



Kosmas Marinakis, Ph.D.

Lecture 7

Monopoly pricing – part II





Price discrimination

Second-degree price discrimination

- ★ Under the second-degree price discrimination the firm offers **different versions** of the product
- ★ Again **groups** of consumers are formed according to quantity, quality, variety etc.
- ★ Consumers now **self-select** which consumer group they will join
grouping should be **clever** so that consumers **reveal** their real willingness to pay with their choice of group
- ★ We will see **several different methods** of this kind of self-selection discrimination

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Second-degree PD

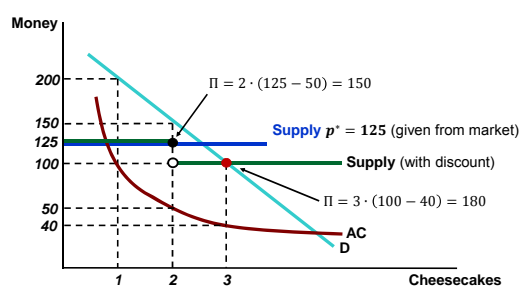
Quantity discounts

- ★ Quantity discounts are an **example** of second-degree price discrimination
- ★ The firm gives **better prices** to those who **buy more at once**
- ★ For **example**:
 - ◆ 1.5 liter **coke** is cheaper per liter than the 330ml can
 - ◆ Buy 2 **pizzas** get 1 free
- ★ Quantity discounts are **profit maximizing** for the firm
 - ◆ Because for most goods **willingness to pay decreases** significantly with quantity consumed
 - ◆ **Other reasons**: cost efficiency, risk handling

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Second-degree PD Quantity discounts

Quantity discounts – example



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Second-degree PD Quantity discounts

Reverse quantity discounts

- ★ In some rare instances buying several smaller packages **costs cheaper** than buying the same quantity in bulk
examples: Merci™ chocolates, bouquets of flowers
- ★ This is because for bouquets of **roses**:
 $u(3 \times 15) < u(1 \times 45)$

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Second-degree PD

Block pricing

- ★ Block pricing is **another way** of second-degree PD
- ★ The seller charges different **prices** for different **blocks** of quantities of the good
- ★ Examples
 - ◆ **Electric company** pricing per Kw/h
 - ◆ 8 first **dance lessons** for 2400, next 8 lessons for 2700
- ★ Block pricing is **profit maximizing**
consumers at the high blocks have more **inelastic** demand
- ★ Block pricing is also effective in **saving resources**

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Second-degree PD

Coupons and rebates

- ★ Coupons and rebates are used by consumers who exhibit **lower willingness** to pay for the product
consumers who are more price elastic
- ★ Their use involves **costs**
cost of effort, time, hassle, social cost
- ★ Coupons and rebate programs allow firms to exercise second degree price discrimination.

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Second-degree PD Coupons and rebates

The economics of coupons and rebates

- ★ Several consumers **plan** to use coupons or rebates
- ★ Most **forget**, become lazy or fail to follow the process through
- ★ In the end, **only 20 – 30%** of consumers use them
- ★ Firms can get those with higher elasticity of demand to purchase a good that **would not normally buy**.

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Second-degree PD Coupons and rebates

Users vs. non-users of coupons

Product	Non-Users	Users
Toilet paper	-0.6	-0.7
Shampoo	-0.8	-1.3
Cat food	-0.5	-1.1
Hot dogs	-0.6	-0.8
Cooking oil	-1.2	-1.3

Elasticity of demand is lower for non-users of coupons and rebates

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Second-degree PD

Intertemporal price discrimination

- ★ Consumers are grouped according to their **time preference** in consuming the product
 - ◆ **Enthusiasts:** *Inelastic* demand – they need the product ASAP
 - ◆ **Usual consumers:** *More elastic* demand – they can wait for price to go down

1. Firm releases the product and **initially** charges a **high** price to **target enthusiasts**
2. Once this market has yielded a maximum profit, price is **lowered** to **appeal to the usuals**
examples: books, movies, gadgets.

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Second-degree PD Intertemporal PD

Intertemporal PD – graph

Initially, demand is less elastic, resulting in a price of P_1

Over time, demand becomes more elastic and price is reduced to appeal to the mass market

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Second-degree PD

“Special-edition” pricing

- ★ Enthusiasts are willing to pay **more** for the good than usual customers
- ★ The seller can take advantage of those consumers by releasing **two versions** of the product
 - ◆ An expensive “special-edition”
 - ◆ A cheaper “basic version”
- ★ Those who really **care** will go for the special edition – those who do not really want to pay much will go for the simple one.

