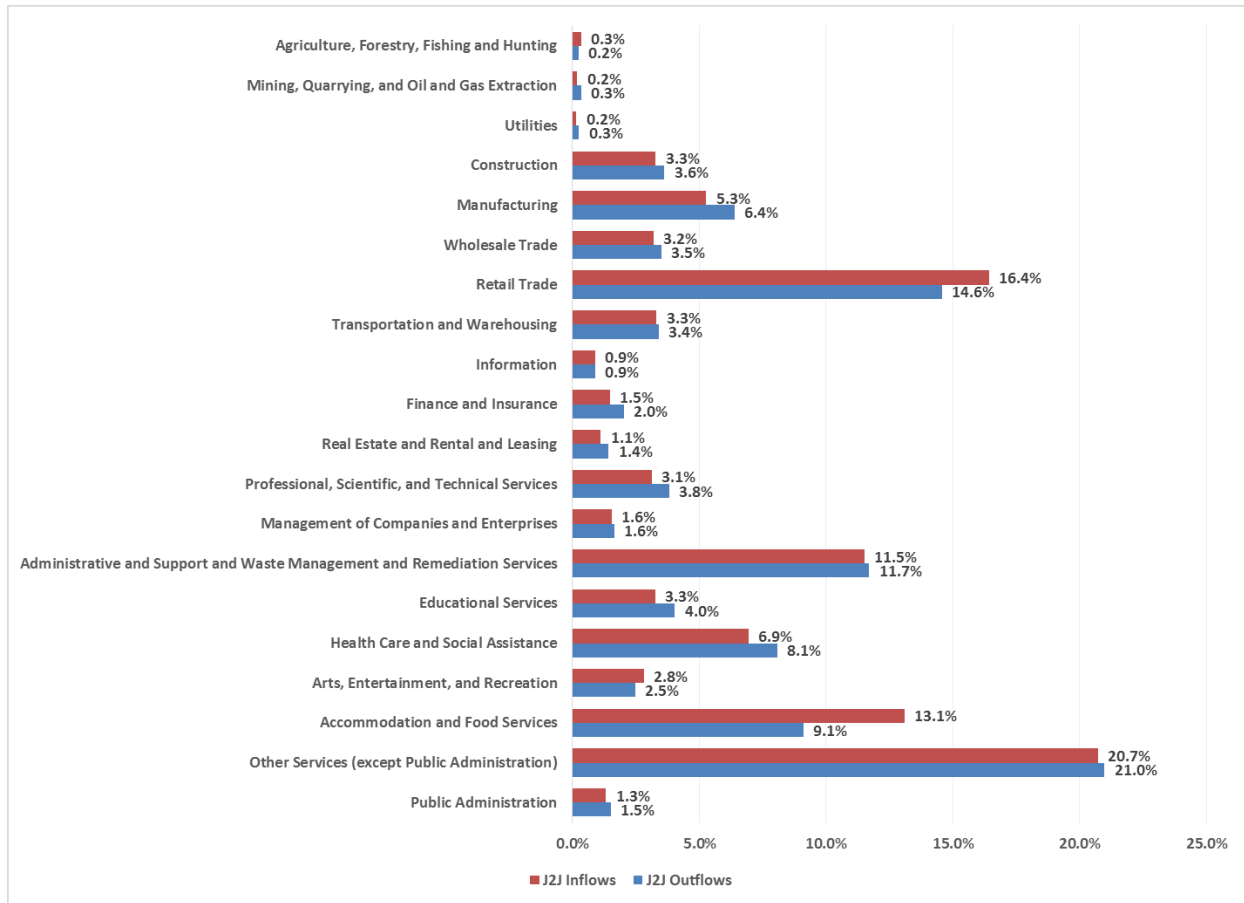


Figure A59. Other Services (except Public Administration),
J2J Inflows and Outflows



Separations to and hires from persistent non-employment tracked closely and had higher volumes than J2J hires and separations; their volume declined from nearly 10,000 per quarter in 2001 to around 7,000 per quarter in 2015. Hires and separations were lower in the recovery than before the recession.

Rates of J2J hires and separations averaged 0.2 and 0.2 percentage points below the averages of their all-industry counterparts. Hires from and separations to persistent non-employment averaged 0.8 and 0.9 percentage points above the averages of their all-industry counterparts.

Major J2J outflows and inflows were to and from other services, retail trade, accommodation and food services, and administrative and waste services.

Public Administration

Figure A60. Public Administration, Job Flow Counts

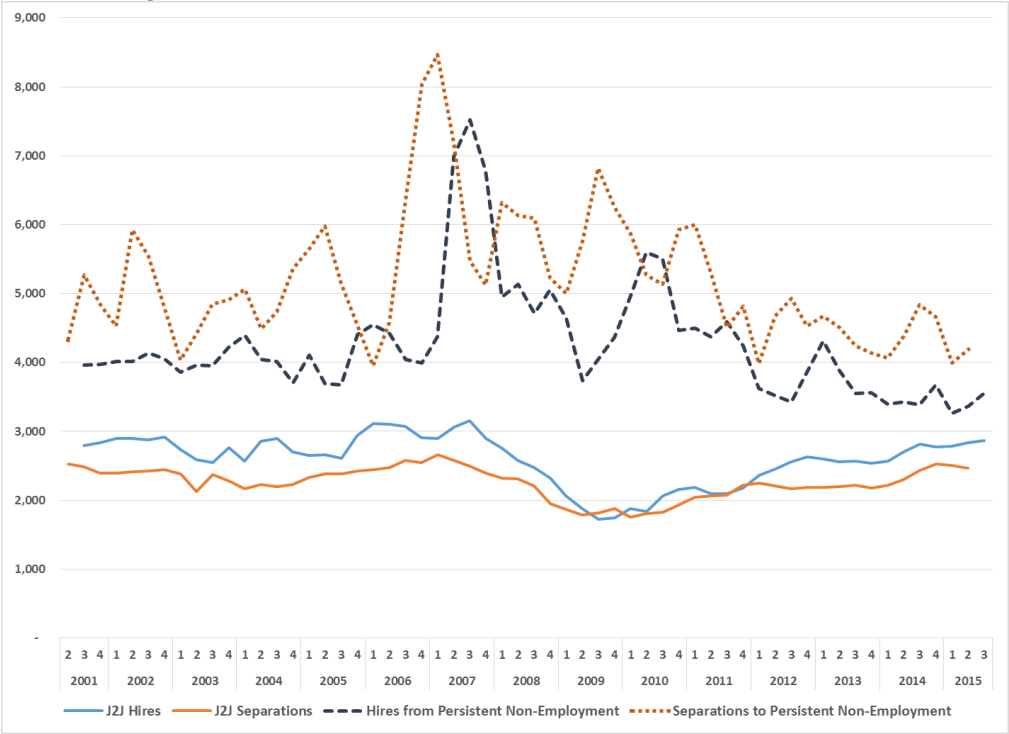


Figure A61. Public Administration, Job Flow Rates

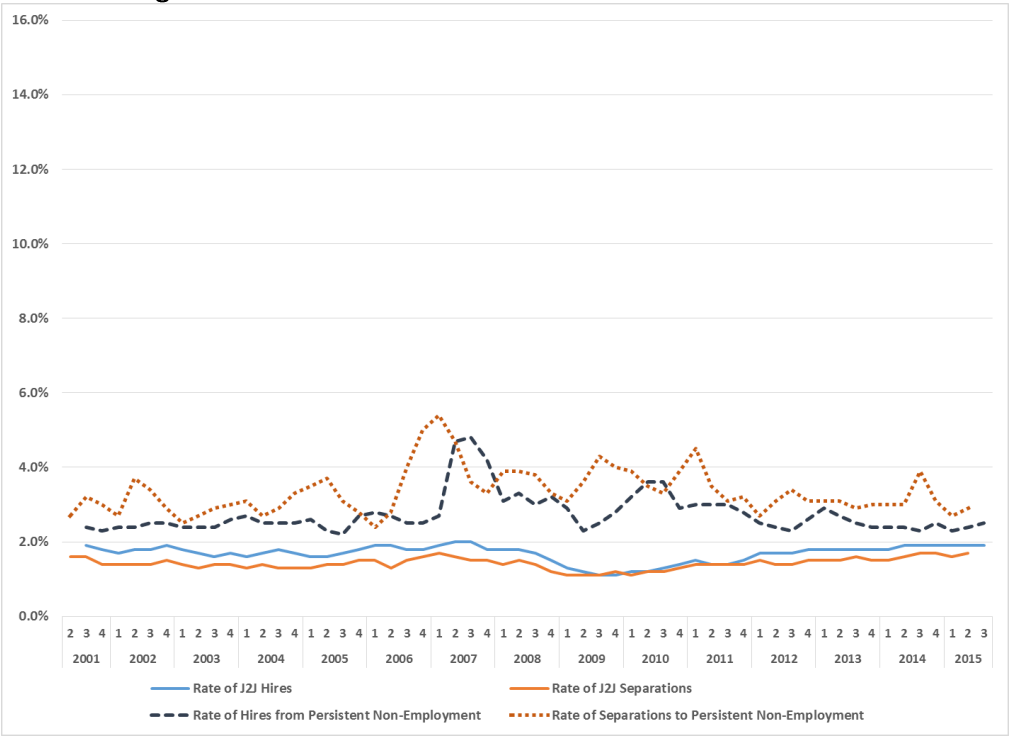
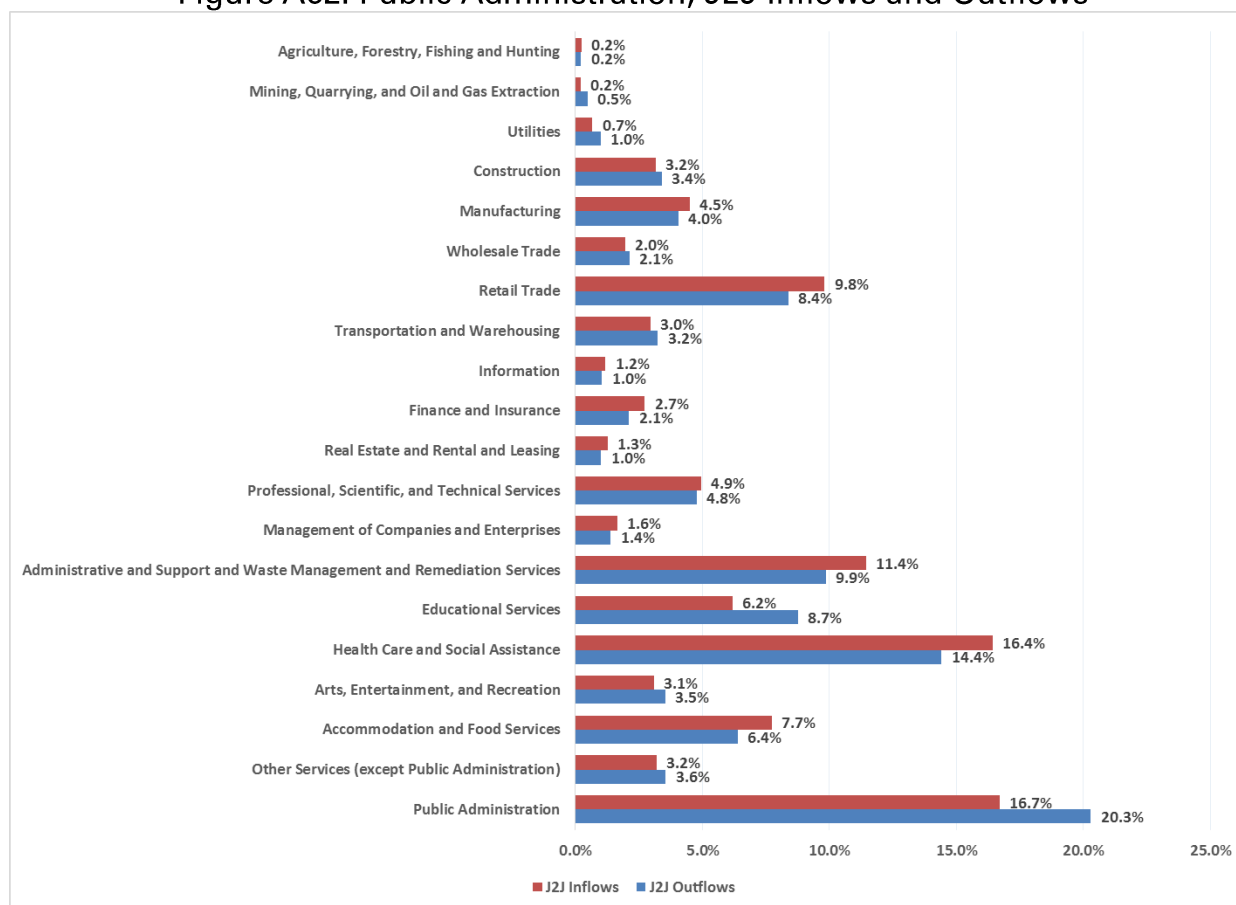


Figure A62. Public Administration, J2J Inflows and Outflows



In public administration, hires to and separations from persistent non-employment were volatile throughout the period, but the pattern seems driven only partially by seasonality. Separations to persistent non-employment peaked at about 8,500 just before the recession; after the recession, they stayed between 4,000 and 5,000 per quarter. Hires from persistent non-employment peaked at about 7,500 immediately before the recession; by 2014 they dropped to under 3,700 per quarter. J2J hires and separations were mostly under 3,000 per quarter, and they showed only slight declines through the recession.

J2J hires and separations averaged 2.9 and 3.3 percentage points below the averages of their all-industry counterparts. Hires from and separations to persistent non-employment averaged 2.4 and 1.8 percentage points below the averages of their all-industry counterparts.

Major J2J outflows and inflows were to and from public administration, health care and social assistance, and administrative and waste services. Major J2J outflows were to public administration, health care and social assistance, and administrative and waste services.

Ohio Workforce Dynamics

Job-to-Job Flows

Appendix B: Worker Demographics

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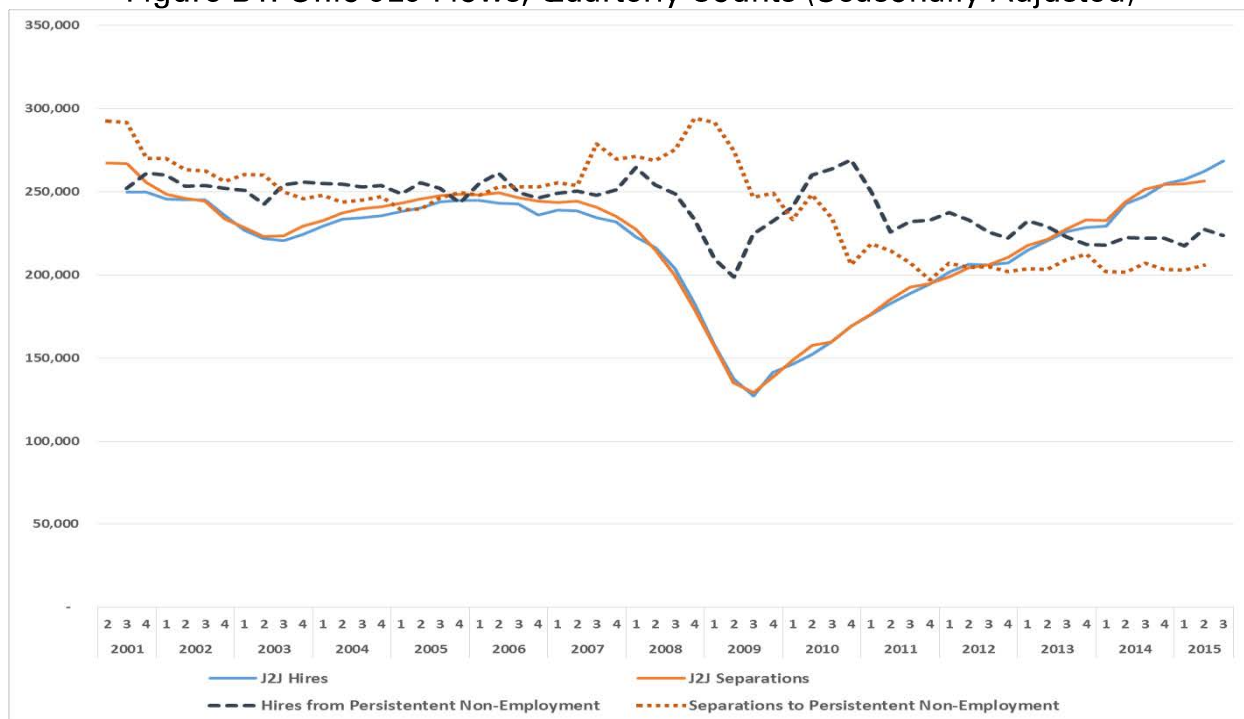
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Jobs-to-Job Flow Recap

The Job-to-Job (J2J) flow data provide a new perspective on labor market activity. Unemployment insurance records are used to determine when workers were hired or separated from employers. The records do not include actual work start and end dates, but they show whether a worker was employed at some point during a quarter. Workers who do not appear in the records for two quarters before they begin a job or two quarters after they leave a job are said to be in “persistent” non-employment.¹ This information is combined to create four types of job flow data: job-to-job separations, job-to-job hires, hires from persistent non-employment, and separations to persistent non-employment.

This appendix presents detailed job flow counts and rates by worker demographic subgroup, including age group, sex, race and ethnicity, and education. There are two figures for each demographic detail: J2J flow counts and J2J flow rates. As a point of reference, Figure B1 shows the total Ohio job flows from 2001 through 2015. These numbers are the sums of the worker subgroup totals. Separations to persistent non-employment peaked at more than 294,000 per quarter during the recession, then declined to less than 205,000 per quarter late in the recovery.

Figure B1. Ohio J2J Flows, Quarterly Counts (Seasonally Adjusted)



J2J hires and separations declined to less than 130,000 per quarter during the recession, then rose to more than 250,000 per quarter in 2015.

¹ J2J uses the term “non-employment” to mean a period without paid employment, as opposed to “unemployment,” which has a narrower definition in labor force statistics.

Figure B2. Ohio J2J Flows, Quarterly Rates (Seasonally Adjusted)

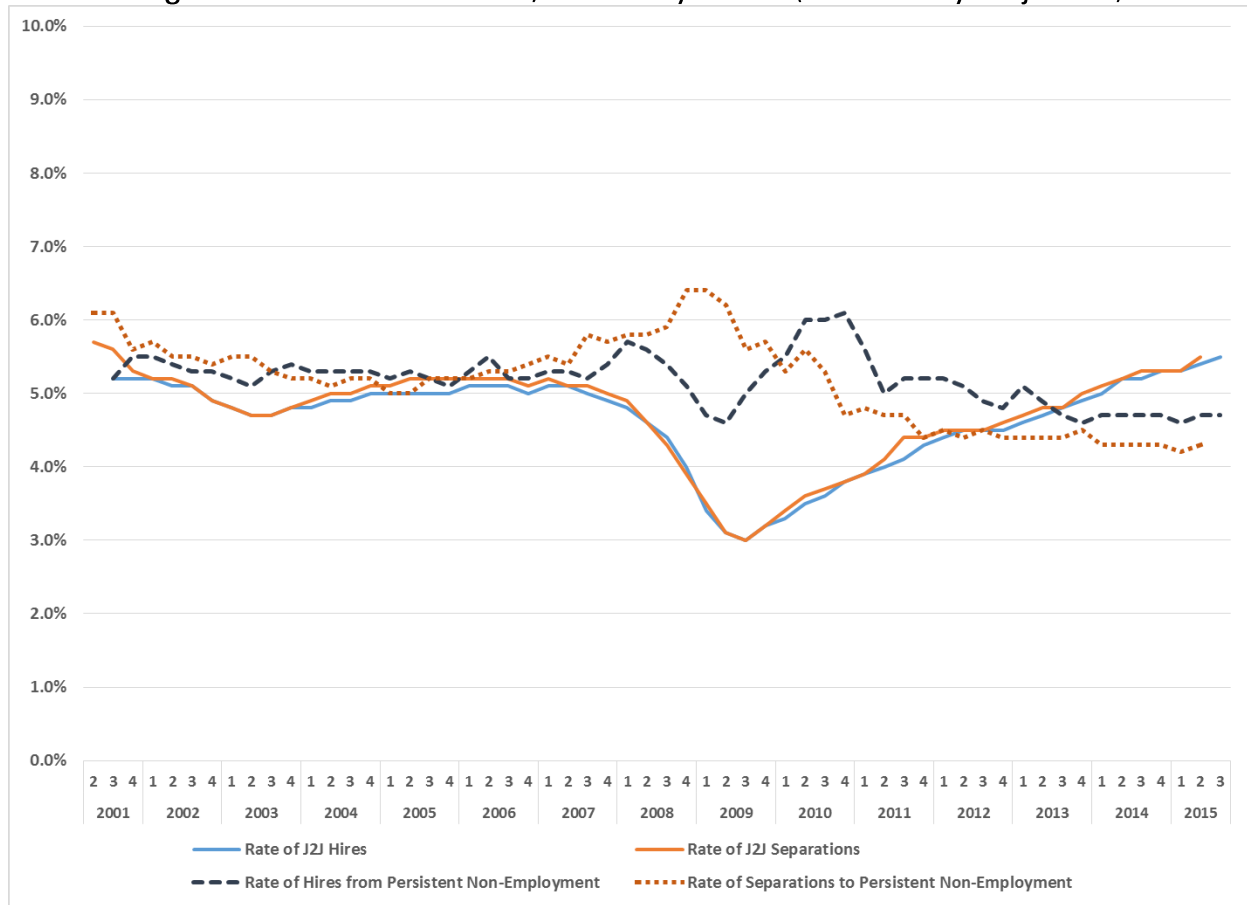


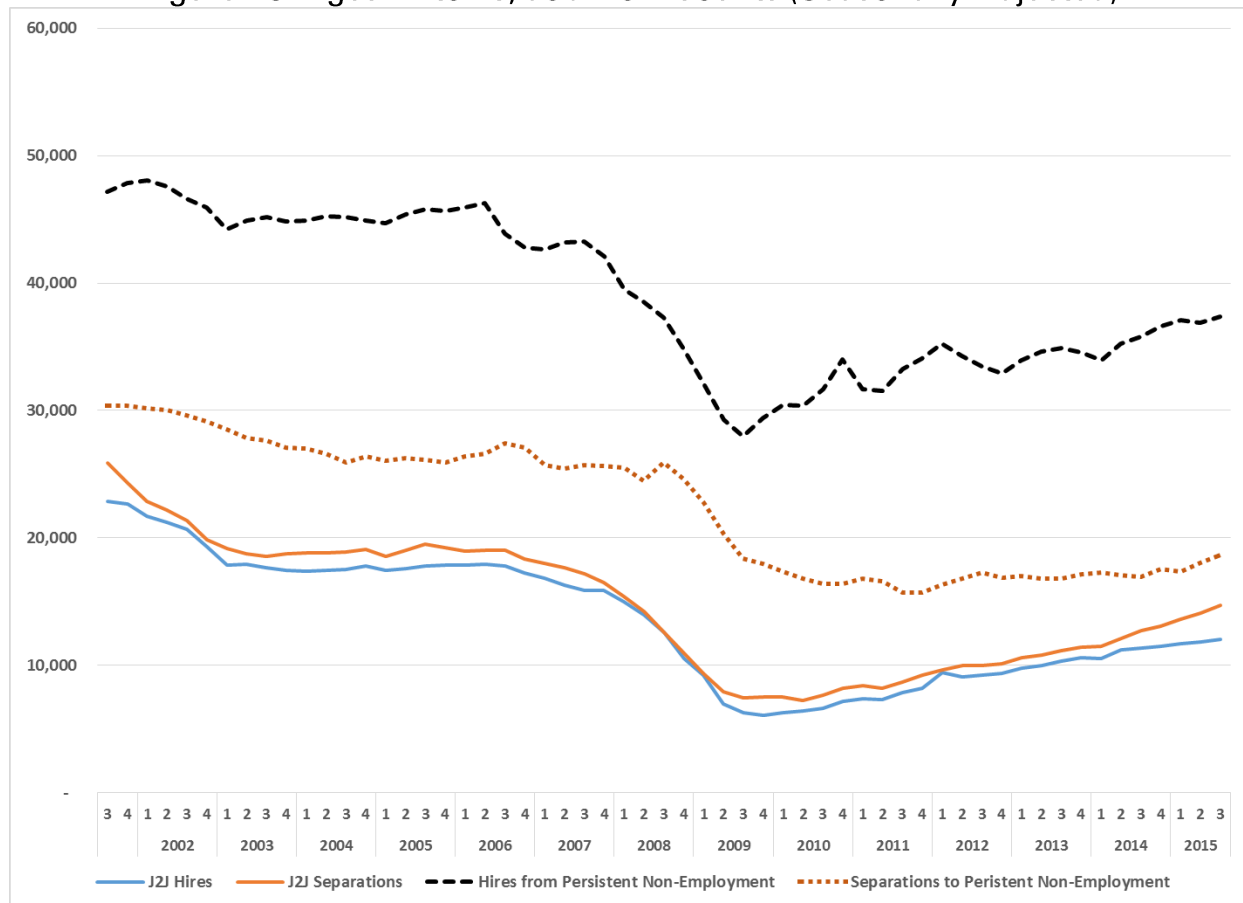
Figure B2 shows total quarterly Ohio job flow rates. The rates for the Ohio job flows are averages across all population subgroups. Separations to persistent non-employment peaked at 6.4 percent during the Great Recession and declined to about 4.3 percent in the recovery. Hires from persistent non-employment peaked at about 6 percent early in the recovery, then declined to about 4.7 percent late in the recovery. J2J hires and separations declined to a low of 3.0 percent during the recession, then rose to around 5.4 percent in 2015.

