Take-home examination in Labor Economics, MA

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Beginning: Tuesday, 21.2. 2006 at 12.00
End: Monday, 27.2.2006 at 12.00

Consider the standard model of search. An infinitely lived workers meet employers according to a Poisson process with parameter λs, where λ represents market conditions and s is the search effort of the worker. The cost of search is $c(s)$, where $c(s)$ is convex and $c(0) = 0$. When the worker meets an employer, he receives a wage offer that is a random draw from a fixed distribution $F(w)$. There is an exogenous separation rate δ and unemployed workers receive a fixed benefits flow, b.

Part 1. Suppose that search on the job is possible and the costs of search $c(s)$ are the *same* if the worker is unemployed or works at *any* wage, w. Use the assumptions that, in a short interval h, the probability to meet employer is $\lambda sh + O(h)$ and the probability to be thrown back into unemployment is $\delta h + O(h)$ to formulate the Bellman equations and derive the asset equations that determine the value of being unemployed and the value of being employed at a wage w. (The function $O(h)$ is a second order residual such that $\frac{O(h}{h}$ approaches 0 as h approaches 0.)

Question 1. Use the asset equations to determine the reservation policy and the search intensity in each possible state.

Question 2 Describe the evolvement of search intensity, wages and quits as the worker ages.

Question 3. Define a stochastic stationary equilibrium and describe the impact of λ, δ and b on the steady state level of unemployment.

Part 2. Suppose that the worker searches *only* when unemployed at costs $c(s)$. Reformulate the Bellman equations and derive the asset equations that determine the value of being unemployed and the value of being employed at a wage w.

Question 1. Use the asset equations to determine the reservation wage R and the search intensity s when the worker is unemployed.

Question 2 By eliminating the asset values $W(w)$ and V, derive from the two asset equations and the first order condition for s two equations that jointly determine the optimal levels of s and R.

Question 3. Show that the reservation wage R must exceed b.

Question 4. Use the two simultaneous equations that determine s and R to show that both s and R rise if the distribution of wage offers $F(w)$ is subject to a mean preserving increase in spread.

Part 3.

Question 1. What are the main testable implications of the search model?

Question 2 Is it possible to separate search from investment as causes of individual wage growth?

Sources:

D. Mortensen (1986), "Job Search and Labor Market Analysis," O. Ashenfelter and R. Layard (eds.) *Handbook of Labor Economics* Volume 2.

D. Mortensen and C. Pissarides (1999), "New Developments in Models of Search in the Labor Markets," O. Ashenfelter D. Card (eds.) *Handbook of Labor Economics* Volume 2.

Y. Rubinstein and Y, Weiss (2005), "Post-Schooling Wage Growth: Investment, Search and Learning" Forthcoming in E. Hanushek and F. Welch (eds.) *Handbook of the Economics of Education.*