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Combinations of methods

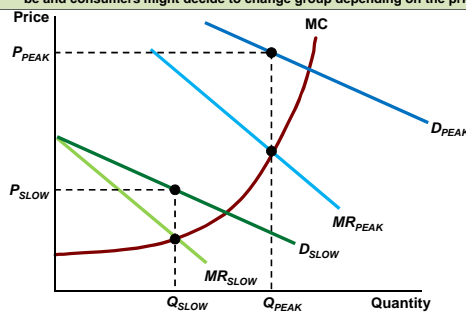
- ★ Quite often **more than one** pricing methods are used by modern firms
- ★ For instance, “special-edition” pricing may be **combined** with intertemporal PD
 - ◆ Release special edition, first
 - ◆ After a few months, release basic version
- ★ For example, the pricing for **movies** and **novels** usually involves the combination of several methods
 - ◆ For **novels** the special edition comes first
 - ◆ For **movies** the reverse

Peak-load pricing

- ★ For some products demand may be **uneven**
 - ◆ **High** at some particular times/periods (peak periods)
 - ◆ **Low** at some other times/periods
- ★ **Capacity constraints** may also cause marginal **costs to be higher** at periods of high demand
- ★ Profit maximization implies that the firm will charge **higher prices** during peak periods
- ★ Examples: hotels, gyms, cinemas, electricity

Peak-load pricing

The graph assumes that the two groups are independent. In reality they might not be and consumers might decide to change group depending on the prices



Objectives of peak-load pricing

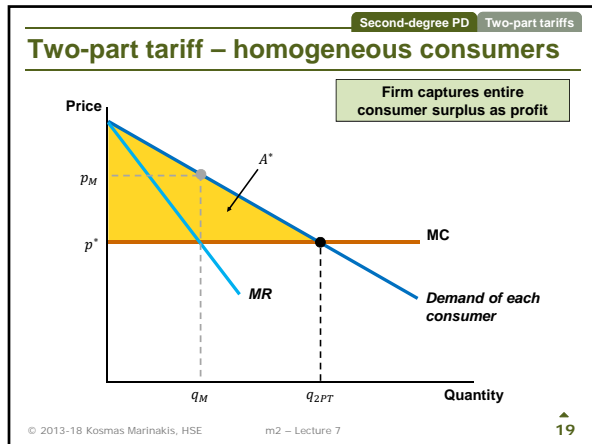
- ★ **Profit maximization**
charge more when consumers **need** you more
- ★ **Economizing resources**
with the price difference the demand may **even out** – some consumers will choose to shift consumption to the slow period
- ★ Increase **efficiency**
by charging customers closer to **true marginal cost** of the consumption period

Two-part tariff pricing

- ★ Form of pricing in which consumers are charged both an **entry fee** and a **usage fee**
- ★ The **entry fee**, A , is charged upfront for **right to use/buy** the product
- ★ An additional **usage fee**, p is charged for **each unit** the consumer wishes to consume
 - ◆ **Example:** Night clubs, mobile service, personal printers, bowling alleys
 - ◆ A is renting the shoes and p is the price of each bowling game

The two-part tariff

- ★ The pricing **scheme** is then $A + pq$
- ★ Pricing decision is **setting A and p** to maximize profit
- ★ First, no matter how you chose A and p , you **cannot make** consumers pay above their **reservation price**
thus, there is a **trade-off** between A and p
- ★ If consumers are **similar**, the firm can capture the entire CS
similar means that their **demand curves** look the same

