

Lecture 6

Monopoly pricing – part I



microeconomics II
first module

Introduction

★ **Without** market power

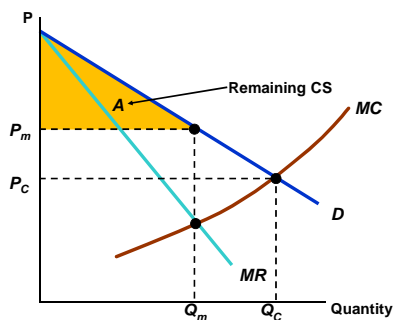
- ◆ **Pricing** is determined by market supply and demand
- ◆ Producer must **forecast** the market conditions
- ◆ Then, must concentrate on managing production (**cost**) to maximize profits

★ **With** market power

- ◆ Pricing requires the producer to **know much more** about the characteristics of demand.

Monopoly and CS

Price discrimination



Capturing consumer surplus

Price discrimination

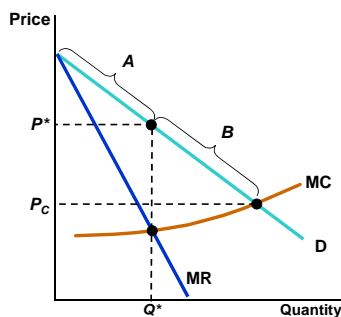
★ We will examine pricing **techniques** of capturing consumer surplus and transferring it to the producer

★ We need to find a way to charge consumers according to their **willingness to pay**

- ◆ **Raising price** will push away some consumers, leading to smaller profits
- ◆ **Lowering price** will attract some consumers, but lower profits.

Who should be served?

Price discrimination



Only A is served
What about B?
If both A and B are served in different prices the firm will capture more consumer surplus

Price discrimination

Price discrimination

★ We need to **charge different** consumers different price for (essentially) the same good

★ This practice is called **price discrimination**

must be able to **identify** the different consumers and get them to pay different prices

★ There are also **other pricing techniques** that allow the firm to capture more consumer surplus

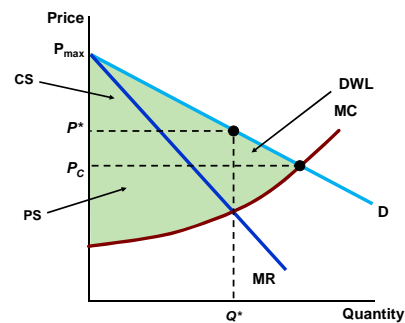
tariffs and bundling.

First degree price discrimination

- ★ Perfect PD: Charge each consumer the **maximum** price they are willing to pay
- ★ MR curve is **no longer** part of output decision
- ★ This way consumer **loses all** its surplus to the producer
- ★ What happens to **efficiency**?

Perfect price discrimination

First-degree PD



Can it really work?

First-degree PD

- ★ In **practice**, perfect price discrimination is **almost never** possible
 - ◆ It is **impractical** to charge every customer a different price (unless very few customers)
 - ◆ Firms usually **do not know** reservation price of each customer
- ★ However, firms can discriminate **imperfectly**
 - ◆ Can charge a **few different prices** based on some estimates of reservation prices

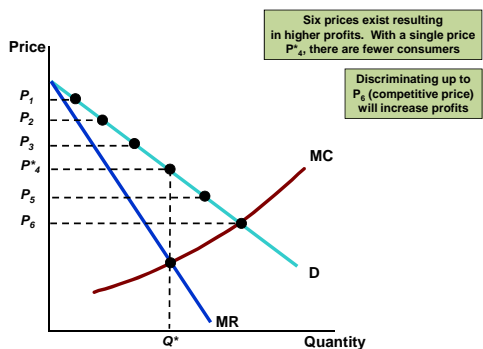
Some good cases

First-degree PD

- ★ **Examples** of imperfect price discrimination where the seller has the ability to **segregate** the market to some extent and charge different prices for the same product:
 - ◆ Car salespersons
 - ◆ Colleges and universities
 - ◆ Lawyers, accountants

Imperfect first-degree PD

First-degree PD



Third-degree price discrimination

- ★ Practice of **dividing consumers** into two or more **groups** and charging different prices to each group
- ★ Each group should have **different willingness** to pay each group has its **own** demand function
- ★ Typically, **elasticity** of demand differ for the groups **college students** and **senior citizens** are not usually willing to pay as much as others because of lower incomes

Consumer groups

- ★ The members of each group should be **identifiable**
- ★ Some **characteristic** is used to divide the consumer groups
ID, gender, age etc.
- ★ There should not be **arbitrage**
- ★ It is the **most common** type of price discrimination
- ★ **Examples:** colleges, various discounts to students and senior citizens, frozen vs. canned vegetables, premium vs. non-premium liquor.

