

Fundamentals of Markets

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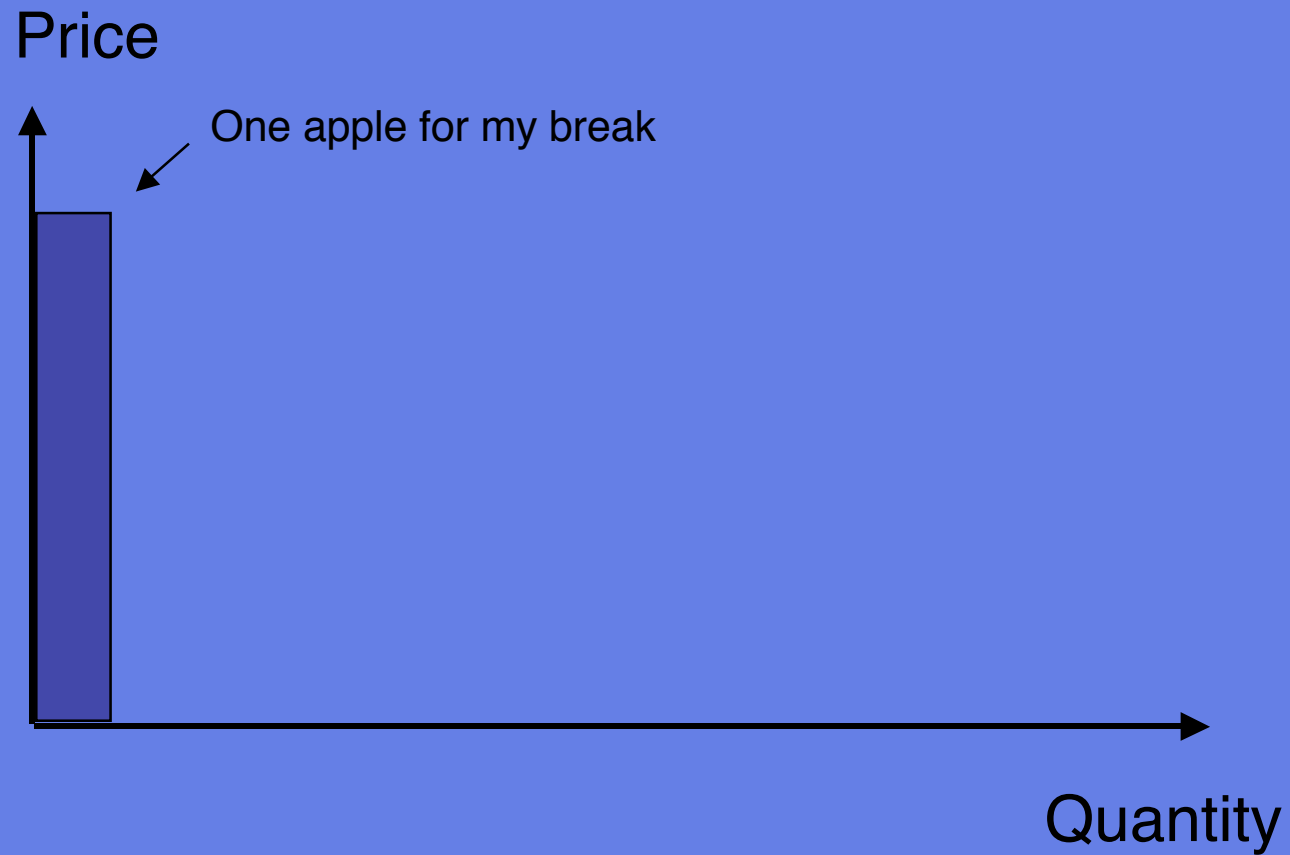
University of Manchester

Let us go to the market...

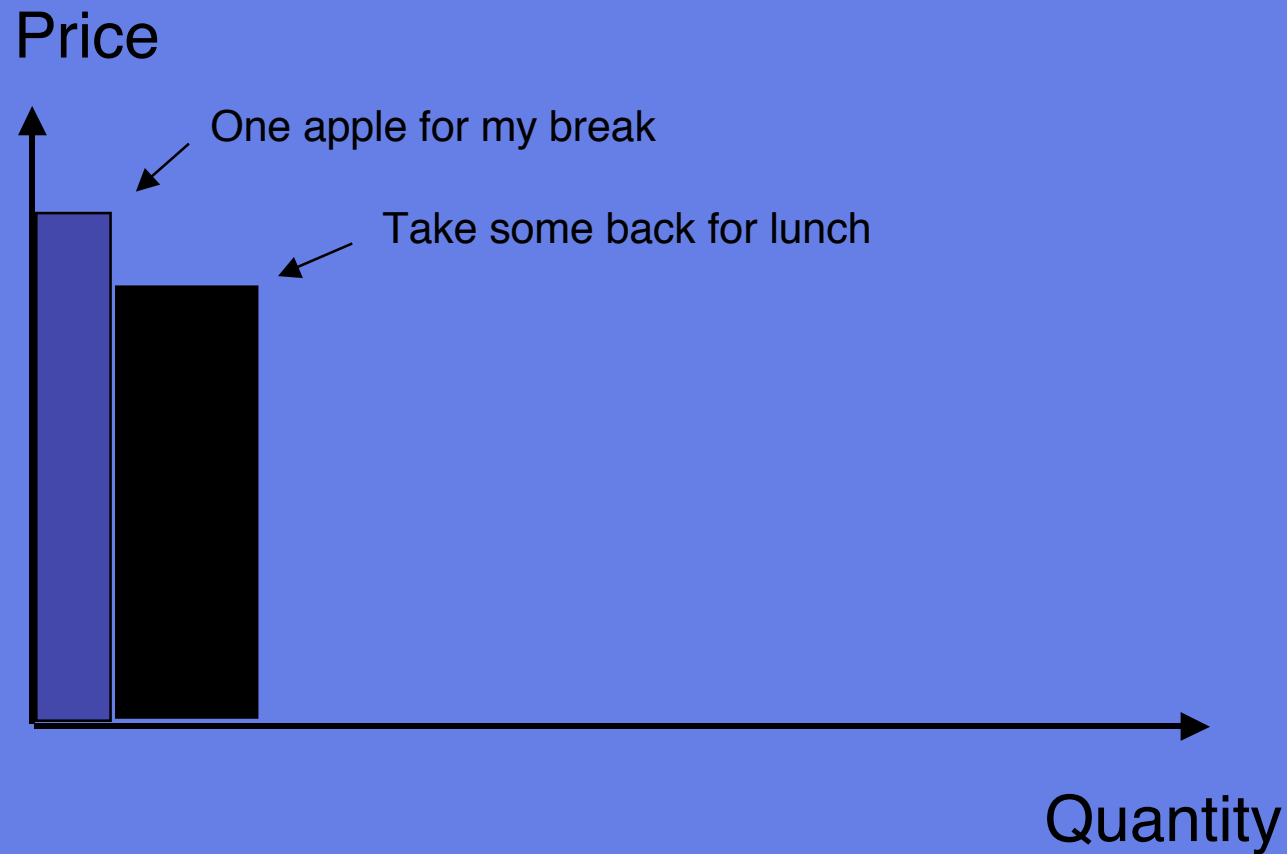


- Opportunity for buyers and sellers to:
 - compare prices
 - estimate demand
 - estimate supply
- Achieve an equilibrium between supply and demand

