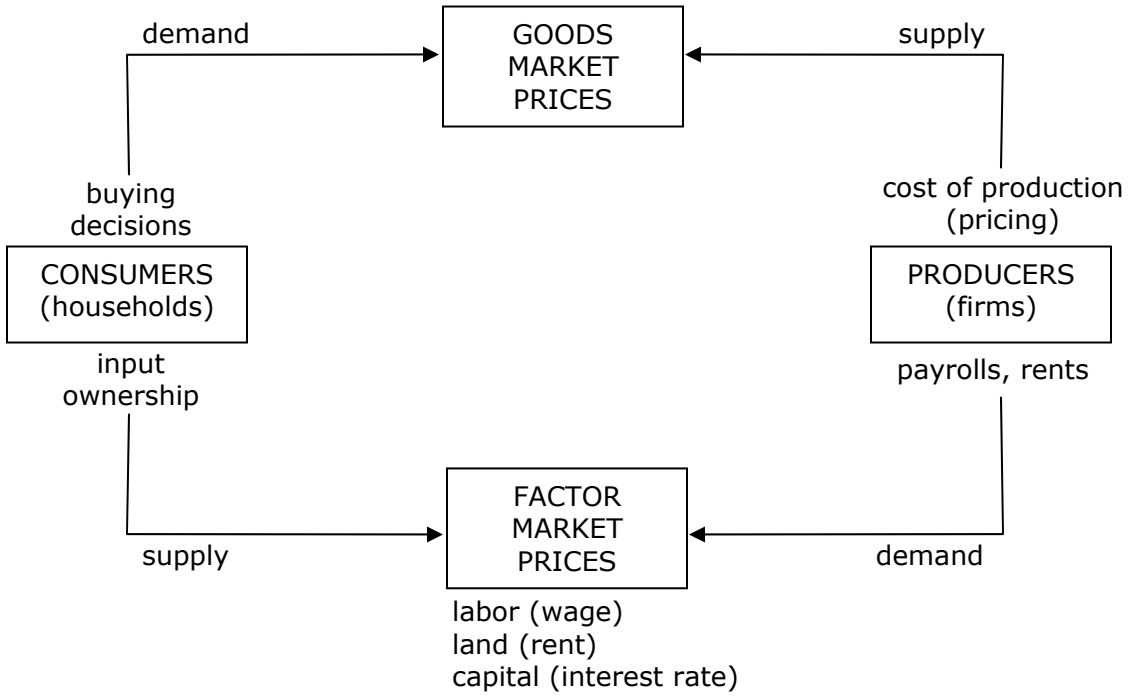
2.964: Economics of Marine Transportation Industries
Prof. Hauke Kite-Powell
Lecture Notes: Market Economics

Market

Buyers & sellers interact
Profits/losses guide firms' decision on what/how/for whom



TWO POINTS:

* Ceteris paribus – "other things equal"
Movement along supply, demand curves vs. shift in curves

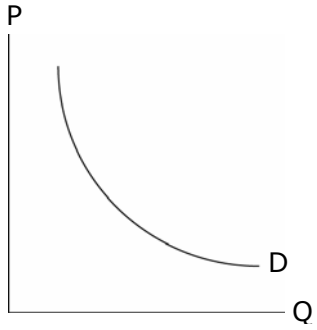
"Increase in demand" → shift (non-P Δ)
"Increase in q demanded" → movement?

