# DIAGNOSING AND TREATING STRUCTURAL UNEMPLOYMENT: IS THERE A SKILLS MISMATCH PROBLEM AND WHAT DOES THE ANSWER IMPLY FOR POLICY?

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# Introduction



- During the Great Recession, payroll employment fell by more than 8.7 million jobs and unemployment rose from a low of 4.4 percent in April 2007 to 10.0 percent in October 2009
- The labor market has been slow to recover
  - Private sector employment only just passed its pre-recession peak; unemployment is still above 6 percent; and long-term unemployment remains at very high levels.
- As is often the case during periods of high or rising unemployment, there are growing fears that we are facing significant structural problems
  - Concern that employers have large numbers of jobs available that the unemployed are not qualified to fill

# Even when the labor market is weak, employers often cite skills shortages as a barrier to business expansion



"(Hiring) managers… expect that more than 1.1 million tech jobs will be available (in 2002), but they predict they will be unable to fill some 578,000 of those positions."

Tiffany Kary, CNET News, May 6, 2002, citing results of Information Technology Association of America staffing survey

"More than 82 percent of manufacturers report a moderate or serious shortage in skilled production workers. More than 75 percent of manufacturers say the skill shortage has negatively impacted their ability to expand."

Manufacturing Institute website, citing Deloitte and Manufacturing Institute, *Boiling Point? The Skills Gap in U.S. Manufacturing*, 2011

Some 39 percent of U.S. employers report "hiring challenges caused by talent shortages."

Manpower Talent Shortage Report, 2013

# Political leaders commonly cite existence of job openings along with unemployment as evidence of skills mismatch



"You'd be surprised if you take a metropolitan, big city newspaper, the Sunday edition, where they run all the classified ads, even today with 10 million unemployed … you will find that those Sunday editions—the Washington paper, the New York papers, Pittsburgh, Los Angeles—will carry as many as 50 and 60 pages of help wanted ads. But when you read them, you realize that … the people that are presently unemployed do not have the skills and the training for those jobs."

Ronald Reagan, June 14, 1983

"There are 3 million jobs available in America that are not filled because too many of our people don't have the skills for those jobs."

Marco Rubio, March 14, 2013

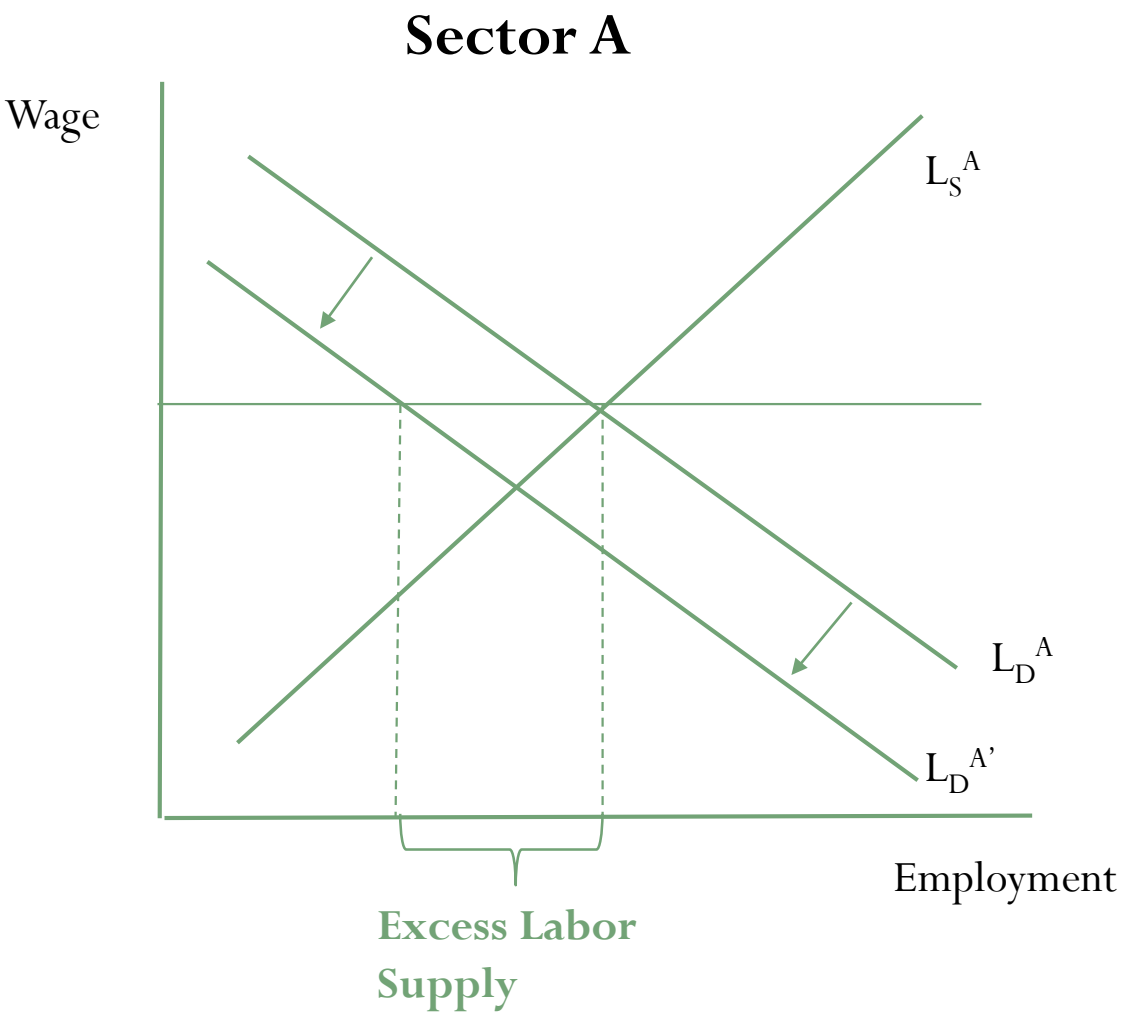
# On its own, the fact that job openings co-exist with unemployment does not imply a serious mismatch problem

