

Homework 3

Due Wednesday, February 4, 2009

1. Consider the following table of long-run total cost for three different hospitals:

Quantity	1	2	3	4	5	6	7
Hospital A	60	70	80	90	100	110	120
Hospital B	11	24	39	56	75	96	119
Hospital C	21	34	49	66	85	106	129

Does each of these hospitals experience economies of scale or diseconomies of scale? Draw graphs and explain.

2. Specialty Docs is a small medical practice that is considering entering a market dominated by Big Box Hospital. Each firm's profit depends on whether Specialty Docs enters and whether Big Box Hospital begins to offer more of the specialty services that Specialty Docs are good at. The strategic form of this game is:

		<i>Big Box Hospital</i>	
		Offer specialty	Don't offer
<i>Specialty Docs</i>	Enter	(-\$1 million, \$1 million)	(\$2 million, \$3 million)
	Don't Enter	(\$0, \$2 million)	(\$0, \$7 million)

Big Box Hospital threatens Specialty Docs by saying 'If you enter, we're going to offer your specialty services, so you had better stay out.' Do you think Specialty Docs should believe the threat? Why or why not? What do you think that Specialty Docs should do? Why?

3. For this problem, use equations and graphs (with the corresponding values from the equations) in all parts. Assume that Hospital A is a monopoly and faces the following demand and marginal revenue curves:

$$P = 200 - \frac{1}{10}Q$$

$$MR = 200 - \frac{1}{5}Q$$

Assume that their marginal cost is \$100 for all quantities.

- (a) Determine the profit maximizing price and quantity Hospital A will choose. What will their profit be (compute a number and shade an area on the graph)?
- (b) Assume that Hospital A also takes Medicare patients and were reimbursed \$100 for caring for each of them, but that budget cuts have forced the government to announce that reimbursement levels will be reduced to \$70 per patient. There are 1000 Medicare patients that go to Hospital A. Compute the loss from this reimbursement rate change. How will this change affect Hospital A?
- (c) There is a Hospital B 50 miles away that has the exact same demand and marginal revenue curves as Hospital A. However, Hospital B is a little bit more efficient and has a marginal cost of \$75. Determine the profit maximizing price and quantity Hospital B will choose. What is their profit from their privately paying patients? Hospital B also has 1000 Medicare patients. How will the reimbursement rate change affect Hospital B?
- (d) Because of what happened to Hospital A in part b, the demand curve and the marginal revenue curves for Hospital B shift out to:

$$P = 300 - \frac{1}{10}Q$$

$$MR = 300 - \frac{1}{5}Q$$

Compute the new profit maximizing price and quantity that Hospital B will choose for its private side. What is their new profit level from the private side?

- (e) Assume that Hospital B cannot take more than 2500 patients. If 2000 Medicare patients want to go to Hospital B, how many will Hospital B choose to accept?
- (f) The government thinks that Hospital B is cost-shifting and wants to implement a regulation requiring that Hospital B not be allowed to charge a higher price than the price it charged before the reimbursement level change. In this case, the monopoly will not be able to set its own price any more – it's marginal revenue will be the price before the reimbursement change. Since that is higher than its marginal cost, it will take all of the private patients that are willing to pay that price. So, how many private patients will Hospital B accept under this regulation? How many slots will be left for the public patients as a result? Do you think that the government should implement this regulation? Explain your answer.