

FINAL Exam: Economics 463, Labor Economics
Fall 2003 in R. Butler's class

YOUR NAME: _____

Section I (60 points) Questions 1-20 (3 points each)

Section II (20 points) Questions 21-24 (5 points each)

Section III (120 points) Questions 25-30 (20 points each)

Section I. Define or explain the following terms (3 points each)

1. Borjas model of specialization in home production--

2. substitution and income effects of a wage increase--

3. added worker effect--

4. Malthusian model of fertility--

5. labor demand elasticity--

6. nonpecuniary benefits--

7. perfectly discriminating monopsony--

8. scale effect--

9. cobweb model--

10. fixed money costs of work (effect on the budget)-

11. one of Hicks' Marshalls' rules of derived demand—

12. hierarchical discrimination--

13. hedonic equilibrium—

14. homothetic production function—

15. regression towards the mean--

16. efficiency wages—

17. principal-agent problem—

18. difference-in-difference estimator—

19. deadweight loss of a payroll tax--

20. general vs. specific human capital investments--

Section II. Part one: True, False, or Uncertain (sometimes true). You are graded on your explanation

21. "If workers value their unemployment compensation coverage at less than its full cost, and the firm nominally pays for all the unemployment insurance costs, employment and employee wages will fall when an unemployment insurance program is put into place."

22. "If workers underestimate risk on the job (assume that this is true), legislation like the Occupational Health and Safety Act that effectively limits risk on the job will always make workers better off."

23. “The introduction of a costly new high-speed mass transit system that is financed by high fares may simultaneously reduce the time costs and increase the monetary costs of commuting to work. This should lead to an unambiguous increase in the total number of hours worked by commuters.”

24. “The superstar phenomenon arises (that the most able get paid several fold more than the average) only in sports markets, where small differences in ability make huge differences in winning games.”

Section III. Bigger Questions

25. The compensating wage problem in the market for risky jobs. SUPPLY: Assume that the compensating variation for risk (Z , just as in class) varies across workers following a uniform distribution:

$$G(\Delta W) = \Delta W / \varphi \quad \text{where } \Delta W \leq \varphi$$

giving the fraction of workers choosing risky jobs (N_1) as a function of the compensating wage differential, ΔW . The compensating differential ΔW becomes a rent if it is larger than that required (namely Z) to induce them to work.

DEMAND: To keep the analysis simple, we also assume that the Benefit from allowing risk (B) is also uniformly distributed so that

$$3) F(\Delta W) = \Delta W / \alpha \quad \text{where } \Delta W \leq \alpha$$

is the number of firms for whom B is less than the compensating wage ΔW so that it is cheaper (in terms of lost output) to have a safe production environment than it is to pay the extra wages associated with risky work.

- a) Show that supply curves slope upward and demand curves slope downward (where the relative employment of risky to safe workers (N_1/N_0) is a function of the wage differential, ΔW).
- b) Find the (at least the implicit) equilibrium wage differential, ΔW .
- c) What happens to the relative number of risky workers and the compensating wage when risk aversion increases (i.e., φ increases)?

26. a. Describe what determines the benefits paid out under workers' compensation and unemployment insurance (describe the institutional framework—i.e., not supply and demand).

b. What are the moral hazard issues with respect to workers' compensation and unemployment insurance, and how do these systems address workers' moral hazard incentives?

27. Oaxaca Wage Decomposition

Suppose that we have the following wage equation for males:

$$\text{Wage}^M = \hat{\beta}_0^M + \hat{\beta}_1^M \text{Education}^M + \hat{\beta}_2^M \text{Professional}^M, \text{ and for females}$$

$$\text{Wage}^F = \hat{\beta}_0^F + \hat{\beta}_1^F \text{Education}^F + \hat{\beta}_2^F \text{Professional}^F$$

Suppose that we have the following coefficient estimates and sample means:

$$\text{Wage}^M = 600 \quad \hat{\beta}_0^M = 125$$

$$\hat{\beta}_1^M = 25 \quad \text{Education}^M = 15 \text{ (on average, males have 15 years of schooling)}$$

$$\hat{\beta}_2^M = 1000 \quad \text{Professional}^M = .10 \text{ (10 percent of male workers are professionals)}$$

$$\text{Wage}^F = 400 \quad \hat{\beta}_0^F = 115$$

$$\hat{\beta}_1^F = 20 \quad \text{Education}^F = 13$$

$$\hat{\beta}_2^F = 500 \quad \text{Professional}^F = .05$$

a. What is proportion of the wage difference due to discrimination (using the Oaxaca Decomposition)? (show all work for credit—no steps shown, no credit)

b. What are some of the potential problems with using this decomposition?

28. Suppose that we live in a signaling world, with two types of individuals. Blue types have inherent marginal products of 2, and red types have inherent marginal products of 1 (they are blue and red only on the “inside,” employers cannot tell them apart). The cost of acquiring "E" years of schooling is E for blues, and 3E for the reds. What is the equilibrium level of schooling sufficient to sort out the reds from the blues? How does each group fare relative to a world in which there was no signaling?

30. Fixed sample size rule for job search. Suppose that half of the firms in the market are known to offer a wage of \$5, and half a wage of \$7. However, which particular firms offer these wages are unknown, and can only be determined by search. The present discounted cost (on an hourly wage basis) for searching one firm is \$.30. Hence the discounted cost of searching two firms is \$.60 on an hourly wage equivalent basis; three firms, \$.90, etc. Given this wage distribution, what is the optimal number of firms to search (the number that maximizes the net revenue from search)? Show the answer quantitatively.