

Chapter 12: Monopoly II: Pricing Strategies

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Objectives

- First Degree Price Discrimination
- Second Degree Price Discrimination
- Third Degree Price Discrimination

Recap from previous chapter

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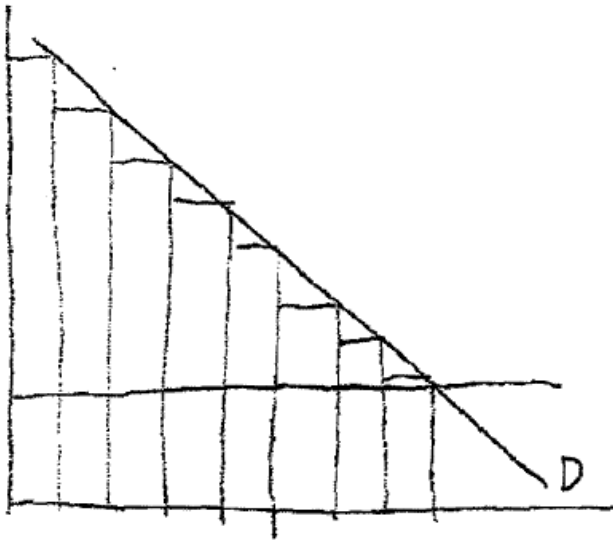
- The fact that $P^M > MC$ creates odd tension
- Some people have values just below P^M ; so If the monopolist could serve them “in back room” efficiency is gained
- If $q^M \rightarrow q^C$ money to be made but monopolist does not receive full benefits and thus under supplies

Remedy: giving monopolist extra pricing tools will often lead monopolist to capture leftover surplus

Types of Price Discrimination

- **Price Discrimination:** is charging different prices for different individuals (group)
- They include:
 - First Degree (Perfect Price Discrimination):
e.g. auto-salesman, doctor in small town
 - Third Degree (most common): e.g. movie discounts to students, happy hours
 - Second Degree: e.g., bulk/quantity discounts, quality upgrades

First degree price discrimination



Third degree (Group) Price Discrimination

Two groups of consumers case:

$$\pi = TR_1 + TR_2 - TC(q_1 + q_2)$$

where TR_i is TR from group one given by $p_i \cdot q_i$

F.O.C:

1. $\frac{d\pi}{dq_1} = 0 \Rightarrow MR_1 = MC$
2. $\frac{d\pi}{dq_2} = 0 \Rightarrow MR_2 = MC$

i.e., the monopolist maximizes profit by equating each MR to common MC

Third Degree (Group) Price Discrimination

Since MR_i are equated to common MC, at the optimal we have:

$$MR_1 = MR_2$$

$$P_1 \left(1 - \frac{1}{|\varepsilon_1|}\right) = P_2 \left(1 - \frac{1}{|\varepsilon_2|}\right)$$

$$\frac{P_1}{P_2} = \frac{1 - \frac{1}{|\varepsilon_2|}}{1 - \frac{1}{|\varepsilon_1|}}$$

- The monopolist charges higher price to the group with relatively inelastic demand!

Third Degree Price Discr.: Numerical Example

Two groups of consumers

$$\text{Local: } P_1 = 6 - \frac{1}{2}Q_1 \Rightarrow Q_1 = 12 - 2P_1$$

$$\text{Tourists: } P_2 = 9 - Q_2 \Rightarrow Q_2 = 9 - P_2$$

$$TC = Q \Rightarrow MC = 1$$

Find P^* , Q^* , π^* at the optimal output

1. if the monopoly charges uniform price
2. if the monopoly charges different group prices

Third Degree Price Discriminating Monopoly

Suppose the monopolist could charge different prices to the two groups

$$MR_1 = MC_1 \Rightarrow MR_1 = 6 - Q_1 = 1 \Rightarrow Q_1^* = 5, P^* = 6 - \frac{1}{2} \times 5 = \$3.50$$

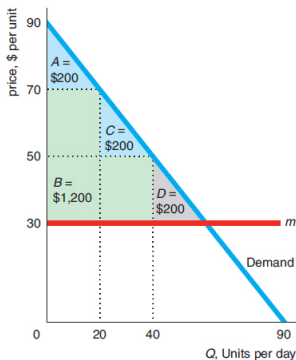
$$MR_2 = MC_2 \Rightarrow MR_2 = 9 - 2Q_2 = 1 \Rightarrow Q_2^* = 4, P^* = 9 - 4 = \$5.00$$

Second Degree: Quantity Discounts

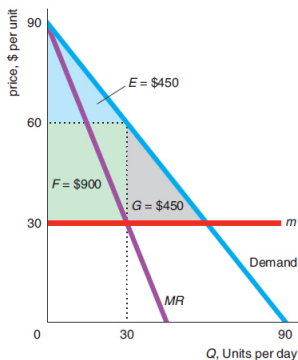
- In 2nd degree (also called nonlinear pricing), the monopolist cannot use any attributes (such as seniors vs non-seniors) as separating consumers into two or more group
- But suppose that you know there are people who want to buy bulky than non bulky amount
- then the firm can offer lower price to those who buy in bulk
- For our previous example, the firm could announce, for example, $P = \$3.50$ for those who want to buy 5 units but $P = \$5.00$ for those who buy only 4 units (resale must not be possible for this to work!)