Creating consumer groups

- ★ If third-degree price discrimination is feasible, how can the firm decide **what to charge** each group of consumers?
 - ◆ Total output should be divided between groups so that **MR for each group is equal**
 - ◆ Total output is chosen so that MR for each group of consumers is **equal to the MC of production**.

Algebraically

- ★ p_1, p_2 price in the first and second group
- ★ Quantities: Q_1, Q_2
- ★ Total cost of producing output, $C(Q_1 + Q_2)$
- ★ Profit: $\Pi = p_1 \cdot Q_1 + p_2 \cdot Q_2 - C(Q_1 + Q_2)$
- ★ Maximize wrt Q_1

$$\frac{\partial \Pi}{\partial Q_1} = MR_1 - MC = 0 \Rightarrow MR_1 = MC$$

Equilibrium conditions

- ★ **First** group of consumers
 $MR_1 = MC$
- ★ Can do the same thing for the **second** group of consumers
 $MR_2 = MC$
- ★ **Combining** these equalities yields
 $MR_1 = MR_2 = MC$

Determining relative prices

- ★ Relative prices charged to each group of consumers are **related** to ε_d for each group
- ★ We **have shown** previously that

$$MR = p \left(1 + \frac{1}{\varepsilon_d} \right)$$

- ★ Thus,

$$MR_1 = MR_2 \Rightarrow p_1 \left(1 + \frac{1}{\varepsilon_1} \right) = p_2 \left(1 + \frac{1}{\varepsilon_2} \right)$$

Price ratio

- ★ The previous equation can be manipulated to yield the relative **price ratio**

$$\frac{p_1}{p_2} = \frac{\left(1 + \frac{1}{\varepsilon_2} \right)}{\left(1 + \frac{1}{\varepsilon_1} \right)}$$

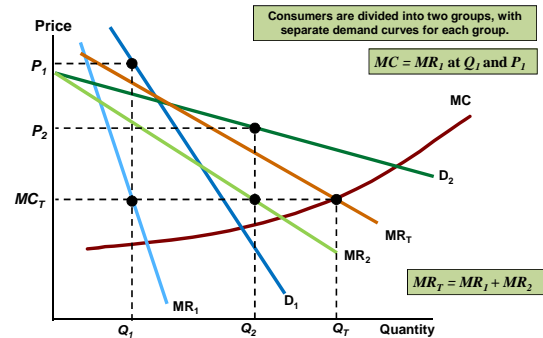
- ★ The higher price will be charged to consumer with the **lower demand elasticity**.

***Example**

★ $\varepsilon_1 = -2$ and $\varepsilon_2 = -4$

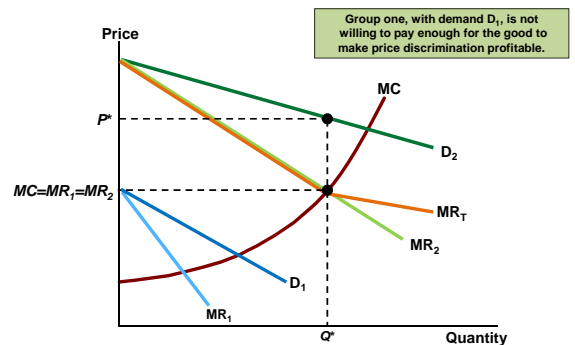
$$\frac{p_1}{p_2} = \frac{\left(1 - \frac{1}{4}\right)}{\left(1 - \frac{1}{2}\right)} = 1.5$$

p_1 should be 1.5 times as high as p_2 .

Third-degree price discrimination**Exclusion of smaller market**

★ Even if third-degree price discrimination is possible, it may **not be profitable** to try to sell to both groups

it is possible that the demand for one group is **so low** that it would not be profitable to lower price enough to sell to that group.

Exclusion – graph

Thank you!



Kosmas Marinakis
www.kmarinakis.org
kmarinakis@hse.ru

WARNING!

This printout is provided as a courtesy, so that lecture time can be dedicated to note taking. These slides are **not standalone material** and should be used strictly as **reference**, side by side with notes taken in the lecture. Studying solely from the slides **is not recommended** and in some cases may **mislead** those who have not attended the relevant lecture. **Less than 5% of tasks in tests and exams can be answered from the slides.**