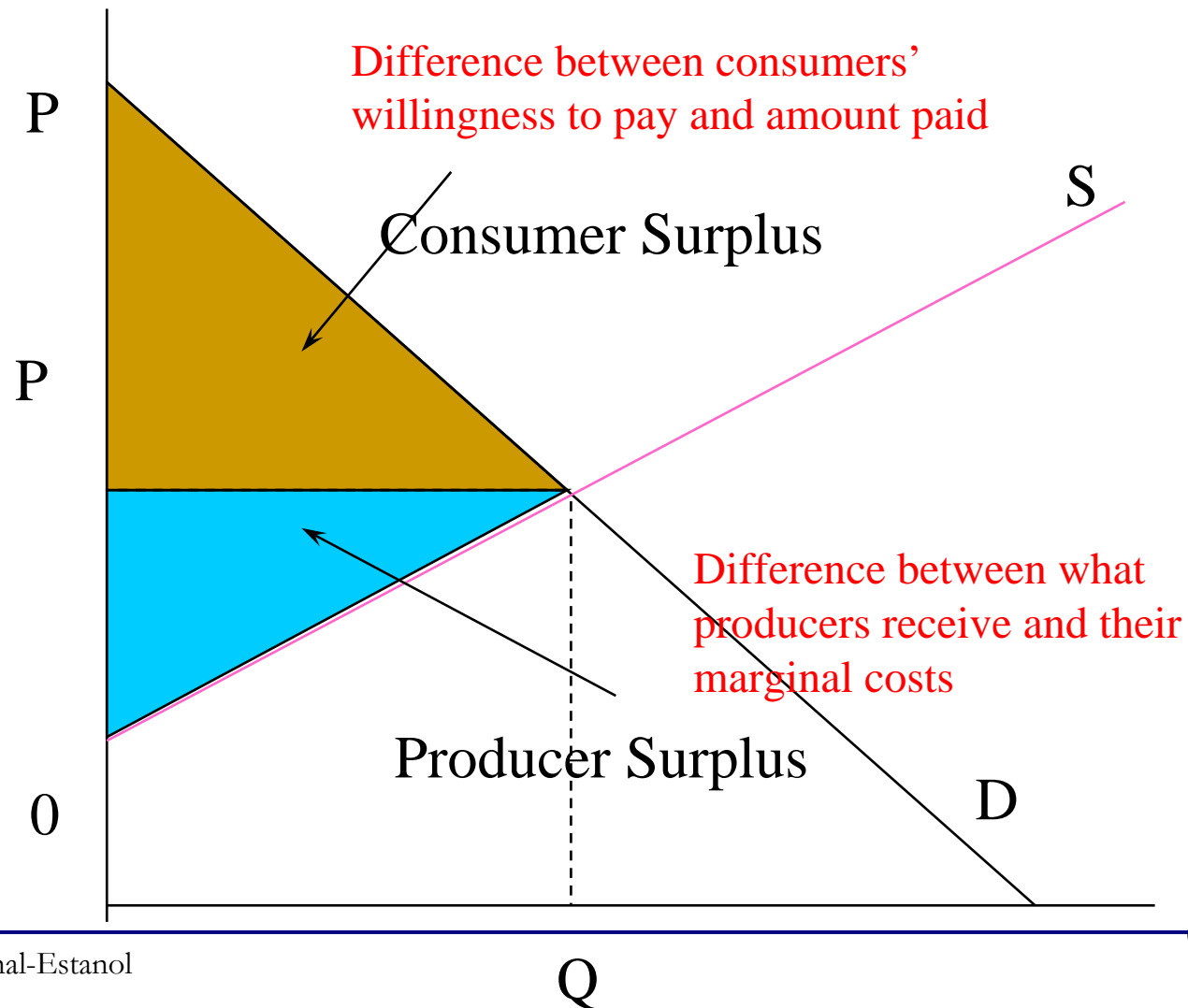

Chapter 4.2: (In)efficiencies of Markets

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Social Welfare in Perfect Competition



