

Accounting for Mismatch Unemployment

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and:

Occupational Mobility and Mismatch Unemployment

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CEDEFOP / IZA Workshop on 'Skills and Skill Mismatch'

Thessaloniki

29 October 2015

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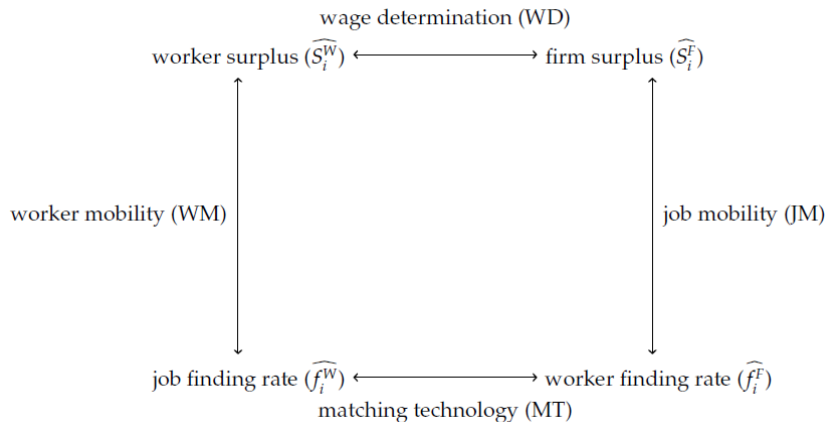
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Accounting for Mismatch Unemployment (in the US)

- 1 New method to estimate mismatch unemployment and its sources
 - Mismatch is due to *dispersion* in labor market conditions
 - Frictions prevent arbitrage, this is observable
- 2 Document cyclical properties of labor market mismatch
 - Mismatch increased in each recession since 1979, decreased in booms
 - If anything, there was less of a role for mismatch in the Great Recession
- 3 Document what underlying frictions cause mismatch
 - Worker mobility satisfies no-arbitrage, job mobility mostly too
 - Wages do not reflect shortages

Accounting Framework

Accounting framework



- Potential reasons for mismatch unemployment:
 - ① Workers look for jobs in the wrong places
(worker mobility frictions)
 - ② Firms look for workers in the wrong places
(job mobility frictions)
 - ③ Wages do not reflect skills shortages
(wage setting frictions)
- Our main finding:
 - Worker mobility frictions are *not* the reason for mismatch
 - Workers look for jobs in areas that are right *for them*

Details: worker mobility

- Value of searching for a job in segment i

$$z_i^W = b_i^W + f_i^W S_i^W$$

- Arbitrage through worker mobility

$$z_i^W = \bar{z}^W \Rightarrow f_i^W S_i^W = \bar{z}^W - b_i^W$$

- Unemployed workers move to more attractive segment
 - Decreases f_i^W , decreases S_i^W (wage)
- Worker mobility curve: attractive jobs are hard to find

$$\hat{f}_i^W + \hat{S}_i^W = \alpha_i^{WM}$$

- Deviations from WM curve \Rightarrow mismatch

- Differences in unemployment benefits: $\alpha_i^{WM} = -\frac{\bar{b}^W}{\bar{z}^W - \bar{b}^W} \hat{b}_i^W$
- Worker mobility frictions

Details: Accounting framework

1 Worker mobility

$$\hat{f}_i^W + \hat{S}_i^W = \alpha_i^{WM}$$

- Differences in unemployment benefits
- Worker mobility frictions

2 Job mobility

$$\hat{f}_i^F + \hat{S}_i^F = \alpha_i^{JM}$$

- Differences in vacancy maintenance costs
- Job mobility frictions (costs of opening/closing vacancies)

