Transport Economics

Lecture 4

23 January 2023

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Homework 2 graded

- Submit 1 pdf only.
- Question (d) was trickiest
- In e-f, shouldn't generally assume **perfect** (in)elasticity, unless stated so
- Elasticities are not expressed in percentages
  - Elasticity of -0.1 
  - is NOT -10%

Lecture 3 review

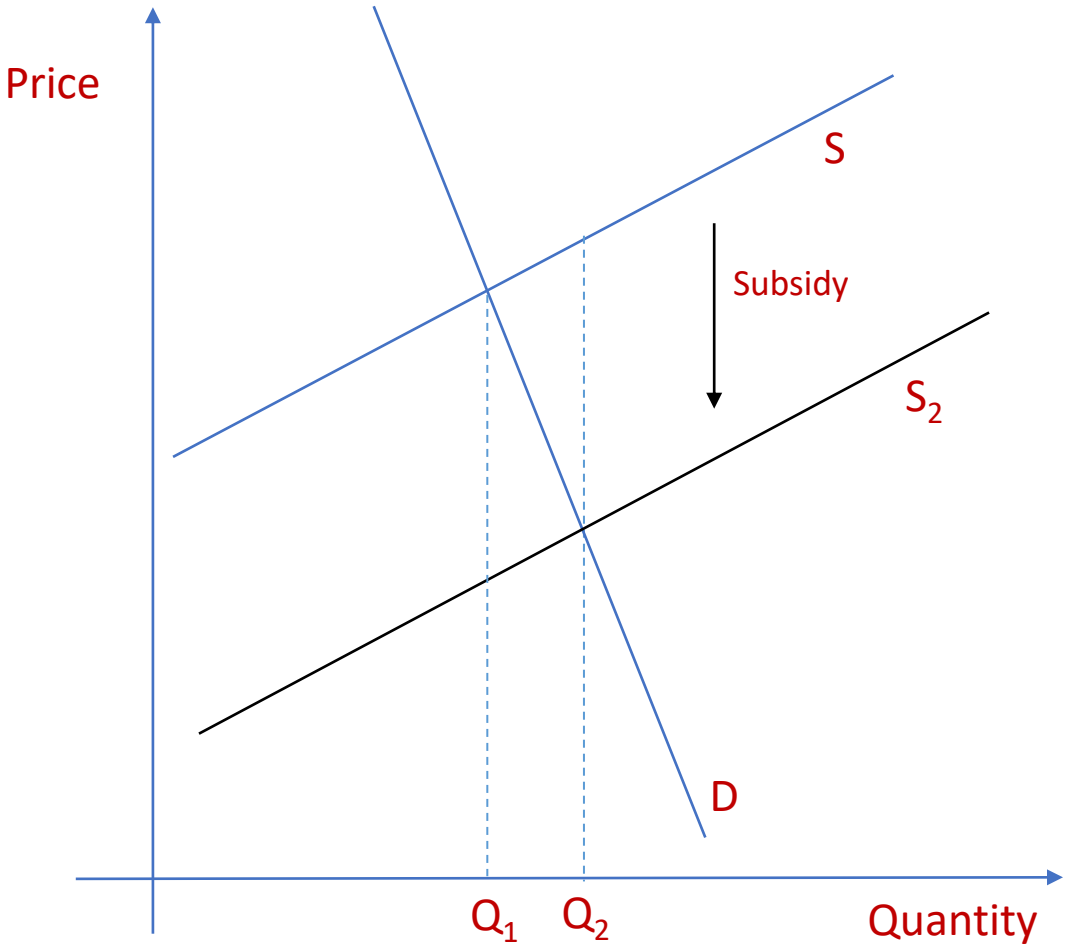
- Profit maximization by suppliers
  - When Marginal Revenue = Marginal Cost
- Perfect competition
  - Zero economic profits in the long run due to free entry/exit of firms
  - “Abnormal” profits/loss possible in the short run
- Monopolies
  - Lead to higher prices, lower output
  - lower consumer surplus, lower overall surplus

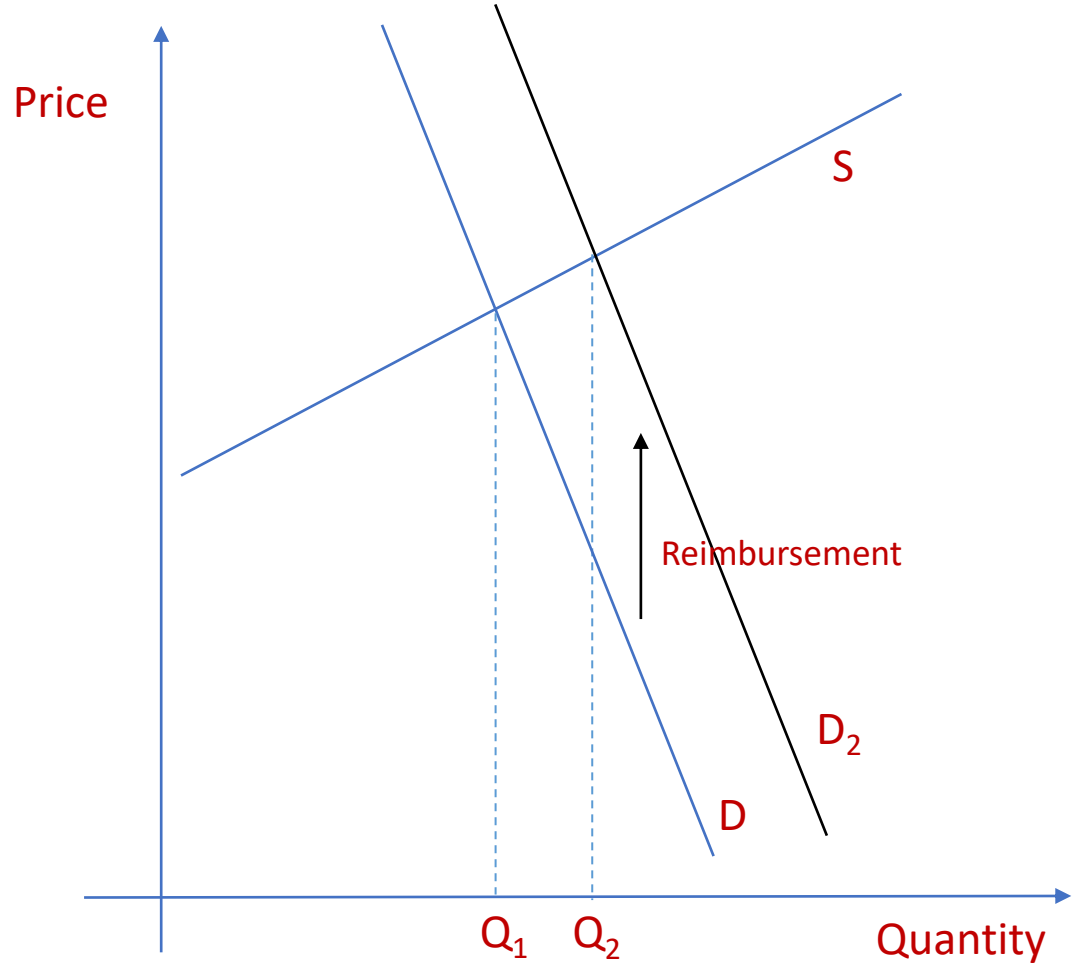
Homework 3.1: How to increase transit usage?

