# Transport Economics

Lecture 5

26 January 2023

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# Homework 3 graded

# Seminar today

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Title: **Displacing congestion: Evidence from Paris**

Time: 16:00 – 17:30

Venue: V001, Jenny ja Antti Wihuri, Aalto University School of Business, Ekonominaukio 1

# Market failures (review)

- Free markets are not always efficient because of:
    - Externalities (private benefits/costs do not represent social benefits/costs)
    - Lack/excess of competition
    - Imperfect information

- Lead to over-/under-provision of goods and services

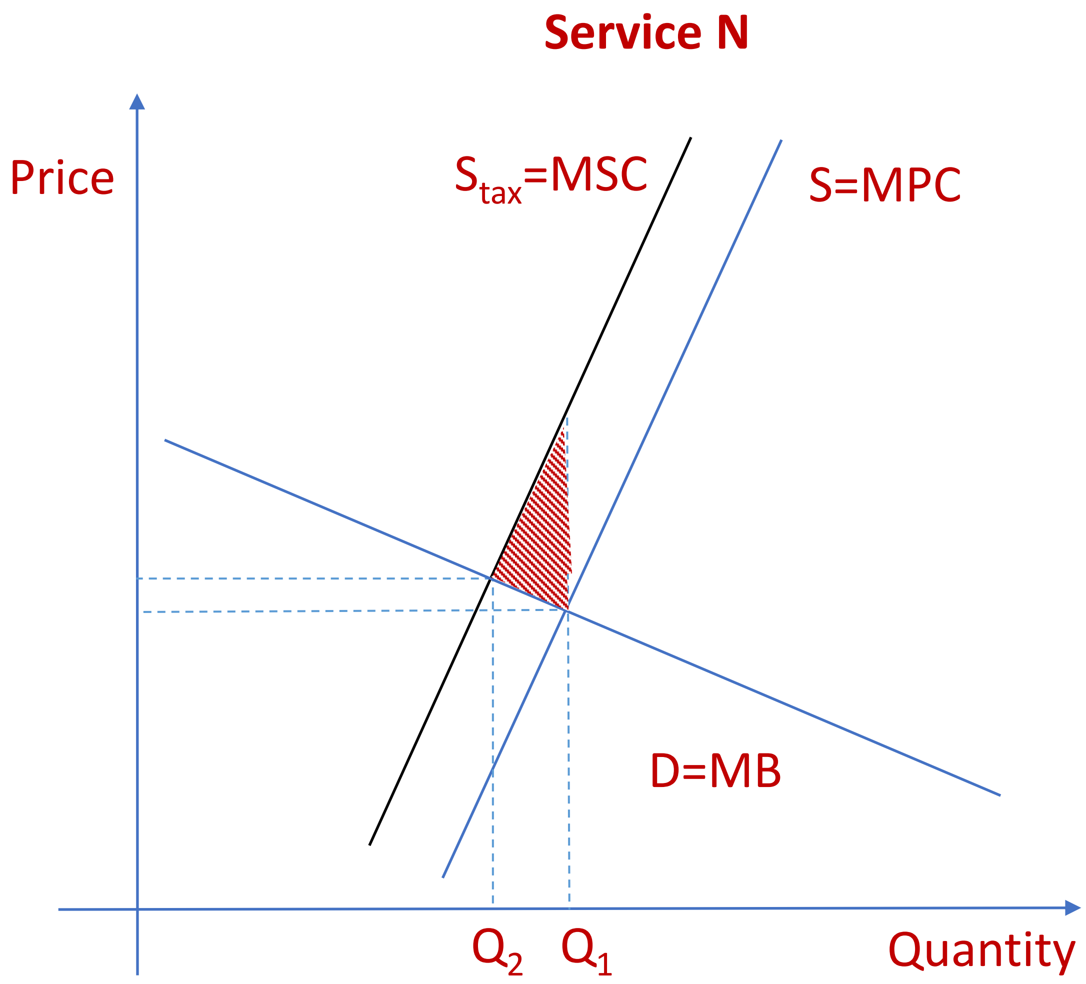
- Govt intervention can reduce the deadweight loss

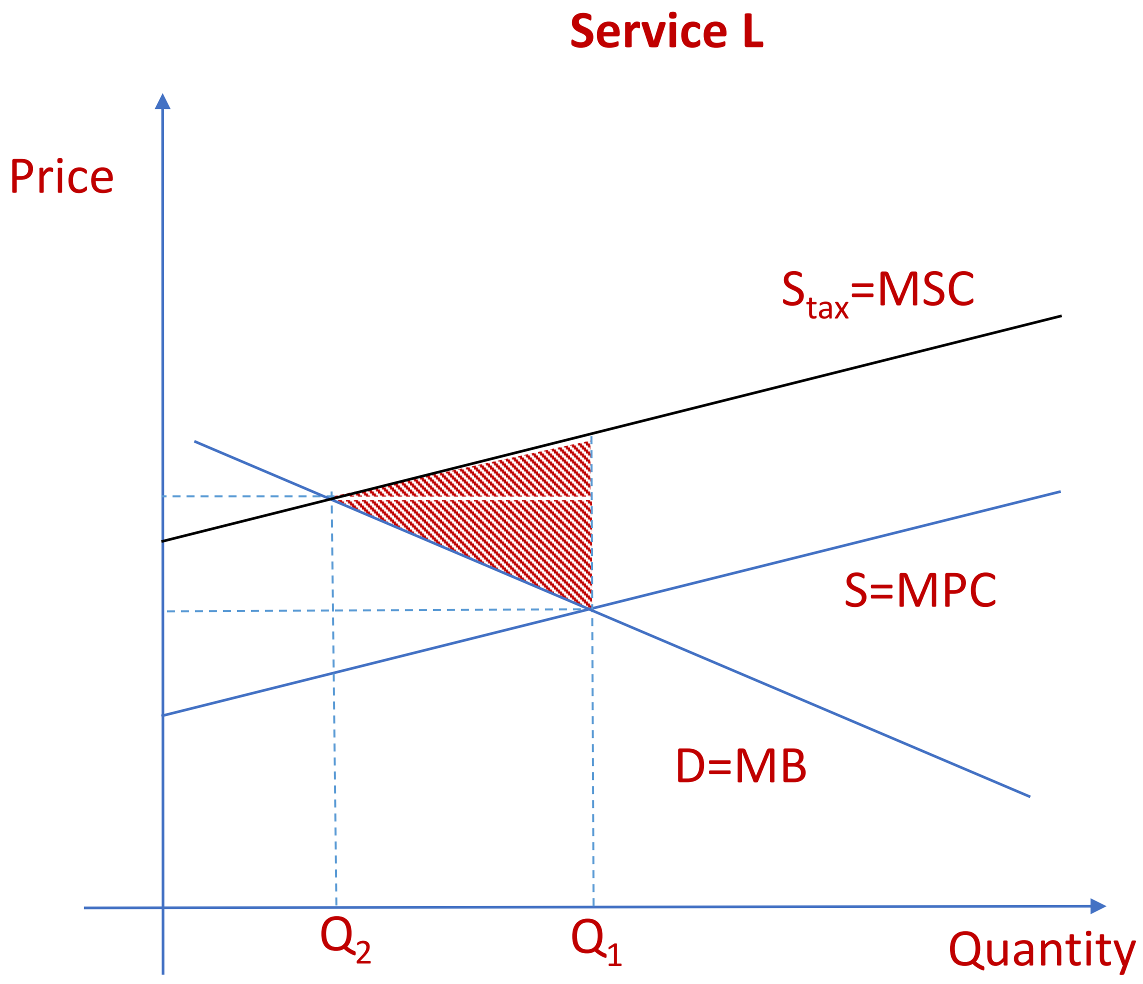
# Regulation and ownership (review)

