

# MONOPOLY BEHAVIOR AND MONOPOLY PRICING

1. A monopolist has the following cost function  $C(q) = 40q + 1000$  and faces the following demand function,  $q^d = 180 - \frac{p}{2}$ . The government is interested in a monopolist

that maximizes profits by choosing the competitive outcome. In order to achieve this outcome, the regulator is willing to provide a subsidy for unit produced. Find the subsidy that the regulator should provide.

2. The Firm BMI is a PC manufacturer and enjoys full monopoly in the republic of Matobo. BMI costs are  $CT(q) = q^2 - 4q + 45$ . The firm operates a market with important barriers to entry facing the following demand  $P^d(q) = 20 - 2q$

(a) Find the price, quantity and profits obtained by BMI.

(b) The regulator considers that this solution is not efficient. Therefore, it imposes prices and quantities in order to achieve the efficient outcome. Is it possible to achieve this outcome, or the firm would quit the market?

3. Assume that the firm MOVITEL is the unique mobile phone operator in the country.

(a) Represent graphically the demand, marginal revenue, marginal cost and average cost functions for this company. Show in the graphical analysis the price and the quantity if the firm is maximizing profits.

(b) The government decides to open the market by removing all potential barriers to entry. Given the potential profits that can be captured, several firms decided to enter into the market. Represent this new equilibrium at the short run level: both for the firms and for the market. Which will be the situation in the long run? Explain the dynamics (use a graphical analysis)

(c) Nowadays we observe an increase in firm's promotions trying to capture the attention of different consumers: some firms offer discount for young people, others reduce the price depending on the slot, etc. Which is the firm's objective of offering those policies? Which is the market structure in this case?

4. A monopolist, with a cost function  $CT(q) = 2q^2 + 6q$ , supplies a good for a market which demand is summarized by  $Q^d(p) = 36 - p$ .

(a) Find the marginal cost function

(b) Find monopolist profits

(c) Assumed that the marginal cost of the monopolist is the same than the supply curve of a competitive industry. Find price quantity and profits under perfect competition.

5. In Greenstone, a national Park, fishing is one of the most important activities. In that area, there exists only one firm allowed to sell (or rent) fishing rods having costs summarized by  $CT(q) = \frac{3}{2}q^2 - 5q$ . If the demand for fishing is  $Q^d(p) = 105 - 3p$ ,

(a) How can be defined this economic situation?

(b) Find the number of fishing rods, as well as the price and profits

(c) Is this situation socially efficient? Why? Explain your results using your micro knowledge

6. The demand of a product is given by  $Q^d(p) = 250 - \frac{P}{2}$ , and it is produced by one

firm whose costs are determined by  $CT(Q) = 200 + 20Q + 5Q^2$

- Find equilibrium price and quantity of this market.
- If the government decides to let the market free by removing any potential barriers to entry, find the price and quantity after this process.
- Find industry profits in this new environment
- Is this a long run equilibrium? Find the price, quantity and the number of firms that supports long run equilibrium
- Represent graphically the three different market situations.

7. A monopolist has the following demand  $p(q) = 100 - 2q$ , and has a marginal cost equal to 20.

- Find price and quantity that maximizes firm's profits
- Find both the socially optimal price and the socially optimal quantity
- Which is the deadweight loss incurred by the monopolist?
- Assume that the monopolist could act as a 1<sup>st</sup> degree price discriminator and sell every unit at the highest possible price. Compute both the deadweight loss in this case and the consumer surplus.

8. A monopolist, whose total costs can be represented by  $C(q_1 + q_2) = (q_1 + q_2)^2$ , sells in two different markets. Consumer's demand can be represented through the following demand functions;  $p_1 = 200 - q_1$  for the first market while  $p_2 = 300 - q_2$  for the second one. If the monopolist is able to discriminate in those two markets, identify the optimal monopolist's pricing policy

9. A monopolist displays the following cost function:  $C(q) = q^2$  and the demand that the monopolist should cover is  $P(q) = 120 - q$ .

- Find monopolist optimal price
- If the regulator wants to set up a price cap, which is the price that maximizes total welfare?
- Given this price cap, which is the production selected by the monopolist?
- Assume that the regulator imposes a tax equal to 20 € for unit produced. Which is the production level that maximizes monopolist's profits?