* Idealization – perfect competition
- individual actions have no appreciable affect
- shipping?
- P = MC – efficient (no "excess" profits)

Failures (Role of Government):
- imperfect competition (monopoly)
- externalities → cost imposed outside markets, involuntary

Tanker Market Examples

Demand Curve

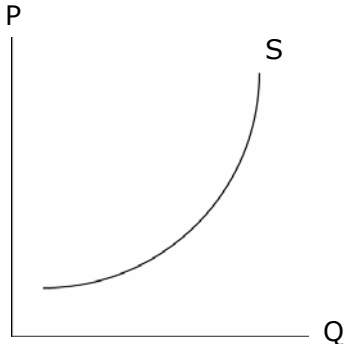


Downward sloping – why?
- substitution effect
- income effect

Determinants:
- price
- income
- size of market
- substitutes (related goods)
- tastes / preferences

Shifts:
- Δ in factors other than price

Supply Curve

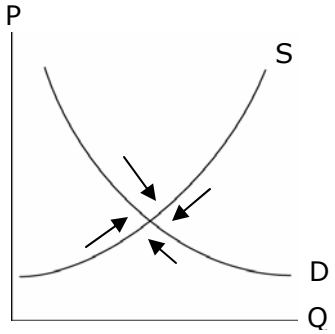


Upward sloping – why
- law of diminishing returns

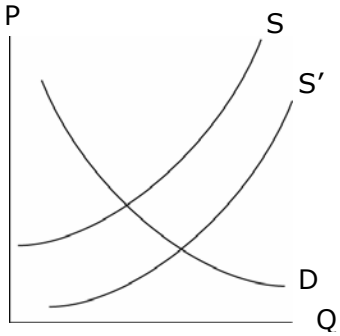
Determinants:
- price
- cost of production
  - technology costs
  - input costs
- prices of production substitutes
- market org.

Shifts:
- Δ in non-price factor(s)

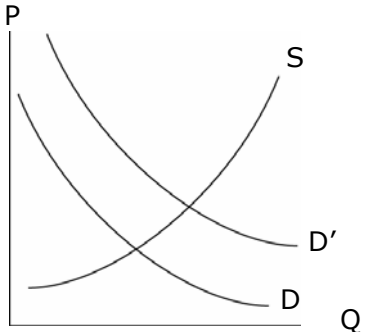
Equilibrium



Supply Shift



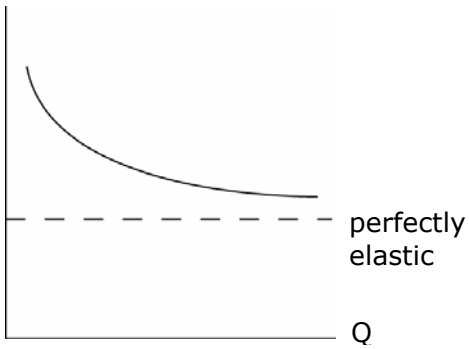
Demand Shift



ELASTICITY

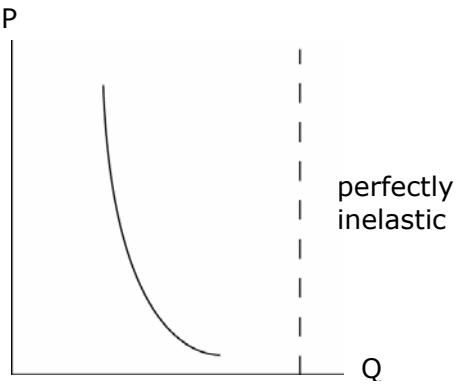
Price elasticity of demand: $E_D = \frac{\%\ \text{incr. in Q}}{\%\ \text{incr. in P}}$, NOT = slope!

Elastic



Revenue = P x Q
- decreases when P increases

Inelastic



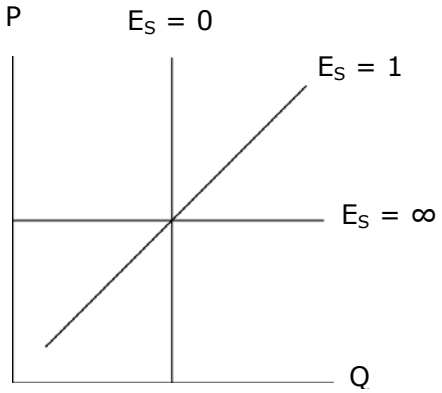
Revenue = P x Q
- increases when P increases

