

Cours 9

La discrimination par les prix

Plan

1. Discrimination par les prix
 1. Premier degré
 2. Troisième degré
2. Discrimination intertemporelle et tarification de pointe

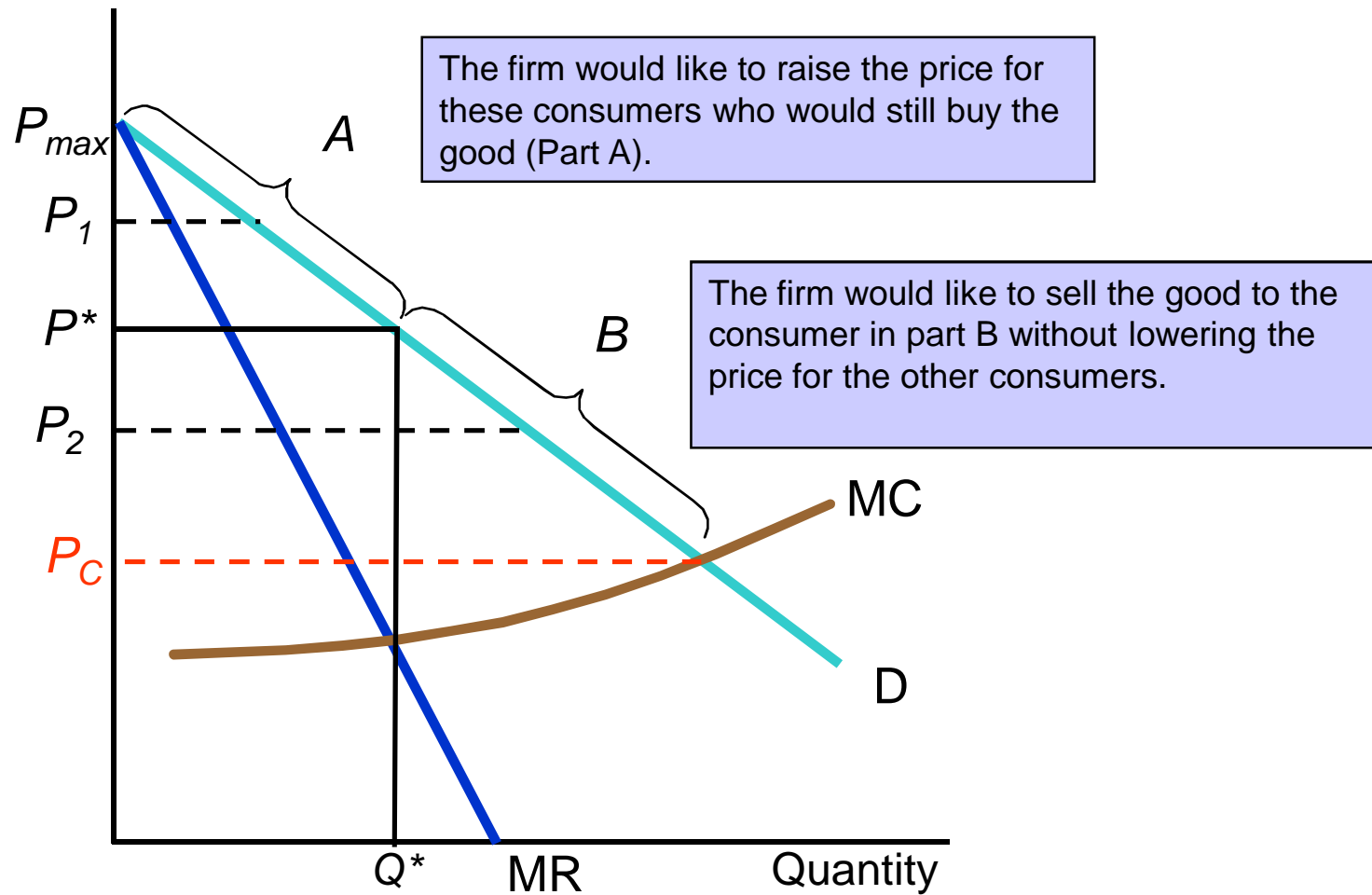
Introduction

- Without market power (perfect competition context), pricing is determined by supply and demand. An individual firm must be able to anticipate market fluctuations and $MC = P$.
- Pricing with market power (imperfect competition) requires a better knowledge of the demand (in particular its elasticity) in order to choose the proper quantity ($MC = MR$) and to fix the price.