3 Wage determination

$$\hat{S}_i^W = \hat{S}_i^F + \alpha_i^{WD}$$

- Differences in workers' bargaining power
- Wage adjustment frictions

4 Matching technology

$$\hat{f}_i^F = -\mu\hat{\theta}_i = -\frac{\mu}{1-\mu}\hat{f}_i^W$$

Details: Accounting framework

① Worker mobility

$$\hat{f}_i^W + \hat{S}_i^W = \alpha_i^{WM}$$

② Job mobility

$$\hat{f}_i^F + \hat{S}_i^F = \alpha_i^{JM}$$

③ Wage determination

$$\hat{S}_i^W = \hat{S}_i^F + \alpha_i^{WD}$$

④ Matching technology

$$\hat{f}_i^F = -\mu\hat{\theta}_i = -\frac{\mu}{1-\mu}\hat{f}_i^W$$

⇓

$$\hat{f}_i^W = (1 - \mu) \left(\alpha_i^{WM} - \alpha_i^{JM} - \alpha_i^{WD} \right)$$

Data and Measurement

- **Finding rates** by state and by industry

- CPS \Rightarrow job finding probability f_i^W
- Assume homog. matching techn. \Rightarrow worker finding probability f_i^F

- **Wages** by state and by industry: CPS-ORG \Rightarrow worker surplus S_i^W

$$S_{it}^W = \frac{w_{it} - b_{it}^W}{r + \lambda_{it} + f_{it}^W}$$

- **Profits** by state and by industry: NIPA (NOS/e) \Rightarrow firm surplus S_i^F

$$S_{it}^F = \frac{\pi_{it} - b_{it}^F}{r + \lambda_{it} + f_{it}^F}$$

- Quarterly data 1979-2009 for f_i^W , f_i^F , S_i^W and S_i^F

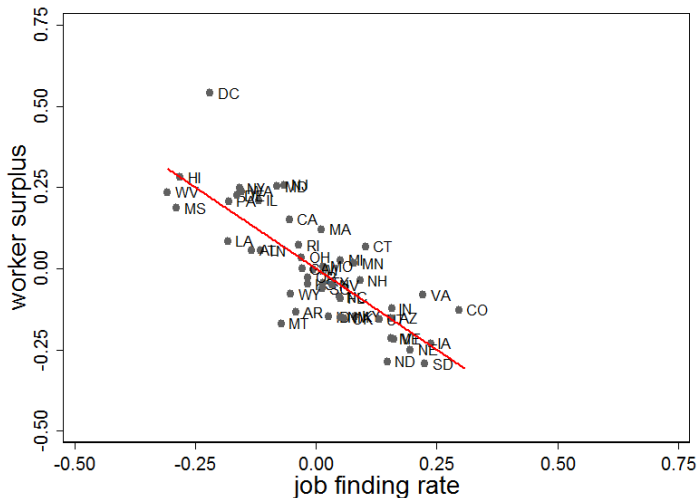
Controlling for heterogeneity

- Worker heterogeneity
 - 40 homogeneous groups of workers based on observables (2 gender \times 5 education \times 4 potential experience)
 - Calculate \hat{S}_i^W separately for 40 groups, then average
 - Same for \hat{S}_i^F , assuming $\log \pi_{it}^* = \log \pi_{it}^{\text{NIPA}} - \log w_{it}^{\text{CPS}} + \log w_{it}^{*\text{CPS}}$
- Unobservable heterogeneity (workers and jobs)
 - Job characteristics not observable
 - Assume constant over time \Rightarrow state/industry-specific FE
 - In this case, cannot interpret the *level* of mismatch unemployment