Subsidizing suppliers

VS

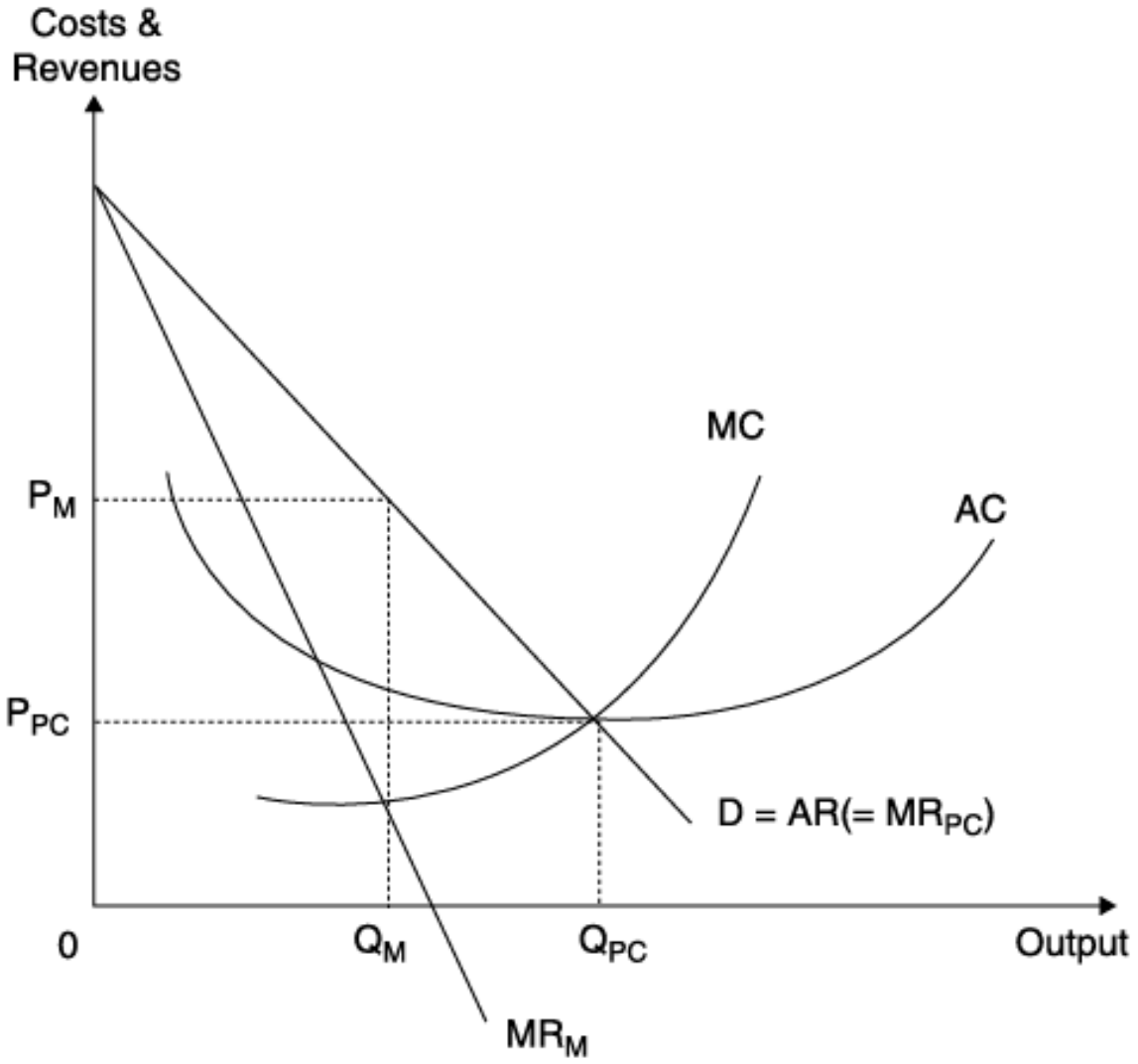
Reimbursing demanders





Homework 3.2: flat fee on monopolists

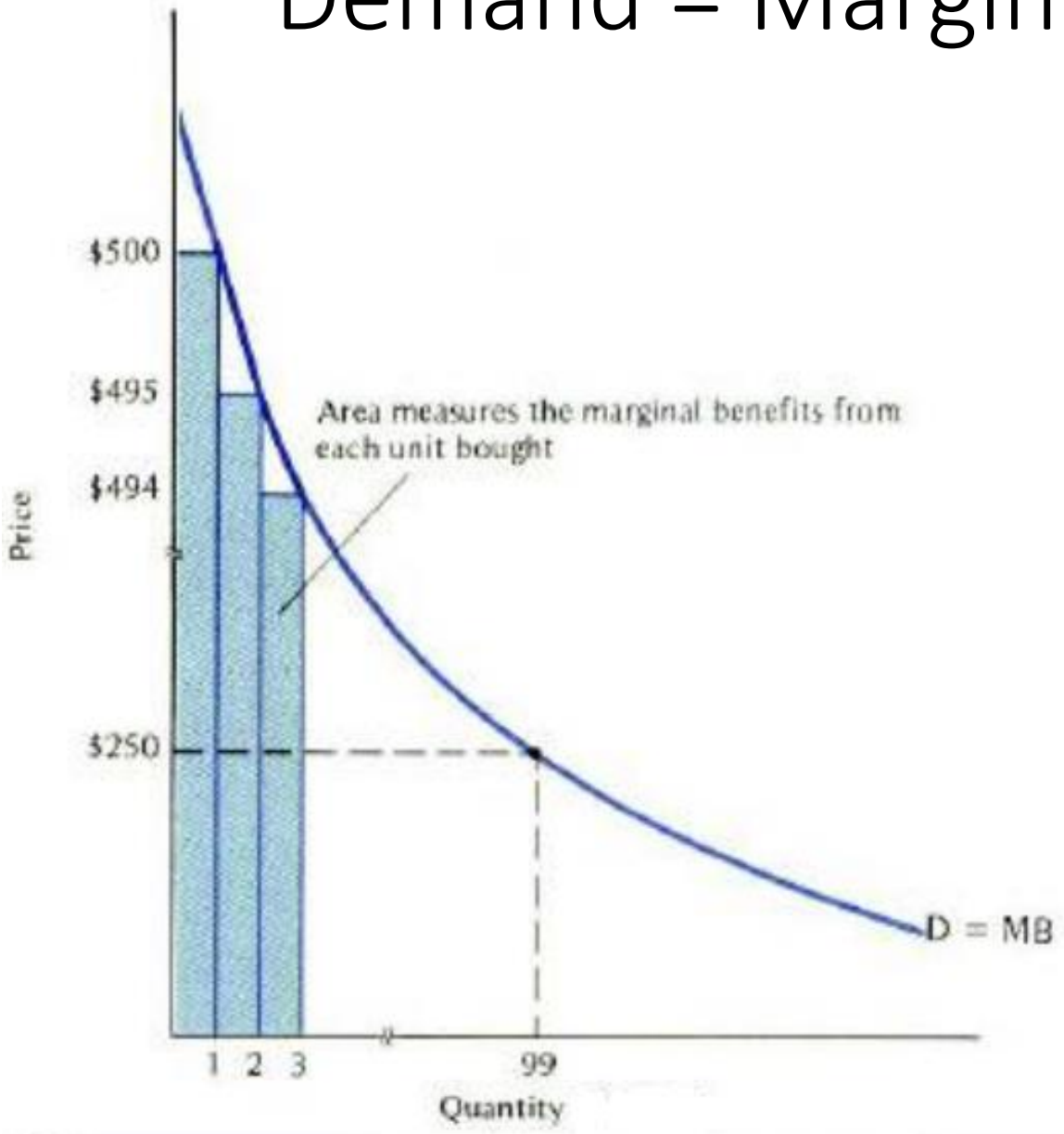
- Fee doesn't affect the demand curve. So, no effect on marginal revenues (MR).
- Fee doesn't vary with quantity produced, so doesn't affect marginal costs (MC).
- Quantity produced in equilibrium is where MR=MC, but fee affects neither. So, no effect. At that quantity, same price.
- Fee affects average production costs, so lower profits.



Recall our original problem

How to allocate finite resources
to maximize net benefits to everyone?