1. Capturing Consumer surplus

- We will consider several strategies used by monopolies in order to capture a share of consumer surplus that they cannot obtain with standard monopoly pricing.
- The profit maximizing production Q^* satisfies the equation $MR = MC$ and the price is fixed by the demand curve (= AR).
 - Firm managers would like to raise the profits with alternative strategies considering that some consumers would accept paying more than p^* in order to obtain the good.
 - However, if the firm raises the price, other consumers will stop buying the good. This leads to lower sales and profits ...

Capturing consumer surplus



2. Price Discrimination

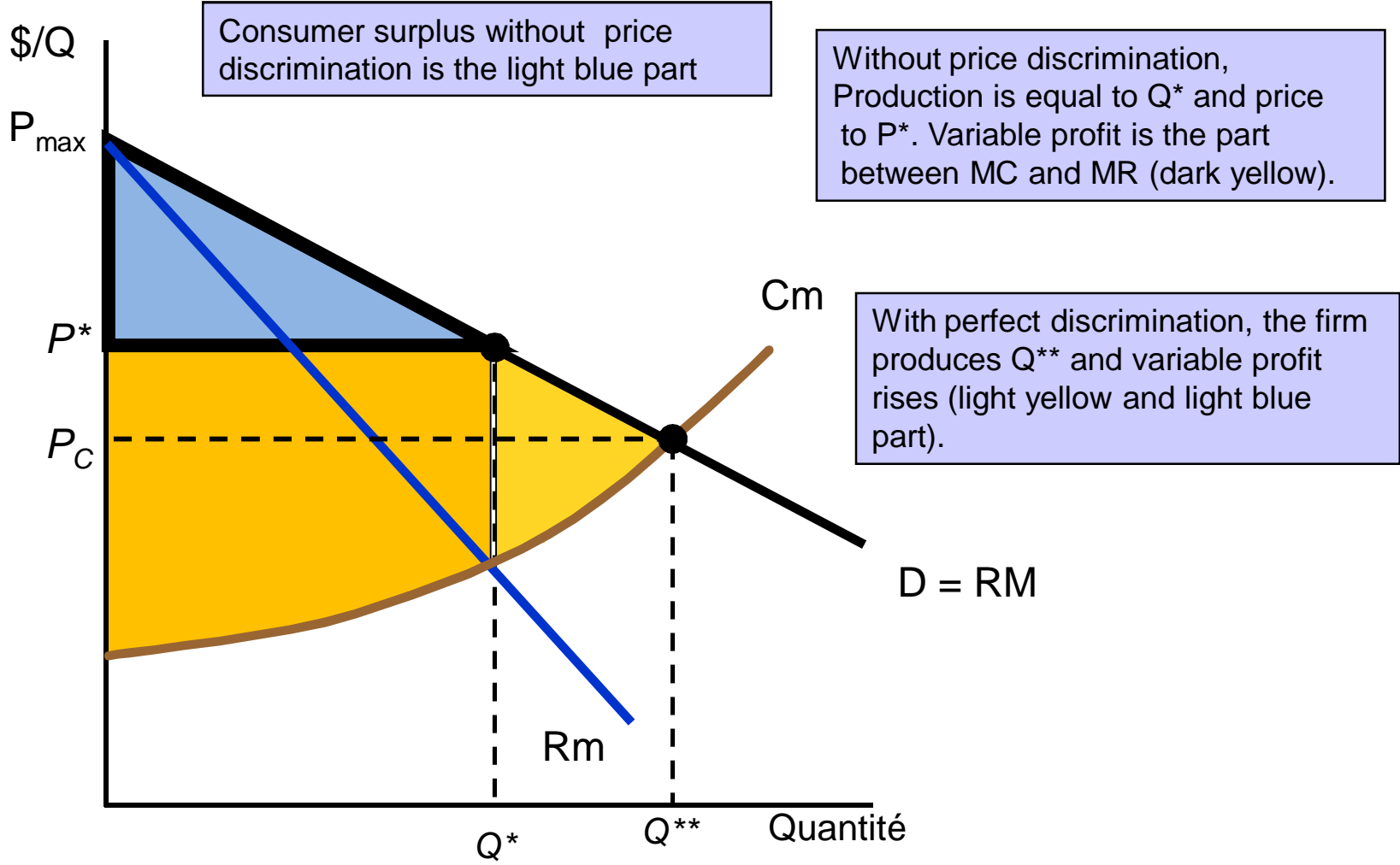
Necessary conditions

- Firm's market power
- Precise Information about the characteristics of the consumers
- Ability to forbid resale (or, at least, to make it costly).
- Ability to observe the individual characteristics of the consumers or to prevent consumers from lying about these characteristics (not in Second-degree Discrimination).