Age Group

J2J flow counts and rates are presented for the following age groups, 14 to 18, 19 to 21, 22 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64, and 65 and older.

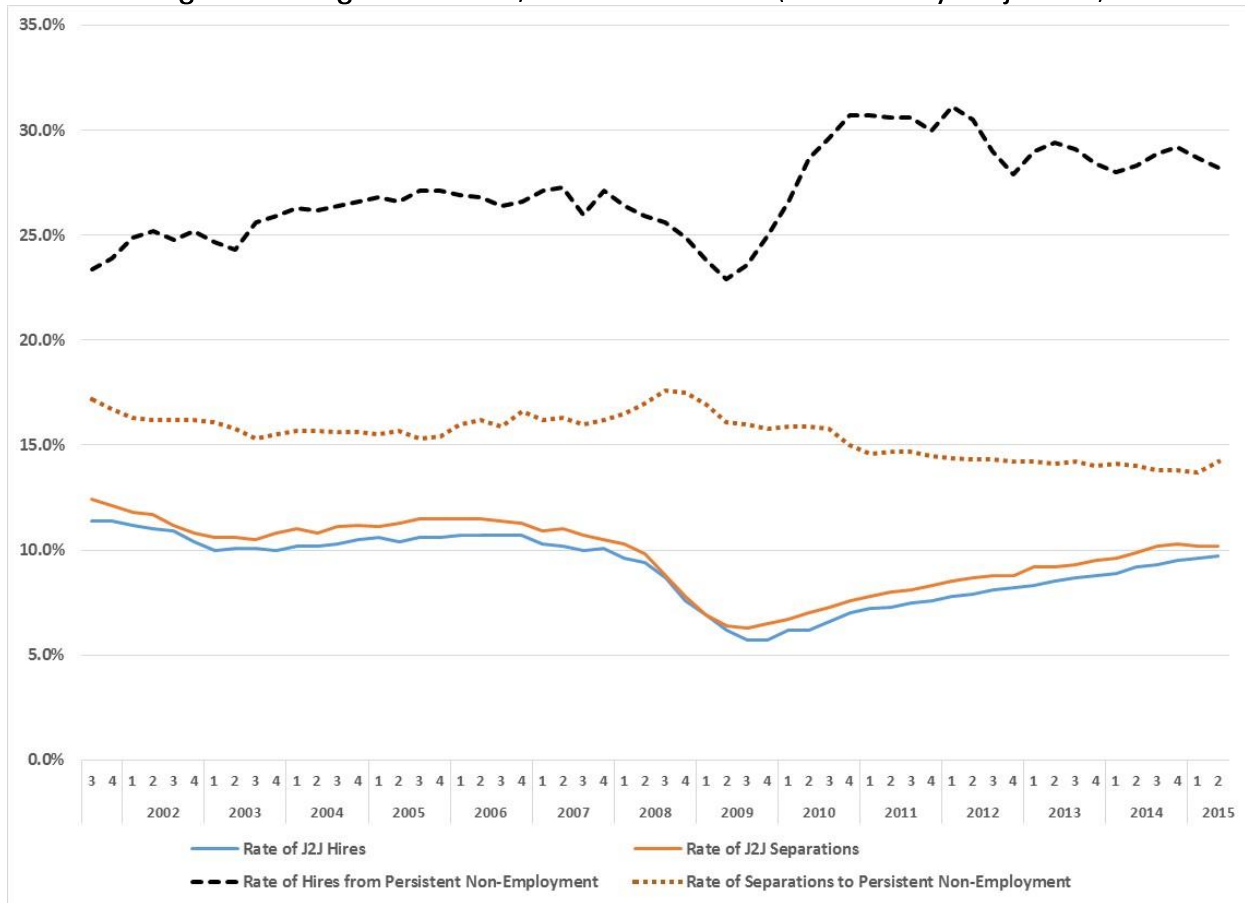
Ages 14 to 18

Figure B3. Ages 14 to 18, Job Flow Counts (Seasonally Adjusted)



Among workers ages 14 to 18, all four job flows had higher volumes prior to the Great Recession than during the recovery. Hires from persistent non-employment had the highest volumes throughout the period. The high number of separations to persistent non-employment was most likely driven by seasonal employment among teens in school, while the high number of hires from persistent non-employment is likely driven by both seasonal employment and young workers entering the workforce. J2J hires and separations dropped to a low of 6,000 per quarter during the recession but climbed to more than 12,000 per quarter by 2015.

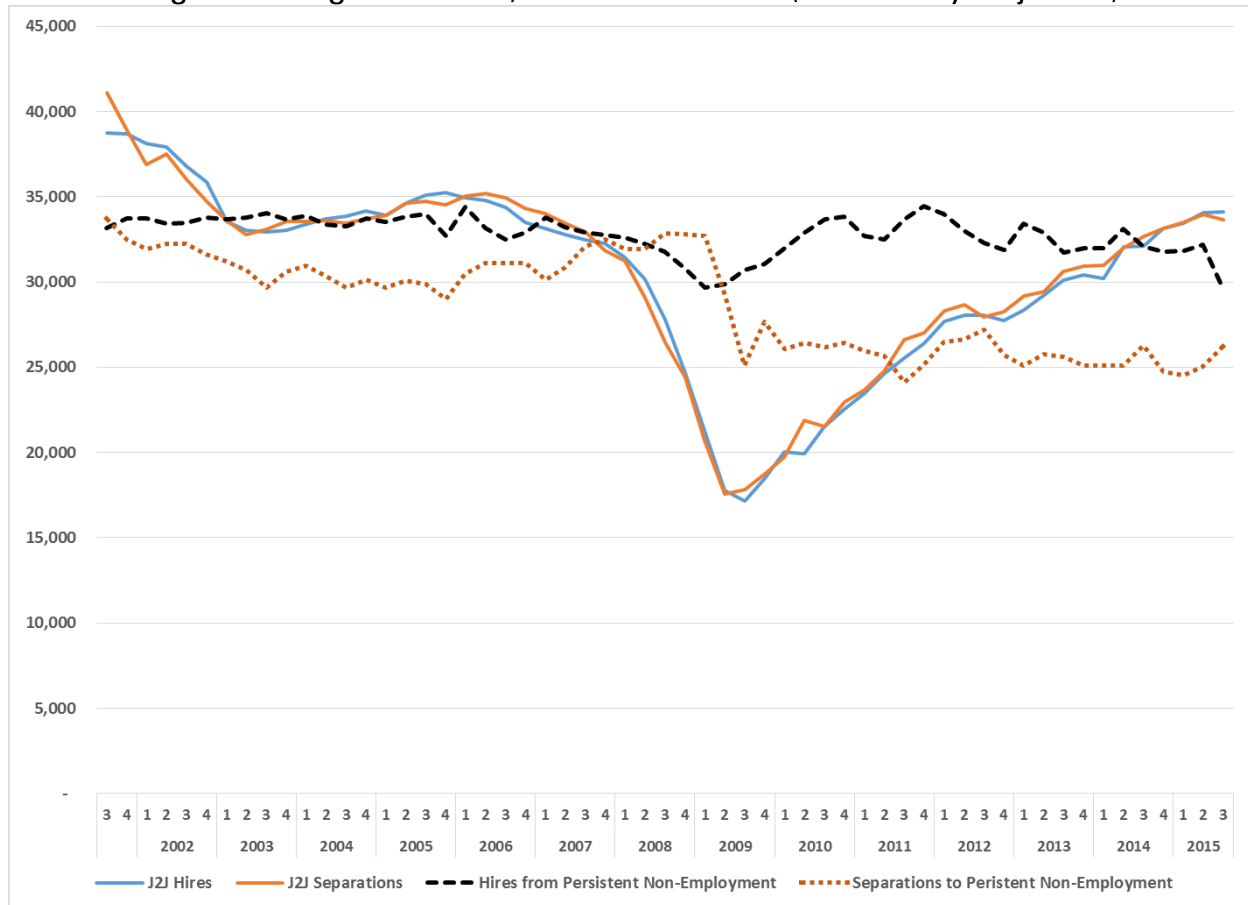
Figure B4. Ages 14 to 18, Job Flow Rates (Seasonally Adjusted)



Job flow rates for those 14 to 18 were higher than the average rates for all age groups. Rates of J2J hires and separations averaged 4.5 and 5.1 percentage points above the total population averages. The rate of separations to persistent non-employment averaged 10.3 percentage points above the total population averages, and they declined over the period. Hires from persistent non-employment averaged 21.9 percentage points above the total population averages.

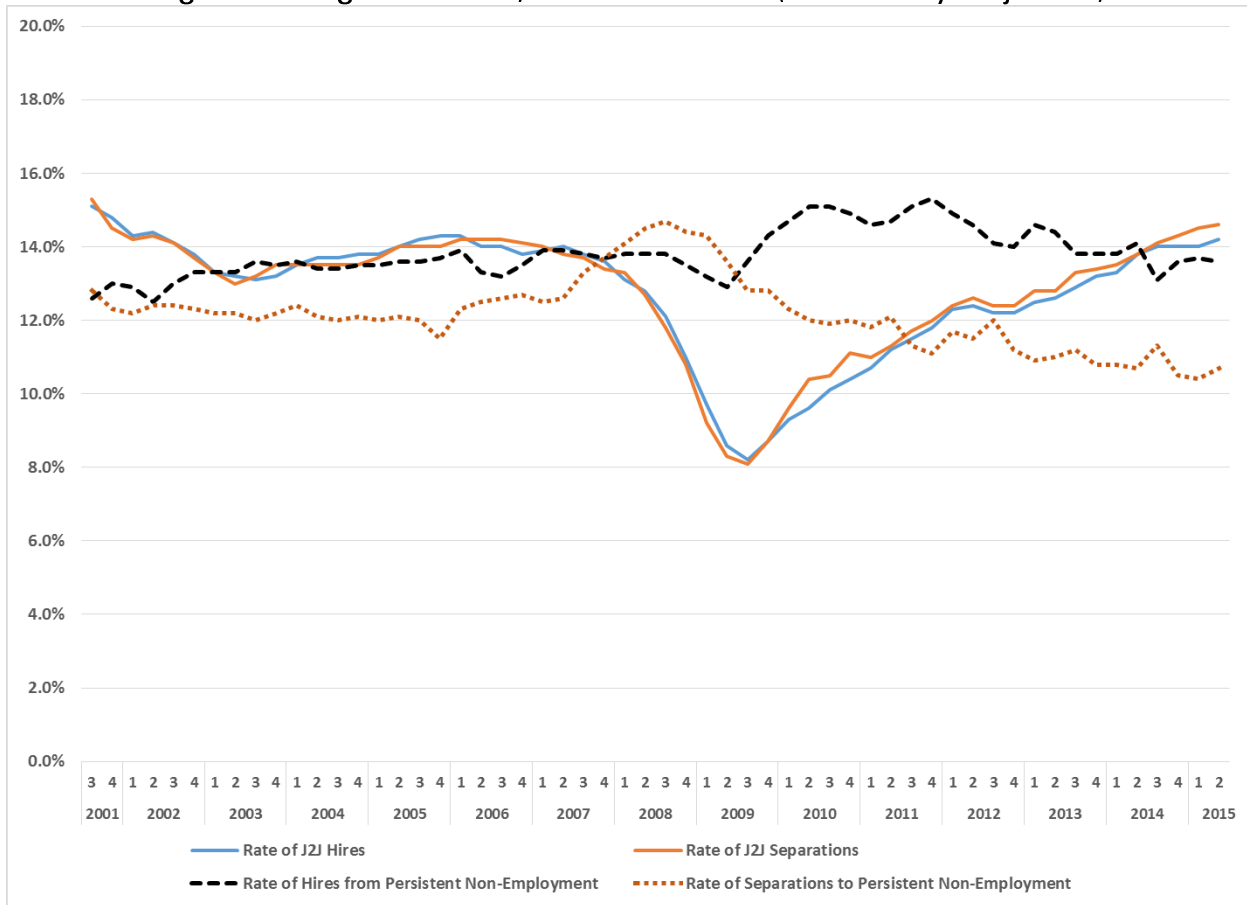
Ages 19 to 21

Figure B5. Ages 19 to 21, Job Flow Counts (Seasonally Adjusted)



Among those ages 19 to 21, the volume of J2J hires and separations were highest during the 2001 recession. They dropped to a low of about 17,000 per quarter during the Great Recession, then rose steadily during the recovery. Hires from persistent non-employment fluctuated between 30,000 and 35,000 per quarter throughout the period. Separations to persistent non-employment dropped during the recession and remained lower through the recovery.

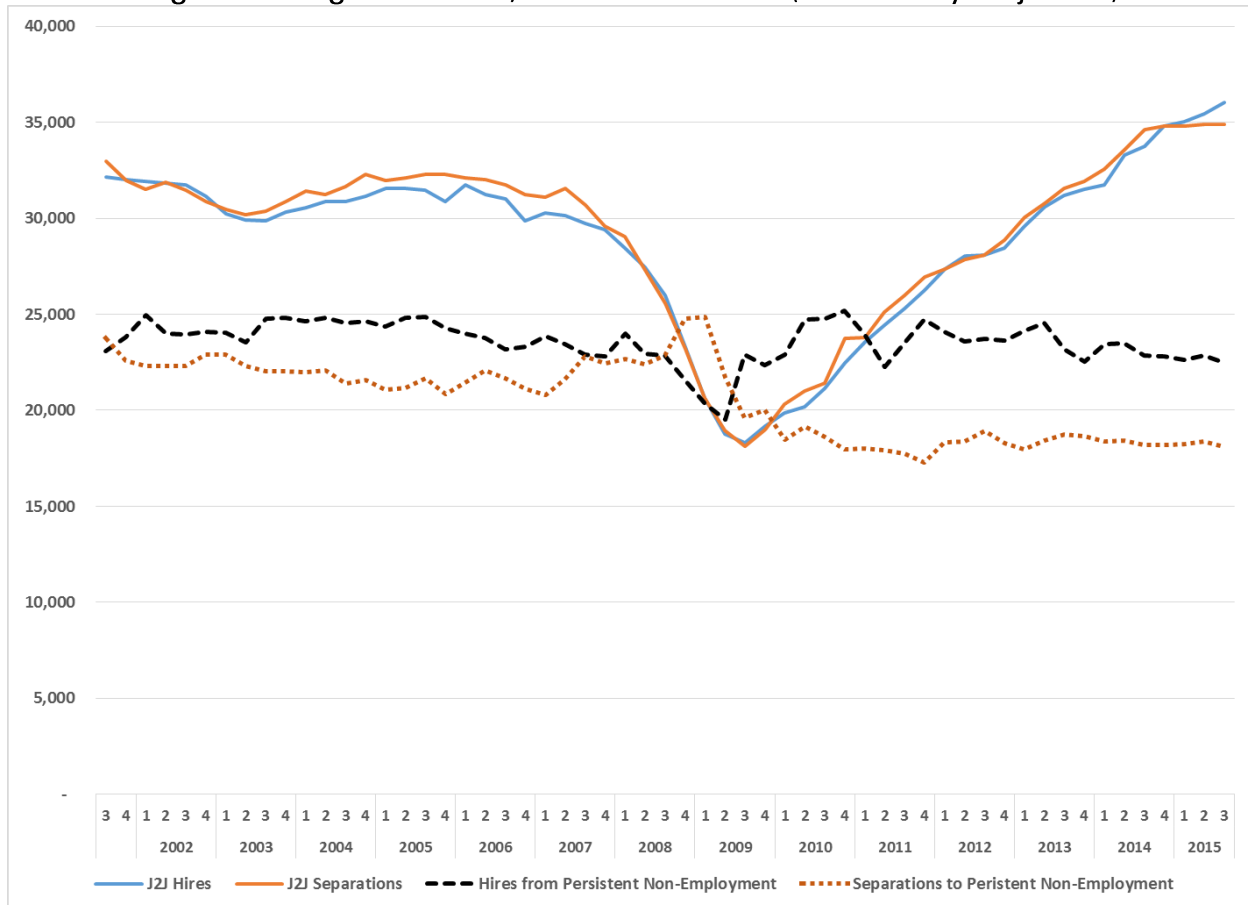
Figure B6. Ages 19 to 21, Job Flow Rates (Seasonally Adjusted)



Job flow rates for those 19 to 21 were above the total population averages. Rates of J2J hires and separations averaged 8.1 percentage points above the total population averages. Rates of hires from persistent non-employment averaged 8.6 percentage points above the total population average, while rates of separations to persistent non-employment averaged 7 percentage points above the total population average.

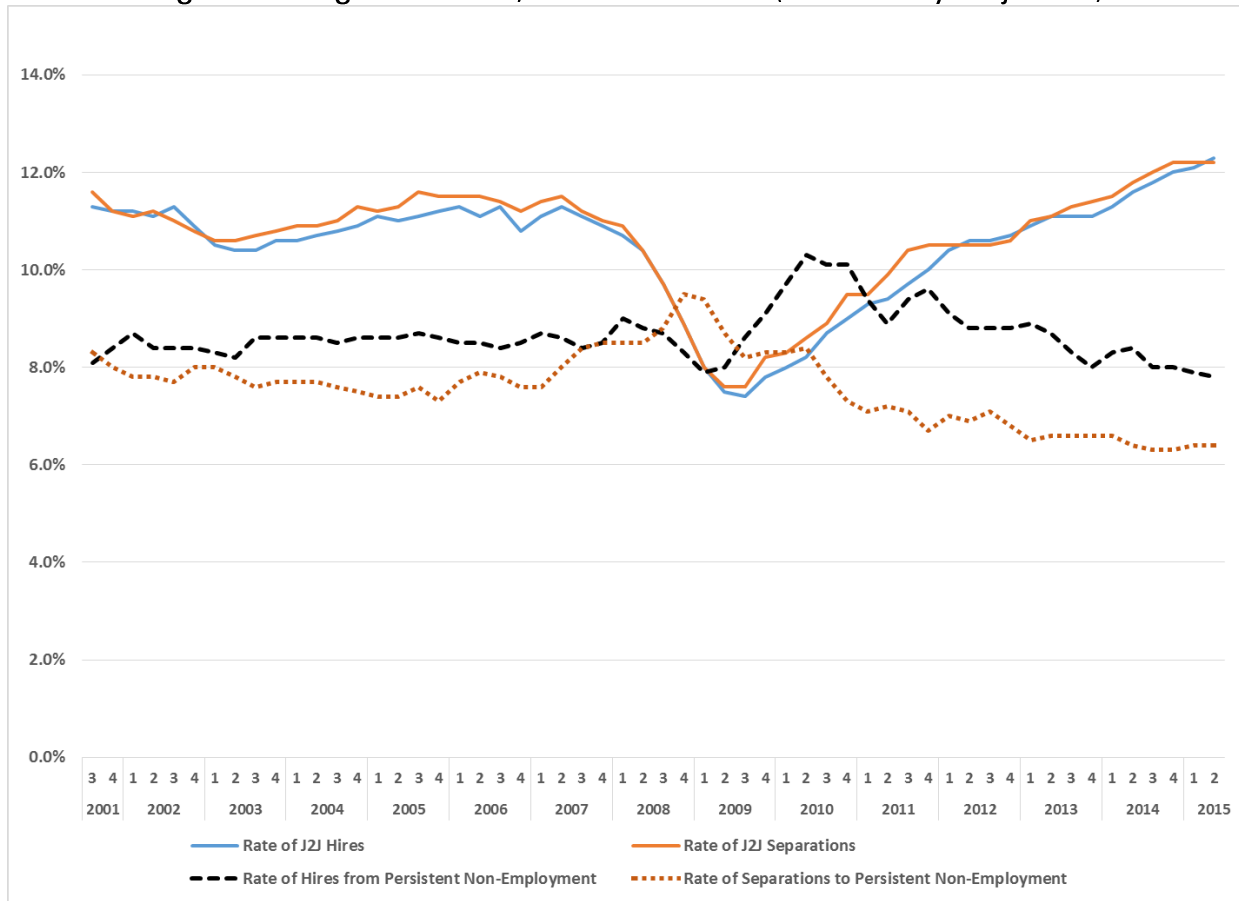
Ages 22 to 24

Figure B7. Ages 22 to 24, Job Flow Counts (Seasonally Adjusted)



Except during the Great Recession, the numbers of hires from and separations to persistent non-employment were less than the numbers of J2J hires and separations for 22- to 24-year-olds. After a steep decline during the recession, J2J hires and separations climbed steadily to 35,000 per quarter in 2015, above pre-recession levels.

