

STOCKHOLM UNIVERSITY
Department of Economics

Course name: Labour Market Economics
Course code: EC2102
Examiners: Ann-Sofie Kolm and David Seim
Number of credits: 7,5 credits
Date of exam: Sunday, 15 February, 2015
Examination time: 3 hours

Write your identification number and the number of the question on every cover sheet. Do not write answers for more than one question in the same cover sheet. Explain notions/concepts and symbols. Only legible exams will be marked. No aids are allowed.

The exam consists of 6 questions. One can get 100 points in total. For the grade E 40 points are required, for D 50 points, C 60 points, B 75 points and A 90 points.

If you think that a question is vaguely formulated: specify the conditions used for solving it.

Results will be posted March 9 at the latest.

Good luck!

Q1. (20 points) Consider a profit maximizing firm producing a differentiated product by use of capital and labour. Although the firm can use both capital and labour as inputs, and it is fairly easy to substitute between these inputs, the firm relies heavily on capital when producing the output. There are a number of products on the market that are very similar, although not identical, to the product produced by the firm. Discuss which factors facing this firm is likely to make it's demand for labour 1) more sensitive to wage changes and 2) less sensitive to wage changes. Motivate your answer.

Q2. (10 points) Consider an active labour market program which is thought of as being inefficient, boring, and a complete waste of time by the unemployed participants. Discuss how such a program is likely to affect the wage setting process.

Q3. (20 points) Consider a case where the demand side on the labour market is represented by the following demand function: $N = \left(\frac{w}{\alpha}\right)^{\frac{1}{1-\alpha}}$, where w is the wage, N is the number of employed workers, and $\alpha < 1$ is a positive technology parameter. Assume that the supply side can be derived from a monopoly union model where the union objective function is given by: $\Lambda = N[w - B] + \bar{N}B$ where Λ is union utility, B is unemployment insurance, and \bar{N} is the number of union members. In accordance with the monopoly union model one can derive a short run wage setting curve (WS^{SR}) given by: $w = \frac{B}{\alpha}$, and a long run wage setting curve (WS^{LR}) given by: $N = k\left(1 - \frac{1-\alpha}{1-b}\right)$, where k is a positive constant, and b is the fixed replacement ratio in the unemployment insurance, i.e. $\frac{B}{w} = b$.

- Draw the short run wage setting curve (WS^{SR}) and the labour demand curve (LD) in a figure with employment (N) on the X-axes and the wage (w) on the Y-axes. (5)
- Draw the long run wage setting curve (WS^{LR}) and the labour demand curve (LD) in a figure with employment (N) on the X-axes and the wage (w) on the Y-axes. (5)
- Use the equations for labour demand and the short run wage setting curve and its corresponding figure to carefully explain how employment and the wage changes when B increases? (5)
- Use the equations for labour demand and the long run wage setting curve and its corresponding figure to carefully explain how employment and the wage changes when b increases? (5)

Q4. (20 points) Suppose you are choosing between two jobs: a risky and a safe. You value consumption and safety according to:

$$U = \sqrt{w} - 2x$$

where w is the wage and x denotes the riskiness. x can take two values: $x=1$ for the risky job and $x=0$ for the safe job. Suppose the wage at the safe job, w_0 , is 9.

- (i) Derive the wage at the risky job, w_1 , that makes you indifferent between the two jobs. What is the compensating differential? (5)
- (ii) Suppose a firm hires E^* workers. It can choose to offer a safe or risky work environment. Each worker produces a_0 units in the safe environment and $a_1 > a_0$ units in the risky. There is no other input than labor in production. Under what condition will the firm provide a risky environment? (7.5)
- (iii) Suppose $a_0=10$. Under what values of a_1 will the firm provide a risky environment? (7.5)

Q5. (20 points) Consider a researcher interested in the causal effect of class size in primary school on educational attainments. The research strategies he is contemplating are (i) regression-control; (ii) randomization; (iii) difference-in-differences and (iv) regression-discontinuity. Explain the workings of each method along with the identification assumptions that enable causal inference. Discuss advantages and problems with each method.

Q6. (10 points) Consider a twenty-year-old who is deciding whether to stay in Sweden or move to the US.

- (i) Use the human capital model and argue what factors should influence her decision. Show the conditions under which she should move. (5)
- (ii) Discuss the empirical facts about the correlation between the moving decision and regional-specific as well as individual-specific variables. (5)