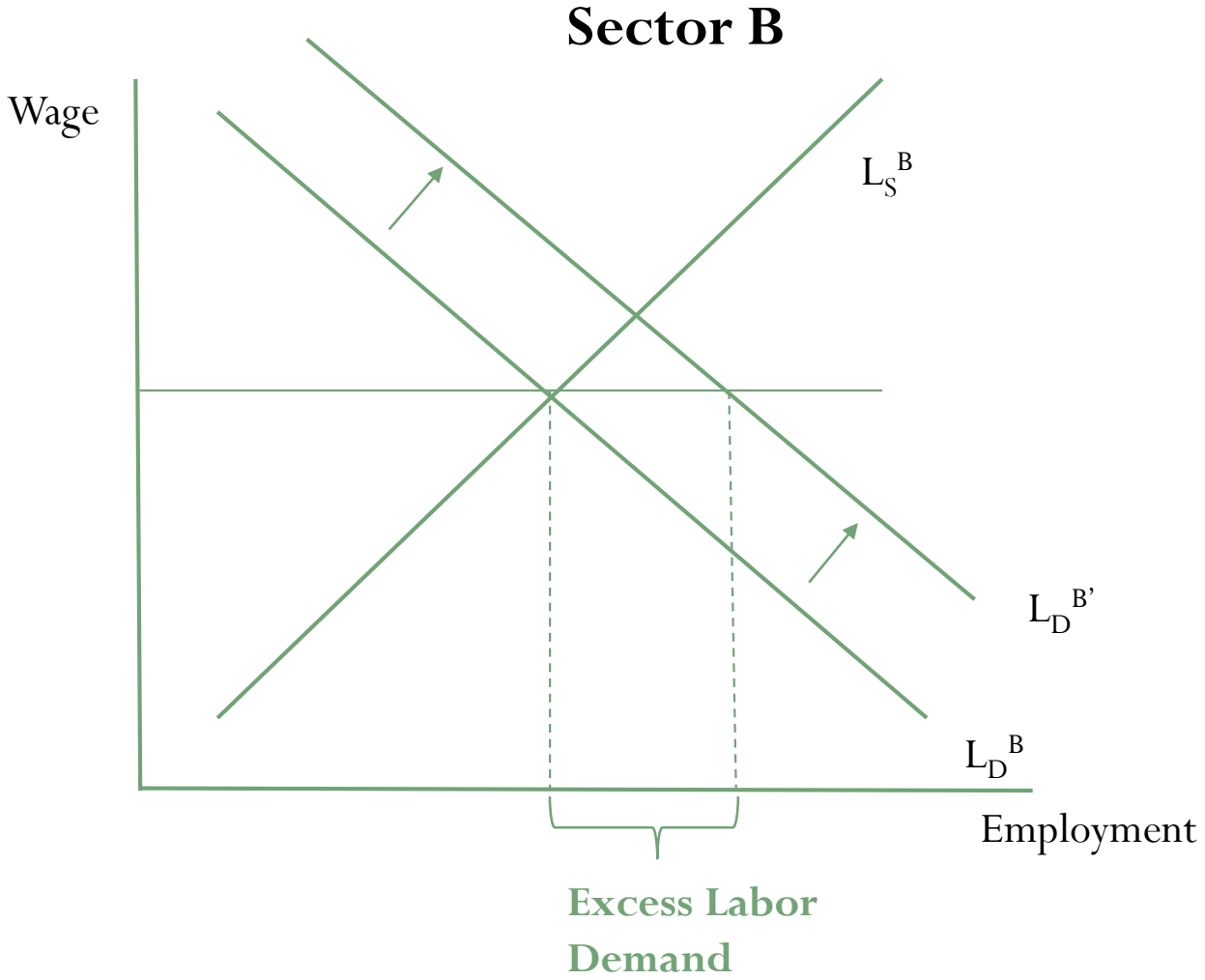


- During recessions, the number of unemployed people typically is very large relative to the number of job openings
  - In the spring of 1982, I estimated that the number of unemployed people could be as large as 10 times the number of job openings (Abraham 1982)
  - In October 2009, BLS data showed there to be 6.5 unemployed people for every job opening
- In a dynamic labor market, there will always be unemployment and vacancies due to normal turnover.
  - In steady state, H*D ≈ V, where H is the flow of new hires, D is the average duration of a job opening and V is the stock of job openings
  - At the end of December 2013, there were 4.0 million job openings, but there had been 4.4 million separations and 4.4 million hires that month
    - Implied average time to fill a job opening less than a month
  - As of 2013, few manufacturing firms had any notable share (5 percent or more) of jobs vacant three plus months (Osterman and Weaver, 2014)

# Mismatch argument assumes there is excess labor supply in some sub-markets and excess labor demand in others





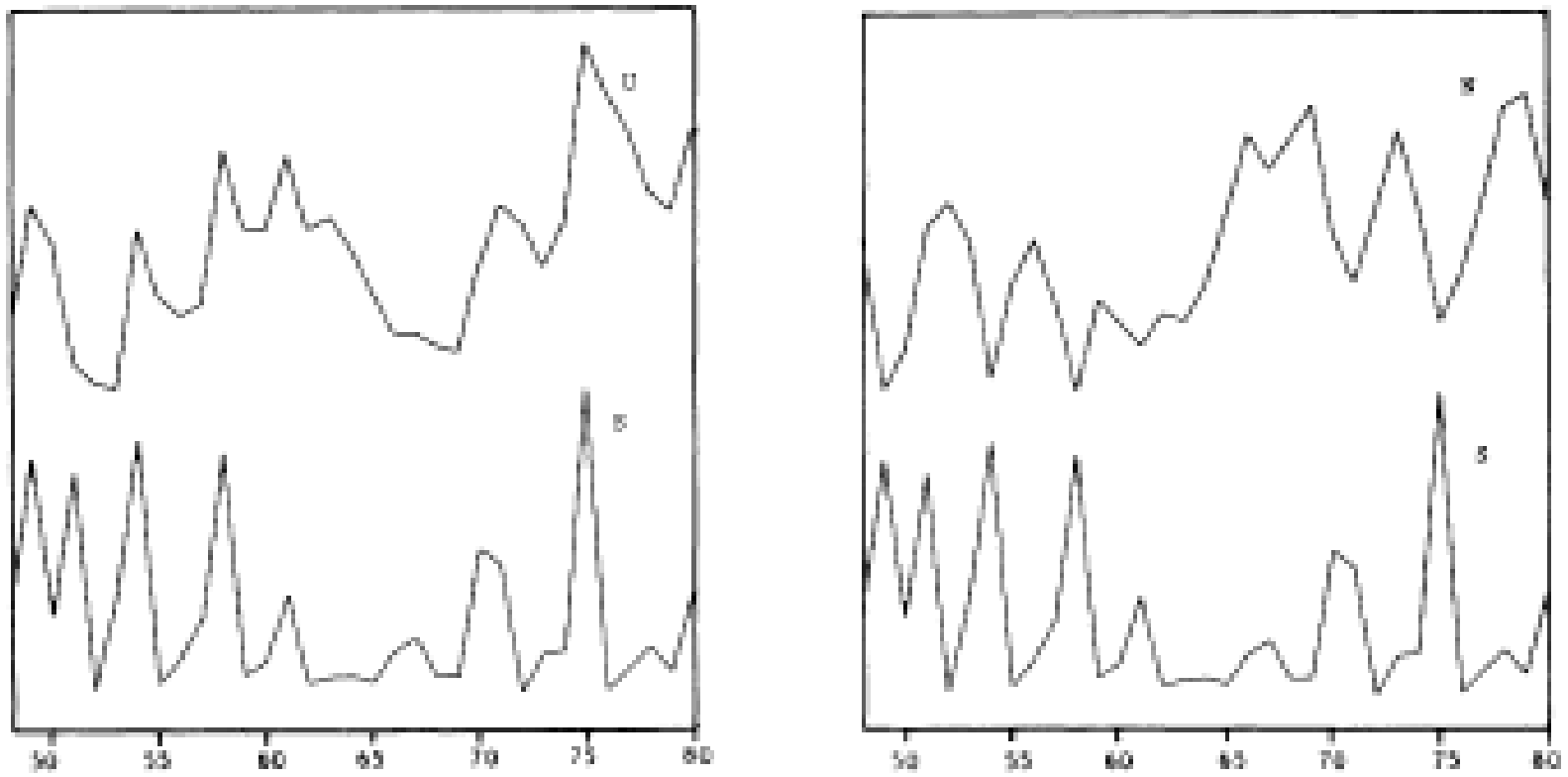
# Is there evidence to support the view that skill mismatch has contributed significantly to recent unemployment?