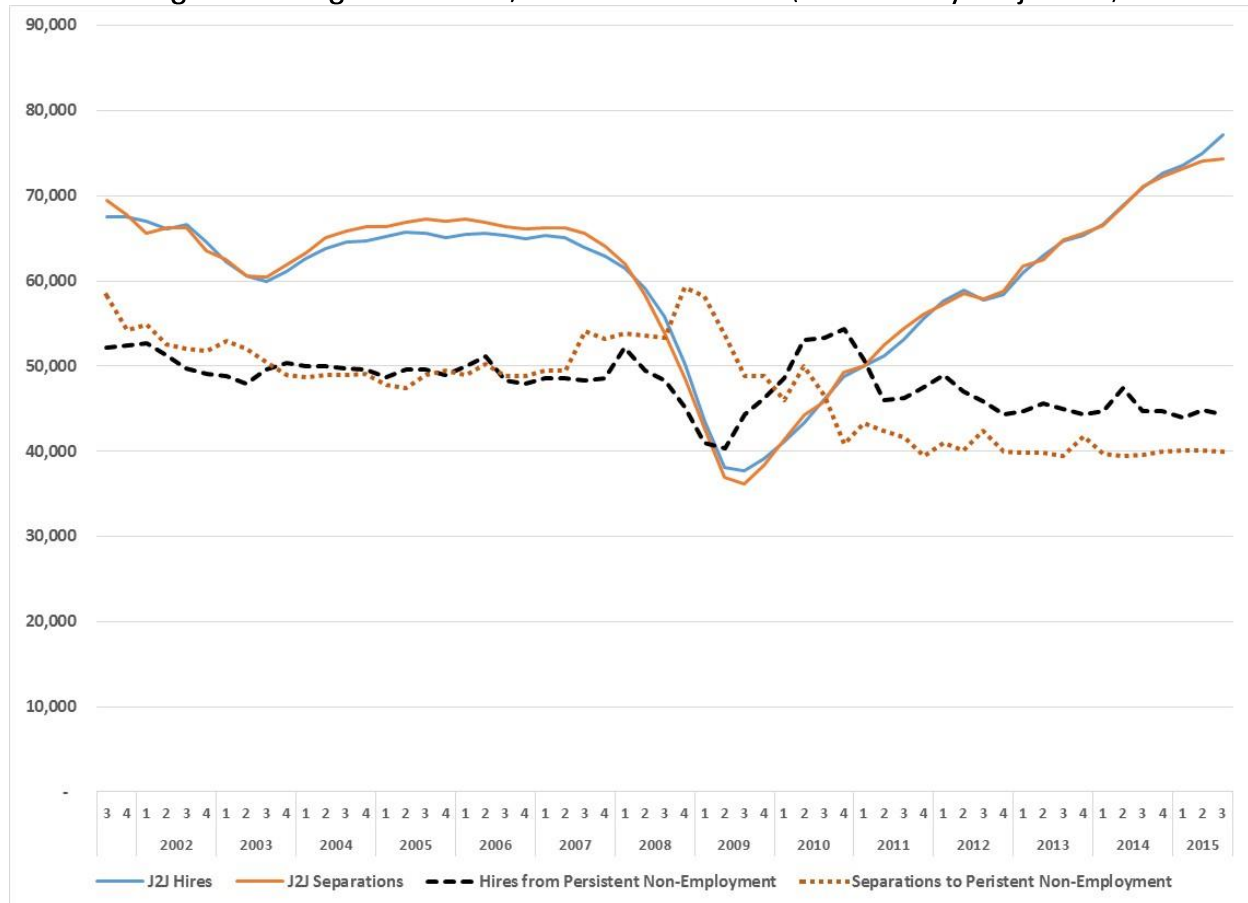
Figure B8. Ages 22 to 24, Job Flow Rates (Seasonally Adjusted)



Job flow rates for those ages 22 to 24 were above the total population averages. J2J hires and separations were 5.8 and 5.9 percentage points above the total population averages. By 2015, hire and separation rates rose to more than 12 percent, higher than their pre-recession levels. Hires from persistent non-employment averaged 3.5 percentage points above the total population average. They peaked at 10.3 percent early in the recovery and declined to about 8 percent in 2015. Separations to persistent non-employment averaged 2.4 percentage points above the total population average. At the height of the recession, they peaked at 9.5 percent; by 2015, they dropped to about 6.3 percent.

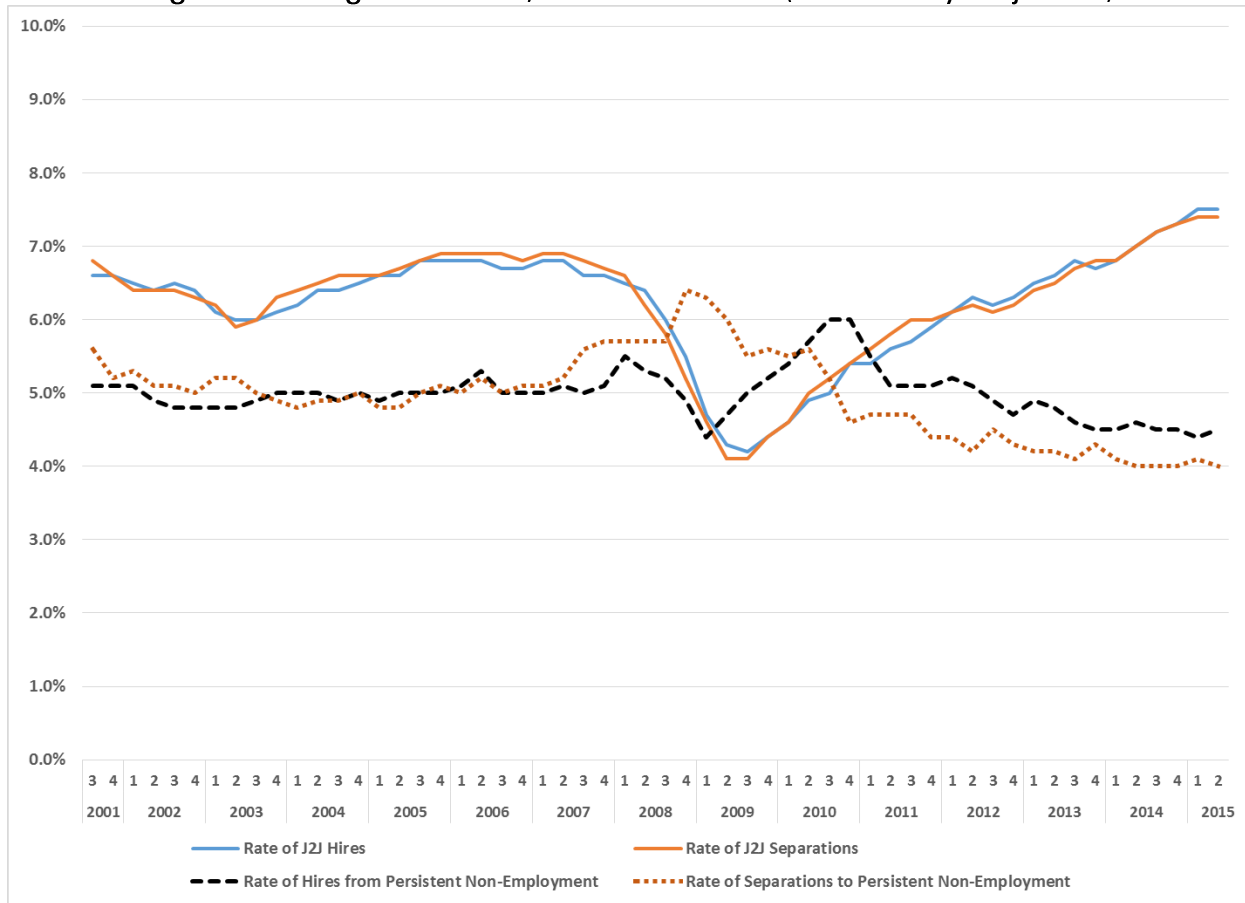
Ages 25 to 34

Figure B9. Ages 25 to 34, Job Flow Counts (Seasonally Adjusted)



The volumes of job flows for the 25-to-34 age group were higher than for older age groups but lower than for the combined 14-18, 19-21 and 22-24 age groups. After a steep dive during the Great Recession, J2J hires and separations passed pre-recession levels in 2015. The volumes of hires from and separations to persistent non-employment were lower during the recovery than before the recession.

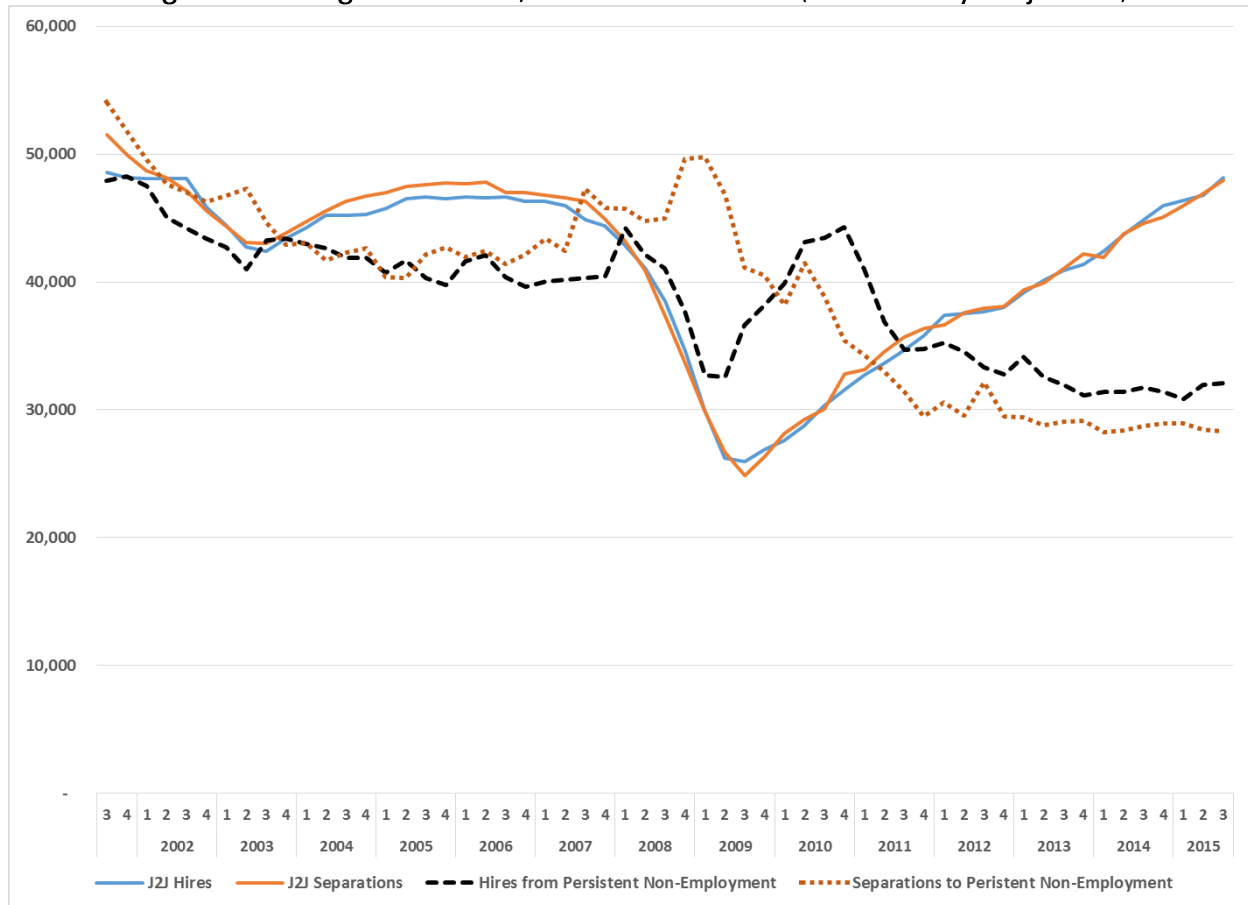
Figure B10. Ages 25 to 34, Job Flow Rates (Seasonally Adjusted)



Job flow rates for the 25-to-34 age group were close to the total population averages. Rates for J2J hires and separations averaged 1.6 percentage points above the total population averages. Hires from and separations to persistent non-employment averaged 0.2 percentage points below the total population averages. By 2015, J2J hire and separation rates had risen to more than 7.5 percent while hires to and separations from persistent non-employment had dropped to 4.5 and 4 percent.

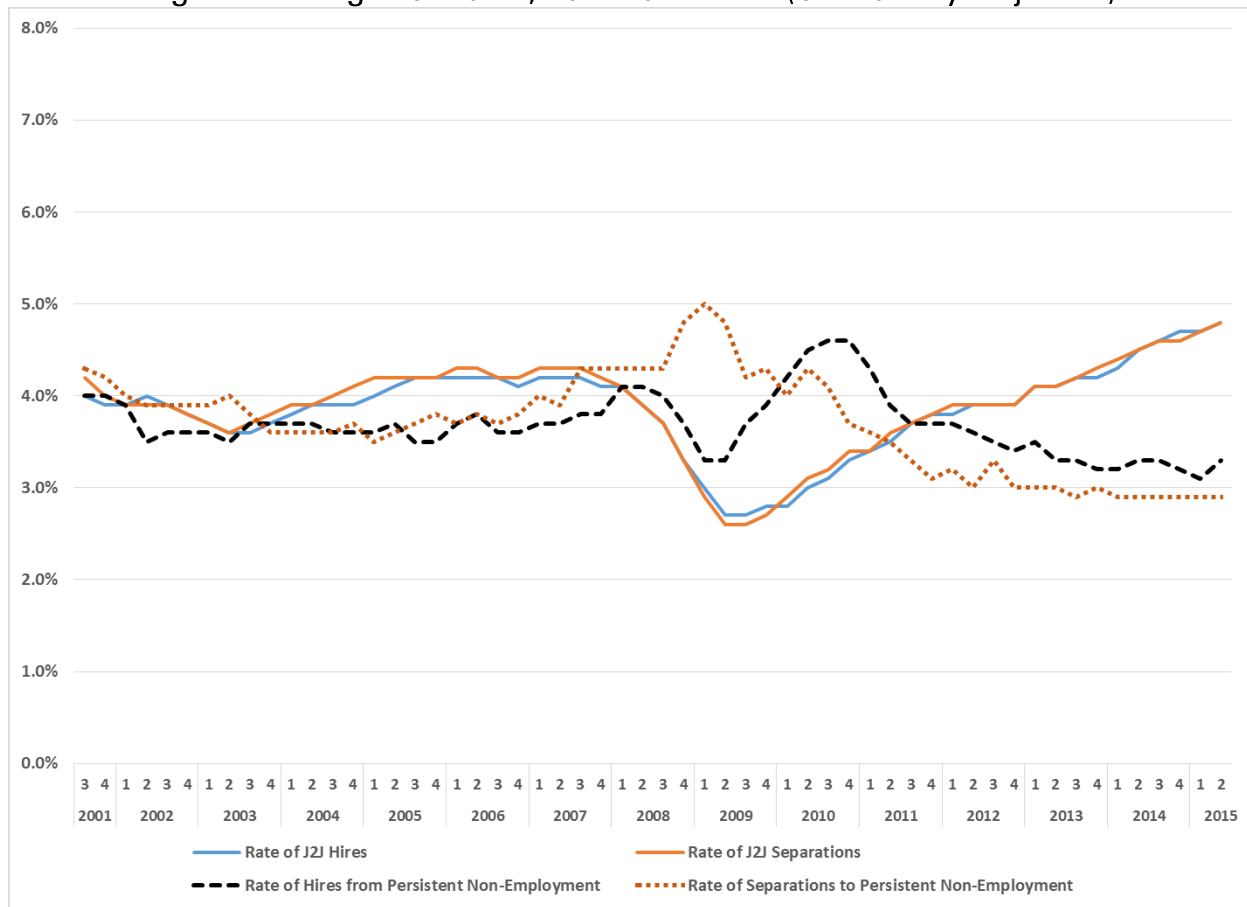
Ages 35 to 44

Figure B11. Ages 35 to 44, Job Flow Counts (Seasonally Adjusted)



Job flow volumes for those ages 35 to 44 were lower than for those ages 25 to 34. The J2J hires and separations experienced a steep dive during the recession followed by a steady increase during the recovery. Compared to those ages 25 to 34, the volumes of hires from and separations to persistent non-employment were lower in relation to the volumes of J2J hires and separations.

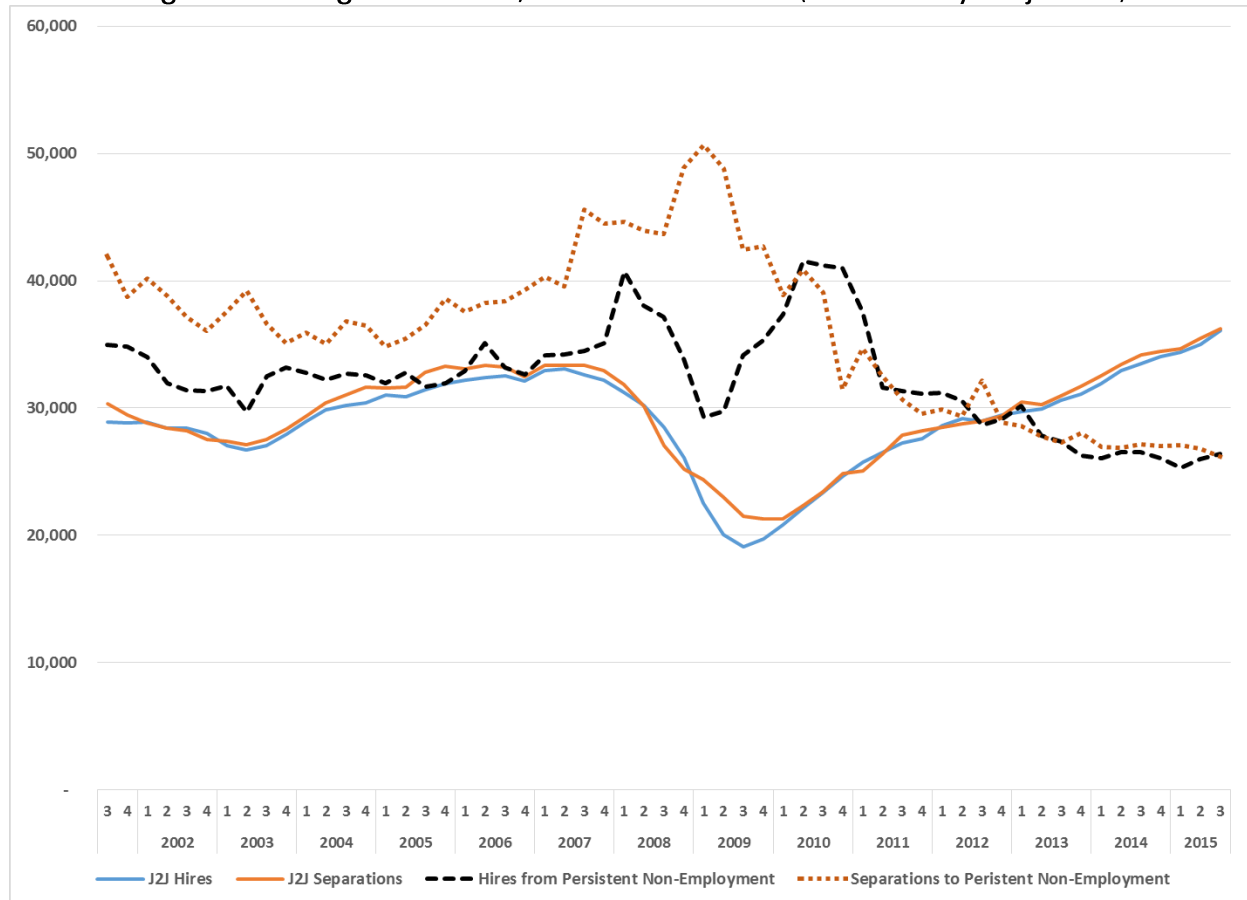
Figure B12. Ages 35 to 44, Job Flow Rates (Seasonally Adjusted)



Job flow rates for the 35-to-44 age group were just under the total population averages. J2J hire and separation rates averaged 0.8 percentage points below the total population averages. By 2015 they had risen to 4.8 percent. Hires from and separations to persistent non-employment averaged 1.4 and 1.5 percentage points below the total population averages respectively. By 2015, they had declined to 3.3 and 2.9 percent respectively.

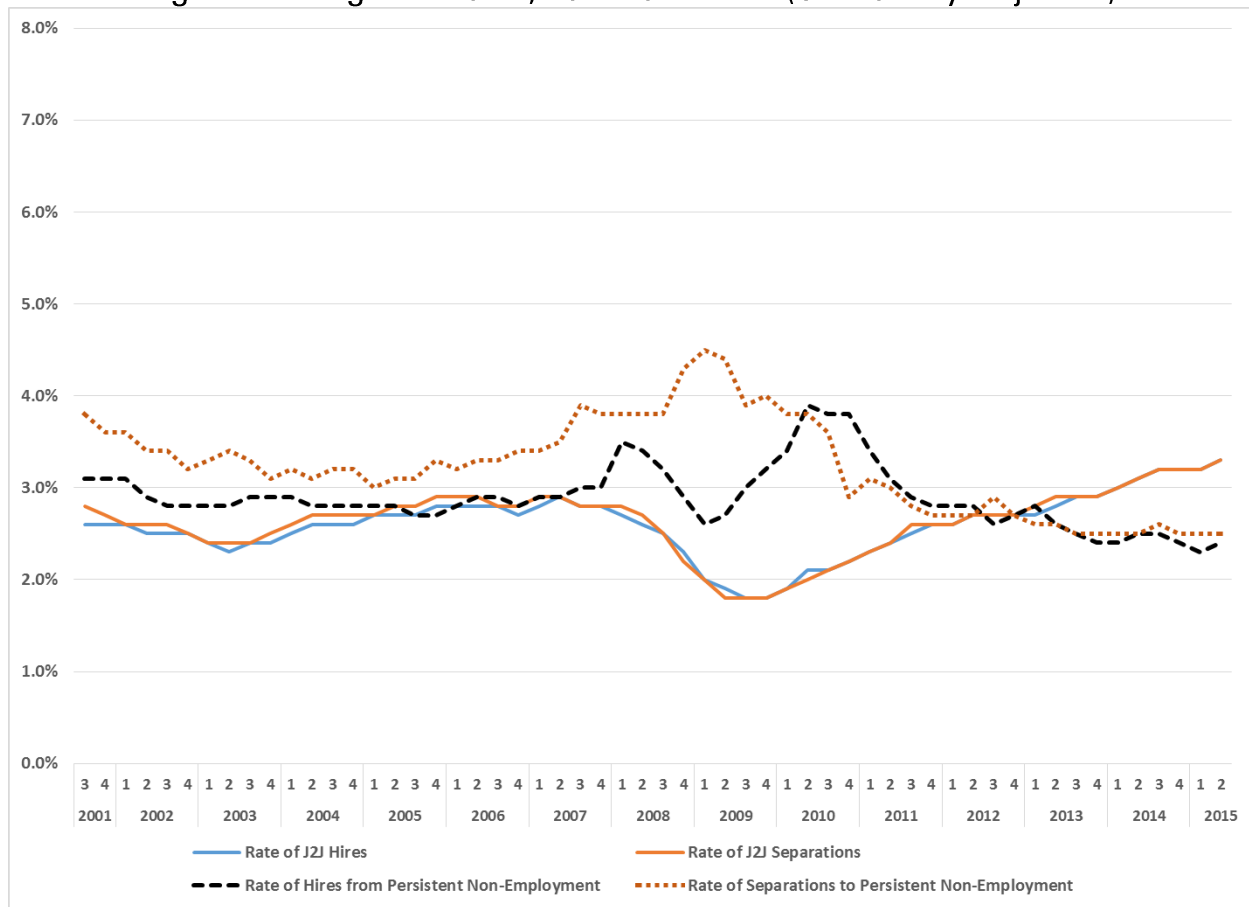
Ages 45 to 54

Figure B13. Ages 45 to 54, Job Flow Counts (Seasonally Adjusted)



Job flow volume was lower for the 45-to-54 age group than for the 34-to-44 age group. Until later in the recovery period, volumes of hires from and separations to persistent non-employment were higher than volumes of J2J hires and separations.

