

Homework 1, Managerial Economics: Eco 685
Due: Friday, January 28, 2005

Question 1

Give two reasons why in general maximizing profits benefits society.

Question 2

Explain why economic profits are zero in the long run.

Question 3

Your professor used to work at a national chain of retail swimming pool stores, which pays its sales force a bonus based on sales (ie a commission). It also pays its warehouse manager a bonus inversely related to the firm's inventory.

- a. Will the sales force and warehouse manager maximize profits? If not, give an example of a decision the sales force and/or warehouse manager might make that does not maximize profits.
- b. Can you predict the problem that arose from this system?

Question 4

Explain the difference between marginal revenue product and marginal product. Which is used to maximize production and which is used to maximize profits?

Question 5

You are a consultant for Camel Groceries. At the deli counter, during the busy lunch hour (12-1 pm), the amount of sandwiches (Q) that can be made is determined by the number of workers (L). Suppose each worker makes \$6 per hour and sandwiches sell for \$4. Further, you have observed the number of workers and quantity of sandwiches over several days and have estimated the following production function:

$$Q = 4L - 0.25L^2 \tag{1}$$

- a. How many workers should Camel employ during the lunch hour to maximize profits?
- b. Compute the maximum profit at Camel.
- c. Compute the marginal revenue product of the sixth worker. Explain why it is or is not profit maximizing to hire a sixth worker.
- d. Suppose instead that Camel wants to keep the lines as short as possible by maximizing production. How many workers should Camel employ during the lunch hour?

Question 6

Consider this quote from an analysis of the oil pipeline industry:

A basic choice exists in the determination of the optimum pipeline diameter for carrying any particular throughput [ie for moving oil from one end of the pipeline to the other, usually measured in barrels per day]. A given pipeline diameter may be used for any given throughput by applying different amounts of horsepower to the pump. The more horsepower, the more throughput. Similarly, for a given horsepower, any throughput can be achieved by using a pipeline of sufficient diameter.

Identify the input(s) and output(s) of production.

Question 7

Each homework will (hopefully) have one case study, from real (or at least estimated) data. You are advised to do these questions in Excel. Consider the case of Los Angeles Lakers Basketball Team, which in 1996 faced the decision of how much to offer free agent superstar Shaquille O’Neill. *The New York Times*, August 23, 1996, provides this data (all data is estimated):

Income Source	Price per game	Quantity per game	home games
Cheap Seats	\$9.50	16,976	41
Luxury Seats	\$500	529	41
Concessions	\$250,000	1	41
	Per Season		
Local Broadcasts			\$15,000,000
National Broadcasts			\$10,000,000
National Merchandise			\$5,000,000

Table 1: Estimated Revenue Sources for LA Lakers, 1996

The Lakers sell out every game. Further, the Lakers estimated that they could raise cheap seat prices to \$21.50 and luxury seat prices to \$600 and still sell out every game if O’Neill was hired (the price of concession items would not change). The Lakers also believe that with O’Neill, they would make the playoffs, generating 8 extra home games (assume playoff tickets would also be \$21.50 and \$600). National Broadcast and Merchandise revenue is divided evenly between all teams.

- a. Assume the Local Broadcast Contract is fixed for seven years. What is Mr. O’Neill’s marginal revenue product per season? What is the maximum offer (marginal expenditure) the Lakers should make to Mr. O’Neill for a 7-year contract?
- b. The actual (undiscounted) contract offer was \$120,000,000 paid over seven years. Calculate the undiscounted expected profit (or loss) for the Lakers over seven years.
- c. Suppose now that the local broadcast contract lasts for only 3 years. The Lakers believe that they can negotiate a 66 percent increase (\$10 million dollar increase) from the local broadcast company in years 4-7. Repeat (a) and (b).

- d. Evaluate the claim in the *New York Times*: “No matter what we do, our ticket sales will not cover salaries. ... [We need to consider] O’Neill’s potential impact on National broadcasts and merchandise.”