

The Mismatch between Job Openings and Job Seekers

By Maria E. Canon and Mingyu Chen

The 2007-09 recession had a severe impact on the U.S. labor market. During the recession, more than 89 million employees lost their jobs, while fewer than 82 million were hired.¹ The unemployment rate spiked to a 27-year high of 10.1 percent in October 2009. Since then, the labor market has experienced a slow recovery; the unemployment rate still stood at 9.1 percent in May.

In the 2010 annual report of the Federal Reserve Bank of St. Louis, David Andolfatto and Marcela Williams suggested that search “frictions” might explain why the unemployment rate remained high even while job

Mismatch can be interpreted as a poor match between the skills and location required to fill vacant jobs and the skills and geographic preferences of unemployed workers.

openings appeared to have increased during the recent recovery. One type of friction that they mentioned relates to employer-employee pairings: Each job and worker has idiosyncratic characteristics that make some job-worker pairings more productive than others. As employers and workers usually cannot anticipate where the best pairing is located, they must expend time and resources to search out the best matches.

Mismatch can be interpreted as a poor match between the skills and location required to fill vacant jobs and the skills and geographic preferences of unemployed workers. The idea, also known as structural imbalance, was first identified by a group of European economists in the 1970s, when they were struggling to understand the consistently high unemployment rate in some European countries.²

In general, skills can be represented in

different contexts, such as industries, occupations and educational levels. Geographic characteristics can be measured at different levels, such as metropolitan statistical areas (MSAs), states and, at an even larger level, census regions. Economists have recently paid close attention to mismatch and have investigated whether it is causing the currently high unemployment rate in the U.S.

Some evidence suggests that mismatch might have increased since the recession started. The figure shows the average monthly share of vacant jobs and share of employment lost by industry from December

2007 to February 2011.³ Most new positions have been created in some sectors, while most job loss has been concentrated in others. Since these new jobs usually require different skills than what unemployed workers from different sectors have, firms and unemployed workers may take longer to find their best matches. For example, over 50 percent of the jobs lost between December 2007 and February 2011 were in manufacturing and construction, while more than 90 percent of new positions opened in other industries. The education and health sector has experienced steady employment growth since the recession started; 20 percent of all job openings have occurred in this sector.

In the rest of the article, we review the role of two types of mismatch (skill and geographic) in explaining the increase in unemployment that occurred during and after the 2007-09 recession.

Skill Mismatch

Economists Ayşegül Şahin, Joseph Song, Giorgio Topa and Giovanni Violante recently derived mismatch indexes from an economic model.⁴ In their framework, the aggregate labor market is comprised of many small labor markets, categorized by skill levels or working locations (e.g., industries and MSAs). Şahin and others define mismatch as the distance between the observed allocation of unemployed workers across sectors and the “optimal” allocation. The optimal allocation of unemployed workers is the allocation that, given the distribution of vacancies in the economy, would occur if there were free movement of workers across labor markets. The authors’ indexes allow them to quantify not only the level of mismatch but also the proportion of the increase in unemployment that can be attributed to mismatch.

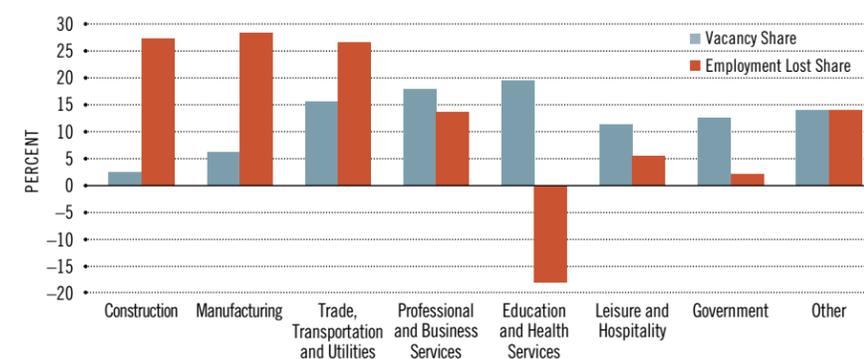
Using five industries as divisions of the aggregate labor market, Şahin and her co-authors found that the fraction of unemployed workers misallocated increased by 10 percentage points during the 2007-09 recession; the fraction then dropped but remained at a level higher than its prerecession level. But this increase in mismatch can explain only between 0.4 and 0.7 percentage points of the total increase of five percentage points in the unemployment rate from the beginning of 2007 to the middle of 2009. Therefore, although skill mismatch increased during the recession and influenced unemployment to some degree, it is not the main source of the increase in the unemployment rate.