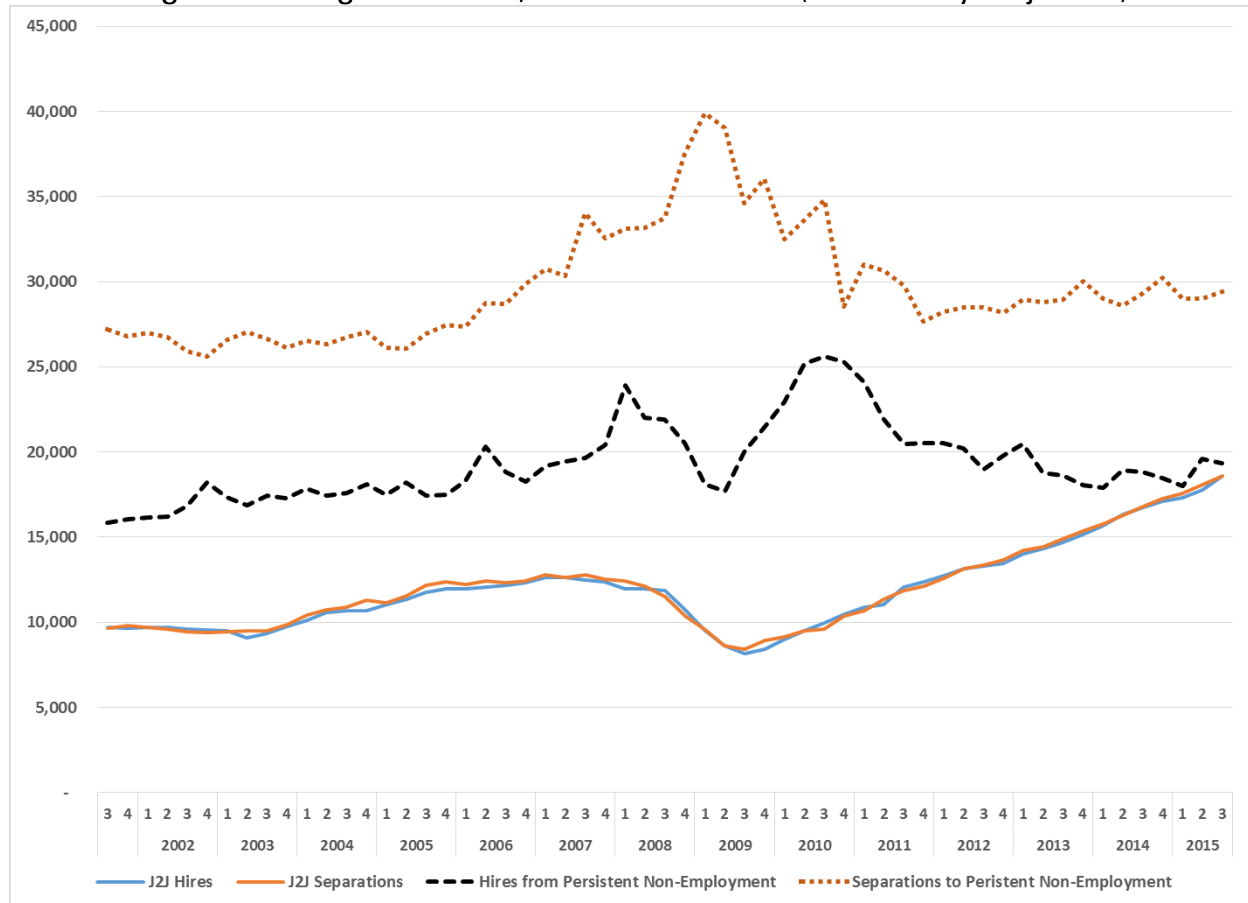
Figure B14. Ages 45 to 54, Job Flow Rates (Seasonally Adjusted)



Job flow rates for the 45-to-54 age group were less than the total population averages. J2J hire and separation rates averaged 2.0 and 2.1 percentage points below the total population averages. Hires from and separations to persistent non-employment averaged 2.3 and 1.9 percentage points below the total population averages respectively. In 2015, J2J hire and separation rates were at 3.3 percent, and the rates of hires from and separations to persistent non-employment were 2.5 percent.

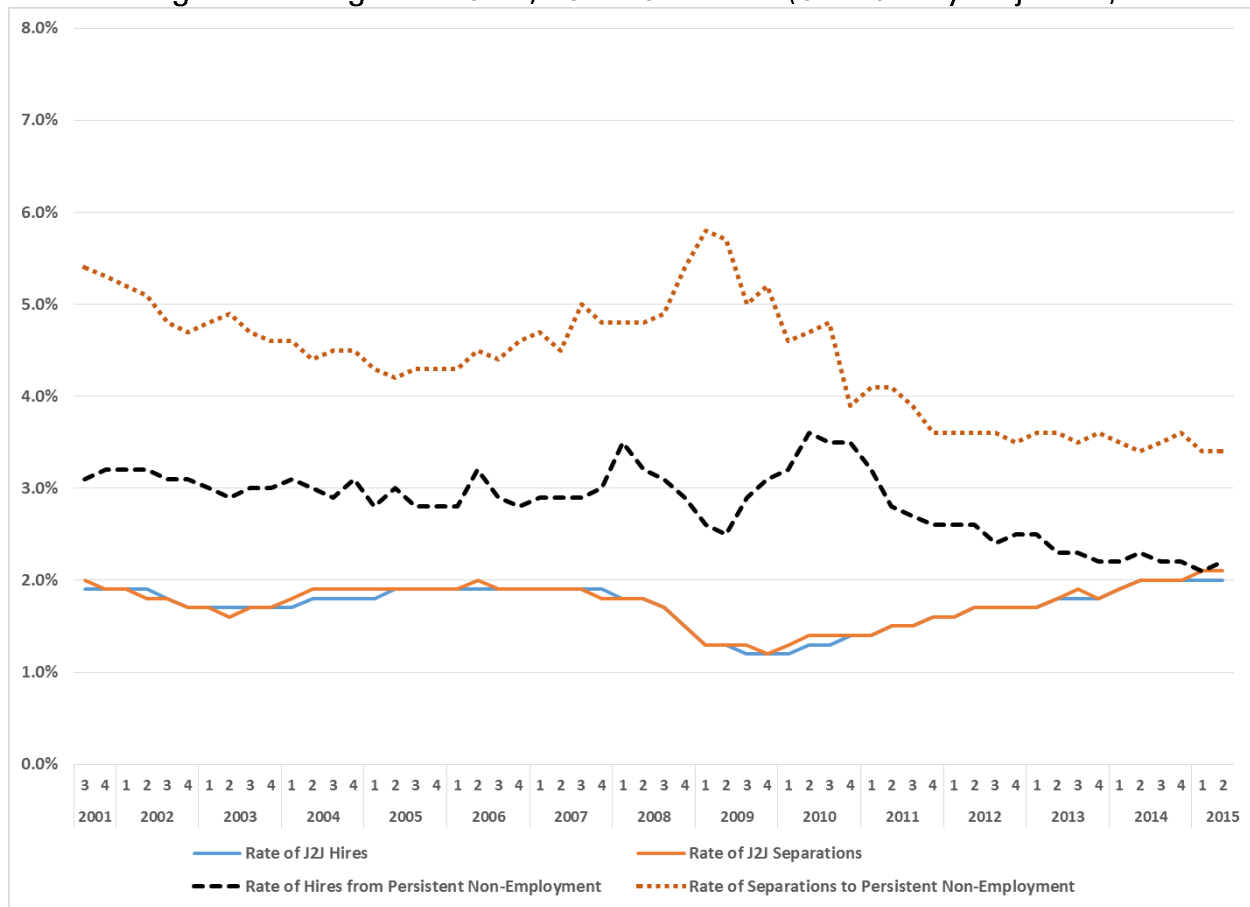
Ages 55 to 64

Figure B15. Ages 55 to 64, Job Flow Counts (Seasonally Adjusted)



Job flow volumes for the 55-to-64 age group were lower than for younger age groups. The volumes of hires from and separations to persistent non-employment were significantly higher than the volumes of J2J hires and separations. The high volumes of separations to persistent non-employment may have been driven by retirements.

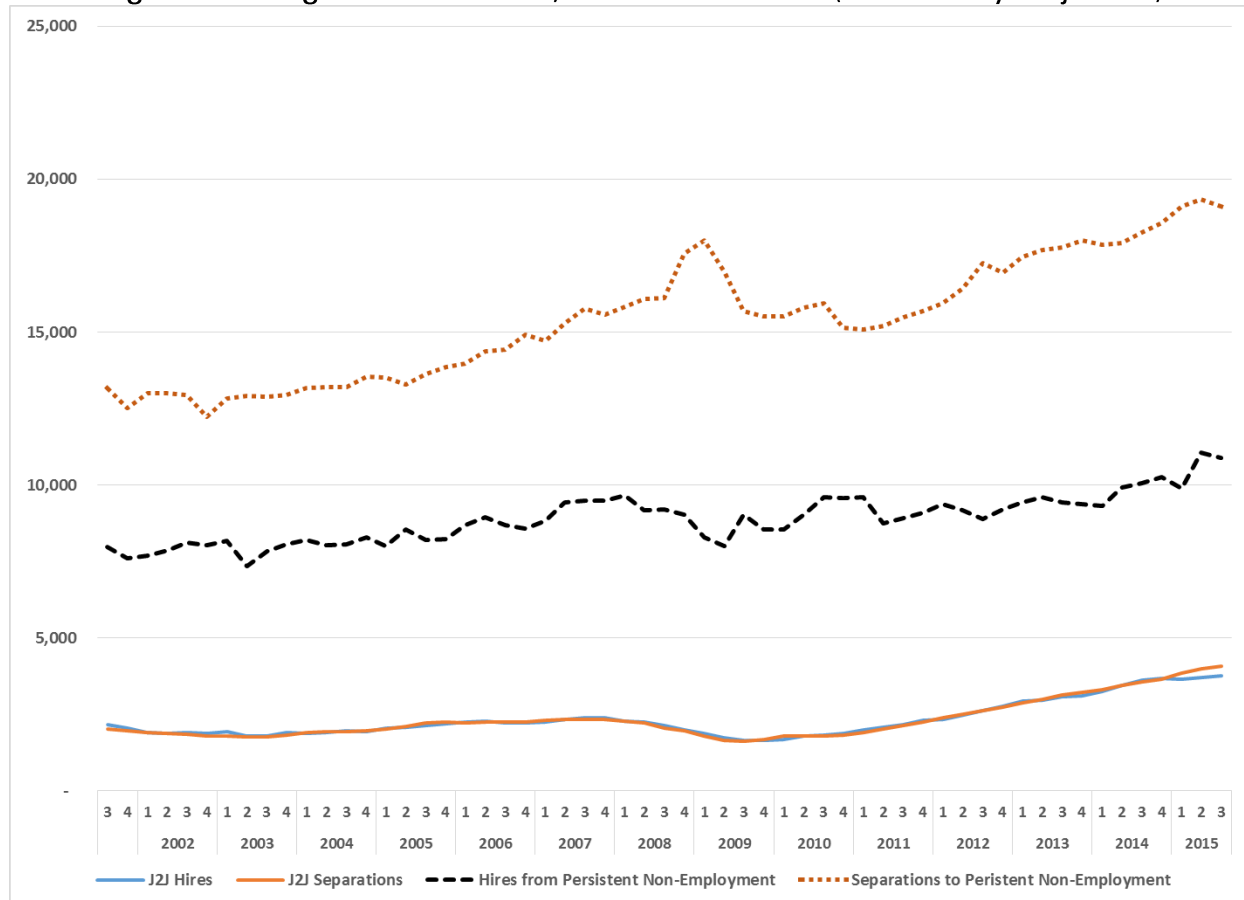
Figure B16. Ages 55 to 64, Job Flow Rates (Seasonally Adjusted)



Job flow rates for those ages 55 to 64 were below the total population averages. J2J hire and separation rates were 2.9 and 3 percentage points below the total population averages. Hires from and separations to persistent non-employment were 2.4 and 0.8 percentage points below the total population averages. Post-recession rates for hires from and separations to persistent non-employment were lower than their prerecession rates. This could signal a shift in the rate at which this age group is exiting the labor force.

Ages 65 and older

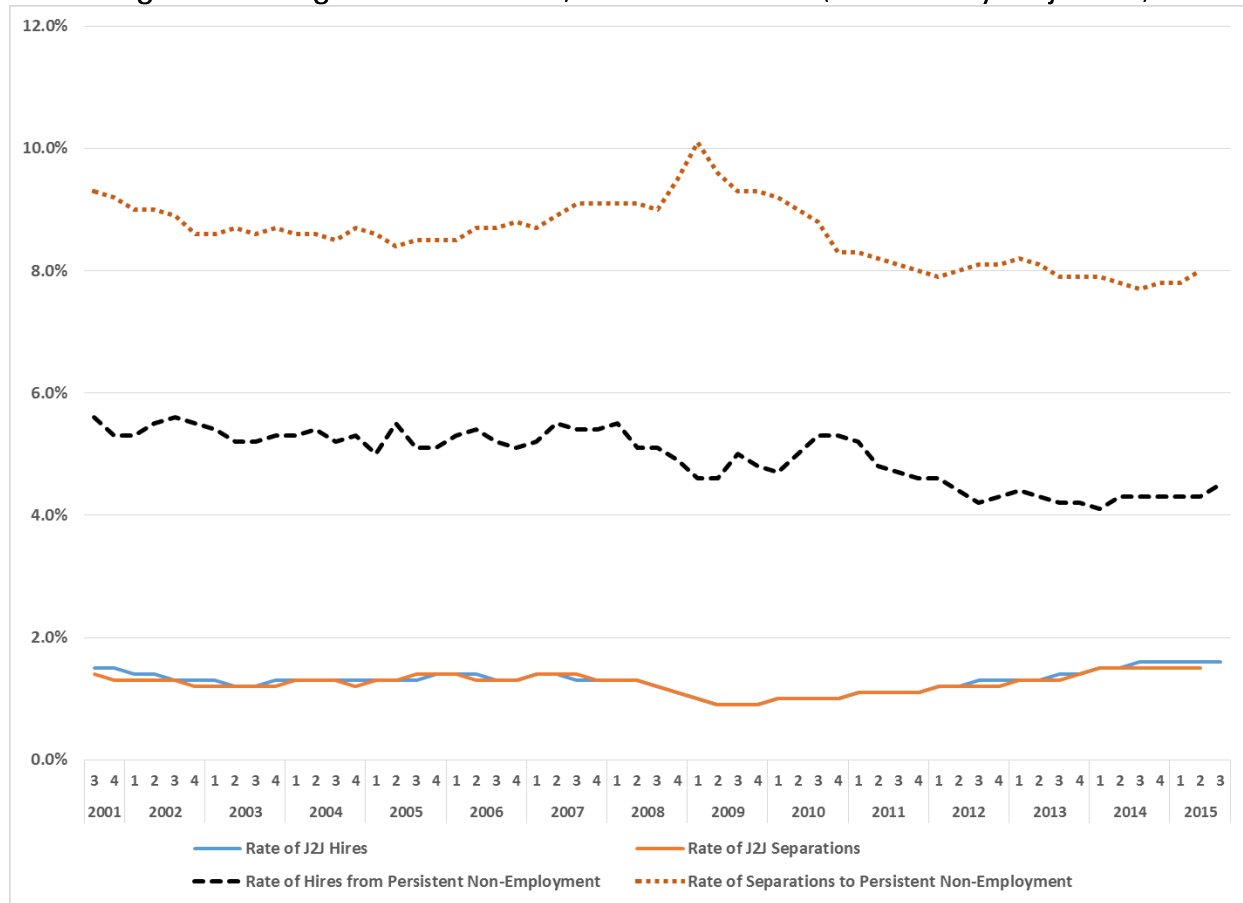
Figure B17. Ages 65 and older, Job Flow Counts (Seasonally Adjusted)



Jobs flow volumes for those ages 65 and older were the lowest among the age groups.

The volumes of J2J hires and separations were especially low. The increasing volume of separations to persistent non-employment may have been driven by baby-boom generation retirements.

Figure B18. Ages 65 and older, Job Flow Rates (Seasonally Adjusted)



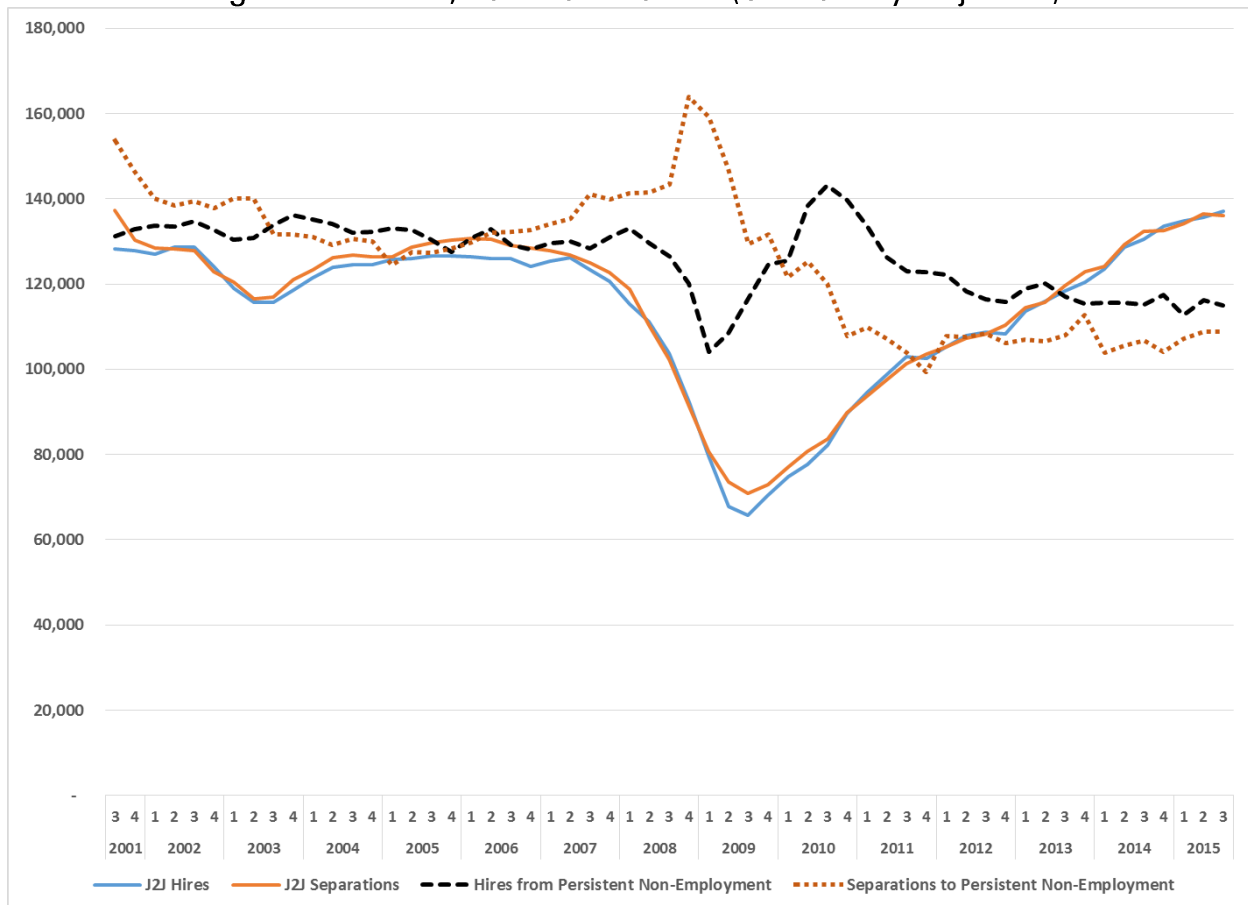
Job flow rates for those ages 65 and older were both above and below the total population averages. J2J hire and separation rates were 3.3 and 3.4 percentage points below the total population averages, and the rate of hire from persistent non-employment was about 0.2 percentage points below the total population average. However, the rate of separation to persistent non-employment was 3.4 percentage points above the total population average. Although the number of separations to persistent non-employment rose throughout the period, the rate generally declined.

Sex

This section looks at job-to-job flow counts and rates by worker sex.

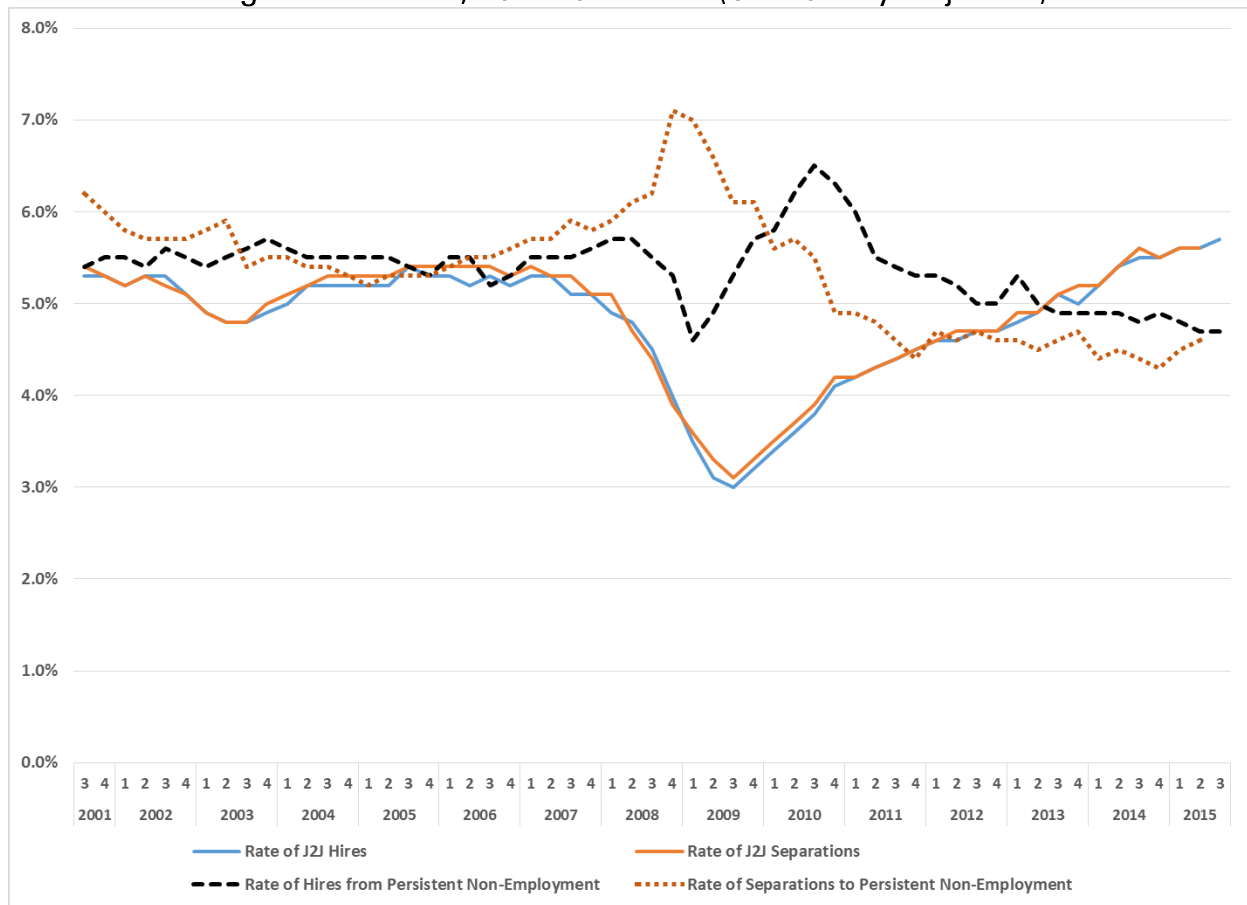
Men

Figure B19. Men, Job Flow Counts (Seasonally Adjusted)



Job flow volumes for men were higher than for women. They were dominated by a spike of more than 160,000 per quarter during the Great Recession. More men were employed in industries hit hard by the recession.