Examples:

- Luxury goods
- Ready substitutes
- Large fraction of income

- Necessities
- No ready substitutes
- Small fraction of budget

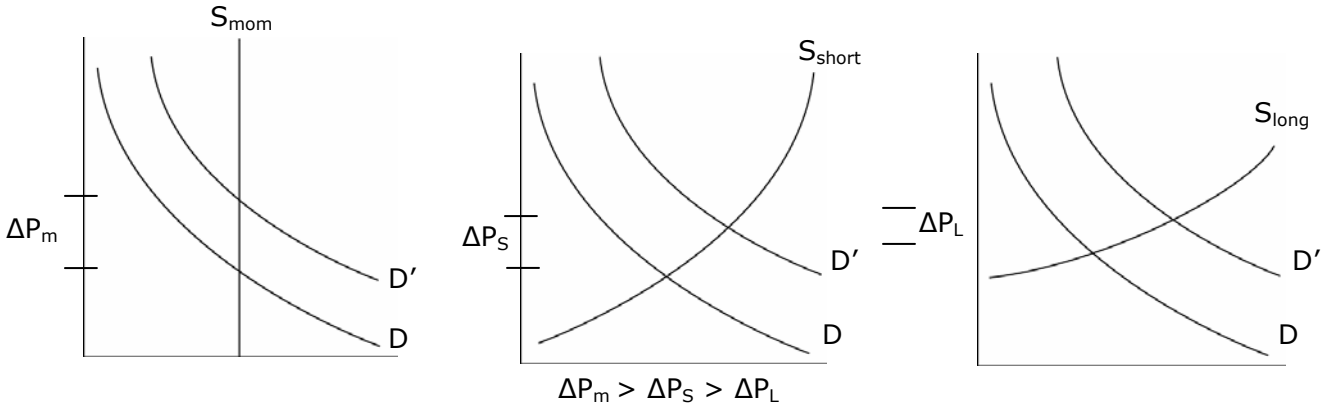
Price elasticity of supply: $E_S = \frac{\%\ \text{inc. in Q supplied}}{\%\ \text{increase in P}}$



Determinants:
- time period
- extent to which production can be increased

Time Frame of Equilibrium

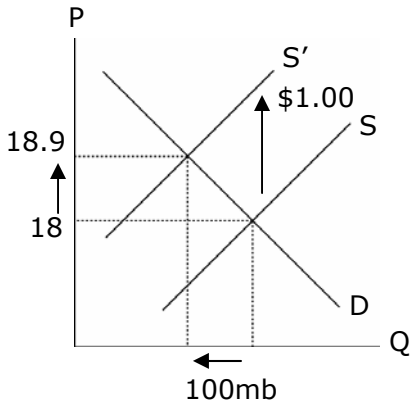
- monetary (supply fixed)
- short run (plant & equipment fixed; output Δ)
- long run (everything can Δ)



$\Delta P_m > \Delta P_S > \Delta P_L$

Similarly for demand, elasticity is smaller in short run
Very short run: prices move violently, Q little
Very long run: P moves little, Q a lot

Effect of a Tax



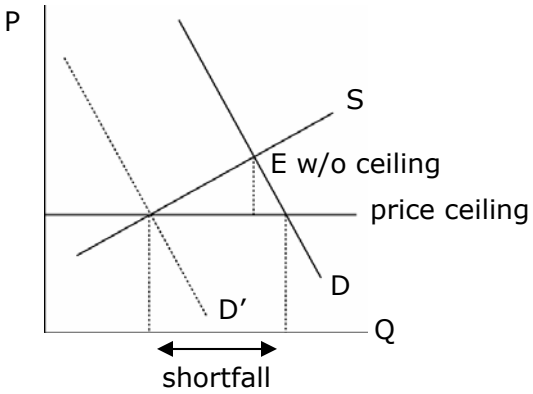
$1.00/barrel of oil imports

Who bears the burden?

