

Do **THREE** questions. Time allowed: 75 minutes

**IMPORTANT:** *Explain* your answers carefully. A good diagram is usually more effective than a lot of words (but you must explain what the diagram means). You get no credit for unsupported assertions or guesses. Write as if you are trying to convince an intelligent person who does not already know the answers. If your answers would not convince such a person, it will be assumed that you do not really understand the material.

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1. Suppose that a firm has a monopoly on pizza sales in a small town. The demand curve for pizza is

$$P = 20 - .1 Q ,$$

where  $Q$  is the number of pizzas per day, and  $P$  is the price of a pizza, in dollars. There are 10 workers, who are represented by a union. Each worker produces two pizzas per hour, and works no more than 8 hours per day. The union sets a wage and the pizza company hires the profit-maximizing number of workers.

- a. If the union chooses a wage so as to maximize the total income of its members, what wage will be set, and how many workers will be unemployed?
  - b. Now suppose that unemployed workers can collect unemployment insurance benefits of \$64 per day. How does this affect the union wage?
2. According to Card and Krueger, “increases in the minimum wage have had, if anything, a small, positive effect on employment, rather than an adverse effect.” Explain briefly how they reached this conclusion, and discuss the extent to which their work refutes the theory of demand for labor.
3. Pick **TWO** of the following assertions. Say whether they are true, false or uncertain, and explain why. [Remember two things: (i) most true-false questions are false; (ii) I know this]
- a. “The reduction in the workweek during the period 1900-1940 is often explained as a response to increasing real wages. This explanation must be wrong, because real wages have increased a great deal since 1940, and the workweek has hardly changed at all”
  - b. “Employers commonly offer an overtime premium to induce workers to supply more labor. This proves that the labor supply curve is not backward-bending.”
  - c. “If all prices and wage rates increase by 10%, the supply of labor will not change. Thus inflation does not affect labor supply.”
4. Consider an economy in which there are two kinds of jobs, hunting and fishing. Suppose the marginal product of hunters is given by the equation  $h = 200 - H$ , where  $H$  is the total number of hunters in the economy, and  $h$  is their marginal product, measured in pounds of food. The marginal product in fishing is given by the equation  $f = 200 - F$ , where  $F$  is the number of people fishing, and  $f$  is their marginal product, also measured in pounds of food.
- There are 210 workers in the economy, all equally productive in both fishing and hunting. All workers prefer fishing to hunting, but preferences differ across individuals: the distribution of equalizing differences ranges evenly from 0 to 21. For example, if the fishing wage is 2 pounds less than the hunting wage, 20 people (2/21 of the total) would choose hunting.
- If the economy is competitively organized, how many people will be hunters? What will the wage differential be, in equilibrium?

Don't draw tiny pictures – the paper is free.

Give concrete answers – try some numbers and compare. This is better than reciting formulas.

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A: above 22

F: below 8

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- a. If the union chooses a wage so as to maximize the total income of its members, what wage will be set, and how many workers will be unemployed?
- b. Now suppose that unemployed workers can collect unemployment insurance benefits of \$64 per day. How does this affect the union wage?

There is no presumption that the union tries to get everyone hired. In fact what the union tries to do is get the highest total income. That is not the same thing, because in order to have more workers hired, the wage must be reduced.

2. According to Card and Krueger, “increases in the minimum wage have had, if anything, a small, positive effect on employment, rather than an adverse effect.” Explain briefly how they reached this conclusion, and discuss the extent to which their work refutes the theory of demand for labor.

Some people gave answers that made no reference to what Card and Krueger actually did.

3. Pick **TWO** of the following assertions. Say whether they are true, false or uncertain, and explain why. [Remember two things: (i) most true-false questions are false; (ii) I know this]

- a. “The reduction in the workweek during the period 1900-1940 is often explained as a response to increasing real wages. This explanation must be wrong, because real wages have increased a great deal since 1940, and the workweek has hardly changed at all”

False. The income effect gets weaker as the workweek gets shorter.

- b. “Employers commonly offer an overtime premium to induce workers to supply more labor. This proves that the labor supply curve is not backward-bending.”

False. The income effect of an overtime premium is negligible.

- c. “If all prices and wage rates increase by 10%, the supply of labor will not change. Thus inflation does not affect labor supply.”

True.

4. Consider an economy in which there are two kinds of jobs, hunting and fishing. Suppose the marginal product of hunters is given by the equation  $h = 200 - H$ , where  $H$  is the total number of hunters in the economy, and  $h$  is their marginal product, measured in pounds of food. The marginal product in fishing is given by the equation  $f = 200 - F$ , where  $F$  is the number of people fishing, and  $f$  is their marginal product, also measured in pounds of food.

There are 210 workers in the economy, all equally productive in both fishing and hunting. All workers prefer fishing to hunting, but preferences differ across individuals: the distribution of equalizing differences ranges evenly from 0 to 21. For example, if the fishing wage is 2 pounds less than the hunting wage, 20 people (2/21 of the total) would choose hunting.

If the economy is competitively organized, how many people will be hunters? What will the

wage differential be, in equilibrium?