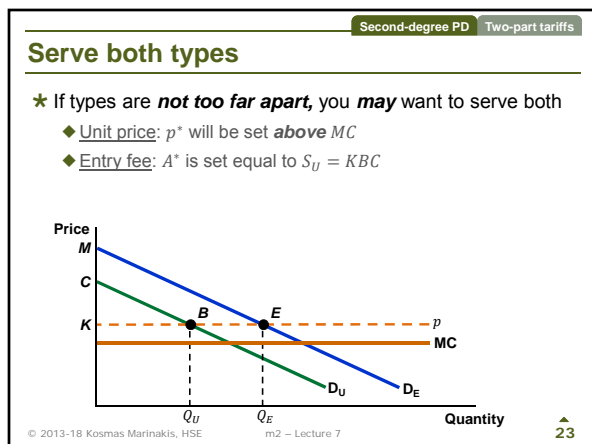
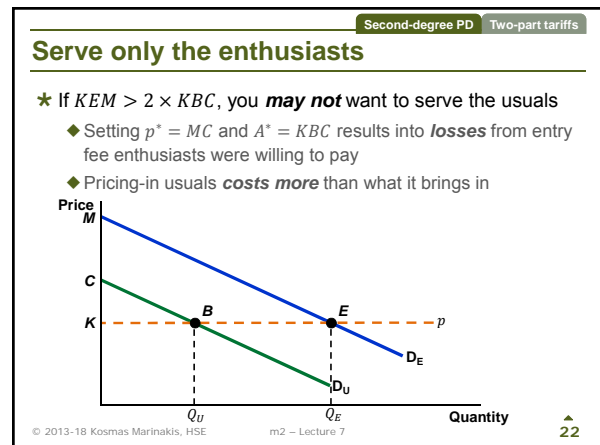
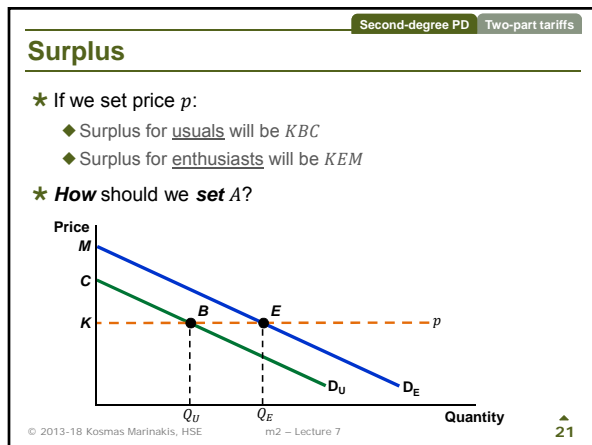


Second-degree PD Two-part tariffs

Heterogeneous consumer types

- ★ Assume now that we have **two types** of consumers each type has a *different demand*
- ★ The firm **cannot identify types** and will set only one combination of (A^*, p^*) .

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Second-degree PD Two-part tariffs

More than 2 consumer types

- ★ With more than 2 types, there is **no easy way** to determine exactly the optimal p^* and A^*
- ★ Let $n(A)$ be the **number of entrants**
 n is a function of A ($dn/dA < 0$)
- ★ Revenue is

$$R(A, p) = n(A) \cdot A + n(A) \cdot p \cdot \bar{q}$$
- ★ Notice the **trade-off** as A^* increases:
 - ◆ Less revenue from sales, $\partial(n(A) \cdot p)/\partial A < 0$
 - ◆ Ambiguous change in revenue from entry, $\partial(n(A) \cdot A)/\partial A \lesseqgtr 0$

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Approximate optimum with many types

★ To find **optimum combination** of p^* and A^* we can use **trial and error**

until we find the combination that maximizes profit

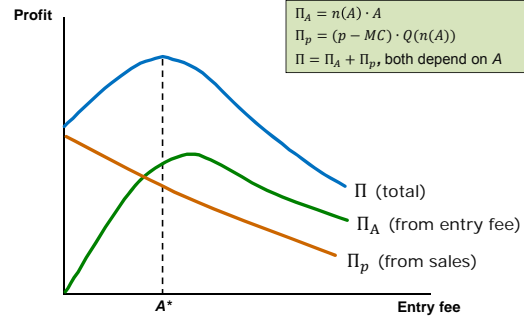
★ For this problem the total profit:

$$\Pi = n(A) \cdot A + (p - c) \cdot q(n(A))$$

can be **decomposed** into two parts:

1. $\Pi_A = n(A) \cdot A$
2. $\Pi_p = (p - c) \cdot q(n(A))$

Many different consumer types



The 2PT rule-of-thumb

★ **Similar** demands

choose p **close** to MC and **high** A

★ **Dissimilar** demands

choose **higher** p and **lower** A

★ **Example: theme parks** have a strategy of high entry fee and charge nothing for the rides

2PT & bundling

★ Entry price (A) **entitles** the buyer to a fixed number of free units

- ◆ **Razors** sold with several blades
- ◆ **Printer** comes with free set of inks
- ◆ **Night club** entrance cover comes with one free drink

★ This way the seller can **set higher** A without losing the **usuals**

while capturing more of **the surplus** of enthusiasts

Modern dynamic pricing

★ When the seller **acquires information** for the buyer's willingness to pay by observing past behavior

- ◆ How many times **bought before** – at what prices
- ◆ How many times **visited** the store
- ◆ How many times **inquired** for price

★ **Examples:** car sales, online ticket sales

ευχαριστώ!
(thank you!)

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