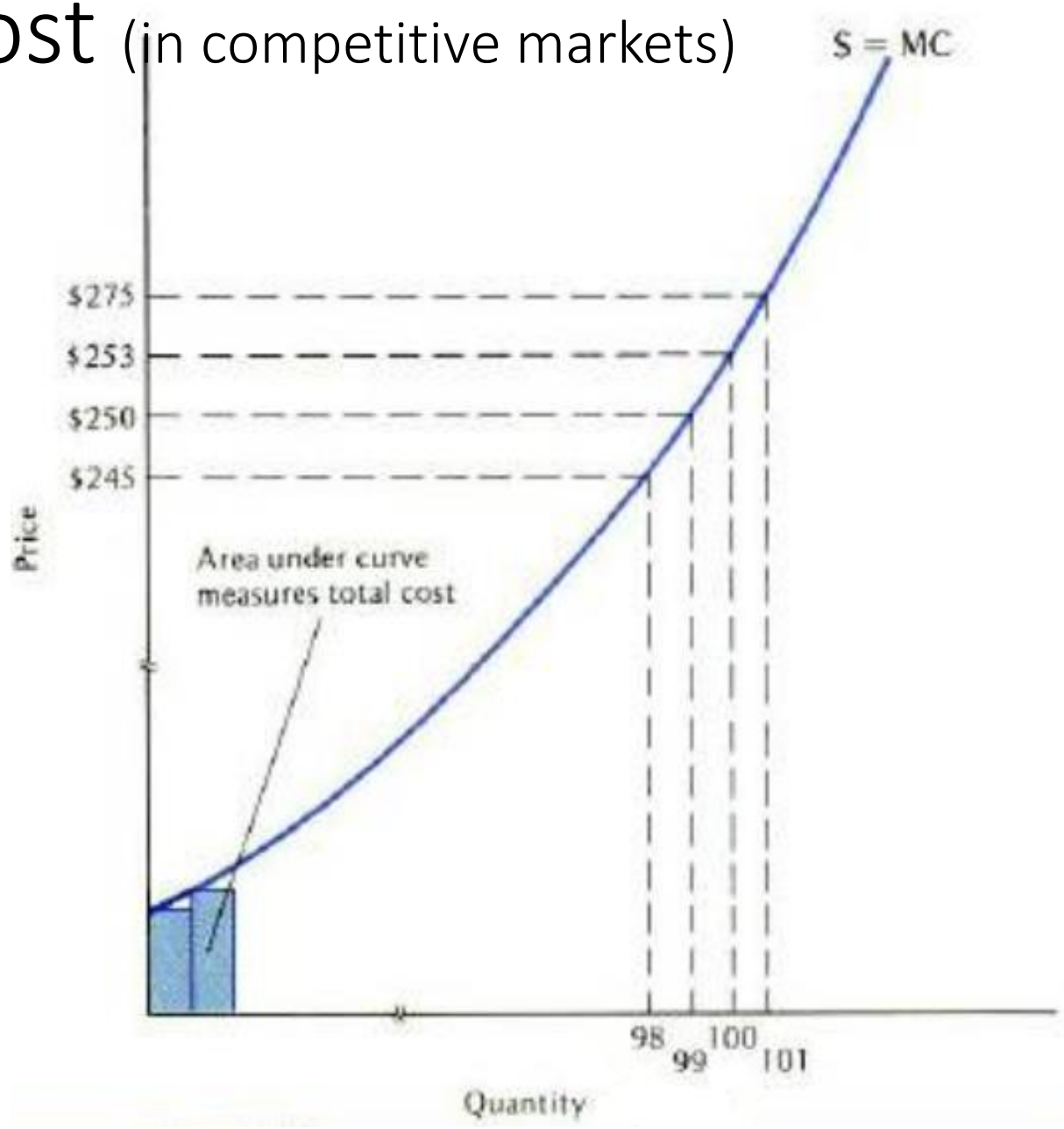
Demand = Marginal Benefit



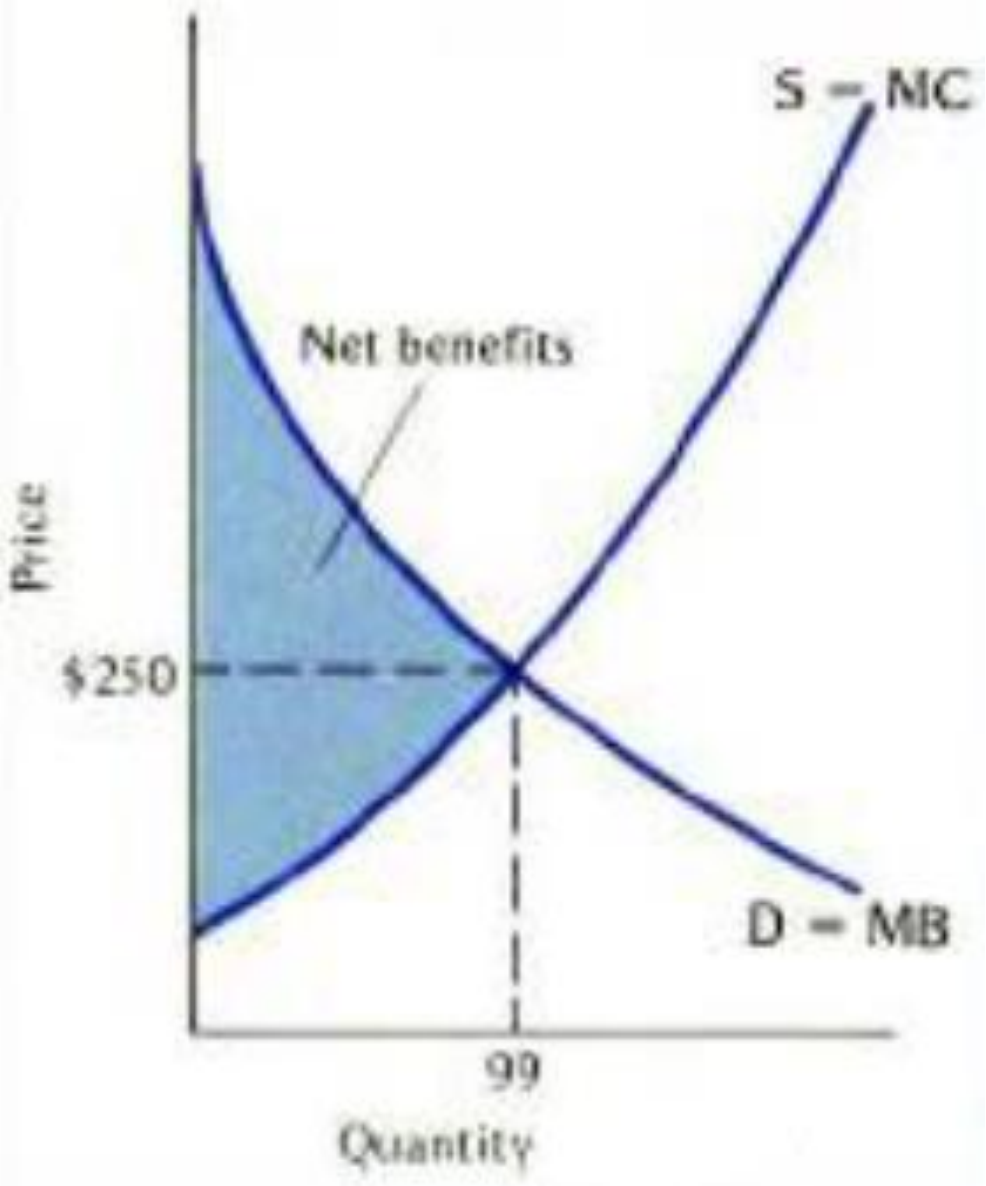
- Demand curve measures benefits in terms of dollars
- Society's willingness to pay for the last unit of the item
- Benefits in excess of market price are the consumers' surplus

Supply = Marginal Cost (in competitive markets)

- Under perfect competition, MR is a flat line.
- Because MR=MC, at any given price, the MC curve shows profit-maximizing amount of output to produce.
- Market price received in excess of production cost is the producer surplus.

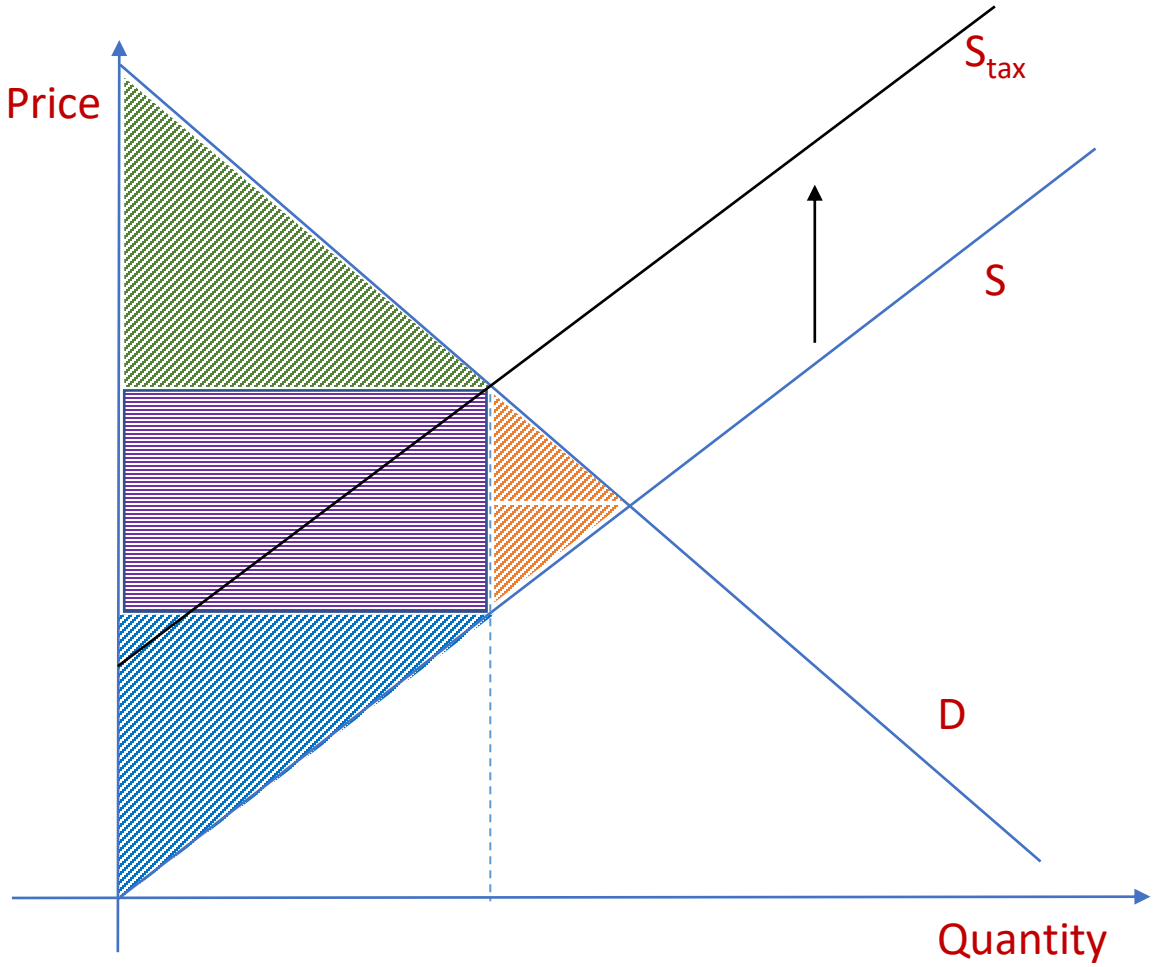


Free markets maximize net surplus



- Under competition
- In the absence of externalities

Deadweight Loss (DWL)



Govt intervention (e.g. a sales tax) can create deadweight loss.

New net surplus:

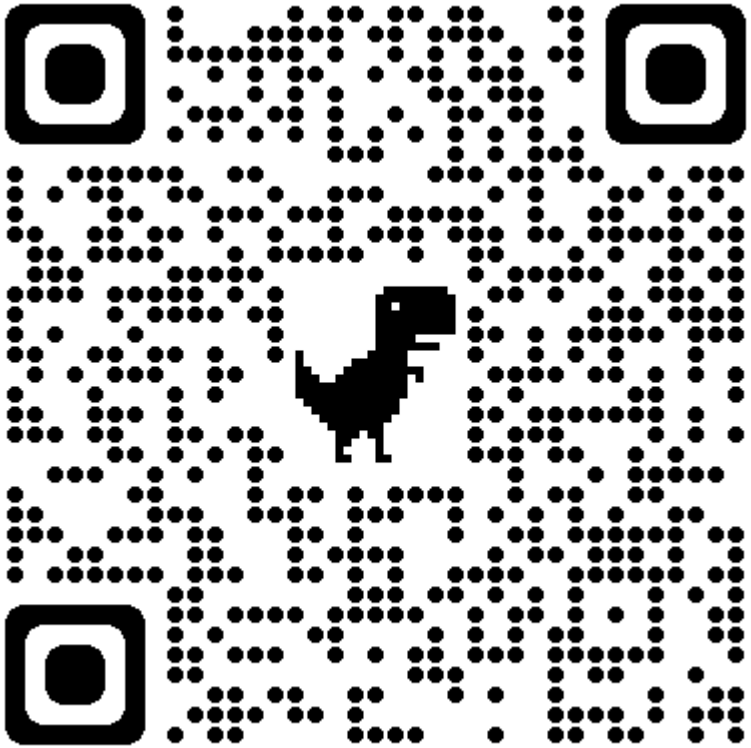
- Consumer surplus
- Producer surplus
- Government revenue