First-degree Price Discrimination

- In the **first-degree price discrimination**, each consumer pays a different price.
 - The price charged to each consumer is equal to the maximum price that he accepts to pay for the good : the **reservation price**.
- Effects on the firm's profit?
 - Comparison with standard monopoly case
 - The firm produces a quantity Q^* that makes $MR = MC$.
 - Variable profit (ignoring fixed costs) is the part between P^* and MC .
 - Consumer surplus is the triangle between demand (AR) and the price P^* .

First-degree Price Discrimination



First-degree Price Discrimination

- If the firm can perfectly price discriminate, each consumer pays a price equal to his reservation price.
 - The MR curve is no longer taken into account by the firm in order to choose a price or a quantity.
 - The marginal revenue of a unit of the good is now equal to the price this unit is sold (i.e. the demand curve)..
 - *The additional profit made with an extra unit is equal to the difference the demand curve and the marginal costs curve (see graph).*

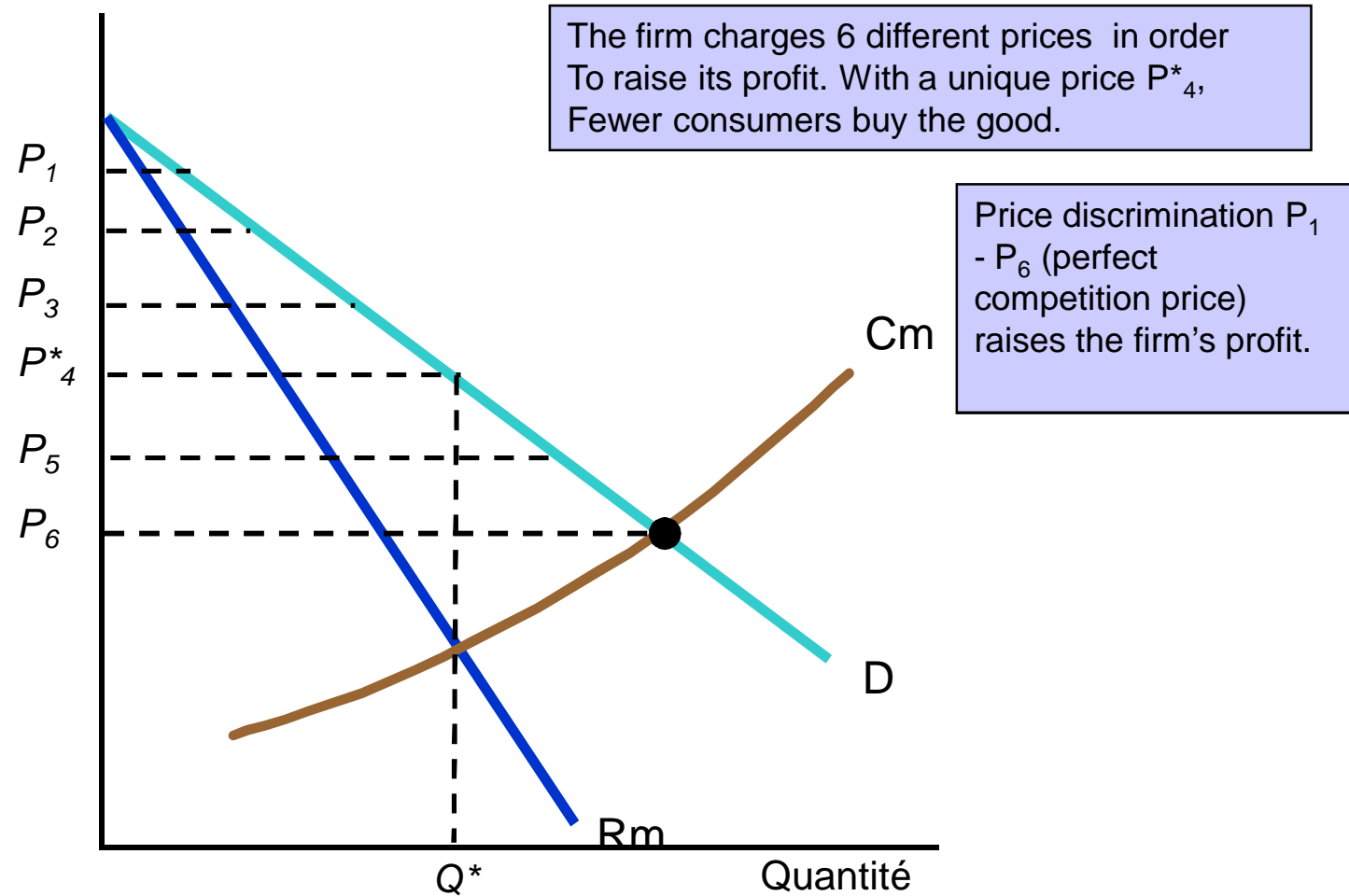
First-degree Price Discrimination

- In practice, perfect first-degree price discrimination is almost impossible :
 1. It is extremely difficult to charge a different price for each consumer (except if there are very few consumers).
 2. In general, firms do not know the precise reservation price of each consumer.
- However, firms may be able to imperfectly discriminate :
 - They can fix a set of different prices depending on estimated reservation prices for different groups of consumers.

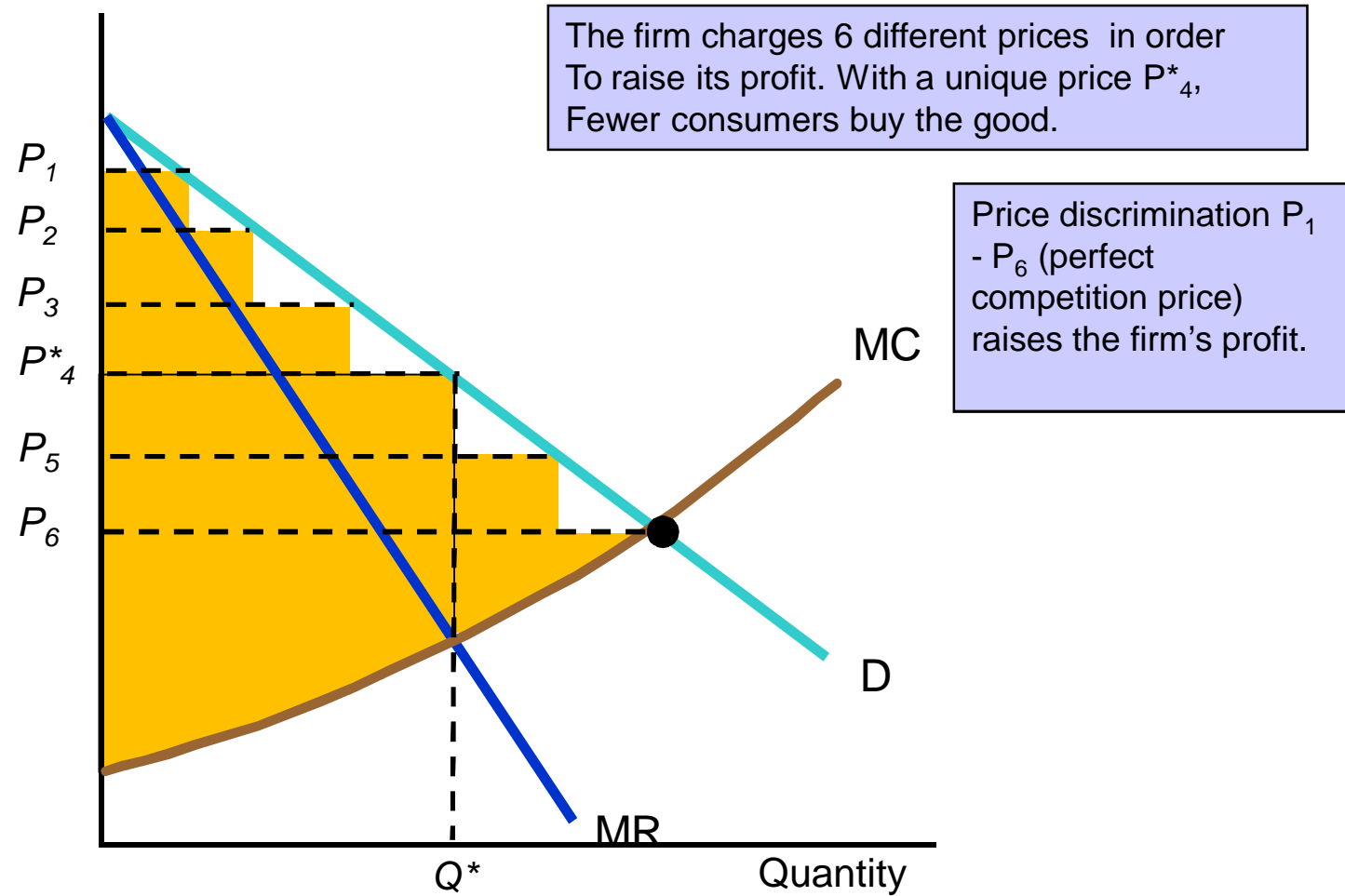
Examples of imperfect price discrimination

