Final Exam ECON3715/4715 – Labour Economics
Autumn 2021 (Postponed)

This exam has 4 questions, with 12 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!

---

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) When a profit-maximizing firm is allocating optimally, the marginal rate of technical substitution equals the ratio of input prices.

   (b) The standard human capital model assumes that the marginal productivity gain from additional schooling increases in the years of schooling completed.

   (c) Skill-biased technological change is likely to increase the skill wage differential.

2. This question is about education. Bedard, K. (2001). Human capital versus signaling models: university access and high school dropouts. Journal of Political Economy, 109(4): 749–775. The author presents a model with three education groups: high school dropouts, high school graduates and university graduates. Each individual is fully described by a single dimensional ability, θ. A share of $1-p$ is prohibited from entering university. Bedard states that a separating equilibrium must satisfy the following conditions, where θ_h and θ_u are cutoffs:

$$\begin{aligned} E(\theta|\theta < \theta_h) =& \phi(\theta) - C_h(\theta_h) \\ E(\theta|\theta > \theta_u) =& \phi(\theta) + C_u(\theta_u), \end{aligned}$$

   where $\phi(\theta) = \frac{[F(\theta_u)-F(\theta_h)]E(\theta|\theta_h \leq \theta < \theta_u)+(1-p)[1-F(\theta_u)]E[\theta|\theta \geq \theta_u]}{[F(\theta_u)-F(\theta_h)]+(1-p)[1-F(\theta_u)]}$ is the expected wage of high school graduates, $E(\theta|\theta < \theta_h)$ is the expected wage of high school dropouts and $E(\theta|\theta > \theta_u)$ is the expected wage of university graduates.

(a) Explain the concept of a separating equilibrium in the signaling model of Bedard and the meaning of θ_h and θ_u. Interpret the elements of $\phi(\theta)$.

(b) Assume that a reform is implemented which allows everybody to enter university should they want to. What will happen to the share that finishes high school?

(c) Assume again that the reform allows everybody to enter university. Additionally, assume that high school graduation is made compulsory (i.e. everybody gets at least a high school diploma). What will happen to the average wage of high-school graduates? Explain the mechanisms.

3. This question is about discrimination. Bartoš et. al. (2016). Attention discrimination: Theory and field experiments with monitoring information acquisition. American Economic Review, 106(6): 1437–1475.

(a) Assume that, due to information asymmetry, profit-maximizing employers discriminate workers on an observable characteristic. Can this kind of discrimination persist in a competitive market with free entry and exit?

(b) Assume that there are two groups of workers, A and B, where the average productivity of group B is higher than that of group A and the productivity distributions across groups are otherwise identical. Assume that the average applicant is acceptable for an employer. As in Bartoš et. al. (2016) assume that information acquisition about an applicant is equally costly for the employer independent of applicant type. Which applicant group is the employer most likely to screen? Explain the intuition.

(c) Assume that you had observational data on job applications, worker characteristics and employer hiring decisions. In order to measure discrimination, why may you still prefer to run experiments with artificial applicants?

4. This question is about collective bargaining with a focus on the role of bargaining structure.

(a) Explain Figure 1 in Moene, K. O. and M. Wallerstein (1997). Pay Inequality. *Journal of Labor Economics* 15(3): 403–430.

(b) The impacts of decentralization of bargaining in Denmark are analyzed in Dahl, C. M., D. Maire, and J. R. Munch (2013). Wage Dispersion and Decentralization of Wage Bargaining. *Journal of Labor Economics* 31(3): 501–533. Explain their identification strategy using equations (1)-(2) in this paper.

(c) Discuss the theoretical predictions of how bargaining structure affects wage levels and wage dispersion in Moene and Wallerstein (1997) in light of the evidence in Dahl, C. M., D. Maire, and J. R. Munch (2013).