Oil co: .9 – 1 = -.1
Consumer: .9 *

Elasticity!
Burden on consumer if demand inelastic relative to supply.
Burden on producer if supply is inelastic.

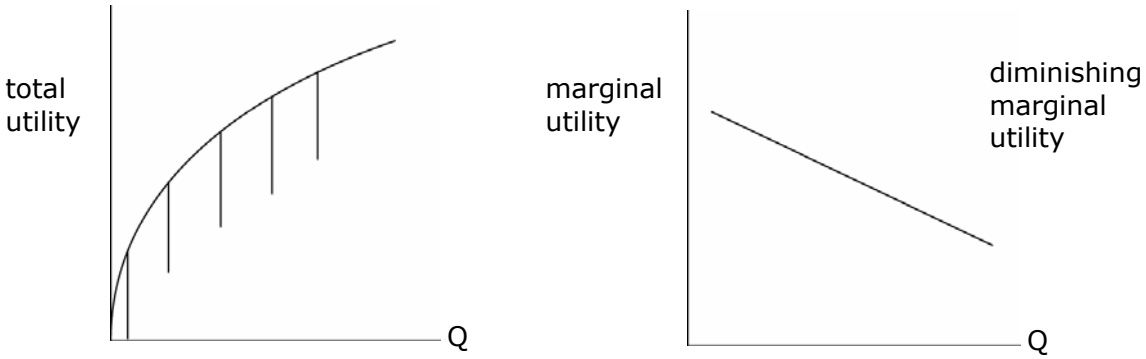
Effect of Price Control



→ shortage

Examples: rent control
interest rate ceilings
minimum wage

UTILITY (Behind the Demand Curve) = Satisfaction



Consumers adjust consumption so that marginal utility per $ is same for all goods.

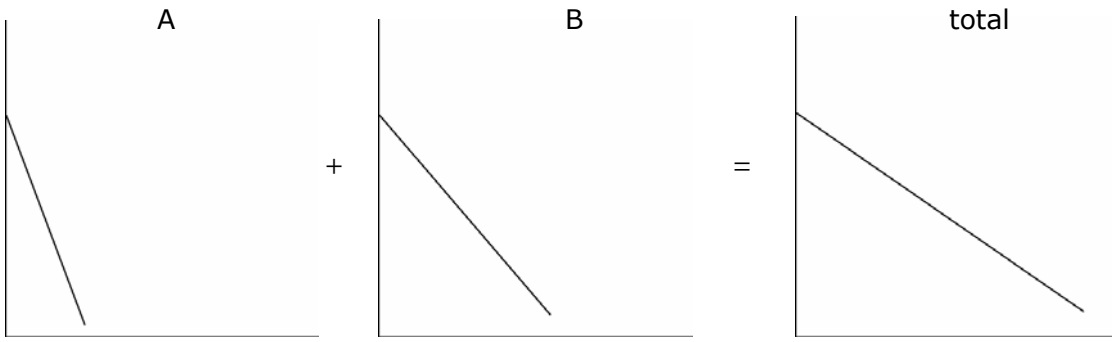
$$\frac{MU}{P} \text{ same for all goods}$$

→ "explains" downward sloping demand curve (higher P → $\frac{MU}{P}\downarrow$ → reduce Q)

→ MU determines value, i.e. price

MARKET DEMAND

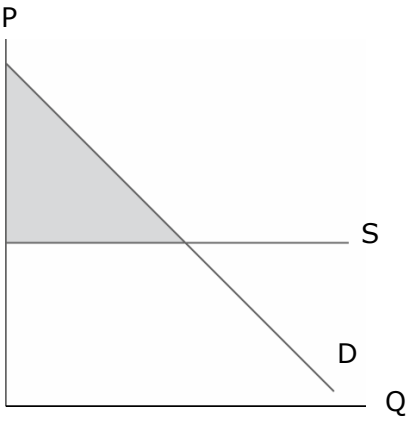
= sum of individual demand curves



SUBSTITUTES + COMPLEMENTS (independent)

