



**Stockholm  
University**

Department of Economics

**Course name:** Labour Market Economics  
**Course code:** EC2101  
**Type of exam:** Retake  
**Examiner:** Ann-Sofie Kolm and David Seim  
**Number of credits:** 7,5 credits  
**Date of exam:** Sunday, February 19, 2017  
**Examination time:** 3 hours

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

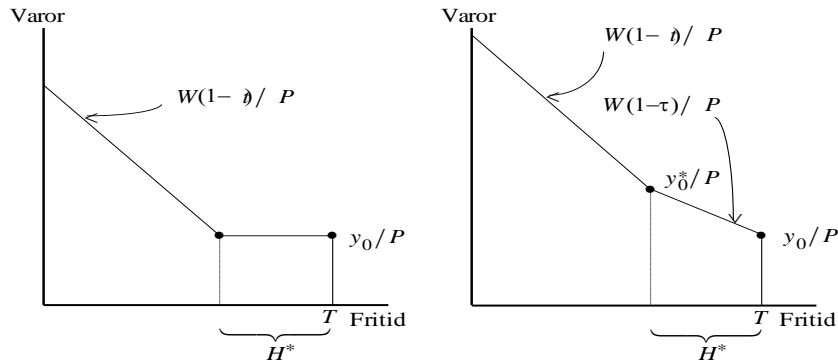
Explain notions/concepts and symbols. If you think that a question is vaguely formulated, specify the conditions used for solving it. Only legible exams will be marked. **No aids are allowed.**

-----  
The exam consists of 7 questions, 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.

-----  
Your results will be made available on your "My Studies" account ([www.mitt.su.se](http://www.mitt.su.se)) on 13 March, 2017, at the latest.

-----  
**Good luck!**

Q1. (20 points) Use the basic static model of individual labour supply and discuss the determination of labour supply in the presence of an income dependent transfer. Use the two graphs below and explain how the income dependent transfer is designed differently in the two graphs. Also, use the graphs to discuss the concept of the poverty trap. Moreover, use the graph of relevance to discuss a labour supply outcome with two equilibria for a worker participating in the labour market.



Note: *Varor* denotes the consumption good and *Fritid* denotes leisure.  $W$  is the wage rate,  $t$  is the proportional income tax rate,  $H$  is hours worked and  $P$  is the price on the consumption good. Nonlabour income is given by  $y_0$  and  $T$  is total hours available.  $\tau > t$  captures that for the amount of work hours that are equal or smaller than  $H^*$ , the individual gets a transfer which becomes smaller as income from work increases.

Q2. (10 points) Use Marshall's rules to discuss four factors which are likely to generate elastic labour demand curves in a particular industry?

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, the positive parameter  $\alpha < 1$  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  $\Lambda$  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 ( $WS$ ):  $w = \frac{B - S}{\alpha}$ , where  $S < B$  is assumed.

- b) Draw the wage setting curve ( $WS$ ) and the labour demand curve ( $LD$ ) in a figure with employment ( $N$ ) on the  $X$ -axes and the wage ( $w$ ) on the  $Y$ -axes.  
c) Use the equations and the figure to show and explain how employment and the wage changes when  $B$  increases?

Q4. (5 points) Suppose that you work for the traffic agency, and you are thinking of improving highway safety. The endeavor costs SEK  $X$  and it will save one more life. How should you decide whether to do it or not?

Q5. (5 points) Suppose that we offer an unemployed two jobs: one has a 1% higher risk of fatality than the other. Assume also that we have estimated the value of a statistical life at 30,000,000 SEK. How much higher wages do we need to pay the unemployed to convince her to take the risky job?

Q6. (20 points) Suppose that people with 15 years of schooling have average earnings of 350,000 SEK while those with 16 years of schooling earn 385,000 SEK on average.

- (i) What is the annual rate of return associated with the 16<sup>th</sup> year of education?
- (ii) Explain how such a calculation of the returns to schooling could be biased by unobserved ability? Would the actual return be higher or lower than your answer in (i)?

Q7. (20 points) During the period 1970-2000, the supply of college graduates in the labor market increased substantially, while the supply of high-school dropouts shrank. At the same time, the real wage of college graduates stayed stable, while the real wage of high-school dropouts fell. How can these wage patterns be explained?