

# Final Exam ECON3715/4715 – Labour Economics

## Autumn 2021

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This exam has 5 questions, with 13 sub-questions. Each sub-question counts equally. 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!

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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) In a hedonic wage function, a negative coefficient on risk reflects that the average worker in the population dislikes risk.
  - (b) To measure the effect of migration on native workers it is a good strategy to compare neighboring labour markets with a high degree of labour mobility between the two markets but where migration increases abruptly in one market and not the other.
  - (c) An ICT technology lowers the costs of job search for unemployed workers, which can lead to higher unemployment.
  
2. This question is about collective bargaining with a focus on bargaining structure.
  - (a) The hypothesis of a hump-shaped relationship between real wages and bargaining structure is discussed in Calmfors, L. (1993). Centralization of Wage Bargaining and Macroeconomic Performance: A Survey. *OECD Economics Department Working Papers* No. 131. Explain the arguments for a hump-shaped relationship in a closed economy and in an open economy, respectively.
  - (b) The implications of bargaining structure for wage inequality are discussed in Moene, K. O. and M. Wallerstein (1997). Pay Inequality. *Journal of Labor Economics* 15(3): 403–430. Explain Figure 1 in this paper.

3. This question is about education and discrimination. The table below shows an artificial example of average earnings of men and women conditional on having completed higher education.

	Men		Women	
	Average income	Share (Pct)	Average income	Share (Pct)
No higher education	210.0	87	152.0	90
Has higher education	361.0	13	303.0	10
Total	229.6	100	167.1	100

- (a) Assume that we estimate a linear expected earning functions:  $E[w_i|HE, g] = \alpha_g + \beta_g HE$ , where  $HE$  is a dummy for higher education and  $g \in (M, W)$ , where  $M$  and  $W$  denote men and women respectively. Calculate  $\alpha_M, \alpha_W, \beta_M, \beta_W$ . What is the observed returns to education for men and women? Under what conditions can  $\beta_M$  and  $\beta_W$  be interpreted as causal effects?
- (b) What is the aggregate difference in earnings between men and women? What percentage of this difference is attributable to different levels of education? (hint: Use an Oaxaca-Blinder decomposition)
- (c) What do we learn about gender discrimination in this artificial labour market in light of the results of the previous question and economic theories of discrimination? What may be overlooked in such calculations?
4. This question is about Aggarwal, R. K. and A. A. Samwick. (1999). The Other Side of the Trade-off: The Impact of Risk on Executive Compensation. *Journal of Political Economy* 107(1): 65–105. The authors consider a principal-agent model where the principal can decide on linear contracts of the type  $w = \alpha_0 + \alpha_1 \pi$ , where  $w$  is the compensation to the agent. The performance of the company is  $\pi = x + \epsilon$  where  $x$  is the action of the agent.
- (a) What do  $\alpha_0$  and  $\alpha_1$  represent? How would you relate these parameters to real-life contracts? How would the principal set  $\alpha_1$  in a world where the action of the agent is perfectly observed?
- (b) Assume that the agent is risk-averse and have preferences  $U = -e^{-r(w-c(x))}$ , where  $r$  is a measure of risk aversion ( where  $r > 0$ ) and the cost function is  $c(x) = \frac{1}{2}kx^2$ . Assume no uncertainty and solve for the optimal effort of the agent under a linear contract. Explain the role of  $\alpha_0$  and  $r$  for the optimal effort of the individual?

- (c) The authors derive the following equation in the case where industry performance,  $\theta$ , is observed:

$$\alpha_1^* = \frac{1}{1 + rk\sigma_\epsilon^2(1 - \rho^2)},$$

where  $\rho$  is the correlation coefficient between  $\epsilon$  and  $\theta$  and  $\theta \sim N(0, \sigma_\theta^2)$ . Can the principal provide stronger incentives knowing  $\theta$  when the correlation coefficient is negative ( $\rho < 0$ )? Explain the intuition for your answer.

5. This question is about work flexibility. Let's consider that a new technology arrives which enables all workers to work remotely. Workers can freely choose whether to either work remotely or on-site, either in the same job as before or in a new job, but are in either case expected to maintain equal productivity.
- (a) Assume that firms hold local monopsony power as in the Salop model of competition, while workers have identical preferences. Discuss how remote work technology can impact equilibrium wages and monopsony power.
- (b) Consider now that all workers view remote work as a job amenity, but some workers prefer remote work (relative to on-site work) more than other workers. Firms can offer different wage contracts for remote and on-site work. Discuss the possible implications on equilibrium wage levels and dispersion.