Second Degree: Block Pricing

(a) Quantity Discrimination



(b) Single-Price Monopoly



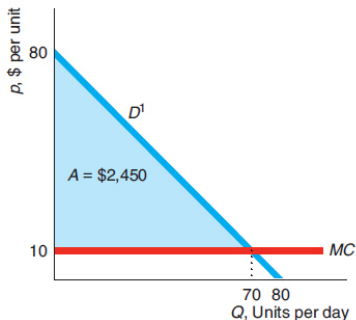
- A form of quantity discount in which, for example, the first 20 units are sold at \$70 and the next 20 units at \$50

Two Part Pricing

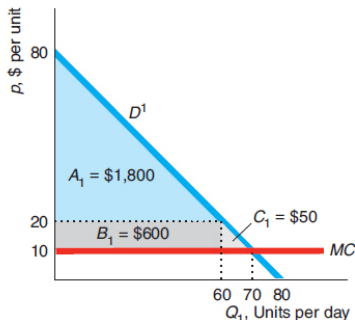
- **Two-part pricing**: a pricing system in which the firm charges a customer a lump-sum access fee for the right to buy as many units of the good as the consumer wants at a per-unit price.

1. identical consumers

(a) Price Equals Marginal Cost



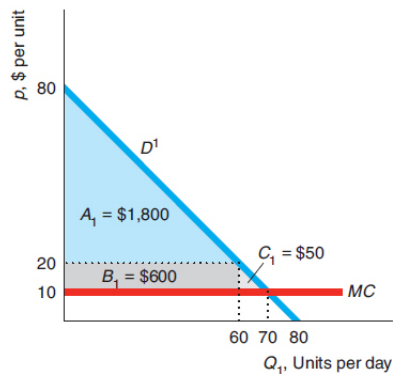
(b) Price Is Above Marginal Cost



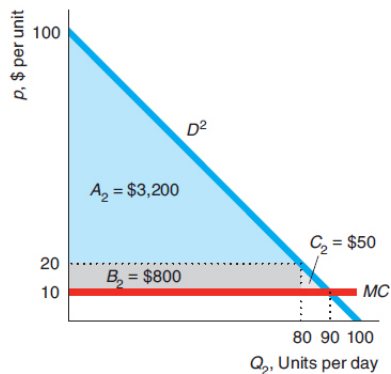
Two Part Pricing

2. Different (Demand) consumers

(a) Valerie



(b) Neal



Tie-In Sales (1 of 2)

- ***Tie-in sale***: a type of nonlinear pricing in which customers can buy one product only if they agree to buy another product as well.
- ***Requirement tie-in sale***: a tie-in sale in which customers who buy one product from a firm are required to make all their purchases of another product from that firm

Tie-In Sales (2 of 2)

- ***Bundling (package tie-in sale)***: a type of tie-in sale in which two goods are combined so that customers cannot buy either good separately.
- Bundling a pair of goods pays only if their demands are ***negatively correlated*** .

Negatively Correlated Reservation Prices

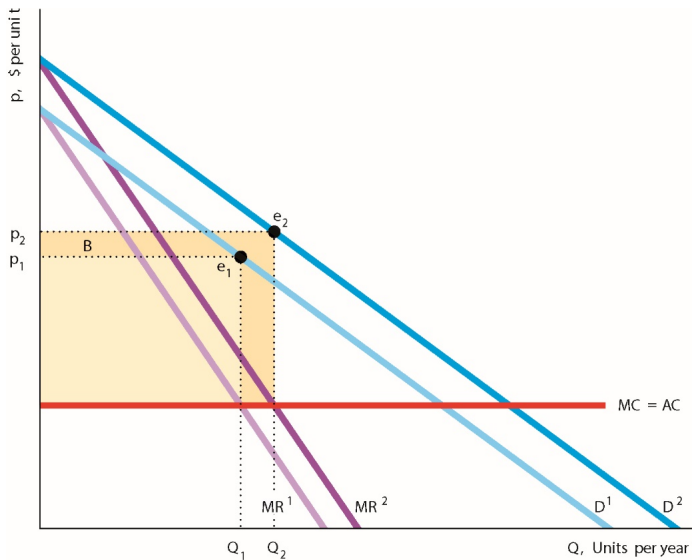
	Word Processor	Spreadsheet	Bundle
Alisha	\$120	\$50	\$170
Bob	\$90	\$70	\$160
Profit-maximizing price	\$90	\$50	\$160
Units sold	2	2	2

Positively Correlated Reservation Prices

- When reservation prices are positively related, bundling doesn't increase firm's profit and welfare is lower

	Word Processor	Spreadsheet	Bundle
Carol	\$100	\$90	\$190
Dmitri	\$90	\$40	\$130
Profit-maximizing price	\$90	\$90	\$130
Units sold	2	2	2

Advertising



SUMMARY

- Uniform price Monopoly is inefficient not because it charges higher price than MC but it under supplies
- So by giving the monopolist different pricing tools, we can increase society's welfare