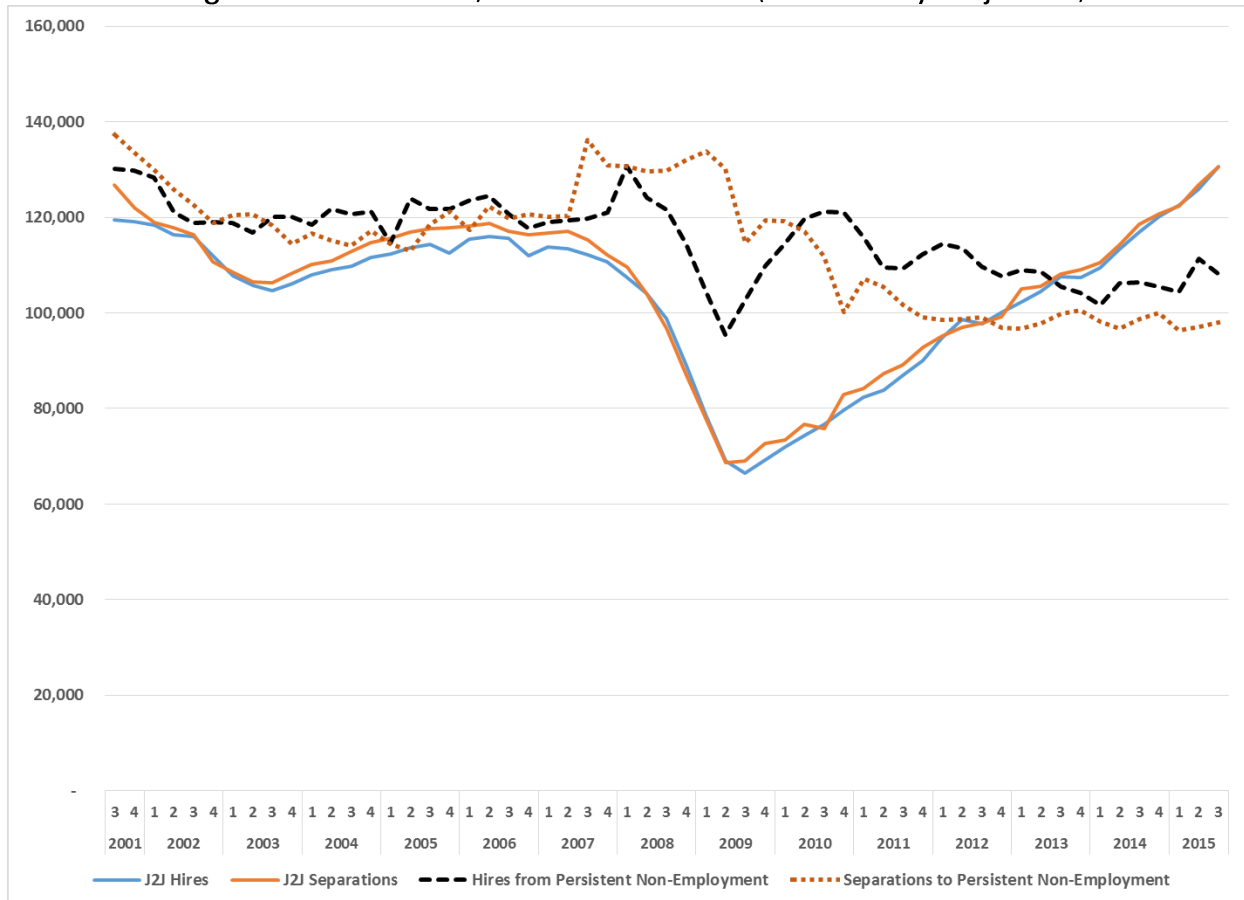
Figure B20. Men, Job Flow Rates (Seasonally Adjusted)



Job flows rates for men averaged slightly above the total population averages. All rates – J2J hires and separations and hires from and separations to persistent non-employment – averaged 0.2 percentage points above the total population averages.

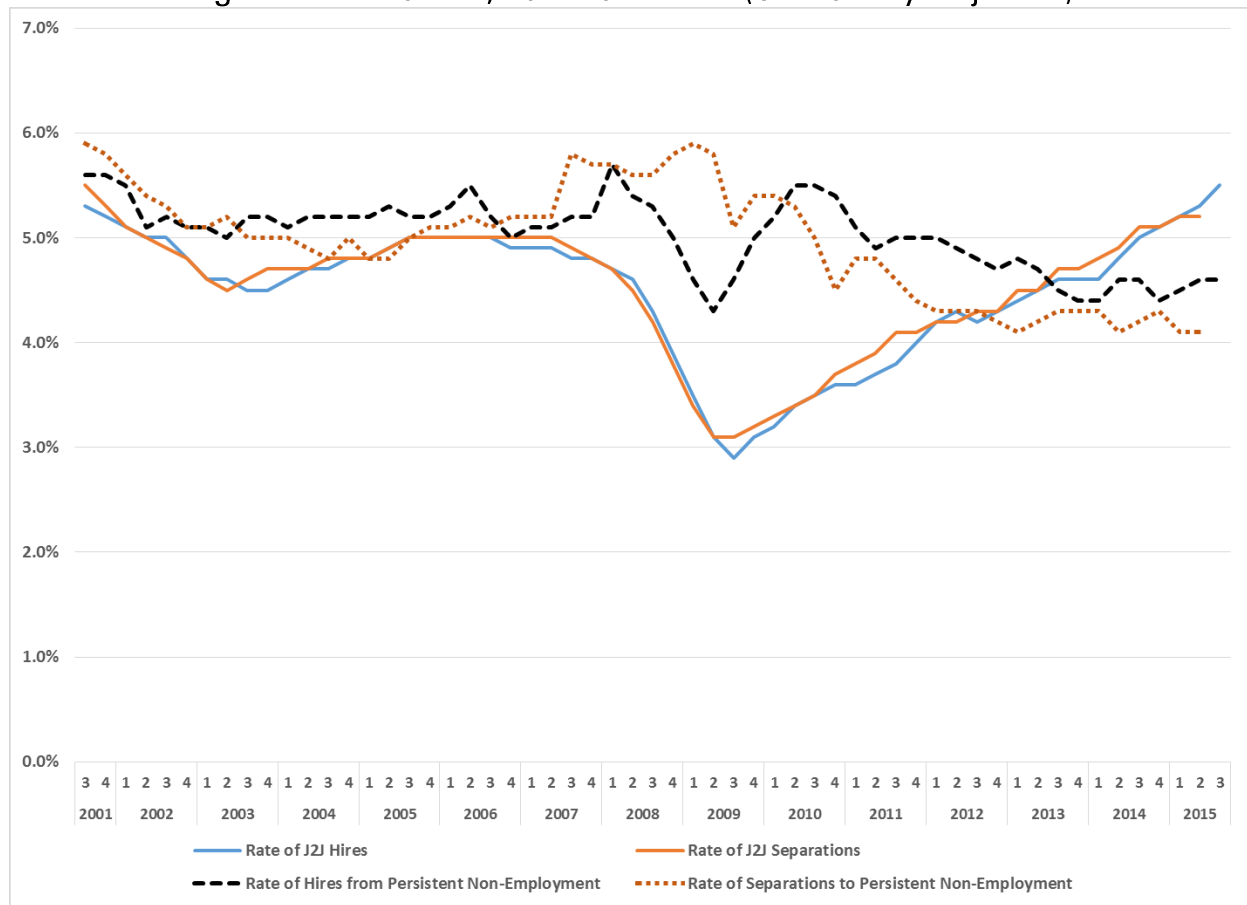
Women

Figure B21. Women, Job Flow Counts (Seasonally Adjusted)



Job flow volumes were lower for women. Although women experienced more separations to persistent non-employment during the recession, their increase was less than the increase for men.

Figure B22. Women, Job Flow Rates (Seasonally Adjusted)



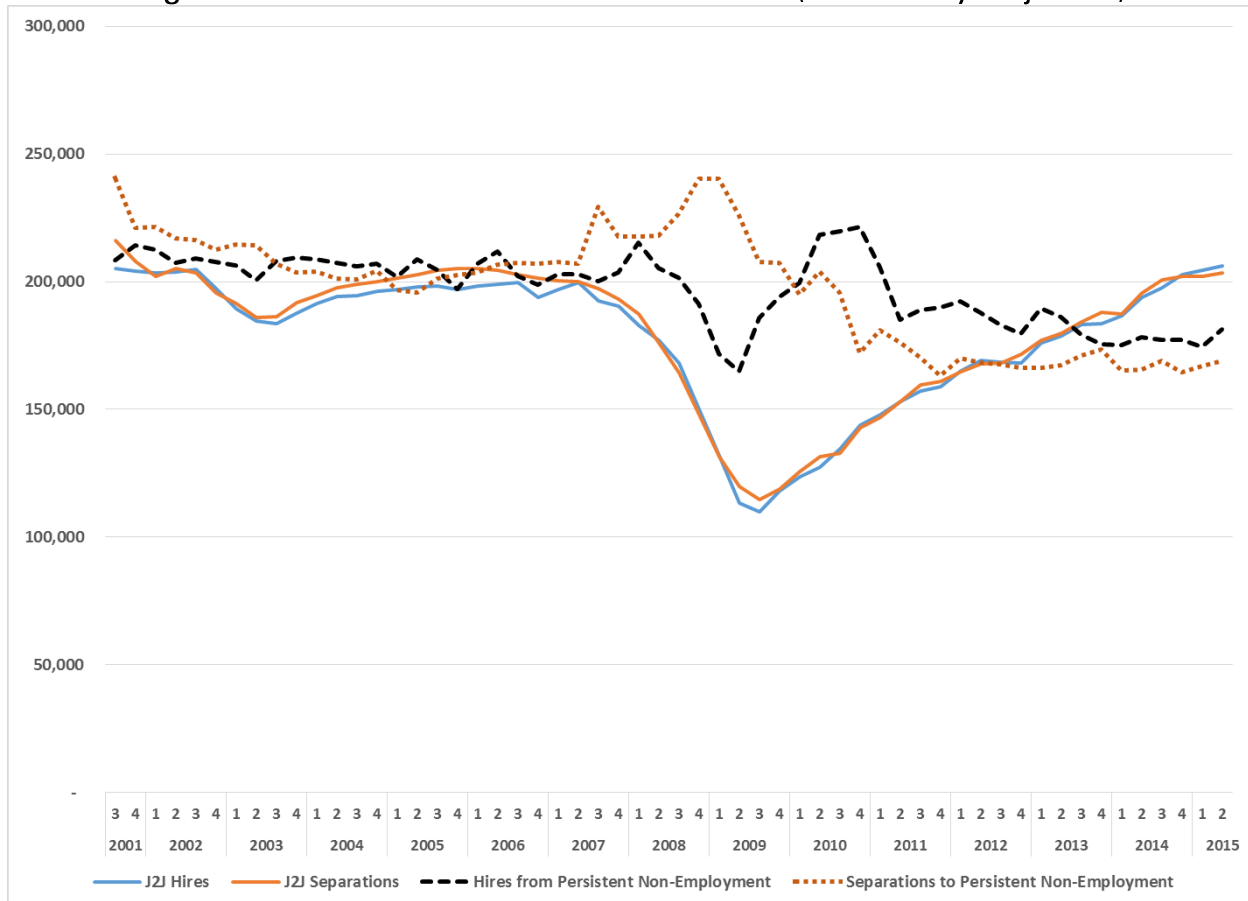
While job flow rates for men were slightly above the total population averages, job flow rates for women were slightly below the total population averages. J2J hires and separations and hires from and separations to persistent non-employment all averaged 0.2 percentage points below the total population averages.

Race and Ethnicity

This section looks at job-to-job flow counts and rates by worker race and ethnicity.

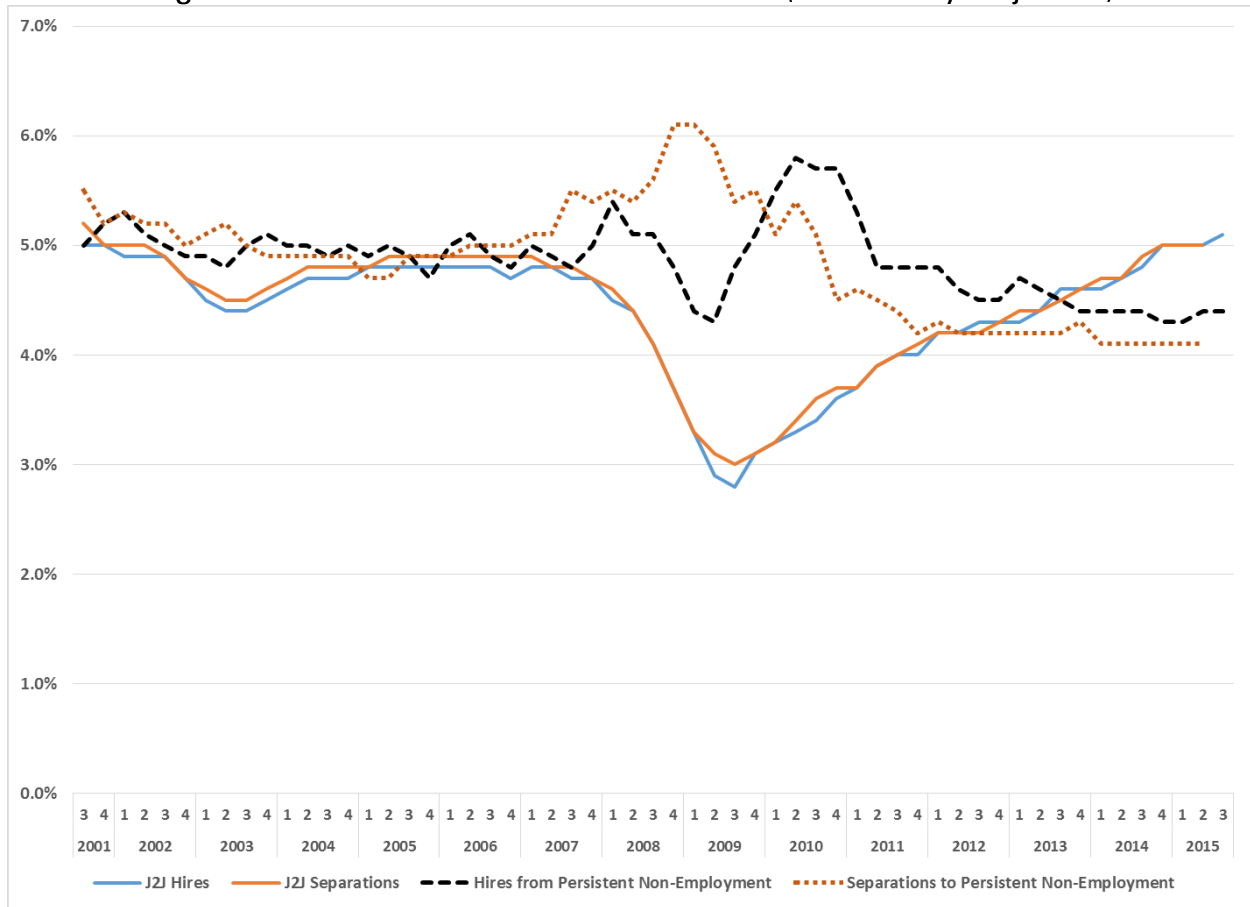
White

Figure B23. White Worker Job Flow Counts (Seasonally Adjusted)



Workers identifying as white accounted for the bulk of all job flows. J2J hires and separations declined to less than 115,000 per quarter during the recession but increased to more than 200,000 per quarter in 2015. Separations to persistent non-employment peaked at more than 240,000 per quarter in 2001 and 2009. Late in the recovery, J2J hires and separations surpassed hires from and separations to persistent non-employment.

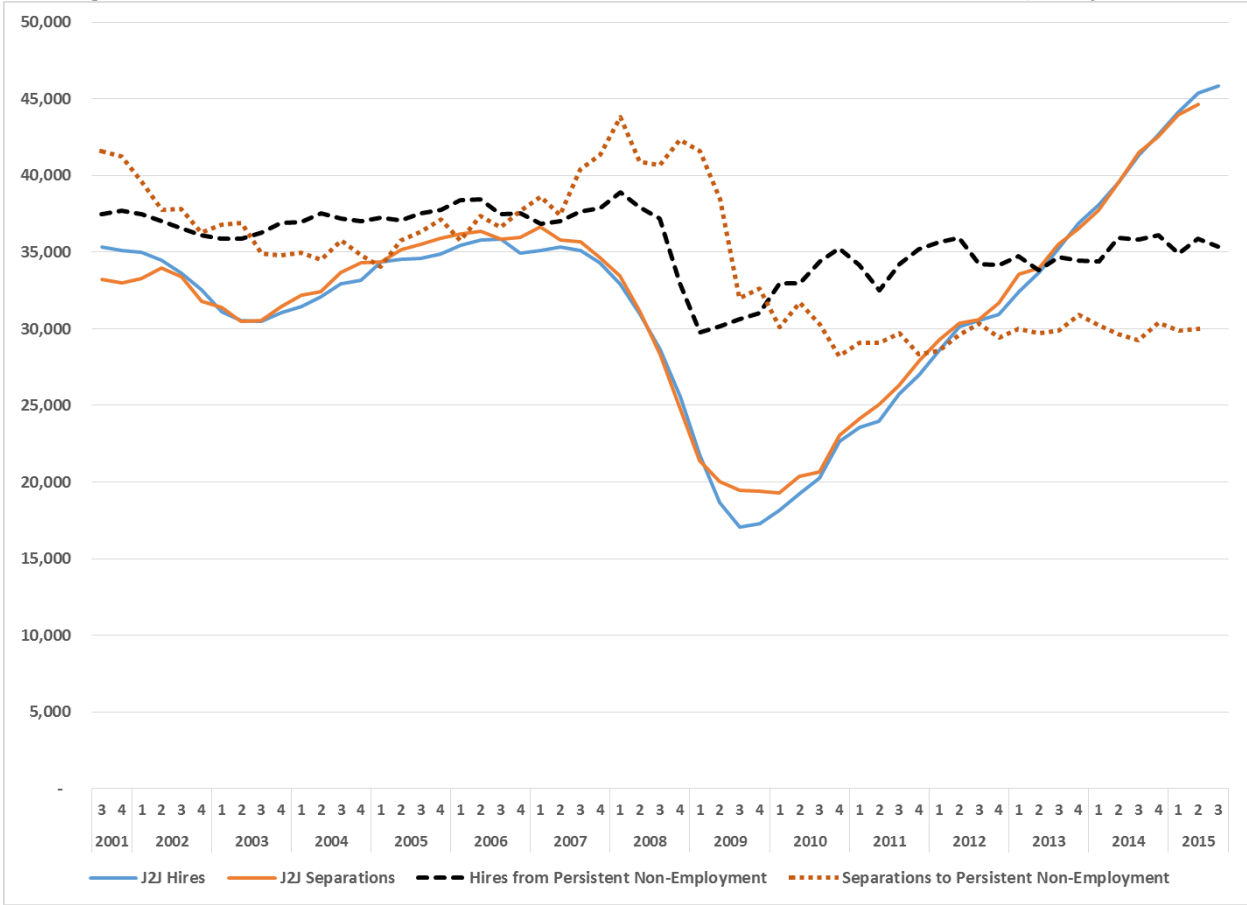
Figure B24. White Worker Job Flow Rates (Seasonally Adjusted)



Job flow rates for white workers were close to the total population rates. J2J hires and separations were 0.2 and 0.3 percentage points below the total population averages. Hires from and separations to persistent non-employment were both 0.3 percentage points below the total population averages.

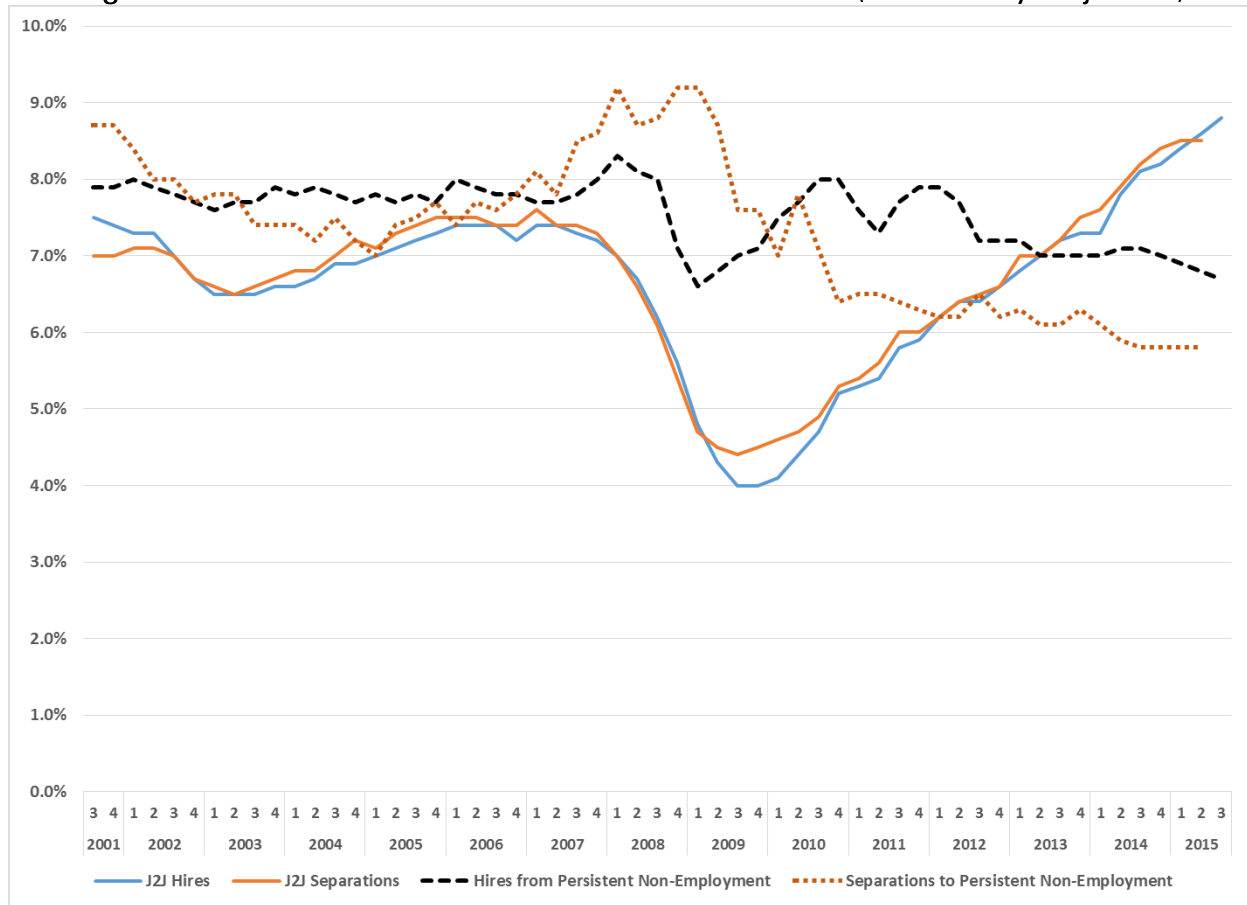
Black/African American

Figure B25. Black/African American Job Flow Counts (Seasonally Adjusted)



J2J hires and separations among workers identifying as black or African American declined to under 20,000 per quarter at the height of the Great Recession. In the recovery, J2J hires and separations reached about 45,000 per quarter, well above their pre-recession volumes. During the recession, separations to persistent non-employment were above 40,000 per quarter. In the recovery, they declined to around 30,000 per quarter.