- Why we need government interventions
  - Externalities, lack of competition, information asymmetry, natural monopolies
- Drawbacks of regulation
  - Misaligned incentives, ‘second-best solution’, information asymmetry, regulator accountability, …
- Public vs private ownership
- Pricing of natural monopolies

# Homework 4.1: How to minimize DWL?

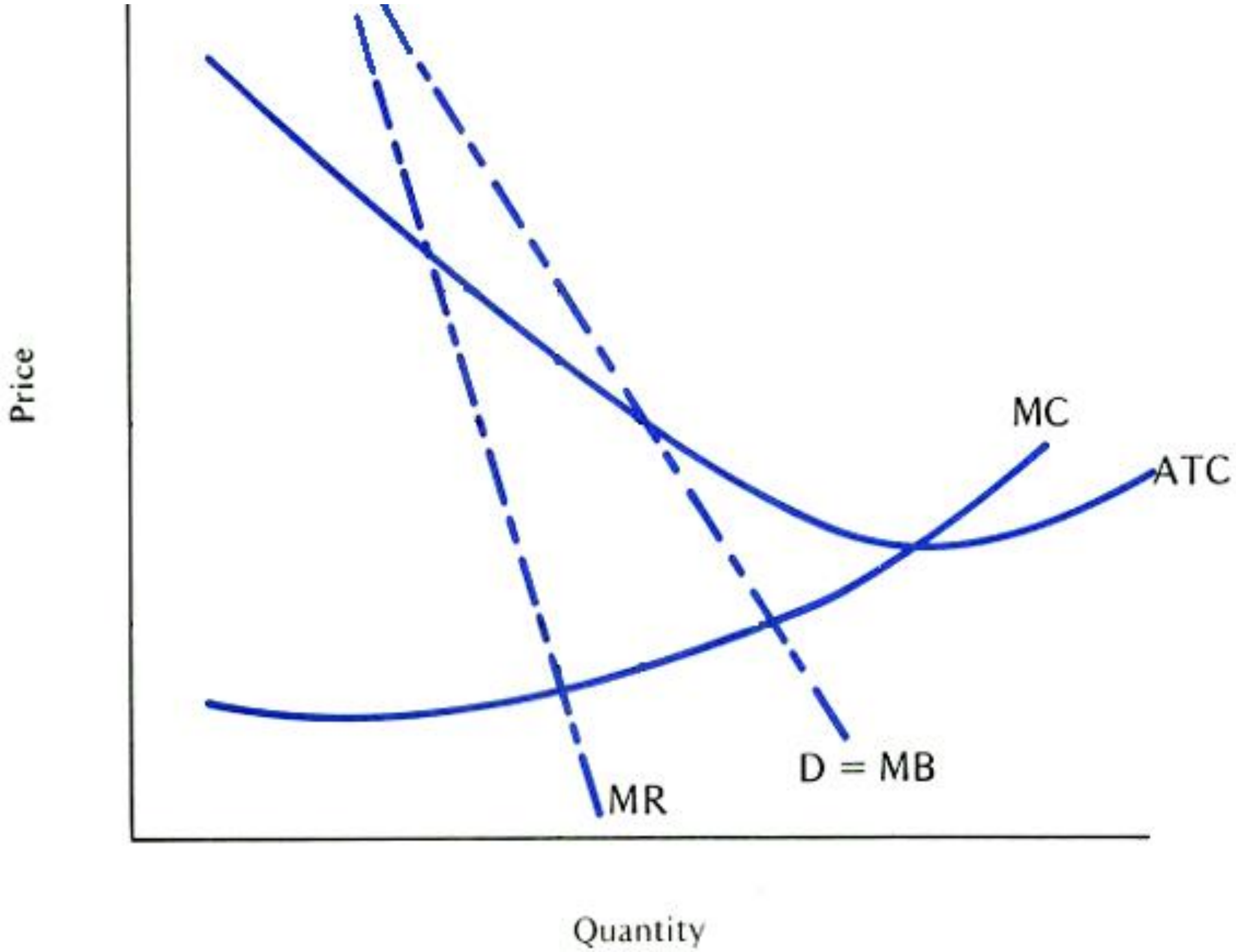
Price-inelastic supply VS Price-elastic supply



# Pricing of natural monopolies

- Regular monopoly pricing
  - MR = MC
- Average cost pricing
  - Produce as much as possible without making a loss
  - MB = ATC
- Marginal cost pricing
  - Maximize net benefit
  - MB = MC