- Dispersion in rates of growth in employment across sectors
- Outward shift in the aggregate Beveridge curve
- Direct measures of mismatch between the distribution of job openings by occupation and/or industry and the distribution of unemployed individuals
- Faster growth of wages in shortage occupations and/or industries
- Increased hours in shortage occupations and/or industries
- Other changes in employer behavior (increased recruiting intensity, lowered qualifications for new hires, increased on-the-job training, job restructuring)

# Dispersion of employment growth rates versus unemployment rate (left) and normalized help wanted index (right), 1949-1980

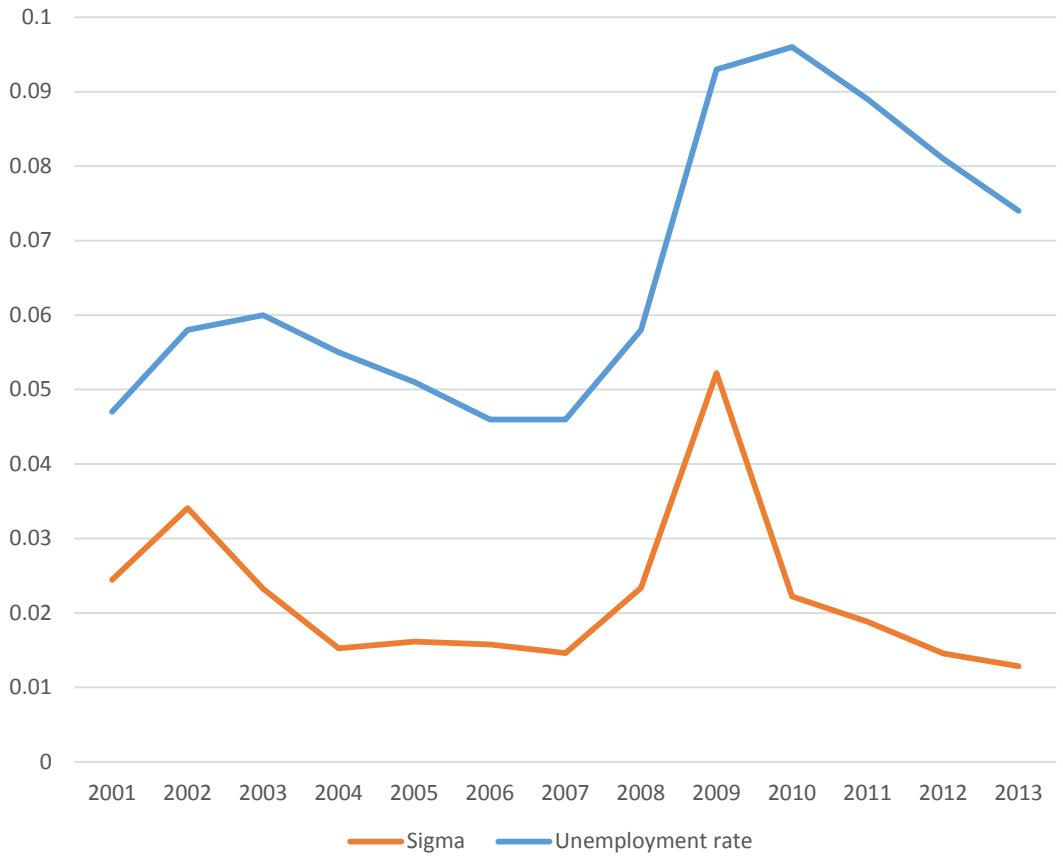


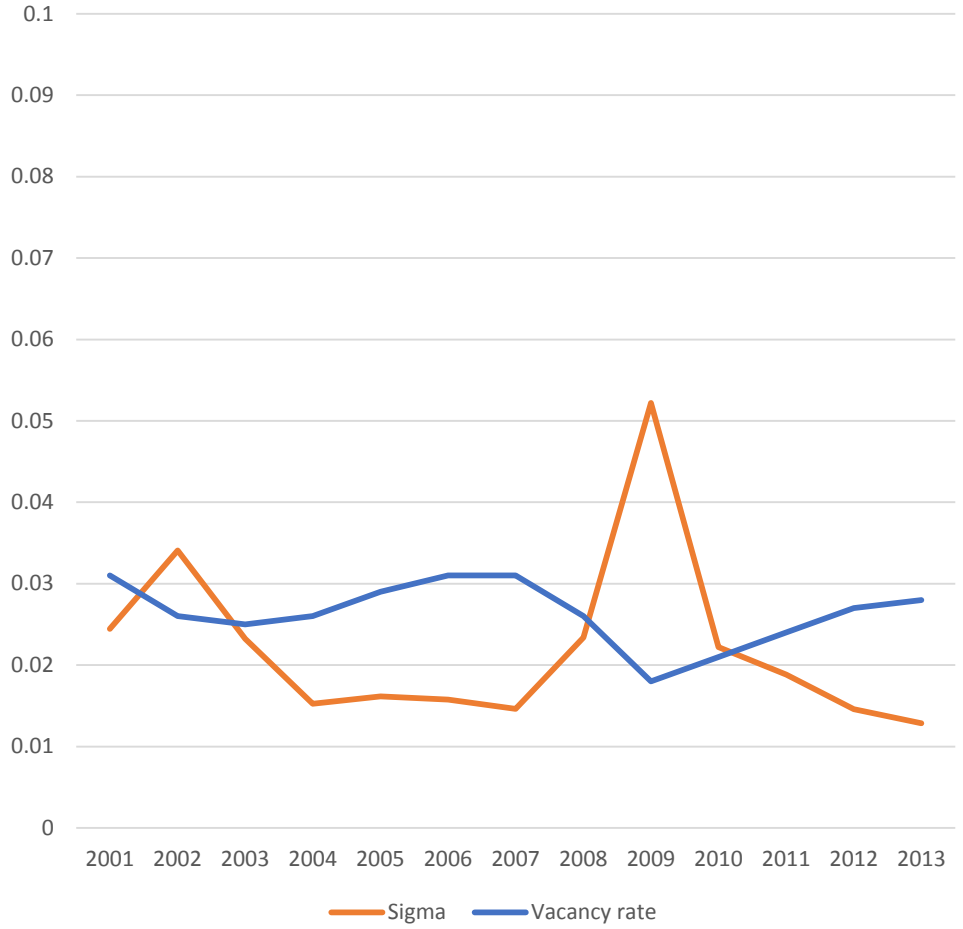



Source: Abraham and Katz (1986)

# Dispersion of employment growth rates versus unemployment rate (left) and job openings rate (right), 2001-2013





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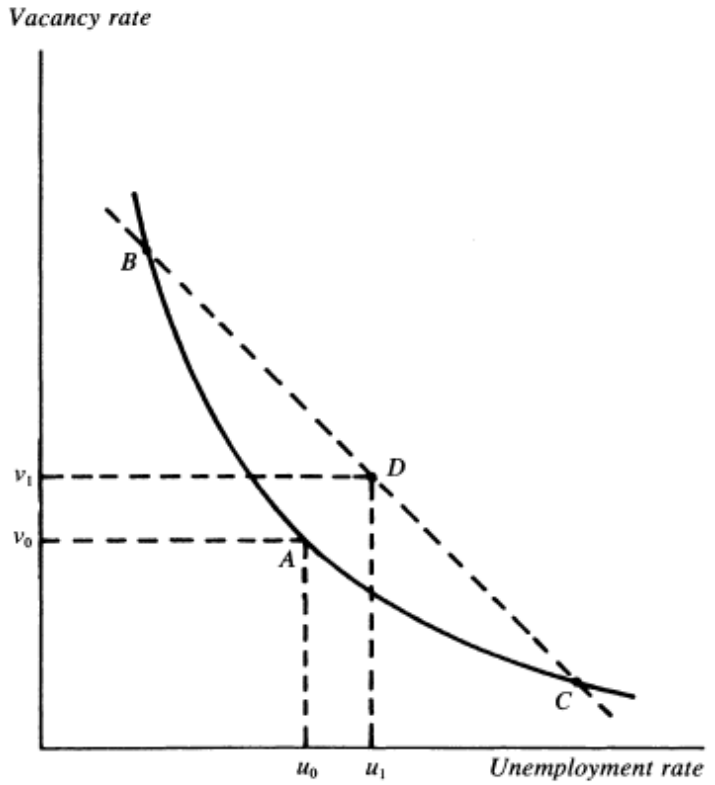
# Illustration of how mismatch could shift the aggregate Beveridge curve