Substitutes: increase in price of A causes *increase* in demand for B
Complements: increase in price of A causes *decrease* in demand for B

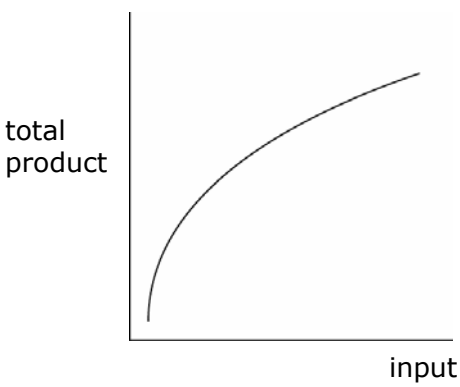
CONSUMER SURPLUS

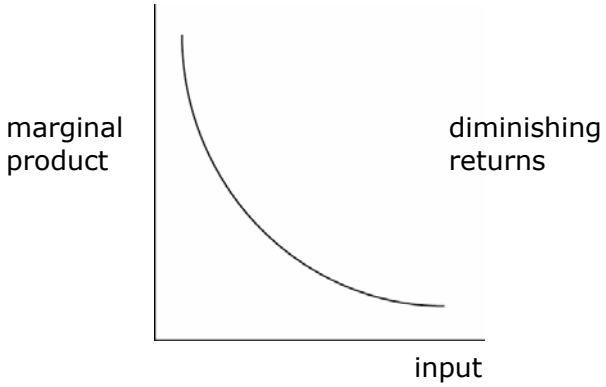


= extra utility (value) consumers collectively receive

PRODUCTION FUNCTION (Behind the Supply Curve)

= relationship between inputs & max output





Returns to Scale: balanced increase and decrease of all factors at once

Constant	(replication)
Decreasing	(natural resource industries) ?
Increasing	tanker!

$$\text{Productivity} = \frac{\text{total output}}{\text{weighted avg. of inputs}}$$

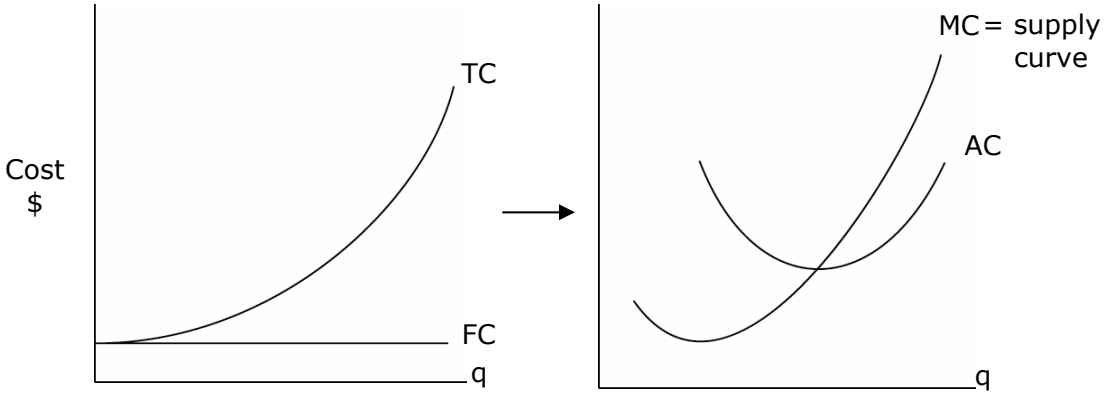
COSTS

total = fixed + variable
total (Q) = fixed + variable (Q)