DWL = old net surplus – new net surplus

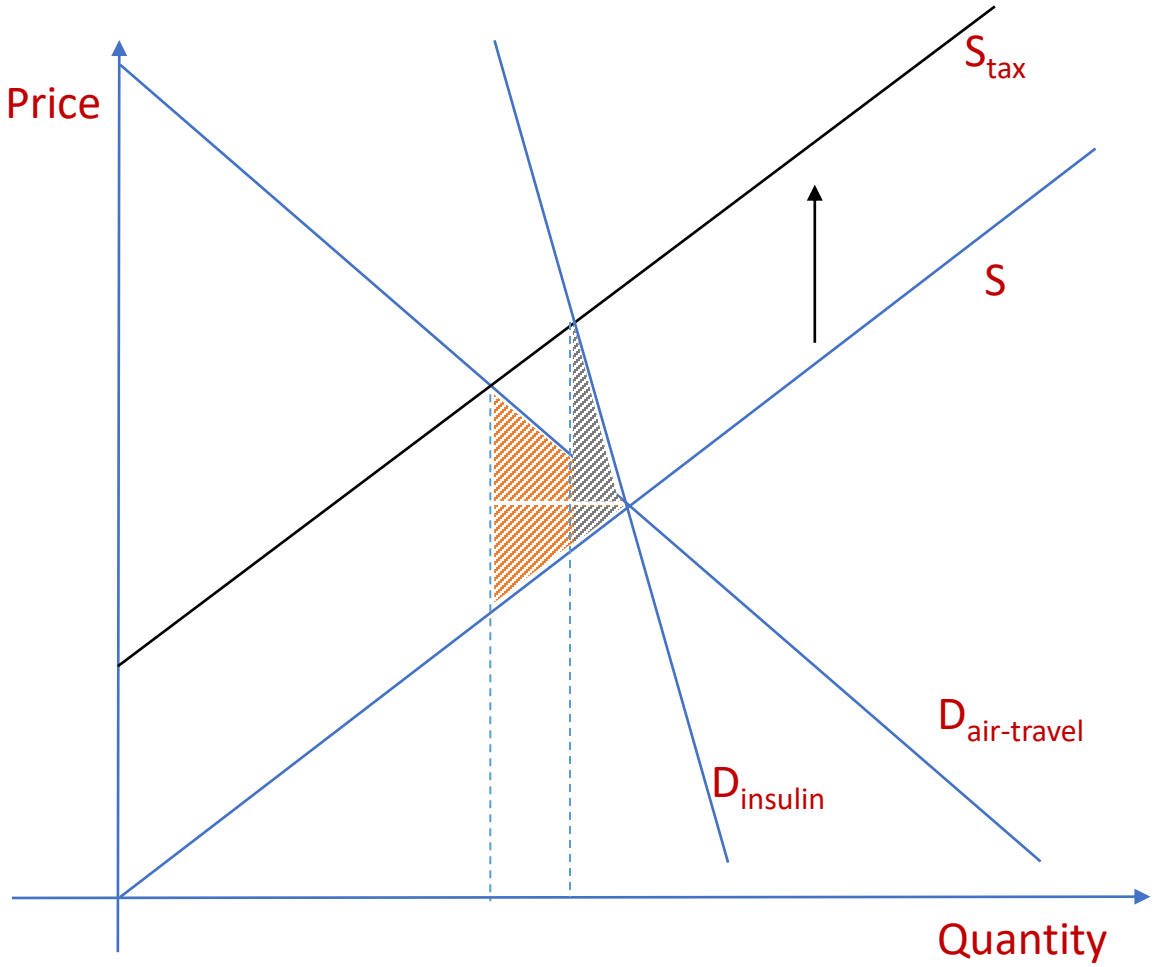
- the loss from some trades not happening that would have otherwise happened.

Worksheet 4.1

https://presemo.aalto.fi/tecon04

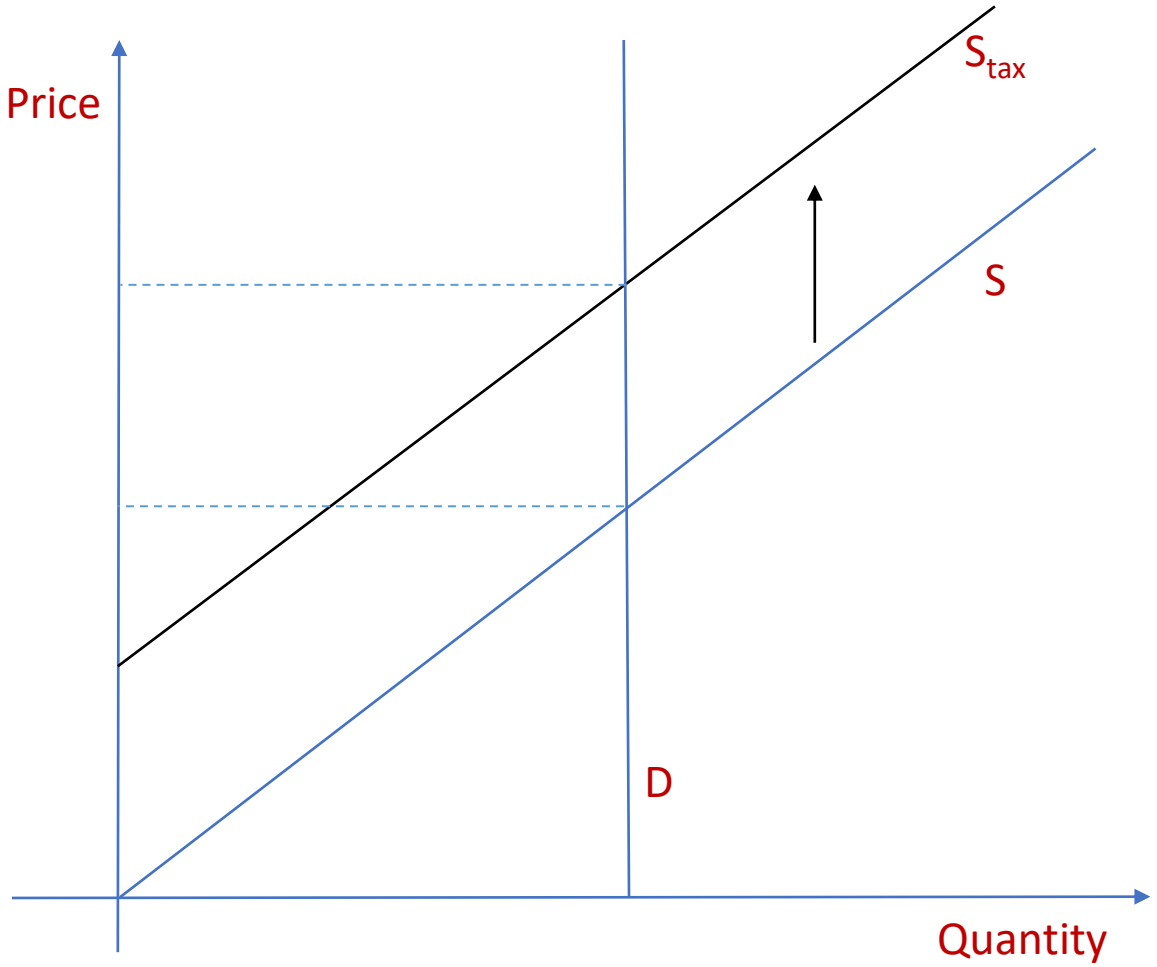


Deadweight Loss (DWL)



- Price elasticity of demand and supply curves determine the magnitude of the loss
- E.g., in Worksheet: taxing insulin vs air travel

DWL captures efficiency, not consumer welfare



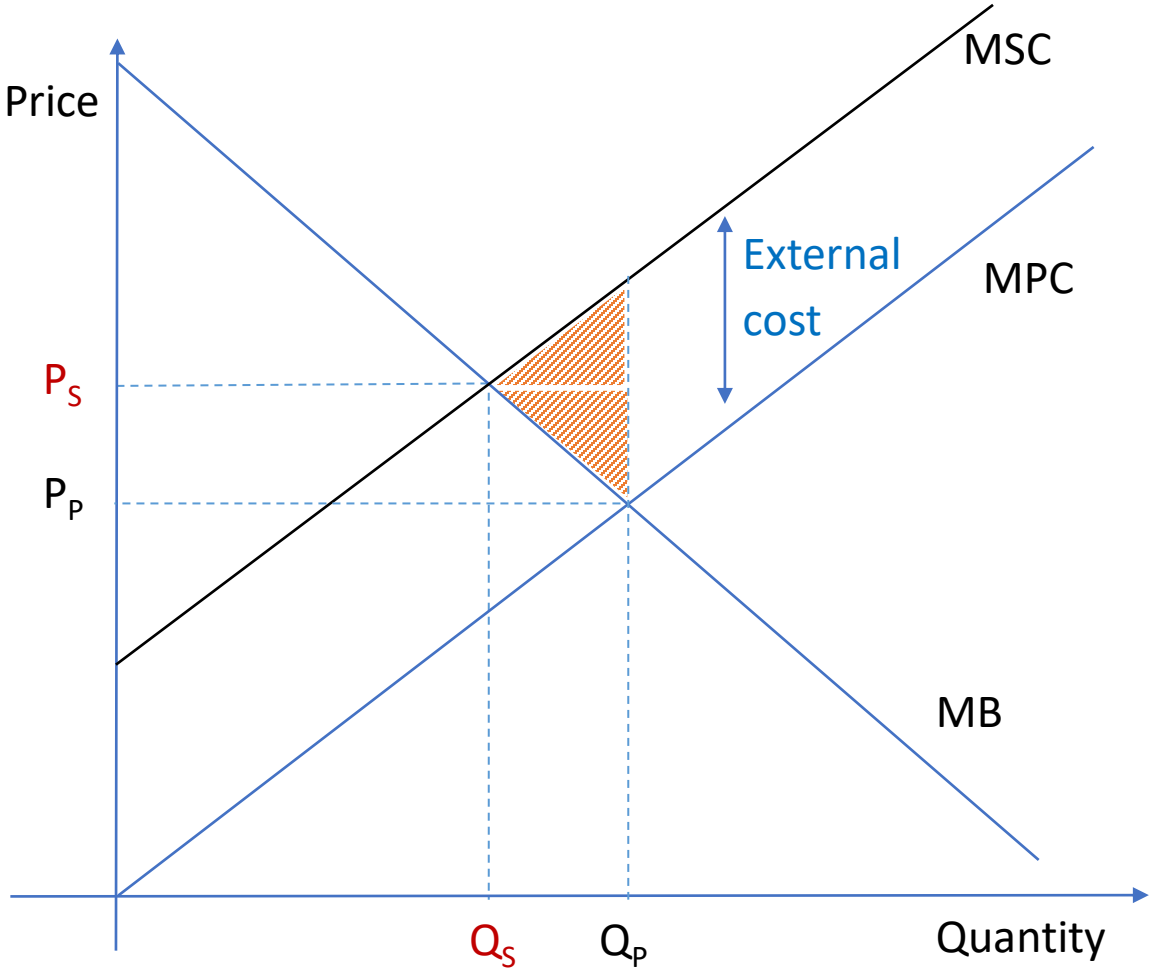
- If perfectly price-inelastic demand, no loss in net surplus!
- Loss to consumer in higher prices exactly offset by gains in government revenue.