4.2 (In)efficiencies of markets

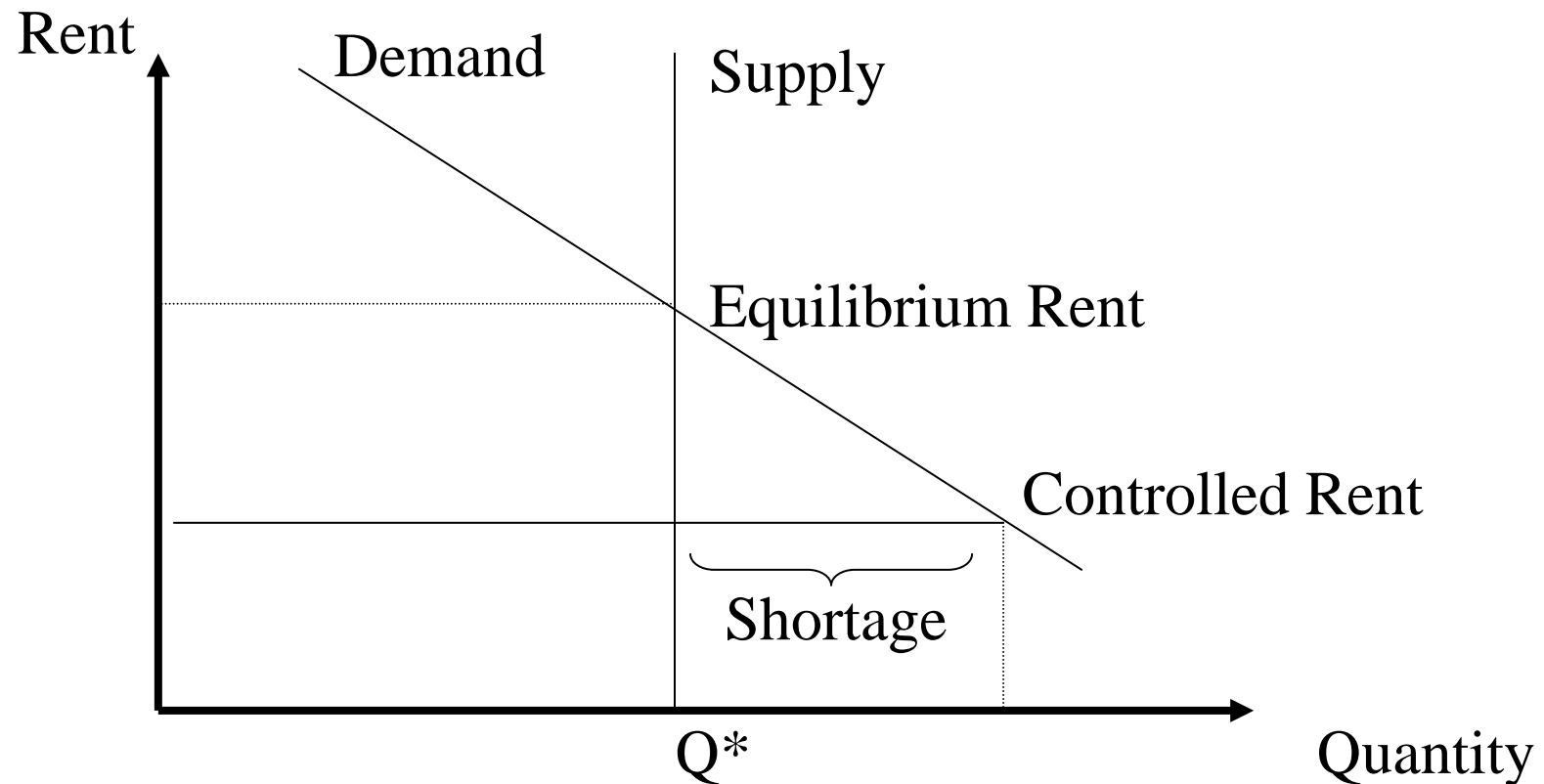
- Government interventions:
 - Price ceilings
 - Price floors
 - Taxation
- Market failures:
 - Types of market failures
 - An example of market failure: externalities

Government Interventions

Government Interventions

1. Price ceiling (e.g. rent control)
2. Price floor (e.g. minimum wage)
3. Tax (e.g. consumption tax)

Price Ceiling (e.g. rent control)