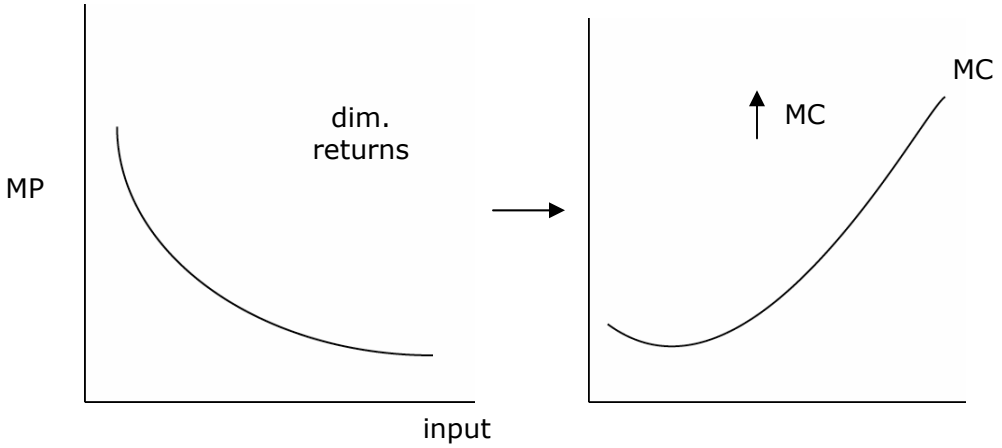
TC = FC + VC
(sunk) no Δ with Q
= 0 when Q = 0

Marginal Cost = MC = additional cost of producing 1 more unit of output
= slope of TC curve

Average Cost = unit cost = $\frac{TC}{q}$



Relating Marginal Product and Marginal Cost:

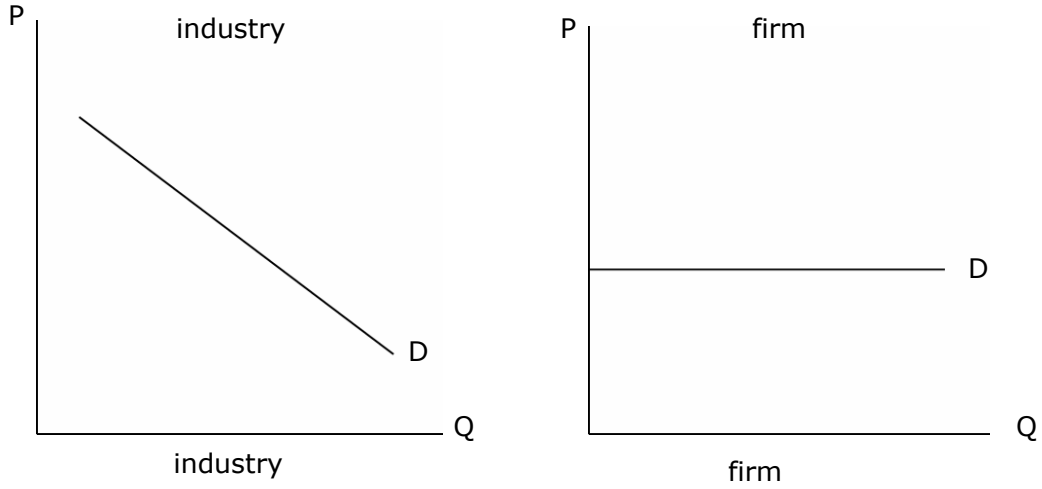


Like consumers with $\frac{MU}{P}$, firms adjust inputs so that $\frac{MProduct}{P}$ is same for all inputs

Opportunity cost: measure of what has been forgone
Industry supply = horizontal sum of firms' supply