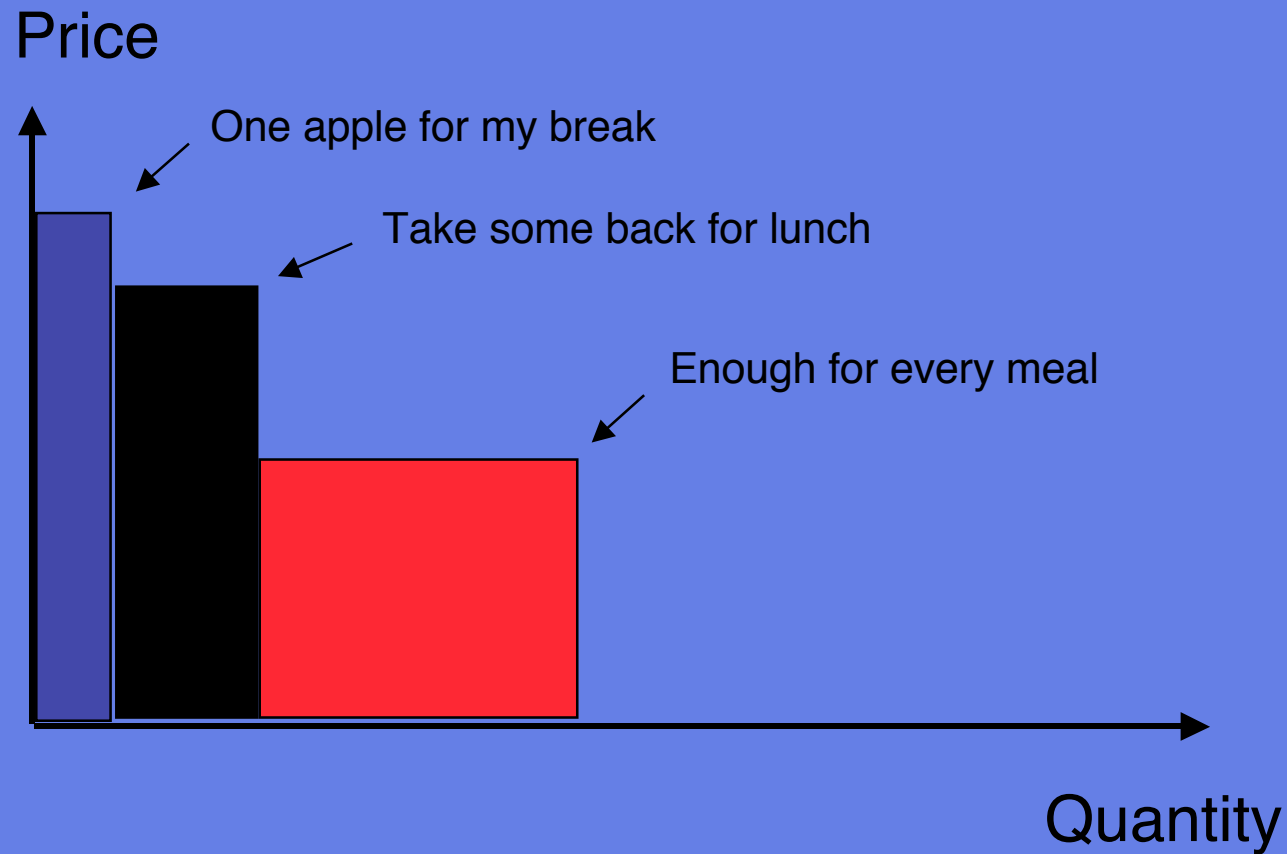
How much do I value apples?



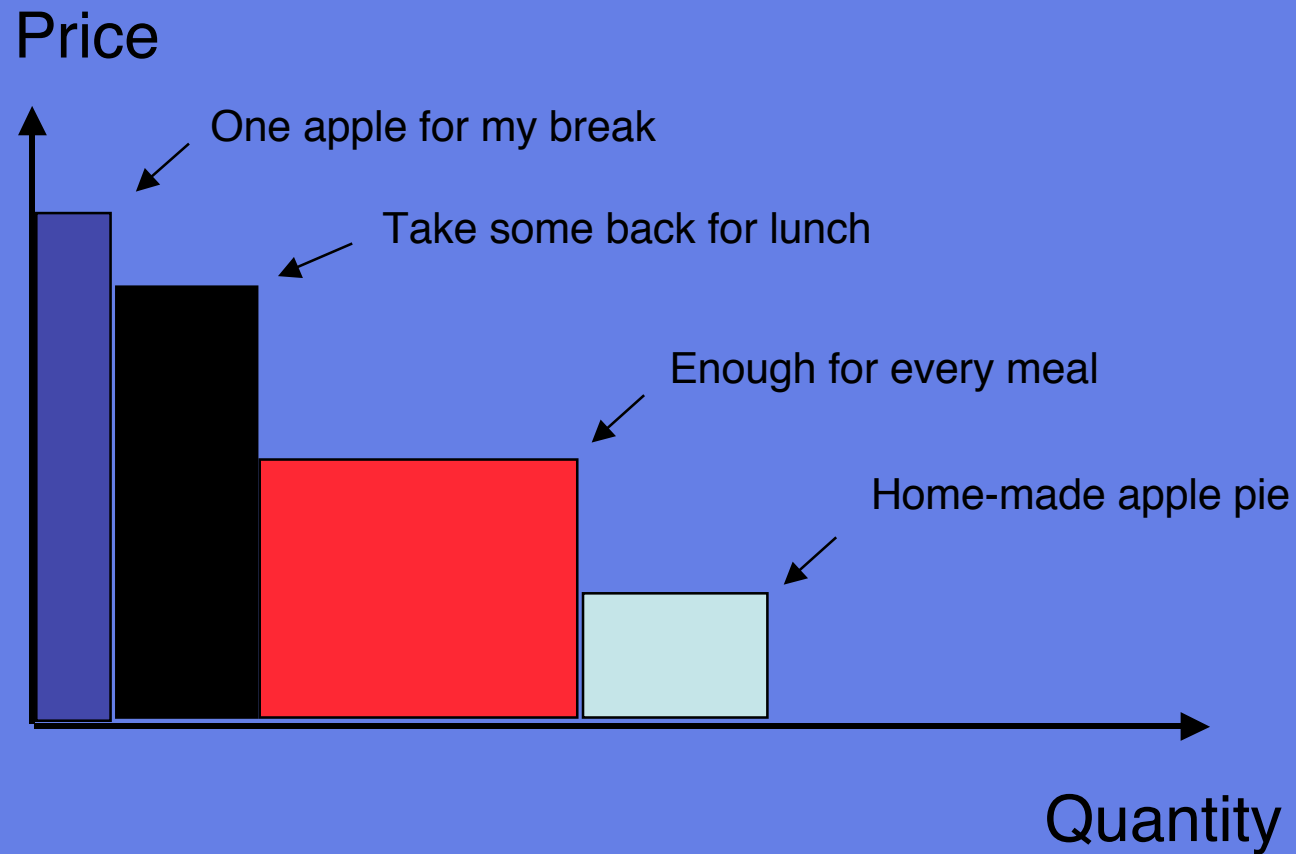
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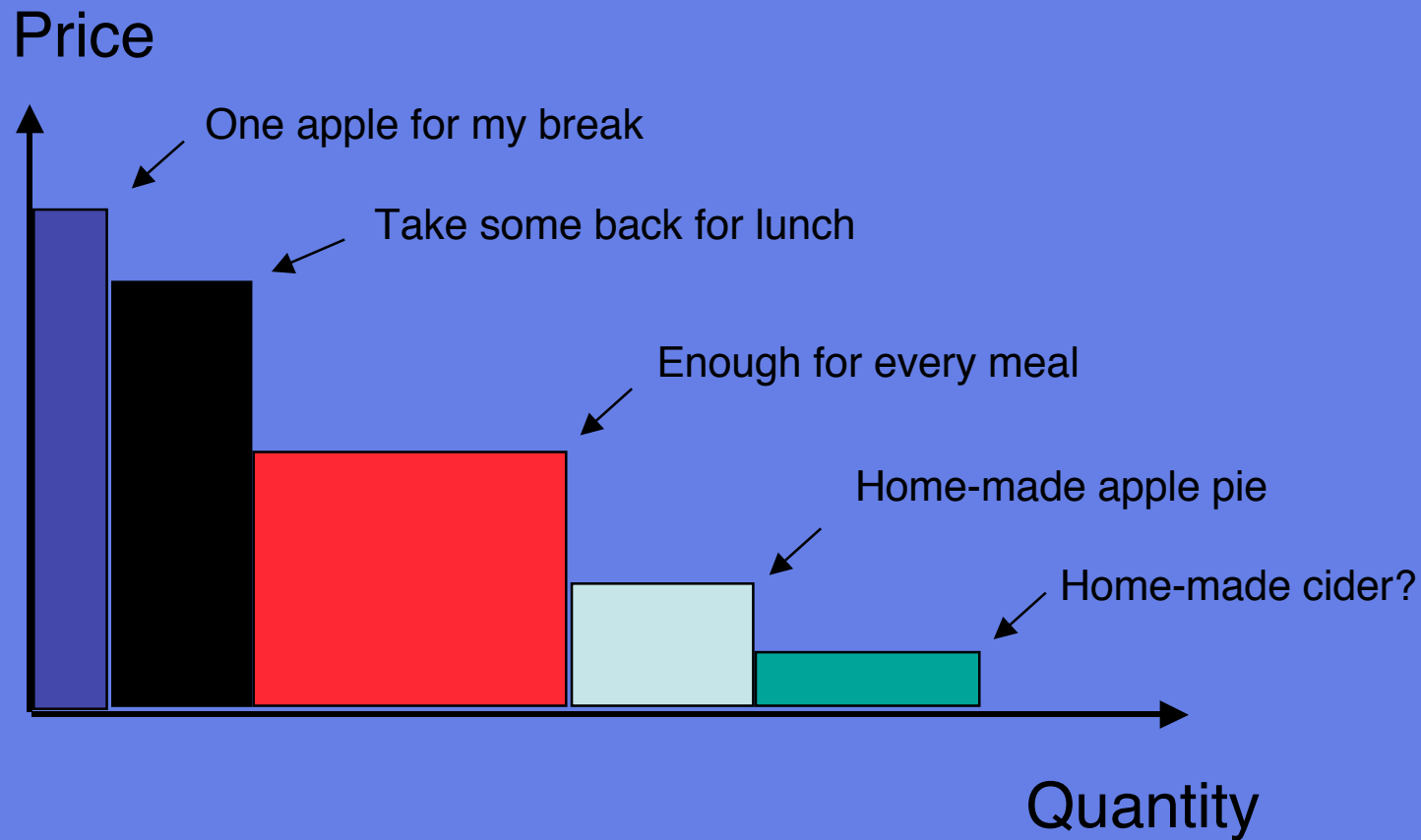
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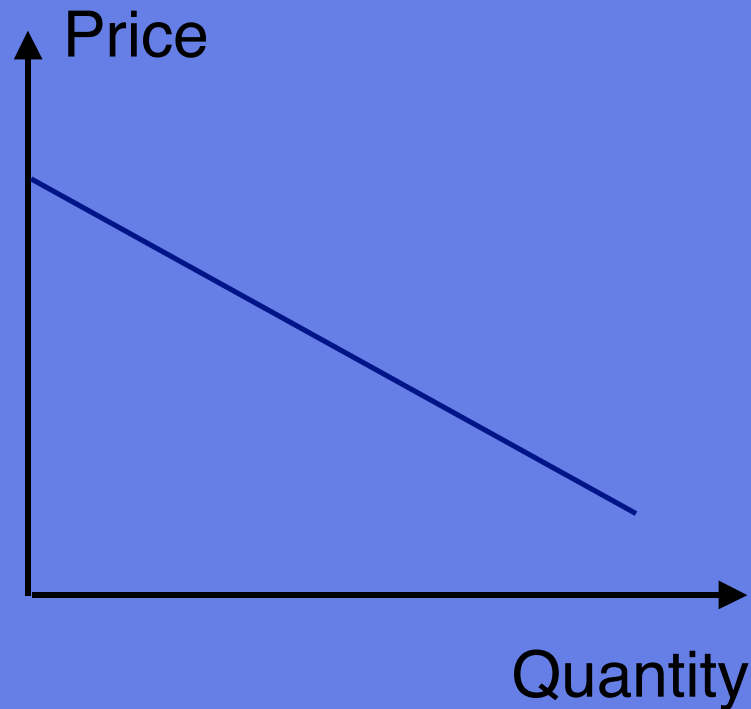