Free markets are not always efficient

- Today's focus!
- Markets often fail to allocate resources optimally
  - e.g. due to lack of competition, information, …
- Require government intervention
  - Not necessarily to take over the supply side
  - but to incentivize suppliers and demanders just enough to correct the market failure.

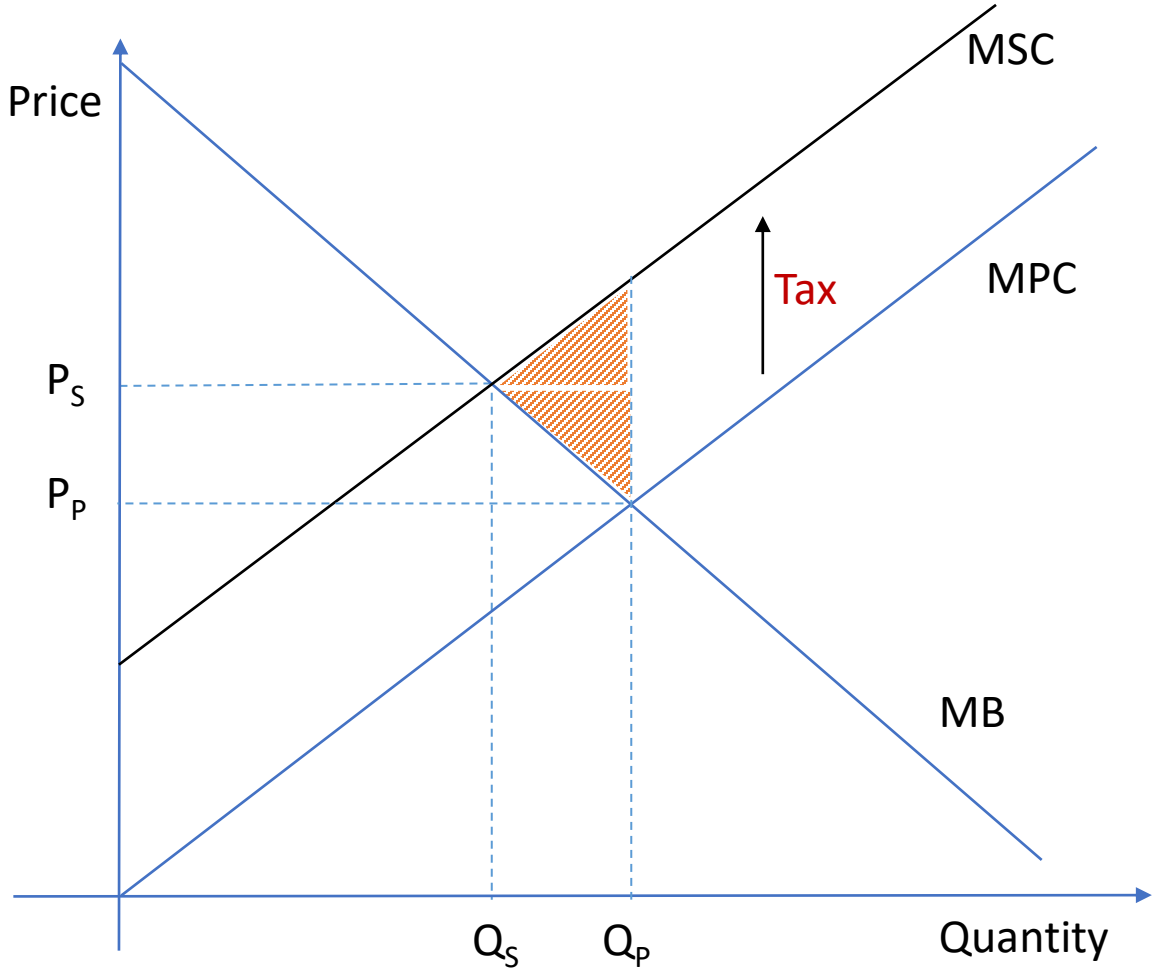
Externalities (supply-side)

- e.g. cost to the supplier may not capture all the costs to society of producing an item.
- Marginal Social Cost = Marginal Private Cost + external cost
- If MPC < MSC, item is over-produced and under-priced relative to what's optimal (and vice versa).
- Externalities generate DWL in free markets



Govt intervention can reduce DWL

- e.g. a tax can shift the MPC closer to the MSC
- Externalities may be negative ("external costs") or positive ("external benefits")
- May affect both supply and demand sides of markets

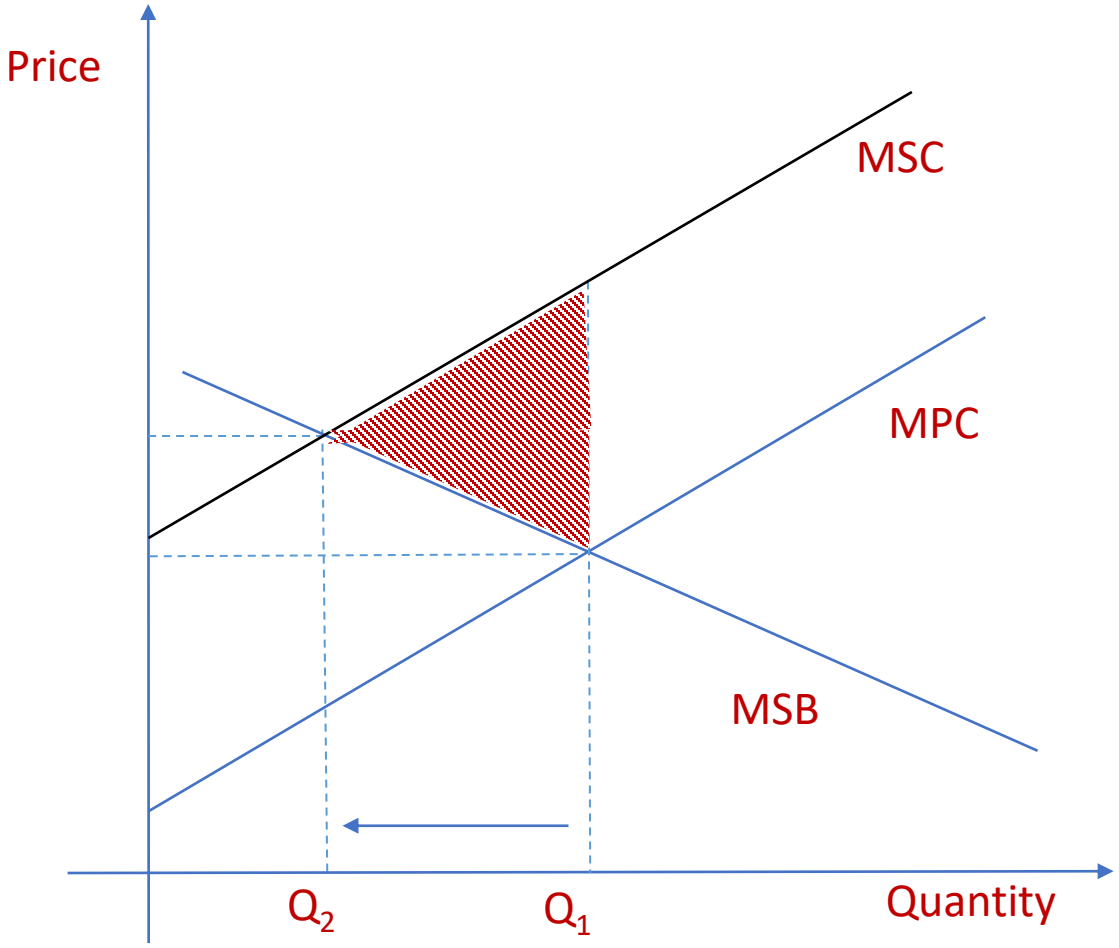


Externalities (demand-side)

Benefits to the consumer may not capture all the benefits to society of producing an item

