Department of Economics

Course name:	**Policy Analysis in Labour Econ.**
Course code:	**EC7414**

Examiner:	**Peter Fredriksson**
Number of credits:	**7.5 credits**
Date of exam:	**Friday 28 October 2016**
Examination time:	**3 hours [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 20 points, 80 points in total. For the grade E 36 points are required, for D 40 points, C 48 points, B 60 points and A 72 points.

Your results will be made available on your "My Studies" account **(**www.mitt.su.se**)** on 21 November 2016 at the latest.

Good luck!

Question 1

Consider the following model of human capital accumulation. Child human capital (h_α) is produced according to the production function

$$h_\alpha = \alpha[\gamma I_1^\varphi + (1-\gamma)I_2^\varphi]^{\rho/\varphi}$$

where α denotes the talent of the child, I_1 parental investments in period 1, and I_2 parental investments in period 2. Parents maximize h_α subject to the constraint

$$Y = Y_1 + \frac{Y_2}{1+r} = I_1 + \frac{I_2}{1+r}$$

where Y_1 (Y_2) denotes parental income in period 1 (2) and r is the interest rate that parents face when saving and borrowing (Y thus denotes parents' life-time income).

a) Derive a condition for the optimal allocation of investments over time (i.e. a condition for I_1/I_2).

b) Interpret γ. How does I_1/I_2 depend on γ and r?

c) How does total investments ($I = I_1 + I_2/(1+r)$) depend on parental life-time income in the private equilibrium? Is this socially optimal? Why or why not?
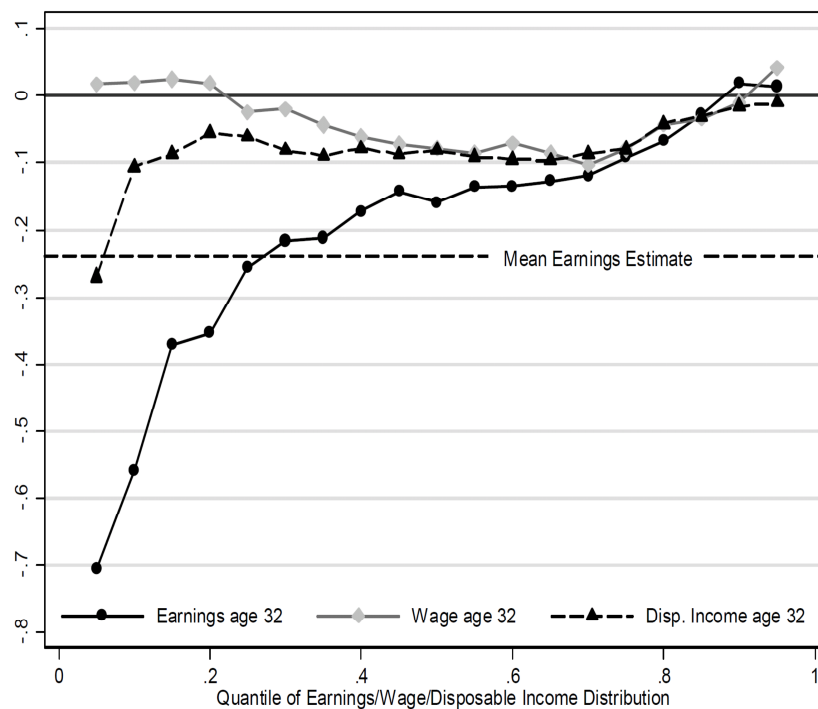
Question 2

a) Nilsson (2014) examines the long-run effects of a policy experiment in Sweden, which led to a large increase in the number of stores selling "Strong beer". Nilsson estimates the following equation with log earnings as the dependent variable:

$$Y_{r,t,m<21} = \alpha_0 + \beta_3 EXPOSURE_{3,r,t,m<21} + \theta_{r,t} + \theta_{r,m<21} + \theta_{t,m<21} + \varepsilon_{r,t,m<21}$$

What are $\theta_{r,t}$, $\theta_{r,m<21}$ and $\theta_{t,m<21}$, and why (provide examples) are they included in the regression specification?

b) Nilsson also estimates the corresponding Quantile regression version of the equation above for earnings, wages and disposable income. The estimated effects of the policy are presented in the figure below:

Provide a detailed account of the results shown in the figure, and the conclusions Nilsson draws from it.

Question 3

Since Saez (2010), the main approach to estimating the elasticity of taxable income with respect to the net-of-tax rate is based on a so-called bunching approach

a) Describe the main ideas of the bunching approach

b) Show how the number of individuals that bunch relates to the elasticity of taxable income

c) What is the main difficulty associated with the bunching approach? (i.e. What is the counterfactual object that you need to estimate?)

Question 4

Grönqvist (2012) estimates the following equation for sales of contraceptive pills:

$$Sales_{ct} = \beta Subsidy_{ct} + \mu_c + \mu_t + \rho(\mu_c \times t) + \varepsilon_{ct}$$

a) Interpret β. What's the identifying variation used by Grönqvist (2012)?

b) Grönqvist also runs a regression which explores the relationship between future subsidies and current sales. What is his motivation for estimating that model? Describe how a negative, zero, and positive estimate of a future subsidy on current sales should be interpreted and how these three scenarios (respectively) affect the interpretation of β in the equation above.

c) Assume that Grönqvist had access to price information of the pills for the relevant regions and cohorts, and then proceeded with an instrumental variable (IV) strategy using the subsidies as an instrument for pill prices. According to Grönqvist, would such an IV-estimate solely capture the impact of pill prices on e.g. teenage pregnancy? Why or why not?