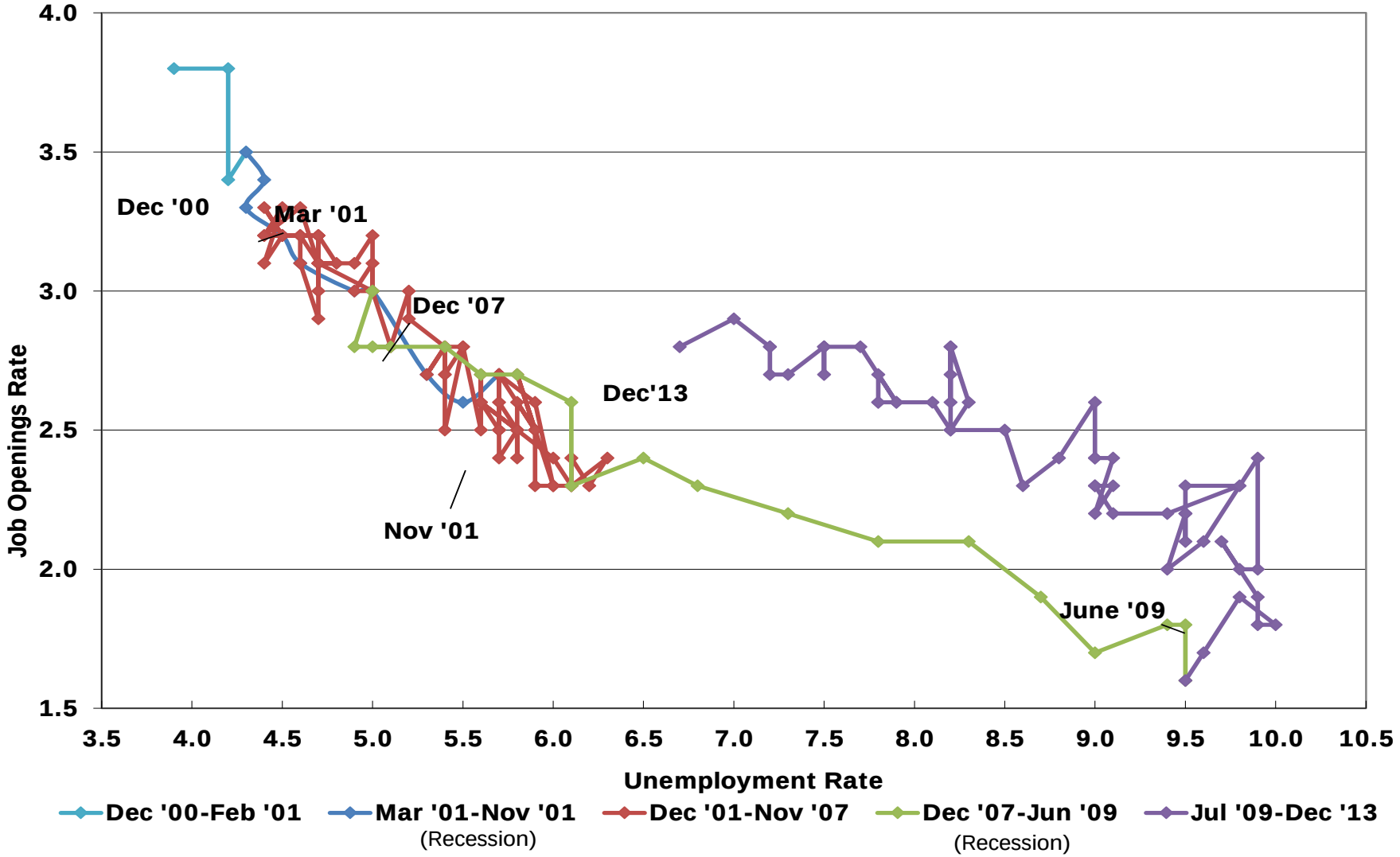


If the relationship between vacancies and unemployment in individual labor markets is convex, mismatch between the distribution of vacancies and the distribution of unemployment across these labor markets could produce outward shifts in the aggregate Beveridge curve



# Job openings at given unemployment are higher than at start of recession, but this is not definitive





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# Measures of mismatch that use sectoral or occupational data on unemployment and job openings



- Distance measure of mismatch used in some early studies:

$$M_1 = \frac{1}{2}\sum_i (u_i - v_i)$$

where $u_i$ is the share of unemployment and $v_i$ is the share of job openings in industry or occupation i

- Alternate measure captures how allocation discrepancies affect number of job matches, assuming the same Cobb Douglas matching function in all sectors:

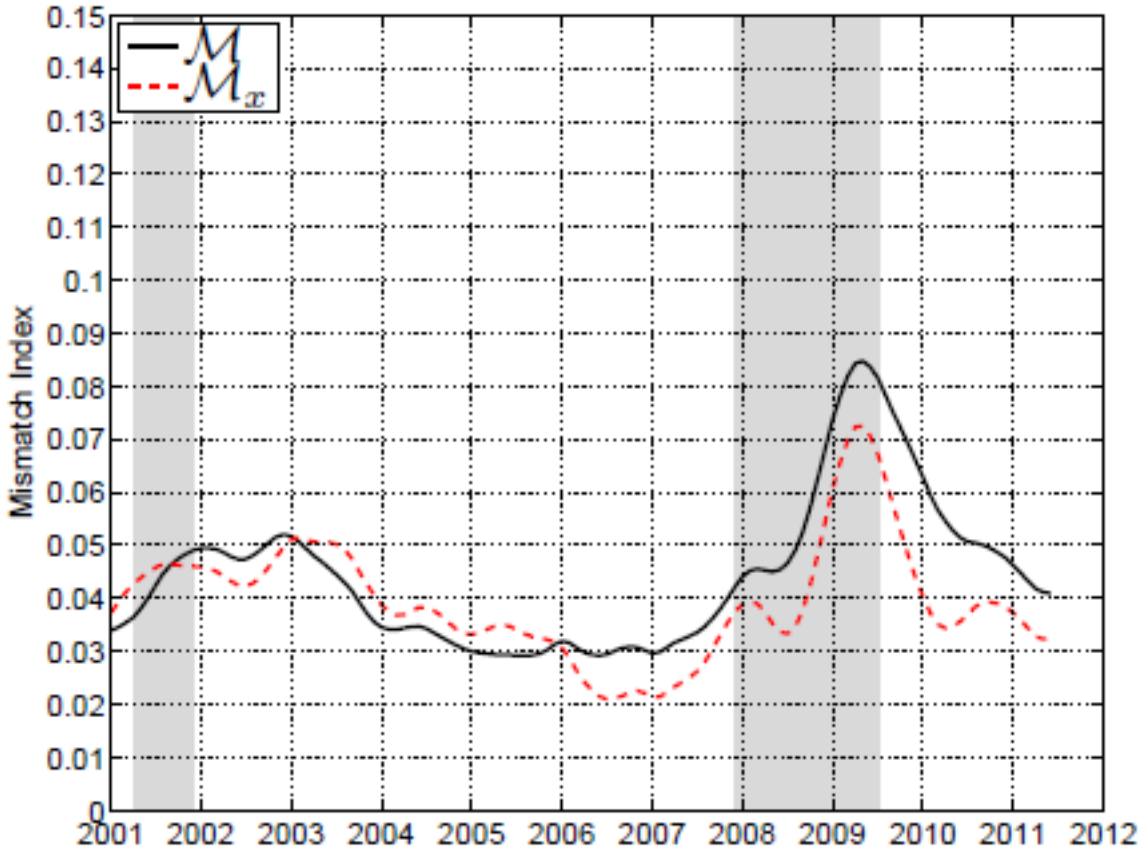
$$M_2 = 1 - \sum_1 (u_i\, v_i)^{1/2}$$

  - $M_2$ can be modified to reflect differences in matching efficiency across sectors (Sahin, Song, Topa and Violante, 2013)

