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:

\[ w_i = a_0 + a_1 D_i \]

\[ a_0 = rU \]
\[ a_1 = (r + s) (rU - z) \]
\[ D_i = \frac{1}{p(\theta_i)} \]
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

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

\[ \lambda_i \] 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

Unemployment Duration (weeks)

Mean Hourly Wage
Estimation of the Matching Function

Estimation of the Hosios Condition, $\beta = \eta$

Elasticity of the Matching function

Cobb-Douglas

\[ M = Au^{1-\eta}v^\eta \]
\[ p = A \left( \frac{v}{u} \right)^\eta \]

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
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