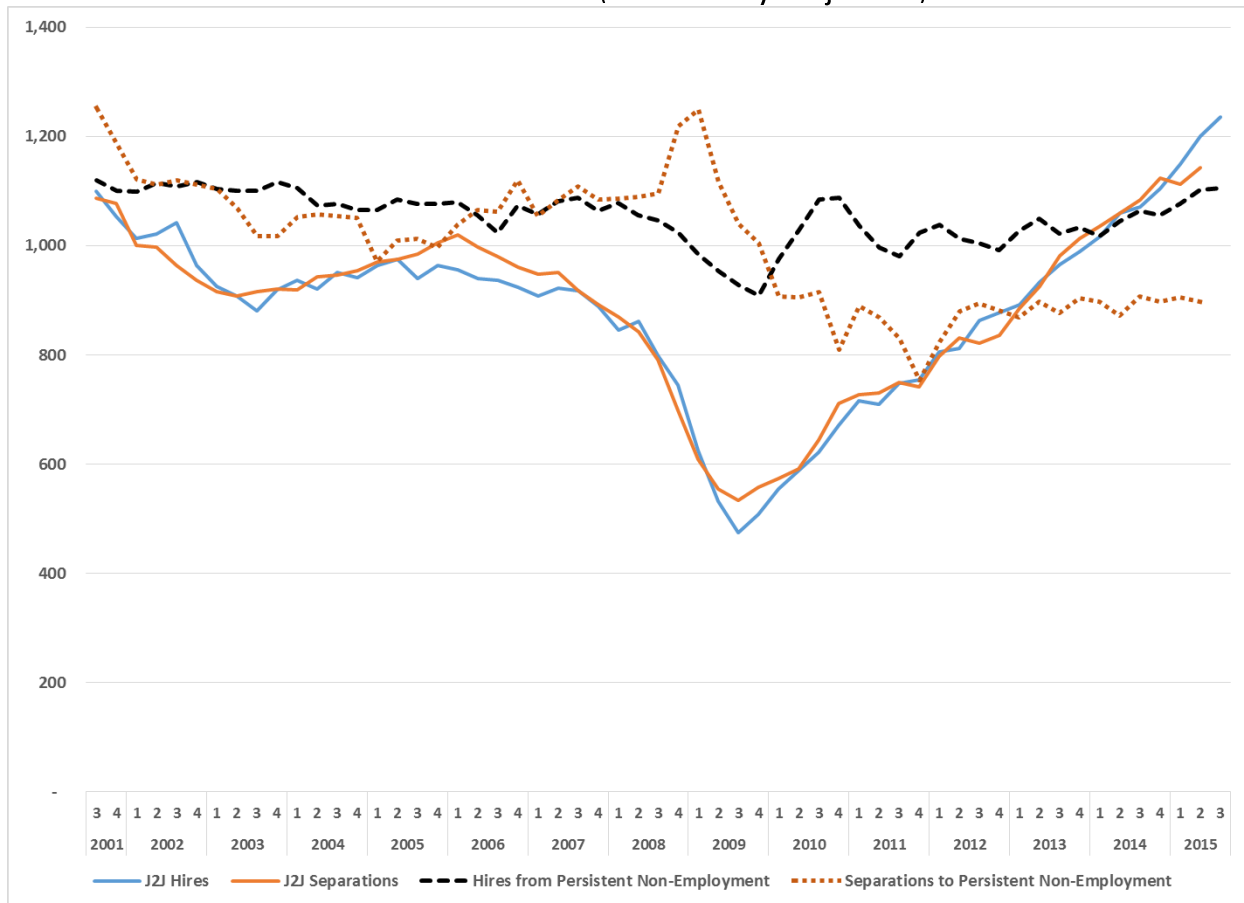
Figure B26. Black/African American Job Flow Rates (Seasonally Adjusted)



Job flow rates for black/African-American workers were above the total population averages. J2J hires and separations were 2 percentage points above the total population averages. Hires from and separations to persistent non-employment were 2.4 and 2.2 percentage points above the total population averages.

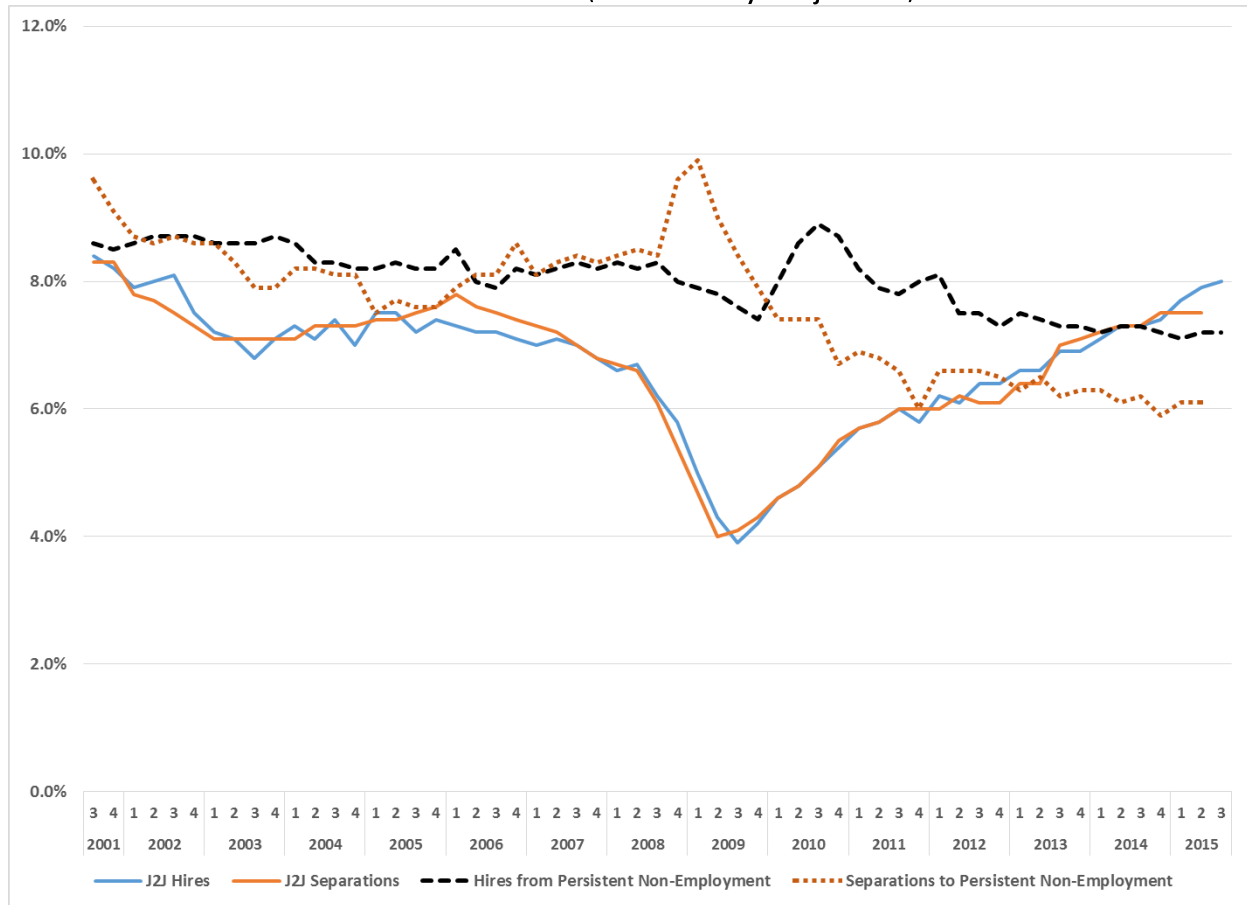
American Indian/Alaskan Native

Figure B27. American Indian/Alaskan Native
Job Flow Counts (Seasonally Adjusted)



Job flow volumes for workers identifying as American Indian or Alaskan Native were low, mostly between 600 and 1,200 per quarter throughout the period. The volumes of J2J hires and separations during the recovery their surpassed prerecession levels. Also during the recovery, separations to persistent non-employment dropped to below pre-recession levels

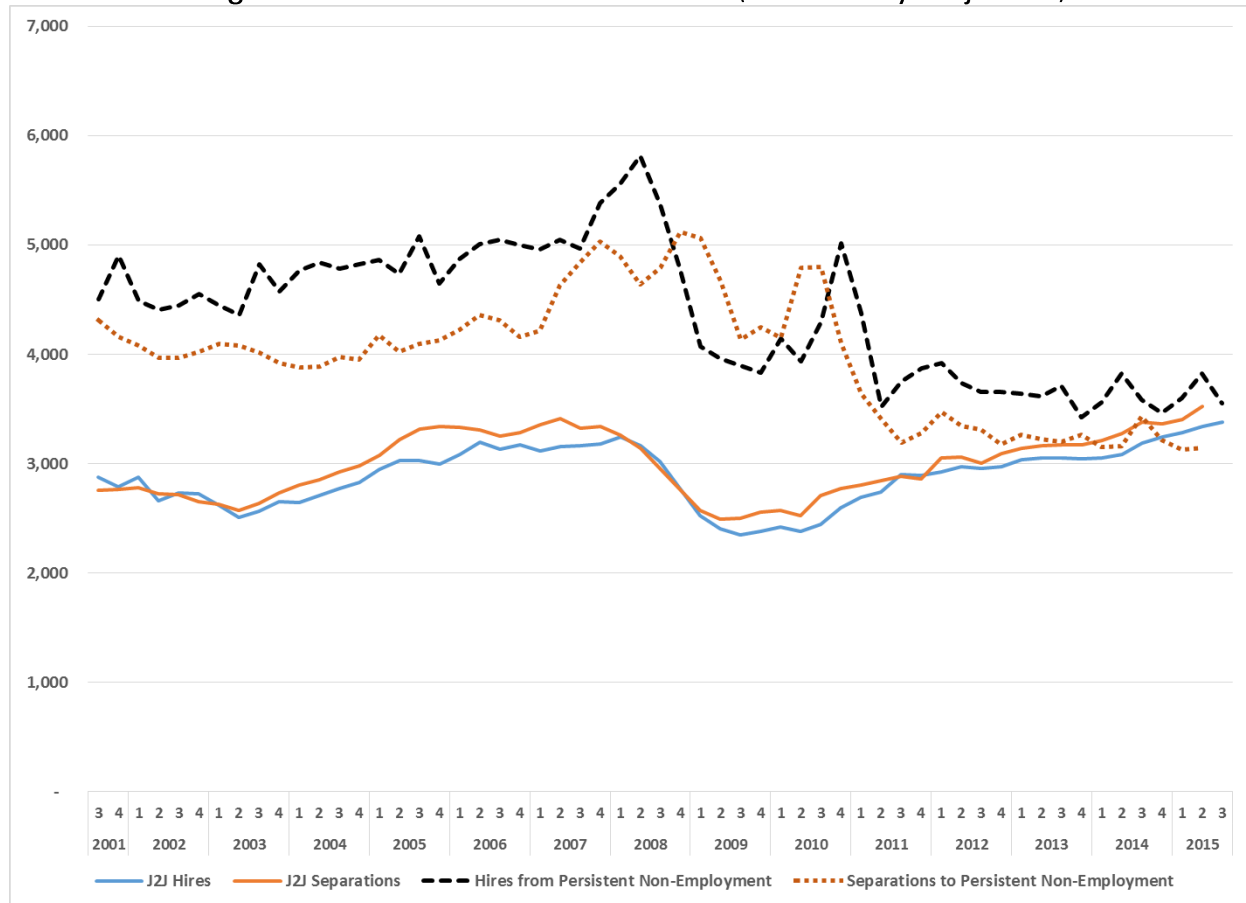
Figure B28. American Indian/Alaskan Native
Job Flow Rates (Seasonally Adjusted)



Job flow rates for American Indian and Alaskan Native workers were above the population averages. J2J hires and separations were 2.1 and 2 percentage points above the total population averages. Hires from and separations to persistent non-employment were 2.9 and 2.5 percentage points above the total population averages.

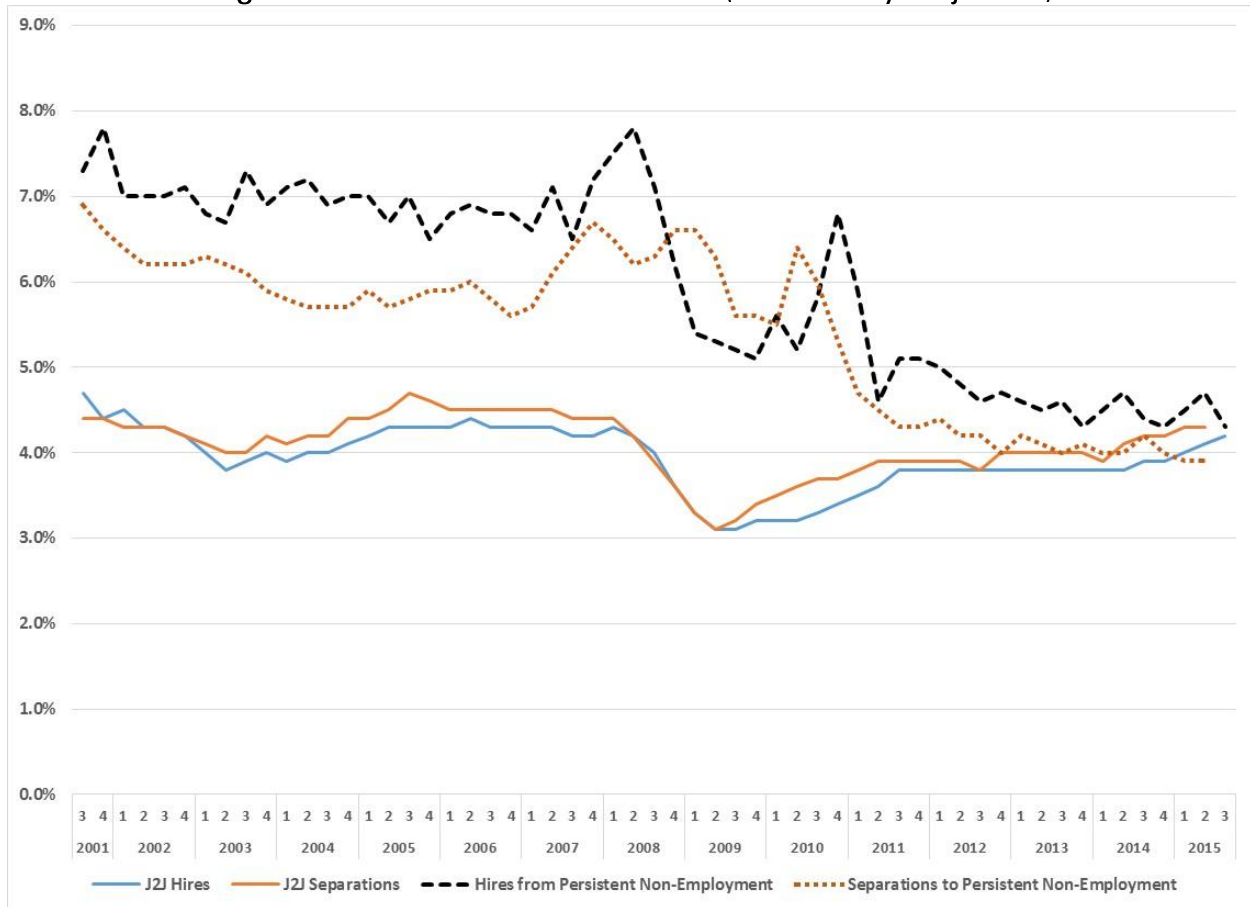
Asian

Figure B29. Asian Job Flow Counts (Seasonally Adjusted)



Job flow volumes for workers identifying as Asian were low. J2J hires and separations were over 3,000 per quarter before the recession and late in the recovery. Hires from persistent non-employment peaked at more than 5,500 per quarter during the recession. After the recession, they dropped to under 4,000 per quarter.

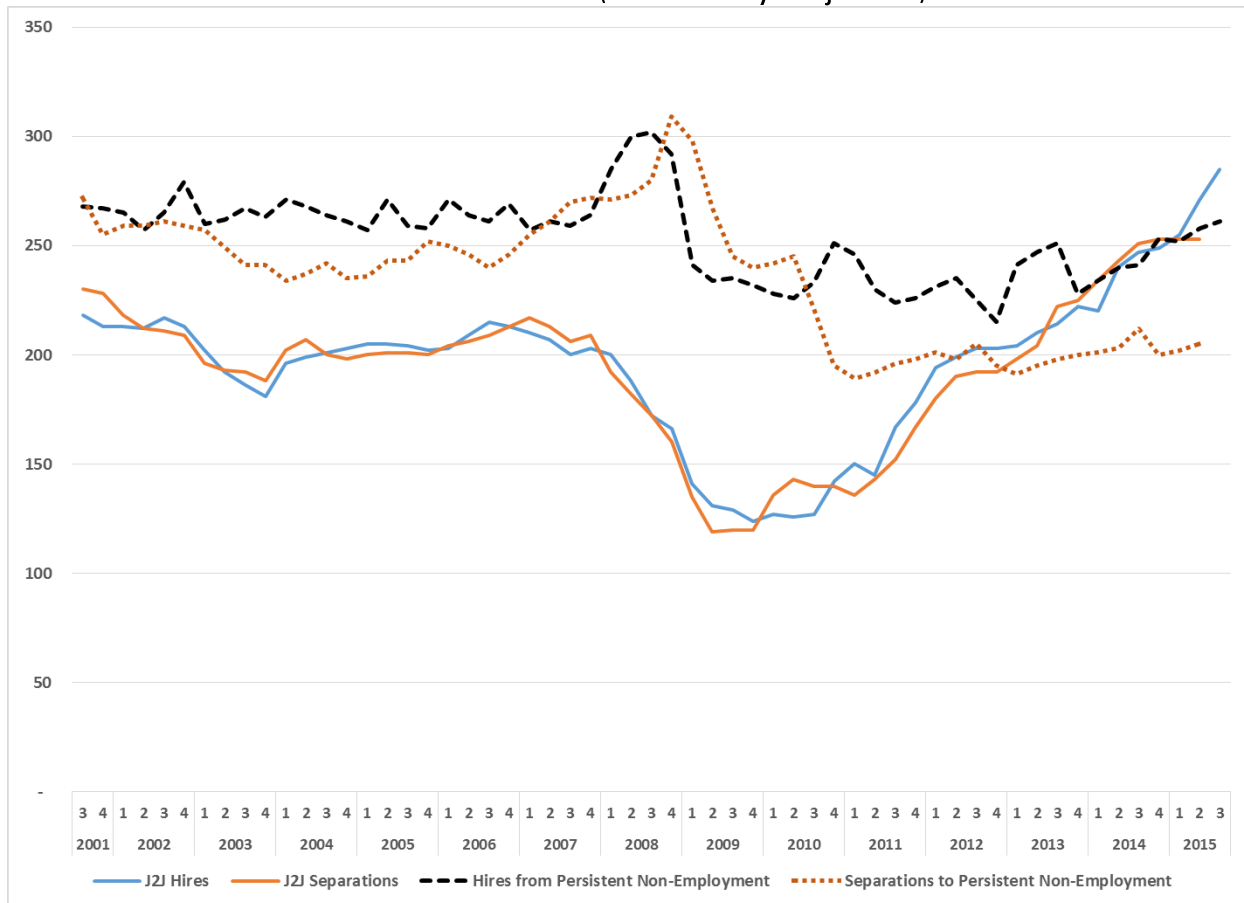
Figure B30. Asian Job Flow Rates (Seasonally Adjusted)



In general, job flow rates for Asian workers were close to the total population averages. J2J hires and separations were 0.7 and 0.6 percentage points below the total population averages. Hires from and separations to persistent non-employment were 0.9 and 0.3 percentage points above the total population averages. Rates of hires from and separations to persistent non-employment declined over the period. In late 2015, rates of hires from and separations to persistent non-employment were about 3 percentage points below rates in late 2001.

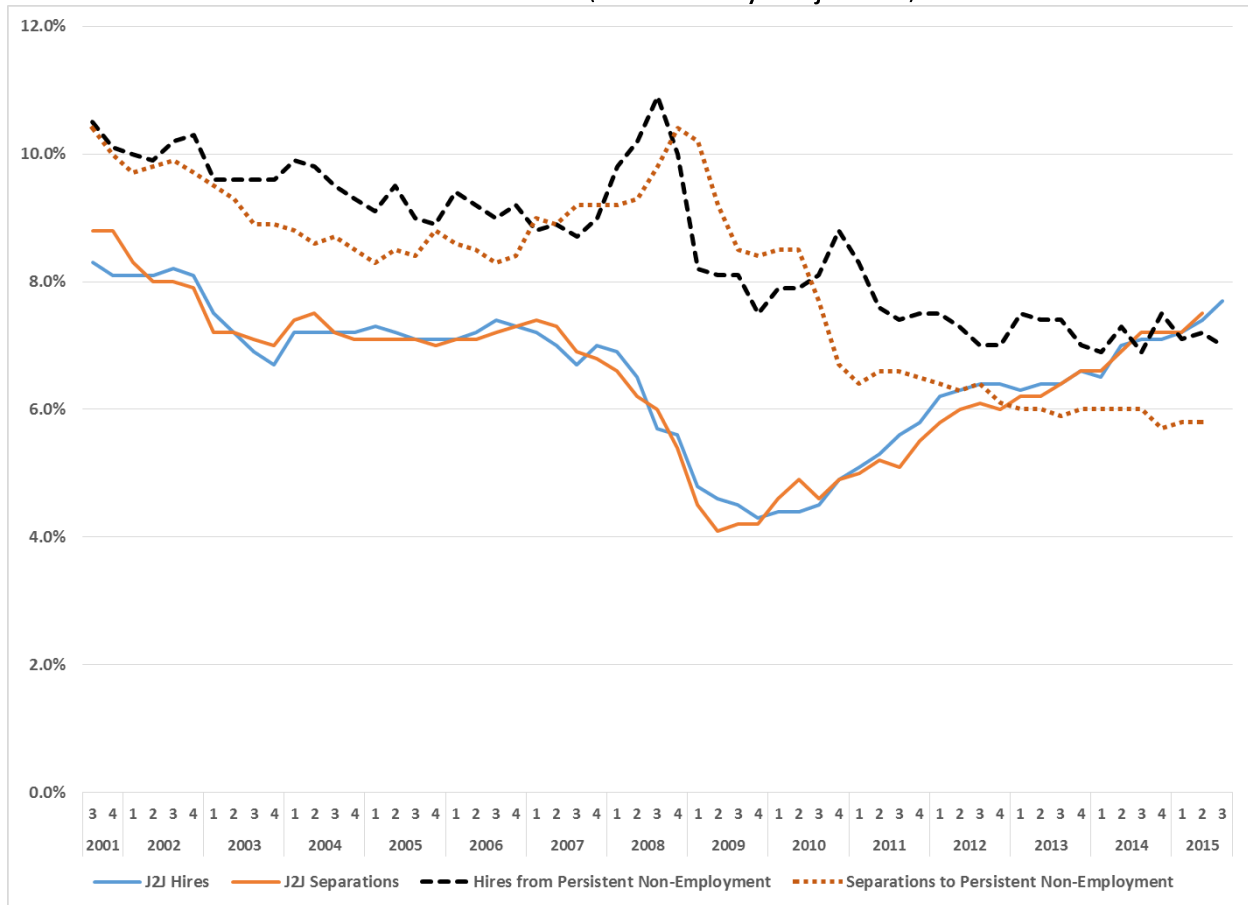
Native Hawaiian/Pacific Islander

Figure B31. Native Hawaiian/Pacific Islander
Job Flow Counts (Seasonally Adjusted)



Job flow volumes were extremely low among workers identifying as Native Hawaiians or Pacific Islanders. Separations to persistent non-employment peaked at over 300 per quarter during the recession. J2J hires and separations increased to more than 250 per quarter in 2015.