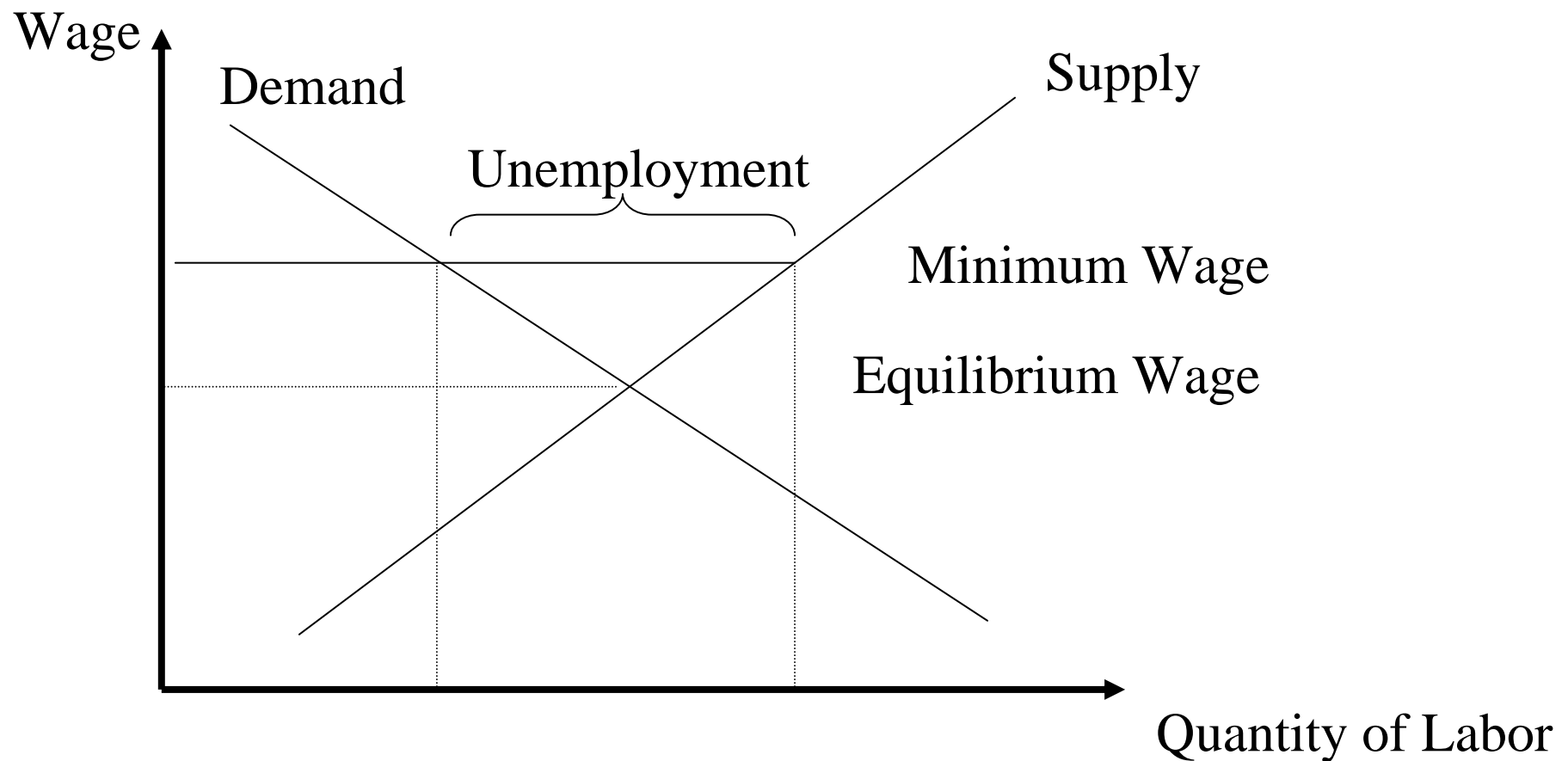


Questions about rent control

- How will the market cope with shortage?
- Who will be able to rent at the controlled rent among those who are willing?
- What's the welfare loss from rent control?

- What the possible effects in the long run?

Price Floor (e.g. minimum wage)

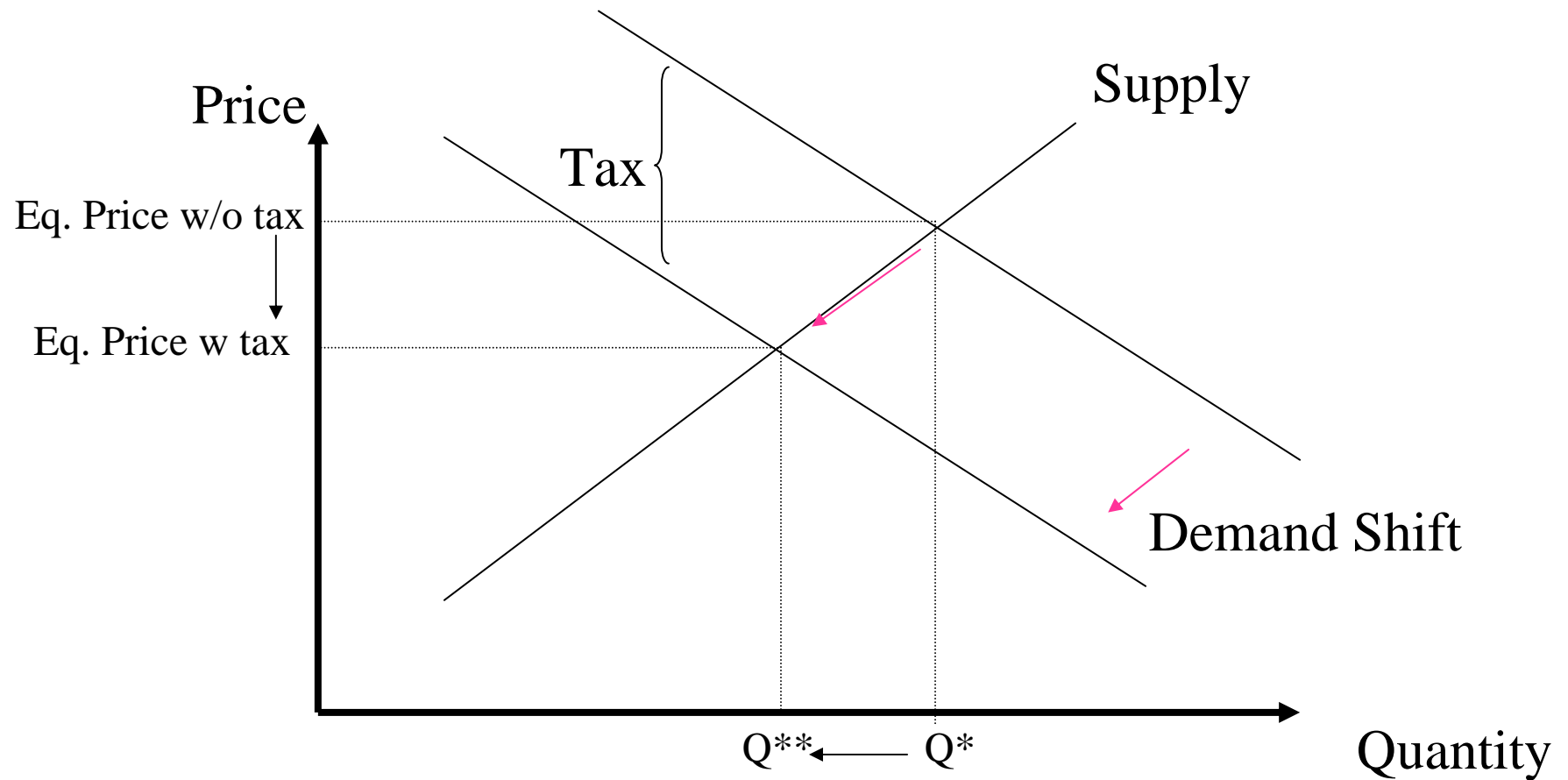


Minimum Wage

- Who will be affected by the minimum wage?
- Who gains and who loses from minimum wage?
- What's the welfare loss from minimum wage?

- What are the possible effects in the long run?