- Lawyers, doctors, accountants or architects can adapt their pricing strategies.
- Car dealers (average profit margin in the sector : 15 %).
- American Universities (different tuitions fees and several grants).

First-degree Price Discrimination in Practice



First-degree Price Discrimination in Practice



Third-Degree Price Discrimination

- **third-degree price discrimination** : Practice of dividing consumers into two or more groups with separate demand curves and charging different prices to each group.

Creating Consumer Groups

If third-degree price discrimination is feasible, how should the firm decide what price to charge each group of consumers?

- We know that however much is produced, total output should be divided between the groups of customers so that marginal revenues for each group are equal.
- We know that *total* output must be such that the marginal revenue for each group of consumers is equal to the marginal cost of production.

Third-Degree Price Discrimination

- **third-degree price discrimination** Practice of dividing consumers into two or more groups with separate demand curves and charging different prices to each group.

Creating Consumer Groups

$$\pi = P_1 Q_1 + P_2 Q_2 - C(Q_T)$$

$$\frac{\Delta \pi}{\Delta Q_1} = \frac{\Delta(P_1 Q_1)}{\Delta Q_1} - \frac{\Delta C}{\Delta Q_1} = 0$$

$$MR_1 = MC$$

$$MR_2 = MC$$

$$MR_1 = MR_2 = MC$$

(11.1)

Third-Degree Price Discrimination

Determining Relative Prices

$$MR = P(1 + 1/E_d)$$

$$\frac{P_1}{P_2} = \frac{(1 + 1/E_2)}{(1 + 1/E_1)} \quad (11.2)$$

Figure 11.5

Third-Degree Price Discrimination

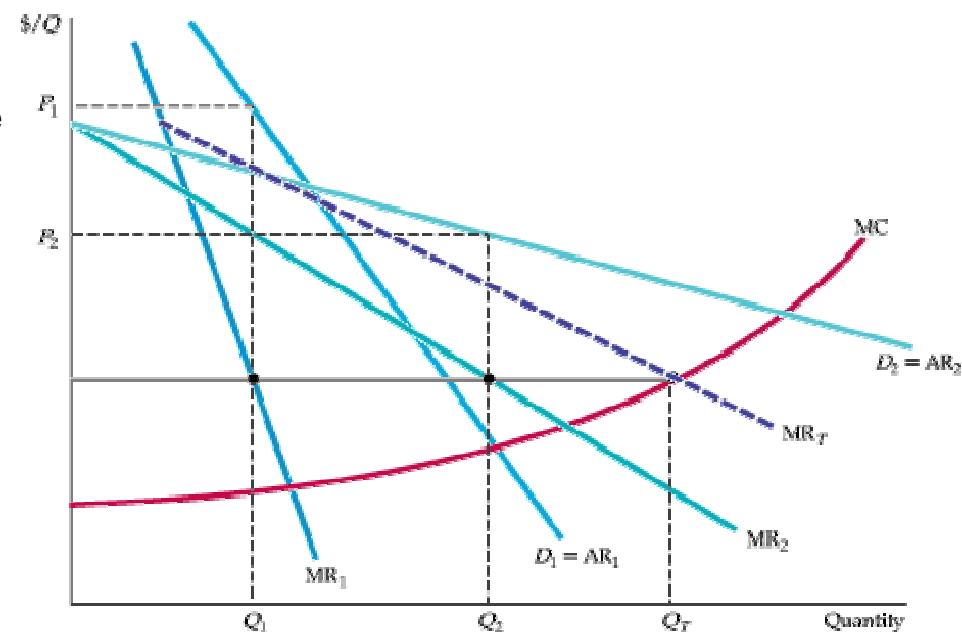
Consumers are divided into two groups, with separate demand curves for each group. The optimal prices and quantities are such that the marginal revenue from each group is the same and equal to marginal cost.

