



Stockholm
University

Department of Economics

Course name: Labour Market Economics
Course code: EC2102
Type of exam: Main
Examiner: Ines Helm and David Seim
Number of credits: 7,5 credits
Date of exam: Tuesday 30 May 2017
Examination time: 3 hours (16:00-19:00)

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 6 questions. The maximum score on the exam is 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) on 21 June at the latest.

Good luck!

Q.1) (20 points) Suppose a country wants to introduce an earned income tax credit (EITC) for single mothers with children. It plans to implement it in the following way:

- For earnings below 10,000\$ a tax credit of 25 percent can be claimed
 - For earnings between 10,000\$ and 15,000\$, the full tax credit can be kept
 - For earnings above 15,000\$ the tax credit is phased out at a 10 percent tax rate
- a) Show graphically how the budget constraint changes after the introduction of the earned income tax and explain your reasoning. Clearly mark all the important points in your graph.
- b) Using the basic static model of individual labour supply, what does the model predict will happen to
- i. labour force participation of single mothers with children
 - ii. single mothers with children that earn below 10,000\$ without the EITC
 - iii. single mothers with children that earn between 10,000\$ and 15,000\$ without the EITC
 - iv. single mothers with children that earn above 15,000\$ without the EITC
- after the introduction of the earned income tax. You do not have to answer this question using graphs, but shortly explain your answer in each case.
- c) How would you test empirically whether and how the introduction of the earned income tax credit affects labour force participation and hours worked? State the empirical model you would use and what information you would need to do the analysis.

Q.2) (20 points) Minimum Wages

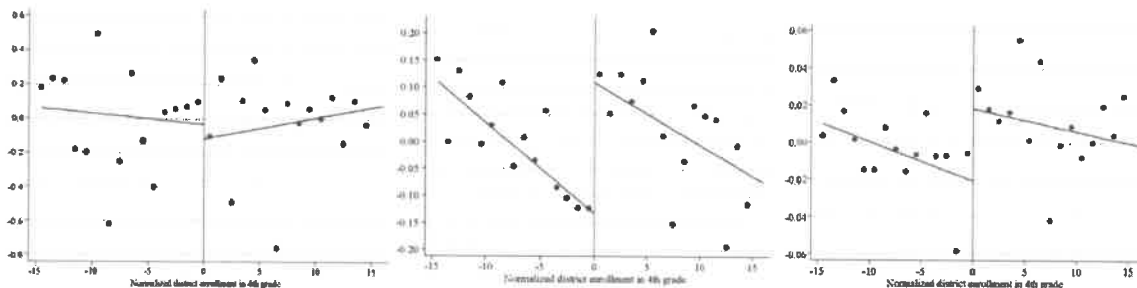
- a) Discuss both graphically and explain in your own words how minimum wages affect employment and wages in a model of competitive labour markets. Will there be unemployment in a labour market in which minimum wages affect employment? Why?
- b) Now, analyze the impact of minimum wages on wages and employment in a model of a non-discriminating monopsonist instead. Use the model to explain why a higher minimum wage under certain circumstances can increase employment. Also indicate in your graph how large the minimum wage would need to be not to lead to an increase in employment and explain why this is the case.
- c) Discuss how Card and Krueger (1994) in their seminal study titled "Minimum Wages and Employment: A case study of the Fast Food industry" have estimated the effect of minimum wages on employment. What did they exploit? What empirical strategy did they use? What effects did they find? How do these results fit to the two models you have analysed in a) and b)?

Q.3) (10 points) Use Marshall's rules of derived demand to discuss four factors which are likely to generate elastic labour demand curves in a particular industry.

Q4. (15 points)

This question is about the class size paper of Peter Fredriksson, Hessel Oosterbeek and Bjorn Ockert, published in 2014 in the *Quarterly Journal of Economics*: The Long-Term Effects of Class Size.

a) The researchers plot three graphs on the relationship between (normalized) school enrolment in 4th grade and cognitive ability, hourly wages (measured in logarithms) and parental education (measured in years). Indicate which graph (left, middle or right) that corresponds to cognitive ability, hourly wages and parental education. Explain why? [7.5]



b) Suppose that schools are more inclined to add extra teachers to larger classes. Plot a graph between (normalized) school enrolment in 4th grade and the likelihood that the class has an extra teacher. Would such responses amplify or reduce the class size estimates on wages and ability? [7.5]

Q5. (21 points)

- Suppose that Sweden extends the compulsory schooling system. Assume that all individuals have an identical wage-schooling locus. Show graphically and explain in words why the effect of increasing schooling by one year may differ depending on the **initial level** of mandatory years in school. [7]
- Suppose that northern Sweden implements such a reform. Explain how and under what assumptions you can uncover the causal effect of the reform using the Difference-in-difference research design. [7]
- Consider the table below from the paper on compulsory schooling reform of Costas Meghir and Mårten Palme, published in 2005 in the *American Economic Review*: Education Reform, Ability, and Family Background.

Explain how we should interpret the main effects in column (1). What do the differing coefficients across columns (2)-(5) reflect. [7]

TABLE 1—THE IMPACT OF THE REFORM ON EDUCATIONAL ATTAINMENT

	(1)	(2)	(3)	(4)	(5)
Father's education*	All	Low	Low	Low	High
Ability ^b	All	All	Low	High	All
<i>Men and women</i>					
Change in percent attending: ^c					
Comprehensive/junior secondary	8.54 (1.67)	10.31 (2.13)	17.50 (2.60)	1.97 (2.66)	2.15 (1.25)
More than comprehensive/junior secondary	2.61 (1.14)	3.26 (1.42)	1.29 (1.99)	7.35 (2.73)	-1.23 (1.44)
Change in years of education	0.298 (0.075)	0.405 (0.070)	0.467 (0.098)	0.355 (0.095)	-0.130 (0.124)
Years of education in non-reform areas	11.19 (0.032)	10.78 (0.033)	9.89 (0.036)	11.93 (0.055)	13.69 (0.085)
Sample size	19,316	15,989	8,633	7,356	3,327

Q6. (14 points) Consider a worker who lives forever and decides whether to stay in Sweden or move to the US. If she moves, she earns 300,000 SEK per year. If she stays she will earn 150,000 SEK per year.

- Denoting the interest rate by r and the costs associated with moving by M , derive the condition under which she will move to the US. [7]
- Suppose that moving costs are four times larger than the annual earnings in Sweden. Derive the condition on r that makes the worker indifferent between moving and not moving. [7]