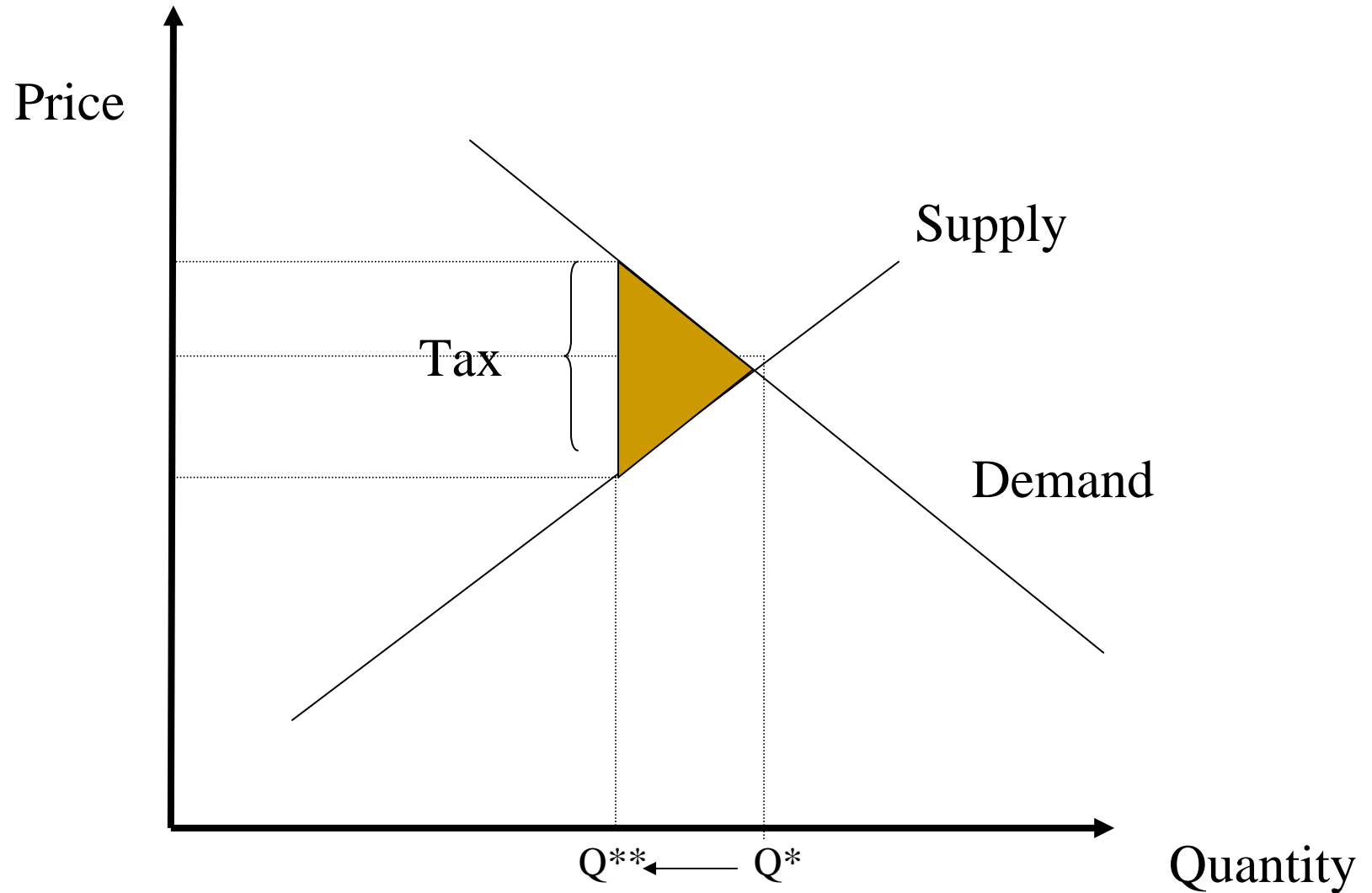
Consumption Tax



Tax

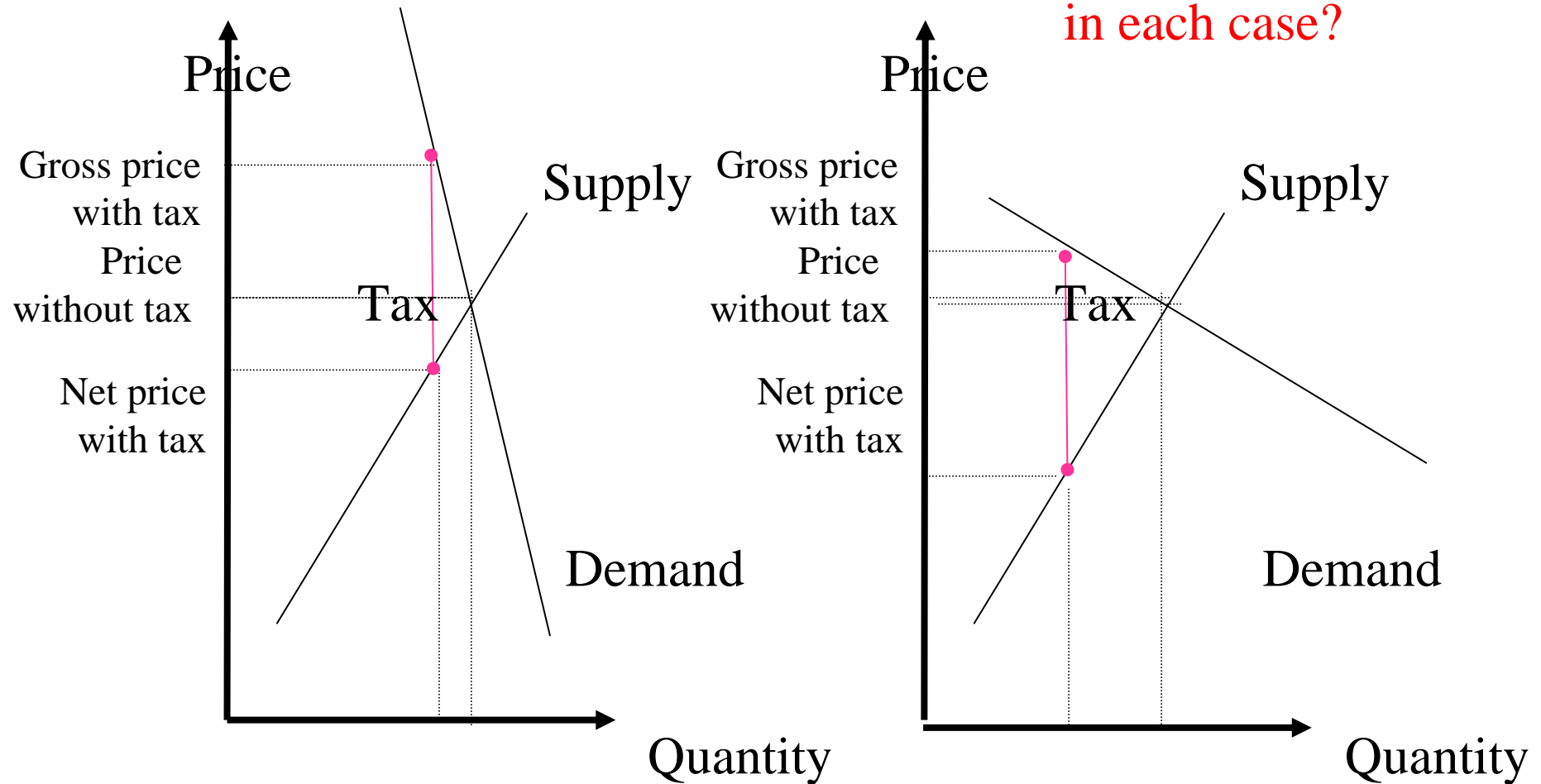
- What's the difference between consumption and production tax?
- What's the government revenue?
- What's the deadweight loss of taxation?
- Who bears the tax?