How much do I value apples?



Consumers spend until the price is equal to their marginal utility

Demand curve



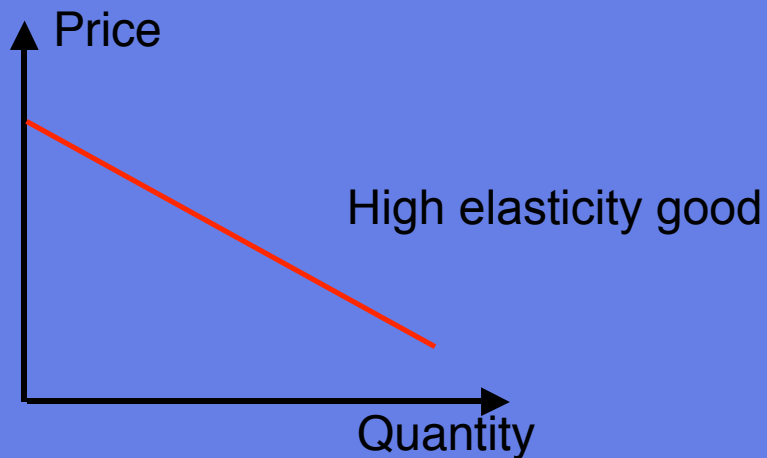
- Aggregation of the individual demand of all consumers
- Demand function:

$$q = D()$$

- Inverse demand function:

$$= D^{-1}(q)$$

Elasticity of the demand



- Slope is an indication of the elasticity of the demand
- High elasticity
 - Non-essential good
 - Easy substitution
- Low elasticity
 - Essential good
 - No substitutes
- Electrical energy has a very low elasticity in the short term

Elasticity of the demand

- Mathematical definition:

$$\frac{dq}{d} = \frac{q}{d} \frac{dq}{d}$$

- Dimensionless quantity

Supply side

- How many widgets shall I produce?
 - Goal: make a profit on each widget sold
 - Produce one more widget if and only if the cost of producing it is less than the market price
- Need to know the cost of producing the next widget
- Considers only the variable costs
- Ignores the fixed costs
 - Investments in production plants and machines

How much does the next one costs?

