

ECON 4715 Seminar 2

The groups responsible for providing solutions should do so at the latest the day before the seminar at lunch (Monday around 12.00). Solutions can either be sent by email to simen.markussen@gmail.com or delivered in hand to the Frischcentre in Forskningsparken. Please send me an email if any of the problems are unclear.

Part 1: The matching model

Answers should be handed in by the group consisting of: Ingrid Anne Willumsen, Kamilla N. Tørlen, Stine Evensen Sørby and Simen Sørli

- 1) The matching function
 - a. What is the matching function?
 - b. Derive the matching function $M(V, \bar{e}D) = V \left\{ 1 - \exp \left[- \left(\frac{\bar{e}D}{V} \right) \right] \right\}$ "from micro"
 - c. Verify that the matching function $M(V, \bar{e}D) = V \left\{ 1 - \exp \left[- \left(\frac{\bar{e}D}{V} \right) \right] \right\}$ is increasing in V and D and that it is homogeneous of degree 1 with respect to its two arguments
- 2) The effect of a shift in productivity on matching equilibrium:
 - a. What is the effect on wages, labor market tightness and the unemployment rate from an increase in productivity? Discuss, explain using the equations and figures.
 - b. Assume that unemployment benefits are paid as a fraction of earnings such that $z = aw$. What is the effect of a productivity increase now?
 - c. Assume finally that both unemployment benefits and vacancy costs are indexed to wages, such that $z = aw$ and $h = sw$. What is the effect of a productivity increase now?

Part 2: Optimal unemployment benefits

Answers should be handed in by the group consisting of: Linda Midttømne, Susanne Nilssen, Merilin Kolk, Turi Loland, Jørn Jacobsen and Bjørn Gran.

- 3) Explain briefly why, and under which premises, unemployment benefits should decrease with the duration of the unemployment spell.
- 4) Discuss if, how and why (if so) this analysis would change if wages are subject to bargaining between employers and employees such that the amount of unemployment benefits affect employees' bargaining power.

Part 3: Empirical work

Answers should be handed in by the group consisting of: Mari Braaten Larssen, Endre Iversen, Astrid Stavseng and Nikka H. Vonen.

- 5) Lancaster (1979*) concluded that an elasticity of unemployment duration with respect to the benefit level in the order 0.6 "could now be regarded as established beyond reasonable doubt".

- a. Do Røed and Zhang (2003) support this claim?
 - b. How do they argue?
 - c. What do you think?
- 6) Røed and Zhang (2003) find that men and women respond differently to changes in the unemployment replacement rate and benefit exhaustion.
 - a. What do they find?
 - b. Why do you think men and women respond differently in this way?
- 7) The hazard function is derived from the equation $\varphi(t)dt = \frac{Pr\{t \leq T < t+dt\}}{Pr\{T \geq t\}}$. Let dt approach 1 and find the approximated (discrete) hazard function and Survival function in the following two data sets:
 - a. Unemployment durations. 5000 workers became unemployed. After 10 months all of them had returned to work. 200 workers found a job during the first month. 1000 workers returned to work during the second month. For the remaining months the number of exits from unemployment was:
 - i. 3 months: 1200 exits
 - ii. 4 months: 1000 exits
 - iii. 5 months: 600 exits
 - iv. 6 months: 250 exits
 - v. 7 months: 100 exits
 - vi. 8 months: 50 exits
 - vii. 9 months: 200 exits
 - viii. 10 months: 400 exits

Use e.g. Excel, draw the hazard function for the 10 months.
 - b. Imagine that the total number workers that became unemployed instead was 6000 workers and that the none of the additional 1000 workers (compared to above) did find a job during the 10 months period. Draw the hazard function for the same 10 month period now.

*See the reference list in Røed and Zhang (2003) for a complete reference.

Complete reference for Røed and Zhang (2003) is:

Røed, K., Zhang, T., 2003, Does Unemployment Compensation Affect Unemployment Duration?, *The Economic Journal*, Vol. 113, No. 484, p.190-206.

In google you will find this paper quite easily by searching for the title. E.g. the link to jstor is reachable from the university.