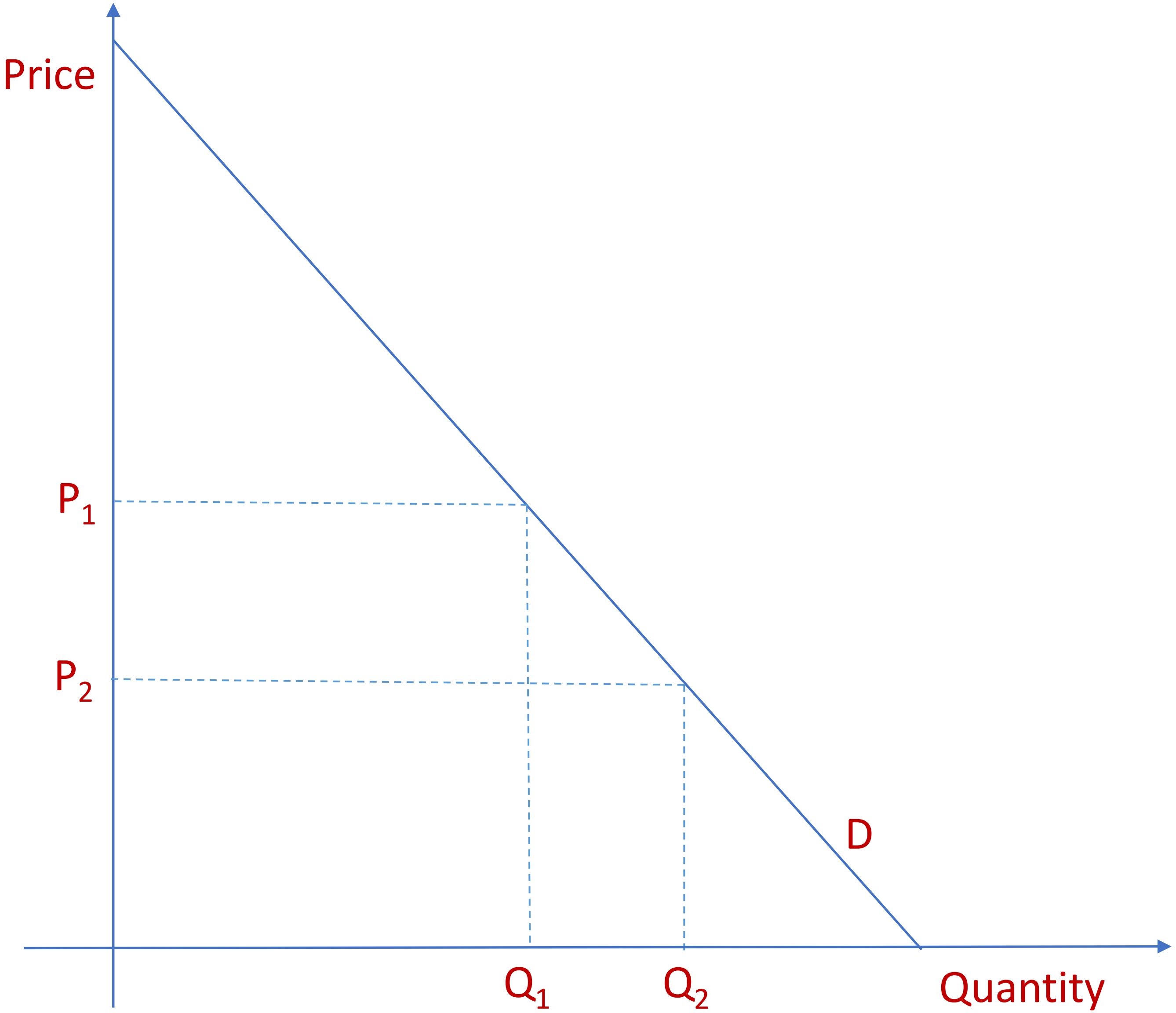
# Price Discrimination

# Price Discrimination

- Sell the same service to different buyers at different prices

- E.g., student discounts, lower off peak fares, etc.

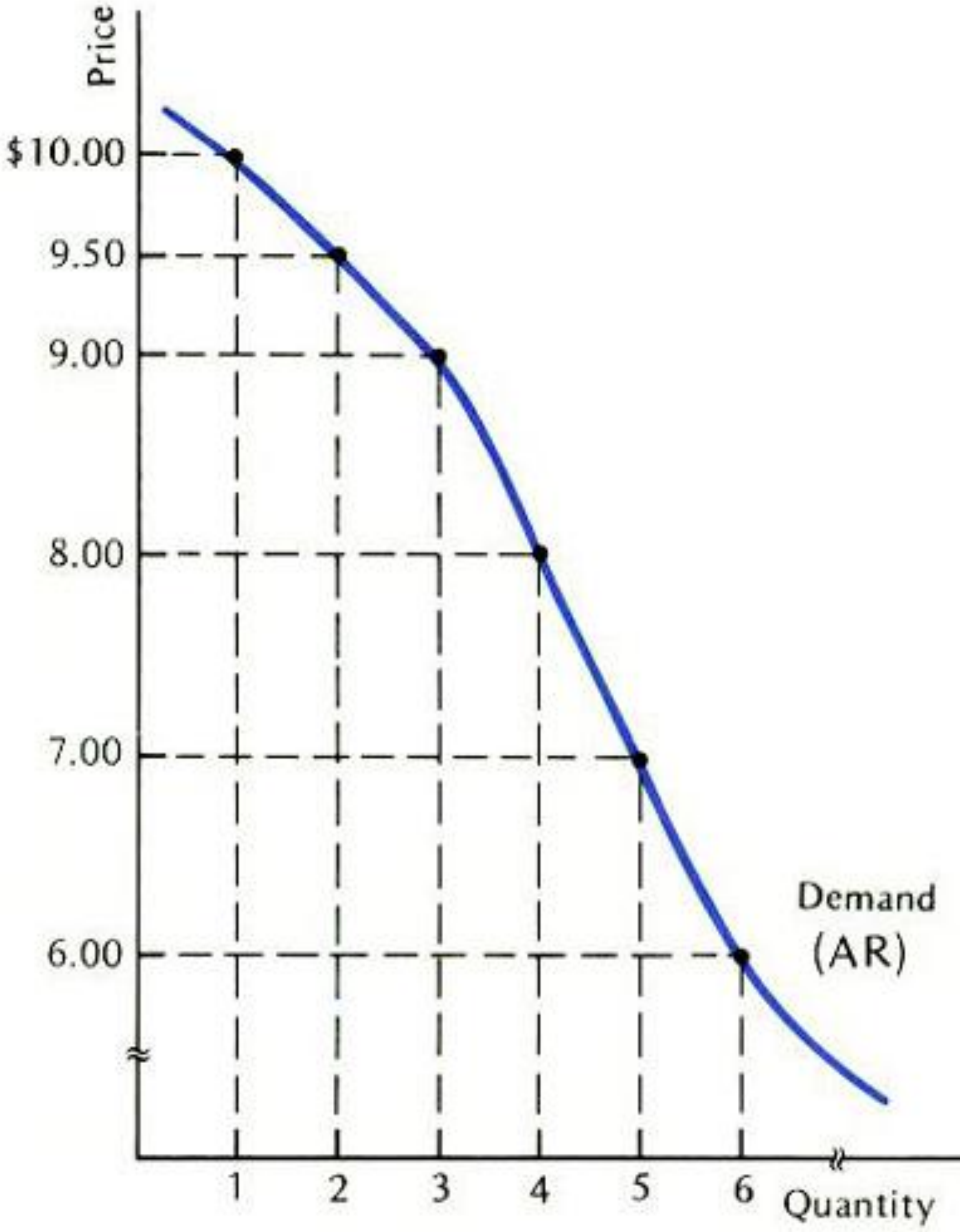
- Can sell more quantities than at one equilibrium price.



