

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: Saturday, January 14, 2017
Examination time: 3 hours

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 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 on your “My Studies” account (www.mitt.su.se) on February 6th at the latest.

Good luck!

Q1. (20 points) Use the basic static model of individual labour supply and discuss how labour supply on the intensive margin (hour decision) and the extensive margin (participation decision) is affected by an increase in the wage. Show how the budget line looks prior to the increase in the wage, as well as how it looks ex post. Also, define the reservation wage and show how you graphically can derive it.

Q2. (10 points) Sometimes efficiency wage models are used to explain the existence of involuntary unemployment in the labour market. Provide a short description of an efficiency wage model. Why does not the wage fall so to clear the market?

Q3. (20 points) Assume a profit maximizing firm with a production technology represented by a Cobb-Douglas production function $Y = N^\alpha$. Y is production, $\alpha < 1$ is a technology parameter, and N is the number of employed workers.

a) Derive the profit maximizing firm's demand for labour (LD).

Assume that the supply side can be derived from monopoly union model where the union objective function is given by: $\Lambda = N[w + S - B] + \bar{N}B$ where Λ is union utility, B is unemployment insurance, \bar{N} is the number of union members, N is the number of employed members, and S represents a benefit one only gets excess to when employed. S can for example be an Earned Income Tax Credit. In accordance with the monopoly union model one can derive the following wage setting curve (WS):

$$w = \frac{B - S}{\alpha}, \text{ where } S < B \text{ is assumed.}$$

b) Draw the wage setting curve (WS) and the labour demand curve (LD) in a figure with employment (N) on the X-axis and the wage (w) on the Y-axis.

c) Use the equations and the figure to explain how employment and the wage changes when S increases?

Q4. (10 points) Consider a worker who chooses between a risky job and a safe job. Let x denote riskiness of the job and $x=2$ if the job is risky and $x=0$ if it is safe.

Suppose utility is given by $U = u(w, x) = w - x^2$.

(i) What is the compensating wage differential?

(ii) Does the compensating wage differential differ depending on the wage in the safe job?

Q5. (20 points) Suppose you are choosing a career path with two options. Either you study before entering the labor market, or you enter the labor market directly. You only live in two periods. If you study, you incur tuition fees of \$10,000 in the first period, but earn \$100,000 in the second. If you enter the labor market directly, you earn \$10,000\$ in the first period and \$70,000 in the second.

(i) Let the interest rate between these periods be given by r . State the condition under which you will study. (5)

(ii) Derive the r -value that makes you monetarily indifferent between studying and entering the labor market directly. (5)

(iii) Using this model, give examples of policies that the government can use to boost higher education. (5)

(iv) Suppose you use data to regress earnings on years in school. Explain why it is difficult to interpret the coefficient on schooling causally? (5)

Q6. (20 points) In the course we discussed four empirical strategies for estimating causal effects: Regression-control; Randomized experiments; Difference-in-differences and Regression-discontinuity. Explain the workings of each method; provide the identification assumptions that enable causal inference. Discuss advantages and disadvantages with each method.