Deadweight Loss of Taxation



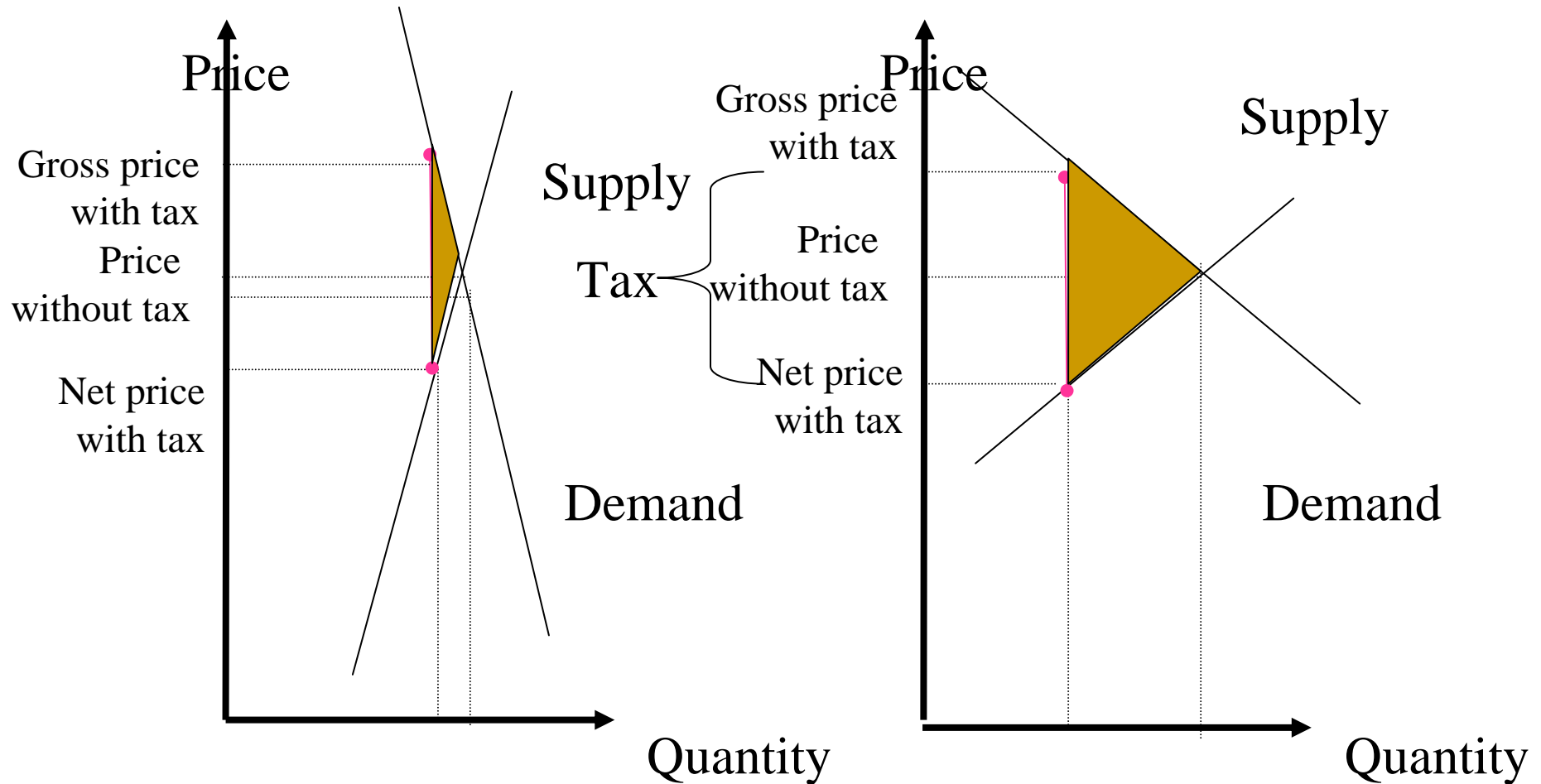
Tax Incidence and elasticity

Who bears most of tax in each case?