# Perfect Price Discrimination

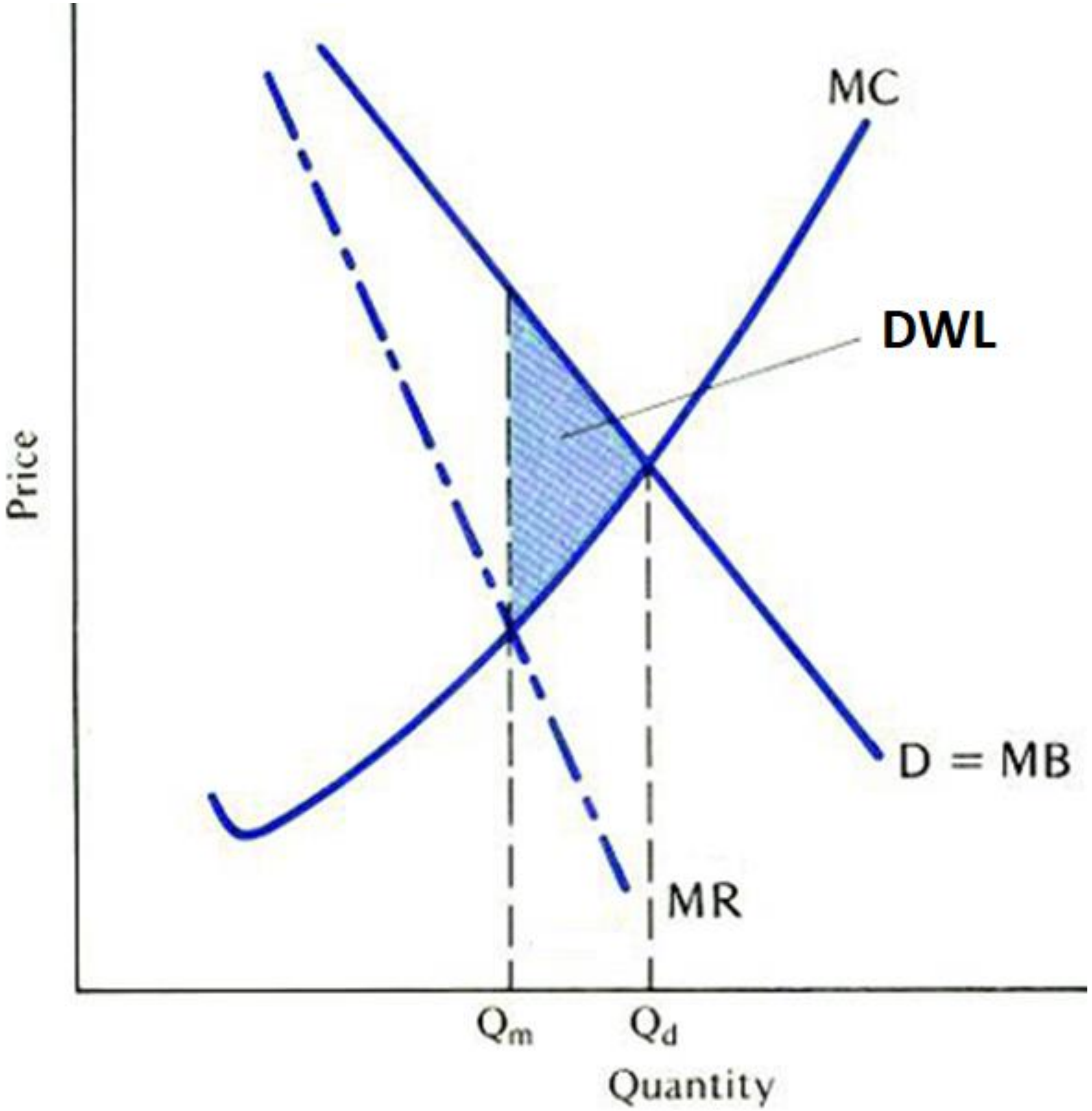
- Sell each individual item produced at the highest possible price consumers are willing to pay.

- Zero consumer surplus!