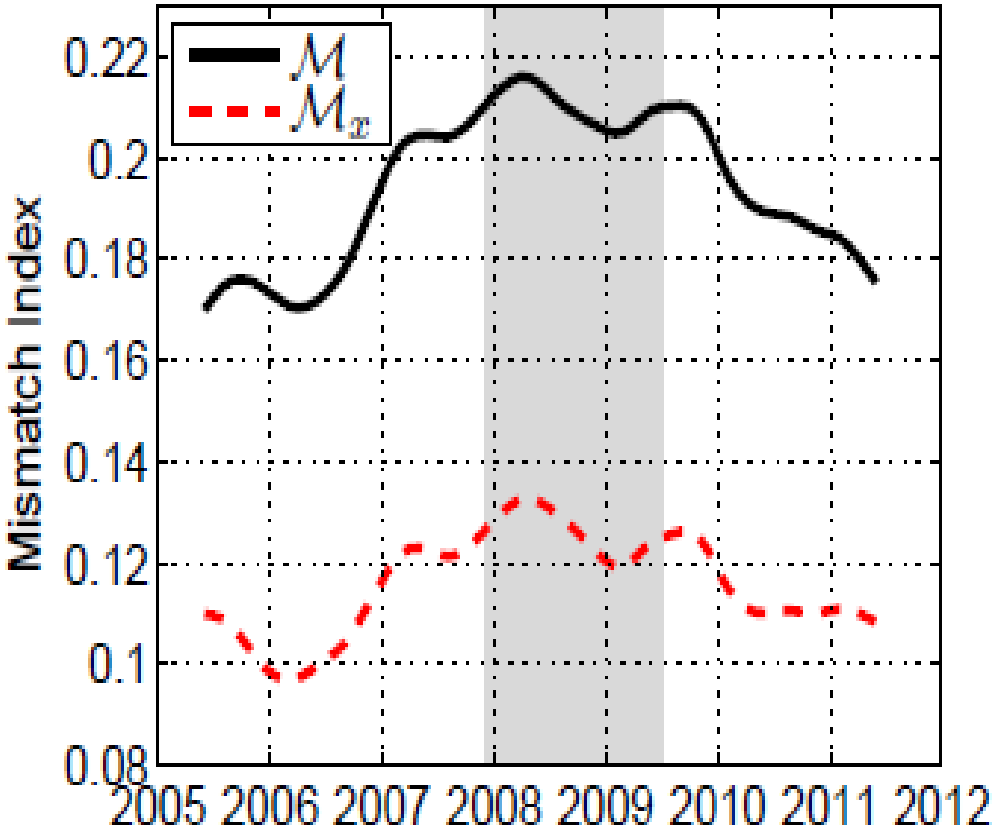
# Measured mismatch rose during the recession…



Industry mismatch




Occupation mismatch

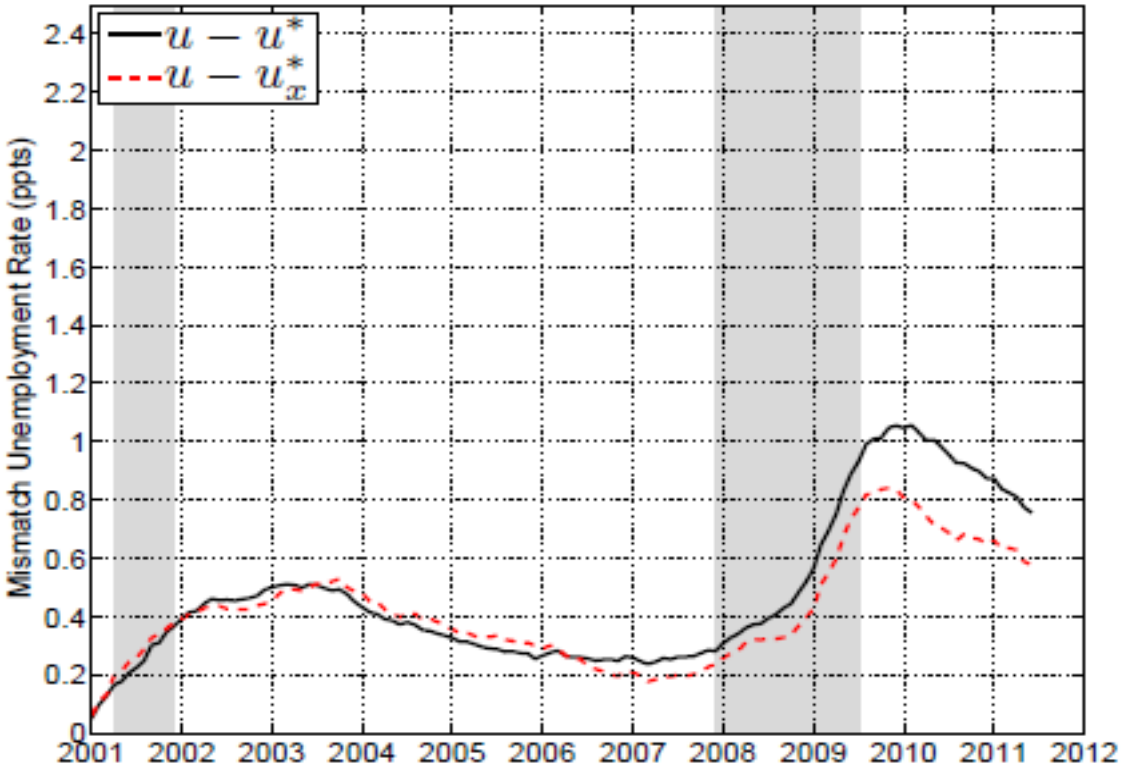



Source: Sahin, Song, Topa and Violante (2013)