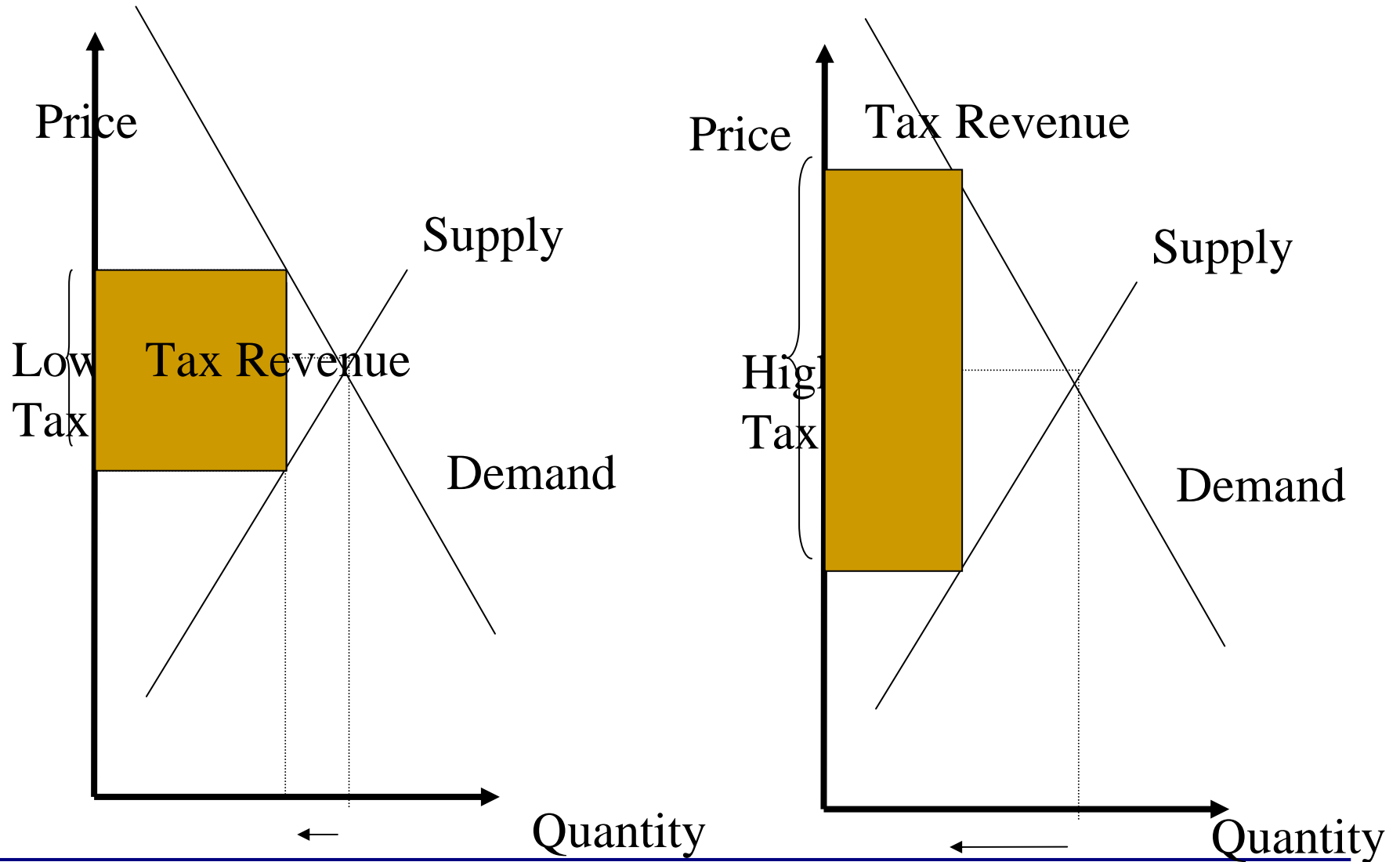


Deadweight Loss

Which goods you would want to tax?



Impact of Tax Rates on Tax Revenues



Optimal Taxation

Suppose that the government needs to raise a certain tax revenue

- We know that taxes on competitive markets reduce efficiency
- Which goods should be taxed?
 - Goods with elastic or inelastic demand?
 - Goods with elastic or inelastic supply?
- How can we minimise efficiency loss?
- Examples?

Laffer Curve

- Could it be that a reduction in tax rate result in an increase in tax revenues?
- In theory?
- In practice?

Summary

- Interventions in competitive markets lead to reduction in welfare (deadweight loss)
- An increase in tax rate can result in a reduction in tax revenues
- If government need to raise funds, it should tax goods with inelastic supply and demand

Market Failures

Invisible or Palsied Hand?

“How many economists does it take to change a light bulb
– none, the market does it for you”

- The invisible hand result says that UNDER CERTAIN conditions markets produce an efficient outcome
- Now we turn to market failures, situations in which markets may not work, and so there is a role for government to intervene to correct them
- When should we expect markets to fail?

Types of market failures

- Market (monopoly) power
- Externalities
- Public goods
- Informational asymmetries

Exercise

- Spark Emitting Trains and Farm Crops
- Trains have an external cost (externality) as emitted sparks cause fires – reduce farmer's crops.
- The table describes the situation.