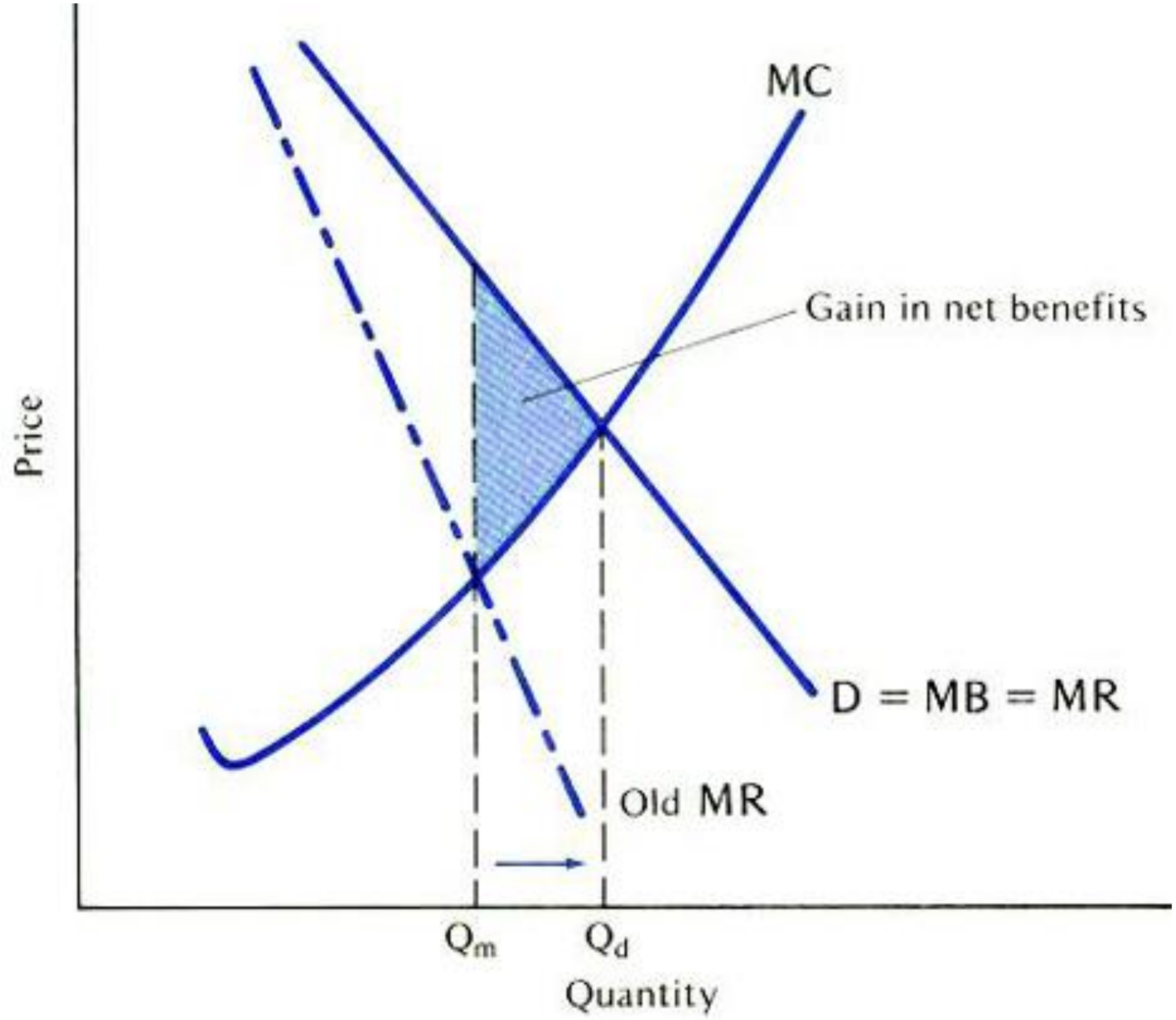
# Recall: monopolies generate deadweight loss

- Underproduction of services under monopolies.
- Some untraded quantities where marginal benefits (MB) > marginal costs (MC)
- Leading to deadweight loss (DWL)



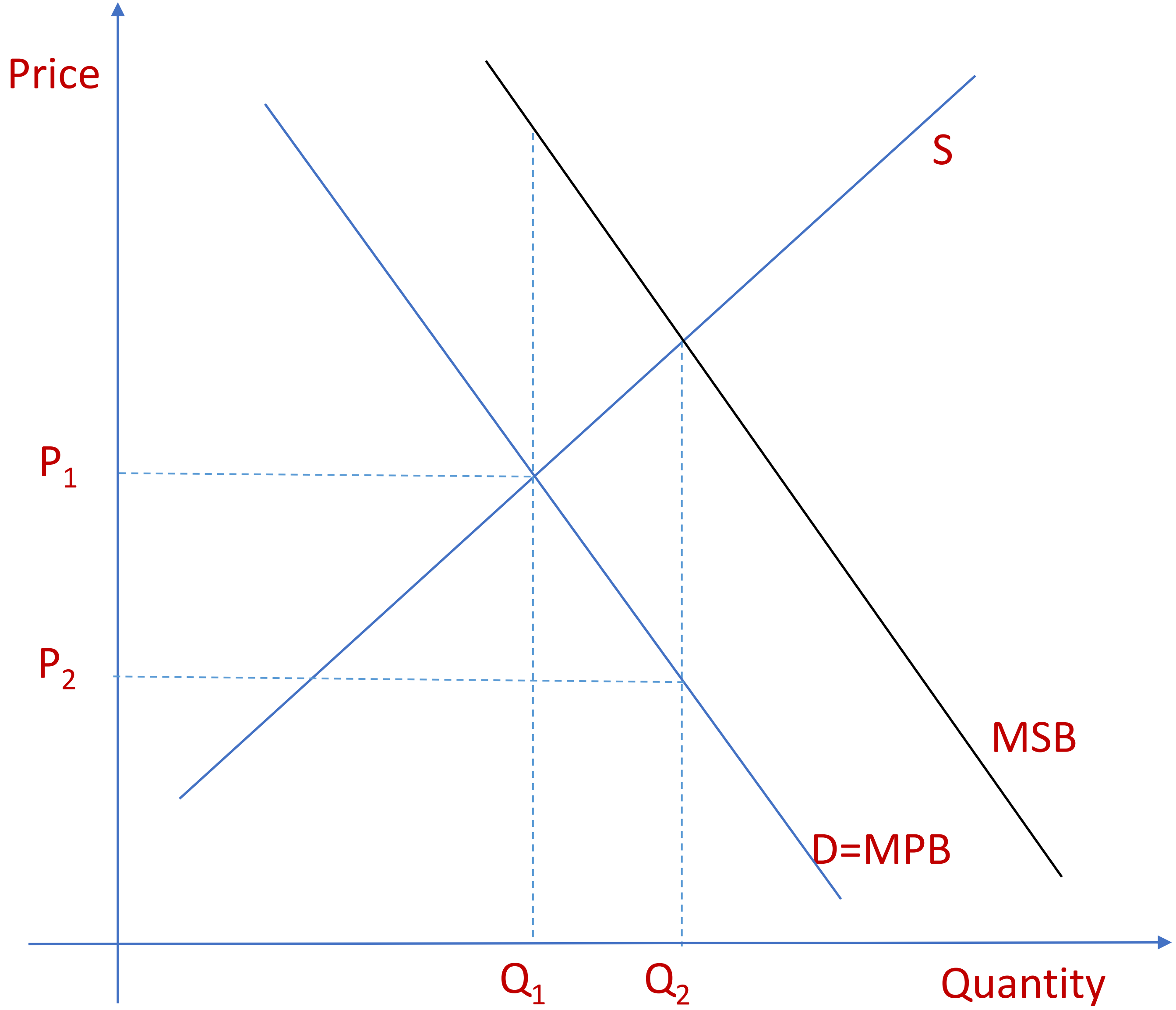
# Perfect Price Discrimination eliminates DWL