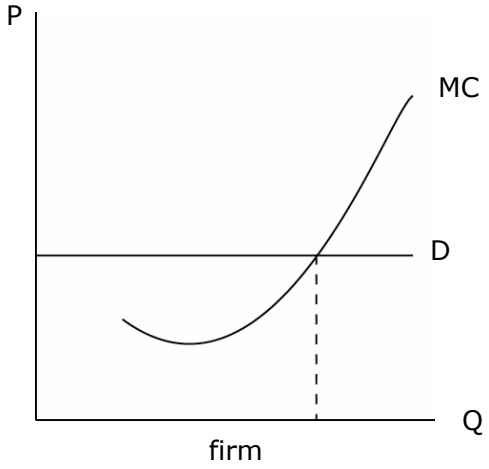
COMPETITIVE MARKET

Assume: - competitive firms/market (no producer can affect market price)
- firms maximize profits



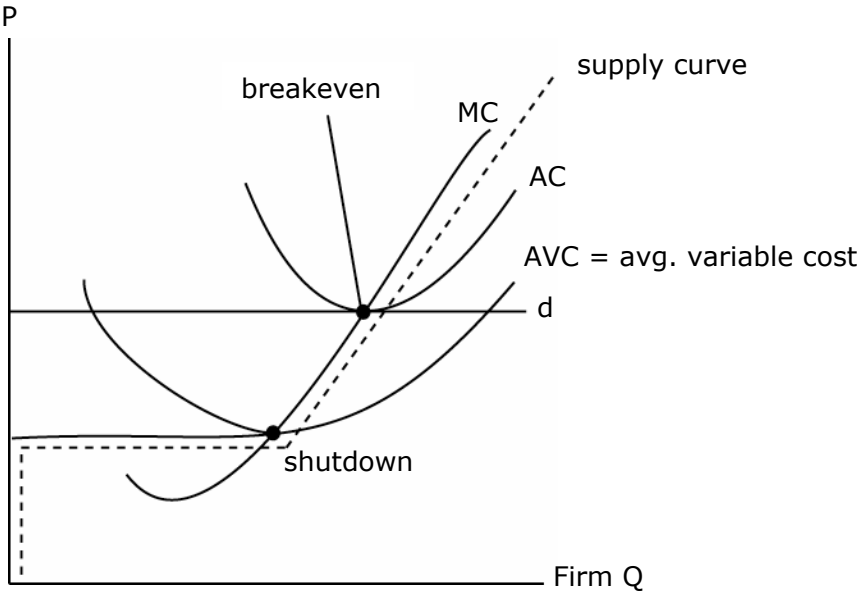
How does firm decide how much to produce?
→ P = MC
Why?...

rising MC curve =
firm's supply curve



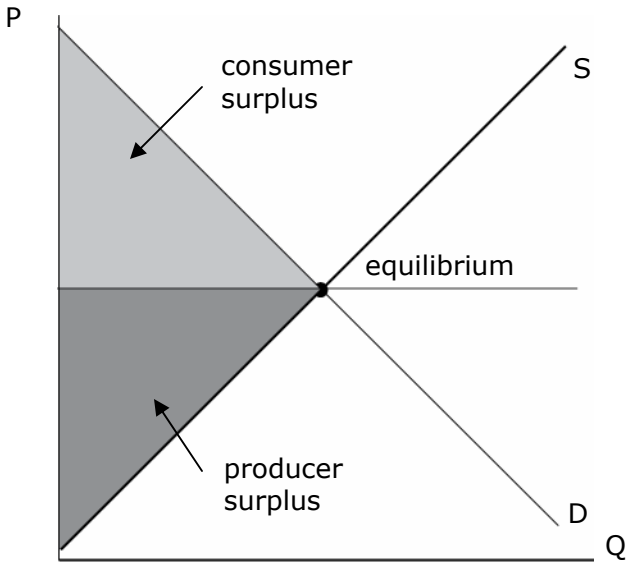
Shutdown Point

(short run)



→ profit maxing firms may continue to operate in the short run even though they are losing money

Industry Supply = horizontal sum of firm's supply curves

Long-run competitive equilibrium: P = MC = min AC = breakeven price

SURPLUS