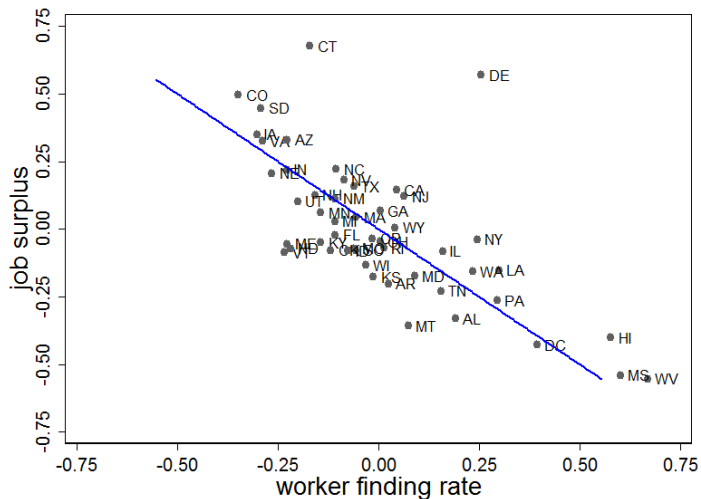
Results

- Potential reasons for mismatch unemployment:
 - 1 Workers look for jobs in the wrong places
(worker mobility frictions)
 - 2 Firms look for workers in the wrong places
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 - 3 Wages do not reflect skills shortages
(wage setting frictions)
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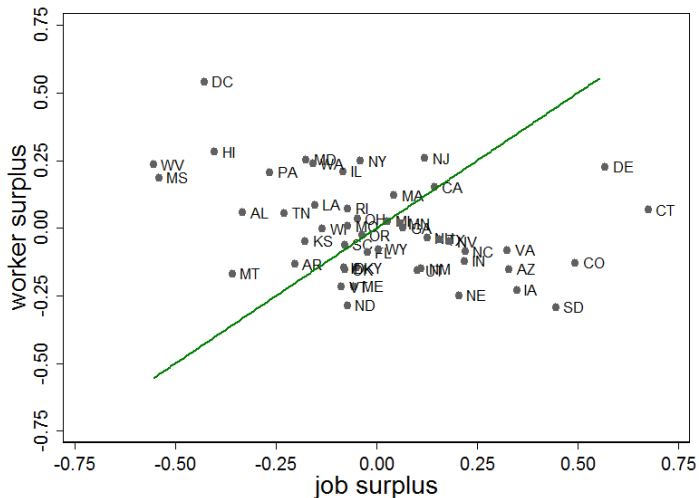
Worker mobility across US states