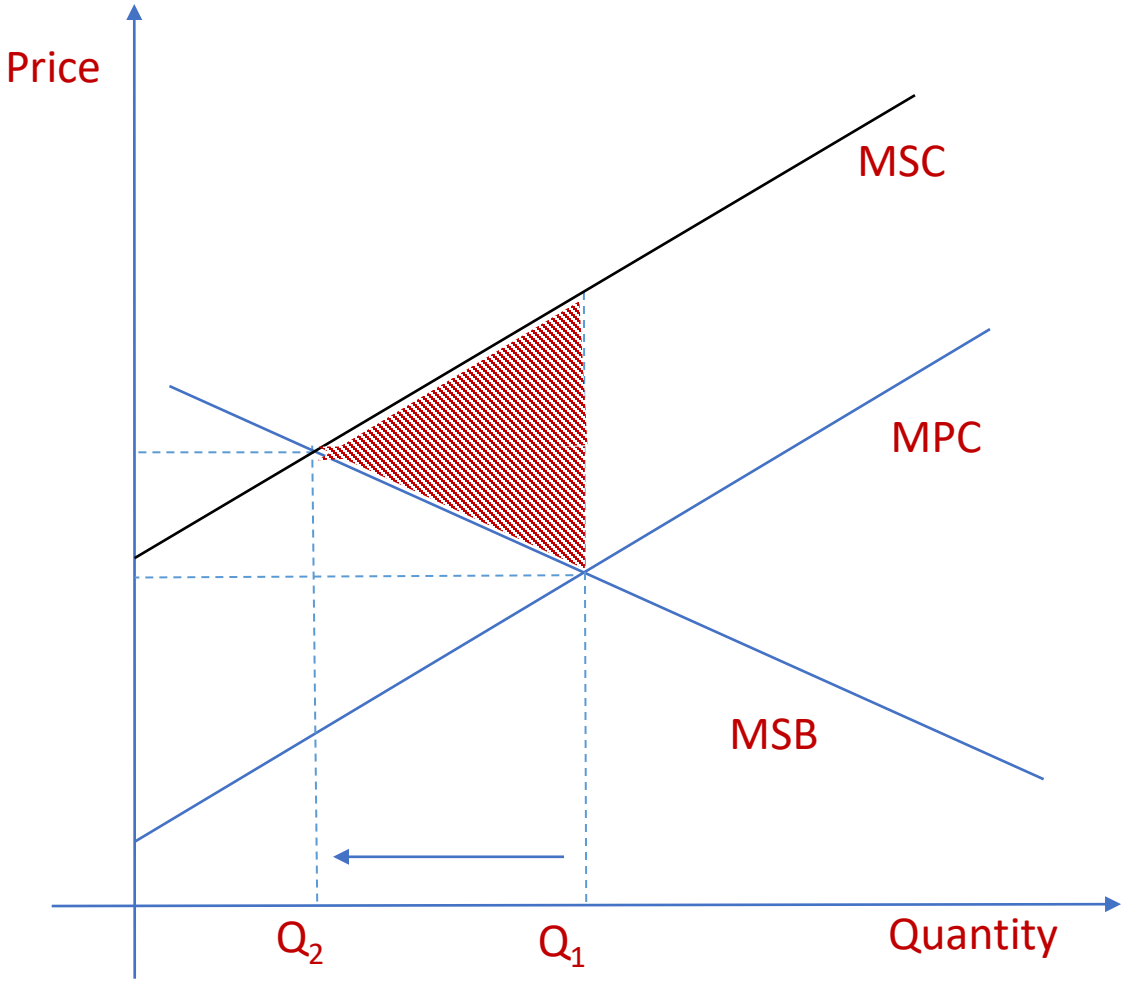
Worksheet 4.2

Optimal Pollution



- Is not zero (in short run)!
- We tolerate some pollution because the MC of reducing pollution any further is lower than the MB from it.

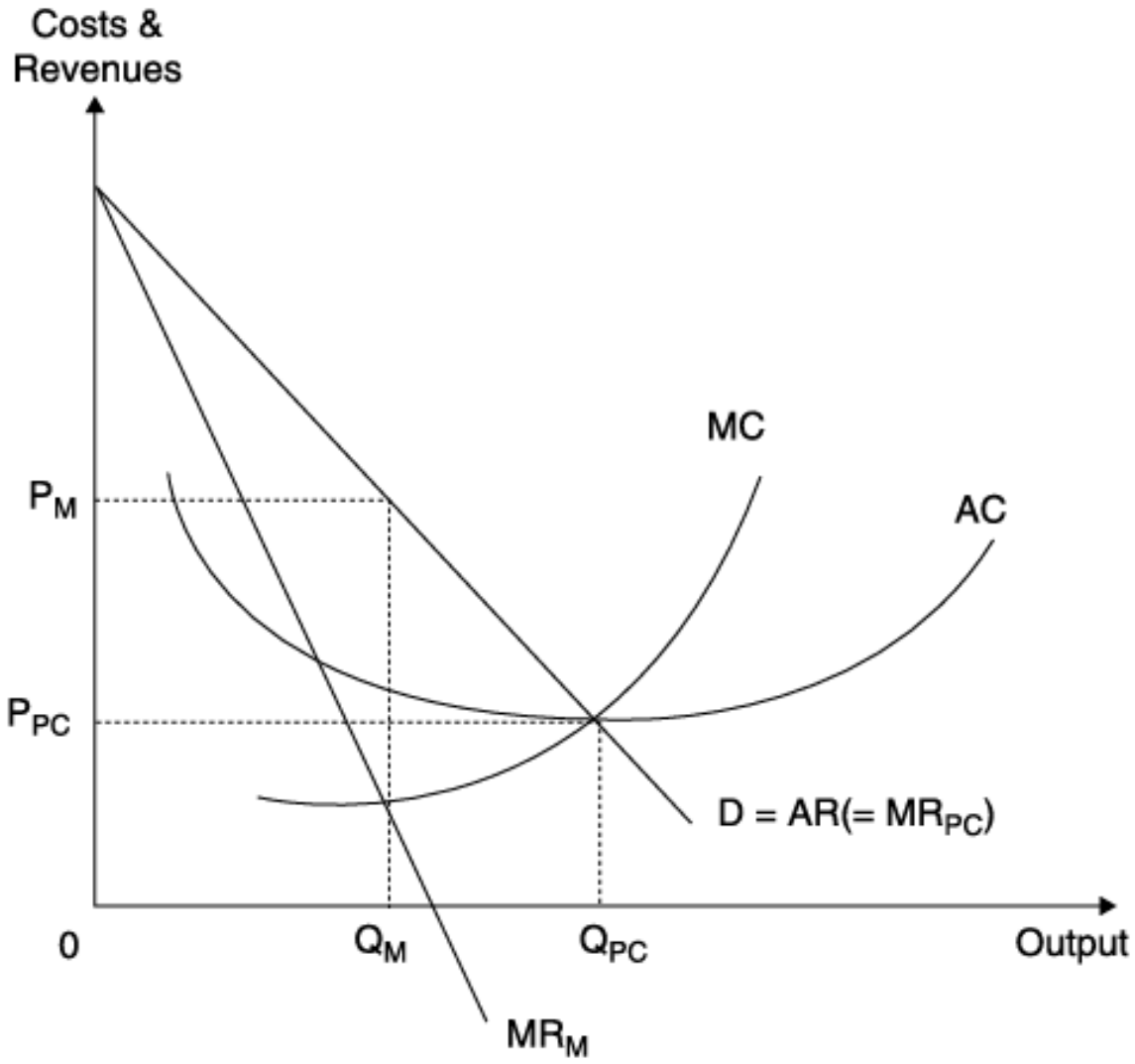
Limits to Government Actions



- Not all externalities require government action
  - e.g., owning a loud dog
- Misinformed interventions can generate additional deadweight loss.
  - e.g., what is the right tax or subsidy?

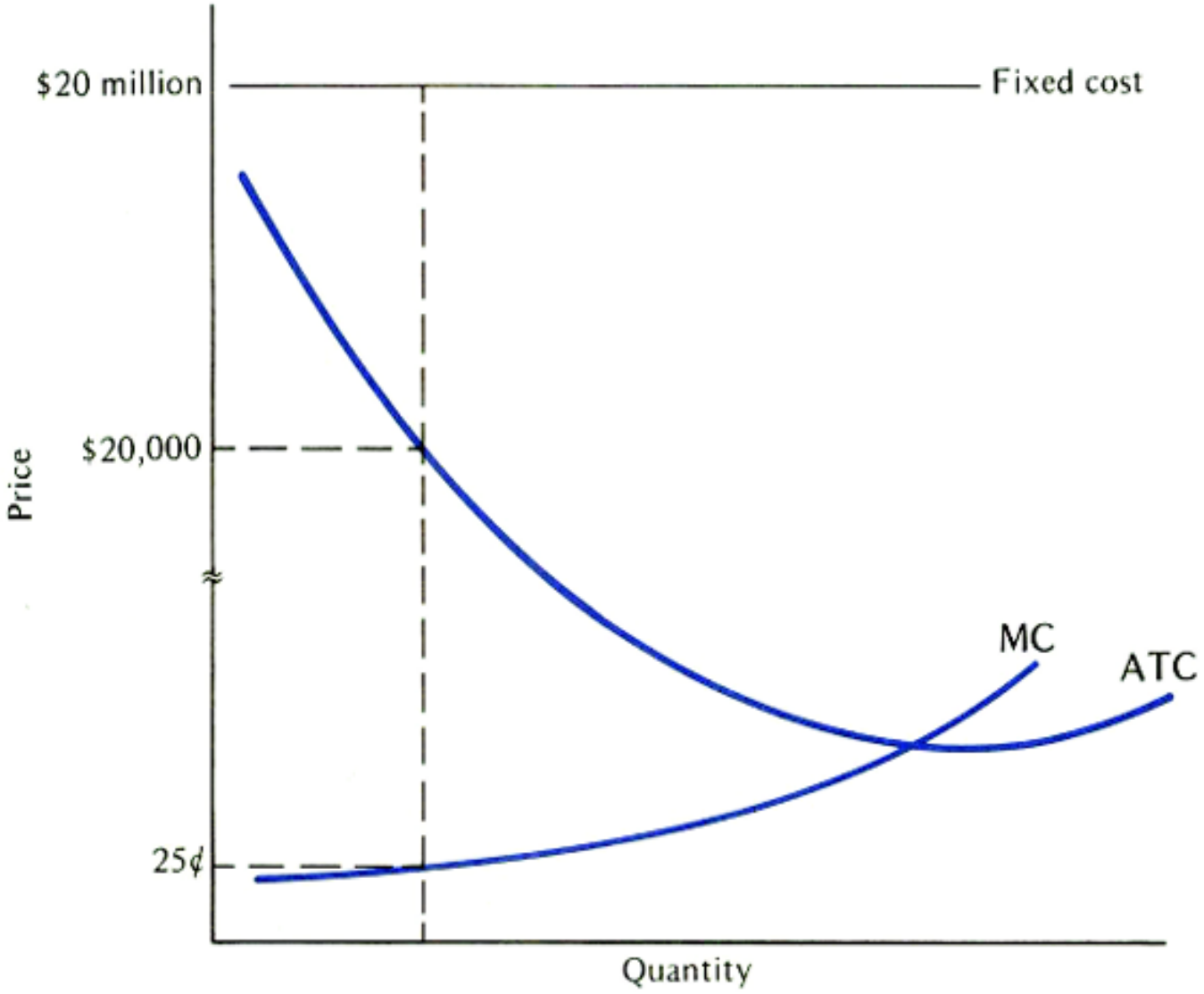
Rationale for government regulation

- Correct externalities
- Market failures due to lack of competition
- Information asymmetry and service quality
  - Buyers may not be fully aware of alternatives
  - Or not be able to evaluate service quality
  - E.g. if airlines compromise safety when competing on fares
- To provide a transport service where none existed before



