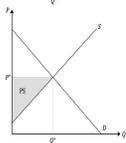
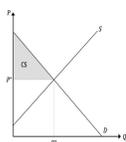


Lecture 3

- **Willingness to pay:** the maximum price a consumer will pay for G/S
 - Determined by the benefit (utility) a consumer gets from the G/S
 - The willingness to pay is the 'total benefit'
- **Marginal Benefit:** a measure of the amount of extra benefit a consumer derives from consumption of an additional G/S
 - Generally we expect diminishing marginal benefit
 - The marginal benefit curve is used to derive a consumer's demand curve
 - A consumer will consume G/S up until the point where $P=MB$
- **Individual demand:** the quantity of a G/S that a consumer is willing and able to buy at a certain price
 - Due to diminishing MB, individual demand is downward sloping
- **Law of demand:** a consumer consumes fewer units of a G/S as the price rises
- Demand for a good can increase or decrease due to changes in taste, income, expectations and price of substitutes G/S or complementary G/S
- The market demand curve is the horizontal sum of all individual demand curves

- **Market equilibrium:** a situation where, at the market price, the quantity demanded by consumers equals the quantity supplied by firms
 - If a market is not in equilibrium, there will be natural market pressure to move towards the equilibrium price and equilibrium quantity
- If P_M is above P_{EQ} there will be excess supply → this places downward pressure on prices
- If P_M is below P_{EQ} there will be excess demand → this places upward pressure on prices
- When there is a change in the market beyond the control of the buyers or sellers, the demand and/or supply curves may shift in response
- **Consumer surplus:** the welfare consumers receive from a G/S above the price they pay
 - ie. Consumer surplus = willingness to pay - price paid (P_M)
 - ie. the area below the demand curve and above the price line
- **Producer surplus:** the welfare producers receive from selling a G/S below the price
 - ie. Producer surplus = price charged (P_M) - cost of production
 - ie. the area above the supply curve below the price line
- **Total surplus:** consumer surplus + producer surplus
 - ie. the area between the demand and supply curves
- **Pareto efficient:** a situation in which it is impossible to make one party better off without making someone else worse off → ie. pareto efficiency maximises total surplus
 - Pareto efficiency does not imply uniqueness or fairness or equity



→ **Elasticity (ε):** the responsiveness of one variable to a change in another variable

$$\epsilon = \frac{\% \Delta y}{\% \Delta x}$$

- Elasticity is a way of comparing quantitative changes across different situations by looking at proportional (or percentage) changes
- Elasticity measures how responsive one variable is to changes in another variable

→ **Point method:** used to calculate elasticity at a single point

→ **Midpoint (arc) method:** used to calculate elasticity between 2 points

$$\epsilon_d = \frac{\Delta q / q}{\Delta P / p} = \frac{dq}{dP} \cdot \frac{P}{q}$$

$$\epsilon_d = \frac{\Delta q / q^m}{\Delta P / P^m} = \frac{\Delta q}{\Delta P} \cdot \frac{P^m}{q^m}$$

→ Elasticity is useful for price setting by firms and policy implementation by governments

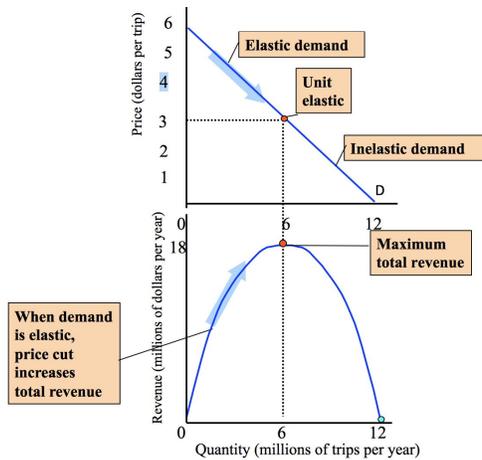
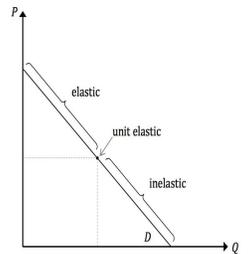
→ Elasticity of demand will be negative → INCLUDE NEGATIVE SIGN

→ Along a straight line demand curve, the elasticity will be different at different points on the line [shown right]

→ Elasticity can demonstrate how P and Q change when supply increases/decreases

→ Elasticity also determines how revenue changes when there is a change in price

- After all, TR=P*Q, so for a constant change in price, the responsive change in quantity will determine the change in price
- $dTR/dP = Q(1+\epsilon)$ → this calculates the rate of change of revenue



Calculating cross-price elasticity:

$$\epsilon_{AB} = \frac{\Delta Q_A / Q_A^M}{\Delta P_B / P_B^M}$$

$$\epsilon_{AB} = \frac{\Delta Q_A / Q_A}{\Delta P_B / P_B} = \frac{dQ_A}{dP_B} \cdot \frac{P_B}{Q_A}$$

→ Elasticity of supply is calculated the same way as elasticity of demand

→ **Cross-price elasticity:** a measure of how sensitive the quantity demanded of good A is to changes in the price of another good, good B

- Often applies to complementary goods and substitute goods
- Firms use this for multibrand product management
- Governments use this to determine the impact of tax on consumer behaviour

→ **Income elasticity:** a measure of how sensitive quantity demanded is to change in income

$$\eta = \frac{\Delta Q / Q}{\Delta Y / Y} = \frac{dQ}{dY} \cdot \frac{Y}{Q}$$

$$\eta = \frac{\Delta Q / Q^M}{\Delta Y / Y^M}$$

- If $\eta < 0$, it is an inferior good (eg. devon)
- If $\eta = 0$, it is a neutral good (eg. water)
- If $0 < \eta \leq 1$, it is a normal good (eg. food)
- If $\eta > 1$, it is a luxury good (eg. caviar, sports cars)

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Lecture 4

→ **Market structure:** the distribution of buyers and sellers in a market

- There are 4 main different types of market structures

	Number of firms	Barriers to entry	Power to set price	Product differentiation
Perfect comp.	Many	Low	No	No
Monopoly	One	High	Yes	n/a
Mono. Comp.	Many	Low	Yes	Yes
Oligopoly	Few	High	Yes	Sometimes

→ **Perfect competition**

- Many buyers and sellers (no power in price setting)
- Homogenous products (consumers are indifferent as to the firm they purchase from)
- Free entry and exit for firms (in the long run) and same tech for all firms

→ In the short run, the number of firms in the industry is fixed

- Firms 'ignore' FC when deciding q in SR, as these will be incurred regardless of q

→ In the long run, the number of firms is variable (firms can freely enter and exit the industry)

→ **Shut-down condition:** $TR < VC$

- Then divide by q (and relate AVC to AVC_{min}) to get $p < AVC_{min}$

→ Profit (π) = $q \cdot (p - ATC)$ [ie. difference between (P_{market} and their average costs) $\times Q_{market}$]

→ In the long run, all production factors are variable, so firms can enter and exit the market

- **Exit condition:** $p < ATC_{min}$ and **Entry condition:** $p > ATC_{min}$

→ So, firm's long run supply curve is MC curve above (LR)ATC curve

- Firms will stop entering and exiting the market (no. of firms will stabilise) when firms are making zero economic profit (can still be making accounting profit)

→ This is because when firms make profit, more firms enter market, increase S , drive prices down [and vice versa when firms make loss]

→ This creates "Long Run Supply Curve" (flat perfectly elastic line at $p = p_{market}$)