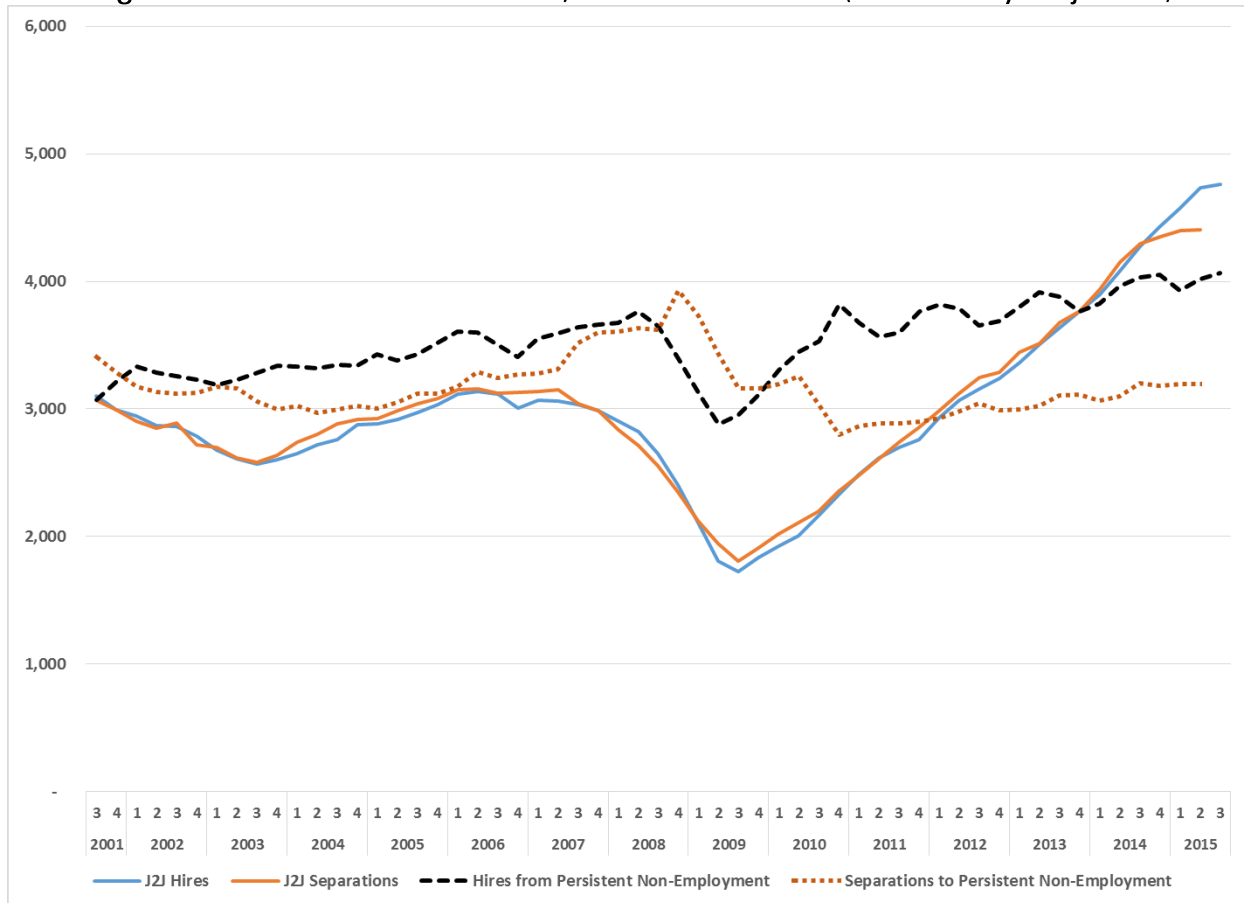
Figure B32. Native Hawaiian/Pacific Islander
Job Flow Rates (Seasonally Adjusted)



Despite their low job flow volumes, job flow rates for Native Hawaiian and Pacific Islander workers were above the total population averages. J2J hires and separations were 1.9 and 1.8 percentage points above the total population averages. Hires from and separations to persistent non-employment were 3.4 and 2.9 percentage points above the total population averages. Rates of hires from and separations to persistent non-employment declined over the period. In late 2015, hires from and separations to persistent non-employment were about 4 percentage points below rates in late 2001.

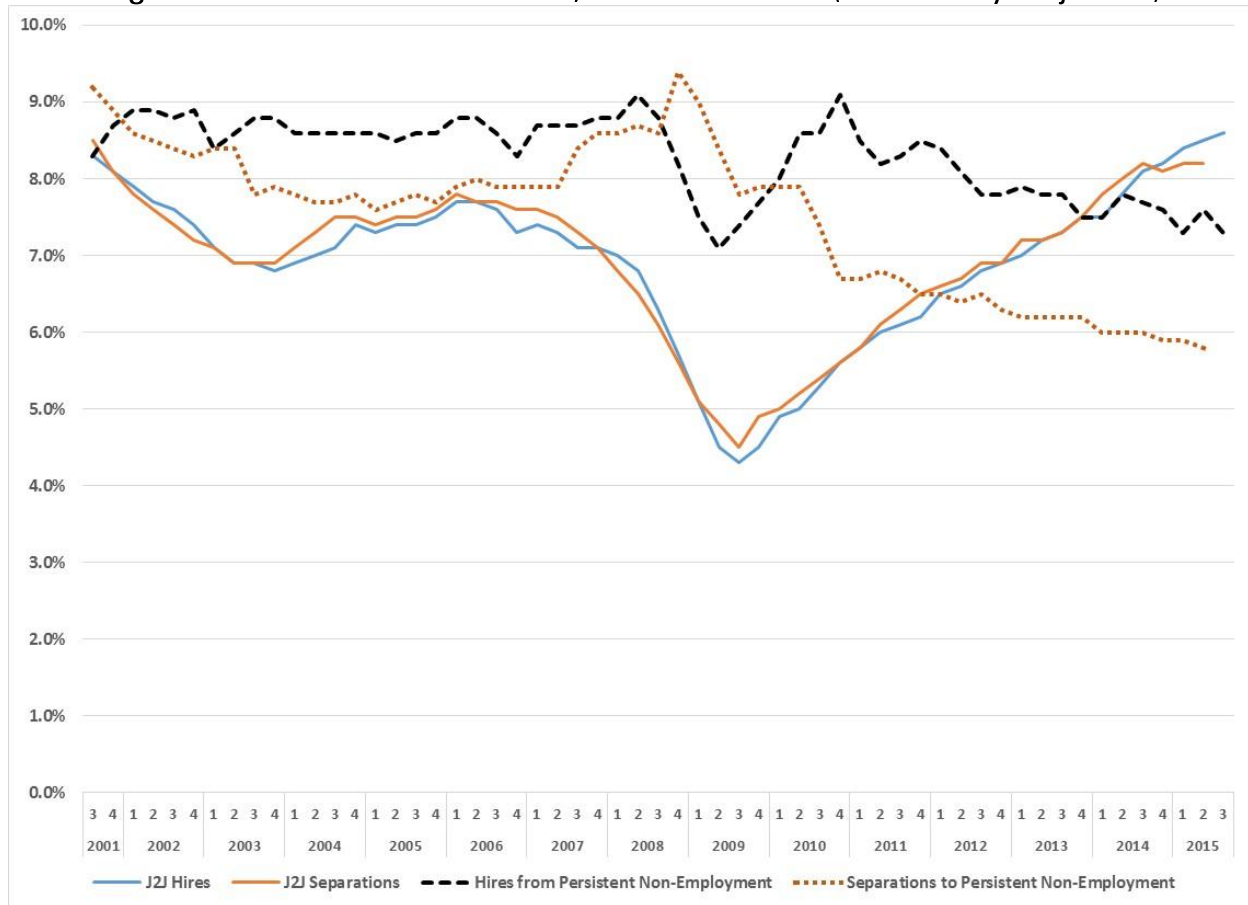
Two or More Races

Figure B33. Two or More Races, Job Flow Counts (Seasonally Adjusted)



Among those who consider themselves to belong to two or more races, J2J hires and separations increased during the recovery from a low of less than 2,000 per quarter in 2009 to more than 4,400 in 2015. Except for a brief decline during the recession, the volume of hires from persistent non-employment increased slowly throughout the period.

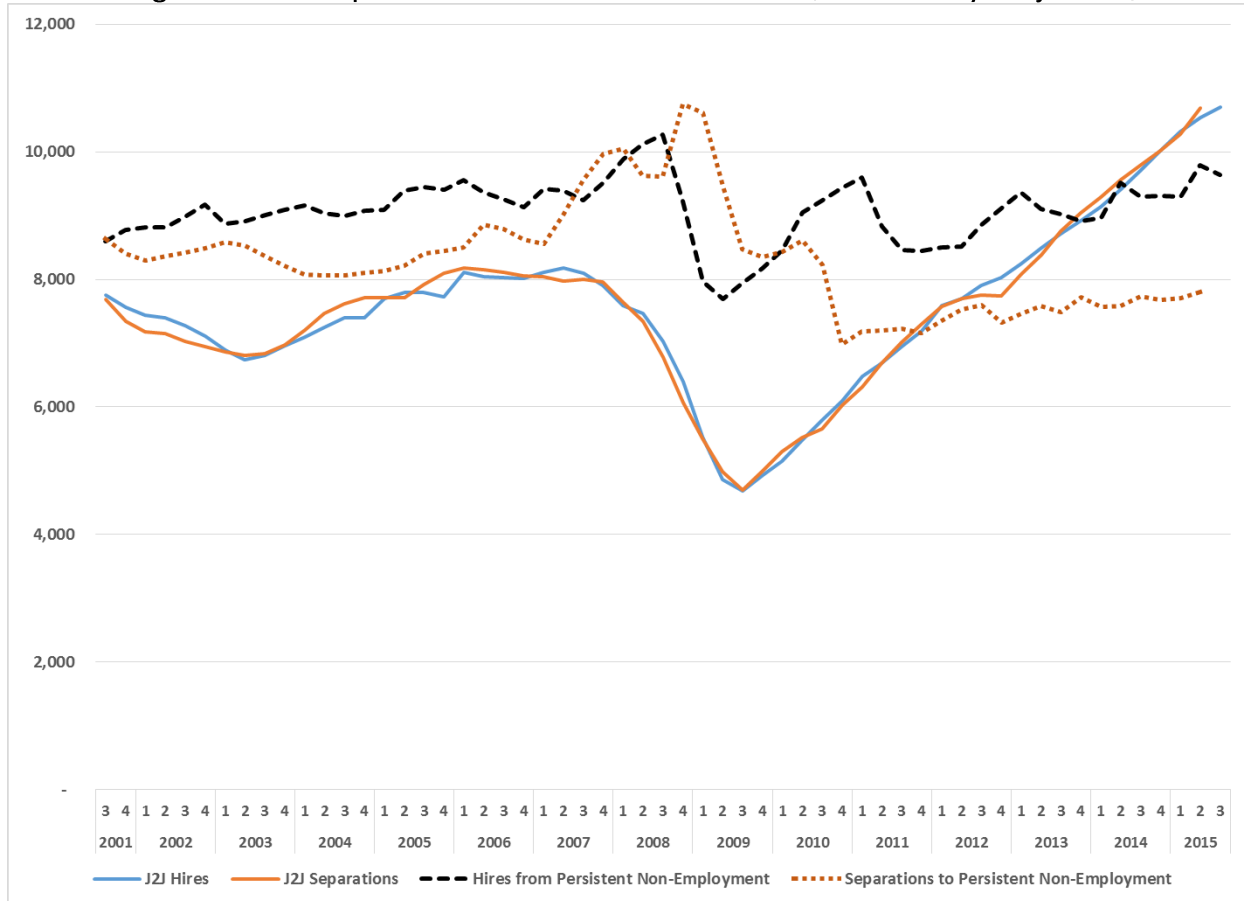
Figure B34. Two or More Races, Job Flow Rates (Seasonally Adjusted)



Job flow rates for those of two or more races were above the total population averages. J2J hires and separations were both 2.3 percentage points above the total population averages. Hires from and separations to persistent non-employment were 3.1 and 2.4 percentage points above the total population averages. Throughout the period, rates of hire from persistent non-employment declined by about 1 percentage point; rates of separation to persistent non-employment declined about 3 percentage points.

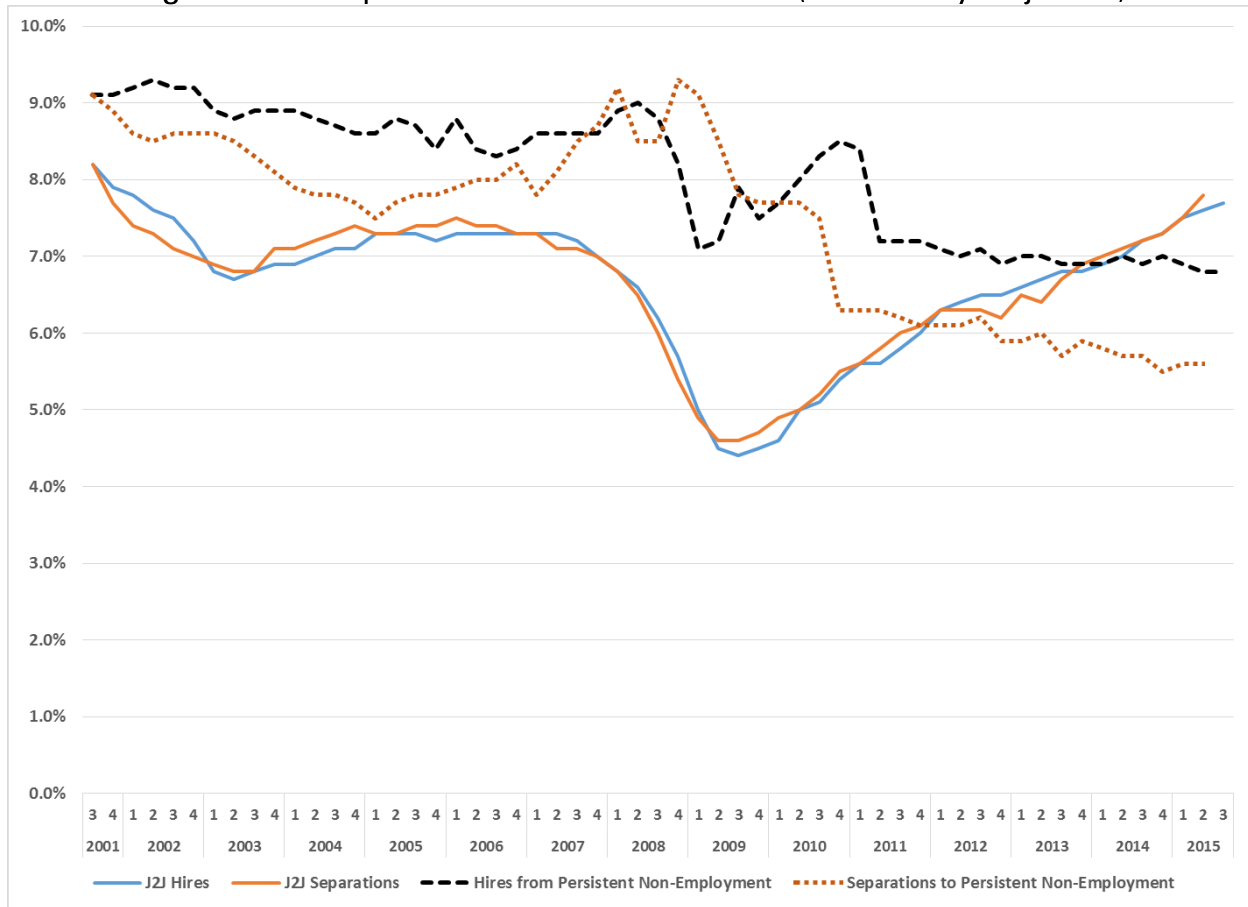
Hispanic/Latino

Figure B35. Hispanic/Latino Job Flow Counts (Seasonally Adjusted)



J2J hires and separations among workers identifying as Hispanic or Latino increased from a low of about 5,000 per quarter in 2009 to more than 10,000 per quarter in 2015. Separations to persistent non-employment peaked at more than 10,000 per quarter during the recession but dropped to below 8,000 per quarter in the recovery.

Figure B36. Hispanic/Latino Job Flow Rates (Seasonally Adjusted)



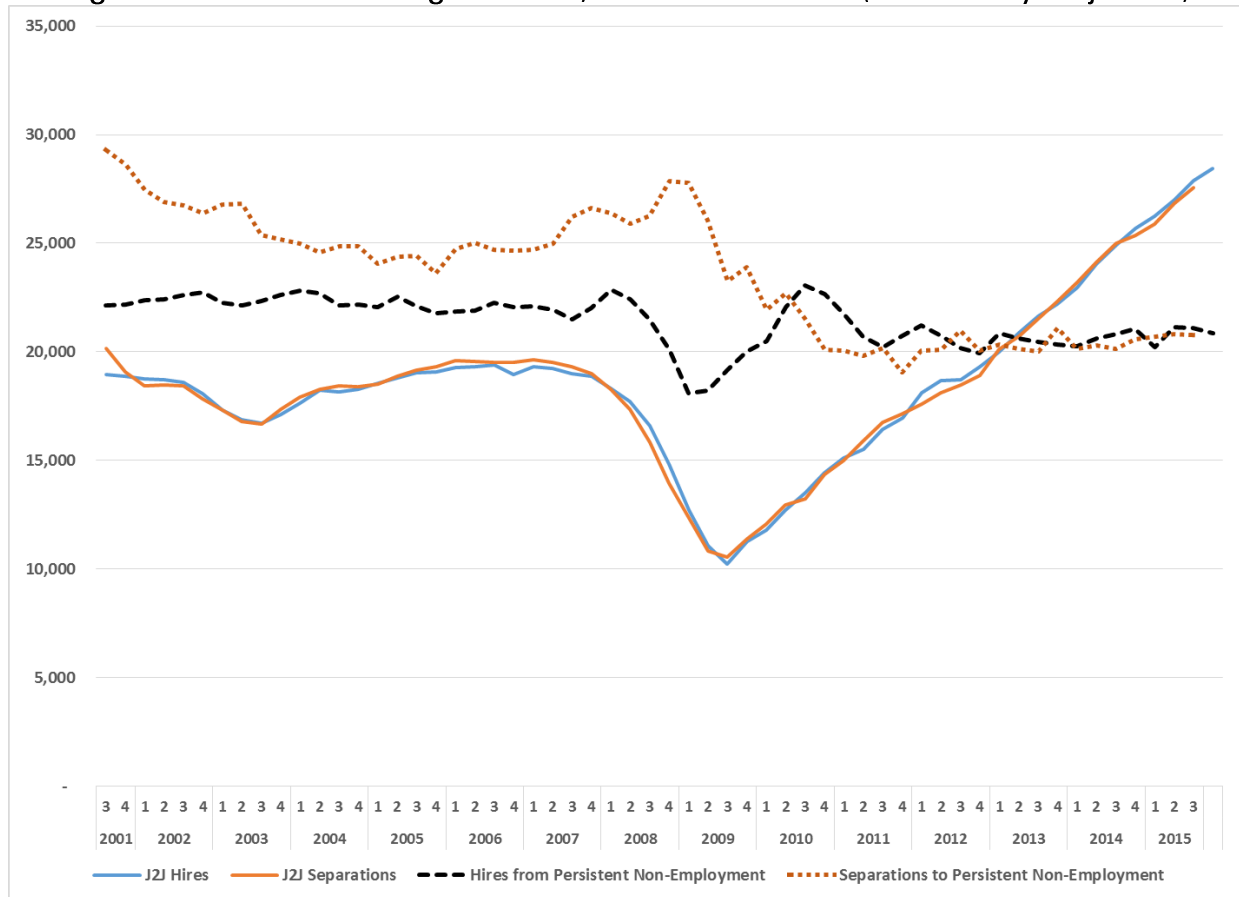
Jobs flow rates for Hispanic and Latino workers were above the total population averages. J2J hire and separation rates averaged 2 and 1.9 percentage points above the total population averages. Hires from and separations to persistent non-employment averaged 2.9 and 2.3 percentage points above the total population averages. Rates of hire from and separation to persistent non-employment declined over the period. Hires from persistent non-employment dropped from 9 percent in 2001 to 6.8 percent in 2015; separations to persistent non-employment dropped from 9 percent in 2001 to 5.6 percent in 2015.

Education (Ages 25 and Older)

This section looks at job-to-job flows by education for workers ages 25 and older.

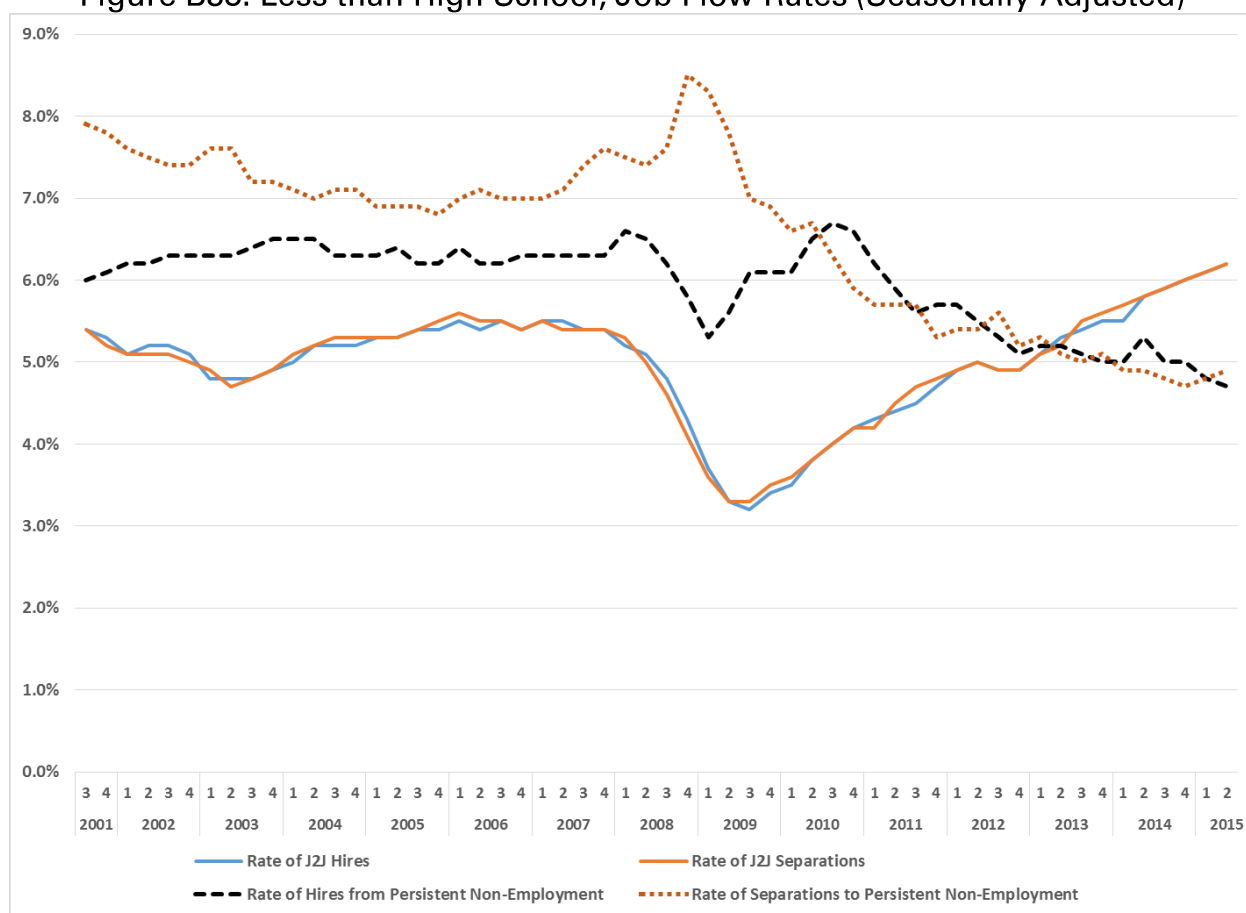
Less than High School

Figure B37. Less than High School, Job Flow Counts (Seasonally Adjusted)



Among those with less than a high school diploma (ages 25 or older), J2J hires and separations reached a recession low of about 10,000 per quarter and then climbed to more than 25,000 per quarter in 2015. Separations to persistent non-employment peaked at almost 30,000 per quarter in 2001; after a brief rise during the recession, they declined to just above 20,000 per quarter.