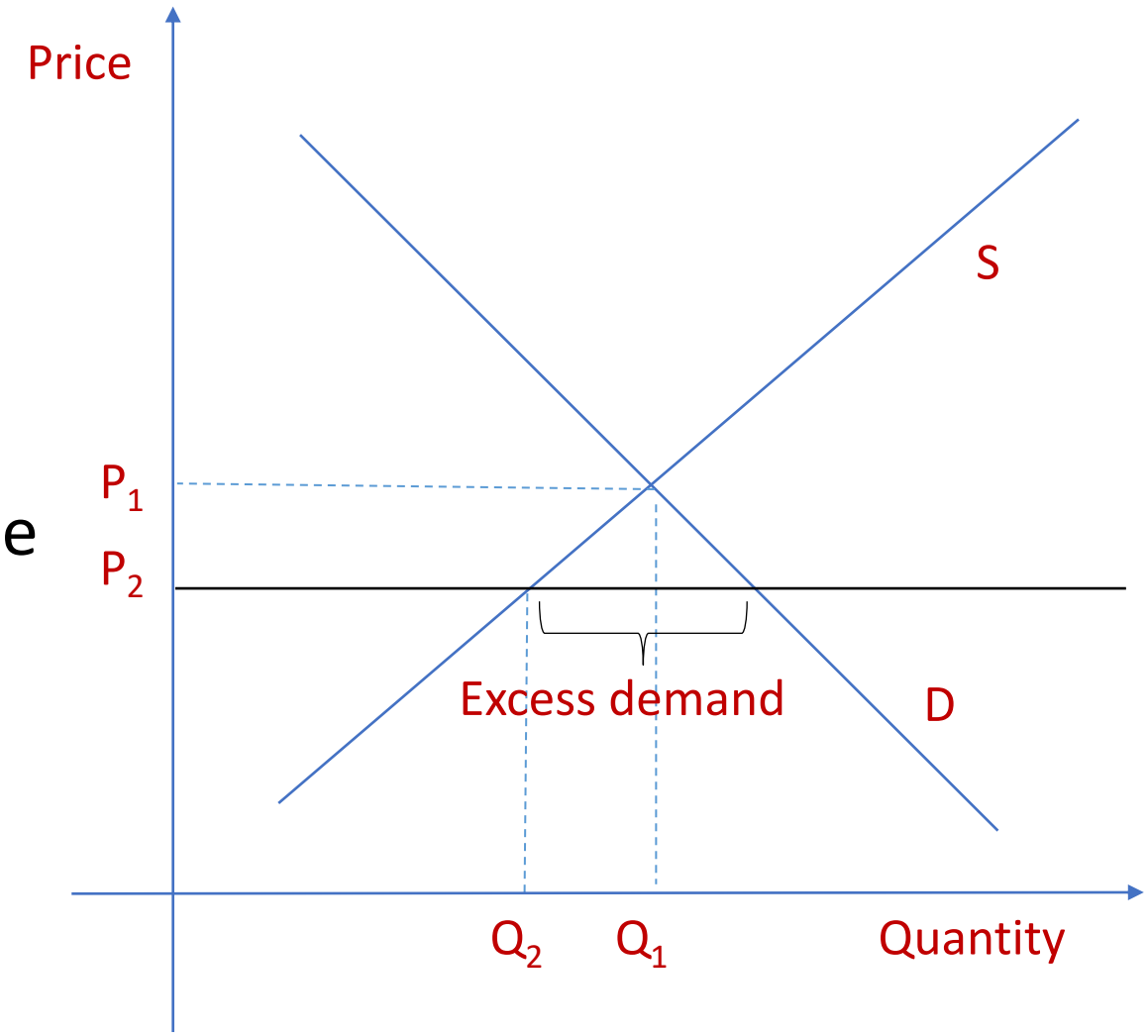
Natural monopolies

- More efficient than competitive markets
- Presence of competitors results in –ve profits for all (and no service provided in the long run)
- e.g., subways



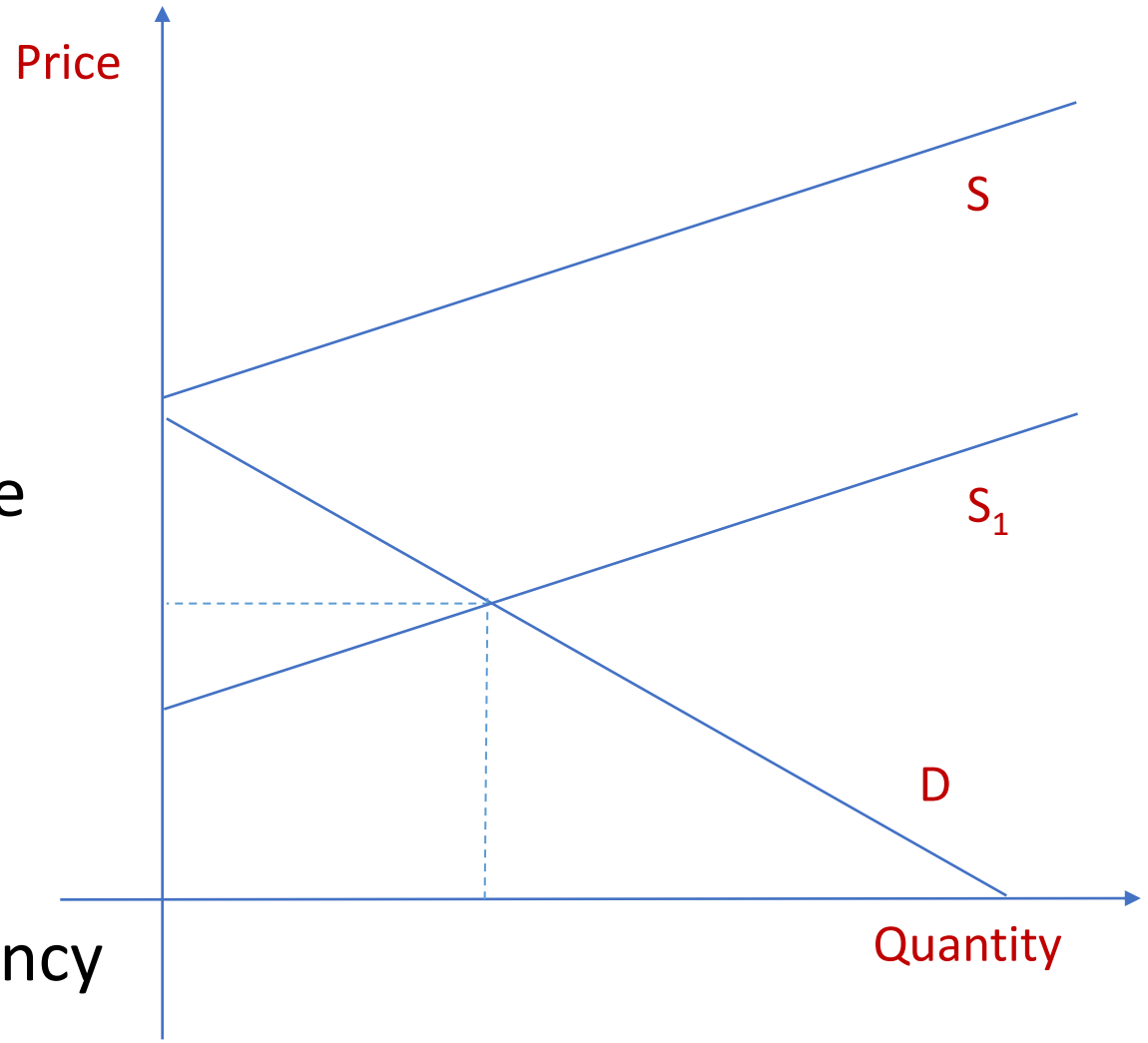
Forms of government regulation

- Limit market entry
- Set the price
- Specify the maximum increase in price allowed
- Taxes and subsidies



Forms of government regulation

- Limit market entry
- Set the price
- Specify the maximum increase in price allowed
- Taxes and subsidies
- Quality controls and minimum frequency



Drawbacks of regulation

- Limits free enterprise
  - Entrepreneurs may be better able/motivated to meet demand for services.
- Costly ‘second-best solution’
  - Ideally, markets regulate themselves
  - Regulations, if not constantly updated to keep up with evolving markets, get outdated
- Information asymmetry
  - Operator knows more than regulators and may not share key information
- Who regulates the regulator?

Public goods

- One person's consumption or use of the service does not diminish the amount that others can consume.

- E.g., street lights and roads
  - Once someone erects a road, everyone is able to use it whether they have contributed to its construction or not.

- Opportunity to free ride on other people’s willingness to pay for public goods.

Public goods game

- 50 Extra Credits to everyone for free!

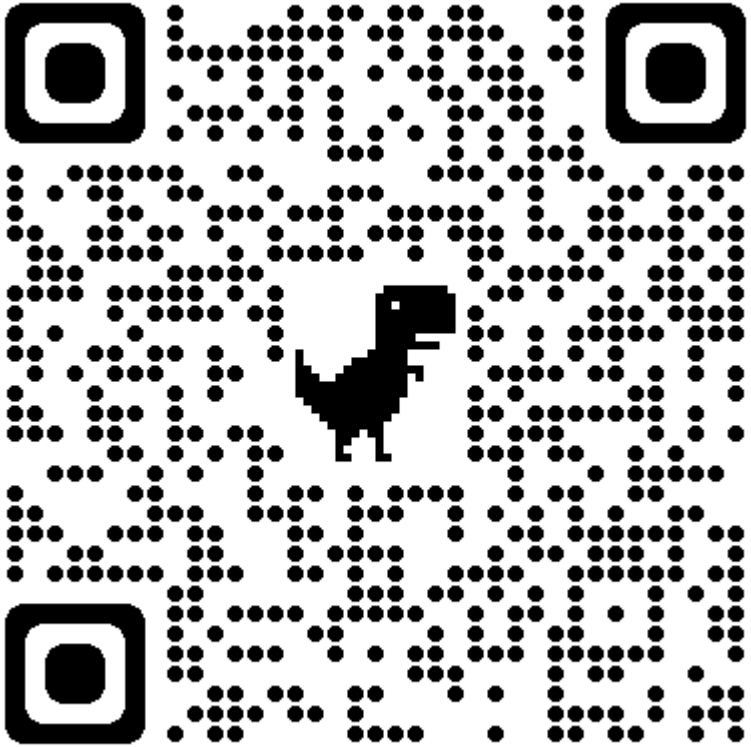
- You can invest some amount of it on a venture that might benefit the entire class:
  - The total investment will be tripled and allocated evenly across everyone in the class, regardless of whether or not you invested.