No of trains	Total Rail profit	Marginal Rail Profit	Number of crops	Total Farm Profit	Marginal Farm Profit
0	0		10.5	105	
1	20	20	10	100	-5
2	40	20	9	90	-10
3	60	20	7	70	-20
4	80	20	4	40	-30
5	100	20	0	0	-40

Consider and evaluate the following solutions:

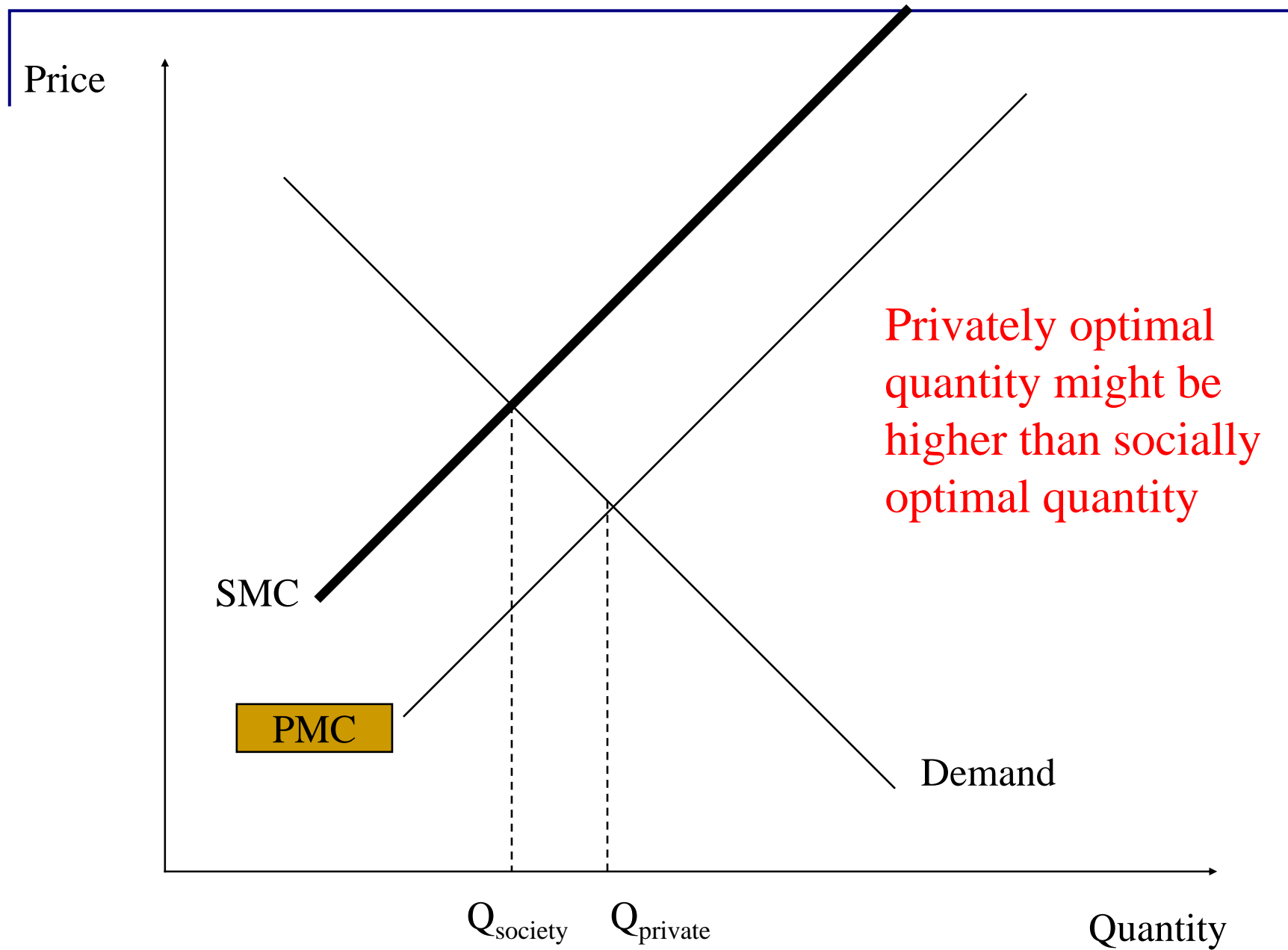
1. Farmer has the right to no spark trains
2. Train has the right to throw off sparks
3. Rights are assigned to farmers who are allowed to accept compensation in return for allowing more trains through their crops
4. Rights are assigned to rail company which is allowed to accept compensation from farmers to reduce the number of trains they run

Preliminary questions

- What is the railco's preferred solution?
 - 1, 2, 3 or 4
- What is the farmer's preferred solution?
 - 1, 2, 3 or 4
- What is the efficient solution?
 - 1, 2, 3 or 4

Analysis: (1) and (2)

1. Farmer has the right to no spark trains;
 - *Command and control regulation*: setting a tougher environment standard. If costly it may put the company out of business to change to a new, higher cost technology or relocate. Perhaps cheaper to compensate farmers?
2. Trains have legal right to throw off sparks:
 - Railroad ignores external cost and runs 5 trains to max its profits = £100 and the farmer gets zero.



More questions

- How many trains will run if solution 3 is adopted?
 - 1, 2, 3, 4, 5 or 6?
- How many trains will run if solution 4 is adopted?
 - 1, 2, 3, 4, 5 or 6?