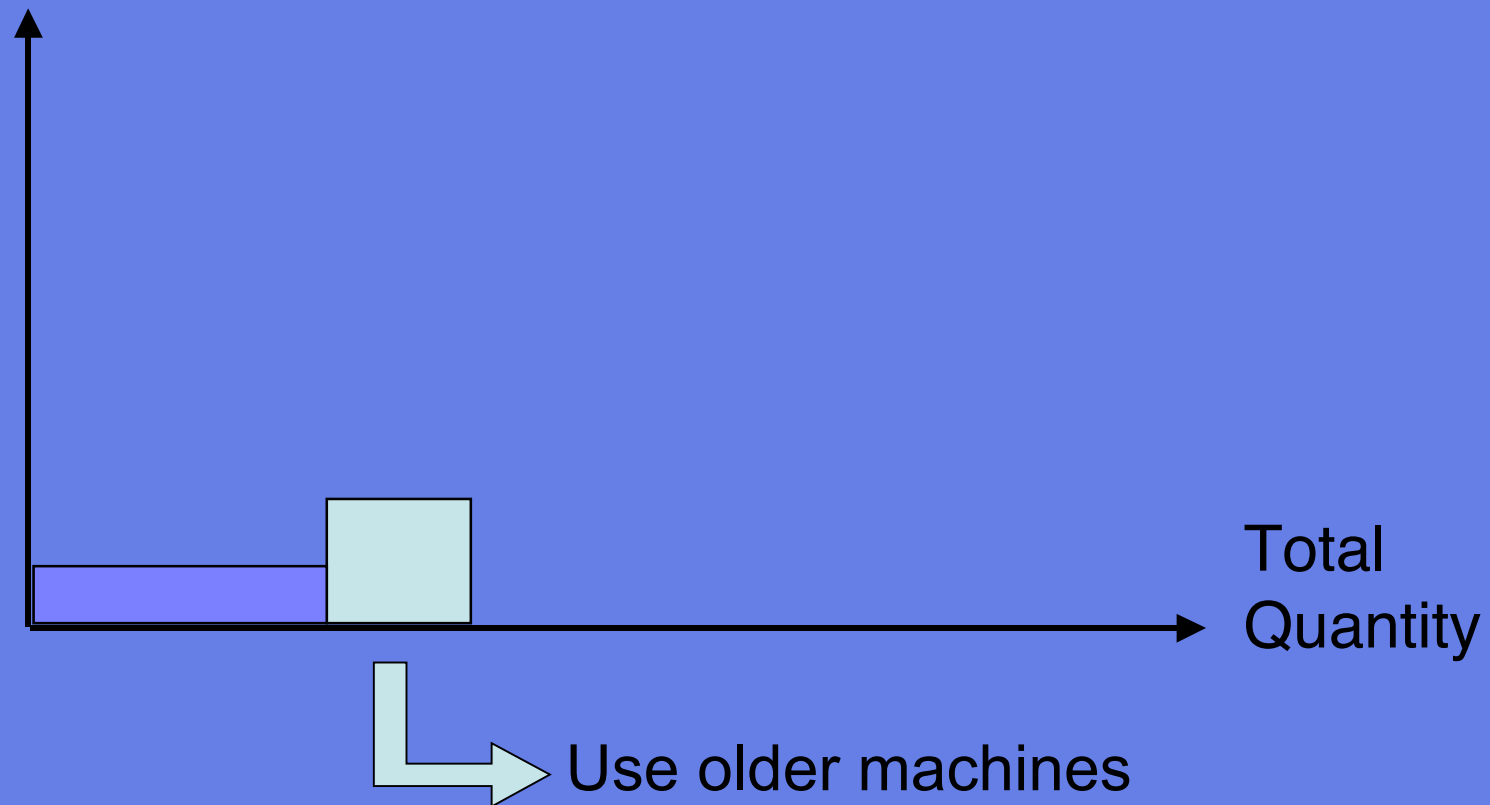
Cost of producing a widget



Normal production procedure

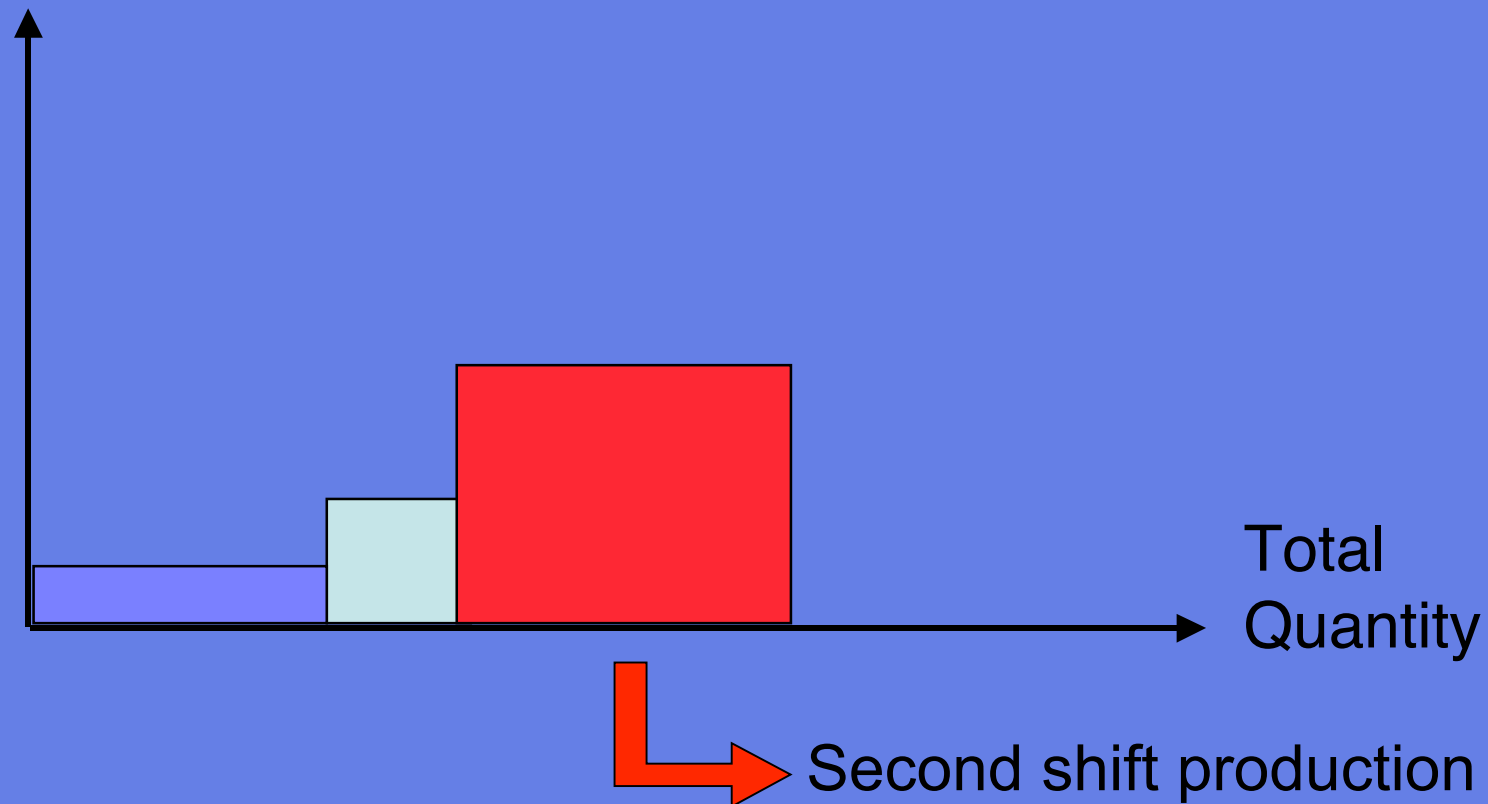
How much does the next one costs?