# … and, by some estimates, made a non-trivial contribution to the increase in unemployment



Industry mismatch unemployment

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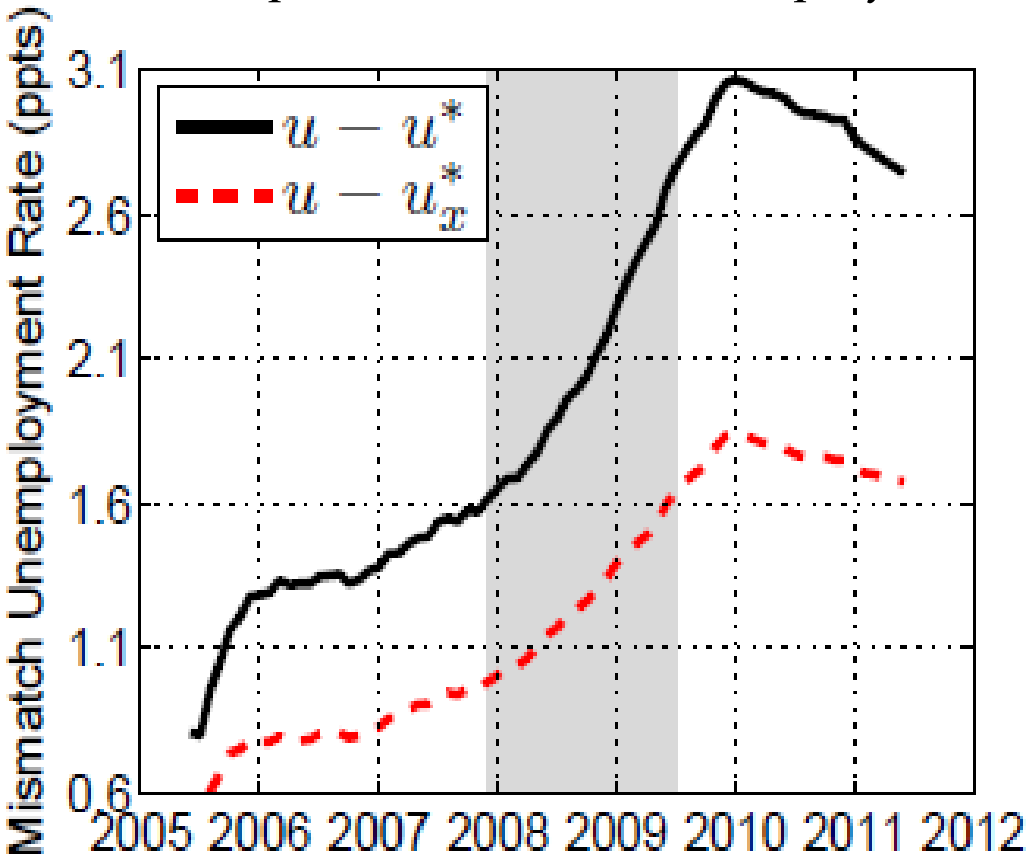


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# Data limitations and fuzzy boundaries between sub-markets make it difficult to draw strong conclusions



- Don't have data on job openings by occupation
  - Research on mismatch by occupation uses the Help Wanted Online Index (data derived from de-duplicated postings on online job boards), but some types of jobs more likely than others to be advertised online
- Hard to say what jobs people could fill based on their prior occupation
  - People commonly move along job pathways from one occupation to another or take stop-gap employment rather than remain unemployed
  - STEM occupations have high numbers of vacancies relative to the number of unemployed individuals, but we know that many of those who are educated in STEM fields do not work in STEM occupations (NSF 2014)

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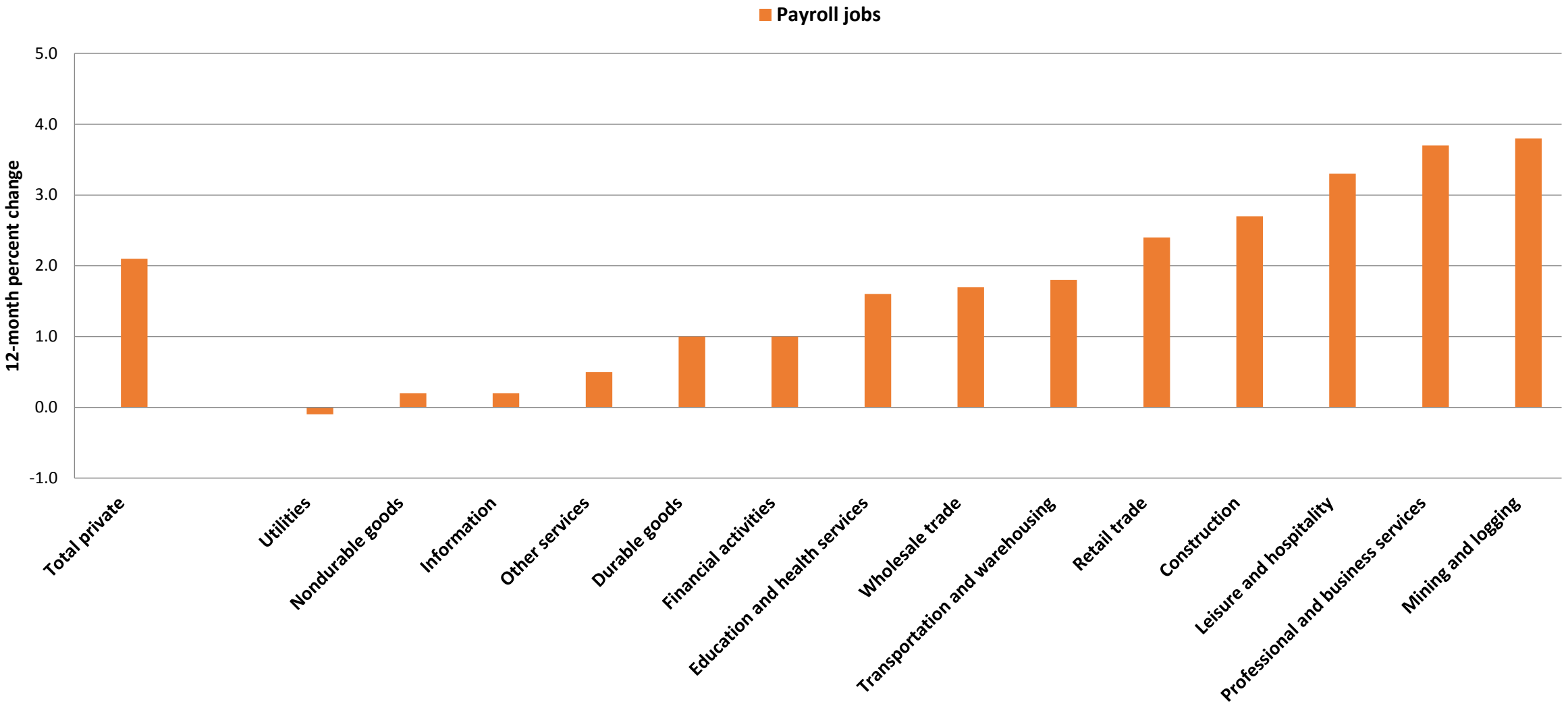
# Weak Relationship Between Hours Growth and Employment Growth

(Current Employment Statistics, 12 month percent change, December 2012-December 2013)