Analysis (3)

- Rights assigned to farmers who are free to accept compensation in return for allowing trains through their crops (tradable property rights)
- Deal struck at three trains as the farmer earns at least £70 from crops and the rail will be able to compensate with at least up to her loss of £35
- Total is 130 (60+70 which exceeds £100) and at least £105 goes to the farmer (70 +min compensation from rail operator)

Analysis (4)

- Rights assigned to railroad which is allowed to accept compensation for reducing the number of trains by the farmer
- Once again negotiations will stop at 3 trains as the farmer will gain more by stopping the 5th and the 4th train than the railroad will forgo in profits and hence the former will be able to profitably compensate the latter
- Same efficient social outcome (£130) as before

Summary: externalities

- Definition: An externality exists when a firm or individual benefits from or is harmed by the behaviour of other firms or individuals

- Example: Negative externality
 - Pollution
 - Traffic jam
- Example: Positive externality
 - Fundamental research, inventions
 - Good students in a classroom

Internalising Externalities

The Coase Theorem and Property Rights

- Externalities create inefficiencies because the price system cannot work when goods are not traded
- Market players do not bear the full cost or receive the full benefit of their decisions

- Markets are efficient when property rights are well-defined
- Efficiency is achieved regardless of the initial assignment of property rights through trading
- Applications
 - Pollution rights
 - Charging cars in traffic
 - Airwave rights

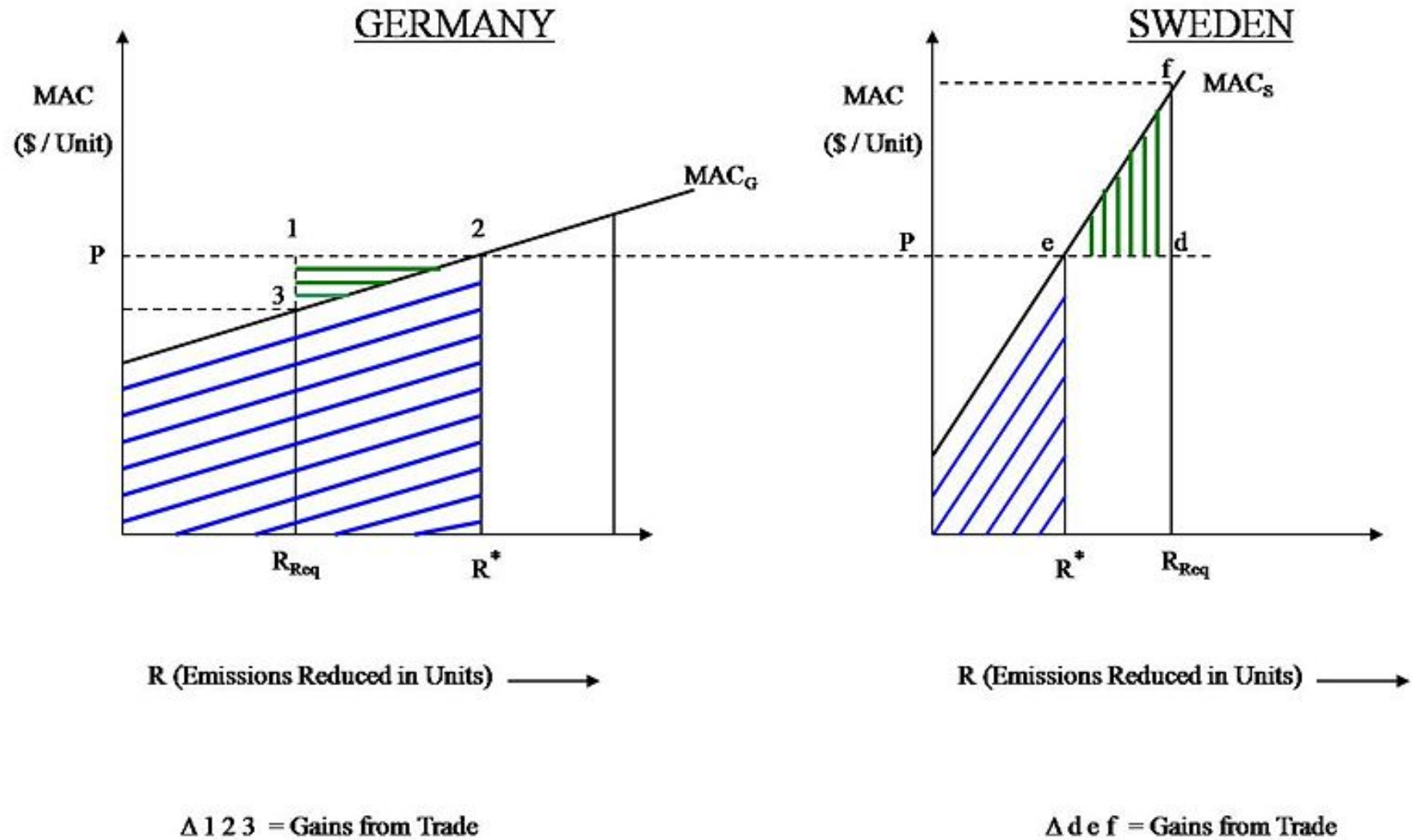
Emissions Trading (Cap and Trade)

- System to control pollution which provides economic incentives for achieving reductions in emissions
- Central authority sets a total pollutant limit (**cap**)
- Allowances (rights to emit) are issued
- Companies required to hold equivalent allowances
- Total allowances equal the cap
- Allowances can be **traded**
- What are the advantages of *cap and trade*?

Economic Analysis

- Germany can abate CO₂ at a lower cost than Sweden, $MAC_G < MAC_S$ (marginal abatement cost, that is “cost to eliminate an extra unit”)
- Each country’s requirements are R_{eq}
- Given the price of CO₂ allowances (P),
 - Germany can make money by abating more than R_{eq} , up to R^* and sell allowances
 - Sweden can save money by abating not R_{eq} , but less, R^* , and buy allowances
- What are the gains from trade?

Emissions Trading



Discussion

- This example also applies to companies within the same country
- Do you think that...
 - ...it is *good/fair* that Germany reduces more than Sweden?
 - ...it would be better to set an emissions tax?
- Can you think of real-world cases of both systems?