Cost of producing a widget



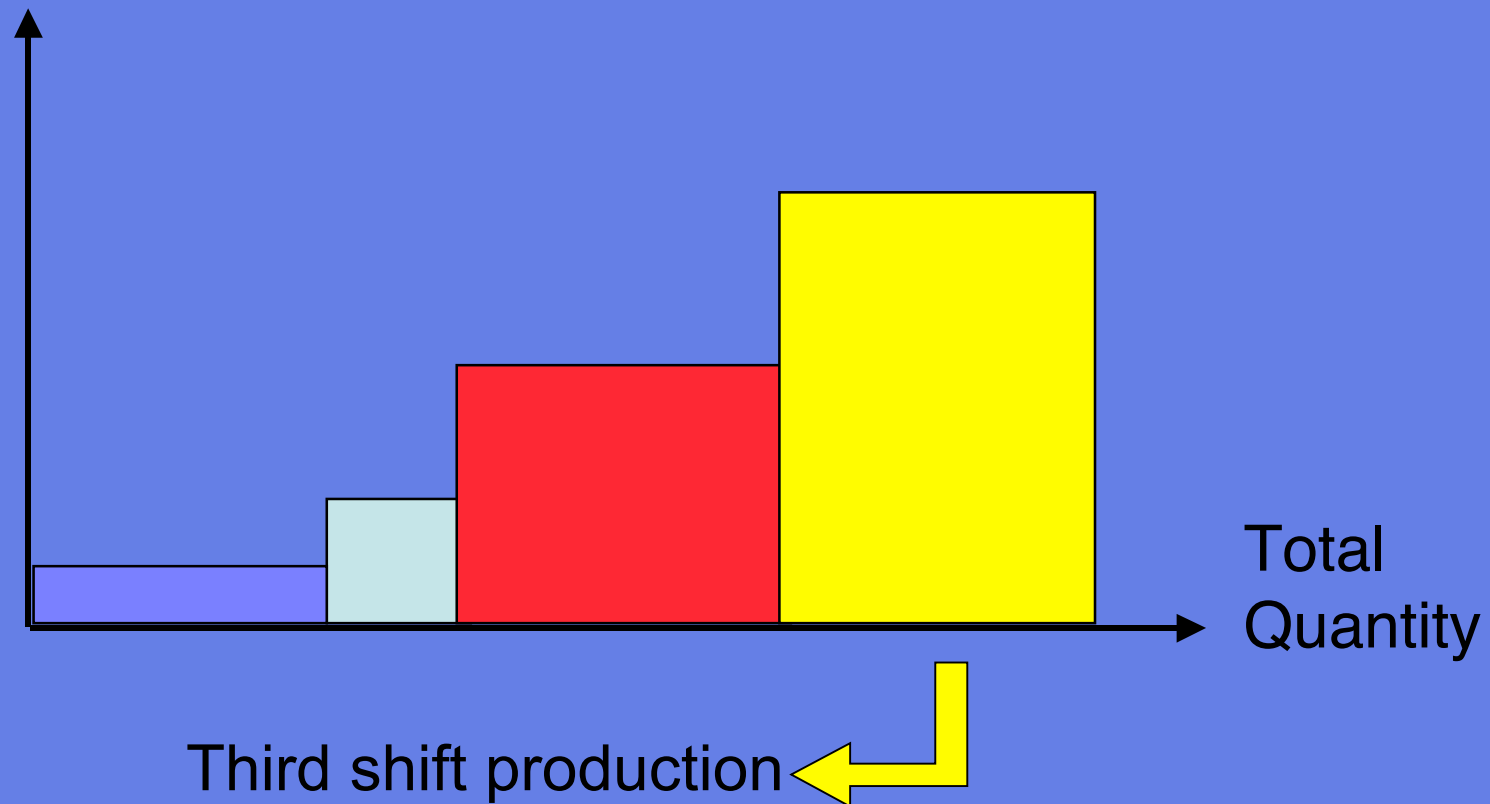
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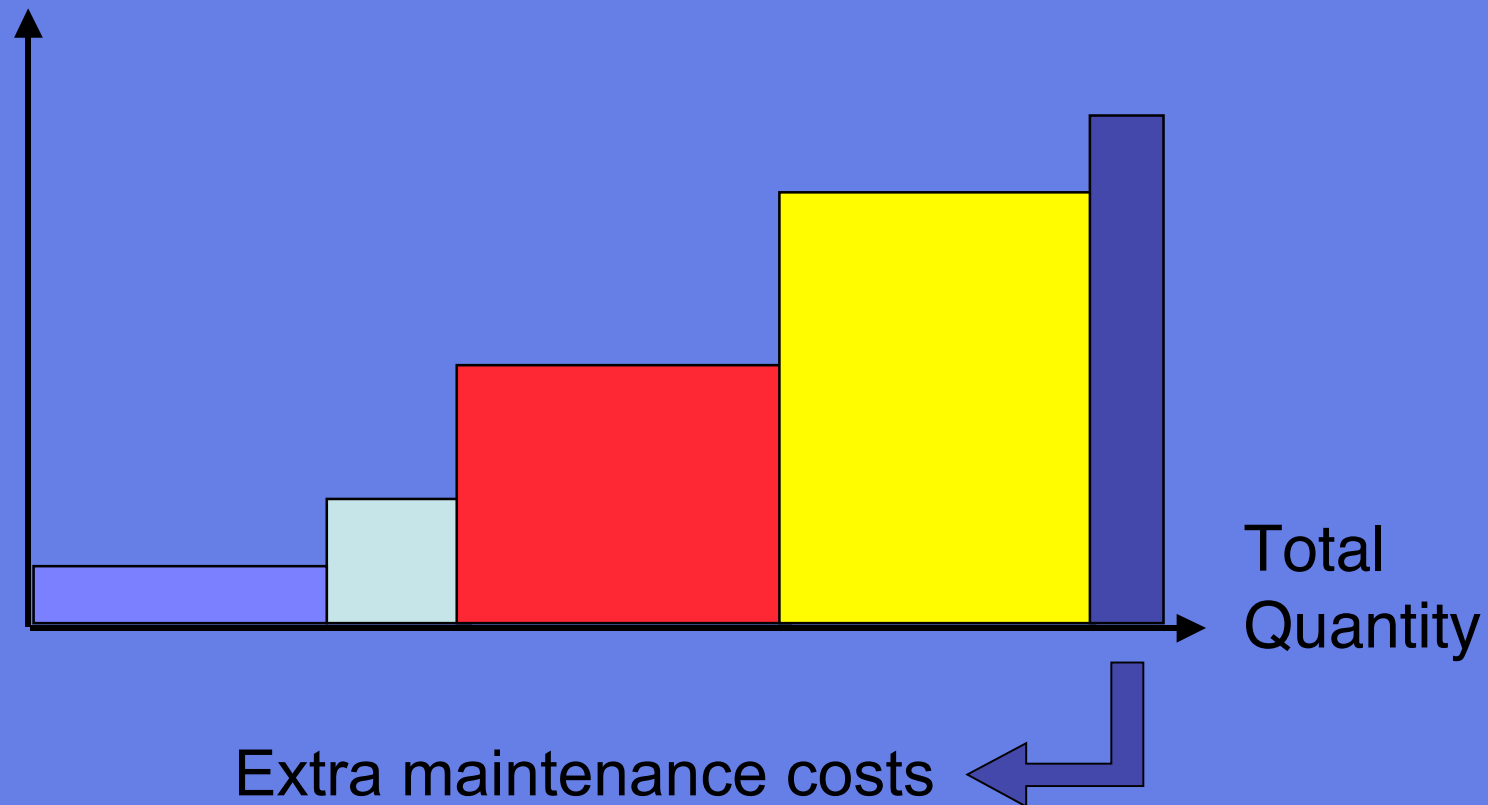
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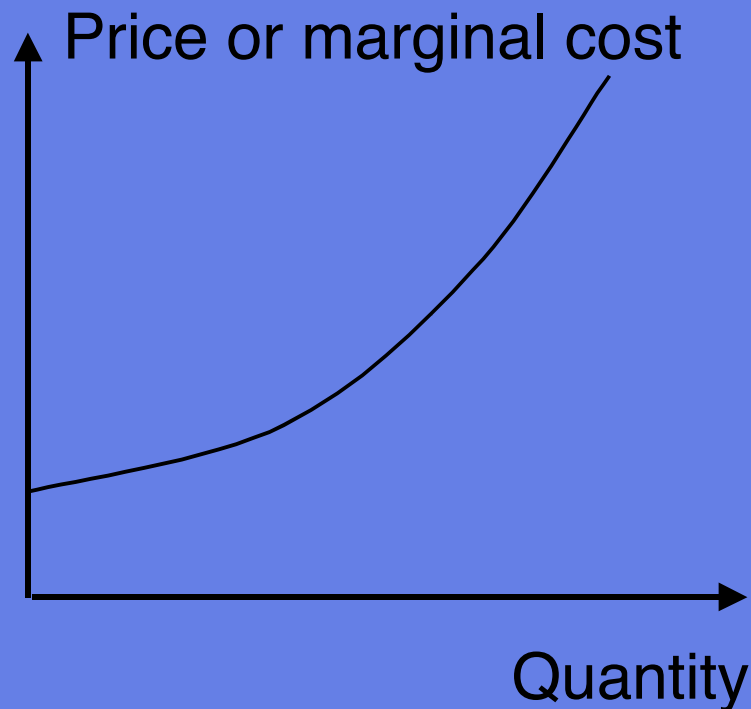


How much does the next one costs?

Cost of producing a widget



Supply curve



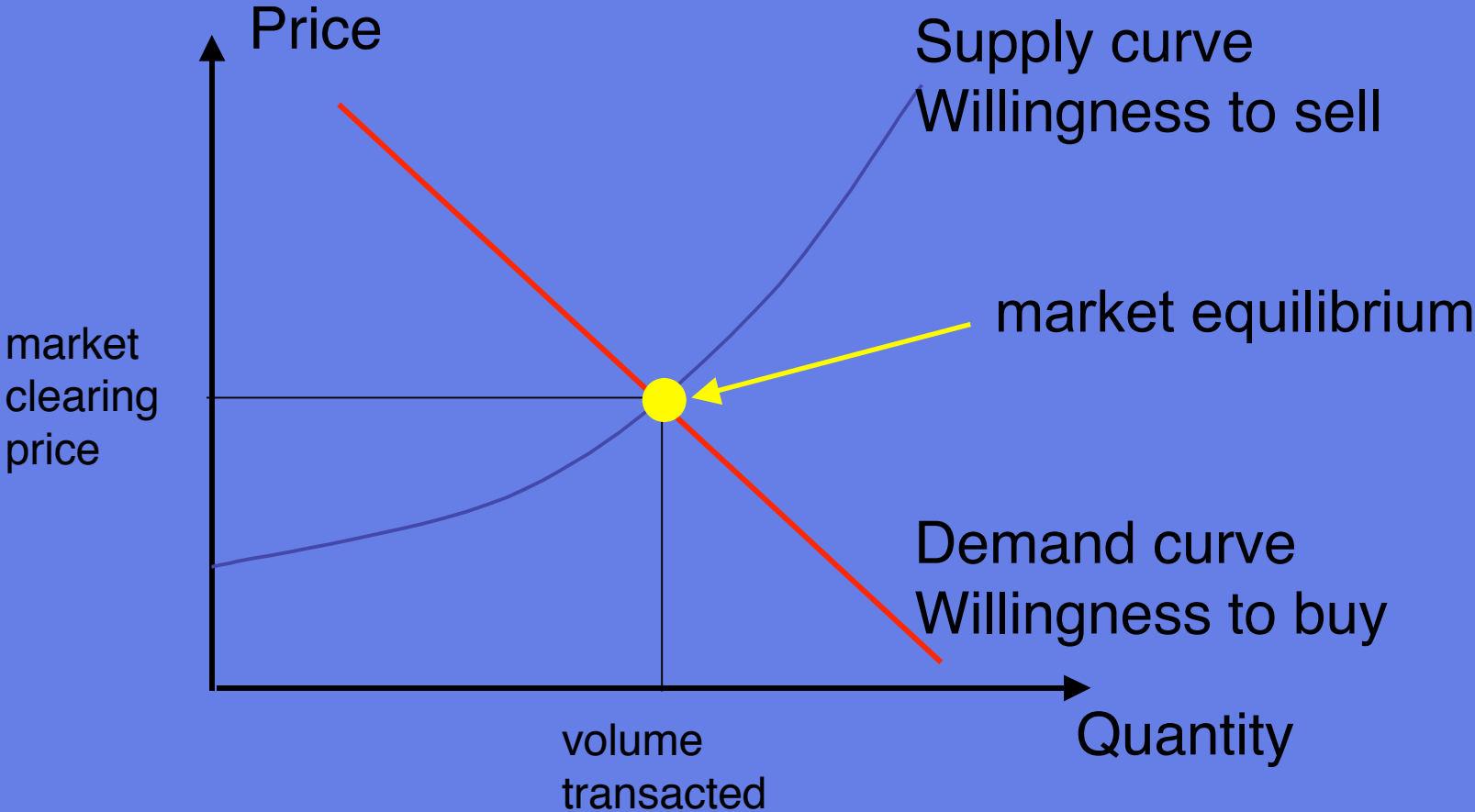
- Aggregation of marginal cost curves of all suppliers
- Considers only variable operating costs
- Does not take cost of investments into account
- Supply function:

$$= S^{-1}(q)$$

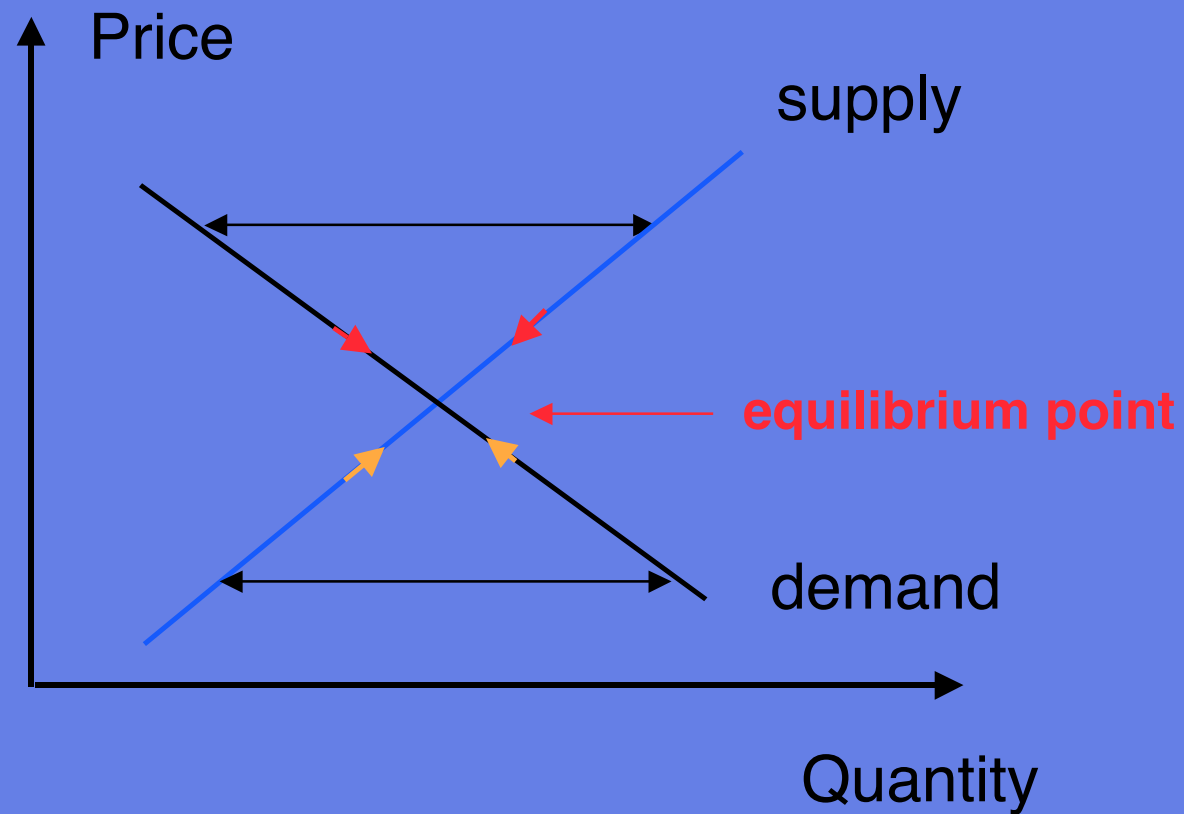
- Inverse supply function:

$$q = S(\)$$

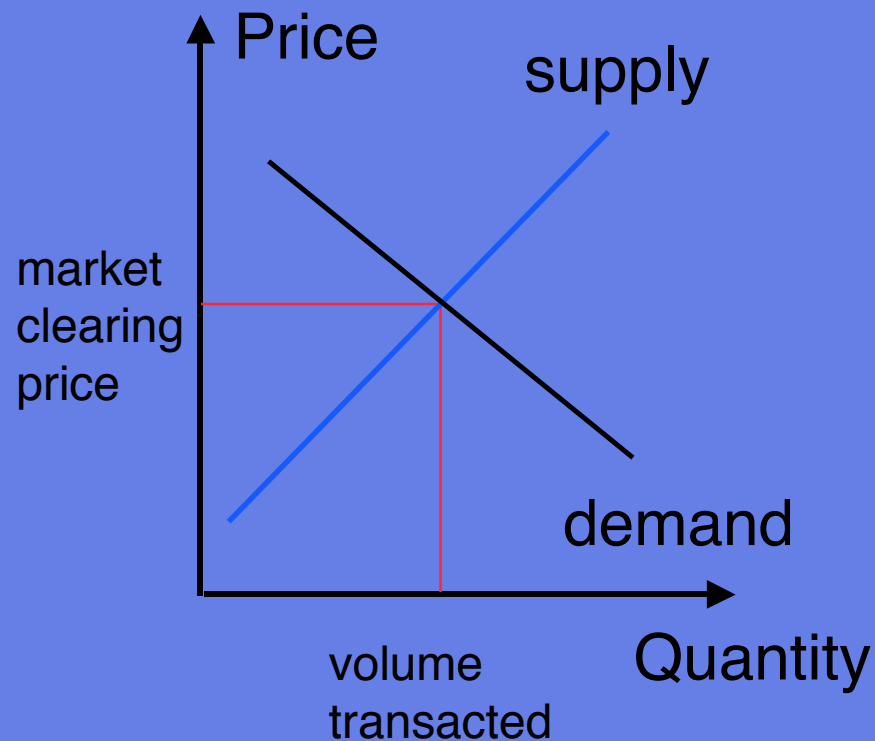
Market equilibrium



Supply and Demand



Market equilibrium



$$q^* = D(p^*) = S(p^*)$$

$$p^* = D^{-1}(q^*) = S^{-1}(q^*)$$

- Sellers have no incentive to sell for less
- Buyers have no incentive to buy for more

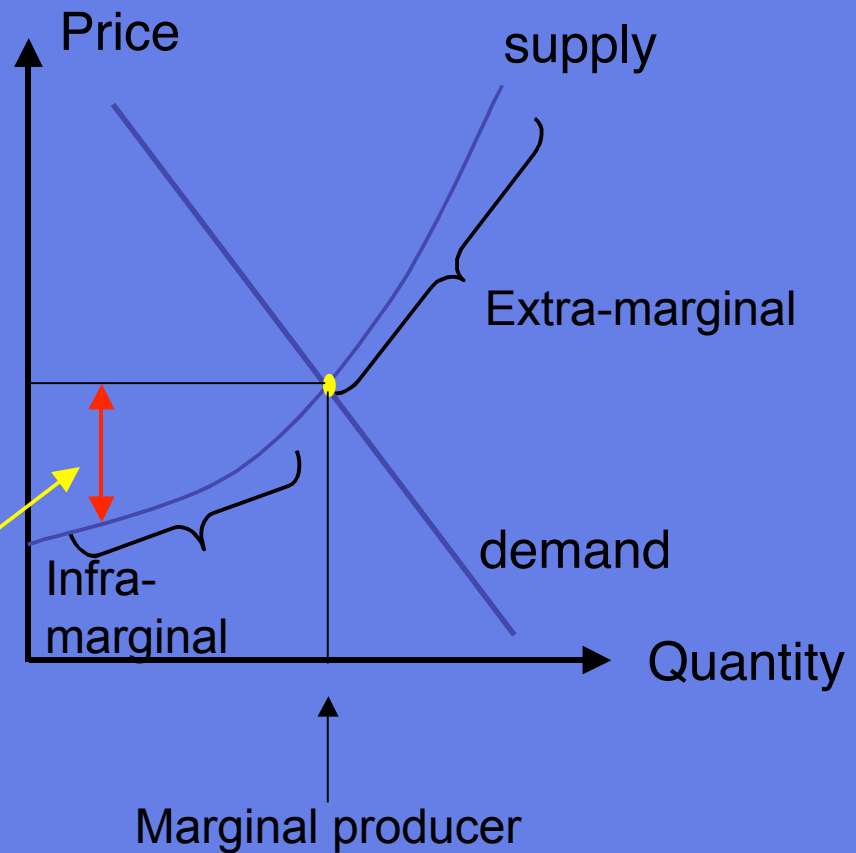
Centralised auction

- Producers enter their bids: quantity and price
 - Bids are stacked up to construct the supply curve
- Consumers enter their offers: quantity and price
 - Offers are stacked up to construct the demand curve
- Intersection determines the market equilibrium:
 - Market clearing price
 - Transacted quantity