- Can help tackle underproduction of services under monopolies.
- No deadweight loss from monopolies!
- Marginal revenue = Demand = Marginal benefit



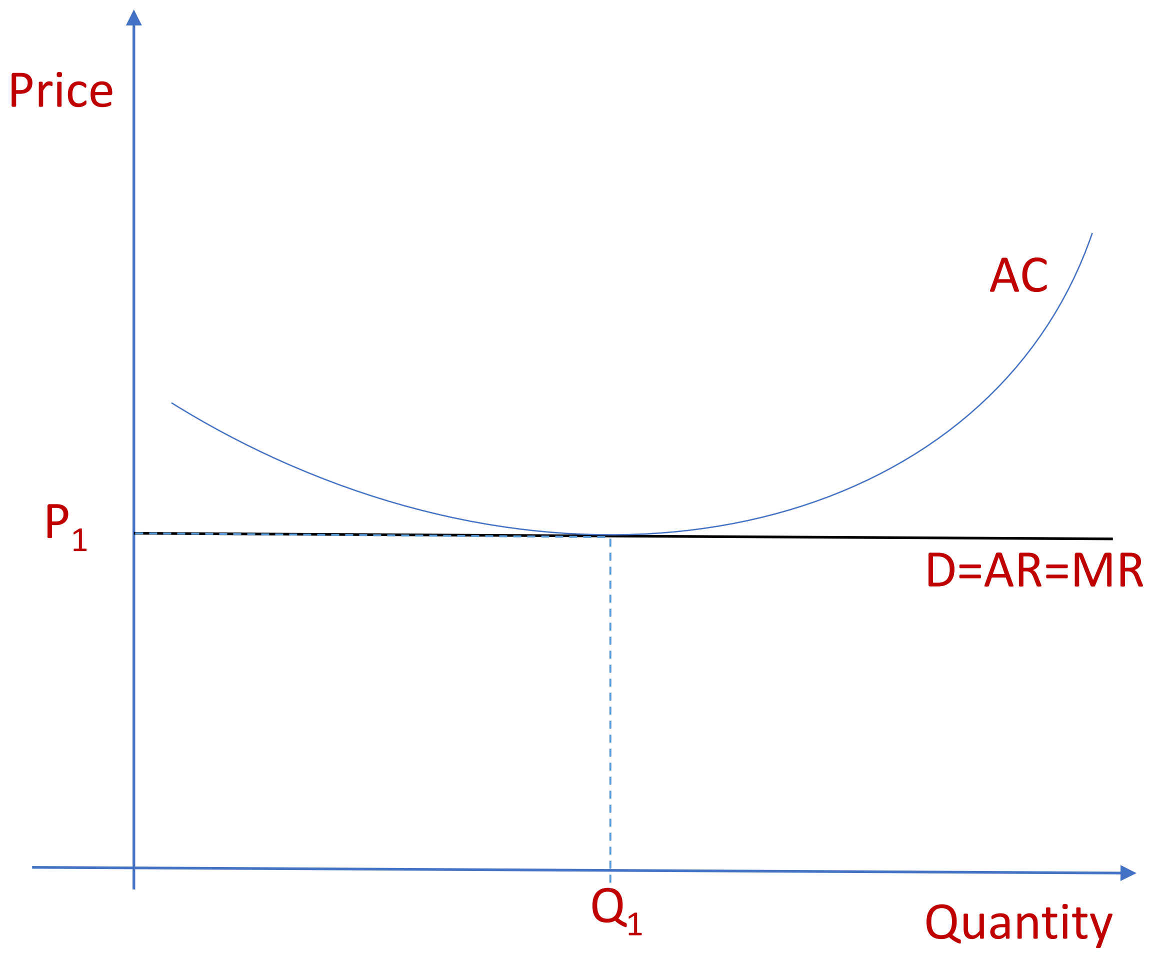
# Perfect Price Discrimination eliminates DWL

- Can help tackle underproduction of services due to positive externalities.
- Price discriminate perfectly between $P_1$ and $P_2$:
- No deadweight loss from positive externalities!
- But also no consumer surplus!



# No price discrimination under perfect competition

- Not possible without market power
- Firms in competitive markets have to take prices as given.



# Conditions for price discrimination

- Imperfect competition
  - Seller must have some market power to set prices

- Buyers are separable
  - E.g., preventing economy class travelers from lounging in the first class, stopping an adults from using a child's ticket, etc.
  - Easier to do for services (such as transport), where the market can be divided easily in time and space.

