

Department of Economics

Course name: Labour Economics and Wage-Setting Theory
Course code: EC7212
Examiner: Lars Calmfors
Number of credits: 7,5 credits
Date of exam: August 16, 2016
Examination time: 09:00 – 12:00

Write your identification number on each paper and cover sheet (the number stated in the upper right hand corner on your exam cover).

Use one cover sheet per question. Explain notions/concepts and symbols. If you think that a question is vaguely formulated, specify the conditions used for solving it. Only legible exams will be marked. **No aids are allowed.**

The exam consists of 4 questions. Each question is worth maximum 25 points; maximum 100 points in total. **Those who choose not to answer Question 4 can count the points achieved on the assignment instead. Those who choose to answer Question 4 can count the higher of the points achieved on the assignment and those achieved on the question.** When deciding what to do you should consider that spending time on Question 4 reduces the time that can be spent on the other questions and thus probably the number of points that can be achieved from them. For the grade E 45 points are required, for D 50 points, C 60 points, B 75 points and A 90 points.

Your results will be made available on your “My Studies” account (www.mitt.su.se) on September 6 at the latest.

Good luck!

Question 1 (maximum 25 points)

Assume that an individual worker has the utility function $U = R(1 + \beta e/q) - e^2$, where $U =$ utility, $R =$ income, $e =$ effort, $q =$ the average wage in the economy, and $\beta > 0$ is a parameter. If a worker is not working $e = 0$. $R = w$, where $w =$ the wage, if a worker is working, otherwise $R = s$. The distribution of s is given by the cumulative distribution function $G(s)$. Output is given by $f(e) = e$. The number of firms is given by a free-entry zero profit condition.

- Derive how the effort level is determined in a decentralised equilibrium when $\beta = 0$. What is the employment level? (Maximum 9 points)
- Derive how the effort level is determined in a decentralised equilibrium when $\beta > 0$. What is the employment level? (Maximum 9 points)
- Derive how effort is determined in a social optimum when $\beta > 0$. Is it higher or lower than in the decentralised equilibrium? Explain the intuition. (Maximum 7 points)

Question 2 (maximum 25 points)

- Explain why the matching function can be assumed to exhibit constant returns to scale in the number of vacancies and the number of unemployed (i.e. why it is homogeneous of degree one in vacancies and unemployed). (Maximum 7 points)
- Assume that the matching function has the characteristics described in (a). Show that the rate at which vacancies are filled (the probability that a vacancy is filled) depends negatively on labour market tightness (the ratio between vacancies and unemployed). Show also that the job finding rate (the probability that an unemployed finds a job) depends positively on labour market tightness. (Maximum 4 points)
- Assume that the labour force grows at a certain rate n and that there is an exogenous job separation rate q . Show how an equation defining the Beveridge curve can be derived. (Maximum 7 points)
- Assume that there is a constant labour force, no discounting of the future, a fixed cost h of an unfilled vacancy, that each employed worker produces y (in the market), and each unemployed worker z (home production). Derive an equation showing how the socially optimal level of labour market tightness is determined. (Maximum 7 points)

Question 3 (25 points)

Discuss through which mechanisms the degree of co-ordination of wage bargaining between employers and trade unions could influence wage setting and employment. Which relationship(s) between the degree of co-ordination and the wage level should one expect under different assumptions? Which mechanisms and relationships do you find most plausible?

Question 4 (maximum 25 points)

Only those who want to try to raise their grade relative to the assignment should answer this question.

Derive the optimum conditions for a worker's choice of leisure, market work and household work in the labour supply model with household production presented in the Cahuc-Zylberberg textbook.