Geographic Mismatch

The 2007-09 recession was accompanied by a steep decline in housing prices. Some economists and commentators have argued

Share of Job Vacancies and Lost Employment by Industries

MONTHLY AVERAGE FROM DECEMBER 2007 TO FEBRUARY 2011



SOURCES: Job Openings and Labor Turnover Survey and the Current Population Survey.

NOTE: A negative share of lost employment in the education and health services sector means it gained employment during the examined period; that growth was about 18 percent of all the total employment lost.

Vacancy share of an industry is the number of openings in that industry over the total number of job openings in the U.S. Lost employment share of an industry is the number of jobs lost in that industry over the total number of jobs lost in the U.S.

that the housing crisis may slow down geographic mobility of job applicants. Economists Fernando Ferreira, Joseph Gyourko and Joseph Tracy concluded from past research that negative equity significantly reduced the mobility of homeowners. Unemployed workers who owe more than what their home is worth are less likely to apply for and accept positions that are in places that would require them to sell their homes.

If this is the case, then a geographic mismatch is likely to occur and lead to prolonged high unemployment rates. Economist Sam Schulhofer-Wohl, however, points out that Ferreira and his co-authors systematically dropped from their data some observations of homeowners with negative equity who move; this resulted in a misleading conclusion. Schulhofer-Wohl found that negative equity does not reduce mobility of homeowners, a finding that is consistent with what is suggested by the empirical results from Şahin and others. Şahin and her co-authors found that geographic mismatch, measured at census region level, was very low throughout the recession and has had no impact on the recent dynamics of U.S. unemployment.

Conclusion

Although mismatch has recently raised a lot of attention among economists as a potential explanation for the increase in unemployment, the existing literature does

not find evidence of it being the principal source. The newly developed measure of mismatch indicates a rise in skill mismatch (across industries) but only associates it with a minor increase in the unemployment rate. The geographic mismatch (across census regions) does not have a significant effect on the labor market.

One potential alternative explanation for the persistently high unemployment rate is the extended hiring time. Although job vacancies have been rising, the increased number of unemployed workers makes those openings more competitive. Anecdotal evidence suggests that, since the last recession started, companies have had a difficult time deciding who the “best” candidates are; therefore, the hiring time is extended. According to an article in *The Wall Street Journal*, a survey conducted recently by the Corporate Executive Board indicated that positions that typically took two months to fill before the recession are sometimes taking four times longer to fill.⁵ Even with qualified applicants on hand, recruiters might be holding out for better candidates. 

Maria E. Canon is an economist and Mingyu Chen is a research analyst, both at the Federal Reserve Bank of St. Louis. See <http://research.stlouisfed.org/econ/canon/> for more on Canon’s work.

ENDNOTES

- ¹ Data are from the Job Openings and Labor Turnover Survey. Job loss is measured by the number of employees separated from payroll, and number of hires is measured by the additions of personnel to payroll.
- ² See Padoa-Schioppa for a collection of papers on findings of mismatch in the 1970s.
- ³ December 2007 is the starting date of the 2007-09 recession. Vacancy share of an industry is the number of openings in that industry over the total number of job openings in the U.S. Lost employment share of an industry is the number of jobs lost in that industry over the total number of jobs lost in the U.S.
- ⁴ Their definition of mismatch builds on the findings of Jackman and Roper.
- ⁵ See Light.

REFERENCES

- Andolfatto, David; and Williams, Marcela. “Many Moving Parts: A Look inside the U.S. Labor Market.” Annual Report 2010, Federal Reserve Bank of St. Louis, April 2011. See www.stlouisfed.org/publications/ar/
- Ferreira, Fernando; Gyourko, Joseph; and Tracy, Joseph. “Housing Busts and Household Mobility.” *Journal of Urban Economics*, July 2010, Vol. 68, No. 1, pp. 34-45.
- Jackman, Richard; and Roper, Stephen. “Structural Unemployment.” *Oxford Bulletin of Economics and Statistics*, Vol. 49, No. 1, pp. 9-36.
- Light, Joe. “Corporate News: Jobs Open, but Hiring Remains Slow—Recruiters Say They Have Trouble Finding Candidates for Skilled Positions, and Managers Hold Out for Better Prospects.” *The Wall Street Journal*, March 7, 2011.
- Padoa-Schioppa, Fiorella. *Mismatch and Labour Mobility*. Cambridge: Cambridge University Press, 1991.
- Şahin, Ayşegül; Song, Joseph; Topa, Giorgio; and Violante, Giovanni L. “Measuring Mismatch in the U.S. Labor Market.” Manuscript, revised March 2011. See www.newyorkfed.org/research/economists/sahin/USmismatch.pdf
- Schulhofer-Wohl, Sam. “Negative Equity Does Not Reduce Homeowners’ Mobility.” Federal Reserve Bank of Minneapolis Working Paper 682, revised December 2010.