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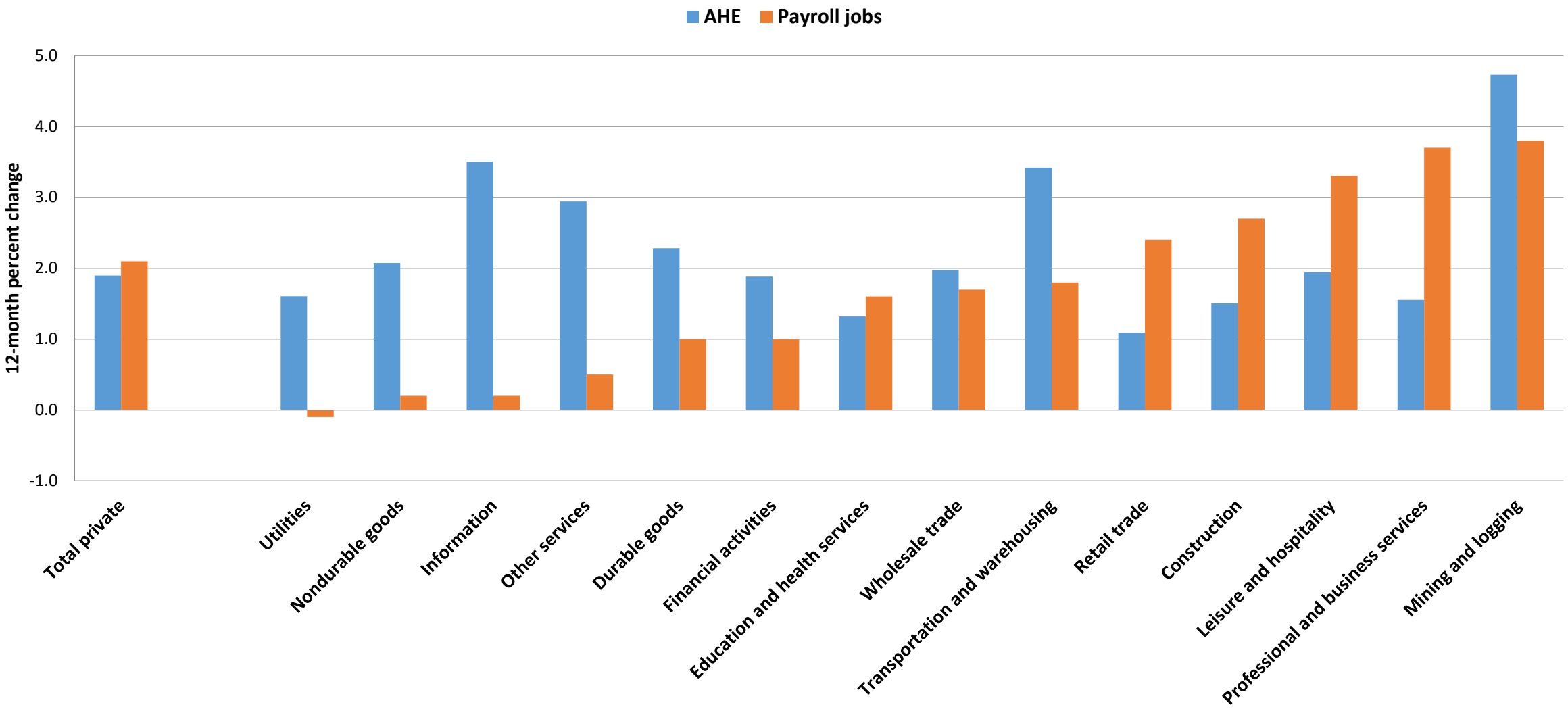

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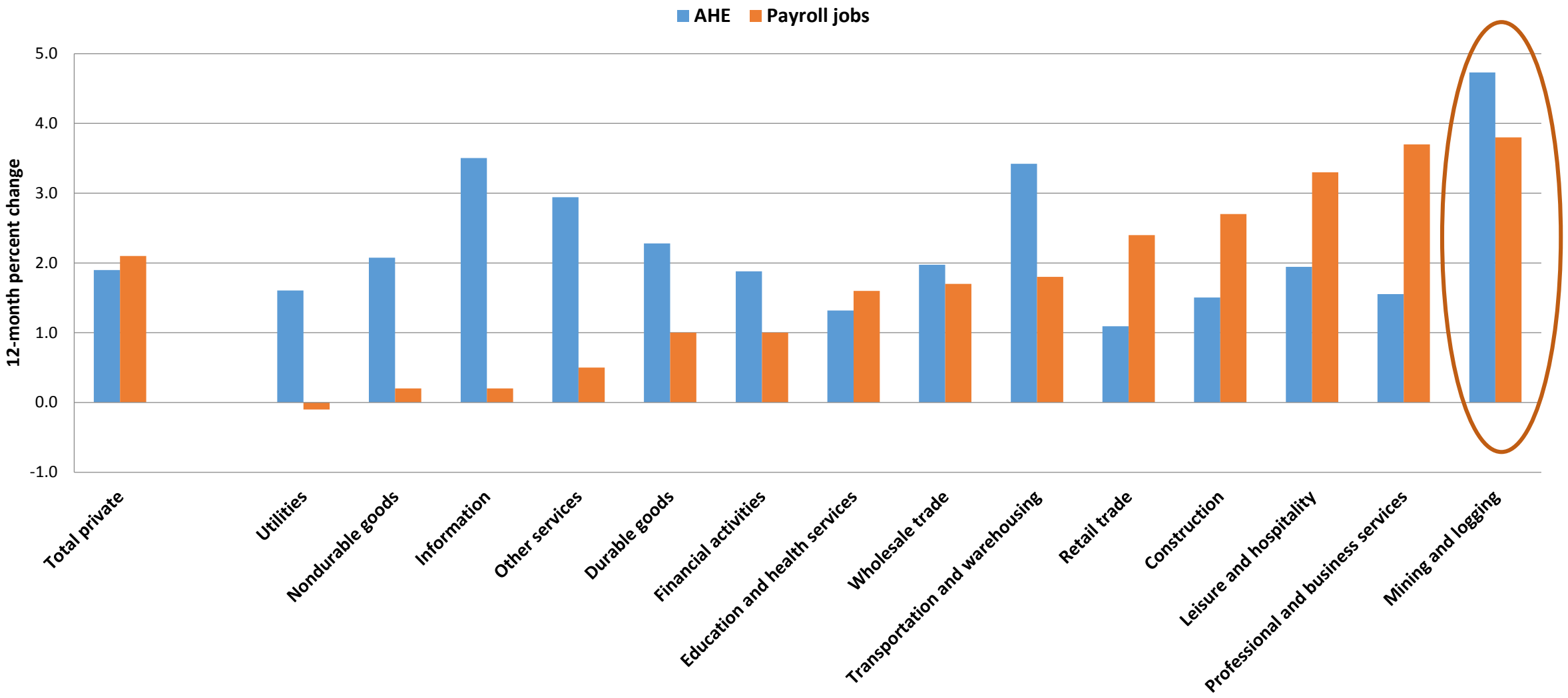