Here group 1, with demand curve D_1 , is charged P_1 ,

and group 2, with the more elastic demand curve D_2 , is charged the lower price P_2 .

Marginal cost depends on the total quantity produced Q_T .

Note that Q_1 and Q_2 are chosen so that $MR_1 = MR_2 = MC$.



Third-Degree Price Discrimination

Determining Relative Prices

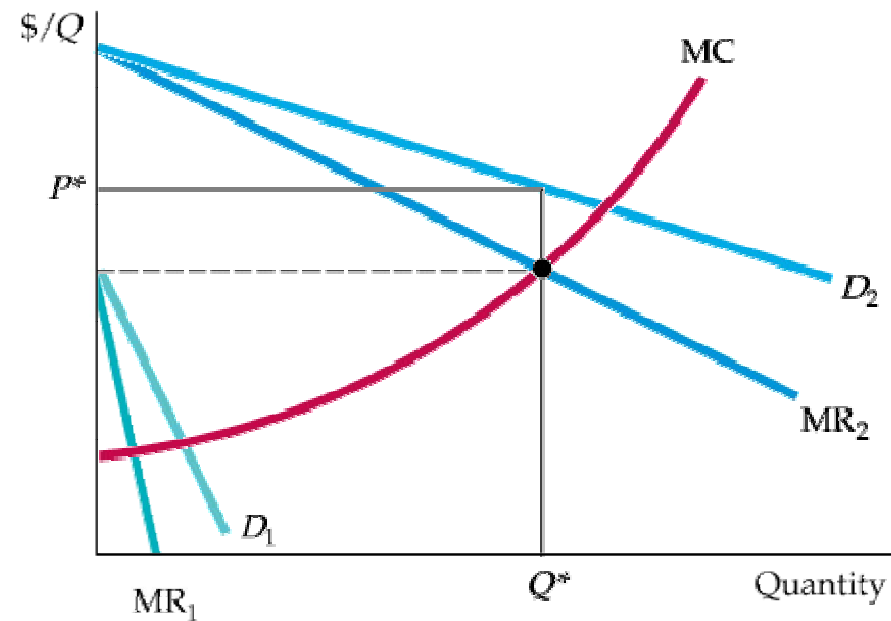
Figure 11.6

No Sales to Smaller Market

Even if third-degree price discrimination is feasible, it may not pay to sell to both groups of consumers if marginal cost is rising.

Here the first group of consumers, with demand D_1 , are not willing to pay much for the product.

It is unprofitable to sell to them because the price would have to be too low to compensate for the resulting increase in marginal cost.



PRICE DISCRIMINATION



EXAMPLE 11.1

The Economics of Coupons and Rebates



Coupons provide a means of price discrimination.

Studies show that only about 20 to 30 percent of all consumers regularly bother to clip, save, and use coupons.

Rebate programs work the same way.

Only those consumers with relatively price-sensitive demands bother to send in the materials and request rebates.

Again, the program is a means of price discrimination.

