

Instructions: Answer each question showing your work. If it is an essay/thought question, then explain your answer in detail. Write your name on the first page only.

Problems _____

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Definitions _____

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Essays _____

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Total _____

1. Suppose two households earn \$40,000 and \$56,000 respectively. What is the expected percent difference in wages between the children and grandchildren of the two households if the intergenerational correlation of earnings is 0.2, 0.4, 0.6? **(6 pts)**

2. Suppose the firm's labor demand is $w = 20 - 0.1E$, where w is the wage and E is employment. The marginal utility of a wage increase is E , while the marginal utility of employment is $w - w^*$. Suppose the union's utility function is $U = (w - w^*)E$, where w^* is the competitive wage. Further, suppose $w^*=10$. What wage would a monopoly union demand? How many workers will be employed in the union contract? **(7 pts)**

3. Suppose a worker's skill is captured by his efficiency units of labor. The distribution of efficiency units in the population is such that worker 1 has one efficiency unit, worker 2 has two efficiency units and so on. There are 100 workers in the population. In deciding whether to migrate to the United States, these workers compare their weekly earnings at home (w_0) with their potential earnings in the United States (w_1). The wage-skills relationship in each of the two countries is given by:

$$w_0 = 700 + 0.5s \quad \text{and} \quad w_1 = 670 + s$$

where s is the number of efficiency units the worker possesses.

a. Assume there are no migration costs. What is the average number of efficiency units among immigrants? Is the immigration flow positively or negatively selected? **(4 pts)**

b. Suppose it costs \$10 to migrate to the US. What is the average number of efficiency units among immigrants? Is the immigrant flow positively or negatively selected? **(4 pts)**

c. What would happen to the selection that takes place if migration costs are not constant in the population but are much higher for more skilled workers? **(3 points)**

4. Suppose 100 men and 100 women graduate from high school. After high school, each can work in a low-skill job and earn \$200,000 over his or her lifetime, or each can pay \$50,000 and go to college. College graduates are given a test. If someone passes the test, he/she is hired for a high-skill job paying lifetime earnings of \$300,000, and the low-skill wage if he/she fails. A person's high school GPA is an indicator of how well he/she will perform on the test. Say the GPA, call it x , is an ability score ranging from 0.01 to 1.00. With probability x , the person will pass the exam if he/she attends college. Each group's GPA (men and women) is evenly distributed.

a. Which men and which women will attend college? What is expected pass rate for women and for men taking the test? **(6 pts)**

b. Suppose policymakers feel not enough women are attending college, so they reduce the cost of college for women to \$10,000. Which women will now attend college? What is the expected pass rate for women taking the test? **(3 pts)**

5. All workers start working for a particular firm when they are 20 years old. The value of each worker's marginal product is \$18 per hour. In order to prevent shirking on the job, a delayed-compensation scheme is imposed. In particular, the wage level at every level of seniority is determined by: $w = 10 + (0.4 * T)$ where $T = \#$ years in firm. Suppose also that the discount rate is zero for all workers. What will be the mandatory retirement age under the compensation scheme? **(12 pts)**.

6a. A country is debating whether to fund a national database of job openings and give all unemployed workers free access to it. What effect would this plan have on the long-run unemployment rate? What effect would this plan have on the average duration of unemployment? Why? **(5 pts)**

6b. A country is debating whether to impose a \$10,000 tax on employers for every worker they lay off. What effect would this plan have on the long-run unemployment rate? What effect would this plan have on the average duration of unemployment? **(5 pts)**

7. What types of labor market rigidities lead to greater unemployment, which ones do not? Can labor market rigidities explain the difference in unemployment rates between Europe and the United States? **(10 pts)**

8. What is insider-outsider theory? What useful predictions does it make? (10 pts)

9. Characterize job displacement in the US (who gets displaced, with what probability). How does job displacement affect wages? Why? **(10 pts)**

10. What is occupational licensing? How does it affect labor and product markets? **(10 pts)**