Job mobility across US states



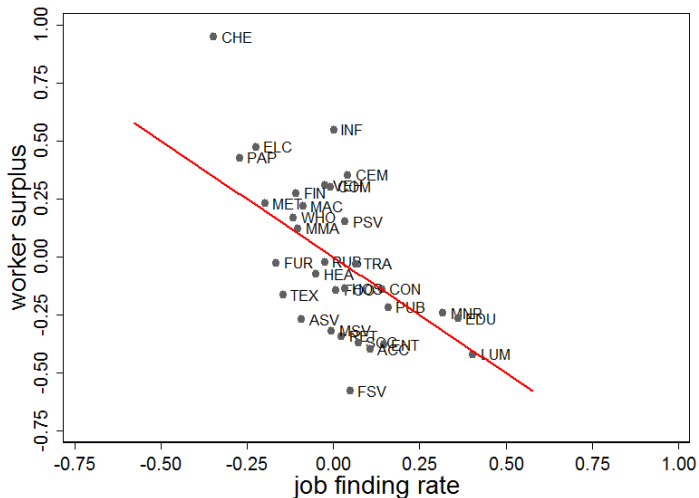
Wage setting across US states



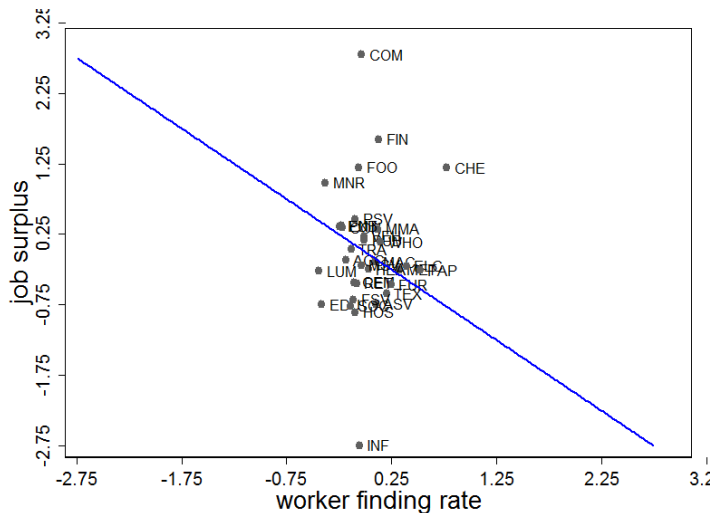
Mismatch across industries

- Level of disaggregation
 - 37 industries, SIC, 1979-2002
 - 35 industries, NAICS, 1997-2009
- Job finding rate by industries
Where do unemployed workers search?
 - Industry where they last held a job (BLS)
 - In industry where they find a job (robustness)
- Everything else same as for states

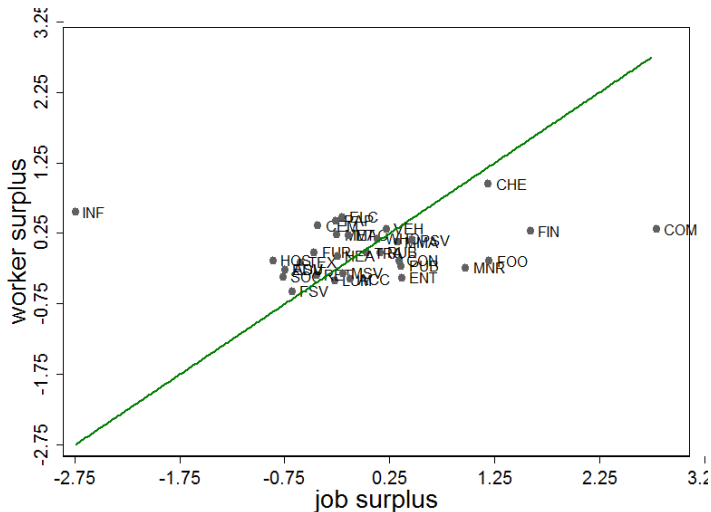
Worker mobility across US industries



Job mobility across US industries



Wage setting across US industries



Mismatch unemployment

Mismatch unemployment

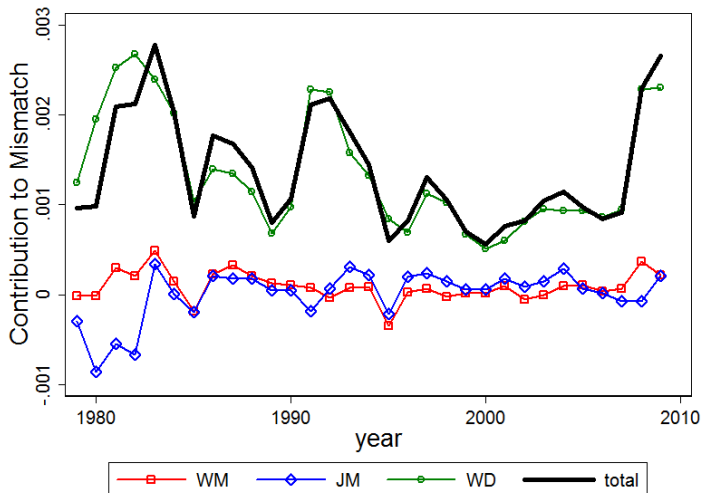
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Actual unemployment