Centralised auction

- Everything is sold at the market clearing price
- Price is set by the “last” unit sold
- Marginal producer:
 - Sells this last unit
 - Gets exactly its bid
- Infra-marginal producers:
 - Get paid more than their bid
 - Collect economic profit
- Extra-marginal producers:
 - Sell nothing



Bilateral transactions

- Producers and consumers trade directly and independently
- Consumers “shop around” for the best deal
- Producers check the competition’s prices
- An efficient market “discovers” the equilibrium price

Efficient market

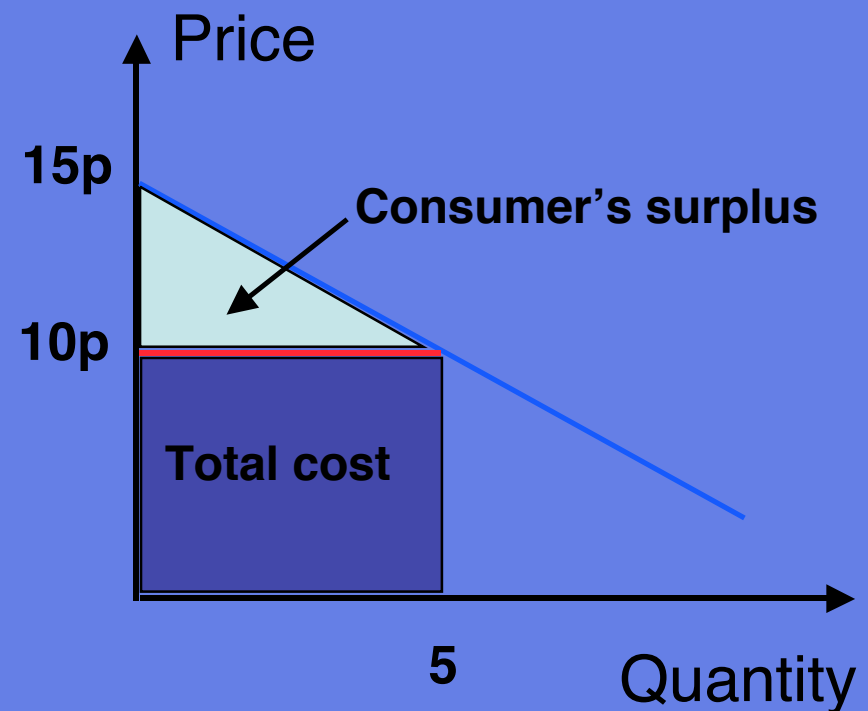
- All buyers and sellers have access to sufficient information about prices, supply and demand
- Factors favouring an efficient market
 - number of participants
 - Standard definition of commodities
 - Good information exchange mechanisms

Examples

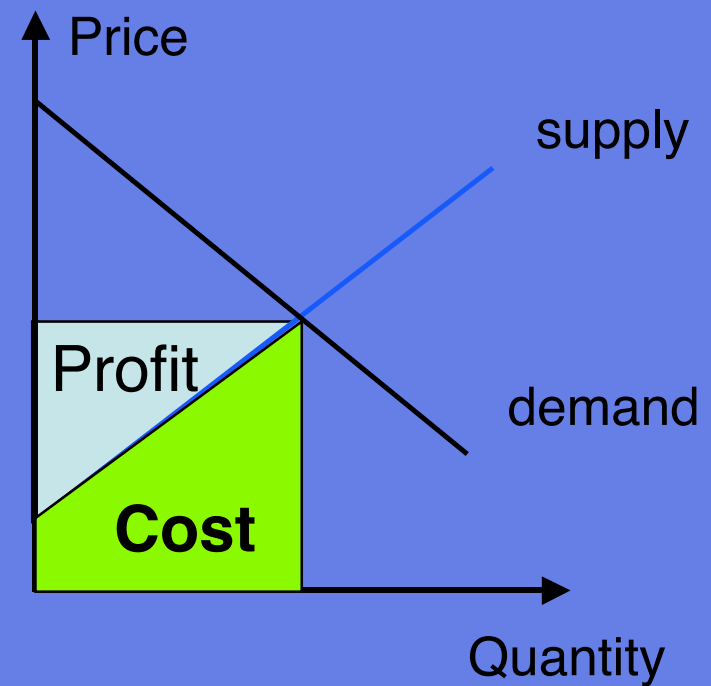
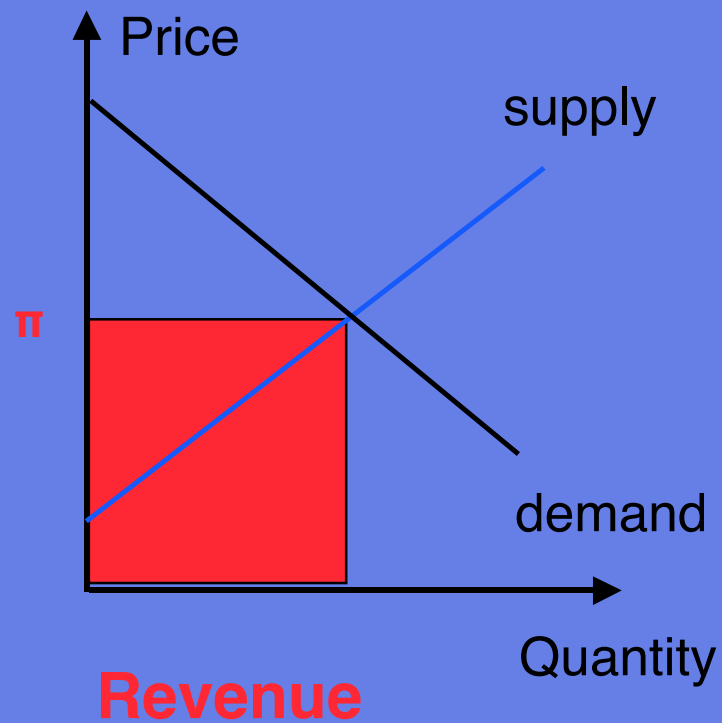
- Efficient markets:
 - Open air food market
 - Chicago mercantile exchange
- Inefficient markets:
 - Used cars

Consumer's Surplus

- Buy 5 apples at 10p
- Total cost = 50p
- At that price I am getting apples for which I would have been ready to pay more
- Surplus: 12.5p

