

Economics 4650 - John L. Turner

Homework 1. Assume throughout that all people have preferences that display no wealth effects.

1. Page 53, Milgrom and Roberts, mathematical exercises 1 and 2.
2. Robinson and Friday are the only two occupants of a remote island paradise. The only two tasks that must be performed are the catching of fish (F) and clothes-making (C). It takes Friday one hour to catch one fish and two hours to make an article of clothing, while it takes Robinson three hours to catch one fish and three hours to make an article of clothing. Each has 12 hours of labor during the day. Suppose each needs to eat two fish each day to survive but otherwise wishes to have as many articles of clothing as possible.
 - a. If Robinson and Friday are unaware of each other's presence, i.e. each must provide for himself. Describe each person's efficient production plan.
 - b. Now suppose that they meet and learn of their productivities at catching fish and making clothes. Describe the efficient production plan under these circumstances. Given this production, describe the set of possible allocations of clothing for each person and identify which of these allocations Pareto dominate that of part (a).
3. On Farmer Jones' farm, only honey is produced. There are two ways to make it: with and without bees. One bucket of artificial honey, indistinguishable from the real thing, is made with one gallon of maple syrup and 2 hours worth of labor. One bucket of "old-fashioned" honey requires 3 units of labor and 500 bees. Either way, Farmer Jones has the capacity to produce 10 buckets of honey, each of which can be sold for \$70.

The neighboring farm, belonging to Smith, produces apples. If bees are present, less labor is required, as the bees pollinate the blossoms instead of workers. Specifically, each 625 bees save Smith one hour's worth of labor. If no bees are present, Smith must employ 16 hours of labor. Either way, Smith produces 10 bushels of apples, each of which can be sold for \$20.

Suppose also that maple syrup costs \$20 per gallon, labor (for either honey-making or apple-picking) costs \$12 per hour and each bee costs \$.02.

 - a. What do the bees represent in this example?
 - b. If Jones is unaware of Smith's farm, what will his profit-maximizing production decision be? What will each farmer earn in profit?
 - c. Now, supposing that Smith and Jones know each other, is the production described in (b) efficient? If not, identify the efficient production plan and describe a bargain between the farmers that would implement this plan.

d. How might your answer in (c) change if the price of honey were lower? How might it change if the price of apples were lower? Be specific.

4. Kevin Federline learns that he has a distant cousin who lives in the Athens area, and plans a visit. His cousin knows some people at The 40 Watt Club, and tells them that he can arrange a rare opportunity to book his wife, Britney Spears, for a concert. If the 40 Watt does no advance promotion, they can announce the concert the day it happens, sell out (1,000 tickets) and sell tickets for \$20. If they do \$10,000 worth of advance promotions, they will be able to charge \$50 and still sell out. In either case, the 40 Watt does \$20,000 worth of concessions.

However, there is a catch. Kevin and Britney refuse to sign a contract in advance with the 40 Watt, saying instead "we'll work something out."

a. Assume first that Kevin and Britney fully intend to follow through with the concert. Is it efficient for the 40 Watt to do advance promotion? Would your answer change if they were willing to sign a contract in advance?

b. Continuing to assume that Kevin and Britney fully intend to follow through with the concert, now suppose that the 40 Watt knows a bit about how they bargain. Specifically, if they've had a "bad" week, Kevin and Britney demand 90% of the revenue from ticket sales. If they've had a "good" week, they demand only 50%. In either case they refuse to do the show if their demands are not met. If the probability that they have a "bad" week is 50%, will the 40 Watt choose to do advance promotion? Would your answer change if this probability is 20%? 90%? What would the 40 Watt do if it knew, in advance, whether they would have a "bad" week?