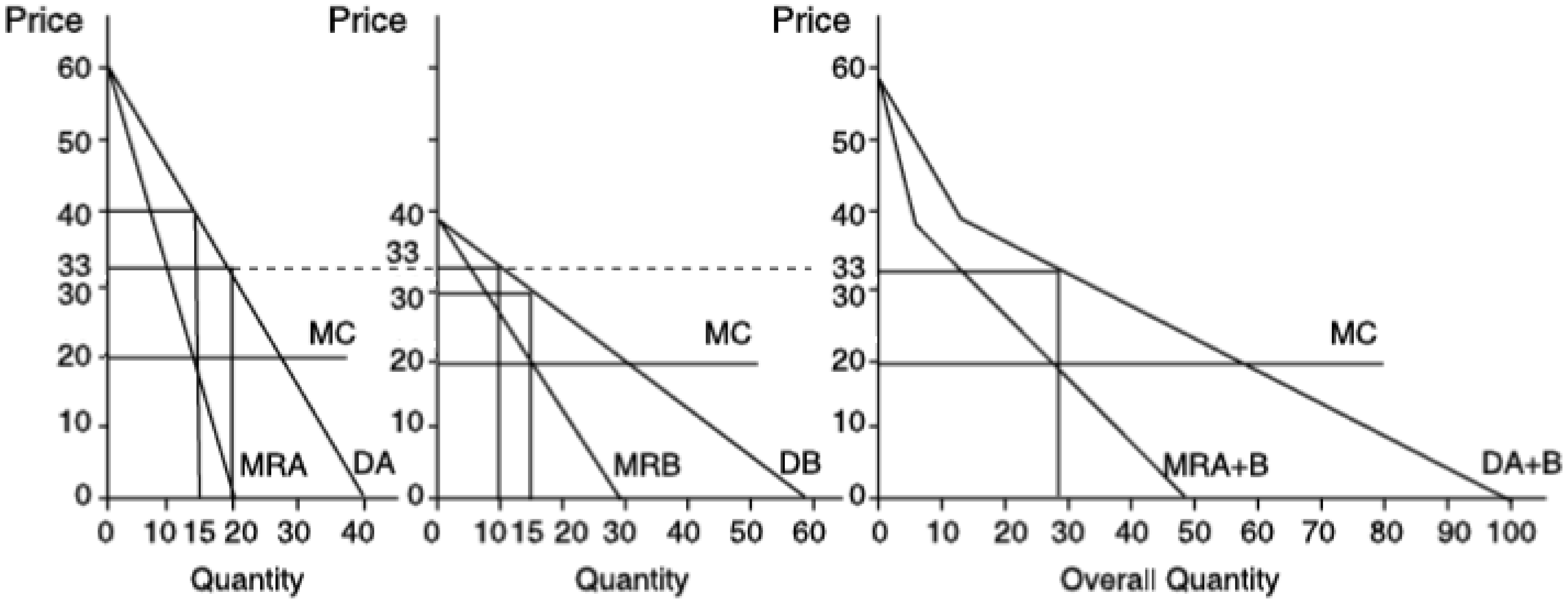
- Low admin costs and price-setting flexibility
  - e.g. ride-sharing services versus public transit fares

- Consumers with different price elasticities of demand
  - No point in dividing the market if they are ultimately to be charged the same price.

- Ability to distinguish different price elasticities of demand
  - To price discriminate perfectly, need to know every individual's unique demand curve

# Different elasticities of demand

**Worksheet 5.1**

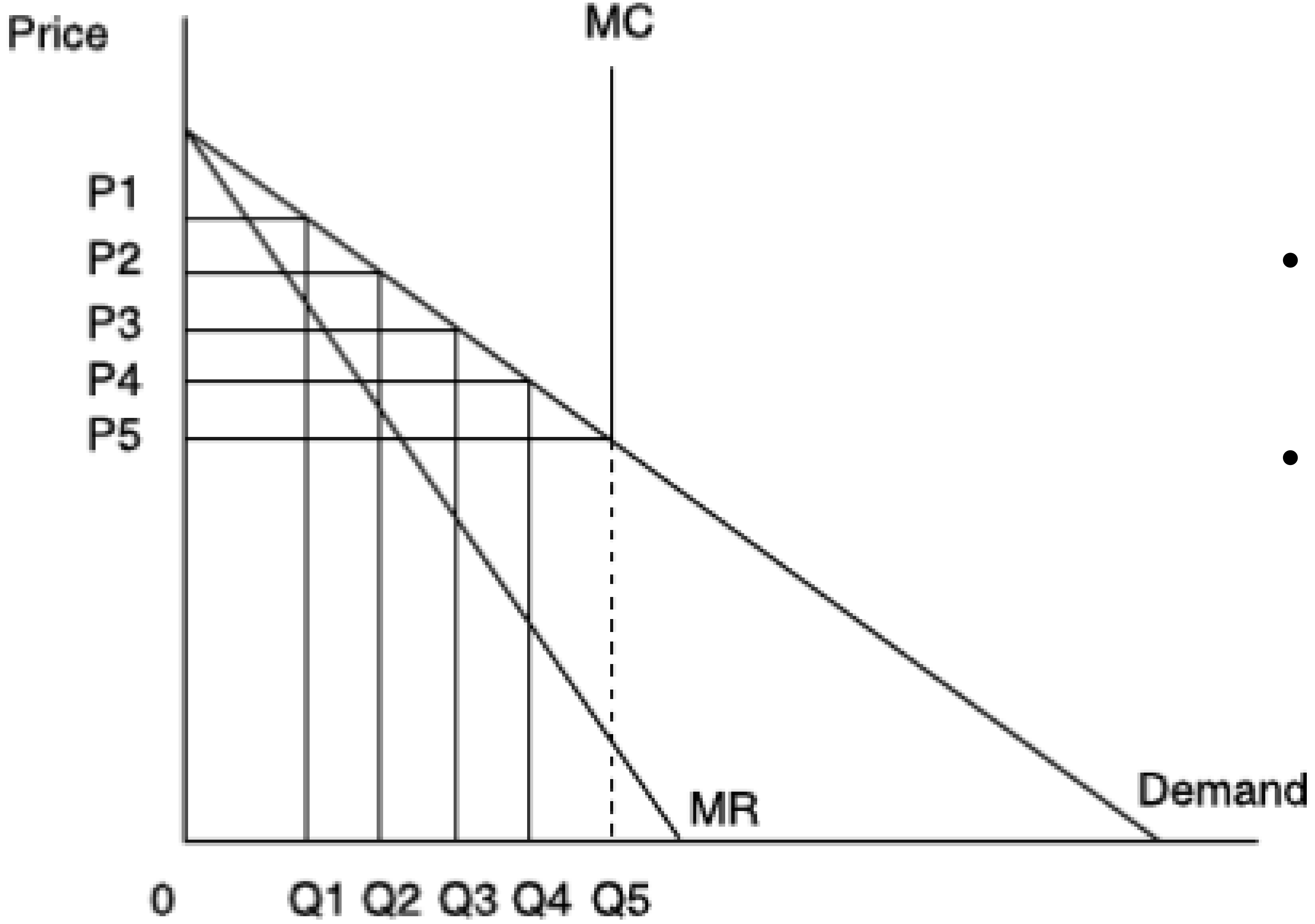



(a) Market A (b) Market B (c) Market A + B

# How does price discrimination affect the consumer surplus in each market?

https://presemo.aalto.fi/tecon05

# Sale of airline tickets




- Marginal cost is constant until aircraft reaches full capacity, then becomes perfectly inelastic.
- Profit maximization (MR=MC) at around Q2 and P2
- Can do better with price discrimination
  - E.g., selling at lower prices to those who can commit earlier to travel
  - At higher prices to those who book late (and have fewer alternatives / more price-inelastic demand)