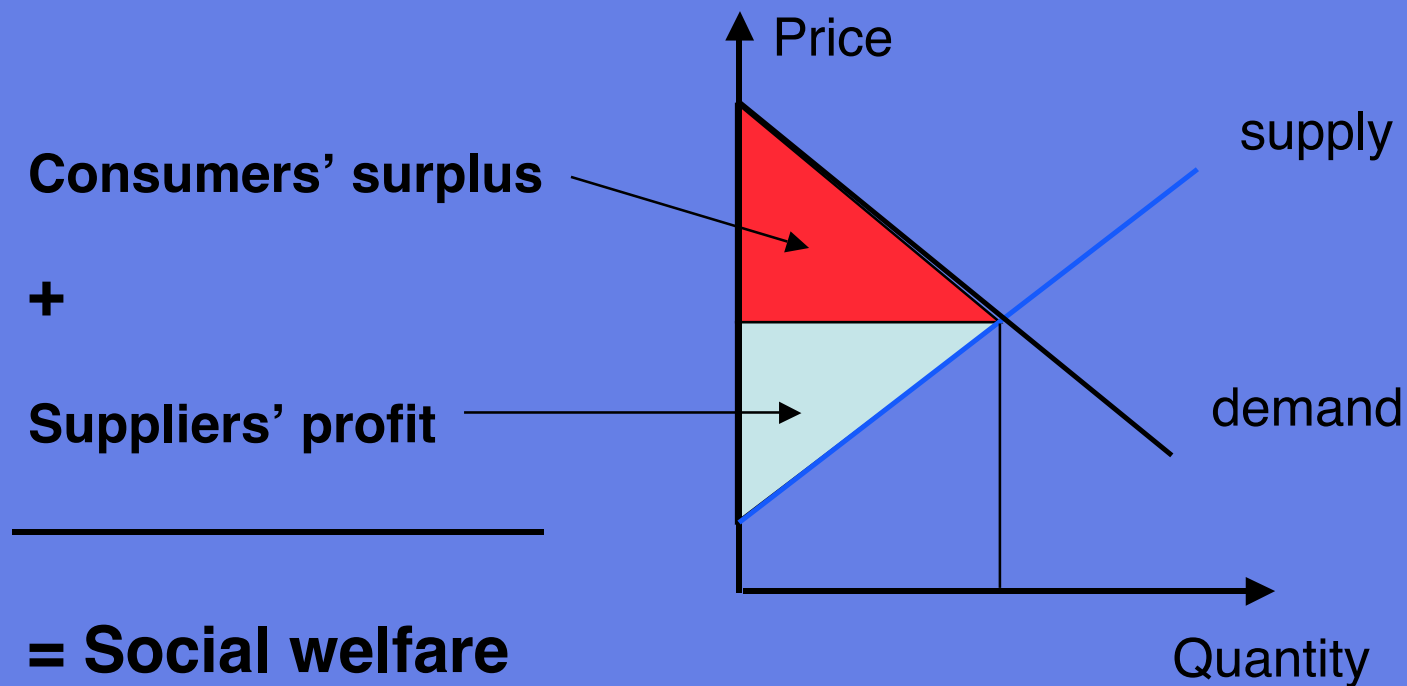


Economic Profit of Suppliers

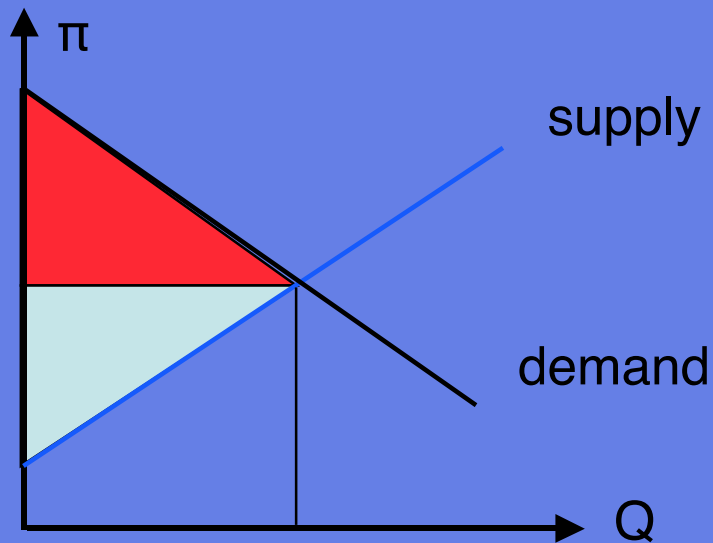


- Cost includes only the variable cost of production
- Economic profit covers fixed costs and shareholders' returns

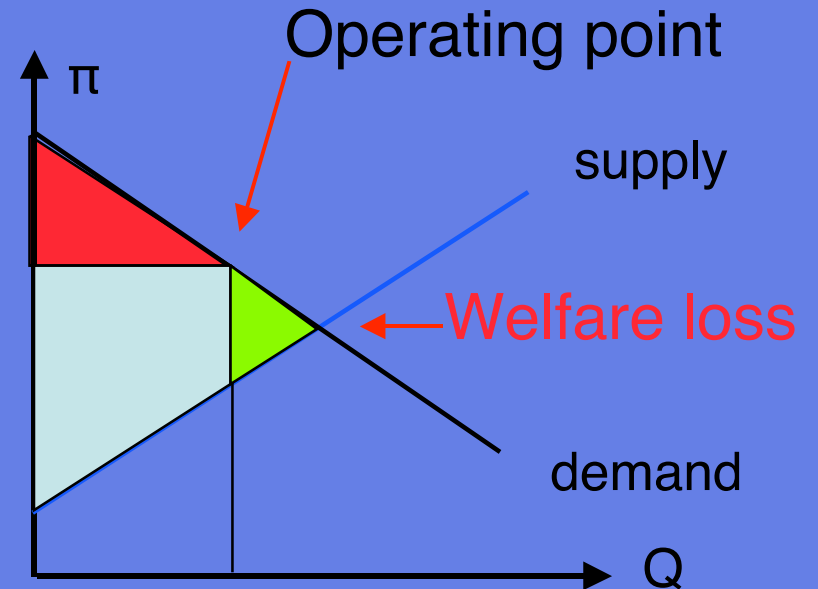
Social or Global Welfare



Market equilibrium and social welfare



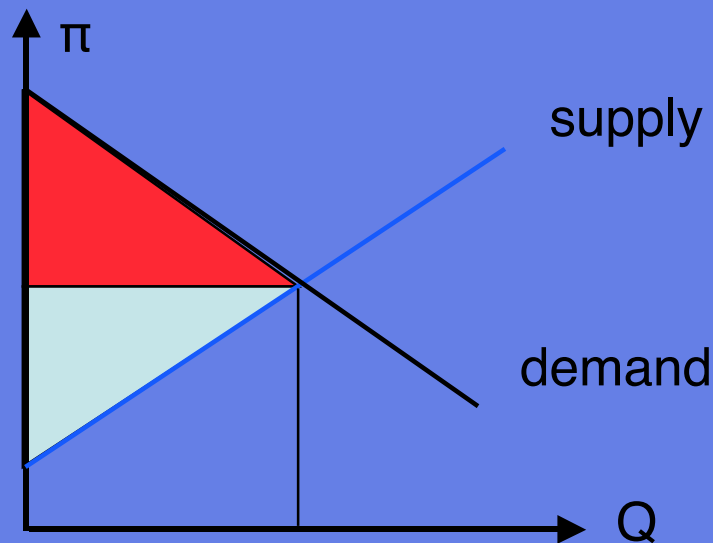
Market equilibrium



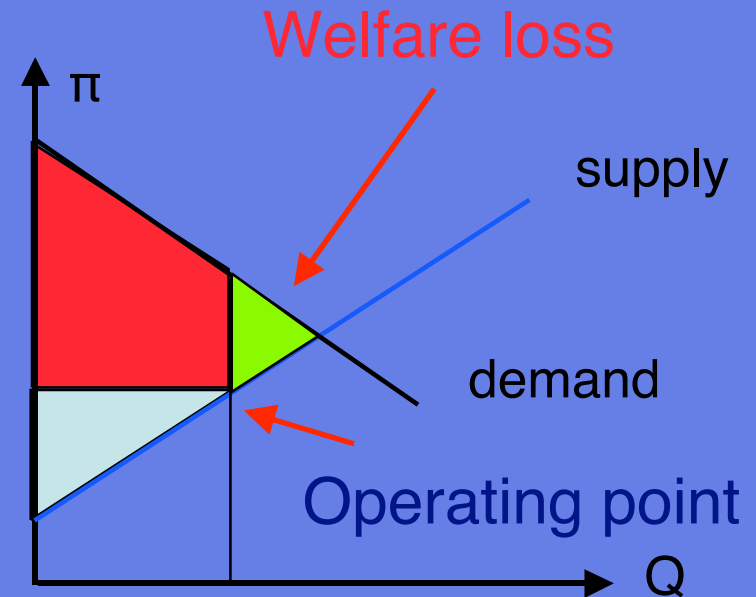
Artificially high price:

- larger supplier profit
- smaller consumer surplus
- smaller social welfare

Market equilibrium and social welfare



Market equilibrium



Artificially low price:

- smaller supplier profit
- higher consumer surplus
- smaller social welfare

Market Equilibrium: Summary

- Price
 - = marginal revenue of supplier
 - = marginal cost of supplier
 - = marginal cost of consumer
 - = marginal utility to consumer
- Market price varies with offer and demand
 - If demand increases
 - Price increases beyond utility for some consumers
 - Demand decreases
 - Market settles at a new equilibrium
 - If demand decreases
 - Price decreases
 - Some producers leave the market
 - Market settles at a new equilibrium
- Never a shortage

Advantages over a Tariff

- Tariff: fixed price for a commodity
- Assume tariff = average of market price
- Period of high demand
 - Tariff < marginal utility and marginal cost
 - Consumers continue buying the commodity rather than switch to another commodity
- Period of low demand
 - Tariff > than marginal utility and marginal cost
 - Consumers do not switch from other commodities