Final Exam ECON4715 – Labour economics
Autumn 2017

This exam has 5 questions, with in total 18 sub-questions.
When answering the questions on the exam you should be brief and to the point!
Make sure to write clearly. Difficult to decipher answers will not be counted!

---

1. In this question you have to indicate whether you think the statement is true or false and explain why. You do not get any points if you only state whether the statement is true or false.

   (a) If a worker in a competitive firm obtains general training, the firm will always pay the cost of this training.

   (b) If all employers have perfect information there will be no employer discrimination.

   (c) A firm that pays efficiency wages will never pay a wage that is above the wages payed by other firms.

2. Consider an open competitive economy that produces a single aggregate good using the following production function that combines capital and labor:

$$Q(K, L) = K^{0.5} L^{0.5}$$

   The price of output Q is set at unity and the number of native workers in this economy is perfectly inelastic.

   (a) Derive the *short-run* effect on the wage rate from an increase in labour supply by 10% due to an influx of immigrants entering the labour market.

   (b) Derive the *long-run* effect on the wage rate from an increase in labour supply by 10% due to an influx of immigrants entering the labour market.

   (c) What are the *long-run* consequences of the increase in labour supply by 10% due to an influx of immigrants for total output of this economy?

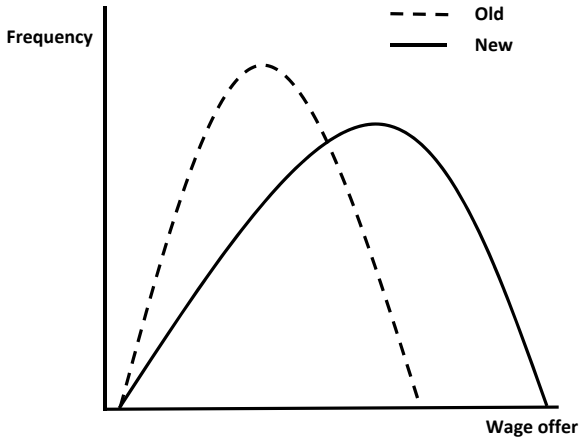
3. Consider an unemployed individual receiving unemployment benefits who applies sequential search.

   (a) Explain what will happen with the cost and expected benefits from additional search as well as with the asking wage of this individual if there is a reduction in unemployment benefits

   (b) Suppose this individual suddenly cares more about the future. Explain what will happen with the cost and expected benefits from additional search as well as with the asking wage of this individual.

   (c) Suppose the wage offer distribution of the individual changes. Figure 1 shows the old and the new wage offer distributions. Explain what will happen, at a given wage offer w_0, with the cost and expected benefits from additional search as well with as the asking wage of this individual.

Figure 1. Wage offer distributions



4. This question is about: Bhuller, M., M. Mogstad, and K. G. Salvanes (2017). Life Cycle Earnings, Education Premiums, and Internal Rates of Return. Journal of Labor Economics 35(4): 993-1030.

Table 1. Comparison of Returns to Schooling Estimates

	Full Sample, OLS Estimate (1)	IQ Sample, IQ Control Estimate (2)	IV Sample, IV Estimate (3)	Twins Sample, Twin FE Estimate (4)
A. Mincer Returns to Schooling				
Point Estimate	.062***	.047***	.022*	.048***
(standard error)	(.001)	(.001)	(.011)	(.001)
Number of observations	600,200	325,314	576,049	6,398
B. Internal Rate of Return to Schooling				
Point Estimate	.093***	.083***	.112**	.089***
(standard error)	(.002)	(.003)	(.048)	(.008)
Number of observations	601,290	325,417	577,098	6,434

(a) The Mincer earnings equation is specified as $log(Y) = \mu_0 + \mu_1 S + \mu_2 X + \mu_3 X^2 + \epsilon$, where Y is earnings, S is years of schooling, X is experience, and ϵ is an error term. Table 1, panel A, column (1), shows a point estimate of .062 for μ_1 from an OLS regression of the Mincer equation. Interpret this estimate and discuss whether this is a causal estimate of the effect of schooling on log earnings?

(b) Table 1, panel A, column (3), provides an estimate based on an instrumental variables (IV) approach. Compare the IV estimate to the OLS estimate.

(c) Consider an age-specific earnings equation $Y_t = \alpha_t + \beta_t S + \varepsilon_t$, where Y_t is annual earnings (in levels), β_t is the earnings premium to years of schooling S, and ε_t is an error term at age $t \in \{0, T\}$. The internal rate of return (IRR) to schooling is denoted ρ and defined implicitly by the equation $\sum_{t=0}^{T} \frac{\beta_t}{(1+\rho)^t} = 0$. Explain what the IRR is supposed to capture.

(d) Under stylized assumptions, the Mincer returns to schooling μ_1 will equal the internal rate of return ρ. Table 1 shows that the Mincer returns to schooling estimates in Panel A don't equal the IRR estimates in Panel B for the Norwegian data. Give two possible reasons that these two parameters may differ in practice.

5. This question is about: DiNardo, J. and D. S. Lee (2004). Economic Impacts of New Unionization on Private Sector Employers: 1984–2001. Quarterly Journal of Economics 119(4): 1383- 1441.

   (a) Explain why the phrase "impact of unionization on wages" is ambiguous and can refer to many different parameters of interest?

   (b) This paper uses a regression discontinuity (RD) design for identification, by comparing outcomes for employers where a union barely won a representation election with outcomes for employers where a union barely lost. Explain what type of unionization effect on wages this RD design will capture, and also the types of unionization wage effects which will not be identified by this design?

   (c) To assess the "threat" effects of unionization on wages, the following equation is estimated for the sample of firms where a union lost the representation election:

$$w_{it} = \alpha_i + \gamma_t + \sum_{k=-6}^{11} D_{it}^k \delta_k,$$

   where w_{it} is average wage in firm i in time period t, α_i is a time-invariant firm fixed effect, γ_t is a year-effect, and D_{it}^k is a dummy variable that takes the value 1 if the election took place in period $t-k$, and 0 otherwise. Explain what the "threat" effects of unionization are and explain how δ_k capture these effects.

   (d) Suppose a firm and a union are bargaining. Explain why a bargaining contract can lie off the demand curve in a wage-employment diagram.

   (e) Explain the difference between an efficient bargaining contract and a strongly efficient bargaining contract.