- So, if everyone invests 25 EC, then you get to take away:
  - The 25 EC that you didn't invest
  - + the return on your investment = (25 x 3 x N) / N = 75 EC

- If you invest 50 EC and everyone else invests 0 EC, then you take away:
  - Only the return on your investment = (50 x 3 x 1) / N = (150/N) EC

Public goods game

https://presemo.aalto.fi/tecon04



Public goods game

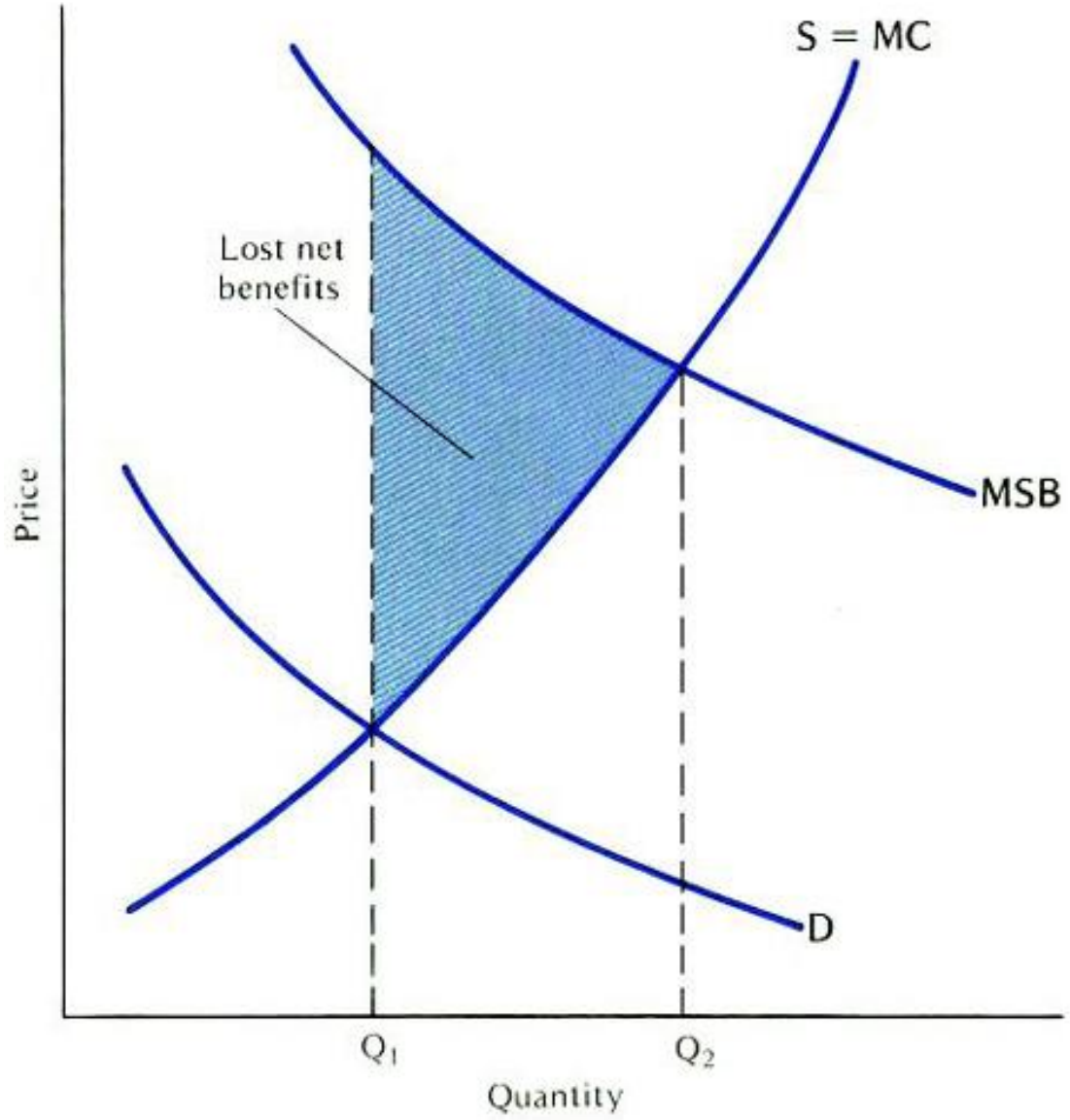
https://forms.gle/kP3FUTh4yVayU2kh7

Public goods game (again!)

https://forms.gle/VR458q1e7JuMrN8RA

Public goods

- Free rider problem
  - Large social benefits but small demand (for paying for it)
- Very large positive externalities
- No/limited competition among buyers (opposite of monopoly).
  - Sellers have limited incentive to enter the market.
- Govts may need to take over and supply the public good directly.



Reasons for public ownership

- Large externalities
  - Public goods
  - Essential to the economy (if the particular industry suffered, the whole economy would)
- Eradicate wasteful competition
  - Without many of the problems associated with a monopoly market.
- Economies of scale, high fixed costs
  - But in the hands of a public monopoly

Reasons for privatization

Many of the same drawbacks as for regulations:

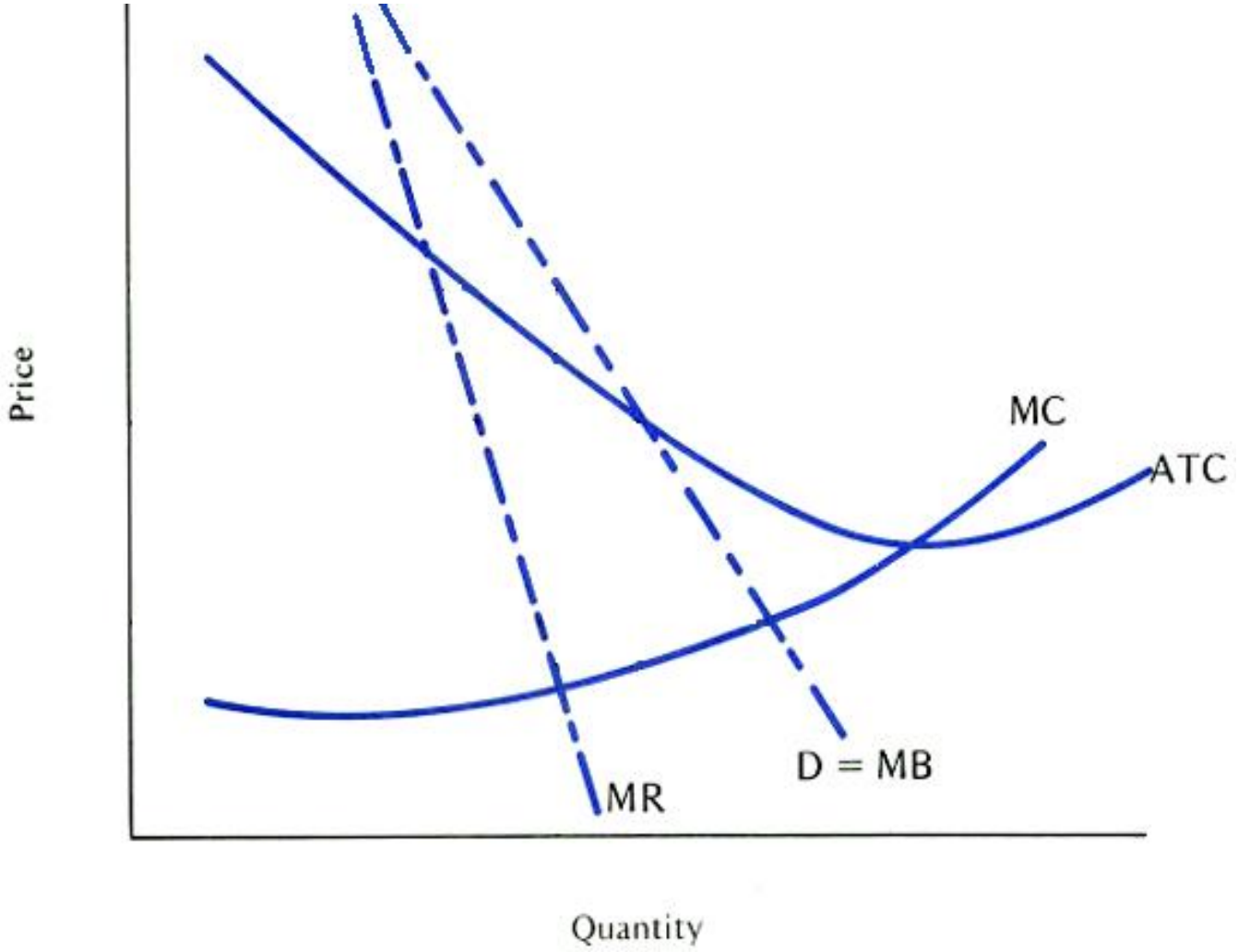
- Private entrepreneurs may be better able/motivated to meet demand for services.
  - May be better motivated to cut costs and identify opportunities to increase revenue
- Competition may be good
  - Gives consumers of services more viable choices.
- Govts cannot necessarily provide bigger budgets
- Who regulates the public sector?
  - Are public sector interests always aligned with those of voters?
  - Are voters well-informed?

Public-private partnerships

- Increasingly common
- Public ownership, privately operated
  - Competition can be introduced
- Private sector constructs and owns, and leases to public authority to use
  - E.g., railway tracks in the US and transit stations
  - Can bypass financial constraints of the public sector

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



Homework 4

1. Do you tax a service with more price elastic supply or more price inelastic supply?
   - To minimize deadweight loss?
   - To maximize government revenue?

2. Identify a transport market that is **one** of the following:
   - Publicly owned, privately operated
   - Privately owned, publicly operated
   - Privately owned, mostly unregulated

   Most unique and well-explained examples of each type get a bonus point and is part of the homework solution!