PRICE DISCRIMINATION



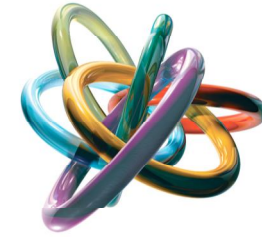
EXAMPLE 11.1

The Economics of Coupons and Rebates (continued)

TABLE 11.1 Price Elasticities of Demand for Users versus Nonusers of Coupons

Product	PRICE ELASTICITY	
	Nonusers	Users
Toilet tissue	-0.60	-0.66
Stuffing/dressing	-0.71	-0.96
Shampoo	-0.84	-1.04
Cooking/salad oil	-1.22	-1.32
Dry mix dinners	-0.88	-1.09
Cake mix	-0.21	-0.43
Cat food	-0.49	-1.13
Frozen entrees	-0.60	-0.95
Gelatin	-0.97	-1.25
Spaghetti sauce	-1.65	-1.81
Creme rinse/conditioner	-0.82	-1.12
Soups	-1.05	-1.22
Hot dogs	-0.59	-0.77

PRICE DISCRIMINATION



EXAMPLE 11.2

Airline Fares

Travelers are often amazed at the variety of fares available for round-trip flights from New York to Los Angeles.

Recently, for example, the first-class fare was above \$2000; the regular (unrestricted) economy fare was about \$1700, and special discount fares (often requiring the purchase of a ticket two weeks in advance and/or a Saturday night stayover) could be bought for as little as \$400.

These fares provide a profitable form of price discrimination. The gains from discriminating are large because different types of customers, with very different elasticities of demand, purchase these different types of tickets.

TABLE 11.2 Elasticities of Demand for Air Travel

Elasticity	FARE CATEGORY		
	First Class	Unrestricted Coach	Discounted
Price	-0.3	-0.4	-0.9
Income	1.2	1.2	1.8

INTERTEMPORAL PRICE DISCRIMINATION AND PEAK-LOAD PRICING

Intertemporal Price Discrimination

- **intertemporal price discrimination** Practice of separating consumers with different demand functions into different groups by charging different prices at different points in time.
- **peak-load pricing** Practice of charging higher prices during peak periods when capacity constraints cause marginal costs to be high.

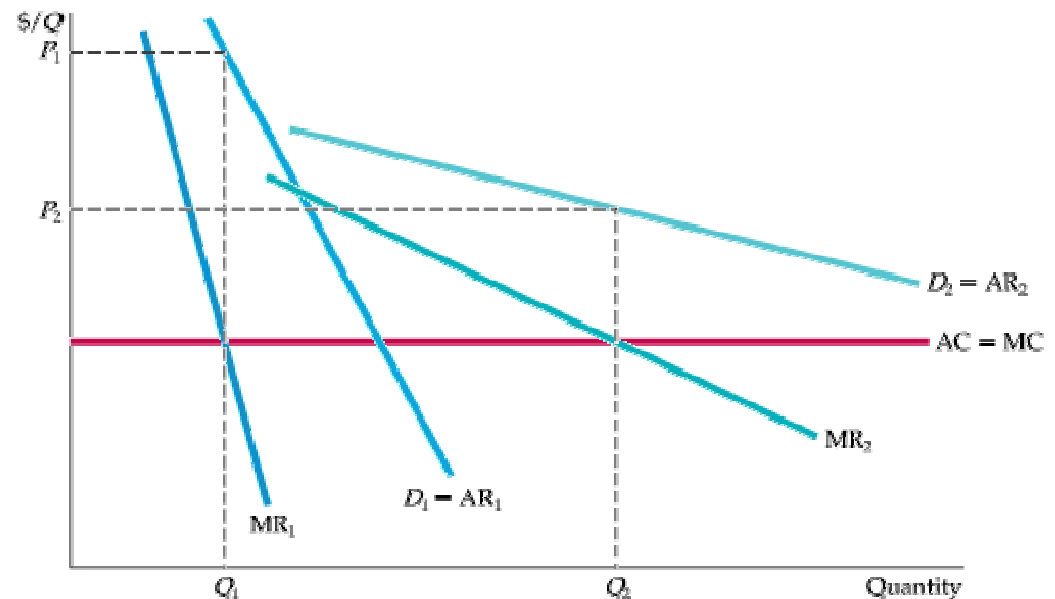
Figure 11.7

Intertemporal Price Discrimination

Consumers are divided into groups by changing the price over time.

Initially, the price is high. The firm captures surplus from consumers who have a high demand for the good and who are unwilling to wait to buy it.

Later the price is reduced to appeal to the mass market.