# Advantages of price discrimination

- Higher revenue for suppliers
  - Allows some suppliers to stay in business who otherwise would make a loss

- Lower prices for some consumers

- Manages demand
  - E.g., spread out demand across peak and off-peak travel times

# Disadvantages of price discrimination

- Higher prices for some consumers
- Lower consumer surplus
- May be unfair
  - Those paying higher prices may not be the ones most able to, just have worse alternatives.
- Administration costs
- Predatory pricing

# Predatory pricing

- When a supplier sells a good or service at a price below cost (or very cheaply) with the intention of forcing rival suppliers out of business.

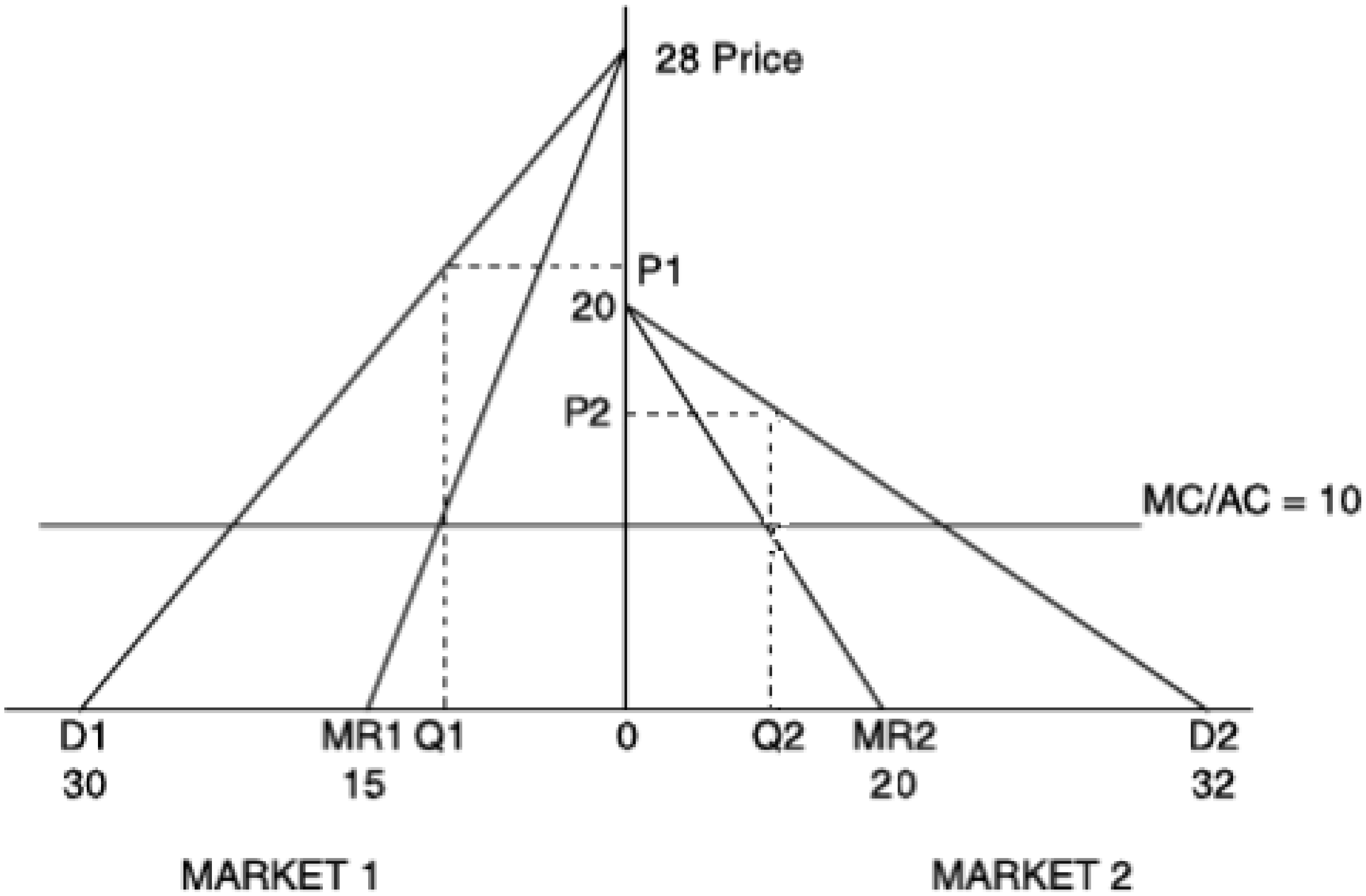
- An incumbent monopolist with large financial capital can afford to cut prices and make a temporary loss to deter competition.

- Lower prices in the short run, but harms consumers (higher monopoly prices) in the long run.

# Other pricing examples

- Taxis/ridesharing services
  - Dynamic price discrimination
  - also discriminating on costs e.g., driver compensations
- Road travel
  - HOV lanes, toll roads
  - Congestion pricing

# Homework 5: Price discrimination



# In-class Debates

- 4-5 topics debated by pairs of groups defending opposing positions
- Groups of size 3-5
- Each group presents their case for 15 min
- The other group has 5 min to respond
- Evaluation:
  - How well you incorporate economic reasoning
  - Clarity and coherence of presentation
  - Use of observational evidence

# In-class Debates

- Topics would explore questions e.g.
  - what the appropriate amount of regulation or public ownership should be in a particular transport market?
  - What is a desirable level of competition or general market structure?
  - How the welfare gains from certain policies are distributed?

- Last year’s topics:
  - Should public transit be free?
  - Should public transit be provided on-demand?