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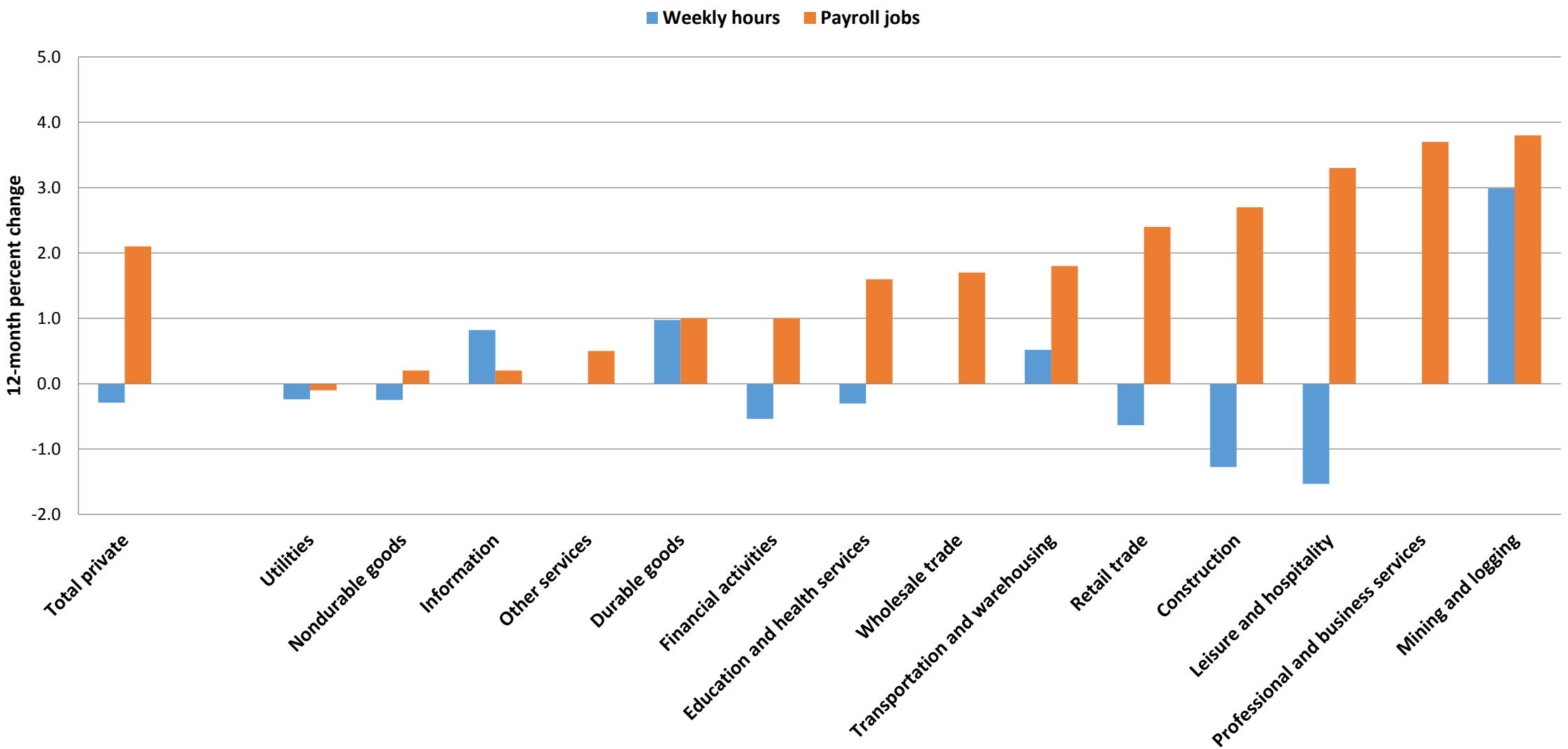

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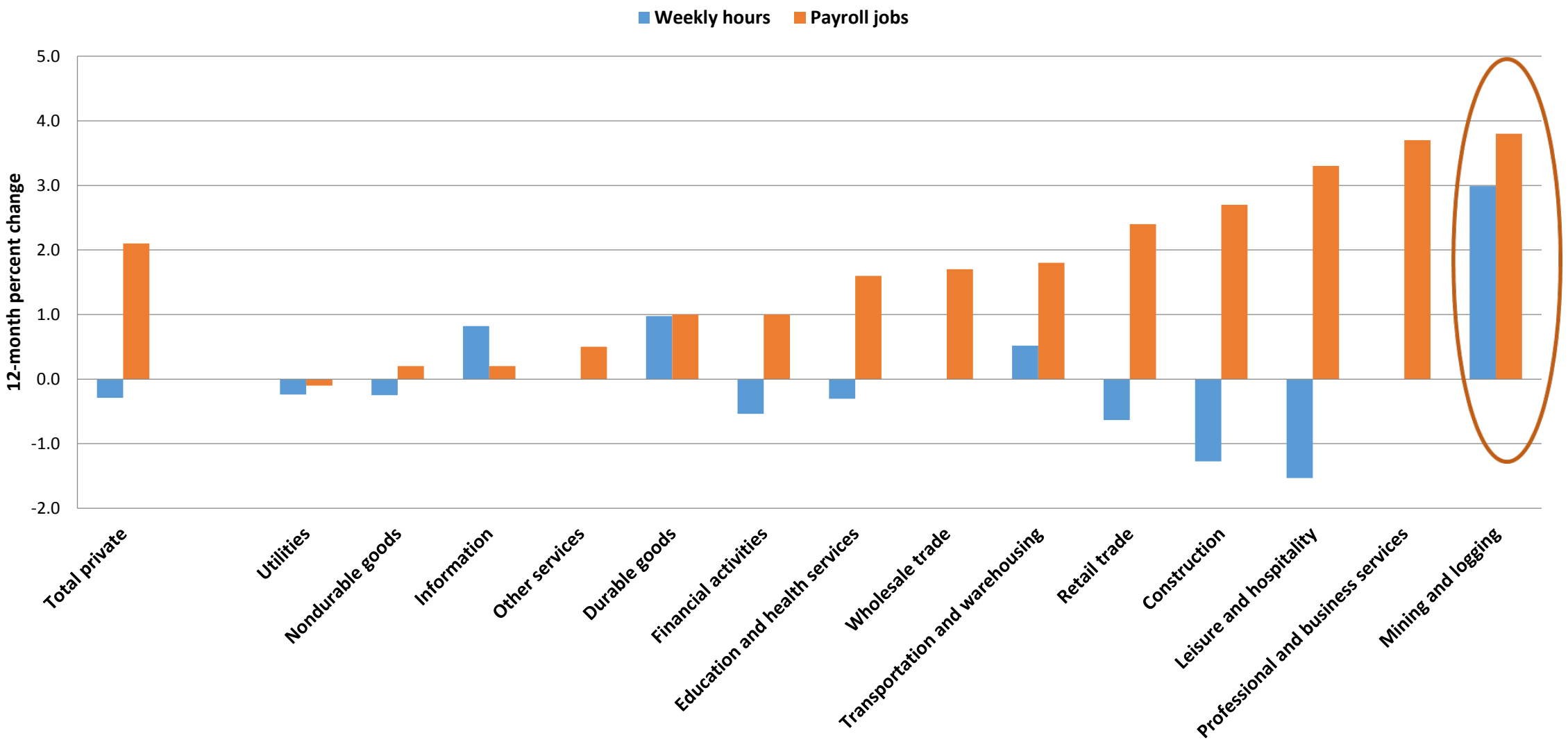

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# Employer recruiting behavior does not appear consistent with the presence of serious labor shortages



- Analysis of Davis, Faberman and Haltiwanger (2013) suggests that employers have been recruiting less intensively, not more intensively, in recent years
- Anecdotal evidence supports this conclusion
  - Among Glassdoor clients, increase in average reported interview times from 13 days in 2009 to 23 days in 2013 (Rampell 2014)
  - Increasing reliance on software that automatically screens out applicants whose resumes do not contain key words or who have gaps in their employment histories
  - Decreasing employer willingness to invest in internal training (Cappelli 2012)

# Why are the views of employers and politicians so at odds with what the evidence suggests?



- Data used to look for evidence of labor mismatch/labor shortages are crude and miss real problems
- Employers have unrealistic expectations about the types of workers they will be able to hire and the wages and working conditions they will have to offer
- Idea that there are labor shortages can be used to justify policies that reduce businesses' labor costs
  - Increased support for training to meet employers' specific needs
  - Increased admission of foreign workers possessing specialized skills
- Training to help workers fill available jobs has broad political appeal

# Certainly would not object to having better data!



- Better measures of educational attainment
  - Federal interagency working group looking at ways to expand measures of educational enrollment and attainment (especially non-standard credentials)
- More direct evidence about employer recruiting behavior
  - Could include more detailed information about vacancies and their duration, but also would like to know about how candidates identified, how wages for new hires set, and other aspects of the recruiting process
- More timely measures of employment and wages by occupation, industry and geography
  - Occupational Employment Statistics (OES) survey produces estimates each year, but reflect data collected over a three year period

# Extent of skill shortages matters for policy



- Monetary policy: Should the Federal Reserve tighten or maintain an accommodative policy?
- Training policy: How should government-supported training efforts be focused?
- Immigration policy: For what occupations should employers be permitted to hire foreign workers on H1B visas? How many such visas should be issued?

# Thank you!