Competitive Search: A Test for Direction and Efficiency

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What is done

Estimation of Moen's Competitive Search Model
Workers and employers search in segmented markets
High-productivity firms in markets that pay high wages
Workers know where these markets are (but not where the firms are)
High-wage markets have long queues
Allocation is efficient: surplus sharing rule determined by elasticity of the matching function

Wages and Unemployment Durations

Workers are identical

And they are indifferent across submarkets:

higher wages versus longer unemployment durations

Indifference implies a linear relationship between wages and (expected) durations:

$$w_i = a_0 + a_1 D_i$$

$$\begin{aligned} a_0 &= rU \\ a_1 &= (r+s)(rU - z) \\ D_i &= \frac{1}{p(\theta_i)} \end{aligned}$$

Evidence from Previous Literature

Displaced workers looking for new jobs

- longer durations associated with lower wages
- controls for unobserved heterogeneity
- (if the wage on the previous job is an accurate measure of productivity in the next job)

Labor Force Entrants (Eckstein and Wolpin)

- duration to first job negatively related to the accepted wage
  - (within education/race groups)

Estimation

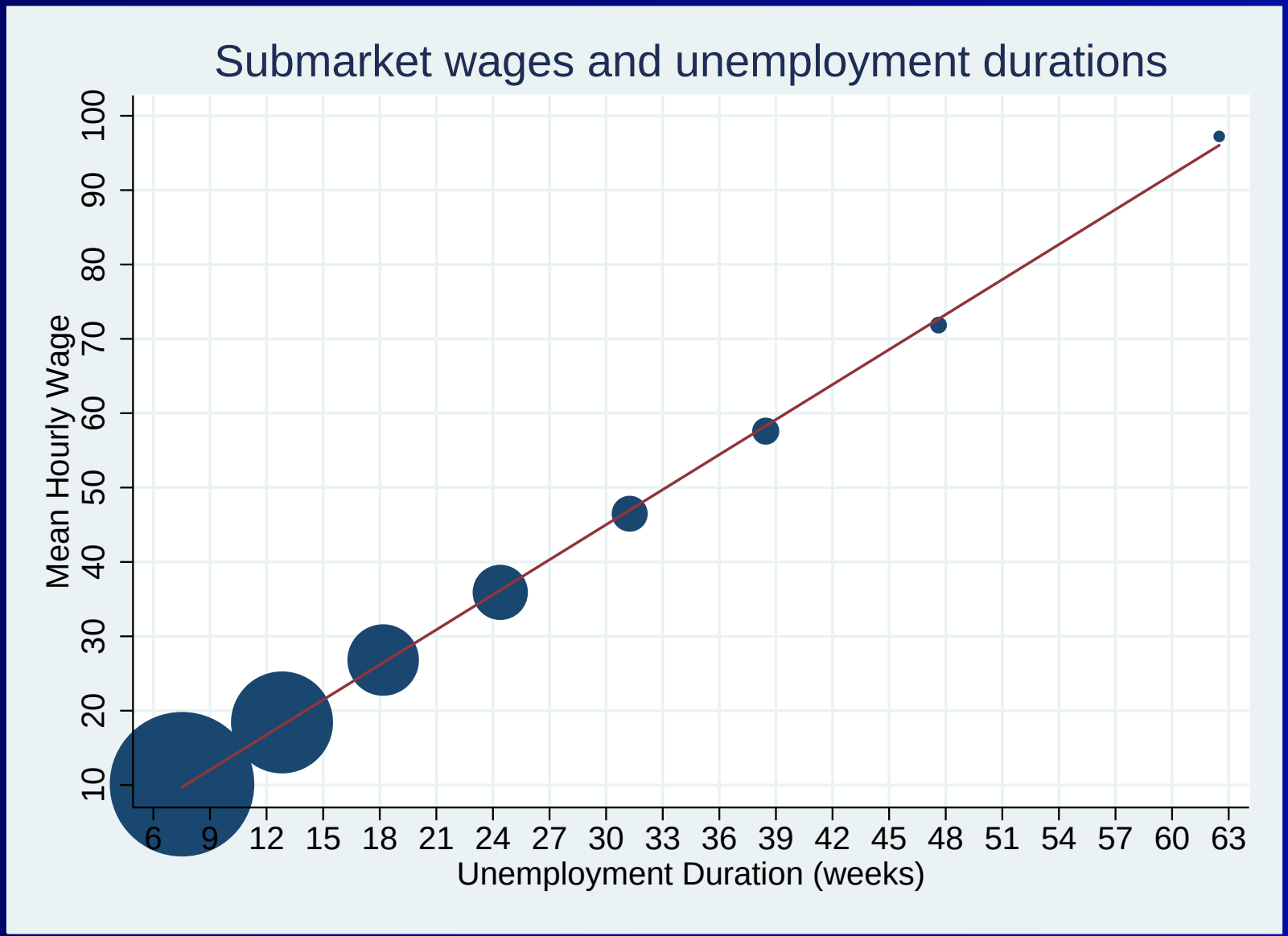
Measure wages and unemployment durations in CPS (March 2006)
Estimate a mixture of exponential durations, with 8 components

Wages are constant within submarkets, with normally distributed measurement error
Estimate a mixture of normal distributions, with 8 components
The variance of the measurement error is the same in each submarket

$$L_k = \sum_{i=1}^{n} \frac{p_i \lambda_i}{p_i + s} \left(\frac{1}{\sigma} \phi \left(\frac{W_k - \mu_i}{\sigma} \right) \right)^{E_k} \left(s \, \exp\left(-p_i D_k \right) \right)^{1 - E_k}$$

λ_i proportion of the labor force in submarket i (steady state)
E_k employment indicator
The distribution of incomplete durations in the stock of unemployed workers
is the same as the distribution of completed durations in the flow of job-finders

Submarkets


Submarket wages and unemployment durations
Mean Hourly Wage
10
20
30
40
50
60
70
80
90
100
6
9
12
15
18
21
24
27
30
33
36
39
42
45
48
51
54
57
60
63
Unemployment Duration (weeks)

Estimation of the Matching Function

Estimation of the Hosios Condition, $\beta = \eta$
Elasticity of the Matching function
Cobb-Douglas

$$\begin{aligned} M &= Au^{1-\eta}v^{\eta} \\ p &= A\left(\frac{v}{u}\right)^{\eta} \end{aligned}$$

Estimate the job-finding rate p from unemployment data
Count the number of vacancies in JOLTS and the number unemployed in CPS
Then

$$\eta = \frac{\log(p) - \log(A)}{\log(v) - \log(u)}$$

But A is not known, so this doesn't work
In the paper, $A = 1$ is just assumed

Comments

The model doesn't link unemployment durations and wage outcomes for individual workers

- This could be done with NLSY data
- It might also be possible with matched CPS data
  - Find workers who are employed in March, but unemployed in February

The model should be estimated separately for workers with different human capital levels

- For example, high school men aged 35-45

Allow for unobserved heterogeneity in productivity

- Wages measured in efficiency units
- Each worker has an unobserved number of efficiency units
- This might give a positive relationship between wages and unemployment durations
- But it isn't clear that this relationship can be identified