INTERTEMPORAL PRICE DISCRIMINATION AND PEAK-LOAD PRICING

Peak-Load Pricing

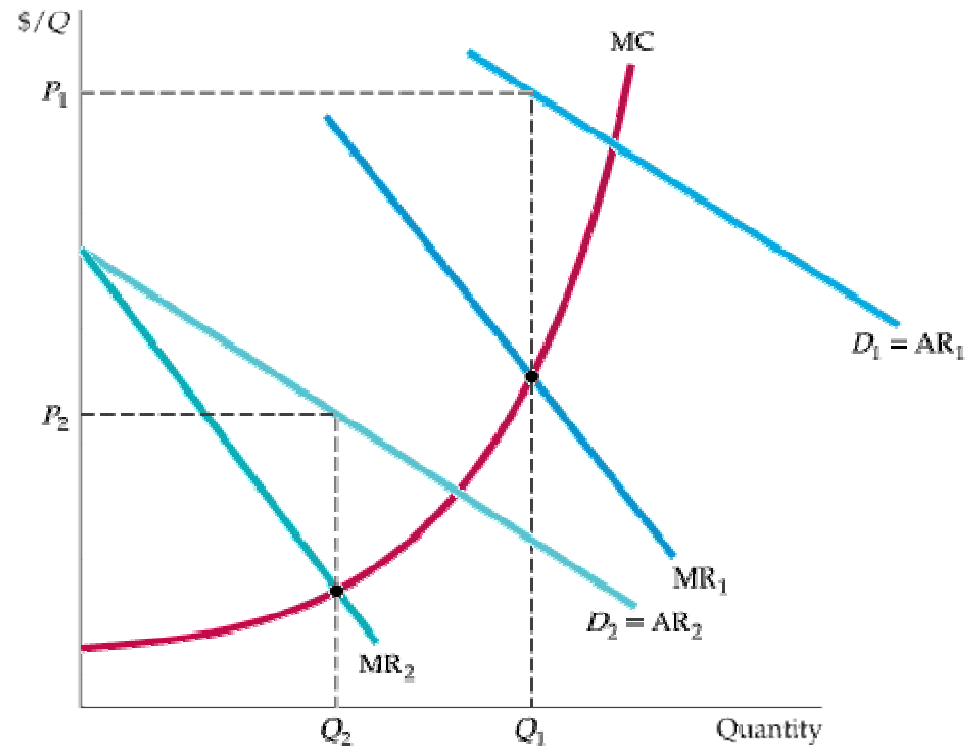
Figure 11.8

Peak-Load Pricing

Demands for some goods and services increase sharply during particular times of the day or year.

Charging a higher price P_1 during the peak periods is more profitable for the firm than charging a single price at all times.

It is also more efficient because marginal cost is higher during peak periods.

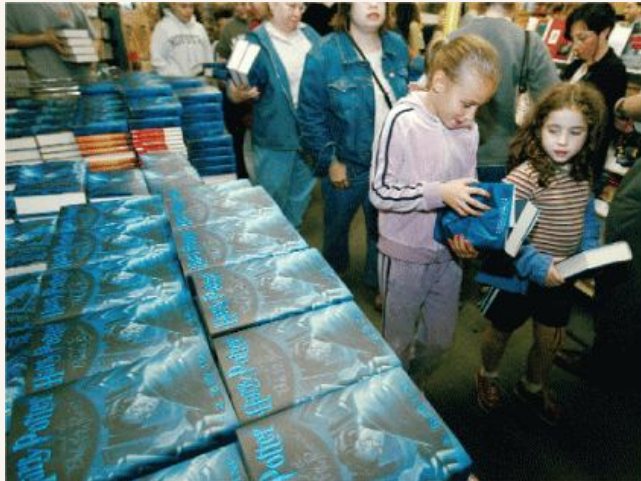


INTERTEMPORAL PRICE DISCRIMINATION AND PEAK-LOAD PRICING



EXAMPLE 11.3

How to Price a Best-Selling Novel



Publishing both hardbound and paperback editions of a book allows publishers to price discriminate.

Some consumers want to buy a new bestseller as soon as it is released, even if the price is \$25. Other consumers, however, will wait a year until the book is available in paperback for \$10.

The key is to divide consumers into two groups, so that those who are willing to pay a high price do so and *only* those unwilling to pay a high price wait and buy the paperback.

It is clear, however, that those consumers willing to wait for the paperback edition have demands that are far more elastic than those of bibliophiles.

It is not surprising, then, that paperback editions sell for so much less than hardbacks.