Final Exam ECON3715/4715 – Labour Economics
Autumn 2022

This exam has 4 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) Suppose a worker's utility is a function of consumption and leisure, where leisure is a normal good. Then when wages increase, the worker will choose to enjoy more leisure.

   (b) A *perfectly discriminating monopsonist* will pay its more productive workers a higher wage.

   (c) We can recover the value of the average worker's life from a hedonic wage function, by examining the wage premium associated with taking a job that has an increased risk of death.

   (d) Under a collective bargaining arrangement where firms and unions coordinate to leave the demand curve, any bundle on the contract curve is *strongly efficient*.

   (e) If Country A has a lower Gini coefficient than Country B, then the bottom 50 percent of earners in country A receive a larger share of national income than the bottom 50 percent of earners in Country B.

2. This question is about Staiger D.O., J. Spetz, and C.S. Phibbs (2010). Is There Monopsony in the Labor market? Evidence from a Natural Experiment. *Journal of Labor Economics* 28(2): 211-236. In this paper, the authors consider a theoretical model of "competition around a circle," where the labor quantity that hospital i can hire depends on the wage it sets (w_i) and the wages set by neighboring hospitals

(w_{i-1} and w_{i+1}):

$$L_i = \alpha + \frac{1}{\tau}\left(w_i - \frac{w_{i-1} + w_{i+1}}{2}\right)$$

where α represents distance between hospitals and τ the travel cost per unit of distance for workers ($\alpha > 0, \tau > 0$). The marginal productivity of each nurse at a hospital is fixed at β, giving the "profit" function:

$$\pi(w_i) = L_i(\beta - w_i)$$

(a) In a symmetric equilibrium, where all hospitals set the same wage ($w_i = w_{i-1} = w_{i+1}$), it can be shown that the firm's profit maximization problem will yield the following expression for optimal wages w^*:

$$w^* = \beta - \tau\alpha$$

Suppose that local transportation investments make travel much easier, so that the cost of commuting to a more distant hospital (τ) falls. How does that affect w^*? Relate this to marginal productivity and hospitals' monopsony power.

(b) In Table 2 of the paper, shown below, the authors report coefficient estimates from a regression of private hospitals' log wages on VA hospital log wages, where VA hospital wages are determined by policy rather than market forces:

Table 2
Reduced-Form Estimates of the Impact of VA Wage Changes on the Wage Changes in Non-VA Hospitals, 1990–92

Independent Variable	(1)	(2)	(3)	(4)
Change in log wage of RNs at the nearest VA (1990–92)	.128	.178	.137	.190
	(.033)	(.043)	(.077)	(.106)
Change in log wage of RNs at the nearest VA (1990–92) × dummy if > 15 miles to VA		−.078	−.105	−.139
		(.040)	(.042)	(.082)
Change in log wage of RNs at the nearest VA (1990–92) × dummy if > 30 miles to VA		−.049	−.035	−.100
		(.037)	(.056)	(.098)
Dummy if > 15 miles to VA				.008
				(.012)
Dummy if > 30 miles to VA				.013
				(.014)
MSA dummies?	No	No	Yes	Yes
R^2	.029	.044	.274	.276
No. of observations	1,179	1,179	1,179	1,179

NOTE.—Standard errors are in parentheses, clustered at the Metropolitan Statistical Area (MSA) level. Sample includes all non-VA hospitals within 60 miles of a VA hospital. Based on data from the American Hospital Association's Annual Survey of Hospitals and the Nursing Personnel Survey, 1990 and 1992, augmented with wage and employment information for VA hospitals from VA administrative data. All wages refer to starting (lowest) wages of RNs. Dependent variable = ln(wage92) − ln(wage90).

Interpret Row 1, Column 1 of Table 2 (where we see a coefficient of 0.128). What coefficient might we expect to see if the labor market was perfectly competitive (in other words, if hospitals faced perfectly elastic labor supply curves)?

3. This question is about economic theories of discrimination. It relates to Bertrand and Mullainathan (2004). Are Emily and Greg more Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination. *The American Economic Review* 94(4) 991-1013. It also relates to Bartoš, Bauer, Chytilová, and Matejka (2016). Attention Discrimination: Theory and Field Experiments with Monitoring Information Acquisition. *The American Economic Review 106(6): 1437-1475.*

   (a) Distinguish the conceptual differences between taste-based discrimination and statistical discrimination.

   (b) In Bertrand and Mullainathan (2004), the authors studied discriminatory behavior by comparing response rates from online job postings for fake resumes that had white-sounding names versus fake resumes with black-sounding names. Describe an identification problem that this experiment resolves (in other words, a problem we would face when comparing response rates for black versus white job applicants in real, non-experimental data).

   (c) Bertrand and Mullainathan (2004) also shows that listing a college education in one's job application significantly increases the odds of receiving a call-back for white-sounding names, but not black-sounding names. Discuss how a model of attention discrimination (such as the one laid out by Bartoš et al, 2016), can explain this result.

4. This question is about unemployment insurance, search effort, and moral hazard. Suppose a worker earns wage w but faces risk of job loss p. The worker can exert effort S to search for other jobs, to reduce the duration of unemployment (if job loss occurs). He receives Unemployment Insurance benefits b when unemployed, but must pay a wage tax τ. The worker's preferences are such that his expected utility is:

$$E[U(Y-M)|S,b,\tau] = (1-p)U(Y+w-\tau) + pU(Y+(1-S)b+Sw) - \psi(S)$$

   Where U is concave such that the worker is *risk averse* ($U' > 0, U'' < 0$) and ψ is a convex cost function ($\psi' > 0$, $\psi'' > 0$). The Unemployment Insurance system is actuarially fair, so that b and τ are linked by the government's budget constraint:

$$(1-p)\tau = pb(1-S)$$

   (a) Suppose a social planner has full control over S, b, and τ and is acting to maximize the worker's expected utility subject to the government's budget constraint. Describe the social planner's optimal ("first best") choices of b and τ.

It may be helpful to take first order conditions with respect to b and/or τ. (Tip: it might also be convenient to write $c_e = Y + w - \tau$ and $c_u = Y + (1 - S)b + Sw$)

(b) Now suppose that the worker maximizes her expected utility by choosing S given some b and τ chosen by the social planner. How does the worker's chosen S differ from the social planner's "first best" choice of S? It may be helpful to compare the social planner's first order condition with respect to S to the worker's first order condition with respect to S.

(c) Gruber (1997) considers the "second best" allocation where a social planner optimally chooses b and τ, taking into account how these affect the worker's choice of search effort, S. He derives the following condition that should hold at the optimal b and τ:

$$\epsilon_{1-S^*,b} = U'(Y + (1 - S^*)b + S^*w) - U'(Y + w - \tau)$$

where S^* is the search effort level that the worker chooses for a given b and τ, and ϵ is the elasticity of *less* search effort $(1 - S^*)$ with respect to b. What does this expression imply about optimal UI benefits if search effort is *perfectly inelastic*? Relate this result to the social planner's incentive-insurance trade-off, when choosing generosity of Unemployment Insurance benefits.