

ECON 815
Macroeconomic Theory
Winter Term 2012/13

Assignment 5

*Due: In class (DH 213) on **April 4th** 2013*

No late submissions will be accepted
No group submissions will be accepted
No electronic submissions will be accepted

*Remarks: Write clearly and concisely. Devote some time to give the graphs, plots and tables a format easy to understand. Also the way you present your answers matter for the final grade. Even if a question is mainly analytical, **briefly** explain what you are doing, stressing the economic meaning of the various steps. Being able to convey your thoughts effectively is an asset also in real life.*

1 A Search Model in Discrete Time

An unemployed worker searches for a job in a labor market with informational frictions. The wage offer distribution in the economy is described by the CDF $F(\hat{w}) = \Pr(w \leq \hat{w})$.

Every period the unemployed worker receives unemployed benefits equal to b . When searching, with probability α he draws an offer from the wage distribution, but with probability $(1 - \alpha)$ he receives no offer, so he remains unemployed.

When employed, he is paid the wage w he accepted, but with some probability λ he can be laid off and he becomes unemployed again.

1. Write the value functions for the unemployed and the employed worker.
2. Show graphically that the optimal policy for the unemployed is a reservation wage strategy.
3. Characterize the reservation wage equation for the agent.
4. Prove that an increase in α will increase the reservation wage. Explain the intuition for this result.

2 Another Search Model in Discrete Time

An unemployed worker searches for a job in a labor market with informational frictions. Every period the unemployed worker receives unemployment benefits equal to b .

Differently from the baseline model, an unemployed worker can now draw *two* independently and identically distributed wage offers from the CDF $F(\hat{w}) = \Pr(w \leq \hat{w})$. The worker will work forever at the same wage after having accepted an offer.

1. Write the value functions for the unemployed worker (U), and for the employed worker (W).
2. Show graphically that the optimal policy for the unemployed is a reservation wage strategy.
3. Characterize the reservation wage equation for the agent.
4. Prove that the worker's reservation wage is higher than it would be had the worker faced the same b and been drawing only one offer from the same CDF $F(\hat{w})$ each period.