Kosmas Marinakis, Ph.D.

Lecture 6

Monopoly pricing – part I

micro2

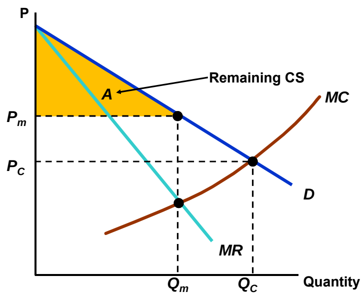
first module

m2

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

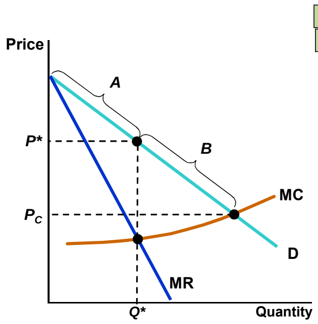
Monopoly and CS



Capturing consumer surplus

* 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?



Only A is served

What about B?

If both A and B are served in different prices the firm will capture more consumer surplus

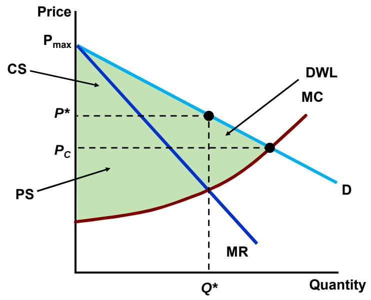
Price discrimination

* 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 ***looses all*** its surplus to the producer
- What happens to ***efficiency***?

Perfect price discrimination



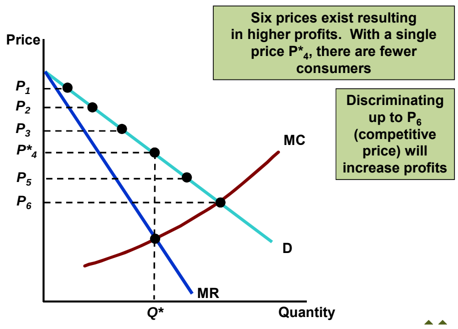
Can it really work?

- 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

- ***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



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***

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

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

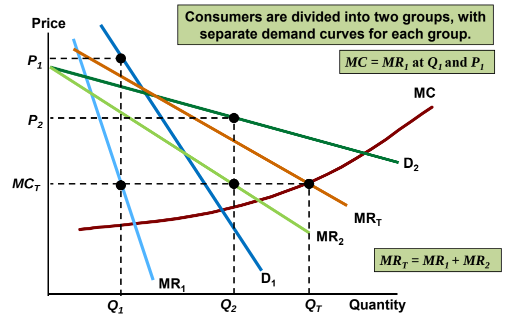
*Example

- ε_1 = -2 and ε_2 = -4

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

p_1 should be 1.5 times as high as p_2

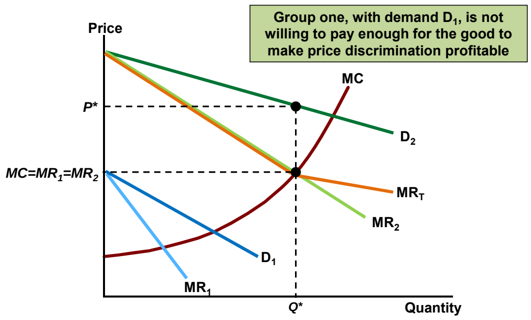
Third-degree price discrimination



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



ευχαριστώ!

(thank you!)

Kosmas Marinakis
www.kmarinakis.org
kmarinakis@hse.ru
kosmas_marinakis
Kosmas Marinakis
t.me/kosmas_teaching
@Kos_Marinakis

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