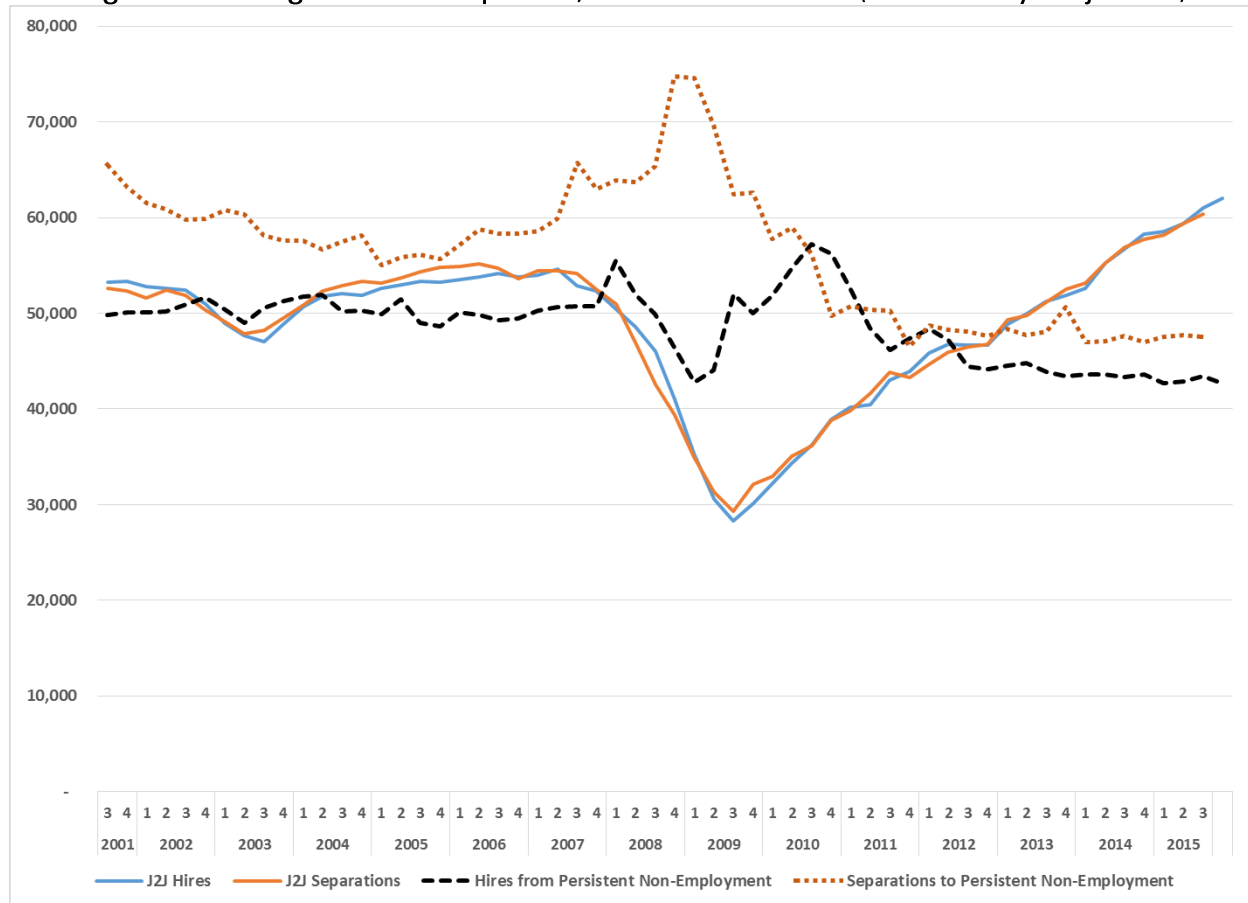
Figure B38. Less than High School, Job Flow Rates (Seasonally Adjusted)



Job flow rates for those with less than a high school diploma were slightly above the total population averages. J2J hires and separations were 0.4 and 0.3 percentage points above the total population averages. Hires from and separations to persistent non-employment were 0.8 and 1.4 percentage points above the total population averages.

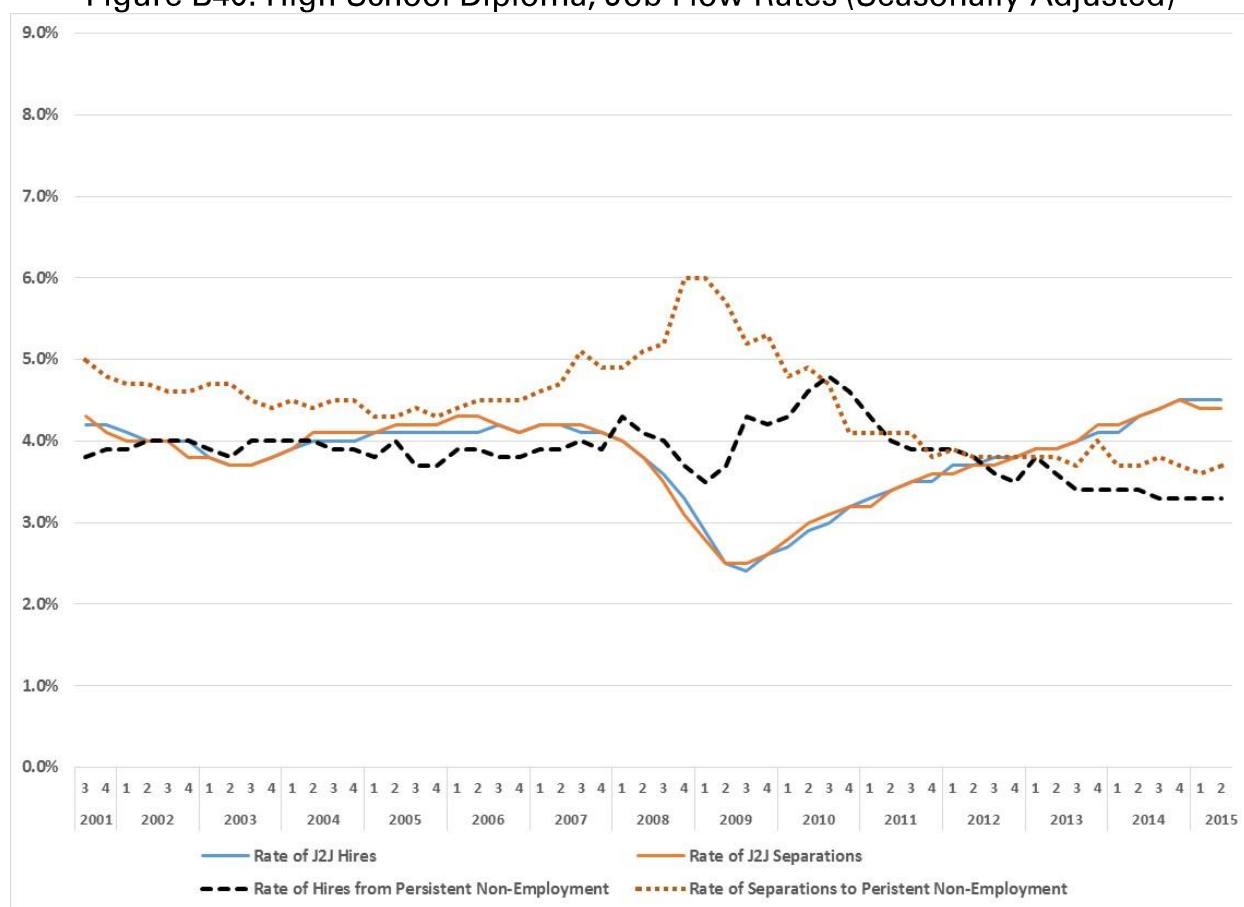
High School (25 and older)

Figure B39. High School Diploma, Job Flow Counts (Seasonally Adjusted)



Among workers with a high school diploma, separations to persistent non-employment peaked at almost 75,000 per quarter during the recession. They dropped to less than 50,000 per quarter later in the recovery. J2J hires and separations declined to less than 30,000 per quarter during the recession. By 2015 they had risen to more than 60,000 per quarter.

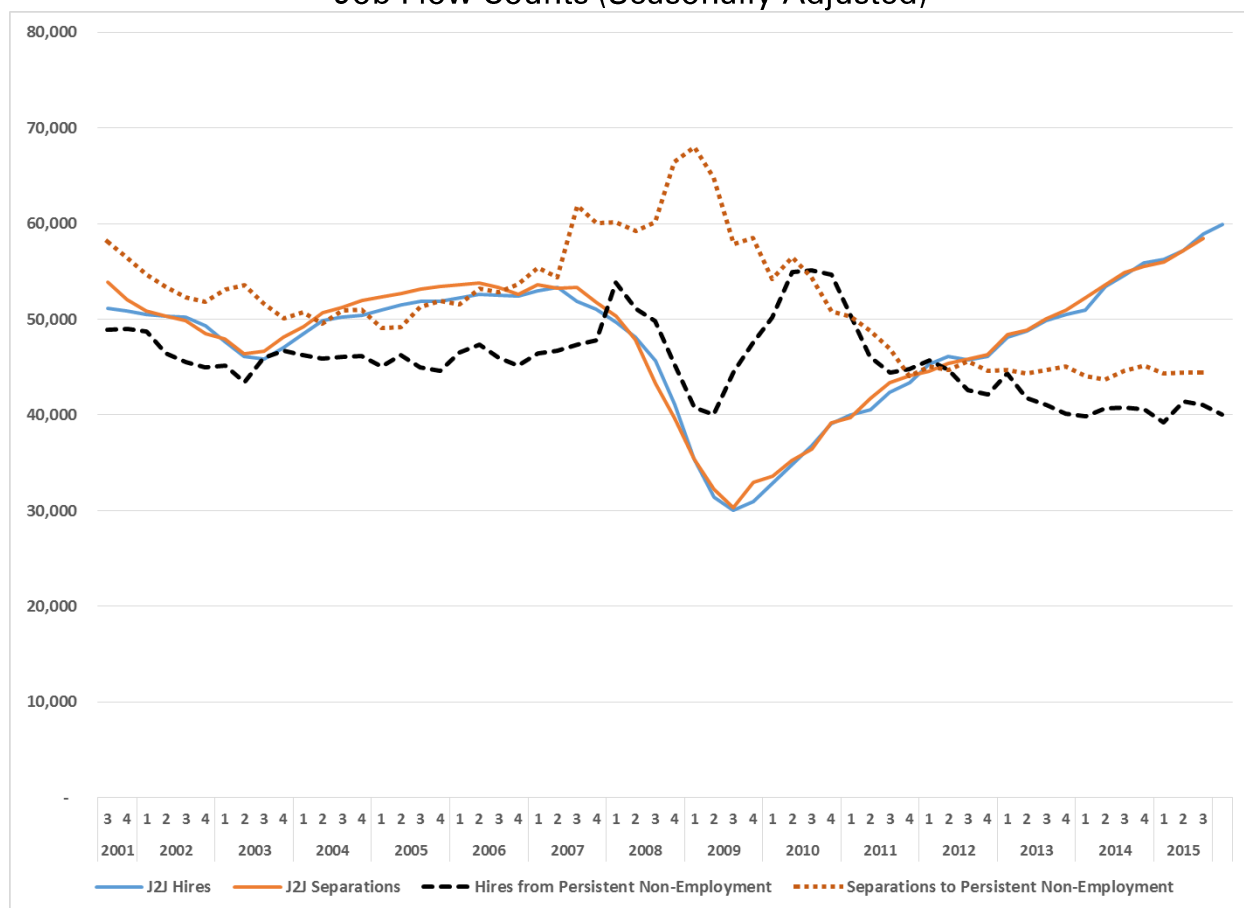
Figure B40. High School Diploma, Job Flow Rates (Seasonally Adjusted)



Job flow rates for those with a high school diploma were below the total population averages. J2J hires and separations were 0.8 and 0.9 percentage points below the total population averages. Hires from and separations to persistent non-employment were 1.3 and 0.7 percentage points below the total population averages.

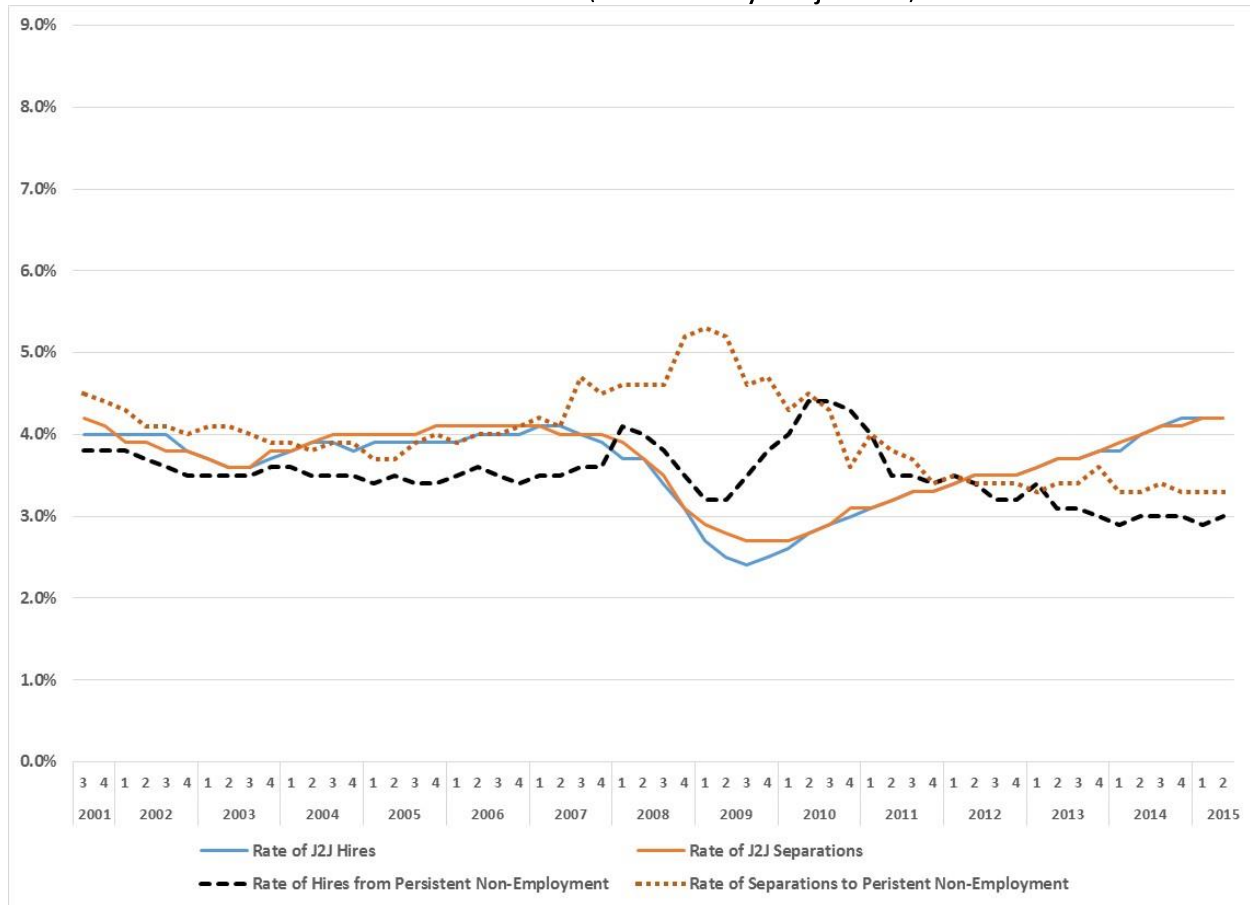
Some College or Associate's Degree (25 and older)

Figure B41. Some College or Associate's Degree,
Job Flow Counts (Seasonally Adjusted)



J2J hires and separations among workers with some college or an associate's degree peaked at around 54,000 per quarter prior to the Great Recession. During the recession, they dropped to about 30,000 per quarter, and by 2015 they had risen to more than 58,000 per quarter. Separations to persistent non-employment peaked at 68,000 per quarter during the Great Recession. In the recovery, they declined to 44,000 per quarter in 2015.

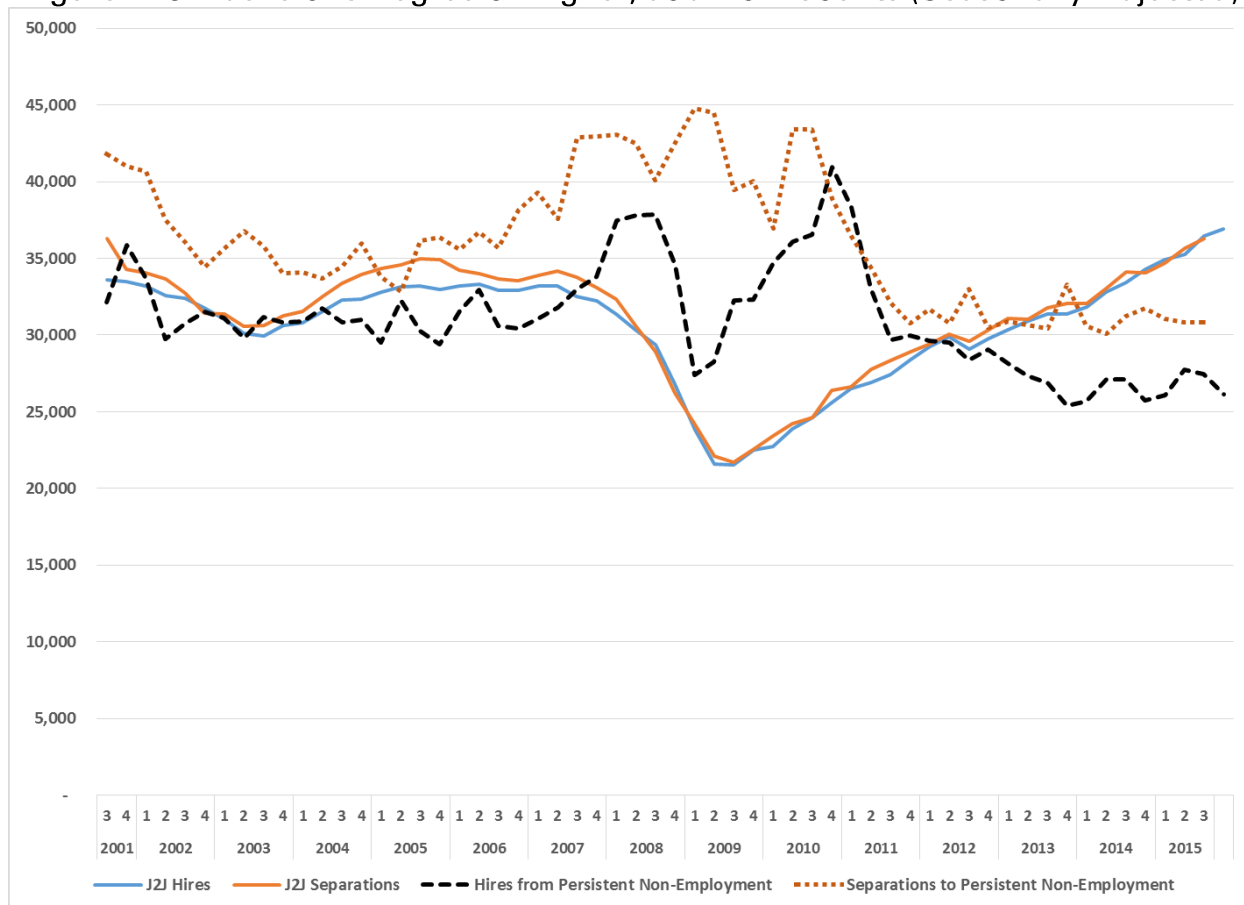
Figure B42. Some College or Associate's Degree,
Job Flow Rates (Seasonally Adjusted)



Job flow rates for those with some college or an associate's degree were below the total population averages. J2J hires and separations were both 1 percentage point below the total population averages. Hires from and separations to persistent non-employment were 1.7 and 1.2 percentage points below the total population averages.

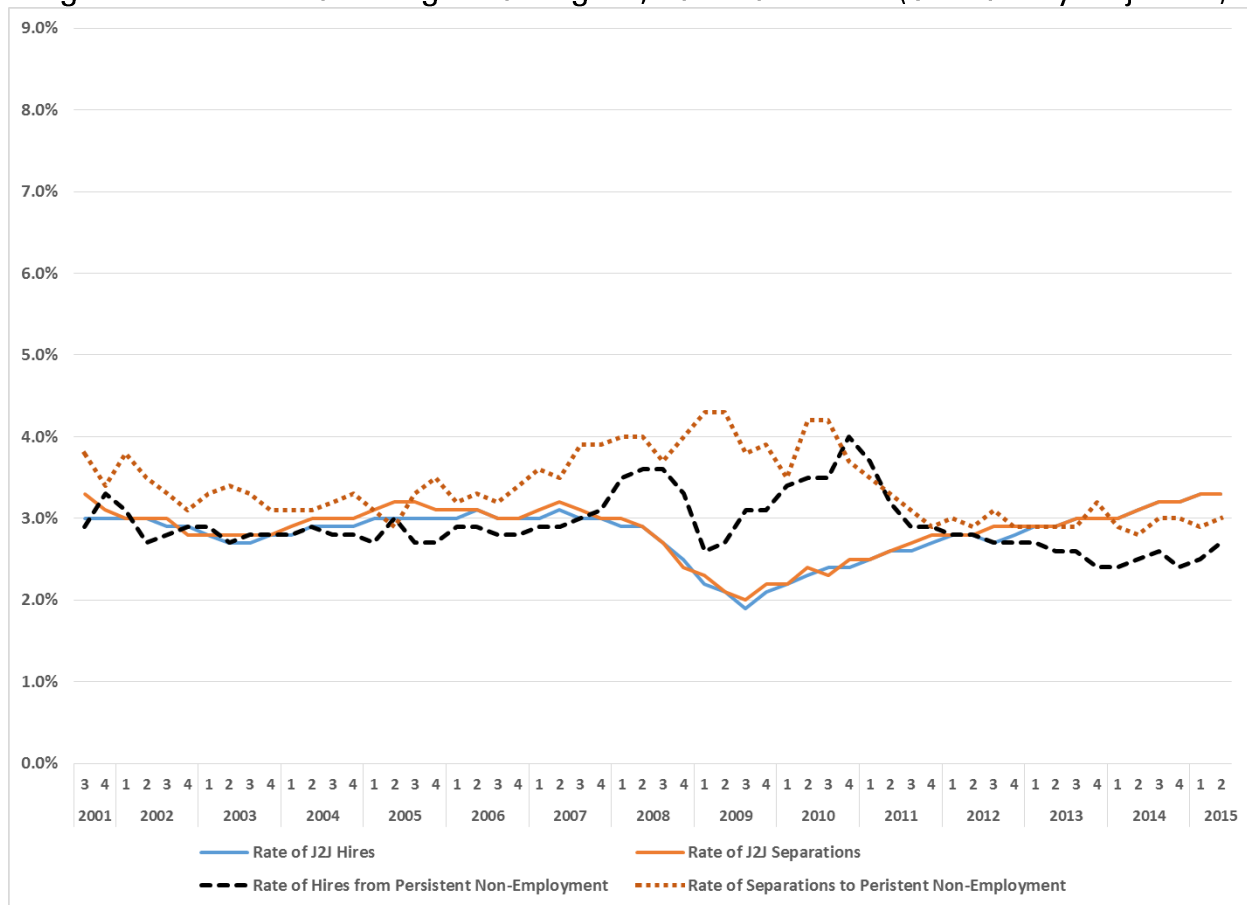
Bachelor's Degree or Higher (25 and older)

Figure B43. Bachelor's Degree or Higher, Job Flow Counts (Seasonally Adjusted)



Separations to persistent non-employment among those with a bachelor's degree or higher had three peaks of more than 43,000 per quarter during the Great Recession. They declined to less than 35,000 per quarter in the recovery. J2J hires and separations reached a low of about 22,000 per quarter during the recession and rose to more than 35,000 per quarter in 2015.

Figure B44. Bachelor's Degree or Higher, Job Flow Rates (Seasonally Adjusted)



Job flow rates for those with a bachelor's degree or higher were below the total population averages. J2J hires and separations were both 1.8 percentage point below the total population averages. Hires from and separations to persistent non-employment were 2.3 and 1.8 percentage points below the total population averages.

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Acknowledgments: The Workforce Research Section produced this report under the direction of Bureau Chief Coretta Pettway. For further information, visit <http://OhioLMI.com> or call the Ohio Bureau of Labor Market Information at **1-888-296-7541** option 6, or **(614) 752-9494**.

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