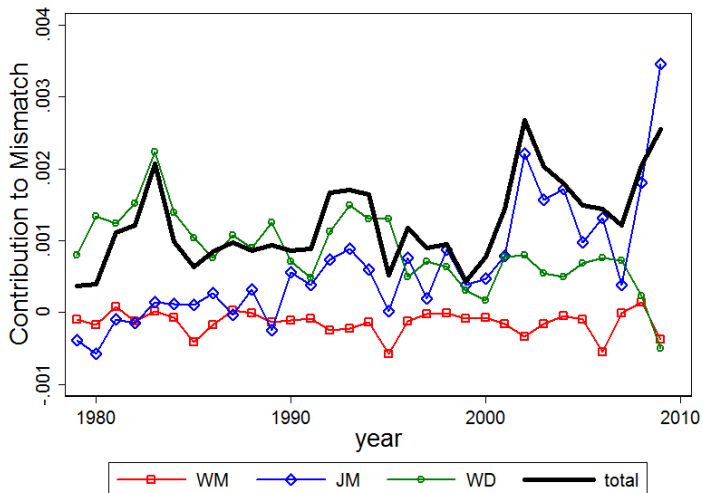
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Counterfactual unemployment if no mismatch
(no dispersion in job finding rates)

Unemployment due to mismatch across states



Unemployment due to mismatch across industries



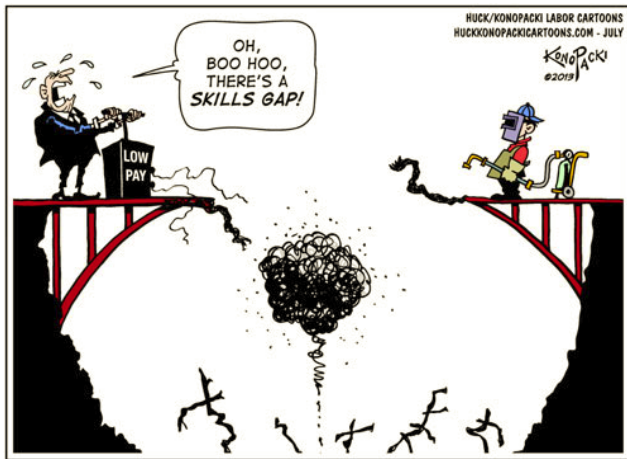
A spokesperson for Rolls Royce said:

“It is the responsibility of both Government and business to solve this skills gap ...

This means helping schools to provide high quality teaching in regards to STEM subjects as well as providing more accessible routes into STEM-based careers through apprenticeship and other programmes.”

The Telegraph, 23 July 2015, 'The skills gap: who should be taking responsibility?'

Not worker mobility frictions, but wage setting

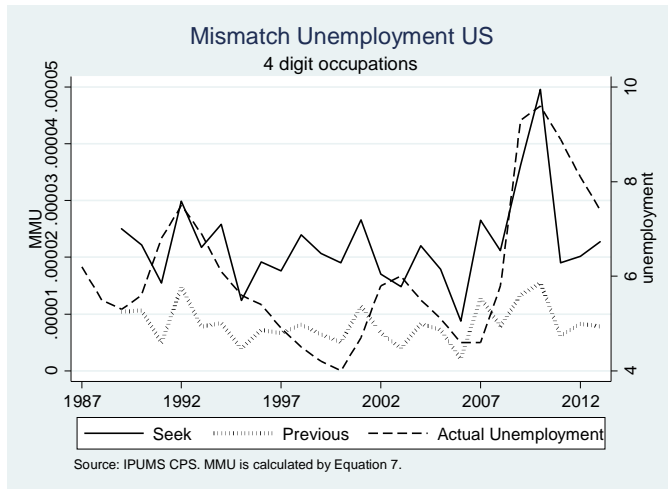


David Groves, www.thestand.org, 18 June 2013; New York Times, 15 June 2013, editorial;

Peter Cappelli, 'Why Good People Can't Get Jobs: The Skills Gap and What Companies Can Do About It', Wharton

What about mismatch across occupations?

What about mismatch across occupations?



Bilge Eriş Dereli and Thijs van Rens. 'Occupational Mobility and Mismatch Unemployment', work in progress

What about Europe?

Coming soon...

- What?
 - Unemployment due to mismatch across occupations
 - Role of worker mobility frictions
- Where?
 - In EU countries + Turkey
 - Between EU countries